



MAXXAM ANALYTICS  
#1 2080 39 Ave. NE, Calgary, AB  
T2E 6P7

maxxam.ca  
Toll Free 800-386-7247  
Fax 403-219-3673

(REVISION)

**AMBIENT AIR MONITORING MONTHLY DATA REPORT**  
**PEACE RIVER AREA MONITORING PROGRAM COMMITTEE**  
**RENO STATION**

**JOB #: 196-2018-11-93-C**

**November 2018**

Prepared for:

**PEACE RIVER AREA MONITORING PROGRAM COMMITTEE**

**Attention: LILY LIN**

**DATE: January 7, 2019**

This report supersedes all previous reports with the same Maxxam project number.

Prepared by:

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Wunmi Adekanmbi, M.Sc., EPT, PMP  
Project Team Lead, Customer Service, Air Services

Reviewed by:

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Cheri Sinclair, B.Sc.  
Supervisor, Customer Service, Air Services

## **SUMMARY**

This is a revision. Station Temperature readings recorded in the Monthly Continuous Data Summary (Page 3) were updated.

In November 2018, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Reno Station, near Peace River Oil Sands Area 1, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for non-compliance parameters, as requested by the PRAMP Committee.

All data collected this month was compliant with the requirements outlined in the Air Monitoring Directive (Alberta Environment and Parks, 2016).

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0, Discussion. On this basis, Maxxam Analytics is issuing this completed report to Peace River Area Monitoring Program Committee.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3661 or toll-free at 1-800-386-7247.

## Monthly Continuous Data Summary

| Peace River Area Monitoring Program Committee |            |       |             |       |                    | MAXIMUM VALUES |     |      |                        |                               |         |     | OPERATIONAL<br>TIME<br>(%) |
|-----------------------------------------------|------------|-------|-------------|-------|--------------------|----------------|-----|------|------------------------|-------------------------------|---------|-----|----------------------------|
| Reno Station                                  |            |       |             |       |                    | 1-HOUR         |     |      |                        |                               | 24-HOUR |     |                            |
| PARAMETER                                     | OBJECTIVES |       | EXCEEDANCES |       | MONTHLY<br>AVERAGE | READING        | DAY | HOUR | WIND<br>SPEED<br>(kph) | WIND<br>DIRECTION<br>(sector) | READING | DAY |                            |
|                                               | 1-hr       | 24-hr | 1-hr        | 24-hr |                    |                |     |      |                        |                               |         |     |                            |
| SO <sub>2</sub><br>(ppb)                      | 172        | 48    | 0           | 0     | 0                  | 1              | 8   | 8    | 1.6                    | SSW                           | 0       | 1   | 100.0                      |
| TRS<br>(ppb)                                  | -          | -     | -           | -     | 0.37               | 0.71           | 4   | 7    | 12.3                   | NNE                           | 0.44    | 7   | 100.0                      |
| THC<br>(ppm)                                  | -          | -     | -           | -     | 2.08               | 3.58           | 8   | 4    | 1.4                    | S                             | 2.42    | 13  | 100.0                      |
| CH <sub>4</sub><br>(ppm)                      | -          | -     | -           | -     | 2.08               | 3.58           | 8   | 4    | 1.4                    | S                             | 2.42    | 13  | 100.0                      |
| NMHC<br>(ppm)                                 | -          | -     | -           | -     | 0.00               | 0.04           | 13  | 2    | 3.7                    | SSW                           | 0.00    | 1   | 100.0                      |
| RELATIVE<br>HUMIDITY<br>(%)                   | -          | -     | -           | -     | 79                 | 94             | 3   | 4    | 4.1                    | NW                            | 91      | 29  | 100.0                      |
| BAROMETRIC<br>PRESSURE<br>(millibar)          | -          | -     | -           | -     | 937                | 958            | 11  | 11   | 1.8                    | NNE                           | 956     | 16  | 100.0                      |
| AMBIENT<br>TEMPERATURE<br>(°C)                | -          | -     | -           | -     | -5.2               | 5.7            | 13  | 21   | 12.0                   | WSW                           | 1.0     | 13  | 100.0                      |
| STATION<br>TEMPERATURE<br>(°C)                | -          | -     | -           | -     | 22.6               | 24.7           | 8   | 9    | 1.7                    | SSW                           | 23.5    | 19  | 100.0                      |
| VECTOR WS<br>(kph)                            | -          | -     | -           | -     | 1.0                | 14.9           | 15  | 19   | -                      | N                             | 10.1    | 4   | 100.0                      |
| VECTOR WD<br>(sec)                            | -          | -     | -           | -     | 201 (SSW)          | -              | -   | -    | -                      | -                             | -       | -   | 100.0                      |

**SOUR GAS PROCESSING INDUSTRY**  
**MONTHLY REPORT SUMMARY**

**Reno Station**

**Peace River Area Monitoring Program Committee**

Plant Name / Location

Company

| Licence Number | Report Date |          |
|----------------|-------------|----------|
|                | YEAR        | MONTH    |
| N/A            | 2018        | November |

| CONTINUOUS AMBIENT MONITORING |                    |                    |     |                           |                |     |                           |
|-------------------------------|--------------------|--------------------|-----|---------------------------|----------------|-----|---------------------------|
|                               |                    | ONE - HOUR AVERAGE |     | 24 - HOUR AVERAGE         |                |     |                           |
| PARAMETER                     | % TIME OPERATIONAL | MAXIMUM VALUES     |     | NO. READINGS > REGULATION | MAXIMUM VALUES |     | NO. READINGS > REGULATION |
| SO <sub>2</sub>               | 100.0              | 0.001              | ppm | 0                         | 0.000          | ppm | 0                         |
| TRS                           | 100.0              | 0.001              | ppm | -                         | 0.000          | ppm | -                         |
| THC                           | 100.0              | 3.58               | ppm | -                         | 2.42           | ppm | -                         |
| CH <sub>4</sub>               | 100.0              | 3.58               | ppm | -                         | 2.42           | ppm | -                         |
| NMHC                          | 100.0              | 0.04               | ppm | -                         | 0.00           | ppm | -                         |
| RH                            | 100.0              | 94                 | %   | -                         | 91             | %   | -                         |
| BP                            | 100.0              | 958                | mb  | -                         | 956            | mb  | -                         |
| Ambient TPX                   | 100.0              | 5.7                | °C  | -                         | 1.0            | °C  | -                         |
| Station TPX                   | 100.0              | 20.2               | °C  | -                         | 24.7           | °C  | -                         |
| Wind Speed                    | 100.0              | 14.9               | kph | -                         | 10.1           | kph | -                         |
| Wind Direction                | 100.0              | -                  |     | -                         | -              |     | -                         |

|                                     |
|-------------------------------------|
|                                     |
| SIGNATURE OF COMPANY REPRESENTATIVE |

|                                  |
|----------------------------------|
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## Exceedance Summary Report

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### SO<sub>2</sub> 1-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 1-hour AAAQO of 172 ppb.

### SO<sub>2</sub> 24-Hour Exceedances

Measured concentrations of sulphur dioxide were below the 24-hour AAAQO of 48.0 ppb.

*In accordance with EPEA and the Substance Release Regulation.*

*In accordance with A Guide to Release Reporting and the Alberta Ambient Air Quality Objectives and Guidelines Summary.*

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## 1.0 Discussion

This monthly report consists of continuous monitoring results for the following parameters: Sulphur Dioxide (SO<sub>2</sub>), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH<sub>4</sub>), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX), Wind Speed (WS) and Wind Direction (WD).

The sample inlet filter for all continuous air analyzers are replaced before the calibration begins. The sample manifold is cleaned during the site visit each month.

Control checks, consisting of a zero and span, are conducted daily on all continuous air monitors. In place of the air sample, zero air (from scrubbed air or gas cylinders) is used for zero checks, and a known concentration of the pollutant being analyzed is used for span checks. These checks are controlled by automatic timers and valves. The total zero span cycle is completed within an hour, the commencement of the zero span cycle is at the beginning of the hour.

Multipoint calibrations are done a minimum of once a month for each continuous air monitor. An additional calibration is required under the following conditions: 1) within three days after the initial start-up and stabilization of a newly installed instrument, 2) prior to shut-down or moving of an instrument which has been working to specification, and 3) when major repair has been done on the instrument.

Time during the first multi-point calibration is not considered downtime (Data is flagged as C). If more than one calibration is performed during the month, the time during the additional calibration is considered as downtime (Data is flagged as C1).

Only one zero/span check is run per day. Time during the zero/span check is not considered as downtime (Data is flagged as S). If an extra zero/span check is performed, the time during the additional check is considered as downtime (Data is flagged as S1).

The AMD requires each instrument and accompanying data recording system to be operational 90% of the time, at a minimum, for each monthly monitoring period.

All sampling, analysis, and QA/QC for this project was performed by Maxxam Analytics and complies with the Alberta Air Monitoring Directive.

Data contained in this monthly report has undergone verification and validation based on the requirements of the AMD (December, 2016) Chapter 6: Ambient Data Quality and Chapter 9: Reporting. The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purposes and has not undergone zero correction. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

Hourly/minute data have been reviewed based on daily zero/span results and multi-point calibration results. Data may be considered invalid if a zero-corrected span check in excess of +/- 10% of the span concentration (established by the previous multi-point calibration) is encountered and/or significant differences in the calibration factor occurs (greater than 10%).

#### **SULPHUR DIOXIDE (SO<sub>2</sub>)**

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on November 8.

#### **TOTAL REDUCED SULPHUR (TRS)**

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on November 8.

#### **TOTAL HYDROCARBONS (THC), METHANE (CH<sub>4</sub>) and NON-METHANE HYDROCARBONS (NMHC)**

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on November 8.
- The span gas and the fuel gas (H<sub>2</sub>) cylinders were replaced on November 8 and November 22 respectively.
- One instance of maximum instantaneous data was discarded on November 24 at hour 20:00, as the data was considered invalid likely due to issues from the data-logger configuration.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month. A trigger test was performed during the routine monthly calibration on November 8 to assess the effectiveness of the canister system. No deficiencies were found.

#### **WIND SPEED (WS) and WIND DIRECTION (WD)**

- Operational time for the monitoring period was 100%.
- An anemometer sensor check was conducted on November 8. The result was satisfactory.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

#### **RELATIVE HUMIDITY (RH)**

- Operational time for the monitoring period was 100%.
- A humidity sensor check was conducted on November 8. The result was satisfactory.

#### **BAROMETRIC PRESSURE (BP)**

- Operational time for the monitoring period was 100%.
- A pressure sensor check was conducted on November 8. The result was satisfactory.

#### **AMBIENT TEMPERATURE (AmbTPX)**

- Operational time for the monitoring period was 100%.
- A temperature sensor check was conducted on November 8. The result was satisfactory.

#### **STATION TEMPERATURE (StnTPX)**

- Operational time for the monitoring period was 100%.

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## **2.0 Project Personnel**

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field technicians were Limin Li and Christopher Wesson.

## **3.0 Plant Monthly Required AMD Summary**

All data collected this month was compliant with the requirements outlined in the Air Monitoring Directive (Alberta Environment and Parks, 2016).

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

## **4.0 Calculations and Results**

All calculations and reporting of results follow the methods described in the AMD, 2016.

## **5.0 Methods and Procedures**

The following methods and procedures were used to complete the monitoring program:

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

Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - API 100A UV Fluorescent Analyzer

Total Reduced Sulphur - Thermo 43i - TLE UV Fluorescent Analyzer

Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - Envidas Ultimate

The following steps were used to complete the data verification and validation process:

**Level 0 Preliminary Verification**

Level 0 data are raw data obtained directly from the data acquisition system (DAS). Under the step of Level 0, these data undergo a certain amount of manual or automated screening and flagging. It included a) identification of periods of missing data; b) verification of time stamps against reference time; c) verification that instrument diagnostics/datalogger flags indicate normal operation; d) comparison of data to upper and lower limits; e) rate of change flagging indicating that data changed too rapidly or not at all; and f) verification that zero, span and multipoint performance checks are within specifications. This level of verification is performed on a daily basis.

**Level 1 Primary Validation**

Validation actions under the step of Level 1 include a) review of all screening flags assigned during preliminary verification; b) review of all supporting site information and documentation; c) review of operational acceptance limits for each parameter/analyzer; d) review of daily zero/span and monthly calibration results for all gaseous parameters; and e) application of any necessary adjustments to data (e.g. baseline adjustments, below zero adjustments). This level of validation is performed on a monthly basis.

**Level 2 Final Validation**

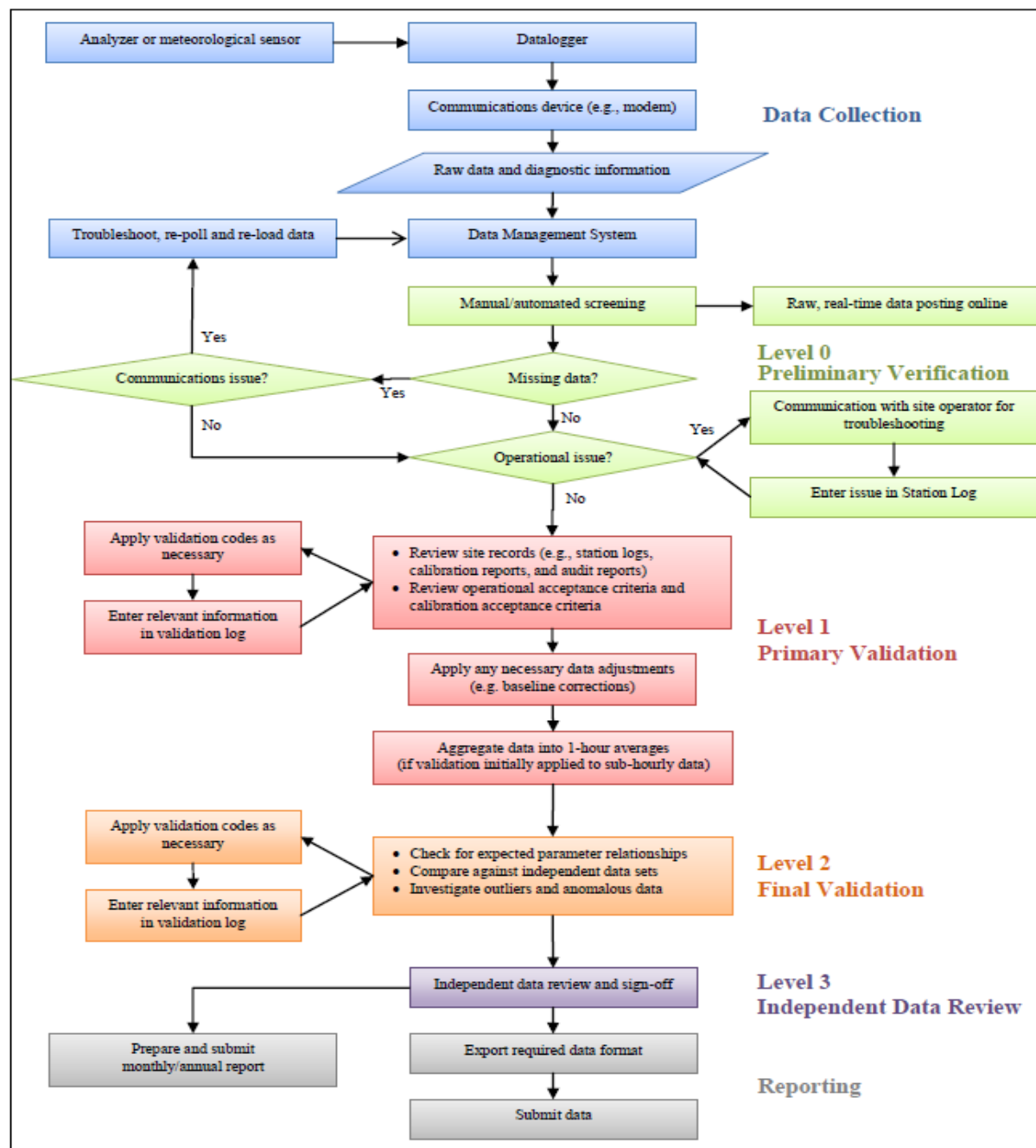
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

**Level 3 Independent Data Review**

Level 3 validation is the last step of data review, and it is completed by an individual that is independent of both field operations and primary data validation. A final independent QA review and endorsement is performed during this step before data is submitted to Alberta Environment.

**Post-Final Validation**

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. Any data issues or patterns which were not clear on a monthly basis are highlighted during this step. This validation is performed on an annual basis.



Source: Air Monitoring Directive (December 2016), Chapter 6, Ambient Data Quality; Figure 1 Data Collection and Management Process Flow Chart

***APPENDIX I***  
***CONTINUOUS MONITORING DATA RESULTS***

## ***SULPHUR DIOXIDE***

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

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|------------|------------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 |            |            |            |       |
| DAY 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          | 24    |
| 2              | 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          | 24    |
| 3              | 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          | 24    |
| 4              | 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          | 24    |
| 5              | 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          | 24    |
| 6              | 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          | 24    |
| 7              | 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          | 24    |
| 8              | 0    | 0    | 0    | 0    | 0    | S    | 0    | 1    | C    | C    | C     | C     | 0     | 0     | 1     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0          | 1          | 0          | 24    |
| 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          | 24    |
| 10             | 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          | 24    |
| 11             | 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          | 24    |
| 12             | 0    | S    | 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          | 24    |
| 13             | S    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0     | 0     | 0     | 1     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0          | 1          | 0          | 24    |
| 14             | S    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | S     | 0          | 0          | 0          | 24    |
| 15             | 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          | 24    |
| 16             | 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          | 24    |
| 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     | 0          | 0          | 0          | 24    |
| 18             | 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          | 24    |
| 19             | 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          | 24    |
| 20             | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 1     | S     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0          | 1          | 0          | 24    |
| 21             | 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          | 24    |
| 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          | 24    |
| 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          | 24    |
| 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          | 24    |
| 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          | 24    |
| 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          | 24    |
| 27             | 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          | 24    |
| 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          | 24    |
| 29             | 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          | 24    |
| 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          | 24    |
| HOURLY MAX     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0     | 0     | 0     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0          | 0          | 0          | 24    |
| HOURLY AVG     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0          | 0          | 0          | 24    |

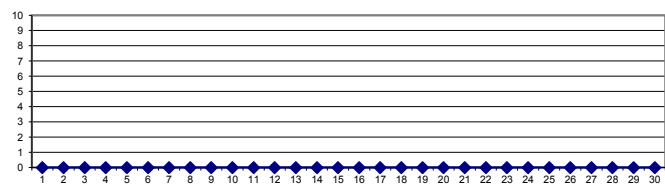
**STATUS FLAG CODES**

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

**OBJECTIVE LIMIT:**

|                      |      |     |     |       |    |     |
|----------------------|------|-----|-----|-------|----|-----|
| ALBERTA ENVIRONMENT: | 1-HR | 172 | ppb | 24-HR | 48 | ppb |
|----------------------|------|-----|-----|-------|----|-----|

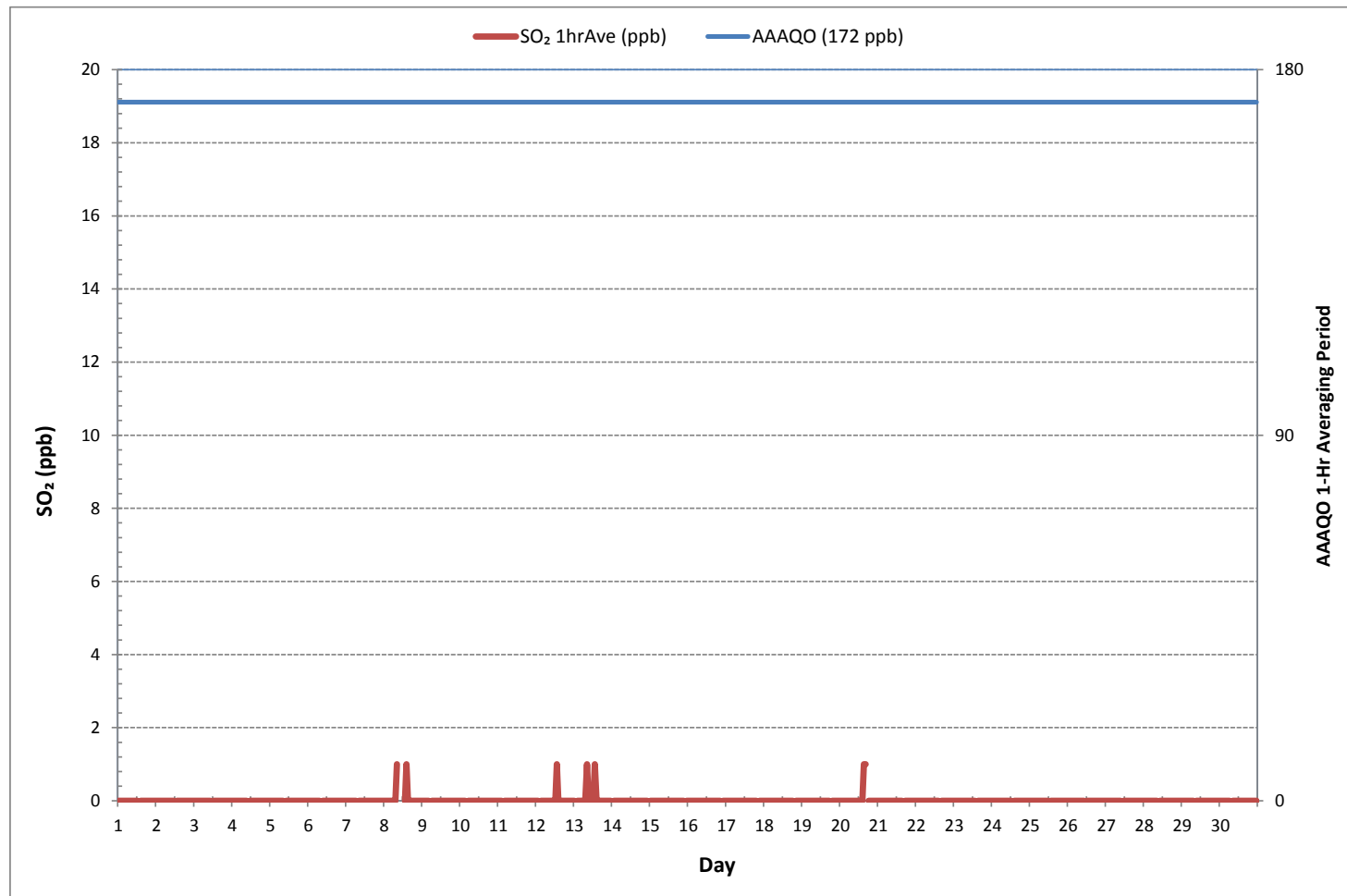
**24 HR AVERAGES November 2018**



**MONTHLY SUMMARY**

|                              |    |            |                       |        |     |
|------------------------------|----|------------|-----------------------|--------|-----|
| NUMBER OF 1-HR EXCEEDANCES:  |    | 0          |                       |        |     |
| NUMBER OF 24-HR EXCEEDANCES: |    | 0          |                       |        |     |
| NUMBER OF NON-ZERO READINGS: |    | 7          |                       |        |     |
| MINIMUM 1-HR AVERAGE:        | 0  | ppb @ HOUR | 0                     | ON DAY | 1   |
| MAXIMUM 1-HR AVERAGE:        | 1  | ppb @ HOUR | 8                     | ON DAY | 8   |
| MAXIMUM 24-HR AVERAGE:       | 0  | ppb        |                       | ON DAY | 1   |
|                              |    |            |                       |        |     |
| IZS CALIBRATION TIME:        | 31 | hrs        | OPERATIONAL TIME:     | 720    | hrs |
| MONTHLY CALIBRATION TIME:    | 4  | hrs        | AMD OPERATION UPTIME: | 100.0  | %   |
| STANDARD DEVIATION:          | 0  |            | MONTHLY AVERAGE:      | 0      | ppb |

SULPHUR DIOXIDE Hourly Averages (SO<sub>2</sub> ppb)



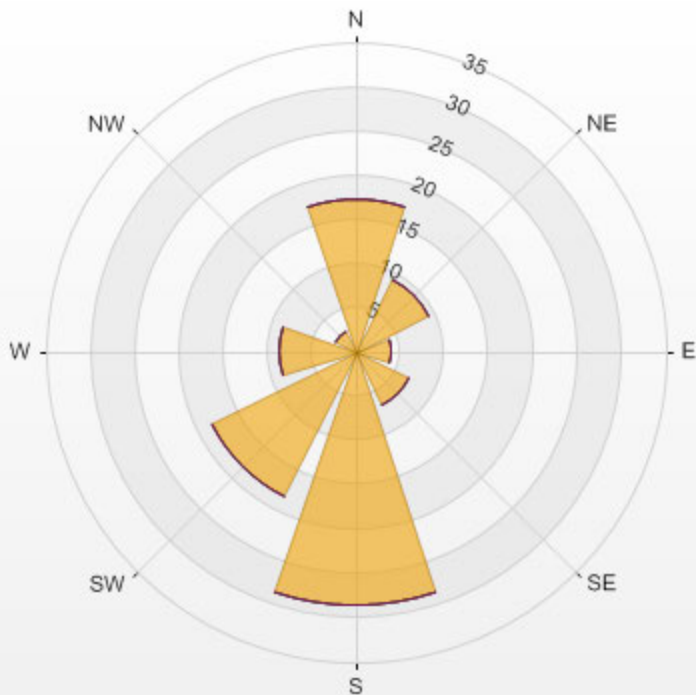
Wind: PRAMP\_RENO  
Poll.: PRAMP\_RENO-SO<sub>2</sub> [ppb]  
Monthly: 18/11  
Type: PollutionRose  
Direction: Blowing From (Wind Frequency)  
Based On 1 Hr.

Calm: 4.23%

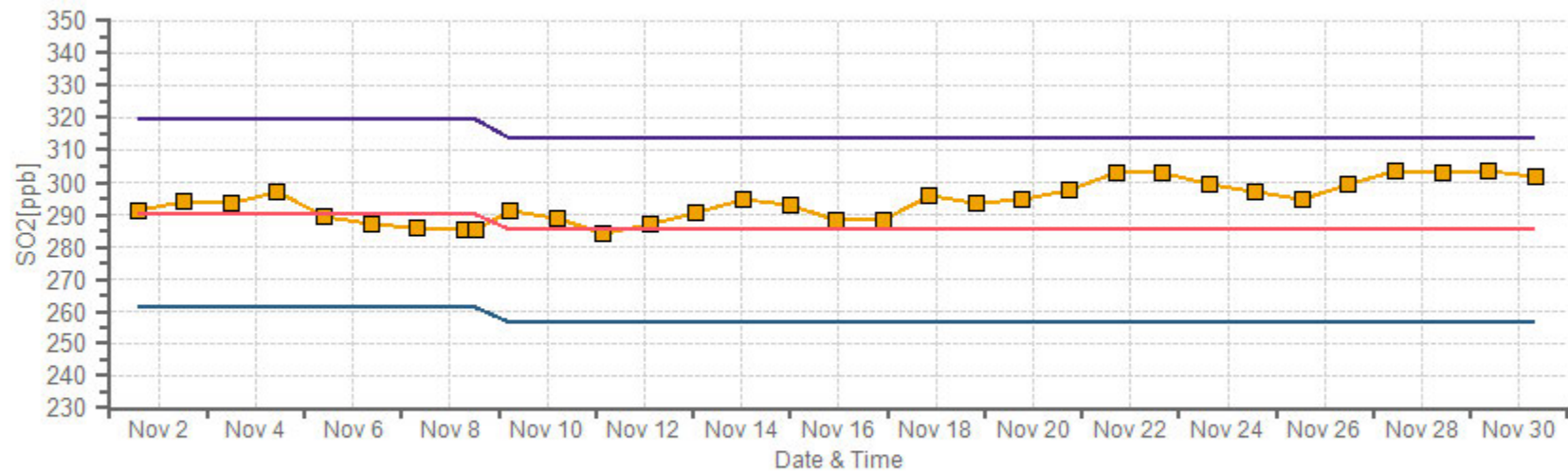
Calm Avg: 0.05 [ppb]

| Direction | 0-3  | 3-10 | 10-85 | 85-170 | >170.0 | Total |
|-----------|------|------|-------|--------|--------|-------|
| N         | 17.4 | 0.0  | 0.0   | 0.0    | 0.0    | 17.4  |
| NE        | 9.2  | 0.0  | 0.0   | 0.0    | 0.0    | 9.2   |
| E         | 4.1  | 0.0  | 0.0   | 0.0    | 0.0    | 4.1   |
| SE        | 6.9  | 0.0  | 0.0   | 0.0    | 0.0    | 6.9   |
| S         | 28.8 | 0.0  | 0.0   | 0.0    | 0.0    | 28.8  |
| SW        | 18.3 | 0.0  | 0.0   | 0.0    | 0.0    | 18.3  |
| W         | 8.6  | 0.0  | 0.0   | 0.0    | 0.0    | 8.6   |
| NW        | 2.6  | 0.0  | 0.0   | 0.0    | 0.0    | 2.6   |
| Summary   | 95.8 | 0.0  | 0.0   | 0.0    | 0.0    | 95.8  |

**PRAMP\_RENO Poll.: PRAMP\_RENO-SO<sub>2</sub>[ppb] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.23% Calm Poll Avg: 0.05[ppb]**



SO<sub>2</sub>[ppb] Calibration: PRAMP\_RENO Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

***TOTAL REDUCED SULPHUR***

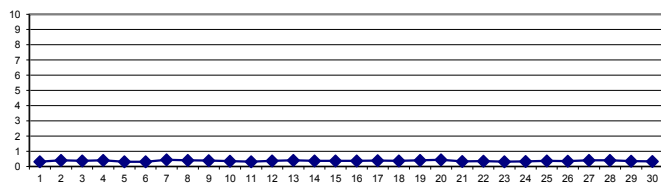
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|------------|------------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 |            |            |            |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |            |            |            |       |    |
| 1              | 0.34 | 0.35 | 0.34 | 0.35 | 0.39 | 0.37 | 0.35 | 0.31 | 0.31 | 0.35 | 0.31  | 0.28  | 0.29  | S     | 0.31  | 0.32  | 0.29  | 0.30  | 0.29  | 0.30  | 0.30  | 0.29  | 0.28  | 0.28  | 0.28       | 0.28       | 0.39       | 0.32  | 24 |
| 2              | 0.30 | 0.30 | 0.31 | 0.33 | 0.33 | 0.35 | 0.34 | 0.36 | 0.34 | 0.32 | 0.33  | 0.33  | S     | 0.37  | 0.38  | 0.41  | 0.46  | 0.41  | 0.46  | 0.65  | 0.58  | 0.70  | 0.57  | 0.52  | 0.30       | 0.70       | 0.41       | 24    |    |
| 3              | 0.43 | 0.45 | 0.45 | 0.43 | 0.50 | 0.46 | 0.41 | 0.34 | 0.35 | 0.34 | 0.34  | S     | 0.36  | 0.35  | 0.34  | 0.33  | 0.35  | 0.34  | 0.33  | 0.34  | 0.33  | 0.31  | 0.30  | 0.30  | 0.30       | 0.50       | 0.37       | 24    |    |
| 4              | 0.32 | 0.31 | 0.34 | 0.32 | 0.32 | 0.35 | 0.43 | 0.71 | 0.54 | 0.40 | S     | 0.35  | 0.33  | 0.32  | 0.35  | 0.44  | 0.54  | 0.49  | 0.48  | 0.39  | 0.36  | 0.38  | 0.37  | 0.37  | 0.31       | 0.71       | 0.40       | 24    |    |
| 5              | 0.38 | 0.35 | 0.32 | 0.30 | 0.31 | 0.31 | 0.30 | 0.29 | S    | 0.33 | 0.30  | 0.31  | 0.33  | 0.33  | 0.34  | 0.32  | 0.31  | 0.31  | 0.31  | 0.30  | 0.28  | 0.28  | 0.30  | 0.28  | 0.38       | 0.38       | 0.31       | 24    |    |
| 6              | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | S    | 0.35 | 0.39 | 0.33  | 0.29  | 0.30  | 0.31  | 0.28  | 0.29  | 0.30  | 0.31  | 0.36  | 0.38  | 0.36  | 0.37  | 0.37  | 0.27  | 0.39       | 0.39       | 0.31       | 24    |    |
| 7              | 0.37 | 0.37 | 0.34 | 0.42 | 0.39 | 0.36 | 0.37 | S    | 0.54 | 0.43 | 0.46  | 0.44  | 0.43  | 0.48  | 0.46  | 0.43  | 0.37  | 0.45  | 0.39  | 0.34  | 0.51  | 0.56  | 0.63  | 0.53  | 0.34       | 0.63       | 0.44       | 24    |    |
| 8              | 0.51 | 0.55 | 0.59 | 0.47 | 0.65 | 0.53 | S    | 0.49 | 0.40 | C    | C     | C     | C     | C     | 0.32  | 0.29  | 0.28  | 0.31  | 0.31  | 0.27  | 0.30  | 0.33  | 0.35  | 0.36  | 0.27       | 0.65       | 0.41       | 24    |    |
| 9              | 0.36 | 0.37 | 0.38 | 0.38 | 0.38 | S    | 0.42 | 0.39 | 0.42 | 0.43 | 0.40  | 0.41  | 0.39  | 0.39  | 0.40  | 0.40  | 0.38  | 0.39  | 0.39  | 0.39  | 0.37  | 0.38  | 0.38  | 0.38  | 0.36       | 0.43       | 0.39       | 24    |    |
| 10             | 0.38 | 0.38 | 0.35 | 0.34 | S    | 0.42 | 0.40 | 0.37 | 0.35 | 0.36 | 0.35  | 0.37  | 0.37  | 0.38  | 0.35  | 0.36  | 0.34  | 0.35  | 0.34  | 0.34  | 0.34  | 0.34  | 0.34  | 0.35  | 0.34       | 0.42       | 0.36       | 24    |    |
| 11             | 0.34 | 0.36 | 0.36 | S    | 0.34 | 0.32 | 0.33 | 0.33 | 0.33 | 0.32 | 0.33  | 0.32  | 0.33  | 0.31  | 0.33  | 0.32  | 0.32  | 0.31  | 0.32  | 0.32  | 0.29  | 0.29  | 0.30  | 0.32  | 0.29       | 0.36       | 0.32       | 24    |    |
| 12             | 0.32 | 0.33 | S    | 0.37 | 0.41 | 0.37 | 0.36 | 0.35 | 0.37 | 0.38 | 0.37  | 0.36  | 0.36  | 0.37  | 0.35  | 0.38  | 0.35  | 0.42  | 0.43  | 0.38  | 0.41  | 0.41  | 0.38  | 0.37  | 0.32       | 0.43       | 0.37       | 24    |    |
| 13             | 0.39 | S    | 0.48 | 0.46 | 0.42 | 0.38 | 0.43 | 0.42 | 0.47 | 0.42 | 0.38  | 0.39  | 0.41  | 0.38  | 0.39  | 0.38  | 0.36  | 0.38  | 0.38  | 0.42  | 0.39  | 0.33  | 0.33  | 0.34  | 0.33       | 0.48       | 0.40       | 24    |    |
| 14             | S    | 0.41 | 0.35 | 0.36 | 0.36 | 0.38 | 0.40 | 0.36 | 0.36 | 0.36 | 0.36  | 0.35  | 0.34  | 0.33  | 0.32  | 0.35  | 0.35  | 0.41  | 0.40  | 0.37  | 0.38  | 0.38  | 0.38  | S     | 0.32       | 0.41       | 0.37       | 24    |    |
| 15             | 0.39 | 0.37 | 0.37 | 0.37 | 0.36 | 0.38 | 0.39 | 0.39 | 0.38 | 0.38 | 0.37  | 0.35  | 0.35  | 0.36  | 0.35  | 0.36  | 0.35  | 0.34  | 0.35  | 0.36  | 0.39  | 0.44  | S     | 0.46  | 0.34       | 0.46       | 0.37       | 24    |    |
| 16             | 0.45 | 0.41 | 0.39 | 0.38 | 0.36 | 0.35 | 0.37 | 0.34 | 0.34 | 0.34 | 0.45  | 0.37  | 0.39  | 0.36  | 0.35  | 0.34  | 0.39  | 0.36  | 0.35  | 0.42  | 0.41  | S     | 0.42  | 0.39  | 0.34       | 0.45       | 0.38       | 24    |    |
| 17             | 0.41 | 0.37 | 0.40 | 0.40 | 0.39 | 0.35 | 0.35 | 0.36 | 0.39 | 0.39 | 0.37  | 0.39  | 0.38  | 0.37  | 0.39  | 0.40  | 0.39  | 0.50  | 0.40  | 0.38  | S     | 0.38  | 0.37  | 0.37  | 0.35       | 0.50       | 0.39       | 24    |    |
| 18             | 0.38 | 0.36 | 0.32 | 0.33 | 0.32 | 0.33 | 0.33 | 0.34 | 0.40 | 0.40 | 0.37  | 0.37  | 0.39  | 0.39  | 0.39  | 0.40  | 0.41  | 0.40  | 0.41  | S     | 0.40  | 0.35  | 0.35  | 0.41  | 0.32       | 0.41       | 0.37       | 24    |    |
| 19             | 0.42 | 0.45 | 0.44 | 0.43 | 0.43 | 0.41 | 0.37 | 0.38 | 0.37 | 0.36 | 0.36  | 0.35  | 0.36  | 0.36  | 0.38  | 0.38  | 0.37  | S     | 0.40  | 0.44  | 0.39  | 0.41  | 0.50  | 0.35  | 0.50       | 0.40       | 24         |       |    |
| 20             | 0.47 | 0.52 | 0.47 | 0.49 | 0.50 | 0.54 | 0.45 | 0.40 | 0.41 | 0.42 | 0.48  | 0.40  | 0.40  | 0.42  | 0.40  | 0.52  | 0.57  | S     | 0.43  | 0.42  | 0.39  | 0.38  | 0.37  | 0.36  | 0.36       | 0.57       | 0.44       | 24    |    |
| 21             | 0.40 | 0.35 | 0.32 | 0.30 | 0.30 | 0.33 | 0.34 | 0.28 | 0.30 | 0.31 | 0.31  | 0.30  | 0.32  | 0.33  | 0.32  | 0.33  | S     | 0.32  | 0.33  | 0.33  | 0.30  | 0.34  | 0.35  | 0.38  | 0.28       | 0.40       | 0.33       | 24    |    |
| 22             | 0.40 | 0.38 | 0.41 | 0.40 | 0.34 | 0.34 | 0.33 | 0.34 | 0.34 | 0.35 | 0.32  | 0.32  | 0.33  | 0.35  | 0.34  | S     | 0.37  | 0.35  | 0.33  | 0.32  | 0.34  | 0.32  | 0.32  | 0.31  | 0.31       | 0.41       | 0.35       | 24    |    |
| 23             | 0.31 | 0.31 | 0.32 | 0.35 | 0.35 | 0.35 | 0.33 | 0.34 | 0.33 | 0.32 | 0.32  | 0.31  | 0.31  | 0.32  | S     | 0.35  | 0.33  | 0.31  | 0.31  | 0.30  | 0.31  | 0.31  | 0.32  | 0.31  | 0.30       | 0.35       | 0.32       | 24    |    |
| 24             | 0.32 | 0.33 | 0.31 | 0.32 | 0.32 | 0.31 | 0.32 | 0.33 | 0.32 | 0.32 | 0.34  | 0.35  | 0.36  | S     | 0.37  | 0.36  | 0.34  | 0.35  | 0.35  | 0.34  | 0.34  | 0.35  | 0.33  | 0.35  | 0.31       | 0.37       | 0.34       | 24    |    |
| 25             | 0.37 | 0.39 | 0.42 | 0.39 | 0.36 | 0.36 | 0.40 | 0.42 | 0.37 | 0.37 | 0.37  | 0.36  | S     | 0.39  | 0.35  | 0.35  | 0.34  | 0.34  | 0.34  | 0.34  | 0.33  | 0.34  | 0.36  | 0.36  | 0.33       | 0.42       | 0.37       | 24    |    |
| 26             | 0.33 | 0.35 | 0.33 | 0.33 | 0.34 | 0.32 | 0.33 | 0.34 | 0.32 | 0.33 | 0.34  | S     | 0.39  | 0.39  | 0.39  | 0.42  | 0.40  | 0.39  | 0.37  | 0.38  | 0.37  | 0.39  | 0.42  | 0.40  | 0.32       | 0.42       | 0.36       | 24    |    |
| 27             | 0.39 | 0.38 | 0.38 | 0.39 | 0.40 | 0.42 | 0.42 | 0.42 | 0.41 | 0.42 | S     | 0.42  | 0.41  | 0.39  | 0.39  | 0.40  | 0.44  | 0.44  | 0.44  | 0.40  | 0.38  | 0.40  | 0.41  | 0.44  | 0.38       | 0.44       | 0.41       | 24    |    |
| 28             | 0.41 | 0.43 | 0.41 | 0.43 | 0.49 | 0.46 | 0.41 | 0.50 | 0.55 | S    | 0.45  | 0.35  | 0.35  | 0.34  | 0.36  | 0.35  | 0.37  | 0.35  | 0.36  | 0.36  | 0.35  | 0.35  | 0.35  | 0.35  | 0.34       | 0.55       | 0.40       | 24    |    |
| 29             | 0.35 | 0.34 | 0.35 | 0.35 | 0.32 | 0.33 | 0.33 | 0.33 | S    | 0.40 | 0.39  | 0.37  | 0.34  | 0.33  | 0.32  | 0.33  | 0.34  | 0.34  | 0.33  | 0.34  | 0.33  | 0.32  | 0.34  | 0.41  | 0.32       | 0.41       | 0.35       | 24    |    |
| 30             | 0.39 | 0.32 | 0.31 | 0.29 | 0.30 | 0.32 | 0.31 | S    | 0.33 | 0.32 | 0.32  | 0.32  | 0.34  | 0.33  | 0.33  | 0.33  | 0.34  | 0.33  | 0.34  | 0.34  | 0.34  | 0.31  | 0.33  | 0.34  | 0.29       | 0.39       | 0.33       | 24    |    |
| HOURLY MAX     | 0.51 | 0.55 | 0.59 | 0.49 | 0.65 | 0.54 | 0.45 | 0.71 | 0.55 | 0.43 | 0.48  | 0.44  | 0.43  | 0.48  | 0.46  | 0.52  | 0.57  | 0.50  | 0.48  | 0.65  | 0.58  | 0.70  | 0.63  | 0.53  |            |            |            |       |    |
| HOURLY AVG     | 0.38 | 0.37 | 0.37 | 0.37 | 0.38 | 0.37 | 0.37 | 0.38 | 0.38 | 0.37 | 0.37  | 0.35  | 0.36  | 0.36  | 0.36  | 0.37  | 0.37  | 0.37  | 0.36  | 0.37  | 0.37  | 0.37  | 0.37  | 0.38  |            |            |            |       |    |

STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

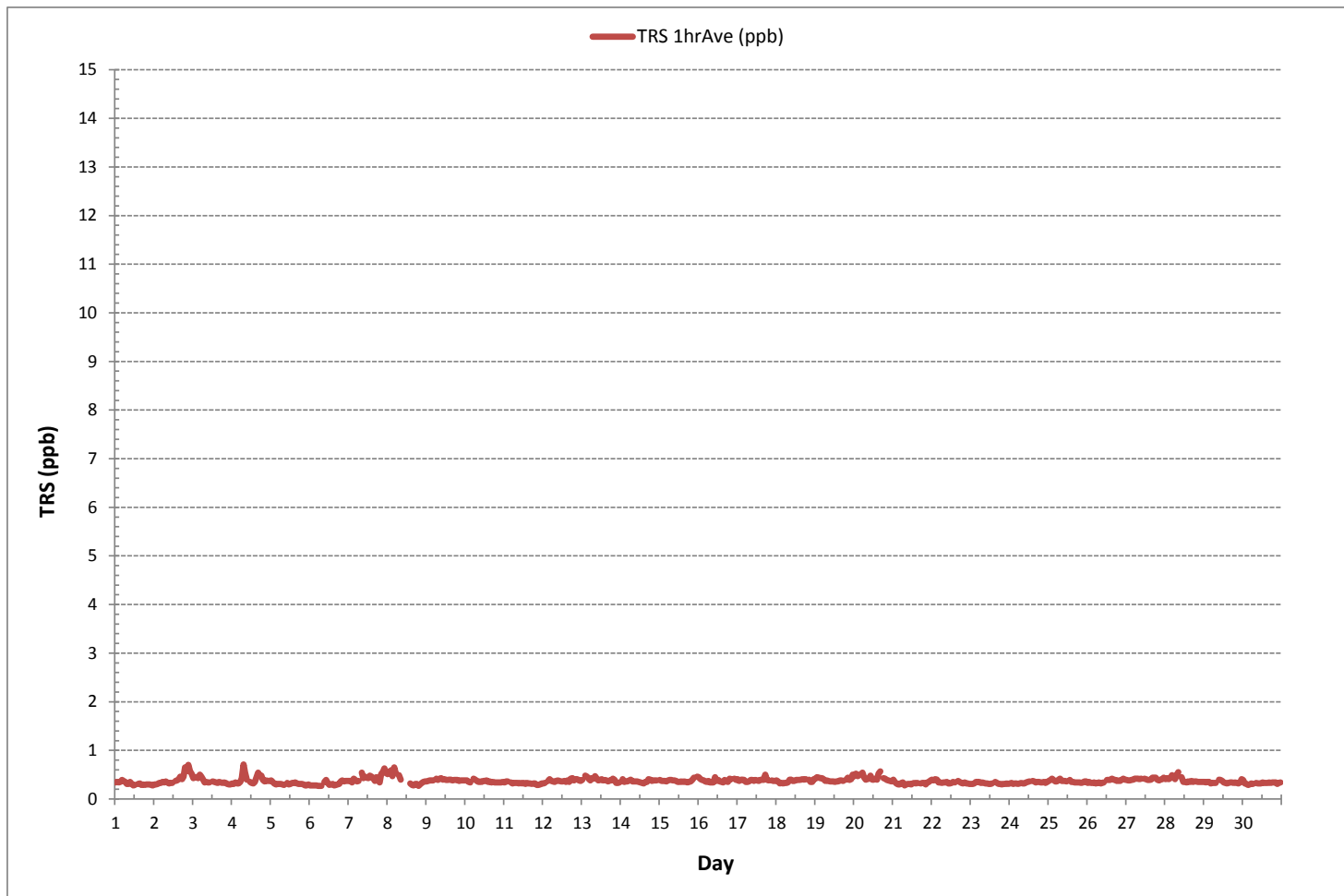
24 HR AVERAGES November 2018



MONTHLY SUMMARY

|                              |      |     |                       |       |        |
|------------------------------|------|-----|-----------------------|-------|--------|
| NUMBER OF NON-ZERO READINGS: | 684  |     |                       |       |        |
| MINIMUM 1-HR AVERAGE:        | 0.27 | ppb | @ HOUR                | 5     | ON DAY |
| MAXIMUM 1-HR AVERAGE:        | 0.71 | ppb | @ HOUR                | 7     | ON DAY |
| MAXIMUM 24-HR AVERAGE:       | 0.44 | ppb |                       |       | ON DAY |
| IZS CALIBRATION TIME:        | 31   | hrs | OPERATIONAL TIME:     | 720   | hrs    |
| MONTHLY CALIBRATION TIME:    | 5    | hrs | AMD OPERATION UPTIME: | 100.0 | %      |
| STANDARD DEVIATION:          | 0.06 |     | MONTHLY AVERAGE:      | 0.37  | ppb    |

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP\_RENO  
Poll.: PRAMP\_RENO-TRS [ppb]  
Monthly: 18/11  
Type: PollutionRose  
Direction: Blowing From (Wind Frequency)  
Based On 1 Hr.

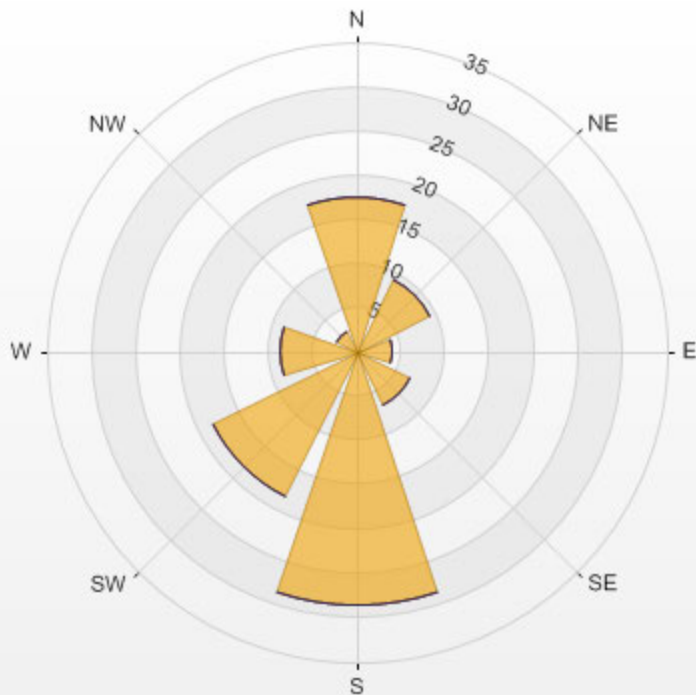
Calm: 4.24%

Calm Avg: 0.38 [ppb]

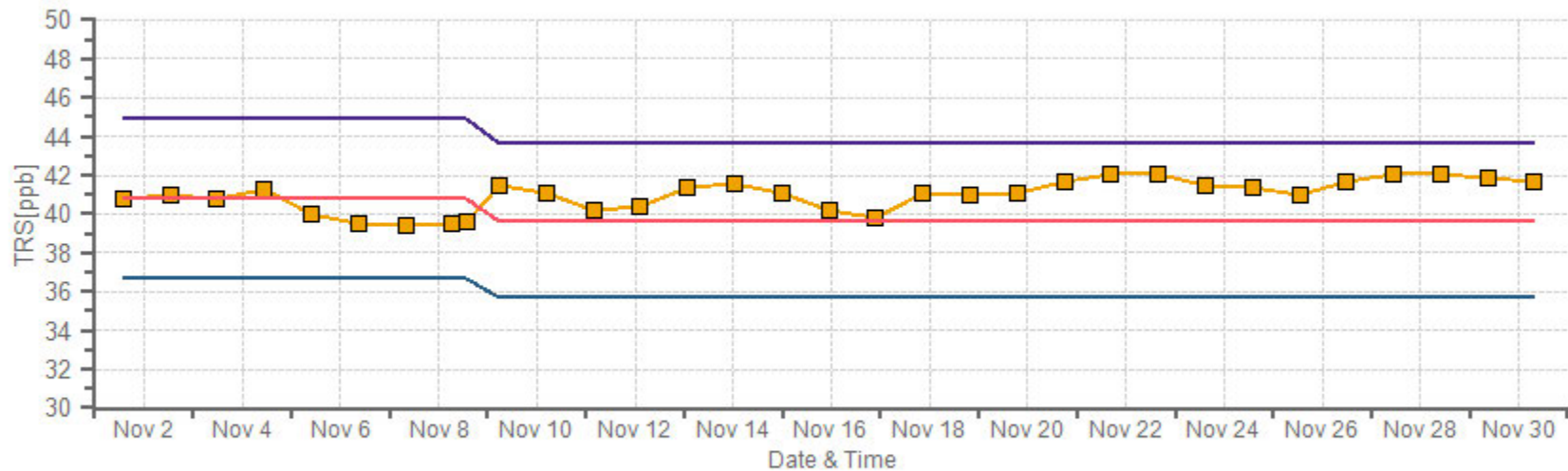
| Direction | 0-1  | 1-3 | 3-10 | >10.0 | Total |
|-----------|------|-----|------|-------|-------|
| N         | 17.4 | 0.0 | 0.0  | 0.0   | 17.4  |
| NE        | 9.2  | 0.0 | 0.0  | 0.0   | 9.2   |
| E         | 4.1  | 0.0 | 0.0  | 0.0   | 4.1   |
| SE        | 6.9  | 0.0 | 0.0  | 0.0   | 6.9   |
| S         | 28.7 | 0.0 | 0.0  | 0.0   | 28.7  |
| SW        | 18.3 | 0.0 | 0.0  | 0.0   | 18.3  |
| W         | 8.6  | 0.0 | 0.0  | 0.0   | 8.6   |
| NW        | 2.6  | 0.0 | 0.0  | 0.0   | 2.6   |
| Summary   | 95.8 | 0.0 | 0.0  | 0.0   | 95.8  |

| % Icon | Classes (ppb) | 96 | 0   | 0    | 0     |
|--------|---------------|----|-----|------|-------|
|        | 0-1           | 0  | 1-3 | 3-10 | >10.0 |

**PRAMP\_RENO Poll.: PRAMP\_RENO-TRS[ppb] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.24% Calm Poll Avg: 0.38[ppb]**



TRS[ppb] Calibration: PRAMP\_RENO Monthly: 18/11 Type: Span



■ Span Meas 
 — Span Ref 
 — Span Low 
 — Span High

***TOTAL HYDROCARBON***



## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

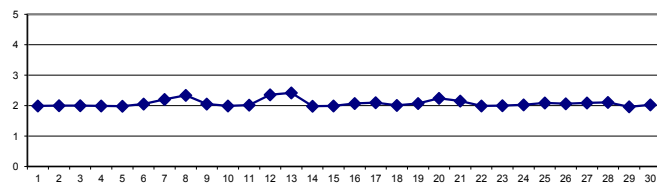
## TOTAL HYDROCARBONS Hourly Averages (THC ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | 1.99 | 1.99  | 2.00  | 2.00  | \$    | 1.98  | 1.97  | 1.97  | 1.98  | 2.00  | 2.01  | 2.00  | 2.01  | 2.00  | 2.00  | 1.97  | 2.01  | 1.99  | 24    |    |
| 2              | 2.00 | 1.99 | 2.00 | 2.01 | 2.01 | 2.00 | 1.99 | 2.01 | 2.02 | 1.99 | 1.99  | 2.01  | \$    | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.05  | 2.01  | 2.02  | 2.02  | 2.03  | 1.99  | 2.05  | 2.00  | 24    |    |
| 3              | 2.03 | 2.06 | 2.06 | 2.05 | 2.02 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00  | \$    | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.00  | 1.99  | 1.99  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 2.06  | 2.00  | 24    |    |
| 4              | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.00 | 2.00 | \$    | 1.98  | 1.98  | 1.97  | 1.97  | 1.98  | 1.99  | 1.99  | 1.98  | 1.98  | 1.98  | 1.97  | 1.98  | 1.98  | 1.97  | 2.01  | 1.99  | 24    |    |
| 5              | 1.98 | 1.98 | 1.98 | 1.97 | 1.97 | 1.98 | 1.98 | 1.98 | 1.97 | \$   | 1.97  | 1.97  | 1.97  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.01  | 1.97  | 2.01  | 1.98  | 24    |    |
| 6              | 2.01 | 1.99 | 1.98 | 1.99 | 1.98 | 1.98 | 1.99 | 1.99 | \$   | 2.00 | 2.01  | 1.99  | 1.99  | 1.98  | 1.98  | 1.99  | 1.99  | 2.00  | 2.01  | 2.43  | 2.78  | 2.13  | 2.03  | 2.03  | 1.98  | 2.78  | 2.05  | 24    |    |
| 7              | 2.02 | 2.03 | 2.03 | 2.16 | 2.17 | 2.05 | 2.12 | \$   | 2.86 | 2.10 | 2.07  | 2.06  | 2.06  | 2.07  | 2.08  | 2.06  | 2.05  | 2.59  | 2.45  | 2.03  | 2.17  | 2.33  | 2.86  | 2.44  | 2.02  | 2.86  | 2.21  | 24    |    |
| 8              | 2.51 | 2.92 | 2.97 | 2.47 | 3.58 | 2.49 | \$   | 2.52 | 2.20 | 2.26 | 2.17  | 2.09  | C     | C     | C     | 2.07  | 2.04  | 2.08  | 2.06  | 2.04  | 2.04  | 2.08  | 2.12  | 2.11  | 2.04  | 3.58  | 2.34  | 24    |    |
| 9              | 2.08 | 2.08 | 2.11 | 2.13 | 2.07 | \$   | 2.04 | 2.07 | 2.05 | 2.06 | 2.02  | 2.03  | 2.04  | 2.04  | 2.05  | 2.05  | 2.07  | 2.09  | 2.10  | 2.01  | 1.99  | 1.99  | 2.00  | 2.00  | 1.99  | 2.13  | 2.05  | 24    |    |
| 10             | 2.00 | 2.00 | 2.00 | 2.00 | \$   | 2.07 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98  | 1.98  | 1.97  | 1.97  | 1.97  | 1.97  | 1.98  | 1.97  | 1.97  | 1.97  | 1.98  | 1.98  | 1.98  | 1.98  | 1.97  | 2.07  | 1.99  | 24    |    |
| 11             | 1.98 | 1.99 | 1.99 | \$   | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.02  | 2.04  | 2.09  | 2.10  | 2.07  | 2.03  | 2.04  | 2.03  | 2.01  | 2.00  | 2.00  | 2.01  | 1.98  | 2.10  | 2.02  | 24    |    |
| 12             | 2.06 | 2.07 | \$   | 2.13 | 2.91 | 2.50 | 2.32 | 2.05 | 2.05 | 2.05 | 2.06  | 2.05  | 2.04  | 2.13  | 2.19  | 2.55  | 2.14  | 2.72  | 2.91  | 2.18  | 3.21  | 3.06  | 2.57  | 2.39  | 2.04  | 3.21  | 2.36  | 24    |    |
| 13             | 2.49 | \$   | 3.34 | 3.48 | 2.83 | 2.54 | 2.54 | 2.33 | 3.03 | 2.27 | 2.17  | 2.60  | 2.18  | 2.53  | 2.69  | 2.64  | 2.04  | 2.08  | 2.05  | 2.03  | 2.00  | 1.95  | 1.94  | 1.94  | 1.94  | 3.48  | 2.42  | 24    |    |
| 14             | \$   | 1.98 | 1.95 | 1.96 | 1.97 | 1.98 | 1.98 | 1.97 | 1.96 | 1.97 | 1.96  | 1.97  | 1.96  | 1.97  | 1.98  | 1.99  | 1.99  | 2.01  | 2.01  | 2.02  | 2.01  | 2.01  | 2.01  | \$    | 1.95  | 2.02  | 1.98  | 24    |    |
| 15             | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.99 | 1.98 | 1.99  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.97  | \$    | 1.98  | 1.97  | 2.01  | 1.99  | 24 |
| 16             | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 1.98 | 1.97 | 1.98 | 2.02 | 2.36  | 2.08  | 2.12  | 2.06  | 2.02  | 2.04  | 2.22  | 2.17  | 2.03  | 2.20  | 2.20  | \$    | 2.15  | 2.21  | 1.97  | 2.36  | 2.07  | 24    |    |
| 17             | 2.19 | 2.15 | 2.22 | 2.18 | 2.20 | 2.10 | 2.08 | 2.09 | 2.08 | 2.07 | 2.05  | 2.07  | 2.06  | 2.08  | 2.11  | 2.10  | 2.08  | 2.07  | 2.06  | 2.09  | \$    | 2.06  | 2.04  | 2.02  | 2.02  | 2.22  | 2.10  | 24    |    |
| 18             | 2.02 | 2.00 | 1.99 | 1.99 | 1.99 | 1.98 | 1.97 | 1.97 | 2.00 | 2.00 | 2.00  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.03  | \$    | 2.03  | 2.03  | 2.04  | 2.09  | 1.97  | 2.09  | 2.01  | 24    |    |
| 19             | 2.10 | 2.12 | 2.11 | 2.08 | 2.11 | 2.15 | 2.07 | 2.02 | 2.01 | 2.01 | 2.01  | 2.01  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | \$    | 2.04  | 2.17  | 2.09  | 2.17  | 2.34  | 1.99  | 2.34  | 2.07  | 24    |    |
| 20             | 2.52 | 2.38 | 2.27 | 2.24 | 2.29 | 2.35 | 2.34 | 2.19 | 2.21 | 2.18 | 2.31  | 2.09  | 2.13  | 2.15  | 2.13  | 2.40  | 2.47  | \$    | 2.21  | 2.20  | 2.19  | 2.13  | 2.11  | 2.12  | 2.09  | 2.52  | 2.24  | 24    |    |
| 21             | 2.18 | 2.08 | 2.05 | 2.03 | 2.07 | 2.14 | 2.14 | 2.05 | 2.07 | 2.12 | 2.12  | 2.11  | 2.16  | 2.22  | 2.17  | 2.19  | \$    | 2.16  | 2.34  | 2.26  | 2.13  | 2.20  | 2.24  | 2.21  | 2.03  | 2.34  | 2.15  | 24    |    |
| 22             | 2.22 | 2.15 | 2.14 | 2.11 | 2.01 | 1.98 | 1.97 | 1.96 | 1.95 | 1.95 | 1.94  | 1.93  | 1.93  | 1.94  | 1.94  | \$    | 1.94  | 1.95  | 1.95  | 1.95  | 1.96  | 1.96  | 1.97  | 1.99  | 1.93  | 2.22  | 1.99  | 24    |    |
| 23             | 2.00 | 2.01 | 2.02 | 2.03 | 2.02 | 2.02 | 2.02 | 1.99 | 2.00 | 1.99 | 1.99  | 1.99  | 1.98  | 1.98  | \$    | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.00  | 1.99  | 1.98  | 2.03  | 2.00  | 24    |    |
| 24             | 1.99 | 2.02 | 2.00 | 1.99 | 2.02 | 1.99 | 1.99 | 2.00 | 2.01 | 2.07 | 2.05  | 2.08  | 2.10  | \$    | 2.05  | 2.05  | 2.04  | 2.05  | 2.05  | 2.01  | 2.02  | 2.01  | 2.01  | 2.06  | 1.99  | 2.10  | 2.03  | 24    |    |
| 25             | 2.09 | 2.11 | 2.21 | 2.14 | 2.09 | 2.10 | 2.15 | 2.19 | 2.12 | 2.13 | 2.08  | 2.07  | \$    | 2.08  | 2.04  | 2.04  | 2.06  | 2.04  | 2.06  | 2.07  | 2.06  | 2.05  | 2.05  | 2.06  | 2.04  | 2.21  | 2.09  | 24    |    |
| 26             | 2.05 | 2.04 | 2.03 | 2.04 | 2.04 | 2.05 | 2.04 | 2.07 | 2.05 | 2.06 | 2.07  | \$    | 2.07  | 2.08  | 2.06  | 2.06  | 2.06  | 2.07  | 2.08  | 2.06  | 2.06  | 2.08  | 2.09  | 2.08  | 2.03  | 2.09  | 2.06  | 24    |    |
| 27             | 2.09 | 2.08 | 2.08 | 2.10 | 2.09 | 2.13 | 2.09 | 2.13 | 2.09 | 2.11 | \$    | 2.07  | 2.08  | 2.07  | 2.06  | 2.07  | 2.08  | 2.07  | 2.06  | 2.05  | 2.05  | 2.09  | 2.12  | 2.15  | 2.05  | 2.15  | 2.09  | 24    |    |
| 28             | 2.12 | 2.16 | 2.12 | 2.18 | 2.29 | 2.41 | 2.25 | 2.45 | 2.36 | \$   | 2.21  | 2.03  | 2.02  | 2.00  | 1.99  | 1.98  | 1.98  | 1.99  | 2.01  | 2.02  | 2.02  | 2.02  | 2.00  | 1.97  | 1.97  | 2.45  | 2.11  | 24    |    |
| 29             | 1.96 | 1.96 | 1.96 | 1.95 | 1.94 | 1.94 | 1.95 | 1.94 | \$   | 1.95 | 1.99  | 1.95  | 1.95  | 1.94  | 1.94  | 1.93  | 1.94  | 1.94  | 1.94  | 1.95  | 1.94  | 1.96  | 2.01  | 2.05  | 1.93  | 2.05  | 1.96  | 24    |    |
| 30             | 2.05 | 2.03 | 2.03 | 2.04 | 2.04 | 2.05 | 2.06 | \$   | 2.03 | 2.02 | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.03  | 2.02  | 2.02  | 2.02  | 2.02  | 2.01  | 2.00  | 2.00  | 2.06  | 2.03  | 24    |    |
| HOURLY MAX     | 2.52 | 2.92 | 3.34 | 3.48 | 3.58 | 2.54 | 2.54 | 2.52 | 3.03 | 2.27 | 2.36  | 2.60  | 2.18  | 2.53  | 2.69  | 2.64  | 2.47  | 2.72  | 2.91  | 2.43  | 3.21  | 3.06  | 2.86  | 2.44  |       |       |       |       |    |
| HOURLY AVG     | 2.09 | 2.08 | 2.13 | 2.12 | 2.16 | 2.10 | 2.07 | 2.07 | 2.11 | 2.05 | 2.06  | 2.04  | 2.03  | 2.05  | 2.05  | 2.07  | 2.04  | 2.07  | 2.08  | 2.06  | 2.10  | 2.07  | 2.09  | 2.08  |       |       |       |       |    |

## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

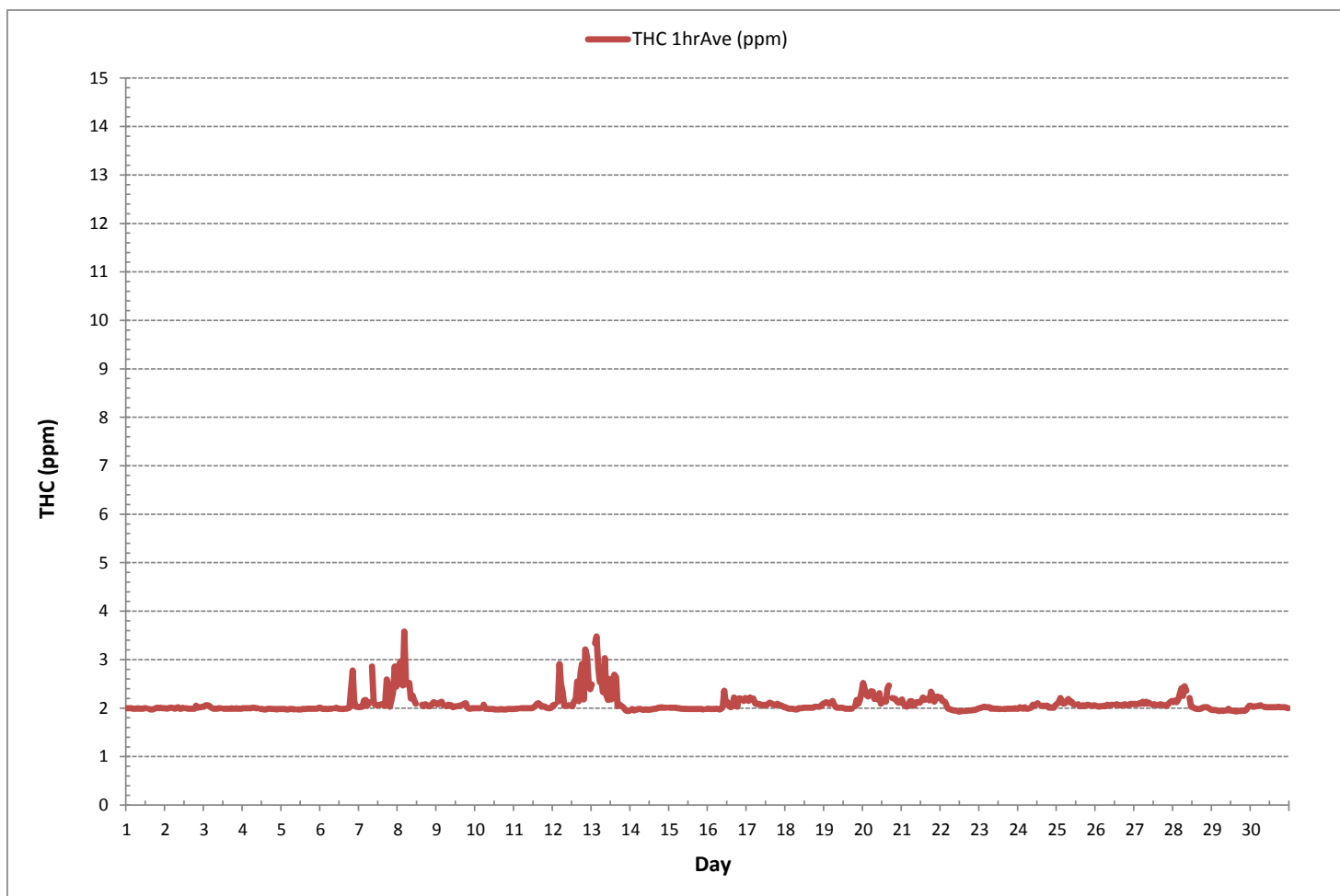
## 24 HR AVERAGES November 2018



## MONTHLY SUMMARY

|                              |      |     |                       |       |           |
|------------------------------|------|-----|-----------------------|-------|-----------|
| NUMBER OF NON-ZERO READINGS: | 686  |     |                       |       |           |
| MINIMUM 1-HR AVERAGE:        | 1.93 | ppm | @ HOUR                | 11    | ON DAY 22 |
| MAXIMUM 1-HR AVERAGE:        | 3.58 | ppm | @ HOUR                | 4     | ON DAY 8  |
| MAXIMUM 24-HR AVERAGE:       | 2.42 | ppm |                       |       | ON DAY 13 |
| IZS CALIBRATION TIME:        | 31   | hrs | OPERATIONAL TIME:     | 720   | hrs       |
| MONTHLY CALIBRATION TIME:    | 3    | hrs | AMD OPERATION UPTIME: | 100.0 | %         |
| STANDARD DEVIATION:          | 0.19 |     | MONTHLY AVERAGE:      | 2.08  | ppm       |

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



Wind: PRAMP\_RENO  
Poll.: PRAMP\_RENO-THC55[ppm]  
Monthly: 18/11  
Type: PollutionRose  
Direction: Blowing From (Wind Frequency)  
Based On 1 Hr.

Calm: 4.66%

Calm Avg: 2.17 [ppm]

| Direction | 0.0-1.2 | 1.2-2.4 | 2.4-3.6 | >3.6 | Total |
|-----------|---------|---------|---------|------|-------|
| N         | 0.0     | 17.4    | 0.0     | 0.0  | 17.4  |
| NE        | 0.0     | 9.2     | 0.0     | 0.0  | 9.2   |
| E         | 0.0     | 4.1     | 0.0     | 0.0  | 4.1   |
| SE        | 0.0     | 6.9     | 0.0     | 0.0  | 6.9   |
| S         | 0.0     | 24.9    | 3.5     | 0.0  | 28.4  |
| SW        | 0.0     | 16.6    | 1.6     | 0.0  | 18.2  |
| W         | 0.0     | 8.6     | 0.0     | 0.0  | 8.6   |
| NW        | 0.0     | 2.6     | 0.0     | 0.0  | 2.6   |
| Summary   | 0.0     | 90.2    | 5.1     | 0.0  | 95.3  |

% Icon Classes (ppm)

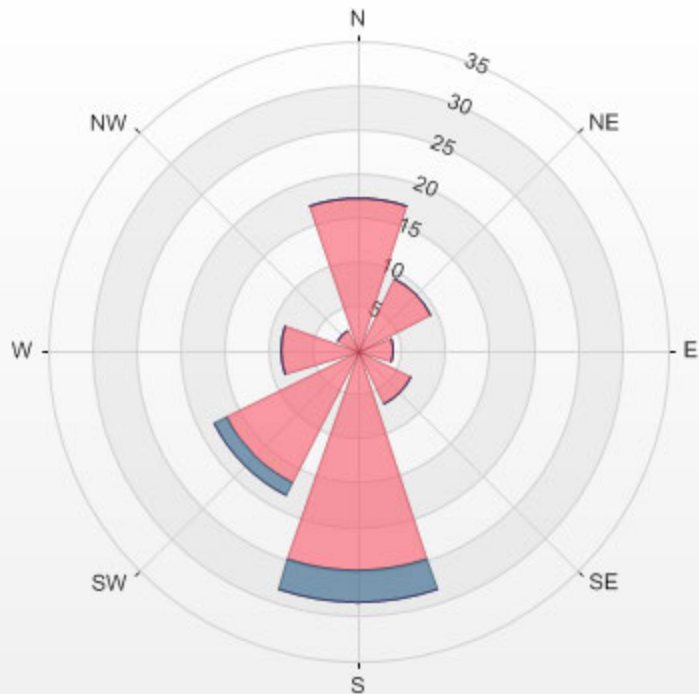
0 0.0-1.2

90 1.2-2.4

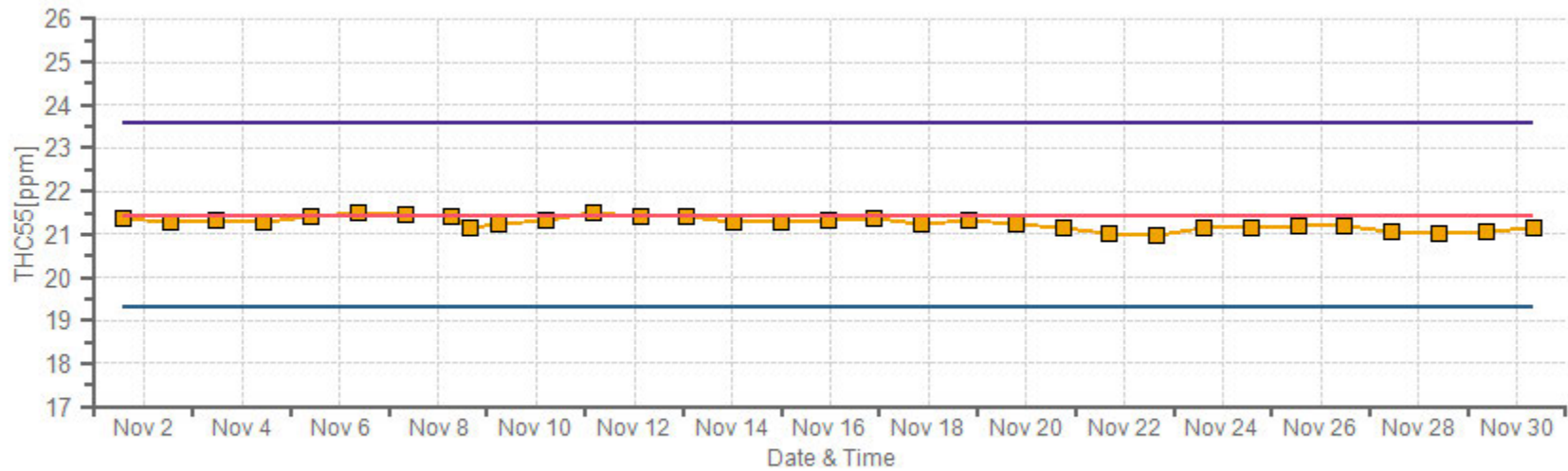
5 2.4-3.6

0 >3.6

PRAMP\_RENO Poll.: PRAMP\_RENO-THC55[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 2.17[ppm]



# THC55[ppm] Calibration: PRAMP\_RENO Monthly: 18/11 Type: Span



■ Span Meas 
 — Span Ref 
 — Span Low 
 — Span High

***METHANE***



## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

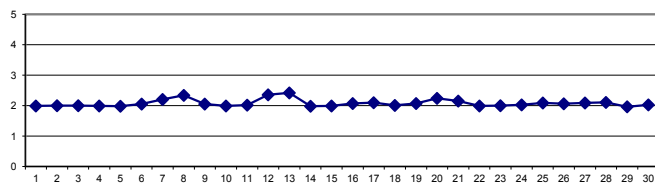
METHANE Hourly Averages (CH<sub>4</sub> ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1              | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | 1.99 | 1.99  | 2.00  | 2.00  | \$    | 1.98  | 1.97  | 1.97  | 1.98  | 2.00  | 2.01  | 2.00  | 2.01  | 2.00  | 2.00  | 1.97  | 2.01  | 1.99  | 24    |
| 2              | 2.00 | 1.99 | 2.00 | 2.01 | 2.01 | 2.00 | 1.99 | 2.01 | 2.02 | 1.99 | 1.99  | 2.01  | \$    | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.05  | 2.01  | 2.02  | 2.02  | 2.03  | 1.99  | 2.05  | 2.00  | 24    |
| 3              | 2.03 | 2.06 | 2.06 | 2.05 | 2.02 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00  | \$    | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.00  | 1.99  | 1.99  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 2.06  | 2.00  | 24    |
| 4              | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.00 | 2.00 | \$    | 1.98  | 1.98  | 1.97  | 1.97  | 1.98  | 1.99  | 1.99  | 1.98  | 1.98  | 1.98  | 1.97  | 1.98  | 1.98  | 1.97  | 2.01  | 1.99  | 24    |
| 5              | 1.98 | 1.98 | 1.98 | 1.97 | 1.97 | 1.98 | 1.98 | 1.98 | 1.97 | \$   | 1.97  | 1.97  | 1.97  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.01  | 1.97  | 2.01  | 1.98  | 24    |
| 6              | 2.01 | 1.99 | 1.98 | 1.99 | 1.98 | 1.98 | 1.99 | 1.99 | \$   | 2.00 | 2.01  | 1.99  | 1.99  | 1.98  | 1.98  | 1.99  | 1.99  | 2.00  | 2.01  | 2.43  | 2.78  | 2.13  | 2.03  | 2.03  | 1.98  | 2.78  | 2.05  | 24    |
| 7              | 2.02 | 2.03 | 2.03 | 2.16 | 2.17 | 2.05 | 2.12 | \$   | 2.86 | 2.10 | 2.07  | 2.06  | 2.06  | 2.07  | 2.08  | 2.06  | 2.05  | 2.59  | 2.45  | 2.03  | 2.17  | 2.33  | 2.86  | 2.44  | 2.02  | 2.86  | 2.21  | 24    |
| 8              | 2.51 | 2.92 | 2.97 | 2.47 | 3.58 | 2.49 | \$   | 2.52 | 2.20 | 2.26 | 2.17  | 2.09  | C     | C     | C     | 2.07  | 2.04  | 2.08  | 2.06  | 2.04  | 2.04  | 2.08  | 2.12  | 2.11  | 2.04  | 3.58  | 2.34  | 24    |
| 9              | 2.08 | 2.08 | 2.11 | 2.13 | 2.07 | \$   | 2.04 | 2.07 | 2.05 | 2.06 | 2.02  | 2.03  | 2.04  | 2.04  | 2.05  | 2.05  | 2.07  | 2.09  | 2.10  | 2.01  | 1.99  | 1.99  | 2.00  | 2.00  | 1.99  | 2.13  | 2.05  | 24    |
| 10             | 2.00 | 2.00 | 2.00 | 2.00 | \$   | 2.07 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98  | 1.98  | 1.97  | 1.97  | 1.97  | 1.97  | 1.98  | 1.97  | 1.97  | 1.97  | 1.98  | 1.98  | 1.98  | 1.98  | 1.97  | 2.07  | 1.99  | 24    |
| 11             | 1.98 | 1.99 | 1.99 | \$   | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.02  | 2.04  | 2.09  | 2.10  | 2.07  | 2.03  | 2.04  | 2.03  | 2.01  | 2.00  | 2.00  | 2.01  | 1.98  | 2.10  | 2.02  | 24    |
| 12             | 2.06 | 2.07 | \$   | 2.13 | 2.91 | 2.50 | 2.32 | 2.05 | 2.05 | 2.05 | 2.06  | 2.05  | 2.04  | 2.13  | 2.19  | 2.55  | 2.14  | 2.72  | 2.91  | 2.18  | 3.21  | 3.06  | 2.57  | 2.39  | 2.04  | 3.21  | 2.36  | 24    |
| 13             | 2.49 | \$   | 3.30 | 3.48 | 2.83 | 2.54 | 2.54 | 2.33 | 3.02 | 2.27 | 2.17  | 2.60  | 2.18  | 2.53  | 2.69  | 2.64  | 2.03  | 2.07  | 2.05  | 2.03  | 2.00  | 1.95  | 1.94  | 1.94  | 1.94  | 3.48  | 2.42  | 24    |
| 14             | \$   | 1.98 | 1.95 | 1.96 | 1.97 | 1.98 | 1.98 | 1.97 | 1.96 | 1.97 | 1.96  | 1.97  | 1.96  | 1.97  | 1.97  | 1.98  | 1.99  | 1.99  | 2.01  | 2.01  | 2.02  | 2.01  | 2.01  | \$    | 1.95  | 2.02  | 1.98  | 24    |
| 15             | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.99 | 1.98 | 1.99  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.97  | \$    | 1.98  | 1.97  | 2.01  | 1.99  | 24    |
| 16             | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 1.98 | 1.97 | 1.98 | 2.02 | 2.36  | 2.08  | 2.11  | 2.05  | 2.02  | 2.04  | 2.22  | 2.17  | 2.03  | 2.20  | 2.20  | \$    | 2.15  | 2.21  | 1.97  | 2.36  | 2.07  | 24    |
| 17             | 2.19 | 2.15 | 2.22 | 2.18 | 2.20 | 2.10 | 2.08 | 2.09 | 2.08 | 2.07 | 2.05  | 2.07  | 2.06  | 2.08  | 2.11  | 2.10  | 2.08  | 2.07  | 2.06  | 2.09  | \$    | 2.06  | 2.04  | 2.02  | 2.02  | 2.22  | 2.10  | 24    |
| 18             | 2.02 | 2.00 | 1.99 | 1.99 | 1.99 | 1.98 | 1.97 | 1.97 | 2.00 | 2.00 | 2.00  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.03  | \$    | 2.03  | 2.03  | 2.04  | 2.09  | 1.97  | 2.09  | 2.01  | 24    |
| 19             | 2.10 | 2.12 | 2.11 | 2.08 | 2.11 | 2.15 | 2.07 | 2.02 | 2.01 | 2.01 | 2.01  | 2.01  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | \$    | 2.04  | 2.17  | 2.09  | 2.17  | 2.34  | 1.99  | 2.34  | 2.07  | 24    |
| 20             | 2.52 | 2.38 | 2.27 | 2.24 | 2.29 | 2.35 | 2.34 | 2.19 | 2.21 | 2.18 | 2.31  | 2.09  | 2.13  | 2.15  | 2.13  | 2.40  | 2.47  | \$    | 2.21  | 2.20  | 2.19  | 2.13  | 2.11  | 2.11  | 2.09  | 2.52  | 2.24  | 24    |
| 21             | 2.18 | 2.08 | 2.05 | 2.03 | 2.07 | 2.14 | 2.14 | 2.05 | 2.07 | 2.12 | 2.12  | 2.11  | 2.16  | 2.22  | 2.17  | 2.19  | \$    | 2.16  | 2.34  | 2.26  | 2.13  | 2.20  | 2.24  | 2.21  | 2.03  | 2.34  | 2.15  | 24    |
| 22             | 2.22 | 2.14 | 2.14 | 2.11 | 2.01 | 1.98 | 1.97 | 1.96 | 1.95 | 1.95 | 1.94  | 1.93  | 1.93  | 1.94  | 1.94  | \$    | 1.94  | 1.95  | 1.95  | 1.95  | 1.96  | 1.96  | 1.97  | 1.99  | 1.93  | 2.22  | 1.99  | 24    |
| 23             | 2.00 | 2.01 | 2.02 | 2.03 | 2.02 | 2.02 | 2.02 | 1.99 | 2.00 | 1.99 | 1.99  | 1.99  | 1.98  | 1.98  | \$    | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 2.00  | 1.99  | 1.98  | 2.03  | 2.00  | 24    |
| 24             | 1.99 | 2.02 | 2.00 | 1.99 | 2.02 | 1.99 | 1.99 | 2.00 | 2.01 | 2.07 | 2.05  | 2.08  | 2.10  | \$    | 2.05  | 2.05  | 2.04  | 2.05  | 2.05  | 2.01  | 2.01  | 2.01  | 2.01  | 2.06  | 1.99  | 2.10  | 2.03  | 24    |
| 25             | 2.09 | 2.11 | 2.21 | 2.14 | 2.09 | 2.10 | 2.15 | 2.19 | 2.12 | 2.13 | 2.08  | 2.07  | \$    | 2.08  | 2.04  | 2.04  | 2.06  | 2.04  | 2.06  | 2.07  | 2.06  | 2.05  | 2.05  | 2.06  | 2.04  | 2.21  | 2.09  | 24    |
| 26             | 2.05 | 2.04 | 2.03 | 2.04 | 2.04 | 2.05 | 2.04 | 2.07 | 2.05 | 2.06 | 2.07  | \$    | 2.07  | 2.08  | 2.06  | 2.06  | 2.06  | 2.07  | 2.08  | 2.06  | 2.06  | 2.08  | 2.09  | 2.08  | 2.03  | 2.29  | 2.06  | 24    |
| 27             | 2.09 | 2.08 | 2.08 | 2.10 | 2.09 | 2.13 | 2.09 | 2.13 | 2.09 | 2.11 | \$    | 2.07  | 2.08  | 2.07  | 2.06  | 2.07  | 2.08  | 2.07  | 2.06  | 2.05  | 2.05  | 2.09  | 2.12  | 2.15  | 2.05  | 2.15  | 2.09  | 24    |
| 28             | 2.12 | 2.16 | 2.12 | 2.17 | 2.26 | 2.39 | 2.22 | 2.44 | 2.36 | \$   | 2.21  | 2.03  | 2.02  | 2.00  | 1.99  | 1.98  | 1.98  | 1.99  | 2.01  | 2.02  | 2.02  | 2.02  | 2.00  | 1.97  | 1.97  | 2.44  | 2.11  | 24    |
| 29             | 1.96 | 1.96 | 1.96 | 1.95 | 1.94 | 1.94 | 1.95 | 1.94 | \$   | 1.95 | 1.99  | 1.95  | 1.95  | 1.94  | 1.94  | 1.93  | 1.94  | 1.94  | 1.94  | 1.95  | 1.94  | 1.96  | 2.01  | 2.05  | 1.93  | 2.05  | 1.96  | 24    |
| 30             | 2.05 | 2.03 | 2.03 | 2.04 | 2.04 | 2.05 | 2.06 | \$   | 2.03 | 2.02 | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.02  | 2.03  | 2.02  | 2.02  | 2.02  | 2.02  | 2.01  | 2.00  | 2.00  | 2.06  | 2.03  | 24    |
| HOURLY MAX     | 2.52 | 2.92 | 3.30 | 3.48 | 3.58 | 2.54 | 2.54 | 2.52 | 3.02 | 2.27 | 2.36  | 2.60  | 2.18  | 2.53  | 2.69  | 2.64  | 2.47  | 2.72  | 2.91  | 2.43  | 3.21  | 3.06  | 2.86  | 2.44  |       |       |       |       |
| HOURLY AVG     | 2.09 | 2.08 | 2.12 | 2.12 | 2.16 | 2.10 | 2.07 | 2.07 | 2.11 | 2.05 | 2.06  | 2.04  | 2.03  | 2.05  | 2.05  | 2.07  | 2.04  | 2.07  | 2.08  | 2.06  | 2.10  | 2.07  | 2.09  | 2.08  |       |       |       |       |

## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

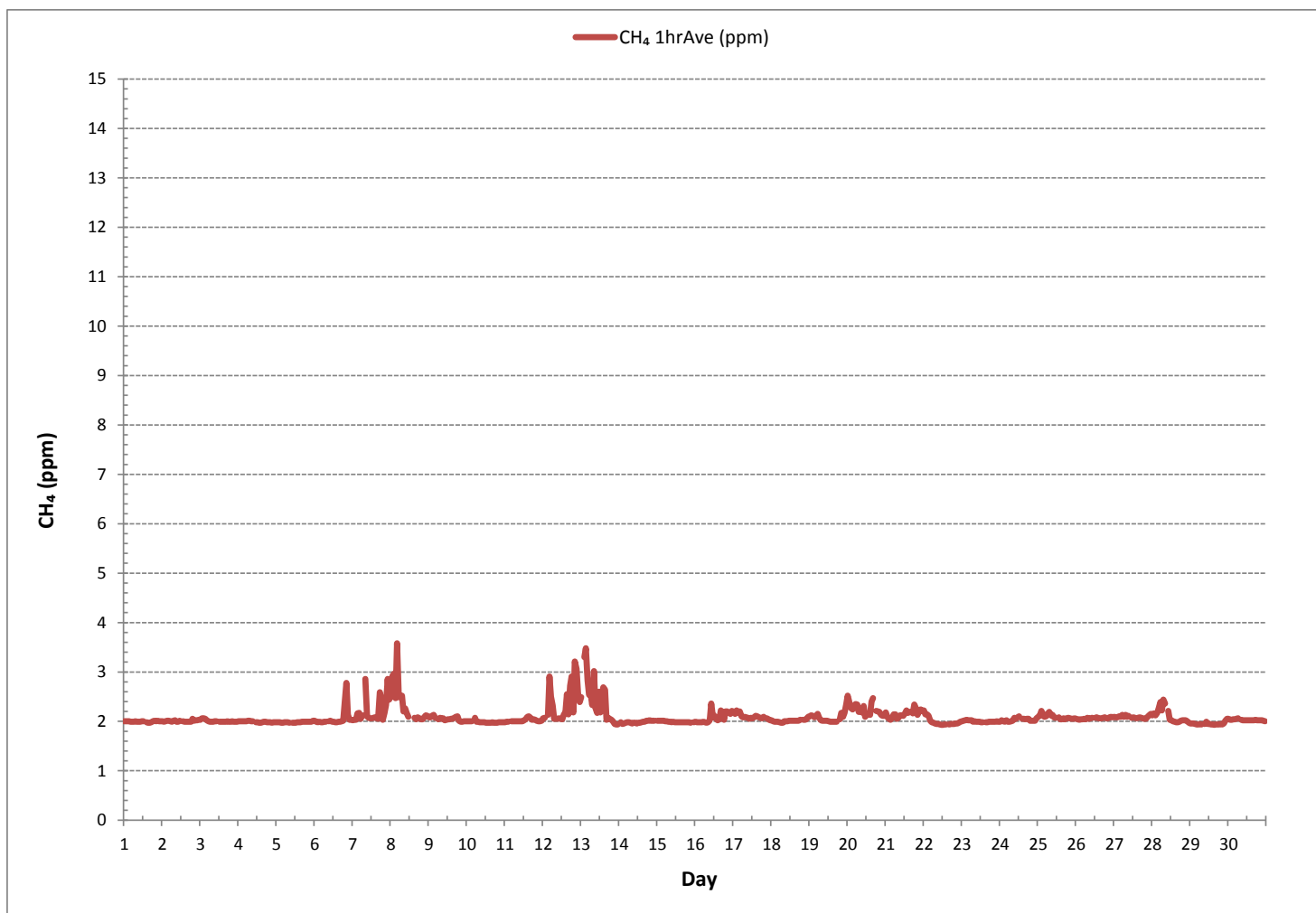
## 24 HR AVERAGES November 2018



## MONTHLY SUMMARY

|                              |      |     |                       |       |           |
|------------------------------|------|-----|-----------------------|-------|-----------|
| NUMBER OF NON-ZERO READINGS: | 686  |     |                       |       |           |
| MINIMUM 1-HR AVERAGE:        | 1.93 | ppm | @ HOUR                | 11    | ON DAY 22 |
| MAXIMUM 1-HR AVERAGE:        | 3.58 | ppm | @ HOUR                | 4     | ON DAY 8  |
| MAXIMUM 24-HR AVERAGE:       | 2.42 | ppm |                       |       | ON DAY 13 |
| IZS CALIBRATION TIME:        | 31   | hrs | OPERATIONAL TIME:     | 720   | hrs       |
| MONTHLY CALIBRATION TIME:    | 3    | hrs | AMD OPERATION UPTIME: | 100.0 | %         |
| STANDARD DEVIATION:          | 0.19 |     | MONTHLY AVERAGE:      | 2.08  | ppm       |

METHANE Hourly Averages (CH<sub>4</sub> ppm)



Wind: PRAMP\_RENO  
Poll.: PRAMP\_RENO-CH<sub>4</sub> [ppm]  
Monthly: 18/11  
Type: PollutionRose  
Direction: Blowing From (Wind Frequency)  
Based On 1 Hr.

Calm: 4.66%

Calm Avg: 2.17 [ppm]

| Direction | 0.0-1.2 | 1.2-2.4 | 2.4-3.6 | >3.6 | Total |
|-----------|---------|---------|---------|------|-------|
| N         | 0.0     | 17.4    | 0.0     | 0.0  | 17.4  |
| NE        | 0.0     | 9.2     | 0.0     | 0.0  | 9.2   |
| E         | 0.0     | 4.1     | 0.0     | 0.0  | 4.1   |
| SE        | 0.0     | 6.9     | 0.0     | 0.0  | 6.9   |
| S         | 0.0     | 25.1    | 3.4     | 0.0  | 28.4  |
| SW        | 0.0     | 16.6    | 1.6     | 0.0  | 18.2  |
| W         | 0.0     | 8.6     | 0.0     | 0.0  | 8.6   |
| NW        | 0.0     | 2.6     | 0.0     | 0.0  | 2.6   |
| Summary   | 0.0     | 90.4    | 5.0     | 0.0  | 95.3  |

% Icon Classes (ppm)

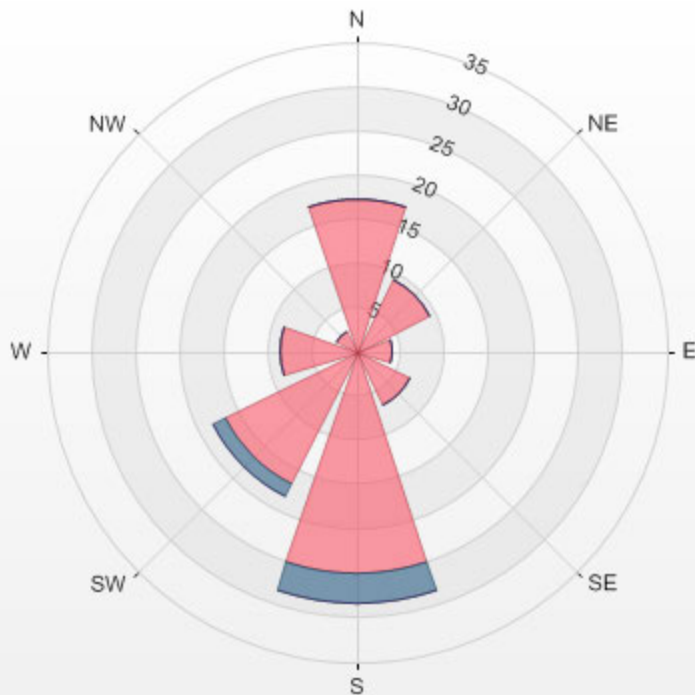
0 0.0-1.2

90 1.2-2.4

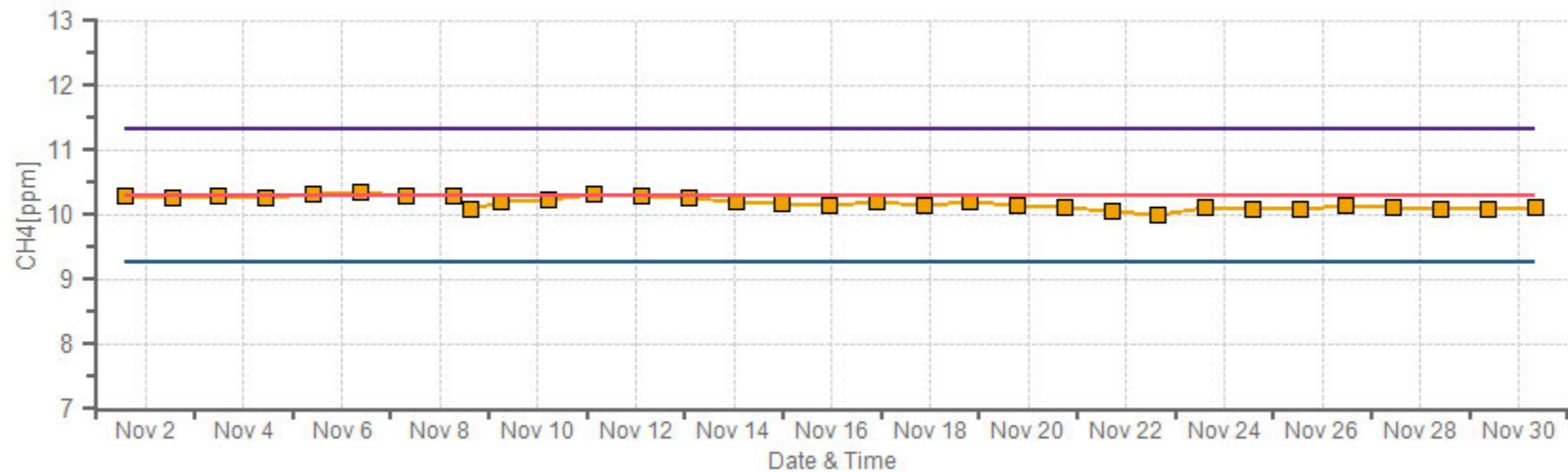
5 2.4-3.6

0 >3.6

PRAMP\_RENO Poll.: PRAMP\_RENO-CH4[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 2.17[ppm]



CH<sub>4</sub>[ppm] Calibration: PRAMP\_RENO Monthly: 18/11 Type: Span



—■— Span Meas    — Span Ref    — Span Low    — Span High

## ***NON-METHANE HYDROCARBON***



## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

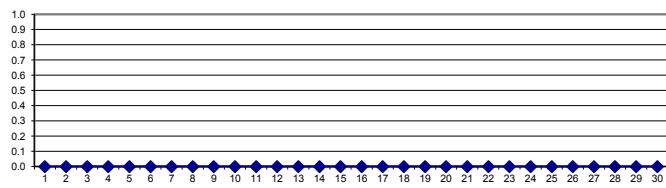
## NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 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  | 24 |
| 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  | 24 |
| 3              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 4              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 5              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 6              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 7              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 8              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S    | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 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  | 24 |
| 9              | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 10             | 0.00 | 0.00 | 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  | 24 |
| 11             | 0.00 | 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  | 24 |
| 12             | 0.00 | 0.00 | S    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 13             | 0.00 | S    | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.04  | 0.00  | 0.00  | 24 |
| 14             | S    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 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  | 24 |
| 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  | 0.02  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.02  | 0.00  | 0.00  | 24 |
| 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  | 24 |
| 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     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 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  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 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  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 21             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 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  | 24 |
| 23             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 24             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 25             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 26             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 27             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 28             | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.02 | 0.03 | 0.01 | 0.00 | S    | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.03  | 0.00  | 24 |
| 29             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 30             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| HOURLY MAX     | 0.00 | 0.00 | 0.04 | 0.01 | 0.03 | 0.02 | 0.03 | 0.01 | 0.01 | 0.00 | 0.00  | 0.00  | 0.02  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |    |
| HOURLY AVG     | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |    |

## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

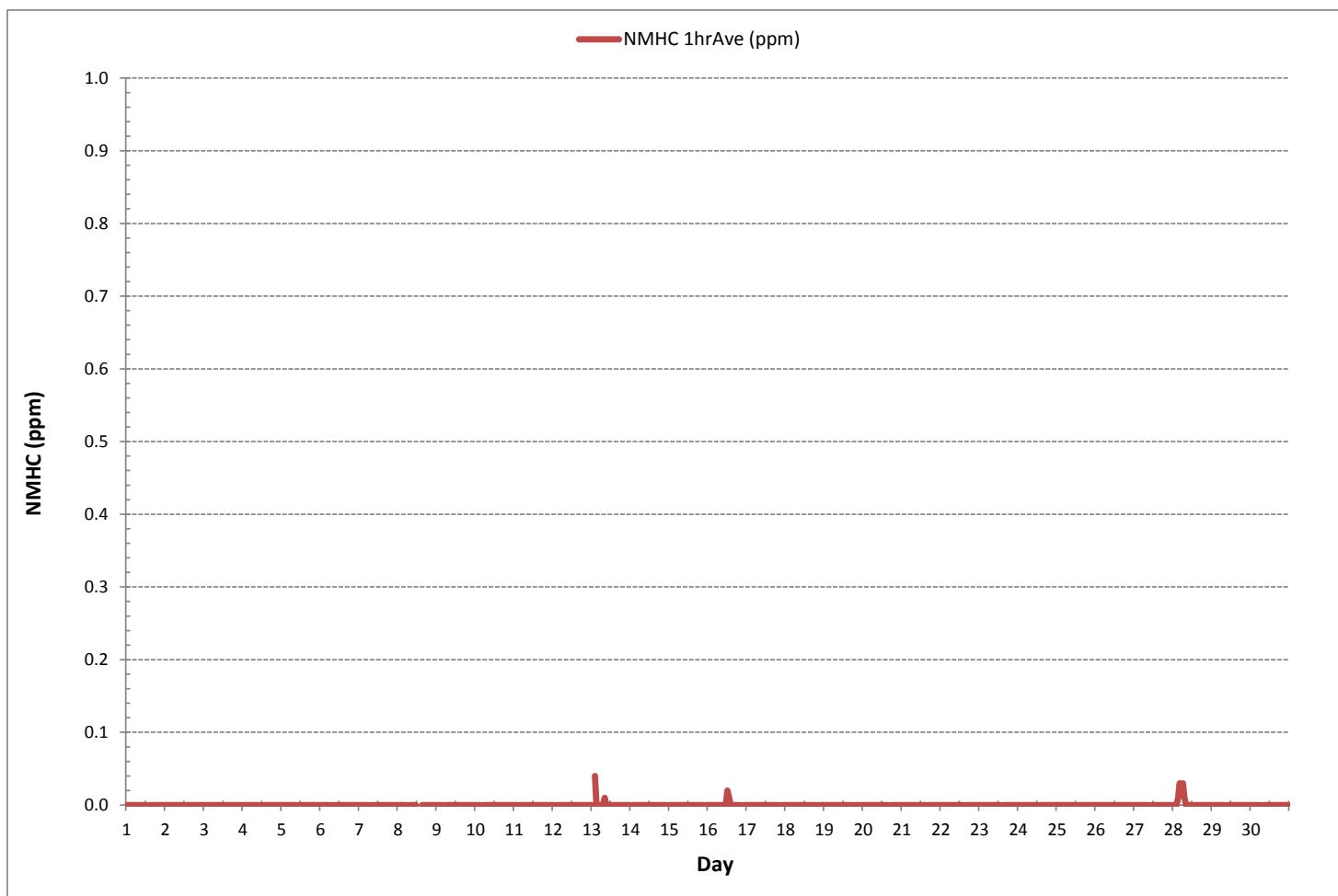
## 24 HR AVERAGES November 2018



## MONTHLY SUMMARY

|                              |      |     |                       |       |           |
|------------------------------|------|-----|-----------------------|-------|-----------|
| NUMBER OF NON-ZERO READINGS: | 9    |     |                       |       |           |
| MINIMUM 1-HR AVERAGE:        | 0.00 | ppm | @ HOUR                | 0     | ON DAY 1  |
| MAXIMUM 1-HR AVERAGE:        | 0.04 | ppm | @ HOUR                | 2     | ON DAY 13 |
| MAXIMUM 24-HR AVERAGE:       | 0.00 | ppm |                       |       | ON DAY 1  |
| IZS CALIBRATION TIME:        | 31   | hrs | OPERATIONAL TIME:     | 720   | hrs       |
| MONTHLY CALIBRATION TIME:    | 3    | hrs | AMD OPERATION UPTIME: | 100.0 | %         |
| STANDARD DEVIATION:          | 0.00 |     | MONTHLY AVERAGE:      | 0.00  | ppm       |

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



Wind: PRAMP\_RENO  
Poll.: PRAMP\_RENO-NMHC [ppm]  
Monthly: 18/11  
Type: PollutionRose  
Direction: Blowing From (Wind Frequency)  
Based On 1 Hr.

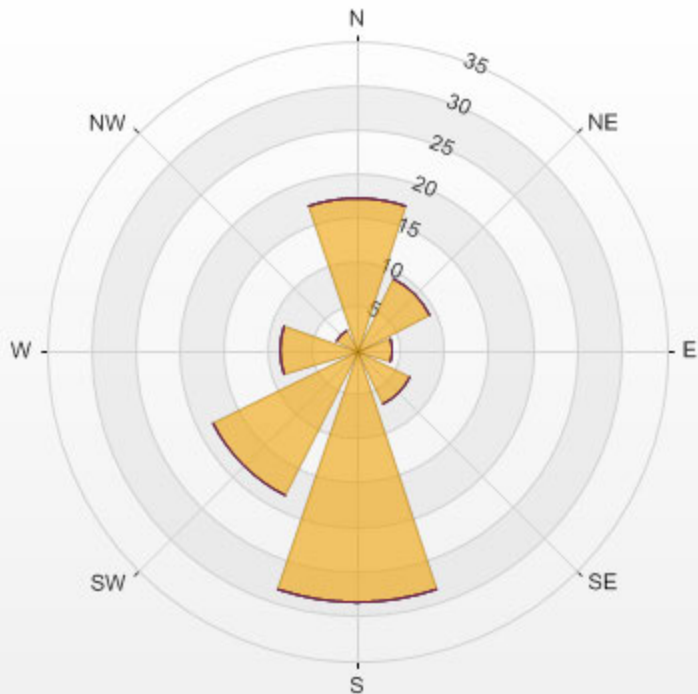
Calm: 4.66%

Calm Avg: 0.00 [ppm]

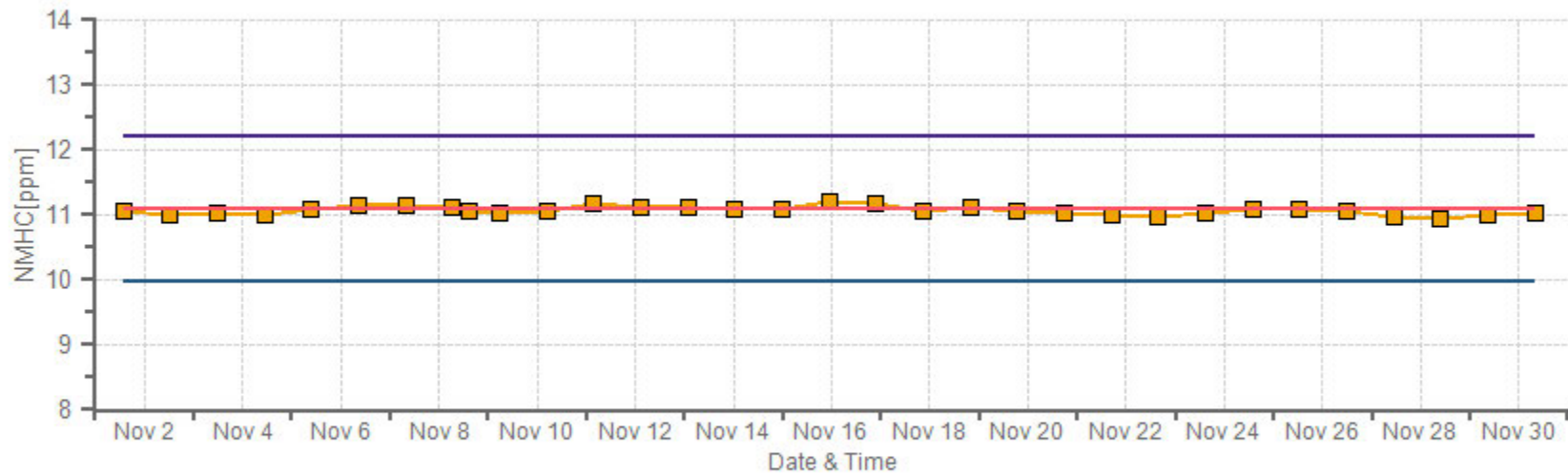
| Direction      | 0-0.1 | 0.1-0.3 | 0.3-1 | 1-2 | >2.0 | Total |
|----------------|-------|---------|-------|-----|------|-------|
| <b>N</b>       | 17.4  | 0.0     | 0.0   | 0.0 | 0.0  | 17.4  |
| <b>NE</b>      | 9.2   | 0.0     | 0.0   | 0.0 | 0.0  | 9.2   |
| <b>E</b>       | 4.1   | 0.0     | 0.0   | 0.0 | 0.0  | 4.1   |
| <b>SE</b>      | 6.9   | 0.0     | 0.0   | 0.0 | 0.0  | 6.9   |
| <b>S</b>       | 28.4  | 0.0     | 0.0   | 0.0 | 0.0  | 28.4  |
| <b>SW</b>      | 18.2  | 0.0     | 0.0   | 0.0 | 0.0  | 18.2  |
| <b>W</b>       | 8.6   | 0.0     | 0.0   | 0.0 | 0.0  | 8.6   |
| <b>NW</b>      | 2.6   | 0.0     | 0.0   | 0.0 | 0.0  | 2.6   |
| <b>Summary</b> | 95.3  | 0.0     | 0.0   | 0.0 | 0.0  | 95.3  |

| %  | Icon                                                                              | Classes (ppm) |
|----|-----------------------------------------------------------------------------------|---------------|
| 95 |    | 0-0.1         |
| 0  |    | 0.1-0.3       |
| 0  |   | 0.3-1         |
| 0  |  | 1-2           |
| 0  |  | >2.0          |

PRAMP\_RENO Poll.: PRAMP\_RENO-NMHC[ppm] 2018/11/01 00:00 - 2018/11/30 23:00 Calm: 4.66% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP\_RENO Monthly: 18/11 Type: Span



Span Meas Span Ref Span Low Span High

## ***WIND SPEED***

WIND SPEED Hourly Averages (WS kph)

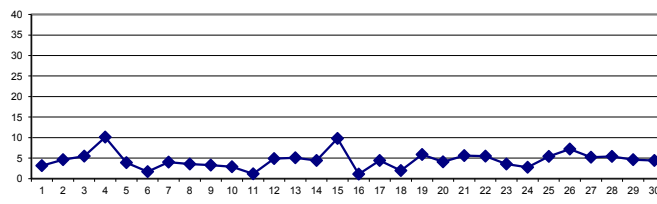
| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY 1          | 10.6 | 9.9  | 9.7  | 9.7  | 7.7  | 4.9  | 3.2  | 2.0  | 1.9  | 2.5  | 5.0   | 3.3   | 3.4   | 3.6   | 5.2   | 4.8   | 6.5   | 8.8   | 8.3   | 7.0   | 8.1   | 9.3   | 8.8   | 9.4   | 1.9   | 10.6  | 3.2   | 24    |
| 2              | 12.1 | 14.5 | 12.3 | 11.5 | 10.8 | 9.9  | 9.1  | 8.0  | 7.3  | 6.4  | 6.2   | 4.0   | 3.7   | 1.8   | 1.9   | 2.8   | 2.1   | 2.2   | 3.2   | 2.9   | 4.0   | 3.7   | 2.6   | 2.3   | 1.8   | 14.5  | 4.6   | 24    |
| 3              | 1.5  | 1.1  | 0.8  | 2.0  | 4.1  | 8.4  | 7.6  | 7.8  | 6.9  | 6.7  | 7.4   | 7.5   | 7.2   | 5.6   | 4.8   | 4.9   | 6.4   | 6.5   | 6.3   | 7.5   | 9.5   | 10.2  | 9.5   | 10.7  | 0.8   | 10.7  | 5.5   | 24    |
| 4              | 9.5  | 9.4  | 9.9  | 10.4 | 12.0 | 11.8 | 12.6 | 12.3 | 12.9 | 10.3 | 12.0  | 13.1  | 11.3  | 11.9  | 12.3  | 11.5  | 12.4  | 11.6  | 10.6  | 9.7   | 8.3   | 6.6   | 7.7   | 7.2   | 6.6   | 13.1  | 10.1  | 24    |
| 5              | 6.3  | 7.0  | 6.4  | 4.4  | 4.3  | 7.0  | 5.8  | 4.4  | 3.9  | 6.1  | 6.6   | 5.9   | 4.3   | 4.8   | 4.9   | 4.3   | 4.2   | 2.7   | 2.2   | 3.4   | 3.2   | 2.9   | 2.6   | 1.8   | 1.8   | 7.0   | 3.9   | 24    |
| 6              | 1.4  | 2.0  | 2.6  | 3.1  | 1.5  | 1.5  | 0.2  | 1.7  | 1.9  | 3.3  | 3.2   | 4.2   | 4.6   | 4.4   | 4.5   | 5.0   | 4.2   | 5.3   | 3.2   | 1.1   | 2.4   | 4.0   | 4.0   | 3.9   | 0.2   | 5.3   | 1.7   | 24    |
| 7              | 3.2  | 3.5  | 3.5  | 2.1  | 3.4  | 3.4  | 2.9  | 1.9  | 1.5  | 3.0  | 4.7   | 6.3   | 6.6   | 6.9   | 5.9   | 5.8   | 5.4   | 2.8   | 4.4   | 4.7   | 4.4   | 4.3   | 3.7   | 4.3   | 1.5   | 6.9   | 4.0   | 24    |
| 8              | 3.7  | 3.3  | 3.0  | 1.5  | 1.4  | 2.2  | 1.7  | 2.0  | 1.6  | 1.7  | 1.6   | 1.7   | 2.7   | 3.5   | 4.8   | 4.5   | 5.3   | 5.6   | 5.6   | 6.2   | 6.0   | 6.8   | 6.9   | 6.9   | 1.4   | 6.9   | 3.6   | 24    |
| 9              | 6.9  | 5.9  | 6.4  | 6.6  | 5.4  | 5.7  | 7.0  | 6.6  | 2.3  | 4.3  | 8.2   | 6.4   | 4.9   | 5.5   | 4.1   | 4.2   | 6.6   | 6.5   | 6.3   | 4.8   | 5.9   | 9.0   | 6.2   | 4.3   | 2.3   | 9.0   | 3.3   | 24    |
| 10             | 4.3  | 3.8  | 1.8  | 0.8  | 3.1  | 3.4  | 5.8  | 5.9  | 5.5  | 5.7  | 7.0   | 4.6   | 5.5   | 7.1   | 9.5   | 8.6   | 7.9   | 8.2   | 4.9   | 4.9   | 4.1   | 3.2   | 3.7   | 3.2   | 0.8   | 9.5   | 2.9   | 24    |
| 11             | 3.0  | 5.1  | 4.4  | 6.2  | 5.1  | 5.6  | 6.9  | 7.5  | 6.3  | 3.5  | 3.5   | 1.8   | 2.5   | 3.5   | 3.1   | 3.2   | 4.3   | 5.2   | 4.9   | 5.1   | 5.9   | 7.3   | 6.9   | 7.0   | 1.8   | 7.5   | 1.2   | 24    |
| 12             | 6.9  | 6.1  | 5.2  | 4.6  | 4.5  | 4.5  | 3.8  | 4.5  | 5.3  | 7.3  | 7.5   | 6.6   | 7.1   | 6.0   | 5.4   | 4.9   | 4.2   | 3.9   | 3.5   | 2.2   | 3.6   | 3.9   | 5.4   | 4.5   | 2.2   | 7.5   | 4.9   | 24    |
| 13             | 5.1  | 4.6  | 3.7  | 4.2  | 6.0  | 5.5  | 3.8  | 3.6  | 2.1  | 3.0  | 1.6   | 2.4   | 2.7   | 4.4   | 4.7   | 5.8   | 6.3   | 6.8   | 6.3   | 8.7   | 10.1  | 12.0  | 7.0   | 8.7   | 1.6   | 12.0  | 5.1   | 24    |
| 14             | 10.5 | 12.1 | 12.6 | 12.2 | 12.2 | 8.8  | 7.2  | 7.3  | 9.6  | 7.2  | 8.6   | 5.0   | 6.1   | 6.9   | 3.6   | 2.0   | 3.3   | 6.7   | 7.2   | 7.6   | 8.7   | 9.5   | 8.2   | 8.4   | 2.0   | 12.6  | 4.4   | 24    |
| 15             | 8.8  | 9.3  | 10.4 | 7.5  | 6.9  | 8.1  | 6.7  | 7.2  | 7.0  | 7.0  | 6.9   | 8.8   | 9.9   | 9.8   | 11.5  | 14.5  | 14.0  | 11.5  | 11.6  | 14.9  | 13.1  | 12.6  | 12.2  | 11.3  | 6.7   | 14.9  | 9.8   | 24    |
| 16             | 10.9 | 9.2  | 8.1  | 5.5  | 2.8  | 2.1  | 4.8  | 2.3  | 1.6  | 0.2  | 1.4   | 3.5   | 4.3   | 3.7   | 3.0   | 3.4   | 3.7   | 5.3   | 6.7   | 5.9   | 4.7   | 5.3   | 3.1   | 3.6   | 0.2   | 10.9  | 1.1   | 24    |
| 17             | 4.0  | 2.2  | 2.3  | 3.7  | 3.6  | 4.9  | 5.7  | 6.0  | 6.0  | 8.5  | 7.8   | 2.8   | 4.4   | 3.4   | 2.8   | 2.9   | 3.6   | 4.9   | 6.3   | 6.4   | 5.5   | 5.6   | 6.7   | 5.3   | 2.2   | 8.5   | 4.4   | 24    |
| 18             | 5.2  | 6.7  | 6.0  | 3.6  | 5.1  | 6.2  | 7.5  | 7.7  | 8.6  | 10.1 | 11.3  | 10.4  | 8.2   | 6.7   | 5.4   | 4.3   | 4.0   | 1.8   | 1.6   | 4.1   | 5.3   | 6.7   | 6.1   | 6.5   | 1.6   | 11.3  | 2.0   | 24    |
| 19             | 6.4  | 5.6  | 5.8  | 5.1  | 4.5  | 3.5  | 4.7  | 8.0  | 9.7  | 9.6  | 8.1   | 5.7   | 8.4   | 9.3   | 8.8   | 8.9   | 6.8   | 7.4   | 5.9   | 3.9   | 3.7   | 4.0   | 2.7   | 3.8   | 2.7   | 9.7   | 5.9   | 24    |
| 20             | 3.0  | 4.2  | 4.3  | 4.1  | 3.1  | 3.3  | 3.8  | 3.0  | 2.7  | 3.0  | 4.5   | 5.9   | 5.8   | 4.8   | 4.7   | 4.0   | 4.6   | 3.8   | 3.9   | 3.8   | 4.3   | 4.6   | 5.2   | 4.5   | 2.7   | 5.9   | 4.1   | 24    |
| 21             | 4.7  | 5.5  | 6.5  | 7.2  | 6.8  | 6.1  | 5.5  | 6.5  | 6.4  | 5.6  | 5.5   | 6.3   | 5.1   | 3.2   | 5.0   | 2.9   | 5.2   | 6.0   | 5.4   | 5.8   | 6.0   | 6.8   | 5.2   | 4.7   | 2.9   | 7.2   | 5.6   | 24    |
| 22             | 5.8  | 5.0  | 3.5  | 4.0  | 7.0  | 7.8  | 10.7 | 11.3 | 10.9 | 11.1 | 9.9   | 8.8   | 10.4  | 12.5  | 9.4   | 6.0   | 5.0   | 2.9   | 4.4   | 4.1   | 1.9   | 3.6   | 6.6   | 6.4   | 1.9   | 12.5  | 5.5   | 24    |
| 23             | 8.3  | 7.4  | 9.5  | 1.3  | 2.7  | 1.7  | 1.3  | 2.7  | 2.5  | 4.6  | 3.9   | 6.0   | 7.6   | 6.0   | 7.3   | 5.3   | 3.4   | 2.7   | 2.8   | 2.8   | 2.3   | 2.1   | 3.6   | 5.3   | 1.3   | 9.5   | 3.6   | 24    |
| 24             | 5.1  | 7.3  | 6.4  | 7.2  | 6.8  | 8.1  | 6.5  | 6.0  | 5.7  | 5.5  | 4.9   | 5.1   | 5.2   | 5.5   | 4.8   | 4.0   | 2.9   | 1.7   | 2.3   | 1.8   | 1.9   | 2.3   | 1.0   | 0.4   | 0.4   | 8.1   | 2.8   | 24    |
| 25             | 0.4  | 1.2  | 1.7  | 3.3  | 4.9  | 5.7  | 5.3  | 6.0  | 6.5  | 6.1  | 6.4   | 6.6   | 6.8   | 6.9   | 6.4   | 6.0   | 6.0   | 6.0   | 6.0   | 6.4   | 6.7   | 6.6   | 6.4   | 6.7   | 0.4   | 6.9   | 5.4   | 24    |
| 26             | 7.0  | 6.9  | 8.0  | 8.1  | 7.6  | 7.9  | 9.7  | 9.9  | 9.5  | 8.7  | 7.4   | 8.1   | 7.2   | 6.5   | 7.5   | 4.9   | 5.0   | 8.8   | 9.3   | 5.9   | 7.6   | 3.9   | 4.9   | 5.9   | 3.9   | 9.9   | 7.2   | 24    |
| 27             | 4.8  | 5.1  | 5.5  | 5.6  | 5.7  | 4.6  | 6.6  | 4.8  | 5.9  | 8.9  | 6.1   | 5.8   | 5.0   | 5.6   | 5.5   | 8.2   | 6.9   | 6.2   | 6.2   | 6.5   | 4.1   | 5.0   | 4.2   | 4.6   | 4.1   | 8.9   | 5.2   | 24    |
| 28             | 4.0  | 3.8  | 3.8  | 4.3  | 4.1  | 4.3  | 5.6  | 5.0  | 4.6  | 3.9  | 5.1   | 7.1   | 7.0   | 7.8   | 8.9   | 9.0   | 7.5   | 5.7   | 5.4   | 5.6   | 3.4   | 5.2   | 6.3   | 6.7   | 3.4   | 9.0   | 5.4   | 24    |
| 29             | 4.2  | 4.1  | 5.7  | 5.7  | 5.8  | 6.9  | 5.9  | 4.8  | 3.7  | 3.2  | 2.3   | 5.0   | 5.4   | 4.9   | 5.5   | 7.1   | 6.4   | 6.1   | 5.5   | 5.7   | 4.4   | 4.3   | 4.2   | 4.1   | 2.3   | 7.1   | 4.6   | 24    |
| 30             | 4.6  | 3.8  | 3.2  | 3.5  | 4.3  | 4.2  | 4.5  | 4.3  | 4.2  | 4.4  | 5.1   | 6.0   | 6.3   | 6.1   | 5.3   | 5.3   | 5.8   | 5.3   | 4.7   | 5.0   | 4.8   | 2.9   | 3.6   | 2.7   | 2.7   | 6.3   | 4.4   | 24    |
| HOURLY MAX     | 12.1 | 14.5 | 12.6 | 12.2 | 12.2 | 11.8 | 12.6 | 12.3 | 12.9 | 11.1 | 12.0  | 13.1  | 11.3  | 12.5  | 12.3  | 14.5  | 14.0  | 11.6  | 11.6  | 14.9  | 13.1  | 12.6  | 12.2  | 11.3  |       |       |       |       |

STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

|                   |                                     |
|-------------------|-------------------------------------|
| LAST CALIBRATION: | April 5, 2018                       |
| DECLINATION :     | MAGNETIC DECLINATION 15 DEGREE EAST |

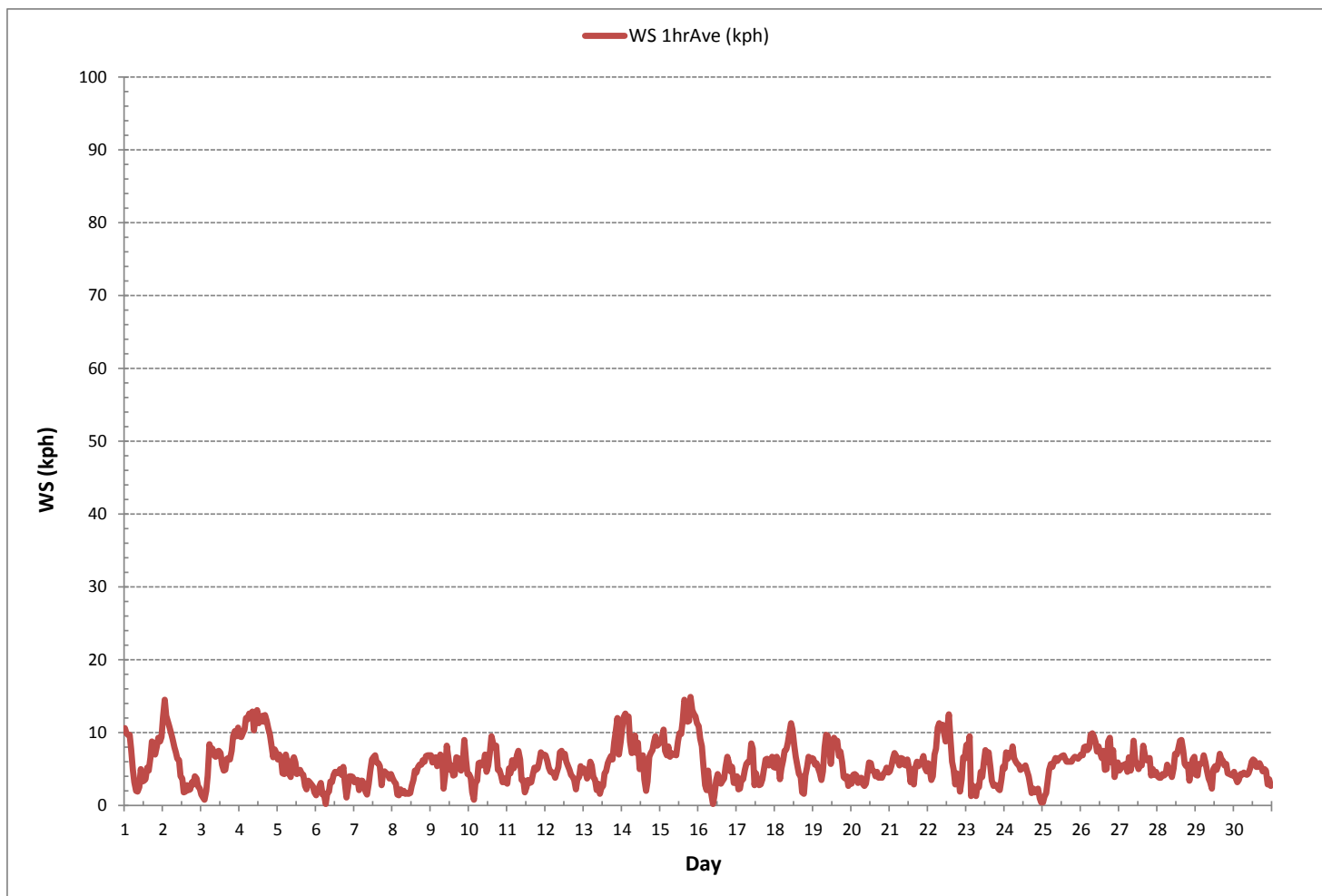
24 HR AVERAGES November 2018



MONTHLY SUMMARY

|                              |      |     |                       |    |        |     |
|------------------------------|------|-----|-----------------------|----|--------|-----|
| NUMBER OF NON-ZERO READINGS: |      | 720 |                       |    |        |     |
| MINIMUM 1-HR AVERAGE         | 0.2  | kph | @ HOUR                | 6  | ON DAY | 6   |
| MAXIMUM 1-HR AVERAGE:        | 14.9 | kph | @ HOUR                | 19 | ON DAY | 15  |
| MAXIMUM 24-HR AVERAGE:       | 10.1 | kph |                       |    | ON DAY | 4   |
|                              |      |     |                       |    |        |     |
| MONTHLY CALIBRATION TIME:    | 0    | hrs | OPERATIONAL TIME:     |    | 720    | hrs |
|                              |      |     | AMD OPERATION UPTIME: |    | 100.0  | %   |
| STANDARD DEVIATION:          | 2.6  |     | MONTHLY AVERAGE:      |    | 1.0    | kph |

WIND SPEED Hourly Averages (WS kph)



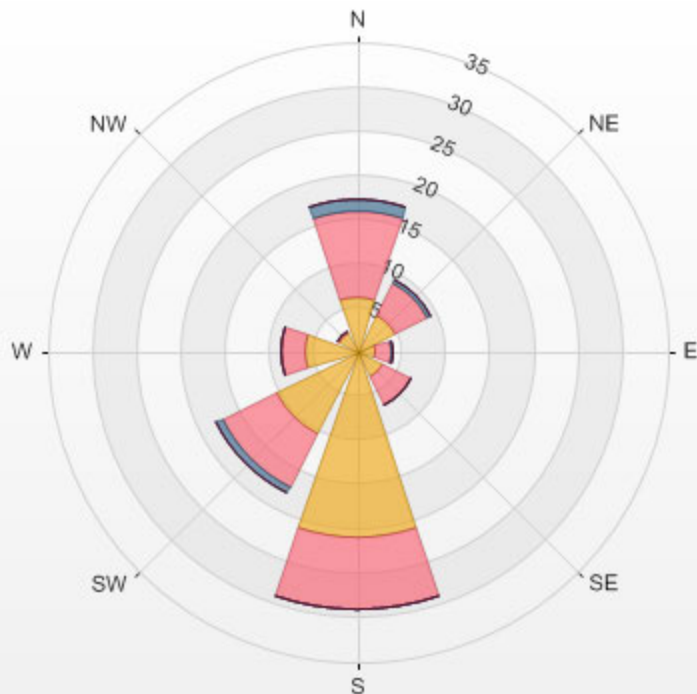
Wind: PRAMP\_RENO  
 Monitor: WSP [kph]  
 Monthly: 18/11  
 Type: WindRose  
 Direction: Blowing From (Wind Frequency)  
 Based On 1 Hr.

Calm: 4.58%

| Direction | 1.8-6.0 | 6.0-12.0 | 12.0-20.0 | 20.0-29.0 | 29.0-39.0 | >39.0 | Total |
|-----------|---------|----------|-----------|-----------|-----------|-------|-------|
| N         | 6.1     | 9.9      | 1.3       | 0.0       | 0.0       | 0.0   | 17.2  |
| NE        | 4.7     | 4.0      | 0.4       | 0.0       | 0.0       | 0.0   | 9.2   |
| E         | 2.1     | 1.7      | 0.3       | 0.0       | 0.0       | 0.0   | 4.0   |
| SE        | 3.1     | 3.6      | 0.1       | 0.0       | 0.0       | 0.0   | 6.8   |
| S         | 21.1    | 8.1      | 0.0       | 0.0       | 0.0       | 0.0   | 29.2  |
| SW        | 10.3    | 6.8      | 0.8       | 0.0       | 0.0       | 0.0   | 17.9  |
| W         | 6.0     | 2.6      | 0.0       | 0.0       | 0.0       | 0.0   | 8.6   |
| NW        | 2.4     | 0.1      | 0.0       | 0.0       | 0.0       | 0.0   | 2.5   |
| Summary   | 55.7    | 36.8     | 2.9       | 0.0       | 0.0       | 0.0   | 95.4  |

| %  | Icon                                                                              | Classes (kph) |
|----|-----------------------------------------------------------------------------------|---------------|
| 56 |    | 1.8-6.0       |
| 37 |    | 6.0-12.0      |
| 3  |    | 12.0-20.0     |
| 0  |   | 20.0-29.0     |
| 0  |  | 29.0-39.0     |
| 0  |  | >39.0         |

**PRAMP\_RENO 2018/11/01 00:00 - 2018/11/30 23:00** Calm: 4.58% Calm Wind Avg Speed: 1.31(kph)



## ***WIND DIRECTION***



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE  
Reno Station - November 2018

WIND DIRECTION Hourly Averages (WD)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | 24-HOUR AVG | 24-HR |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | QUADRANT    | RDGS. |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |       |    |
| 1              | N    | N    | NNW  | N    | N    | NNW  | NNW  | WNW  | N    | NE   | ENE   | ESE   | SE    | ESE   | ESE   | SE    | SE    | ESE   | ESE   | ESE   | ESE   | ESE   | ESE   | ESE   | ESE         | ENE   | 24 |
| 2              | ESE  | ESE  | ESE  | ESE  | ESE  | ESE  | ESE  | ESE  | ESE  | ESE  | ESE   | SE    | SE    | SE    | SSE   | SSW   | WSW   | W     | WSW   | SW    | SSW   | SW    | SSW   | SW    | S           | SE    | 24 |
| 3              | SSE  | S    | SW   | NW   | NW   | N    | N    | NNE  | NNE  | NNE  | NNE   | NNE   | NE    | NE    | NE    | NE    | NE    | NE    | NE    | NE    | ENE   | ENE   | ENE   | NE    | NE          | NE    | 24 |
| 4              | NE   | NE   | NNE  | NE   | NE   | NE   | NNE  | NNE  | NNE  | NNE  | NNE   | NNE   | NNE   | N     | N     | NNW   | NNW   | N     | N     | N     | N     | N     | N     | N     | N           | NNE   | 24 |
| 5              | N    | N    | NNE  | NE   | NE   | ENE  | ENE  | ENE  | ENE  | NE   | ENE   | ENE   | ENE   | NE    | NNE   | N     | NNE   | NNE   | NE    | E     | E     | ESE   | ESE   | ESE   | NE          | NE    | 24 |
| 6              | ESE  | ENE  | NE   | ENE  | NE   | NNE  | WSW  | W    | W    | WSW  | WNW   | NW    | WNW   | W     | W     | W     | W     | WSW   | WSW   | SSW   | SSW   | SW    | SW    | SW    | SW          | W     | 24 |
| 7              | SW   | SW   | SW   | SSW  | SW   | SW   | SW   | SSW  | SSW  | SW   | SW    | WSW   | WSW   | SW    | SW    | SW    | SW    | SSW   | SW    | SW    | SSW   | SSW   | SSW   | SSW   | SW          | SW    | 24 |
| 8              | SW   | SW   | SW   | SSW  | S    | SSW  | S    | SSW  | SSW  | SSW  | SSW   | SSE   | S     | SSE   | SSE   | S     | SSE   | SSE   | S     | S     | S     | S     | S     | S     | S           | S     | 24 |
| 9              | S    | S    | S    | S    | S    | S    | S    | SSW  | SSW  | SSW  | WSW   | W     | W     | W     | W     | W     | WSW   | WSW   | WSW   | W     | WNW   | NNW   | N     | NNW   | NNW         | WSW   | 24 |
| 10             | N    | NNE  | N    | SW   | SSW  | WSW  | WSW  | WSW  | WSW  | WSW  | WSW   | W     | WNW   | N     | N     | N     | N     | NNE   | NNE   | NNE   | NNE   | NNW   | NNW   | N     | NNW         | NNW   | 24 |
| 11             | N    | NNE  | N    | NNE  | NNE  | N    | N    | NNE  | NE   | NNE  | E     | NNE   | SSE   | S     | S     | S     | S     | SSE   | SSE   | SSE   | SSE   | SSE   | SSE   | S     | E           | 24    |    |
| 12             | S    | S    | S    | S    | S    | SSW  | SSW  | SSW  | SW   | SW   | SW    | SW    | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW         | SSW   | 24 |
| 13             | SSW  | SSW  | SSW  | S    | SSW  | S    | S    | S    | S    | S    | SSE   | S     | S     | S     | S     | S     | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW         | SSW   | 24 |
| 14             | SW   | SW   | SW   | SW   | SW   | SW   | WSW  | WSW  | WSW  | SW   | WSW   | W     | WSW   | WSW   | W     | WNW   | NNW   | NNW   | N     | N     | N     | N     | N     | N     | N           | W     | 24 |
| 15             | N    | N    | N    | NNE  | NNE  | N    | N    | NNE  | NNE  | NNE  | NNE   | N     | NNE   | NNE   | NNE   | NE    | NE    | NNE   | N     | N     | N     | N     | N     | N     | N           | NNE   | 24 |
| 16             | NNW  | NNW  | NNW  | NNW  | NW   | NW   | NNW  | N    | NNW  | ESE  | S     | S     | S     | S     | S     | S     | S     | SSW   | SSW   | S     | S     | S     | S     | S     | S           | WSW   | 24 |
| 17             | SSW  | S    | S    | S    | SSW  | SSW  | SW   | SW   | SW   | SW   | WSW   | WSW   | SSW   | SW    | SSW   | S     | S     | S     | S     | S     | S     | S     | S     | S     | SSW         | SSW   | 24 |
| 18             | SW   | SW   | WSW  | SW   | WSW  | W    | W    | W    | NNW  | N    | N     | N     | NNW   | N     | N     | NNE   | NNE   | ESE   | SSE   | SSE   | SSE   | S     | S     | S     | WNW         | 24    |    |
| 19             | S    | S    | S    | S    | SSW  | SSW  | SW   | SW   | WSW  | WSW  | SW    | SW    | SW    | SW    | SW    | SW    | SW    | SW    | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW         | SSW   | 24 |
| 20             | SSW  | SSW  | S    | S    | SSW  | SSW  | S    | SSW  | SSW  | SSW  | SSW   | SSW   | S     | S     | S     | S     | SSW   | SSW   | S     | S     | S     | S     | S     | S     | S           | S     | 24 |
| 21             | S    | S    | S    | S    | S    | S    | S    | S    | S    | S    | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S           | S     | 24 |
| 22             | SSW  | SW   | SSW  | SW   | SW   | SW   | SW   | SW   | SW   | SW   | SW    | WSW   | WSW   | WSW   | W     | W     | WNW   | WSW   | W     | NW    | NNW   | N     | N     | N     | N           | WSW   | 24 |
| 23             | N    | N    | NNE  | NNW  | W    | NNE  | N    | N    | ENE  | E    | ESE   | ENE   | NE    | NE    | NE    | NNE   | NE    | NE    | ENE   | NE    | NNE   | NE    | NNE   | NE    | NE          | NE    | 24 |
| 24             | E    | ESE  | SE   | SE   | SE   | SE   | SSE  | SSE  | SSE  | S    | S     | S     | S     | SSW   | SW    | WSW   | WSW   | WNW   | NNW   | NW    | NNW   | N     | NNE   | S     | SSE         | 24    |    |
| 25             | SSE  | SSE  | S    | S    | S    | S    | S    | S    | S    | S    | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | S     | SSE   | SSE         | S     | 24 |
| 26             | SSE  | SSE  | SSE  | SSE  | SSE  | SSE  | SSE  | SSE  | SSE  | SSE  | SSE   | SSE   | SSE   | SSE   | SSE   | E     | SE    | SE    | SE    | SSE   | SE    | SSE   | SSE   | SSE   | SSE         | SSE   | 24 |
| 27             | SE   | SSE  | SE   | SSE  | SE   | SSE  | SSE  | S    | SE   | SE   | SE    | E     | SE    | SSE   | ESE   | E     | ESE   | ESE   | SE    | SE    | SSE   | S     | S     | S     | SE          | 24    |    |
| 28             | S    | S    | SSW  | SSW  | S    | SSW  | SSW  | SSW  | S    | S    | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SSW   | SW    | SW    | SW    | SW    | SW    | SW    | SW    | WSW         | SSW   | 24 |
| 29             | W    | WSW  | WSW  | W    | W    | W    | W    | W    | W    | WNW  | WNW   | W     | W     | W     | WSW   | WSW   | WSW   | WSW   | WSW   | W     | W     | NNW   | NNW   | N     | W           | 24    |    |
| 30             | N    | N    | N    | N    | N    | N    | N    | N    | N    | N    | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE   | NNE         | NNE   | 24 |

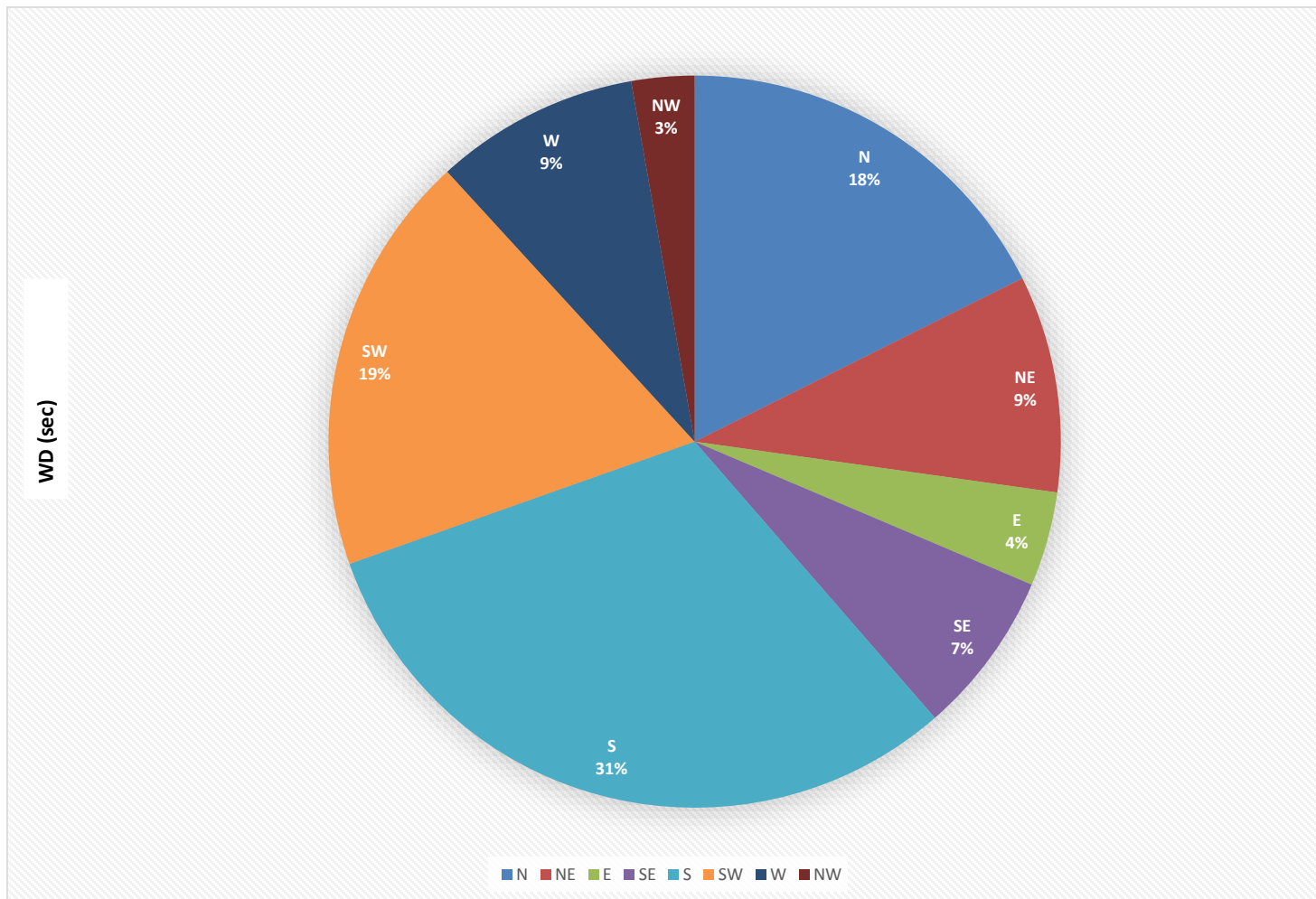
STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

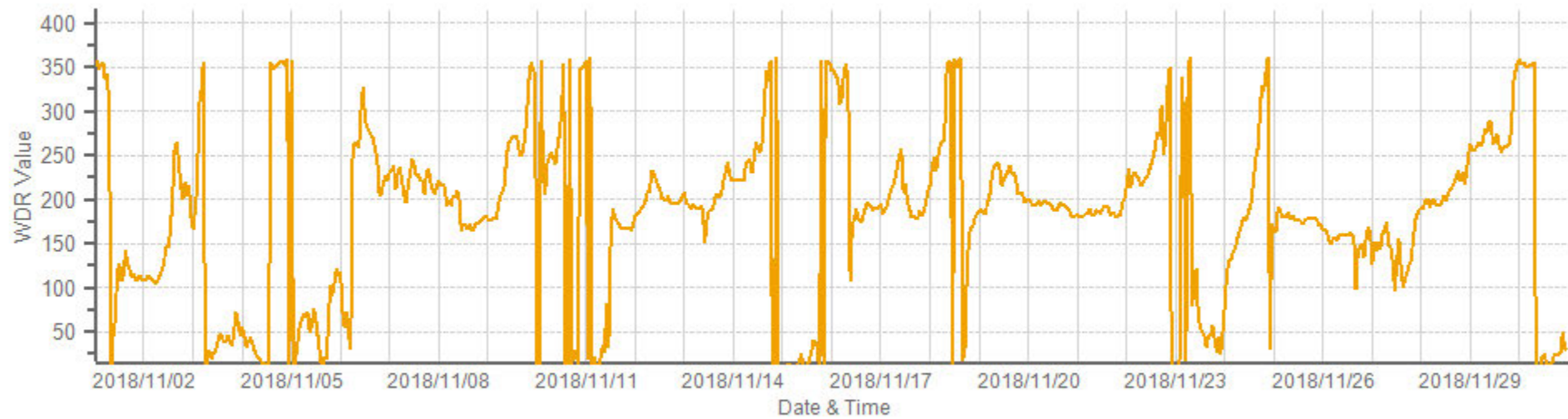
|                   |                                     |
|-------------------|-------------------------------------|
| LAST CALIBRATION: | April 5, 2018                       |
| DECLINATION :     | MAGNETIC DECLINATION 15 DEGREE EAST |

|                           |    |     |                       |           |     |
|---------------------------|----|-----|-----------------------|-----------|-----|
| MONTHLY CALIBRATION TIME: | 0  | hrs | OPERATIONAL TIME:     | 720       | hrs |
| STANDARD DEVIATION:       | 95 |     | AMD OPERATION UPTIME: | 100.0     | %   |
|                           |    |     | MONTHLY AVERAGE:      | 201 (SSW) |     |

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP\_RENO Monthly: 18/11 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

## ***RELATIVE HUMIDITY***

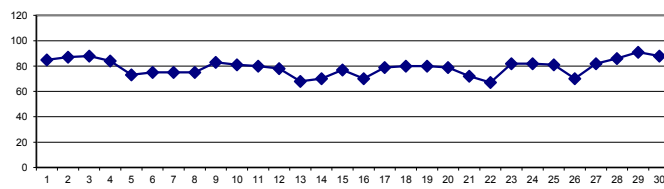
RELATIVE HUMIDITY Hourly Averages (RH %)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 91   | 91   | 88    | 86    | 83    | 75    | 77    | 77    | 76    | 77    | 79    | 79    | 78    | 79    | 81    | 83    | 75    | 92    | 85    | 24    |    |
| 2              | 82   | 80   | 79   | 80   | 85   | 87   | 88   | 88   | 88   | 87   | 88    | 87    | 85    | 85    | 85    | 87    | 89    | 90    | 91    | 91    | 90    | 91    | 91    | 91    | 79    | 91    | 87    | 24    |    |
| 3              | 92   | 92   | 93   | 93   | 94   | 91   | 88   | 86   | 85   | 83   | 84    | 82    | 82    | 83    | 88    | 90    | 91    | 91    | 91    | 91    | 89    | 86    | 87    | 88    | 82    | 94    | 88    | 24    |    |
| 4              | 87   | 88   | 89   | 88   | 87   | 87   | 88   | 87   | 85   | 85   | 84    | 83    | 82    | 82    | 82    | 81    | 81    | 82    | 82    | 82    | 81    | 82    | 81    | 81    | 81    | 81    | 89    | 84    | 24 |
| 5              | 82   | 81   | 79   | 78   | 78   | 76   | 76   | 76   | 76   | 73   | 71    | 70    | 67    | 67    | 67    | 68    | 70    | 71    | 73    | 72    | 72    | 72    | 72    | 74    | 67    | 82    | 73    | 24    |    |
| 6              | 74   | 74   | 74   | 76   | 76   | 76   | 76   | 76   | 77   | 77   | 75    | 71    | 71    | 69    | 69    | 70    | 72    | 74    | 77    | 79    | 76    | 78    | 78    | 78    | 69    | 79    | 75    | 24    |    |
| 7              | 78   | 78   | 77   | 76   | 75   | 76   | 75   | 74   | 73   | 74   | 74    | 75    | 74    | 71    | 70    | 72    | 76    | 77    | 77    | 78    | 78    | 78    | 76    | 76    | 70    | 78    | 75    | 24    |    |
| 8              | 77   | 76   | 75   | 74   | 72   | 74   | 74   | 73   | 74   | 73   | 72    | 74    | 73    | 68    | 67    | 72    | 78    | 80    | 81    | 82    | 81    | 81    | 80    | 81    | 67    | 82    | 75    | 24    |    |
| 9              | 82   | 82   | 82   | 83   | 83   | 84   | 84   | 85   | 86   | 83   | 78    | 79    | 76    | 76    | 77    | 79    | 82    | 85    | 89    | 92    | 92    | 89    | 87    | 86    | 76    | 92    | 83    | 24    |    |
| 10             | 87   | 86   | 85   | 87   | 87   | 88   | 89   | 87   | 87   | 87   | 85    | 78    | 69    | 74    | 76    | 75    | 75    | 73    | 73    | 76    | 77    | 77    | 78    | 80    | 69    | 89    | 81    | 24    |    |
| 11             | 81   | 84   | 86   | 85   | 84   | 84   | 84   | 84   | 83   | 82   | 82    | 81    | 80    | 72    | 66    | 71    | 78    | 79    | 80    | 80    | 80    | 80    | 81    | 82    | 66    | 86    | 80    | 24    |    |
| 12             | 82   | 83   | 83   | 83   | 84   | 83   | 82   | 82   | 83   | 81   | 79    | 74    | 68    | 70    | 71    | 72    | 74    | 77    | 77    | 79    | 82    | 78    | 74    | 71    | 68    | 84    | 78    | 24    |    |
| 13             | 68   | 71   | 70   | 70   | 70   | 69   | 76   | 81   | 82   | 76   | 71    | 62    | 61    | 65    | 70    | 66    | 68    | 70    | 68    | 60    | 57    | 54    | 62    | 65    | 54    | 82    | 68    | 24    |    |
| 14             | 65   | 67   | 66   | 66   | 68   | 70   | 70   | 74   | 70   | 70   | 65    | 61    | 59    | 60    | 61    | 64    | 76    | 76    | 75    | 77    | 79    | 80    | 80    | 80    | 59    | 80    | 70    | 24    |    |
| 15             | 80   | 81   | 82   | 82   | 81   | 78   | 78   | 78   | 78   | 80   | 79    | 78    | 75    | 77    | 79    | 73    | 70    | 72    | 75    | 73    | 74    | 76    | 76    | 75    | 70    | 82    | 77    | 24    |    |
| 16             | 74   | 73   | 73   | 74   | 75   | 74   | 74   | 73   | 71   | 71   | 69    | 66    | 62    | 57    | 54    | 60    | 70    | 74    | 76    | 75    | 74    | 76    | 74    | 73    | 54    | 76    | 70    | 24    |    |
| 17             | 74   | 73   | 73   | 74   | 74   | 75   | 78   | 78   | 77   | 77   | 77    | 75    | 76    | 75    | 75    | 78    | 80    | 81    | 83    | 87    | 90    | 91    | 91    | 88    | 73    | 91    | 79    | 24    |    |
| 18             | 86   | 82   | 78   | 78   | 77   | 77   | 77   | 76   | 81   | 80   | 78    | 79    | 78    | 78    | 78    | 78    | 79    | 79    | 80    | 82    | 84    | 85    | 85    | 86    | 76    | 86    | 80    | 24    |    |
| 19             | 86   | 86   | 86   | 87   | 87   | 88   | 89   | 86   | 83   | 81   | 80    | 79    | 75    | 72    | 69    | 70    | 72    | 72    | 71    | 74    | 82    | 83    | 85    | 87    | 69    | 89    | 80    | 24    |    |
| 20             | 87   | 86   | 84   | 85   | 86   | 86   | 85   | 87   | 86   | 83   | 78    | 68    | 67    | 71    | 67    | 70    | 73    | 77    | 78    | 78    | 78    | 79    | 79    | 79    | 67    | 87    | 79    | 24    |    |
| 21             | 79   | 79   | 76   | 77   | 78   | 77   | 75   | 75   | 75   | 76   | 73    | 71    | 67    | 63    | 61    | 61    | 68    | 70    | 71    | 70    | 68    | 72    | 71    | 69    | 61    | 79    | 72    | 24    |    |
| 22             | 68   | 68   | 72   | 75   | 67   | 66   | 63   | 63   | 68   | 66   | 60    | 57    | 53    | 51    | 52    | 58    | 64    | 71    | 72    | 74    | 78    | 79    | 79    | 80    | 51    | 80    | 67    | 24    |    |
| 23             | 80   | 82   | 83   | 83   | 81   | 82   | 82   | 82   | 83   | 84   | 83    | 84    | 82    | 81    | 78    | 78    | 82    | 84    | 84    | 84    | 83    | 83    | 83    | 83    | 78    | 84    | 82    | 24    |    |
| 24             | 83   | 82   | 82   | 81   | 80   | 80   | 80   | 82   | 83   | 82   | 80    | 79    | 78    | 77    | 79    | 80    | 82    | 83    | 83    | 83    | 84    | 86    | 87    | 87    | 77    | 87    | 82    | 24    |    |
| 25             | 86   | 86   | 86   | 86   | 85   | 86   | 86   | 86   | 86   | 86   | 83    | 78    | 73    | 72    | 69    | 72    | 76    | 79    | 79    | 80    | 80    | 79    | 79    | 79    | 69    | 86    | 81    | 24    |    |
| 26             | 73   | 74   | 73   | 72   | 70   | 70   | 71   | 70   | 68   | 68   | 66    | 65    | 65    | 65    | 65    | 65    | 67    | 66    | 67    | 71    | 69    | 73    | 76    | 79    | 65    | 79    | 70    | 24    |    |
| 27             | 78   | 77   | 77   | 77   | 78   | 81   | 83   | 85   | 86   | 84   | 78    | 76    | 73    | 76    | 76    | 78    | 81    | 84    | 87    | 89    | 90    | 91    | 92    | 92    | 73    | 92    | 82    | 24    |    |
| 28             | 93   | 93   | 93   | 93   | 93   | 91   | 92   | 90   | 90   | 89   | 90    | 89    | 82    | 79    | 77    | 77    | 78    | 78    | 79    | 80    | 80    | 84    | 83    | 86    | 77    | 93    | 86    | 24    |    |
| 29             | 88   | 90   | 90   | 90   | 87   | 90   | 91   | 91   | 92   | 92   | 91    | 90    | 89    | 87    | 89    | 92    | 93    | 93    | 94    | 94    | 94    | 93    | 92    | 92    | 87    | 94    | 91    | 24    |    |
| 30             | 92   | 91   | 91   | 91   | 91   | 90   | 90   | 90   | 90   | 90   | 89    | 89    | 87    | 86    | 86    | 86    | 86    | 86    | 85    | 85    | 85    | 85    | 84    | 84    | 84    | 92    | 88    | 24    |    |
| HOURLY MAX     | 93   | 93   | 93   | 93   | 94   | 92   | 92   | 92   | 92   | 92   | 91    | 90    | 89    | 87    | 89    | 92    | 93    | 93    | 94    | 94    | 94    | 93    | 92    | 92    |       |       |       |       |    |
| HOURLY AVG     | 81   | 81   | 81   | 81   | 81   | 81   | 81   | 81   | 81   | 80   | 78    | 76    | 74    | 73    | 73    | 74    | 77    | 78    | 79    | 80    | 80    | 81    | 81    | 81    |       |       |       |       |    |

STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

24 HR AVERAGES November 2018

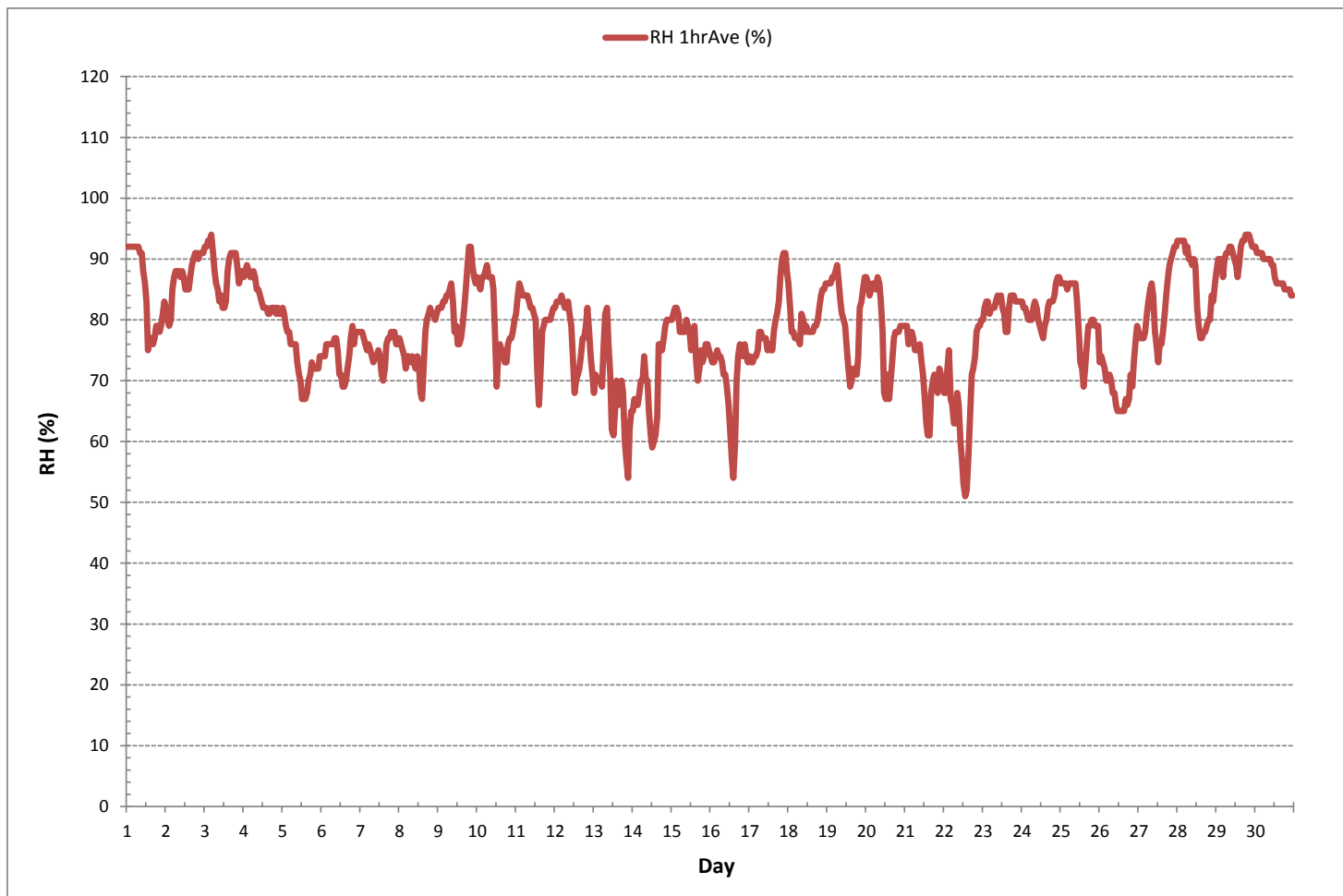


MONTHLY SUMMARY

|                        |    |   |        |    |        |    |
|------------------------|----|---|--------|----|--------|----|
| MINIMUM 1-HR AVERAGE:  | 51 | % | @ HOUR | 13 | ON DAY | 22 |
| MAXIMUM 1-HR AVERAGE:  | 94 | % | @ HOUR | 4  | ON DAY | 3  |
| MAXIMUM 24-HR AVERAGE: | 91 | % |        |    | ON DAY | 29 |

|                       |       |     |
|-----------------------|-------|-----|
| OPERATIONAL TIME:     | 720   | hrs |
| AMD OPERATION UPTIME: | 100.0 | %   |
| STANDARD DEVIATION:   | 8     |     |
| MONTHLY AVERAGE:      | 79    | %   |

RELATIVE HUMIDITY Hourly Averages (RH %)



## ***BAROMETRIC PRESSURE***

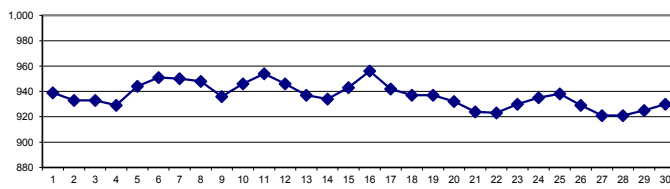
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 938  | 939  | 940  | 941  | 941  | 942  | 942  | 942  | 943  | 943  | 942   | 942   | 942   | 941   | 940   | 940   | 939   | 938   | 937   | 936   | 936   | 934   | 934   | 933   | 933   | 933   | 943   | 939   | 24 |
| 2              | 932  | 931  | 931  | 930  | 930  | 929  | 930  | 930  | 930  | 931  | 931   | 932   | 932   | 933   | 934   | 934   | 935   | 935   | 936   | 935   | 936   | 936   | 936   | 935   | 929   | 936   | 936   | 933   | 24 |
| 3              | 935  | 935  | 935  | 935  | 935  | 936  | 936  | 936  | 936  | 936  | 935   | 935   | 934   | 933   | 932   | 932   | 931   | 930   | 930   | 929   | 928   | 927   | 926   | 925   | 925   | 936   | 933   | 24    |    |
| 4              | 924  | 923  | 923  | 922  | 921  | 921  | 921  | 922  | 923  | 924  | 925   | 927   | 928   | 929   | 931   | 932   | 934   | 935   | 936   | 937   | 938   | 938   | 939   | 939   | 921   | 939   | 929   | 24    |    |
| 5              | 940  | 940  | 941  | 941  | 941  | 942  | 942  | 943  | 943  | 943  | 944   | 944   | 944   | 944   | 945   | 946   | 946   | 946   | 947   | 947   | 948   | 948   | 948   | 948   | 940   | 948   | 944   | 24    |    |
| 6              | 949  | 949  | 949  | 949  | 950  | 950  | 950  | 951  | 951  | 951  | 952   | 952   | 952   | 952   | 952   | 952   | 952   | 952   | 952   | 953   | 952   | 952   | 952   | 952   | 949   | 953   | 951   | 24    |    |
| 7              | 952  | 951  | 951  | 951  | 951  | 951  | 951  | 951  | 951  | 950  | 950   | 950   | 950   | 950   | 950   | 950   | 950   | 951   | 950   | 950   | 950   | 949   | 950   | 950   | 949   | 952   | 950   | 24    |    |
| 8              | 950  | 950  | 950  | 950  | 950  | 950  | 950  | 950  | 950  | 950  | 949   | 950   | 949   | 948   | 948   | 947   | 947   | 946   | 945   | 944   | 943   | 942   | 941   | 941   | 941   | 950   | 948   | 24    |    |
| 9              | 940  | 939  | 938  | 937  | 936  | 935  | 934  | 933  | 933  | 933  | 933   | 933   | 934   | 934   | 934   | 935   | 935   | 935   | 936   | 937   | 938   | 940   | 940   | 941   | 933   | 941   | 936   | 24    |    |
| 10             | 942  | 942  | 943  | 943  | 943  | 943  | 943  | 944  | 944  | 944  | 945   | 945   | 945   | 946   | 947   | 947   | 947   | 948   | 948   | 949   | 950   | 950   | 951   | 951   | 942   | 951   | 946   | 24    |    |
| 11             | 952  | 952  | 953  | 953  | 954  | 955  | 955  | 956  | 956  | 957  | 957   | 958   | 957   | 957   | 957   | 956   | 955   | 954   | 954   | 953   | 952   | 951   | 950   | 949   | 949   | 958   | 954   | 24    |    |
| 12             | 949  | 948  | 948  | 947  | 947  | 946  | 947  | 946  | 947  | 946  | 947   | 947   | 946   | 946   | 946   | 945   | 945   | 945   | 944   | 944   | 944   | 944   | 943   | 943   | 943   | 943   | 949   | 946   | 24 |
| 13             | 942  | 942  | 941  | 940  | 940  | 939  | 938  | 938  | 938  | 937  | 937   | 937   | 936   | 935   | 934   | 934   | 934   | 934   | 934   | 934   | 934   | 934   | 934   | 934   | 934   | 942   | 937   | 24    |    |
| 14             | 933  | 932  | 932  | 932  | 931  | 931  | 932  | 932  | 932  | 933  | 933   | 933   | 933   | 934   | 934   | 934   | 934   | 935   | 935   | 936   | 936   | 937   | 938   | 938   | 931   | 938   | 934   | 24    |    |
| 15             | 939  | 940  | 940  | 941  | 941  | 942  | 942  | 942  | 942  | 941  | 941   | 942   | 942   | 941   | 941   | 941   | 942   | 943   | 945   | 947   | 948   | 950   | 951   | 952   | 939   | 952   | 943   | 24    |    |
| 16             | 953  | 954  | 955  | 956  | 957  | 957  | 957  | 958  | 958  | 958  | 958   | 958   | 957   | 957   | 957   | 956   | 956   | 956   | 955   | 954   | 953   | 952   | 952   | 950   | 950   | 958   | 956   | 24    |    |
| 17             | 949  | 949  | 948  | 947  | 947  | 946  | 946  | 945  | 945  | 945  | 944   | 944   | 944   | 943   | 942   | 941   | 940   | 939   | 937   | 936   | 935   | 934   | 933   | 933   | 933   | 949   | 942   | 24    |    |
| 18             | 933  | 932  | 932  | 933  | 933  | 934  | 934  | 935  | 936  | 937  | 938   | 939   | 939   | 940   | 940   | 940   | 940   | 940   | 940   | 940   | 939   | 939   | 938   | 938   | 932   | 940   | 937   | 24    |    |
| 19             | 938  | 938  | 938  | 938  | 937  | 937  | 937  | 937  | 937  | 937  | 937   | 938   | 937   | 937   | 936   | 936   | 936   | 936   | 936   | 936   | 935   | 935   | 935   | 934   | 934   | 938   | 937   | 24    |    |
| 20             | 934  | 934  | 934  | 933  | 933  | 933  | 933  | 932  | 932  | 932  | 933   | 933   | 933   | 932   | 932   | 932   | 931   | 931   | 931   | 930   | 930   | 929   | 929   | 929   | 929   | 934   | 932   | 24    |    |
| 21             | 929  | 928  | 928  | 927  | 927  | 926  | 926  | 926  | 926  | 925  | 925   | 925   | 924   | 924   | 923   | 923   | 922   | 922   | 921   | 921   | 921   | 921   | 921   | 921   | 921   | 929   | 924   | 24    |    |
| 22             | 922  | 922  | 922  | 922  | 922  | 922  | 922  | 922  | 922  | 922  | 922   | 922   | 922   | 923   | 923   | 923   | 923   | 924   | 924   | 924   | 925   | 926   | 926   | 926   | 922   | 926   | 923   | 24    |    |
| 23             | 926  | 927  | 927  | 928  | 928  | 928  | 929  | 929  | 929  | 930  | 930   | 930   | 930   | 930   | 930   | 931   | 931   | 931   | 932   | 932   | 932   | 932   | 932   | 932   | 926   | 932   | 930   | 24    |    |
| 24             | 932  | 932  | 933  | 933  | 933  | 933  | 933  | 933  | 933  | 934  | 934   | 934   | 934   | 935   | 935   | 936   | 936   | 937   | 937   | 938   | 938   | 938   | 938   | 939   | 932   | 939   | 935   | 24    |    |
| 25             | 938  | 939  | 939  | 939  | 939  | 938  | 938  | 938  | 938  | 938  | 938   | 939   | 939   | 938   | 938   | 938   | 938   | 938   | 938   | 937   | 937   | 937   | 937   | 936   | 936   | 939   | 938   | 24    |    |
| 26             | 935  | 935  | 935  | 934  | 933  | 933  | 933  | 932  | 931  | 931  | 930   | 930   | 930   | 929   | 929   | 928   | 928   | 927   | 927   | 926   | 925   | 925   | 924   | 924   | 924   | 935   | 929   | 24    |    |
| 27             | 924  | 924  | 924  | 924  | 923  | 923  | 922  | 922  | 922  | 921  | 921   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 920   | 924   | 921   | 24    |    |
| 28             | 920  | 921  | 921  | 921  | 921  | 921  | 921  | 921  | 921  | 921  | 921   | 921   | 921   | 921   | 921   | 922   | 922   | 922   | 922   | 922   | 922   | 922   | 922   | 923   | 920   | 923   | 921   | 24    |    |
| 29             | 923  | 923  | 923  | 923  | 923  | 923  | 923  | 924  | 924  | 924  | 925   | 925   | 925   | 925   | 925   | 925   | 925   | 925   | 925   | 925   | 925   | 926   | 926   | 926   | 923   | 926   | 925   | 24    |    |
| 30             | 926  | 927  | 927  | 927  | 928  | 928  | 928  | 928  | 929  | 929  | 930   | 930   | 931   | 931   | 931   | 932   | 932   | 932   | 933   | 933   | 933   | 934   | 934   | 934   | 926   | 934   | 930   | 24    |    |
| HOURLY MAX     | 953  | 954  | 955  | 956  | 957  | 957  | 957  | 958  | 958  | 958  | 958   | 958   | 957   | 957   | 957   | 956   | 956   | 956   | 955   | 954   | 953   | 952   | 952   | 952   |       |       |       |       |    |
| HOURLY AVG     | 937  | 937  | 937  | 937  | 937  | 936  | 936  | 937  | 937  | 937  | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   | 937   |       |       |       |       |    |

STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

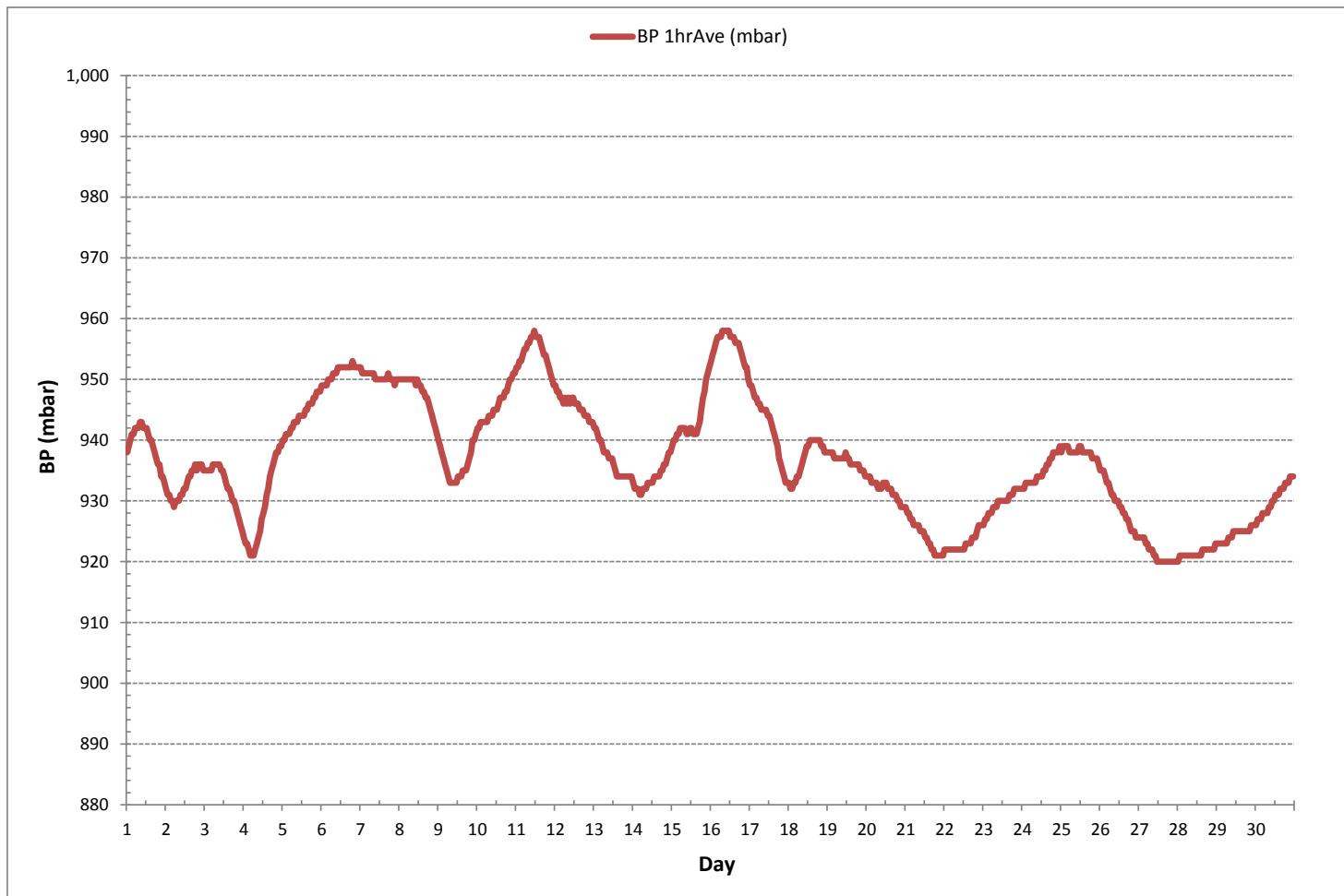
24 HR AVERAGES November 2018



MONTHLY SUMMARY

|                        |     |      |        |    |                  |          |
|------------------------|-----|------|--------|----|------------------|----------|
| MINIMUM 1-HR AVERAGE:  | 920 | mbar | @ HOUR | 11 | ON DAY           | 27       |
| MAXIMUM 1-HR AVERAGE:  | 958 | mbar | @ HOUR | 11 | ON DAY           | 11       |
| MAXIMUM 24-HR AVERAGE: | 956 | mbar |        |    | ON DAY           | 16       |
| OPERATIONAL TIME:      |     |      |        |    |                  | 720 hrs  |
| AMD OPERATION UPTIME:  |     |      |        |    |                  | 100.0 %  |
| STANDARD DEVIATION:    | 10  |      |        |    | MONTHLY AVERAGE: | 937 mbar |

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



## ***AMBIENT TEMPERATURE***



## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

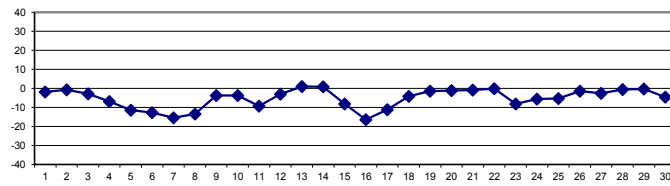
## AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

| HR START (MST) | 0:00  | 1:00  | 2:00  | 3:00  | 4:00  | 5:00  | 6:00  | 7:00  | 8:00  | 9:00  | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59  | 1:59  | 2:59  | 3:59  | 4:59  | 5:59  | 6:59  | 7:59  | 8:59  | 9:59  | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY            |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1              | -3.2  | -3.3  | -3.3  | -3.2  | -3.1  | -3.1  | -3.0  | -2.9  | -2.7  | -2.6  | -2.2  | -1.7  | -1.0  | -0.7  | -0.7  | -0.7  | -0.8  | -1.0  | -1.0  | -0.9  | -0.8  | -0.8  | -0.8  | -0.9  | -3.3  | -0.7  | -1.9  | 24    |
| 2              | -0.9  | -0.9  | -0.8  | -0.8  | -1.1  | -1.2  | -1.3  | -1.4  | -1.3  | -1.2  | -0.9  | -0.4  | -0.1  | 0.0   | -0.1  | -0.2  | -0.3  | -0.5  | -0.6  | -0.7  | -0.8  | -0.8  | -0.9  | -0.8  | -1.4  | 0.0   | -0.7  | 24    |
| 3              | -0.8  | -0.7  | -0.5  | -0.5  | -0.8  | -2.8  | -4.1  | -4.6  | -4.9  | -4.7  | -4.5  | -4.1  | -3.8  | -2.8  | -2.4  | -2.1  | -2.3  | -2.4  | -2.6  | -2.8  | -3.0  | -3.1  | -3.4  | -3.7  | -4.9  | -0.5  | -2.8  | 24    |
| 4              | -3.7  | -3.8  | -4.0  | -4.0  | -4.3  | -4.6  | -5.0  | -5.2  | -5.5  | -5.8  | -6.0  | -5.9  | -5.9  | -6.2  | -7.0  | -7.7  | -8.9  | -9.3  | -9.5  | -9.6  | -9.8  | -10.0 | -10.3 | -10.7 | -10.7 | -3.7  | -6.8  | 24    |
| 5              | -11.0 | -11.2 | -11.6 | -12.5 | -12.5 | -12.0 | -11.9 | -12.0 | -11.9 | -11.5 | -11.2 | -11.0 | -10.7 | -10.7 | -10.7 | -10.9 | -11.2 | -11.4 | -11.6 | -11.7 | -11.8 | -11.9 | -11.9 | -12.1 | -12.5 | -10.7 | -11.5 | 24    |
| 6              | -12.1 | -12.2 | -12.3 | -12.5 | -12.6 | -12.6 | -12.5 | -12.5 | -12.4 | -12.1 | -11.6 | -11.2 | -11.1 | -11.1 | -11.0 | -11.1 | -11.3 | -11.5 | -12.4 | -15.2 | -16.1 | -14.5 | -15.1 | -17.3 | -17.3 | -11.0 | -12.7 | 24    |
| 7              | -14.8 | -15.0 | -14.8 | -16.3 | -17.4 | -16.8 | -17.7 | -18.5 | -19.1 | -15.8 | -14.9 | -14.3 | -13.4 | -12.9 | -12.5 | -12.8 | -14.2 | -15.8 | -16.0 | -13.4 | -14.2 | -14.7 | -17.0 | -16.6 | -19.1 | -12.5 | -15.4 | 24    |
| 8              | -16.4 | -17.1 | -17.4 | -18.2 | -19.4 | -19.7 | -19.4 | -19.2 | -18.2 | -17.5 | -15.7 | -12.6 | -9.8  | -8.2  | -7.4  | -8.8  | -9.7  | -10.6 | -11.1 | -10.7 | -10.1 | -9.0  | -8.7  | -8.7  | -19.7 | -7.4  | -13.5 | 24    |
| 9              | -8.1  | -7.5  | -6.8  | -6.6  | -6.1  | -5.2  | -3.7  | -3.5  | -3.4  | -2.6  | -1.6  | -2.5  | -2.5  | -2.2  | -2.3  | -2.6  | -3.2  | -3.3  | -2.9  | -1.2  | -0.7  | -2.2  | -3.8  | -4.2  | -8.1  | -0.7  | -3.7  | 24    |
| 10             | -4.5  | -4.9  | -5.3  | -5.7  | -5.5  | -4.3  | -3.8  | -3.4  | -2.9  | -2.2  | -0.8  | 0.6   | 1.9   | 0.5   | -1.6  | -2.8  | -4.0  | -4.8  | -5.6  | -6.1  | -5.9  | -6.1  | -6.1  | -6.3  | -6.3  | 1.9   | -3.7  | 24    |
| 11             | -6.6  | -8.0  | -9.5  | -9.5  | -9.1  | -9.0  | -9.5  | -9.6  | -9.8  | -10.1 | -9.9  | -9.8  | -9.4  | -7.6  | -7.3  | -8.9  | -11.0 | -11.2 | -11.4 | -11.8 | -11.1 | -9.1  | -7.9  | -7.1  | -11.8 | -6.6  | -9.3  | 24    |
| 12             | -6.9  | -7.3  | -7.6  | -7.6  | -7.9  | -6.2  | -4.6  | -4.3  | -4.1  | -3.6  | -3.1  | -1.8  | -0.1  | -0.4  | 0.0   | -0.2  | -0.3  | -0.9  | -0.3  | -0.9  | -1.8  | -0.5  | -0.4  | 0.0   | -7.9  | 0.0   | -3.0  | 24    |
| 13             | -0.2  | -2.0  | -1.7  | -1.5  | -0.7  | -0.2  | -2.3  | -3.7  | -3.4  | -2.0  | -0.4  | 1.9   | 2.4   | 2.2   | 1.7   | 2.8   | 2.8   | 2.7   | 3.3   | 4.0   | 4.2   | 5.7   | 4.4   | 3.5   | -3.7  | 5.7   | 1.0   | 24    |
| 14             | 3.3   | 3.0   | 3.7   | 3.9   | 3.6   | 3.1   | 2.8   | 1.9   | 2.4   | 2.1   | 3.4   | 4.3   | 4.8   | 4.7   | 4.2   | 3.4   | 0.1   | -2.2  | -3.0  | -3.8  | -5.0  | -6.0  | -6.1  | -6.3  | -6.3  | 4.8   | 0.9   | 24    |
| 15             | -6.9  | -7.4  | -7.0  | -6.7  | -6.1  | -6.2  | -6.4  | -6.7  | -7.0  | -7.1  | -6.5  | -6.6  | -6.6  | -6.6  | -6.8  | -7.2  | -7.8  | -8.4  | -9.8  | -11.7 | -12.4 | -13.0 | -13.3 | -13.5 | -13.5 | -6.1  | -8.2  | 24    |
| 16             | -14.1 | -14.5 | -14.9 | -15.8 | -16.4 | -16.9 | -17.6 | -19.6 | -20.4 | -19.2 | -15.7 | -14.7 | -13.8 | -12.9 | -12.4 | -14.4 | -17.3 | -17.4 | -16.3 | -16.4 | -18.2 | -17.0 | -18.3 | -19.0 | -20.4 | -12.4 | -16.4 | 24    |
| 17             | -18.1 | -18.5 | -18.5 | -17.5 | -17.5 | -16.4 | -14.1 | -14.0 | -14.5 | -14.5 | -13.5 | -12.2 | -12.3 | -10.8 | -10.4 | -9.9  | -8.9  | -7.5  | -6.4  | -4.8  | -3.3  | -2.2  | -1.6  | -1.1  | -18.5 | -1.1  | -11.2 | 24    |
| 18             | -0.9  | -0.4  | -0.2  | -0.3  | 0.0   | 0.1   | 0.5   | 1.3   | -1.6  | -4.1  | -5.4  | -6.3  | -6.9  | -7.0  | -7.0  | -7.1  | -7.2  | -7.1  | -6.7  | -5.2  | -5.5  | -6.3  | -6.8  | -6.9  | -7.2  | 1.3   | -4.1  | 24    |
| 19             | -7.4  | -7.9  | -7.1  | -5.8  | -5.1  | -4.3  | -3.6  | -2.6  | -1.9  | -1.4  | -0.2  | 0.0   | 1.9   | 2.7   | 3.1   | 3.0   | 2.2   | 2.3   | 2.4   | 1.2   | -1.1  | -0.6  | -1.6  | -2.4  | -7.9  | 3.1   | -1.4  | 24    |
| 20             | -2.3  | -2.4  | -2.4  | -3.1  | -2.8  | -2.5  | -3.8  | -3.5  | -3.1  | -1.7  | -0.5  | 2.4   | 2.7   | 1.3   | 2.8   | 1.8   | 0.0   | -1.5  | -1.8  | -1.6  | -1.2  | -1.0  | -1.0  | -0.9  | -3.8  | 2.8   | -1.1  | 24    |
| 21             | -1.5  | -2.0  | -1.5  | -1.9  | -2.3  | -2.4  | -2.0  | -1.8  | -2.3  | -2.6  | -2.0  | -1.6  | 0.0   | 1.3   | 2.0   | 2.1   | -0.2  | -1.0  | -1.4  | -1.3  | 0.1   | -0.4  | 0.1   | 0.7   | -2.6  | 2.1   | -0.9  | 24    |
| 22             | 0.4   | 0.3   | -1.0  | -1.2  | 1.2   | 1.0   | 1.5   | 1.8   | 0.7   | 0.8   | 1.6   | 2.2   | 3.2   | 3.6   | 3.1   | 1.9   | 0.4   | -1.6  | -2.0  | -2.8  | -4.5  | -4.3  | -4.1  | -4.7  | -4.7  | 3.6   | -0.1  | 24    |
| 23             | -6.2  | -7.3  | -8.8  | -8.9  | -7.7  | -7.7  | -7.4  | -7.5  | -7.4  | -6.7  | -6.7  | -6.5  | -6.4  | -6.6  | -6.3  | -7.4  | -9.7  | -11.4 | -10.6 | -10.7 | -10.4 | -9.9  | -9.6  | -9.4  | -11.4 | -6.2  | -8.2  | 24    |
| 24             | -8.7  | -7.8  | -7.4  | -7.0  | -6.6  | -6.2  | -6.1  | -5.9  | -5.6  | -5.1  | -4.6  | -4.0  | -3.0  | -2.6  | -2.8  | -3.2  | -3.9  | -4.5  | -5.1  | -5.7  | -6.1  | -6.4  | -7.2  | -7.7  | -8.7  | -2.6  | -5.5  | 24    |
| 25             | -7.7  | -7.7  | -8.0  | -7.7  | -7.7  | -7.6  | -7.6  | -7.2  | -5.8  | -5.9  | -4.4  | -3.6  | -2.6  | -2.6  | -1.9  | -2.7  | -3.7  | -4.2  | -4.4  | -4.4  | -4.6  | -4.9  | -4.9  | -5.0  | -8.0  | -1.9  | -5.3  | 24    |
| 26             | -3.8  | -4.1  | -3.5  | -3.1  | -3.0  | -3.1  | -3.1  | -2.7  | -2.1  | -1.8  | -1.3  | -0.7  | -0.2  | 0.3   | 0.8   | 0.6   | 0.5   | 0.2   | -0.1  | -0.3  | 0.0   | -0.5  | -1.1  | -1.4  | -4.1  | 0.8   | -1.4  | 24    |
| 27             | -1.8  | -1.7  | -1.9  | -2.3  | -3.2  | -4.7  | -4.9  | -5.5  | -5.3  | -4.9  | -3.3  | -2.5  | -1.7  | -2.4  | -2.0  | -2.0  | -2.1  | -2.1  | -1.9  | -1.7  | -1.3  | -1.0  | -0.7  | -0.6  | -5.5  | -0.6  | -2.6  | 24    |
| 28             | -0.6  | -0.5  | -0.9  | -1.6  | -2.4  | -4.2  | -3.0  | -4.6  | -4.9  | -4.9  | -3.0  | -0.1  | 0.9   | 2.1   | 2.3   | 2.4   | 2.0   | 2.0   | 1.7   | 1.5   | 1.4   | 0.5   | 0.7   | 0.6   | -4.9  | 2.4   | -0.5  | 24    |
| 29             | 0.5   | 0.7   | 0.8   | 0.5   | 0.2   | 0.0   | -0.2  | -0.4  | -0.5  | -0.4  | -0.4  | -0.1  | 0.2   | 0.4   | 0.0   | -0.1  | -0.3  | -0.4  | -0.5  | -0.6  | -0.7  | -1.3  | -2.0  | -2.3  | -2.3  | 0.8   | -0.3  | 24    |
| 30             | -2.5  | -2.9  | -3.2  | -3.2  | -3.5  | -3.8  | -4.3  | -4.4  | -4.3  | -4.4  | -4.4  | -4.5  | -4.6  | -4.8  | -5.1  | -5.3  | -5.4  | -5.5  | -5.5  | -5.5  | -5.5  | -5.5  | -5.6  | -5.7  | -5.7  | -2.5  | -4.5  | 24    |
| HOURLY MAX     | 3.3   | 3.0   | 3.7   | 3.9   | 3.6   | 3.1   | 2.8   | 1.9   | 2.4   | 2.1   | 3.4   | 4.3   | 4.8   | 4.7   | 4.2   | 3.4   | 2.8   | 2.7   | 3.3   | 4.0   | 4.2   | 5.7   | 4.4   | 3.5   |       |       |       |       |
| HOURLY AVG     | -5.6  | -5.8  | -5.9  | -6.0  | -6.0  | -6.0  | -5.9  | -6.1  | -6.1  | -5.8  | -5.0  | -4.2  | -3.6  | -3.3  | -3.2  | -3.7  | -4.5  | -5.0  | -5.1  | -5.2  | -5.4  | -5.3  | -5.5  | -5.6  |       |       |       |       |

## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

## 24 HR AVERAGES November 2018



## MONTHLY SUMMARY

|                        |       |    |        |    |        |    |
|------------------------|-------|----|--------|----|--------|----|
| MINIMUM 1-HR AVERAGE:  | -20.4 | °C | @ HOUR | 8  | ON DAY | 16 |
| MAXIMUM 1-HR AVERAGE:  | 5.7   | °C | @ HOUR | 21 | ON DAY | 13 |
| MAXIMUM 24-HR AVERAGE: | 1.0   | °C |        |    | ON DAY | 13 |

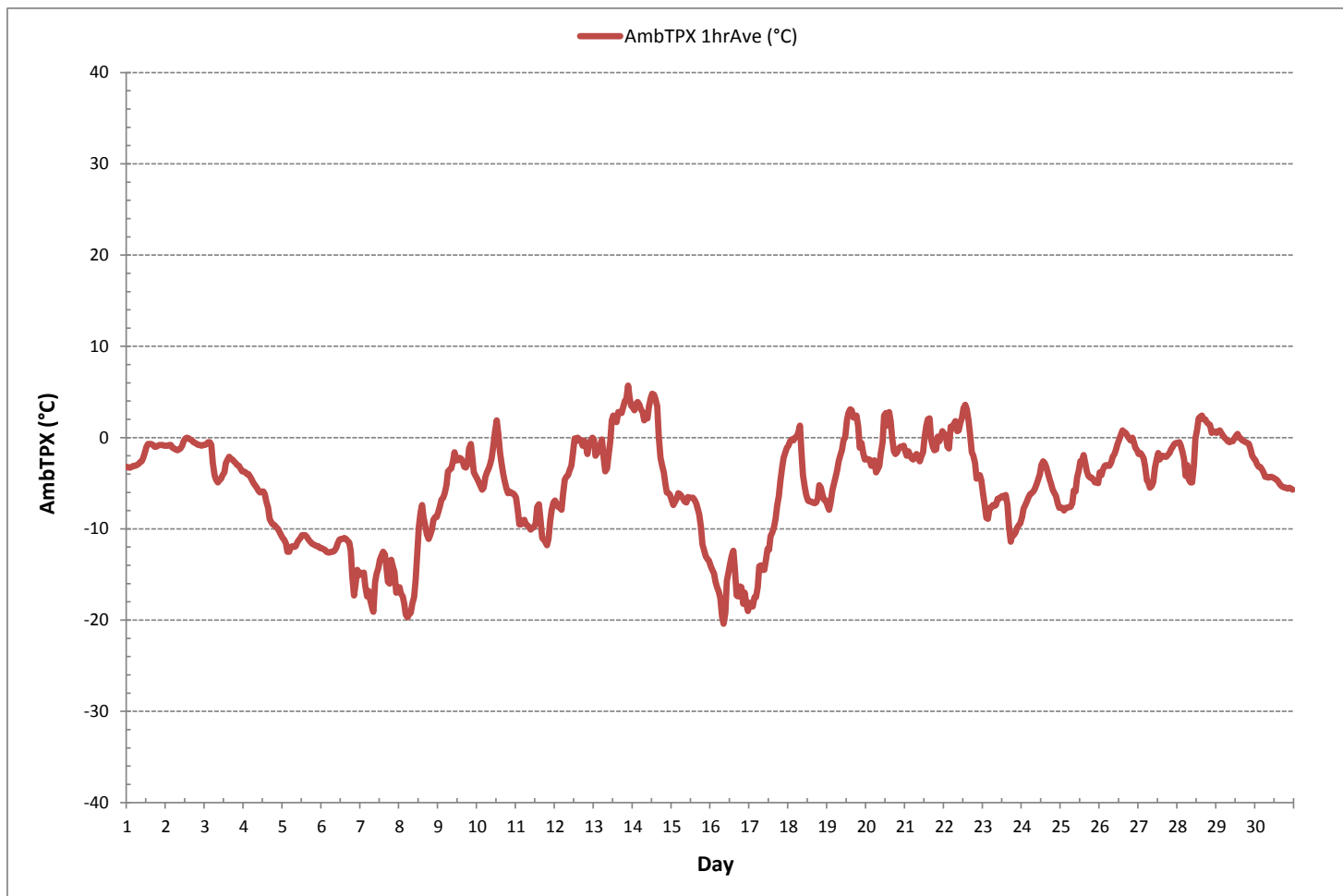
OPERATIONAL TIME: 720 hrs

AMD OPERATION UPTIME: 100.0 %

STANDARD DEVIATION: 5.5

MONTHLY AVERAGE: -5.2 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



## ***STATION TEMPERATURE***

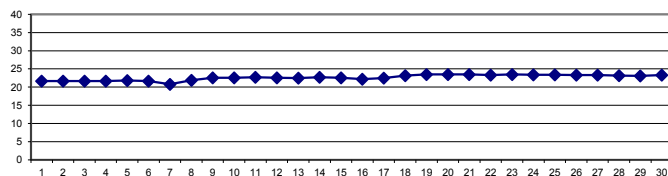
STATION TEMPERATURE Hourly Averages (StnTPX °C)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 21.7 | 21.6 | 21.6 | 21.6 | 21.6 | 21.6 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7  | 21.6  | 21.6  | 21.7  | 21.6  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.6  | 21.7  | 21.7  | 24    |    |
| 2              | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.6  | 21.6  | 21.6  | 21.7  | 21.6  | 21.7  | 21.7  | 21.7  | 21.7  | 21.6  | 21.7  | 21.7  | 24 |
| 3              | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.6 | 21.6 | 21.7 | 21.7 | 21.7  | 21.7  | 21.6  | 21.6  | 21.6  | 21.6  | 21.6  | 21.7  | 21.7  | 21.6  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.6  | 21.7  | 21.7  | 24 |
| 4              | 21.7 | 21.7 | 21.7 | 21.7 | 21.7 | 21.6 | 21.7 | 21.6 | 21.7 | 21.7 | 21.7  | 21.7  | 21.6  | 21.6  | 21.6  | 21.6  | 21.7  | 21.7  | 21.7  | 21.8  | 21.8  | 21.9  | 21.7  | 21.8  | 21.6  | 21.9  | 21.7  | 24    |    |
| 5              | 21.8 | 21.8 | 21.8 | 21.9 | 21.8 | 21.9 | 21.9 | 22.0 | 21.9 | 21.8 | 21.9  | 21.8  | 21.7  | 21.7  | 21.7  | 21.7  | 21.8  | 21.9  | 21.8  | 21.9  | 21.9  | 21.9  | 21.9  | 21.9  | 21.9  | 21.7  | 22.0  | 21.8  | 24 |
| 6              | 21.9 | 21.9 | 21.8 | 21.8 | 21.8 | 21.7 | 21.7 | 21.8 | 21.9 | 21.7 | 21.9  | 21.7  | 21.6  | 21.6  | 21.7  | 21.7  | 21.7  | 21.7  | 21.7  | 21.9  | 21.7  | 21.4  | 21.2  | 21.0  | 21.0  | 21.9  | 21.7  | 24    |    |
| 7              | 20.8 | 20.7 | 20.6 | 20.5 | 20.7 | 20.6 | 21.0 | 21.0 | 21.0 | 20.7 | 20.3  | 20.2  | 20.4  | 20.9  | 21.0  | 21.0  | 21.3  | 21.5  | 21.4  | 21.1  | 21.0  | 20.8  | 20.6  | 20.7  | 20.2  | 21.5  | 20.8  | 24    |    |
| 8              | 20.6 | 20.8 | 20.8 | 20.6 | 20.7 | 20.9 | 20.9 | 20.8 | 20.2 | 24.7 | 22.7  | 23.0  | 22.5  | 21.1  | 21.0  | 22.1  | 22.6  | 22.7  | 22.7  | 22.7  | 22.7  | 22.8  | 22.9  | 22.7  | 20.2  | 24.7  | 21.9  | 24    |    |
| 9              | 22.8 | 22.8 | 22.8 | 22.7 | 22.7 | 22.8 | 22.6 | 22.7 | 22.7 | 22.6 | 22.4  | 22.3  | 22.4  | 22.4  | 22.4  | 22.5  | 22.6  | 22.6  | 22.6  | 22.6  | 22.5  | 22.5  | 22.6  | 22.5  | 22.3  | 22.8  | 22.6  | 24    |    |
| 10             | 22.6 | 22.6 | 22.5 | 22.6 | 22.6 | 22.6 | 22.7 | 22.6 | 22.6 | 22.6 | 22.6  | 22.5  | 22.4  | 22.3  | 22.3  | 22.4  | 22.5  | 22.5  | 22.6  | 22.6  | 22.6  | 22.6  | 22.6  | 22.7  | 22.3  | 22.7  | 22.6  | 24    |    |
| 11             | 22.6 | 22.6 | 22.7 | 22.8 | 22.7 | 22.9 | 22.9 | 22.8 | 22.8 | 22.7 | 22.7  | 22.6  | 22.6  | 22.3  | 22.1  | 22.2  | 22.5  | 22.6  | 22.9  | 22.9  | 22.8  | 22.8  | 22.8  | 22.8  | 22.1  | 22.9  | 22.7  | 24    |    |
| 12             | 22.7 | 22.8 | 22.7 | 22.7 | 22.8 | 22.7 | 22.7 | 22.7 | 22.6 | 22.6 | 22.6  | 22.5  | 22.3  | 22.2  | 22.4  | 22.4  | 22.5  | 22.5  | 22.5  | 22.6  | 22.6  | 22.6  | 22.5  | 22.6  | 22.2  | 22.8  | 22.6  | 24    |    |
| 13             | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.7 | 22.6 | 22.5  | 22.1  | 22.1  | 22.2  | 22.4  | 22.5  | 22.5  | 22.5  | 22.6  | 22.5  | 22.6  | 22.6  | 22.6  | 22.5  | 22.1  | 22.7  | 22.5  | 24    |    |
| 14             | 22.6 | 22.6 | 22.5 | 22.6 | 22.5 | 22.6 | 22.5 | 22.6 | 22.7 | 22.6 | 22.4  | 22.3  | 22.5  | 22.9  | 23.2  | 23.4  | 22.8  | 22.5  | 22.6  | 22.6  | 22.7  | 22.6  | 22.7  | 22.7  | 22.3  | 23.4  | 22.7  | 24    |    |
| 15             | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 | 22.8 | 22.6 | 22.7  | 22.6  | 22.7  | 22.6  | 22.6  | 22.7  | 22.7  | 22.8  | 22.8  | 22.5  | 22.1  | 21.8  | 22.0  | 21.9  | 21.8  | 22.8  | 22.6  | 24    |    |
| 16             | 22.2 | 22.1 | 22.0 | 22.3 | 21.9 | 22.4 | 22.2 | 22.3 | 22.3 | 22.3 | 21.8  | 21.7  | 22.1  | 22.3  | 22.3  | 22.3  | 22.4  | 22.2  | 22.2  | 22.1  | 22.4  | 22.4  | 22.3  | 22.3  | 21.7  | 22.4  | 22.2  | 24    |    |
| 17             | 22.3 | 22.3 | 22.3 | 22.3 | 22.4 | 22.3 | 22.4 | 22.3 | 22.3 | 22.3 | 22.2  | 22.2  | 22.5  | 22.7  | 22.6  | 22.7  | 22.8  | 22.8  | 22.8  | 22.8  | 22.9  | 22.7  | 22.8  | 22.7  | 22.2  | 22.9  | 22.5  | 24    |    |
| 18             | 22.7 | 22.7 | 22.7 | 22.7 | 22.6 | 22.7 | 22.7 | 22.7 | 22.6 | 22.6 | 22.8  | 23.7  | 23.6  | 23.5  | 23.6  | 23.6  | 23.6  | 23.6  | 23.7  | 23.8  | 23.7  | 23.7  | 23.7  | 23.8  | 22.6  | 23.8  | 23.2  | 24    |    |
| 19             | 23.7 | 23.8 | 23.7 | 23.7 | 23.7 | 23.6 | 23.7 | 23.6 | 23.6 | 23.5 | 23.4  | 23.4  | 23.3  | 23.0  | 23.1  | 23.1  | 23.3  | 23.3  | 23.6  | 23.5  | 23.5  | 23.6  | 23.6  | 23.5  | 23.0  | 23.8  | 23.5  | 24    |    |
| 20             | 23.6 | 23.7 | 23.6 | 23.6 | 23.7 | 23.6 | 23.7 | 23.6 | 23.7 | 23.5 | 23.4  | 23.0  | 23.2  | 23.0  | 23.1  | 23.2  | 23.4  | 23.6  | 23.5  | 23.6  | 23.6  | 23.5  | 23.6  | 23.5  | 23.0  | 23.7  | 23.5  | 24    |    |
| 21             | 23.6 | 23.5 | 23.6 | 23.6 | 23.6 | 23.6 | 23.6 | 23.6 | 23.6 | 23.6 | 23.6  | 23.4  | 23.4  | 23.2  | 23.2  | 23.2  | 23.4  | 23.6  | 23.5  | 23.6  | 23.5  | 23.5  | 23.5  | 23.4  | 23.4  | 23.2  | 23.6  | 23.5  | 24 |
| 22             | 23.4 | 23.4 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.4 | 23.2  | 22.7  | 22.8  | 22.8  | 22.7  | 22.9  | 23.1  | 23.2  | 23.3  | 23.3  | 23.4  | 23.4  | 23.5  | 23.5  | 22.7  | 23.5  | 23.3  | 24    |    |
| 23             | 23.6 | 23.6 | 23.8 | 23.6 | 23.6 | 23.6 | 23.4 | 23.5 | 23.4 | 23.5 | 23.4  | 23.4  | 23.4  | 23.4  | 23.4  | 23.3  | 23.4  | 23.5  | 23.7  | 23.7  | 23.6  | 23.6  | 23.6  | 23.6  | 23.3  | 23.8  | 23.5  | 24    |    |
| 24             | 23.6 | 23.6 | 23.6 | 23.5 | 23.5 | 23.5 | 23.5 | 23.4 | 23.4 | 23.4 | 23.4  | 23.4  | 23.3  | 23.4  | 23.2  | 23.1  | 23.2  | 23.3  | 23.3  | 23.3  | 23.4  | 23.4  | 23.4  | 23.4  | 23.1  | 23.6  | 23.4  | 24    |    |
| 25             | 23.4 | 23.4 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.4 | 23.4  | 23.2  | 23.2  | 23.0  | 23.1  | 23.0  | 23.2  | 23.3  | 23.4  | 23.4  | 23.4  | 23.4  | 23.5  | 23.4  | 23.0  | 23.5  | 23.4  | 24    |    |
| 26             | 23.5 | 23.5 | 23.4 | 23.4 | 23.4 | 23.4 | 23.4 | 23.4 | 23.4 | 23.3 | 23.3  | 23.4  | 23.2  | 23.2  | 23.1  | 23.1  | 23.1  | 23.2  | 23.2  | 23.2  | 23.2  | 23.2  | 23.3  | 23.3  | 23.1  | 23.5  | 23.3  | 24    |    |
| 27             | 23.3 | 23.2 | 23.2 | 23.3 | 23.4 | 23.3 | 23.5 | 23.4 | 23.5 | 23.6 | 23.5  | 23.3  | 23.2  | 23.1  | 23.2  | 23.2  | 23.2  | 23.3  | 23.3  | 23.3  | 23.3  | 23.3  | 23.3  | 23.2  | 23.1  | 23.6  | 23.3  | 24    |    |
| 28             | 23.2 | 23.3 | 23.2 | 23.4 | 23.3 | 23.3 | 23.5 | 23.4 | 23.5 | 23.4 | 23.4  | 23.2  | 23.0  | 22.6  | 22.8  | 22.9  | 23.1  | 23.1  | 23.2  | 23.2  | 23.2  | 23.2  | 23.3  | 23.1  | 22.6  | 23.5  | 23.2  | 24    |    |
| 29             | 23.2 | 23.2 | 23.2 | 23.2 | 23.0 | 23.2 | 23.2 | 23.1 | 23.3 | 23.2 | 23.1  | 23.2  | 23.1  | 23.1  | 23.1  | 23.0  | 23.1  | 22.8  | 23.1  | 23.2  | 23.2  | 23.2  | 23.2  | 23.3  | 22.8  | 23.3  | 23.1  | 24    |    |
| 30             | 23.2 | 23.2 | 23.3 | 23.2 | 23.3 | 23.3 | 23.2 | 23.5 | 23.4 | 23.3 | 23.3  | 23.3  | 23.3  | 23.3  | 23.2  | 23.3  | 23.3  | 23.3  | 23.4  | 23.4  | 23.3  | 23.3  | 23.4  | 23.3  | 23.2  | 23.5  | 23.3  | 24    |    |
| HOURLY MAX     | 23.7 | 23.8 | 23.8 | 23.7 | 23.7 | 23.6 | 23.7 | 23.6 | 23.7 | 24.7 | 23.6  | 23.7  | 23.6  | 23.5  | 23.6  | 23.6  | 23.6  | 23.6  | 23.7  | 23.8  | 23.7  | 23.7  | 23.7  | 23.8  |       |       |       |       |    |
| HOURLY AVG     | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.6 | 22.7 | 22.7 | 22.7 | 22.7 | 22.6  | 22.6  | 22.5  | 22.5  | 22.5  | 22.6  | 22.7  | 22.7  | 22.7  | 22.7  | 22.7  | 22.7  | 22.7  | 22.7  |       |       |       |       |    |

STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

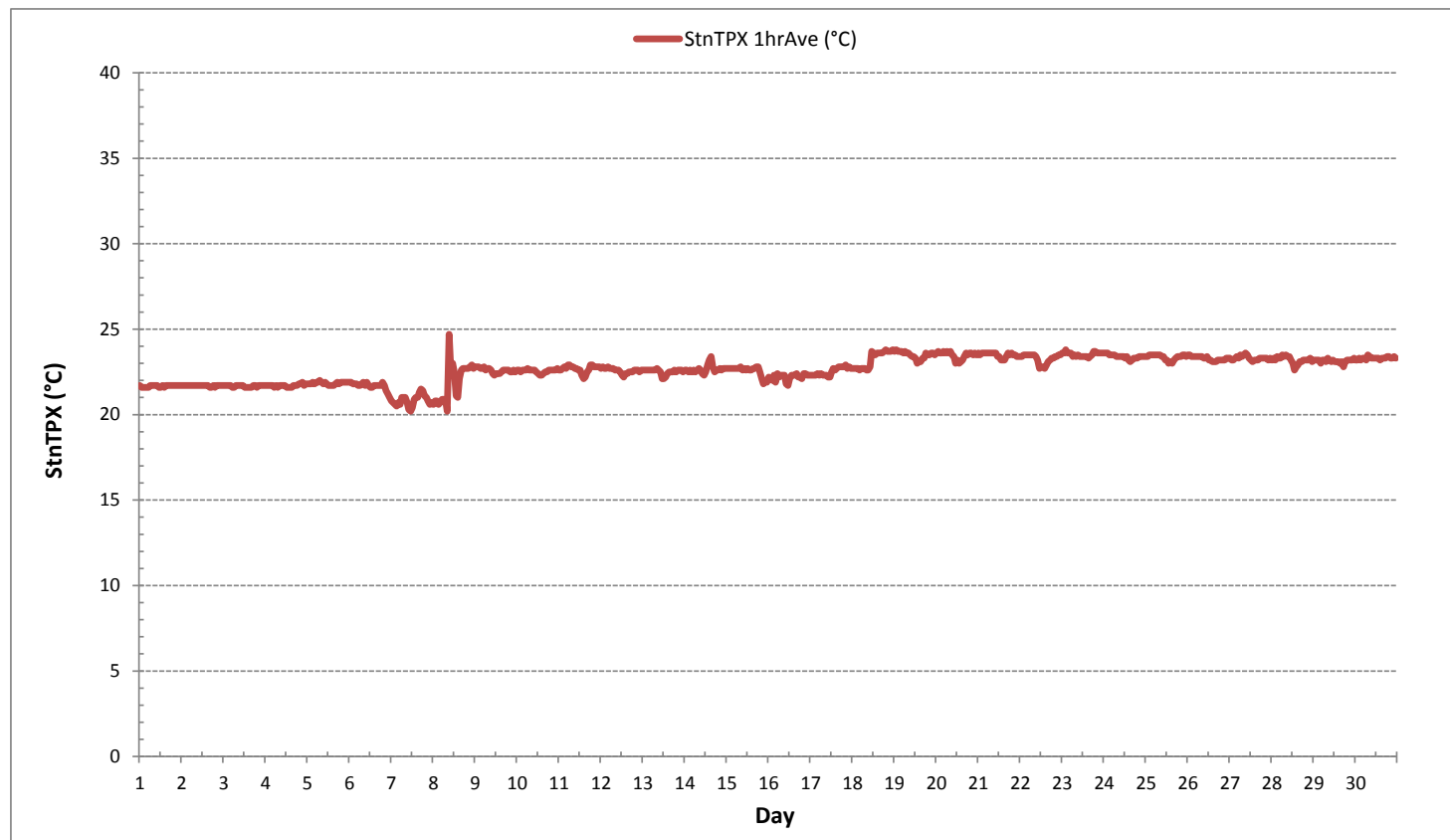
24 HR AVERAGES November 2018



MONTHLY SUMMARY

|                        |      |    |                  |    |        |         |
|------------------------|------|----|------------------|----|--------|---------|
| MINIMUM 1-HR AVERAGE:  | 20.2 | °C | @ HOUR           | 11 | ON DAY | 7       |
| MAXIMUM 1-HR AVERAGE:  | 24.7 | °C | @ HOUR           | 9  | ON DAY | 8       |
| MAXIMUM 24-HR AVERAGE: | 23.5 | °C |                  |    | ON DAY | 19      |
| OPERATIONAL TIME:      |      |    |                  |    |        | 720 hrs |
| AMD OPERATION UPTIME:  |      |    |                  |    |        | 100.0 % |
| STANDARD DEVIATION:    | 0.8  |    | MONTHLY AVERAGE: |    |        | 22.6 °C |

STATION TEMPERATURE Hourly Averages (StnTPX °C)



***APPENDIX II***  
***EQUIPMENT CALIBRATION RESULTS***

## ***SULPHUR DIOXIDE***



## API 100A Sulphur Dioxide Analyzer Calibration

|                          |                  |                                        |                                         |            |      |
|--------------------------|------------------|----------------------------------------|-----------------------------------------|------------|------|
| Date:                    | November 8, 2018 | Barometer/B.P./units:                  | Brunton 05535 expires December 15, 2018 | 28.01      | inHg |
| Company/Airshed:         | PRAMP            | Thermometer/Station Temp:              | F.S. 160348895 expires June 19, 2020    | 22.8       | °C   |
| Location/Station Name:   | RENO             | Weather Conditions:                    | Mainly sunny                            |            |      |
| Parameter:               | Sulphur Dioxide  | Calibration Purpose:                   | routine monthly                         |            |      |
| Start Time 24 hr. (mst): | 9:00             | Performed By/Reviewer:                 | Limin Li                                | Rob Fisher |      |
| End Time 24 hr. (mst):   | 12:48            | Cal Gas Expiry Date:                   | December 8, 2019                        |            |      |
| Calibration Method:      | Gas Dilution     | Converter Model & s/n (if applicable): | n/a                                     |            |      |
| Analyzer:                |                  |                                        |                                         |            |      |
| Serial Number/Owner:     | 841   Maxxam     | Range ppb:                             | 500                                     |            |      |
| Last Calibration Date:   | October 18, 2018 | As Found C.F.:                         | 1.002                                   |            |      |
| Previous C.F.:           | 1.001            | New C.F.:                              | 0.999                                   |            |      |

|                                 |                                            |       |     |
|---------------------------------|--------------------------------------------|-------|-----|
| Calibration Standards:          | Standard Calibration Points for Ranges     |       |     |
| Low Flow Meter ID/Expiry Date:  | N/A                                        | Point | ppb |
| High Flow Meter ID/Expiry Date: | N/A                                        | High  | 380 |
| Calibrator ID/Expiry Date:      | Sabio id# 17200415 expires August 21, 2019 | Mid   | 180 |
| Cal Gas Cylinder I.D. #:        | EY0000769                                  | Low   | 90  |
| Cal Gas Conc. (ppm):            | 50.5                                       |       |     |

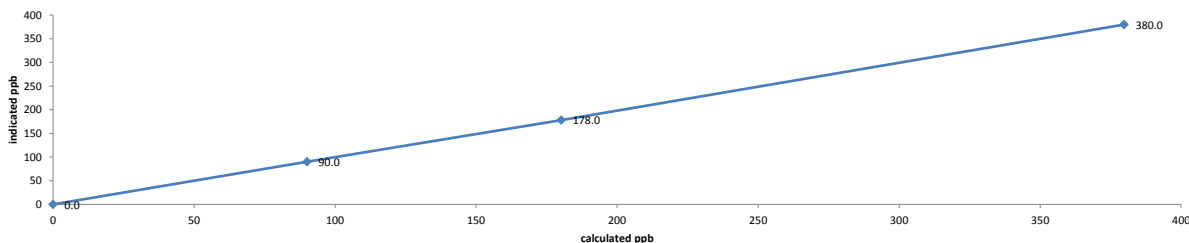
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

| Calibrator Flow Rates (cc/min) |         |         |       | Calculated Concentration (ppb): | Indicated Concentration (ppb): | Correction Factors (C.F.): |
|--------------------------------|---------|---------|-------|---------------------------------|--------------------------------|----------------------------|
| Point                          | Diluent | Cal Gas | Total |                                 |                                |                            |
| as found zero                  | 6000    | 0.00    | 6000  | 0.0                             | 0                              | n/a                        |
| as found high                  | 5952    | 45.10   | 5997  | 379.8                           | 379                            | 1.002                      |
| adjusted zero                  | 6000    | 0.00    | 6000  | 0.0                             | 0                              | n/a                        |
| adjusted high                  | 5952    | 45.10   | 5997  | 379.8                           | 380                            | 0.999                      |
| mid                            | 5977    | 21.40   | 5998  | 180.2                           | 178                            | 1.012                      |
| low                            | 5990    | 10.70   | 6001  | 90.0                            | 90                             | 1.000                      |
| calibrator zero                | 6000    | 0.00    | 6000  | 0.0                             | 0                              | n/a                        |
| Average C.F. =                 |         |         |       |                                 |                                | 1.004                      |

### Linear Regression/Calibration Results:

|                                    |        |        |              |
|------------------------------------|--------|--------|--------------|
| Correlation Coefficient =          | 1.000  | LIMITS | > or = 0.995 |
| Slope =                            | 1.000  |        | 0.95-1.05    |
| b (Intercept as % of full scale) = | 0.11%  |        | ± 3% F.S.    |
| % change in C.F. from last cal =   | -0.11% |        | ± 10%        |

### API 100A Sulphur Dioxide Analyzer Calibration

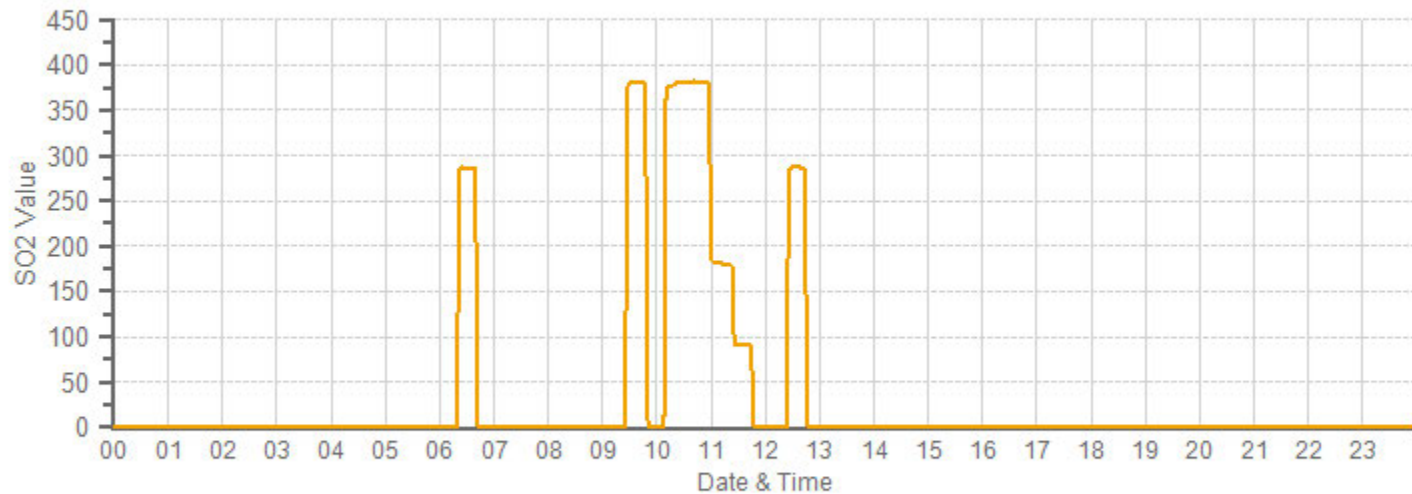


| As found:       |       | As left:        |       |
|-----------------|-------|-----------------|-------|
| Slope:          | 1.072 | Slope:          | 1.071 |
| Offset:         | 49.0  | Offset:         | 49.0  |
| Hvps:           | 763   | Hvps:           | 763   |
| Dcps:           | 2559  | Dcps:           | 2559  |
| Rcell Temp:     | 49.8  | Rcell Temp:     | 50.5  |
| Box Temp:       | 28.7  | Box Temp:       | 31.9  |
| Pmt Temp:       | 7.2   | Pmt Temp:       | 7.1   |
| Izs Temp:       | 35.0  | Izs Temp:       | 35.2  |
| Pres:           | 25.2  | Pres:           | 25.2  |
| Samp Fl:        | 683   | Samp Fl:        | 683   |
| Pmt:            | 61.9  | Pmt:            | 66.1  |
| Uv Lamp:        | 1800  | Uv Lamp:        | 2015  |
| Lamp Ratio:     | 89.4  | Lamp Ratio:     | 99.6  |
| Str Lgt:        | 26.3  | Str Lgt:        | 26.2  |
| Drk Pmt:        | 24.7  | Drk Pmt:        | 24.9  |
| Drk Lmp:        | -17.3 | Drk Lmp:        | -17.3 |
| Expected Value: | 290.2 | Expected Value: | 285.1 |

### Comments:

The analyzer sample inlet filter was changed.  
The manifold blower was found to be working normally.

SO2[ppb] Station: PRAMP\_RENO Daily: 18/11/08 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

***TOTAL REDUCED SULPHUR***



## Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

|                          |                       |                                        |                                         |            |      |
|--------------------------|-----------------------|----------------------------------------|-----------------------------------------|------------|------|
| Date:                    | November 8, 2018      | Barometer/B.P./units:                  | Brunton 05535 expires December 15, 2018 | 28.01      | inHg |
| Company/Airshed:         | PRAMP                 | Thermometer/Station Temp:              | F.S. 160348895 expires June 19, 2020    | 22.8       | °C   |
| Location/Station Name:   | RENO                  | Weather Conditions:                    | Mainly sunny                            |            |      |
| Parameter:               | Total Reduced Sulphur | Calibration Purpose:                   | routine monthly                         |            |      |
| Start Time 24 hr. (mst): | 9:00                  | Performed By/Reviewer:                 | Limin Li                                | Rob Fisher |      |
| End Time 24 hr. (mst):   | 13:40                 | Cal Gas Expiry Date:                   | August 23, 2020                         |            |      |
| Calibration Method:      | Gas Dilution          | Converter Model & s/n (if applicable): | CD Nova CDN-101 #534                    |            |      |
| Analyzer:                |                       |                                        |                                         |            |      |
| Serial Number/Owner:     | 1162460022   Maxxam   | Range ppb:                             | 100                                     |            |      |
| Last Calibration Date:   | October 19, 2018      | As Found C.F.:                         | 1.026                                   |            |      |
| Previous C.F.:           | 0.999                 | New C.F.:                              | 0.999                                   |            |      |

| Calibration Standards:                                                         | Standard Calibration Points for Ranges                                                                                                              | SO2 Scrubber Check (10 minutes): |     |      |    |     |    |     |    |                                    |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----|------|----|-----|----|-----|----|------------------------------------|
| Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018   | <table><tr><th>Point</th><th>ppb</th></tr><tr><td>High</td><td>78</td></tr><tr><td>Mid</td><td>38</td></tr><tr><td>Low</td><td>19</td></tr></table> | Point                            | ppb | High | 78 | Mid | 38 | Low | 19 | Start/End Time 24 hr.: 09:23/09:40 |
| Point                                                                          | ppb                                                                                                                                                 |                                  |     |      |    |     |    |     |    |                                    |
| High                                                                           | 78                                                                                                                                                  |                                  |     |      |    |     |    |     |    |                                    |
| Mid                                                                            | 38                                                                                                                                                  |                                  |     |      |    |     |    |     |    |                                    |
| Low                                                                            | 19                                                                                                                                                  |                                  |     |      |    |     |    |     |    |                                    |
| High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018 |                                                                                                                                                     | SO2 Analyzer Range: 500          |     |      |    |     |    |     |    |                                    |
| Calibrator ID/Expiry Date: Enviroconics id# 1991 expires March 15, 2019        |                                                                                                                                                     | Target Concentration (ppb): 380  |     |      |    |     |    |     |    |                                    |
| Cal Gas Cylinder I.D. #: LL119500                                              |                                                                                                                                                     | As Found Zero: 0.0               |     |      |    |     |    |     |    |                                    |
| Cal Gas Conc. (ppm): 9.8                                                       |                                                                                                                                                     | Analyzer Response (ppb): 0.0     |     |      |    |     |    |     |    |                                    |
|                                                                                |                                                                                                                                                     | Zero Corrected Result (ppb): 0.0 |     |      |    |     |    |     |    |                                    |

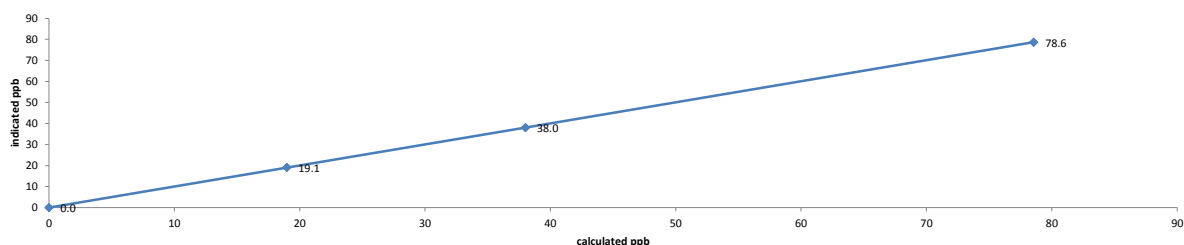
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

| Calibrator Flow Rates (cc/min) |         |         |       | Calculated Concentration (ppb): | Indicated Concentration (ppb): | Correction Factors (C.F.): |
|--------------------------------|---------|---------|-------|---------------------------------|--------------------------------|----------------------------|
| Point                          | Diluent | Cal Gas | Total |                                 |                                |                            |
| as found zero                  | 7456    | 0.00    | 7456  | 0.0                             | 0.0                            | n/a                        |
| as found high                  | 7361    | 59.89   | 7421  | 79.1                            | 77.1                           | 1.026                      |
| adjusted zero                  | 7467    | 0.00    | 7467  | 0.0                             | 0.0                            | n/a                        |
| adjusted high                  | 7395    | 59.76   | 7455  | 78.6                            | 78.6                           | 0.999                      |
| mid                            | 7478    | 29.12   | 7507  | 38.0                            | 38                             | 1.000                      |
| low                            | 7509    | 14.57   | 7524  | 19.0                            | 19.1                           | 0.994                      |
| calibrator zero                | 7467    | 0.00    | 7467  | 0.0                             | 0.0                            | n/a                        |
| Average C.F. =                 |         |         |       |                                 |                                | 0.998                      |

### Linear Regression/Calibration Results:

|                                    |        |        |              |
|------------------------------------|--------|--------|--------------|
| Correlation Coefficient =          | 1.000  | LIMITS | > or = 0.995 |
| Slope =                            | 1.000  |        | 0.95-1.05    |
| b (Intercept as % of full scale) = | -0.04% |        | ± 3% F.S.    |
| % change in C.F. from last cal =   | -2.68% |        | ± 10%        |

### Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



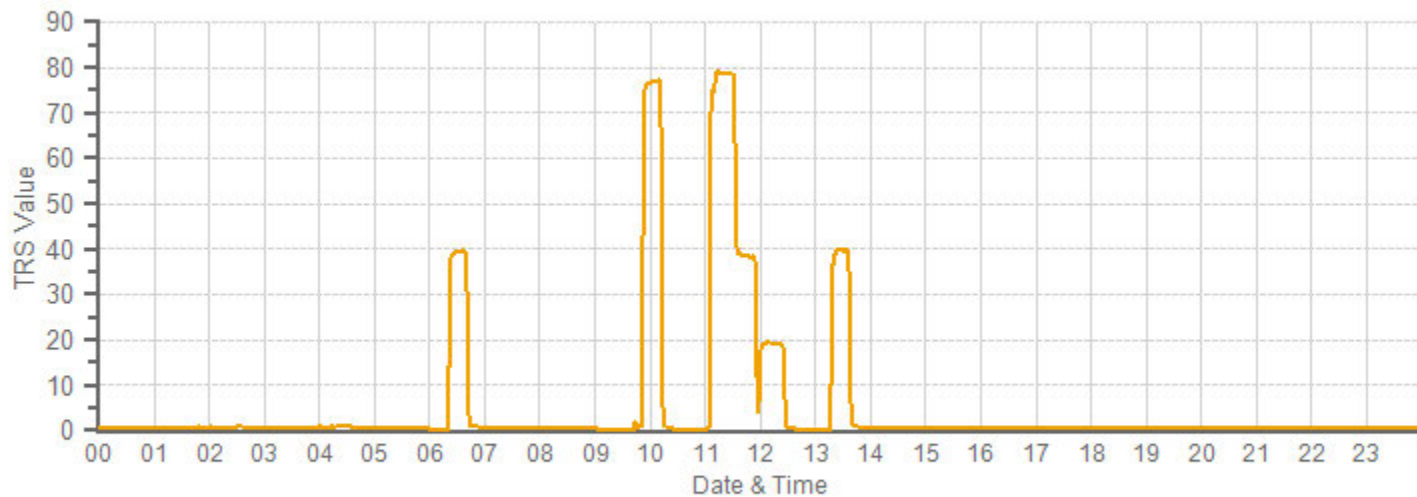
| As found:               | As left:                |
|-------------------------|-------------------------|
| Bkg: 2.23               | Bkg: 2.20               |
| Coef: 0.927             | Coef: 0.944             |
| Pmt: -706.7             | Pmt: -706.7             |
| Flash: 998              | Flash: 998              |
| Internal: 27.1          | Internal: 32.5          |
| Chamber: 43.7           | Chamber: 45.2           |
| Perm Oven Gas: 34.99    | Perm Oven Gas: 35.00    |
| Perm Oven Heater: 34.14 | Perm Oven Heater: 34.14 |
| Pressure: 646.2         | Pressure: 650.7         |
| Sample Flow: 0.413      | Sample Flow: 0.421      |
| Lamp Intensity: 83      | Lamp Intensity: 83      |
| Converter: 825          | Converter: 825          |
| Converter Set: 825      | Converter Set: 825      |
| Averaging Time: 120     | Averaging Time: 120     |
| Expected Value: 40.8    | Expected Value: 39.7    |

### Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally

TRS[ppb] Station: PRAMP\_RENO Daily: 18/11/08 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

***TOTAL HYDROCARBON***



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

|                              |                  |                           |                                         |            |      |
|------------------------------|------------------|---------------------------|-----------------------------------------|------------|------|
| Date:                        | November 8, 2018 | Barometer/B.P./units:     | Brunton 05535 expires December 15, 2018 | 28.01      | inHg |
| Company/Airshed:             | PRAMP            | Thermometer/Station Temp: | F.S. 160348895 expires June 19, 2020    | 22.8       | °C   |
| Location/Station Name:       | RENO             | Weather Conditions:       | Mainly sunny                            |            |      |
| Parameter:                   | CH4 / NMHC / THC | Calibration Purpose:      | routine monthly                         |            |      |
| Start/End Time 24 hr. (mst): | 12:05/15:14      | Performed By/Reviewer:    | LIMIN LI                                | Rob Fisher |      |
| Calibration Method:          | Gas Dilution     | Cal Gas Expiry Date:      | October 18, 2025                        |            |      |

|                        |                                    |                     |                |           |       |
|------------------------|------------------------------------|---------------------|----------------|-----------|-------|
| Analyzer:              |                                    | Correction Factors: |                |           |       |
| Serial Number/Owner:   | 1314057759   Maxxam                | Previous C.F.:      | As Found C.F.: | New C.F.: |       |
| Measured Flow:         | 1255 sccm                          | CH <sub>4</sub> =   | 0.998          | 0.992     | 1.004 |
| Last Calibration Date: | October 18, 2018                   | NMHC =              | 1.001          | 0.991     | 1.000 |
| Range ppm:             | 20 CH <sub>4</sub> /20 NMHC/40 THC | THC =               | 1.000          | 0.991     | 1.002 |

|                                                              |                                                             |                                                                |                 |       |       |
|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|-----------------|-------|-------|
| Calibration Standards:                                       |                                                             | Standard Calibration Points for Analyzer Range of 20/20/40 ppm |                 |       |       |
| Low Flow Meter ID/Expiry Date:                               | N/A                                                         | Point                                                          | CH <sub>4</sub> | NMHC  | THC   |
| High Flow Meter ID/Expiry Date:                              | N/A                                                         | High                                                           | 13.00           | 13.00 | 26.00 |
| Calibrator ID/Expiry Date:                                   | Sabio id# 17200415 expires August 21, 2019                  | Mid                                                            | 7.00            | 7.00  | 14.00 |
| Cal Gas Cylinder I.D. #:                                     | LL168404                                                    | Low                                                            | 3.00            | 3.00  | 6.00  |
| CH <sub>4</sub> Cylinder Conc. =                             | 597.0   206.0 =C <sub>3</sub> H <sub>8</sub> Cylinder Conc. |                                                                |                 |       |       |
| CH <sub>4</sub> expressed as C <sub>3</sub> H <sub>8</sub> = | 566.5   1163.5 =total CH <sub>4</sub> equivalent            |                                                                |                 |       |       |

|                                                                 |         |         |            |                                  |                       |                      |                                 |                      |                     |                     |       |       |
|-----------------------------------------------------------------|---------|---------|------------|----------------------------------|-----------------------|----------------------|---------------------------------|----------------------|---------------------|---------------------|-------|-------|
| ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015 |         |         |            |                                  |                       |                      |                                 |                      |                     |                     |       |       |
| Calibrator Flow Rates (cc/min)                                  |         |         |            | Calculated CH <sub>4</sub> (ppm) | Calculated NMHC (ppm) | Calculated THC (ppm) | Indicated CH <sub>4</sub> (ppm) | Indicated NMHC (ppm) | Indicated THC (ppm) | Correction Factors: |       |       |
| Point                                                           | Diluent | Cal Gas | Total Flow |                                  |                       |                      |                                 |                      |                     | CH <sub>4</sub>     | NMHC  | THC   |
| as found zero                                                   | 3500    | 0.00    | 3500       | 0.00                             | 0.00                  | 0.00                 | 0.00                            | 0.00                 | 0.00                | n/a                 | n/a   | n/a   |
| as found high                                                   | 3414    | 84.20   | 3498       | 14.37                            | 13.64                 | 28.01                | 14.49                           | 13.76                | 28.25               | 0.992               | 0.991 | 0.991 |
| adjusted zero                                                   | 3500    | 0.00    | 3500       | 0.00                             | 0.00                  | 0.00                 | 0.00                            | 0.00                 | 0.00                | n/a                 | n/a   | n/a   |
| adjusted high                                                   | 3414    | 84.20   | 3498       | 14.37                            | 13.64                 | 28.01                | 14.32                           | 13.63                | 27.95               | 1.004               | 1.000 | 1.002 |
| mid                                                             | 3456    | 42.10   | 3498       | 7.19                             | 6.82                  | 14.00                | 7.20                            | 6.83                 | 14.03               | 0.998               | 0.998 | 0.998 |
| low                                                             | 3477    | 21.10   | 3498       | 3.60                             | 3.42                  | 7.02                 | 3.62                            | 3.45                 | 7.07                | 0.995               | 0.990 | 0.993 |
| calibrator zero                                                 | 3500    | 0.00    | 3500       | 0.00                             | 0.00                  | 0.00                 | 0.00                            | 0.00                 | 0.00                | n/a                 | n/a   | n/a   |
| Average C.F. =                                                  |         |         |            |                                  |                       |                      |                                 |                      |                     | 0.999               | 0.996 | 0.998 |

|                                        |                 |       |       |              |  |
|----------------------------------------|-----------------|-------|-------|--------------|--|
| Linear Regression/Calibration Results: |                 |       |       | LIMITS       |  |
| Correlation Coefficient =              | CH <sub>4</sub> | NMHC  | THC   | > or = 0.995 |  |
| Slope =                                | 0.996           | 0.999 | 0.997 | 0.95 - 1.05  |  |
| b (Intercept as % of full scale) =     | 0.10%           | 0.08% | 0.09% | ± 3% F.S.    |  |
| % change in C.F. from last cal =       | 0.63%           | 1.00% | 0.86% | ± 10%        |  |

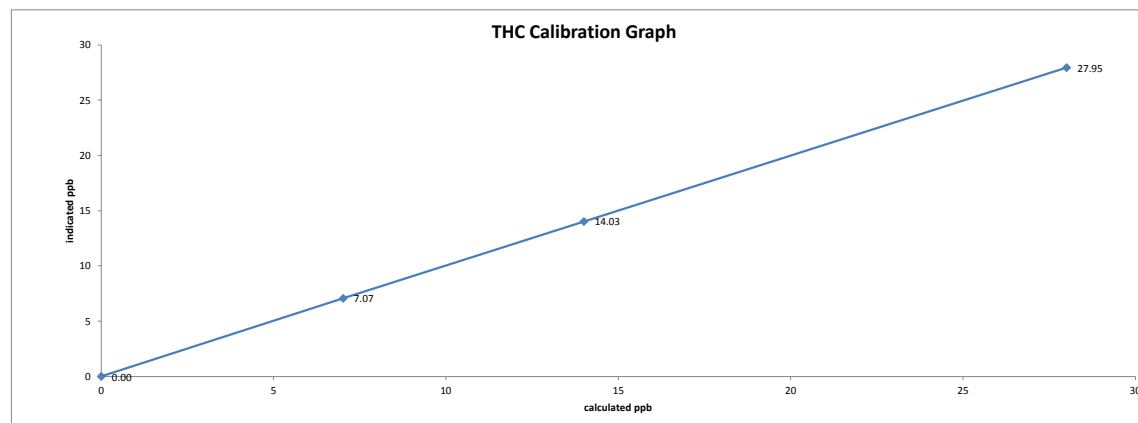
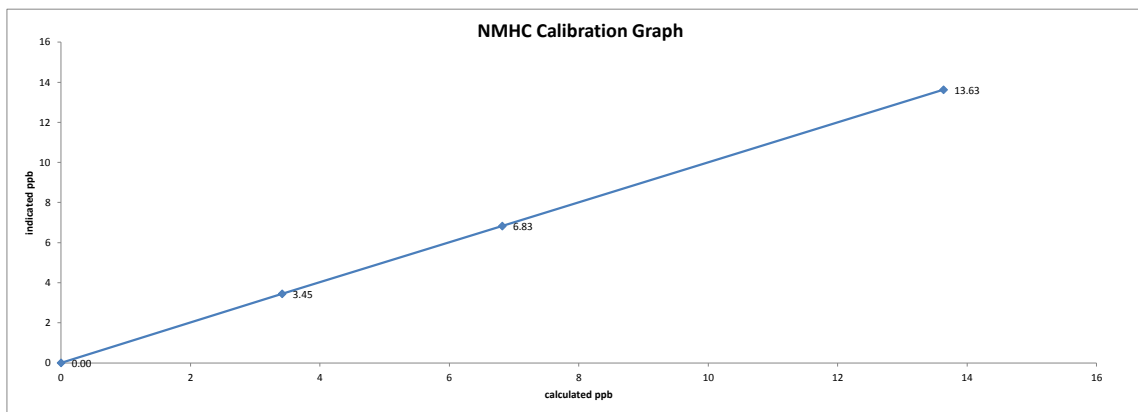
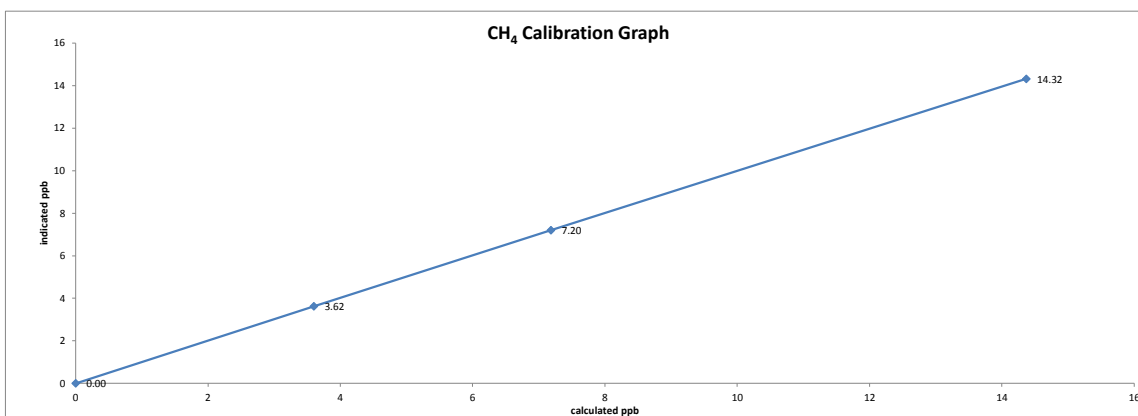
|                                 |                            |               |                            |                            |          |  |  |  |  |  |  |  |
|---------------------------------|----------------------------|---------------|----------------------------|----------------------------|----------|--|--|--|--|--|--|--|
| As Left Instrument Diagnostics: |                            |               |                            |                            |          |  |  |  |  |  |  |  |
| Interface Board Voltages:       | Bias Supply:               | -288.9        | Calibration History cnt'd: | NM Peak Area:              | 86449    |  |  |  |  |  |  |  |
| Temperatures:                   | Detector Oven:             | 175           | Crucial Settings:          | Methane Start:             | 8        |  |  |  |  |  |  |  |
|                                 | Filter:                    | 175           |                            | Methane End:               | 16       |  |  |  |  |  |  |  |
|                                 | Column Oven:               | 75.0          |                            | Backflush:                 | 18       |  |  |  |  |  |  |  |
|                                 | Internal:                  | 30.8          |                            | NMHV Start:                | 26       |  |  |  |  |  |  |  |
| Cylinder Pressures/reg.:        | Carrier:                   | 1880   50     | Run History>1:             | NMHC End:                  | 56       |  |  |  |  |  |  |  |
|                                 | Fuel:                      | 450   50      |                            | Date:                      | 08NOVT18 |  |  |  |  |  |  |  |
|                                 | Span Gas:                  | 1900   24     |                            | Time:                      | 11:44    |  |  |  |  |  |  |  |
|                                 | Zero Air Generator:        | 50            |                            | CH <sub>4</sub> PK HT:     | 2642     |  |  |  |  |  |  |  |
| Internal Pressures:             | Carrier:                   | 31.3          |                            | CH <sub>4</sub> RT:        | 11.8     |  |  |  |  |  |  |  |
|                                 | Fuel:                      | 41.6          |                            | CH <sub>4</sub> Baseline:  | 2027     |  |  |  |  |  |  |  |
|                                 | Air:                       | 25.9          |                            | CH <sub>4</sub> LOD:       | 72       |  |  |  |  |  |  |  |
| FID Status:                     | Status:                    | LIT           |                            | CH <sub>4</sub> SD:        | 24       |  |  |  |  |  |  |  |
|                                 | Counts:                    | 24243         |                            | CH <sub>4</sub> CONC:      | 2.03     |  |  |  |  |  |  |  |
|                                 | Flame:                     | 405.0         |                            | NM PK HT:                  | 0        |  |  |  |  |  |  |  |
|                                 | Det Base:                  | 175           |                            | NM Peak Area:              | 0        |  |  |  |  |  |  |  |
| Flame and Power Stats:          | Last Power On:             | 02Oct18 16:42 |                            | NM CONC:                   | 0.00     |  |  |  |  |  |  |  |
|                                 | Flameouts:                 | 1             |                            | NM Base Start:             | 1996     |  |  |  |  |  |  |  |
|                                 | Det Oven at Start:         | 45            |                            | NM Base End:               | 1993     |  |  |  |  |  |  |  |
|                                 | Col Oven at Start:         | 26.6          |                            | NM LOD:                    | 17       |  |  |  |  |  |  |  |
| Calibration History:            | Time:                      | 18OCT18 09:44 |                            | NM Start IDX:              | 23       |  |  |  |  |  |  |  |
|                                 | Type:                      | SPAN          |                            | NM End IDX:                | 64       |  |  |  |  |  |  |  |
|                                 | Status:                    | GOOD          |                            | NM Max Slope:              | 7.4e-01  |  |  |  |  |  |  |  |
|                                 | Check/Adjust:              | ADJUST        |                            | NM Min Slope:              | -1.1e+00 |  |  |  |  |  |  |  |
|                                 | CH <sub>4</sub> Span Conc: | 14.44         |                            | NM PT Count:               | 0        |  |  |  |  |  |  |  |
|                                 | CH <sub>4</sub> SP Ratio:  | 0.000767      | Expected Values:           | Previous CH <sub>4</sub> : | 10.3     |  |  |  |  |  |  |  |
|                                 | CH <sub>4</sub> RT:        | 11.6          |                            | Previous NMHC:             | 11.09    |  |  |  |  |  |  |  |
|                                 | CH <sub>4</sub> PK IDX:    | 18            |                            | Previous THC:              | 21.43    |  |  |  |  |  |  |  |
|                                 | CH <sub>4</sub> PK HT:     | 18817         |                            | New CH <sub>4</sub> :      | 10.30    |  |  |  |  |  |  |  |
|                                 | NM Span Conc:              | 13.70         |                            | New NMHC:                  | 11.09    |  |  |  |  |  |  |  |
|                                 | NM SP Ratio:               | 0.000158      |                            | New THC:                   | 21.43    |  |  |  |  |  |  |  |

**Comments:**  
The analyzer sample inlet filter was changed.

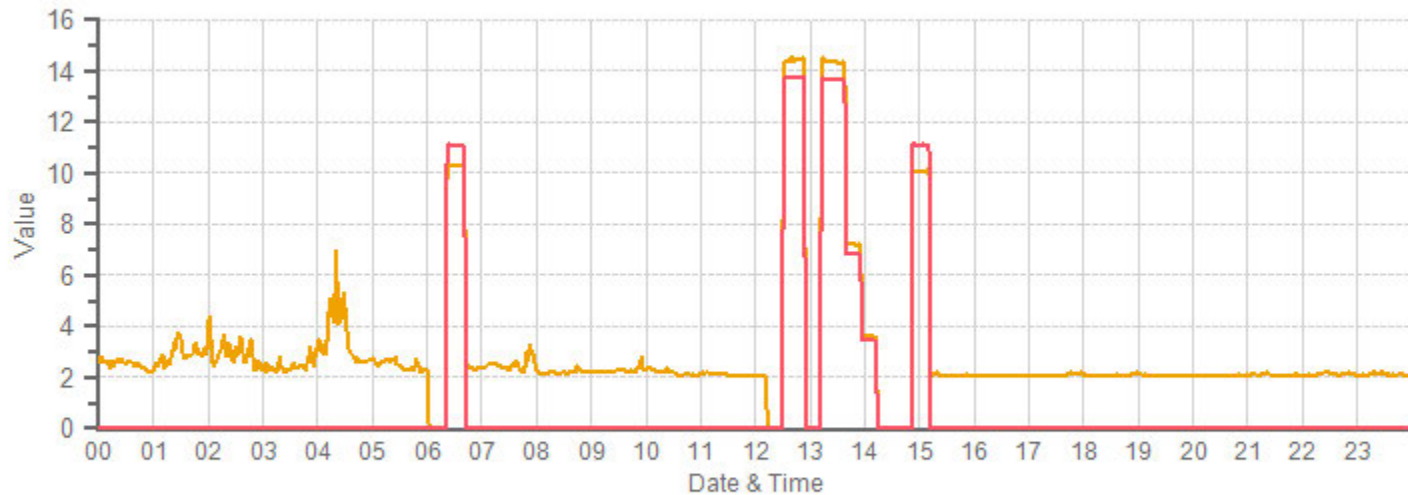
A new span gas cylinder was installed.  
The analyzer cooling fan filter(s) were cleaned.  
The manifold blower was found to be working normally.

Date: **November 8, 2018**  
Company/Airshed: **PRAMP**  
Location/Station Name: **RENO**

Start/End Time 24 hr. (mst): **12:05/15:14**  
Calibration Purpose: **routine monthly**  
Calibration Method: **Gas Dilution**



Station: PRAMP\_RENO Daily: 18/11/08 Type: AVG 1 Min. [1 Min.]



— CH4[ppm]

— NMHC[ppm]

## ***WIND SYSTEM***



## Meteorological Sensor Audit/Calibration

### Location Information

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

### Wind Sensor Information

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

### Wind Calibrator Information

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

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

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

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

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

### Comments:

## ***METEOROLOGICAL SYSTEMS CHECK***



## Meteorological System Checklist

|                                                                  |                                          |                                |                  |
|------------------------------------------------------------------|------------------------------------------|--------------------------------|------------------|
| Date:                                                            | November 8, 2018                         |                                |                  |
| Technician:                                                      | Limin Li                                 |                                |                  |
| Reviewer:                                                        | Rob Fisher                               |                                |                  |
| Station:                                                         | PRAMP RENO                               |                                |                  |
| Unit:                                                            | Make:                                    | Model:                         | Serial #:        |
| Temperature Sensor:                                              | RM Young                                 | 43172VC                        | 60837897         |
| Barometric Pressure Sensor:                                      | MetOne                                   | 92                             | R12877           |
| Relative Humidity Sensor:                                        | RM Young                                 | 43172VC                        | 60837897         |
| Anemometer:                                                      | RM Young                                 | 05305VK                        | 149769           |
| <b>AMBIENT TEMPERATURE SENSOR CHECK</b>                          |                                          |                                |                  |
| Previous check date:                                             | October 18, 2018                         |                                |                  |
| Parameter:                                                       | Temperature @ 2 metres                   |                                |                  |
| Reference Thermometer ID:                                        | F.S. 160348895 expires June 19, 2020     |                                |                  |
| Reference Temperature (°C):                                      | -17.9                                    |                                |                  |
| Station - Ambient Temperature (°C):                              | -17.7                                    |                                |                  |
| Temperature Difference (°C):                                     | -0.2                                     |                                |                  |
| <b>BAROMETRIC PRESSURE SENSOR CHECK</b>                          |                                          |                                |                  |
| Previous check date:                                             | October 18, 2018                         |                                |                  |
| Reference Barometer ID:                                          | Brunton 05535 expires December 15, 2018  |                                |                  |
| Reference Pressure - Units/Reading:                              | inHg                                     | 28.01                          |                  |
| Station Pressure - Units/Reading:                                | inHg                                     | 28.05                          |                  |
| Pressure Tolerance +/- 15% of error:                             | 24 - 32                                  | -0.14%                         |                  |
| <b>RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK</b>               |                                          |                                |                  |
| Previous check date:                                             | October 18, 2018                         |                                |                  |
| Reference Hygrometer ID:                                         | F.S. id# 160348895 expires June 19, 2020 |                                |                  |
| Reference Hygrometer % RH- Reading:                              | 76.80                                    |                                |                  |
| Station Hygrometer % RH- Reading:                                | 73.10                                    |                                |                  |
| RH Tolerance +/- 15% of difference:                              | 65.28 - 88.32                            | 4.8%                           |                  |
| <b>ANEMOMETER - WIND SPEED &amp; WIND DIRECTION SENSOR CHECK</b> |                                          |                                |                  |
| <b>WIND SPEED</b>                                                |                                          | <b>WIND DIRECTION</b>          |                  |
| Previous check date:                                             | October 18, 2018                         | Previous check date:           | October 18, 2018 |
| Wind Speed Observed (kph):                                       | 0~ 5                                     | Wind Direction Observed:       | SW               |
| Wind speed on Data Logger (kph):                                 | 3                                        | Wind Direction on Data Logger: | SW               |
|                                                                  |                                          | Wind Direction Pass/Fail?:     | Pass             |

## ***CALIBRATORS***

# Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-130A

Company Maxxam Operator: Mike

| Calibrator:            |                  |               | Flow Measurement Device: |                    |  |
|------------------------|------------------|---------------|--------------------------|--------------------|--|
| Make/Model             | Sabio            |               | Make/Model               | Bios Definer 220   |  |
| Serial Number          | 17200415         |               | Serial Number            | H=128686; L=129069 |  |
| Last Verification Date | May 16, 2017     |               | Temperature (°C)         | 22.2 C             |  |
| NO Cylinder S/N        | LL104183         |               | Barometric Pressure      | 706.1mmHg          |  |
| NO [PPM]               | 50.8             | NOx [PPM]50.9 |                          |                    |  |
| Expiry Date            | October 24, 2020 |               |                          |                    |  |

| Dilution Flow (scm) |             |        |             |        |             |
|---------------------|-------------|--------|-------------|--------|-------------|
| Pt. #1              | <u>5057</u> | Pt. #2 | <u>5055</u> | Pt. #3 | <u>5070</u> |
| Gas Flow (scm)      |             |        |             |        |             |
| Pt. #1              | <u>77.4</u> | Pt. #2 | <u>37.9</u> | Pt. #3 | <u>19.1</u> |

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

## LINEAR REGRESSION ANALYSIS

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

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

| Flow                                | O <sub>3</sub> Conc | NO Decrease | NO     | NO <sub>2</sub> | NOX    | % Diff. Vs Audit gas |               |
|-------------------------------------|---------------------|-------------|--------|-----------------|--------|----------------------|---------------|
| 5057                                | 0.0                 | 0.0000      | 0.7868 | 0.0006          | 0.7874 | NO <sub>2</sub>      | % Diff. Limit |
| 5057                                | 500.0               | 0.5003      | 0.2865 | 0.5016          | 0.7875 | 0%                   | ± 10%         |
| 5057                                | 275.0               | 0.2802      | 0.5066 | 0.2797          | 0.7862 | 0%                   | ± 10%         |
| 5057                                | 100.0               | 0.1053      | 0.6815 | 0.1046          | 0.7863 | -1%                  | ± 10%         |
| Absolute Average Percent Difference |                     |             |        |                 |        | 0%                   | ± 10%         |

## LINEAR REGRESSION ANALYSIS

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

| NO <sub>2</sub>        |         | LIMITS    |
|------------------------|---------|-----------|
| Correlation=           | 1.0000  | ≥ 0.995   |
| m (Slope)=             | 1.0020  | 0.90-1.10 |
| b (Intercept % of FS)= | -0.0259 | ± 3% F.S. |

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

## COMMENTS:

Auditor: Shea Beaton  
Operator Signature: [Signature]

Date: August 21, 2018  
Location: McIntyre Center Edmonton

Company: Maxxam Operator: Chris W

|                        |                       |           |             |                                 |                          |  |  |
|------------------------|-----------------------|-----------|-------------|---------------------------------|--------------------------|--|--|
| <b>Calibrator:</b>     |                       |           |             | <b>Flow Measurement Device:</b> |                          |  |  |
| Make/Model             | <u>Envionics 2000</u> |           |             | Make/Model                      | <u>Mesa Defender 530</u> |  |  |
| Serial Number          | <u>1991</u>           |           |             | Serial Number                   | <u>L-153351 H-152571</u> |  |  |
| Last Verification Date | <u>March 2017</u>     |           |             | Temperature (°C)                | <u>25.0 C</u>            |  |  |
| NO Cylinder S/N        | <u>LL108015</u>       |           |             | Barometric Pressure             | <u>695 mmHg</u>          |  |  |
| NO [PPM]               | <u>52.2</u>           | NOx [PPM] | <u>52.3</u> |                                 |                          |  |  |
| Expiry Date            | <u>Oct 2020</u>       |           |             |                                 |                          |  |  |

|                      |                    |                    |  |
|----------------------|--------------------|--------------------|--|
| Dilution Flow (sccm) |                    |                    |  |
| Pt. #1 <u>5000</u>   | Pt. #2 <u>5000</u> | Pt. #3 <u>5000</u> |  |
| Gas Flow (sccm)      |                    |                    |  |
| Pt. #1 <u>80</u>     | Pt. #2 <u>40</u>   | Pt. #3 <u>20</u>   |  |

| Calibrator Flow (sccm)              |      | Calculated Conc.(ppm) |       | Indicated Conc.(ppm) |                 |       | % Difference vs Audit Gas |     |
|-------------------------------------|------|-----------------------|-------|----------------------|-----------------|-------|---------------------------|-----|
| Dilution                            | Gas  | NO                    | NOx   | NO                   | NO <sub>2</sub> | NOx   | NO                        | NOx |
| 5000                                | 0.0  | 0.000                 | 0.000 | 0.000                | 0.000           | 0.000 | Limit ± 10%               |     |
| 4988                                | 75.1 | 0.786                 | 0.787 | 0.785                | -0.002          | 0.783 | 0%                        | -1% |
| 4988                                | 36.5 | 0.382                 | 0.383 | 0.382                | 0.001           | 0.383 | 0%                        | 0%  |
| 4988                                | 18.3 | 0.192                 | 0.192 | 0.190                | 0.000           | 0.190 | -1%                       | -1% |
| Absolute Average Percent Difference |      |                       |       |                      |                 |       | 0%                        | 1%  |

**LINEAR REGRESSION ANALYSIS**

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

|                        |         |               |  |                        |         |
|------------------------|---------|---------------|--|------------------------|---------|
| <b>NO</b>              |         | <b>LIMITS</b> |  | <b>NOx</b>             |         |
| Correlation=           | 1.0000  | ≥ 0.990       |  | Correlation=           | 1.0000  |
| m (Slope)=             | 0.9996  | 0.90-1.10     |  | m (Slope)=             | 0.9956  |
| b (Intercept % of FS)= | -0.0599 | ± 3% F.S.     |  | b (Intercept % of FS)= | -0.0005 |

| Flow                                | O <sub>3</sub> Conc | NO Decrease | NO    | NO <sub>2</sub> | NOX   | % Diff. Vs Audit gas |               |
|-------------------------------------|---------------------|-------------|-------|-----------------|-------|----------------------|---------------|
| 4988                                | 0.000               | 0.000       | 0.788 | -0.001          | 0.787 | NO <sub>2</sub>      | % Diff. Limit |
| 4988                                | 0.350               | 0.519       | 0.269 | 0.512           | 0.780 | -1%                  | ± 10%         |
| 4988                                | 0.160               | 0.231       | 0.557 | 0.229           | 0.786 | 0%                   | ± 10%         |
| 4988                                | 0.070               | 0.099       | 0.689 | 0.097           | 0.787 | -1%                  | ± 10%         |
| Absolute Average Percent Difference |                     |             |       |                 |       | 1%                   | ± 10%         |

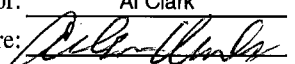
**LINEAR REGRESSION ANALYSIS**

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

|                        |         |               |  |
|------------------------|---------|---------------|--|
| <b>NO<sub>2</sub></b>  |         | <b>LIMITS</b> |  |
| Correlation=           | 1.0000  | ≥ 0.995       |  |
| m (Slope)=             | 0.9885  | 0.90-1.10     |  |
| b (Intercept % of FS)= | -0.0567 | ± 3% F.S.     |  |

|                         |                    |                                |                       |
|-------------------------|--------------------|--------------------------------|-----------------------|
| <b>AENV Standards</b>   |                    | <b>NO<sub>x</sub> Analyzer</b> |                       |
| <b>Audit Calibrator</b> |                    | Make/Model <u>Teco 42i</u>     |                       |
| Make/Model              | <u>Teco 146i</u>   | Serial/AMU Number              | <u>AMU 1868</u>       |
| Serial/AMU Number       | <u>AMU 1809</u>    | Last Calibration Date          | <u>March 14, 2018</u> |
| SRM Gas Cylinder No.    | <u>APEX1170572</u> | Full Scale (ppm)               | <u>1.0</u>            |
| Cylinder Conc. (ppm)    | <u>49.99</u>       | Cylinder Gas Expiry Date       | <u>November 2020</u>  |

COMMENTS: Cylinder contains 47.9 ppm SO<sub>2</sub>.

Auditor: Al Clark  
Operator Signature: 

Date: March 15, 2018  
Location: McIntyre Center Edmonton

## ***CALIBRATION GASES***



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2016-436CGA

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

Cylinder #: EY0000769 Concentration PPM: 50.5 Tolerance(%) 1.6 Certified By: Praxair

Expiry Date: December 8, 2019

### Reference Calibrator and Gas:

Make/Model: Thermo 146i

Serial Number: AMU 1809

Last Verification Date: January 26, 2017

Gas Type: SO2 Conc. 98.07

Cylinder Number: CAL016625

Expiry Date: January 5, 2019

### Flow Measurement Device:

Make/Model: Bios Befiner 220

Serial Number: AMU1941

Temp. °C: 24.4

B.P. 704.7

### Reference Analyzer:

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

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

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

| Calibrator Flows (sccm)         |      | Indicated<br>Concentration (PPM) | Gas Flow/<br>Dilution Flow | Concentration<br>Factor | Cylinder<br>Concentration |
|---------------------------------|------|----------------------------------|----------------------------|-------------------------|---------------------------|
| Dilution                        | Gas  |                                  |                            |                         |                           |
| 4911                            | 0.0  | 0.000                            |                            |                         |                           |
| 4918                            | 77.4 | 0.801                            | 0.01574                    | 63.540                  | 50.9                      |
| 4918                            | 38.5 | 0.398                            | 0.00783                    | 127.740                 | 50.9                      |
| 4915                            | 19.2 | 0.196                            | 0.00391                    | 255.990                 | 50.0                      |
| Average Cylinder Concentration: |      |                                  |                            |                         | <b>50.6</b>               |

Previous Stated Concentration PPM: 50.5

Percent variance from Stated: 0.2

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

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

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

Auditor: Shea Beaton

Operator Signature: \_\_\_\_\_

Date: January 26, 2017

Location: McIntyre Center Edmonton



# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2017-213CGA

**Company:** Maxxam **Operator's Name:** C. Wesson  
**Cylinder #:** LL119500 **Concentration PPM:** 9.8 **Tolerance(%)** 2 **Certified By:** Praxair  
**Expiry Date:** August 2020

### Reference Calibrator and Gas:

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

### Flow Measurement Device:

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

### Reference Analyzer:

**Make/Model:** Teco 450i **Serial/AMU Number:** 1980  
**Instrument Settings:** **Zero:** 22.4 **Span:** 1.091 **Range:** 0.1  
**Last Calibration:** **Date:** Sep 22/17 **C.F.** 1.000 **Done By:** Al Clark

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

**Previous Stated Concentration PPM:** 9.8

**Percent variance from Stated:** 3

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☐ **COMMENTS:** \_\_\_\_\_  
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration ☒ \_\_\_\_\_  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐ \_\_\_\_\_

**Auditor:** Al Clark  
**Operator Signature:** *Al Clark*

**Date:** September 22, 2017  
**Location:** McIntyre Center Edmonton



# Calibration Gas Audit

## CH<sub>4</sub> / C<sub>3</sub>H<sub>8</sub> Cylinder Gas

File No. 2017-488CGA

**Company:** Maxxam **Operators name:** Mike  
**Cylinder #:** LL168404 **Conc CH<sub>4</sub> (PPM)** 597/206 **Tolerance (%)** 2 **Certified By:** Praxair  
**Expiry Date:** October 2025

| Reference Calibrator and Gas: |                               |             |           | Flow Measurement Device: |                     |
|-------------------------------|-------------------------------|-------------|-----------|--------------------------|---------------------|
| Make/Model                    | R&R MFC 201                   |             |           | Make/Model               | Mesa Definer 220    |
| Serial Number                 | AMU 1690                      |             |           | Serial Number            | H-133034 / L-132702 |
| Last Verification Date        | December 13, 2017             |             |           | Temp. °C                 | 23.1 C              |
| Gas Type                      | CH <sub>4</sub>               | Conc.       | 990.4     | B.P.                     | 707 mmHg            |
| Cylinder Number               | 5604875                       | Expiry Date | July 2021 |                          |                     |
| Gas Type                      | C <sub>3</sub> H <sub>8</sub> | Conc.       | 246.5     |                          |                     |
| Cylinder Number               | XF003845B                     | Expiry Date | July 2022 |                          |                     |

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

| Calibrator Flows (sccm)         |      | Indicated Conc. (ppm) |                               | Gas Flow/<br>Dilution Flow | Concentration<br>Factor | Cylinder Concentration |                               |
|---------------------------------|------|-----------------------|-------------------------------|----------------------------|-------------------------|------------------------|-------------------------------|
| Dilution                        | Gas  | CH <sub>4</sub>       | C <sub>3</sub> H <sub>8</sub> |                            |                         | CH <sub>4</sub>        | C <sub>3</sub> H <sub>8</sub> |
| 3500                            | 0.0  | 0.00                  | 0.00                          |                            |                         |                        |                               |
| 3618                            | 80.4 | 13.22                 | 12.69                         | 0.02                       | 45.00                   | 595                    | 208                           |
| 3547                            | 39.8 | 6.64                  | 6.42                          | 0.01                       | 89.12                   | 592                    | 208                           |
| 3560                            | 19.8 | 3.33                  | 3.23                          | 0.01                       | 179.80                  | 599                    | 211                           |
| Average Cylinder Concentration: |      |                       |                               |                            |                         | 595                    | 209                           |

|                                    | CH <sub>4</sub> | C <sub>3</sub> H <sub>8</sub> |
|------------------------------------|-----------------|-------------------------------|
| Previous Stated Concentration PPM: | 597             | 206                           |
| Percent variance from Stated:      | 0               | 1                             |

### Cylinder gas tolerances based on CH<sub>4</sub> only

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ **COMMENTS:**  
 < =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐  
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐

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

***APPENDIX III***  
***MAXIMUM INSTANTANEOUS DATA***



## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

SULPHUR DIOXIDE Instantaneous Maximum (SO<sub>2</sub> ppb)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 1    | 0    | 0    | 0    | 0    | 1    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 2              | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1     | S     | 1     | 1     | 0     | 0     | 0     | 0     | 1     | 1     | 1     | 1     | 0     | 0     | 1     | 1     | 24    |    |
| 3              | 0    | 0    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 4              | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | 1     | 1     | 24    |    |
| 5              | 1    | 0    | 0    | 0    | 0    | 0    | 1    | 1    | 1    | S    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 1     | 0     | 24 |
| 6              | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 1    | S    | 1    | 1     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | 0     | 1     | 1     | 0     | 0     | 0     | 0     | 0     | 1     | 0     | 24 |
| 7              | 0    | 0    | 0    | 0    | 0    | 0    | 1    | S    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 8              | 1    | 1    | 1    | 1    | 1    | 1    | S    | 1    | 1    | C    | C     | C     | C     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 24 |
| 9              | 1    | 1    | 1    | 1    | 1    | S    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 1     | 0     | 0     | 0     | 1     | 1     | 24    |    |
| 10             | 0    | 0    | 0    | 0    | S    | 0    | 0    | 1    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 1     | 0     | 1     | 0     | 24    |    |
| 11             | 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     | 24    |    |
| 12             | 0    | 0    | S    | 0    | 0    | 0    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 13             | 1    | S    | 1    | 1    | 1    | 1    | 1    | 1    | 2    | 1    | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 1     | 1     | 2     | 1     | 1     | 1     | 1     | 1     | 2     | 1     | 24    |    |
| 14             | S    | 1    | 1    | 1    | 1    | 1    | 1    | 2    | 1    | 1    | 1     | 2     | 1     | 2     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | S     | 1     | 2     | 1     | 24    |    |
| 15             | 1    | 1    | 1    | 0    | 1    | 0    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | 0     | 0     | S     | 1     | 0     | 1     | 1     | 24    |    |
| 16             | 1    | 1    | 0    | 0    | 0    | 0    | 0    | 1    | 1    | 1    | 1     | 0     | 0     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 0     | S     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 17             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2    | 2     | 1     | 1     | 2     | 1     | 1     | 1     | 1     | 1     | 1     | S     | 1     | 1     | 1     | 1     | 2     | 1     | 24    |    |
| 18             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | S     | 1     | 0     | 1     | 1     | 0     | 1     | 1     | 24    |    |
| 19             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 3     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 2     | 1     | 24    |    |
| 20             | 1    | 2    | 2    | 2    | 2    | 2    | 2    | 1    | 2    | 2    | 2     | 2     | 2     | 2     | 2     | 2     | 3     | S     | 1     | 1     | 1     | 1     | 1     | 2     | 1     | 3     | 2     | 24    |    |
| 21             | 1    | 1    | 1    | 2    | 2    | 1    | 2    | 2    | 2    | 2    | 2     | 2     | 2     | 2     | 2     | 2     | S     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 24    |    |
| 22             | 1    | 1    | 1    | 1    | 2    | 1    | 2    | 2    | 2    | 2    | 2     | 2     | 2     | 2     | 2     | S     | 2     | 2     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 2     | 2     | 24    |    |
| 23             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 1    | 2     | 1     | 1     | 1     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 2     | 1     | 24 |
| 24             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1     | 1     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 24    |    |
| 25             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1     | S     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 24    |    |
| 26             | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 1    | 1     | S     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 24    |    |
| 27             | 1    | 1    | 1    | 2    | 2    | 1    | 2    | 2    | 2    | 2    | S     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 1     | 2     | 2     | 1     | 2     | 2     | 24    |    |
| 28             | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | S    | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 24    |    |
| 29             | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | S    | 2    | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 2     | 1     | 1     | 1     | 1     | 2     | 2     | 24    |    |
| 30             | 1    | 2    | 1    | 2    | 2    | 1    | 1    | S    | 1    | 1    | 2     | 2     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 2     | 1     | 24 |
| HOURLY MAX     | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2     | 2     | 2     | 2     | 2     | 3     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 1     | 2     | 1     | 24 |
| HOURLY AVG     | 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     | 24 |

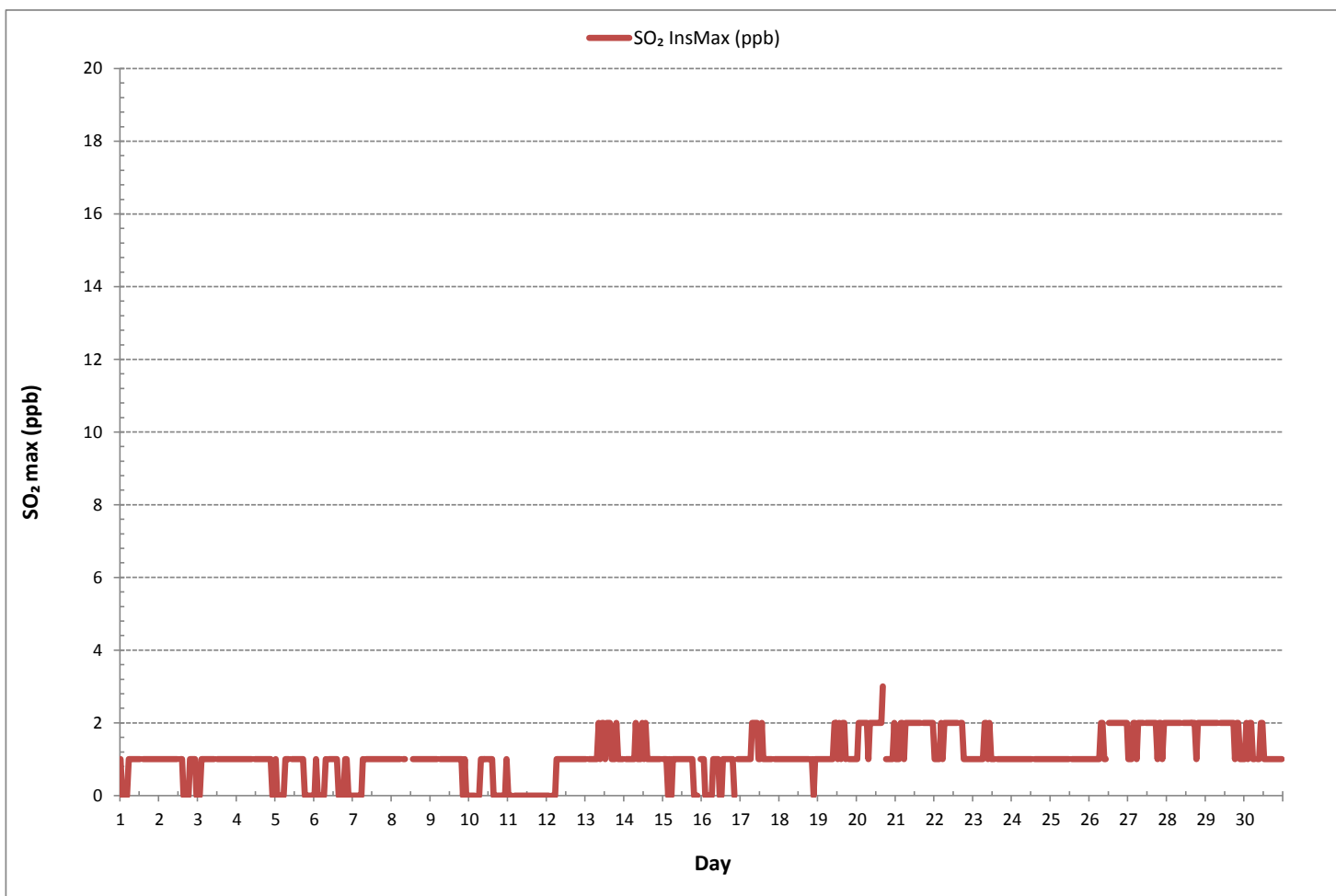
## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

## MONTHLY SUMMARY

|                              |                           |
|------------------------------|---------------------------|
| NUMBER OF NON-ZERO READINGS: | 583                       |
| MAXIMUM INSTANTANEOUS VALUE: | 3 ppb @ HOUR 16 ON DAY 20 |
| IZS CALIBRATION TIME:        | 31 hrs                    |
| MONTHLY CALIBRATION TIME:    | 4 hrs                     |
| STANDARD DEVIATION:          | 1                         |
| OPERATIONAL TIME:            | 720 hrs                   |

SULPHUR DIOXIDE Instantaneous Maximum (SO<sub>2</sub> ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE  
Reno Station - November 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1              | 0.37 | 0.38 | 0.39 | 0.39 | 0.43 | 0.40 | 0.36 | 0.32 | 0.33 | 0.37 | 0.36  | 0.31  | 0.34  | S     | 0.36  | 0.35  | 0.32  | 0.33  | 0.32  | 0.36  | 0.33  | 0.33  | 0.34  | 0.30  | 0.30  | 0.43  | 0.35  | 24    |    |
| 2              | 0.33 | 0.31 | 0.33 | 0.38 | 0.33 | 0.37 | 0.34 | 0.39 | 0.35 | 0.31 | 0.32  | 0.33  | S     | 0.39  | 0.37  | 0.42  | 0.44  | 0.42  | 0.52  | 0.79  | 0.64  | 0.92  | 0.80  | 0.58  | 0.31  | 0.92  | 0.45  | 24    |    |
| 3              | 0.44 | 0.48 | 0.45 | 0.48 | 0.58 | 0.56 | 0.40 | 0.37 | 0.34 | 0.34 | 0.34  | S     | 0.35  | 0.35  | 0.35  | 0.33  | 0.35  | 0.33  | 0.35  | 0.33  | 0.33  | 0.29  | 0.31  | 0.32  | 0.29  | 0.58  | 0.38  | 24    |    |
| 4              | 0.32 | 0.30 | 0.34 | 0.36 | 0.34 | 0.37 | 0.50 | 0.77 | 0.62 | 0.40 | S     | 0.35  | 0.34  | 0.35  | 0.35  | 0.49  | 0.60  | 0.52  | 0.51  | 0.43  | 0.40  | 0.40  | 0.42  | 0.39  | 0.30  | 0.77  | 0.43  | 24    |    |
| 5              | 0.42 | 0.40 | 0.35 | 0.36 | 0.34 | 0.36 | 0.38 | 0.34 | 0.38 | S    | 0.39  | 0.38  | 0.43  | 0.41  | 0.38  | 0.40  | 0.39  | 0.35  | 0.37  | 0.40  | 0.40  | 0.35  | 0.38  | 0.40  | 0.34  | 0.43  | 0.38  | 24    |    |
| 6              | 0.35 | 0.36 | 0.35 | 0.38 | 0.36 | 0.37 | 0.36 | 0.35 | S    | 0.44 | 0.47  | 0.43  | 0.39  | 0.39  | 0.37  | 0.36  | 0.37  | 0.40  | 0.42  | 0.53  | 0.50  | 0.46  | 0.45  | 0.45  | 0.35  | 0.53  | 0.40  | 24    |    |
| 7              | 0.49 | 0.49 | 0.46 | 0.60 | 0.50 | 0.46 | 0.47 | S    | 0.64 | 0.53 | 0.55  | 0.51  | 0.52  | 0.60  | 0.57  | 0.54  | 0.49  | 0.60  | 0.54  | 0.49  | 0.65  | 0.72  | 0.83  | 0.68  | 0.46  | 0.83  | 0.56  | 24    |    |
| 8              | 0.67 | 0.75 | 0.81 | 0.77 | 0.95 | 0.69 | S    | 0.64 | 0.57 | C    | C     | C     | C     | C     | 0.58  | 0.51  | 0.49  | 0.50  | 0.48  | 0.44  | 0.45  | 0.46  | 0.48  | 0.48  | 0.44  | 0.95  | 0.60  | 24    |    |
| 9              | 0.49 | 0.49 | 0.49 | 0.47 | 0.45 | S    | 0.51 | 0.48 | 0.49 | 0.50 | 0.48  | 0.50  | 0.47  | 0.49  | 0.51  | 0.52  | 0.48  | 0.47  | 0.49  | 0.51  | 0.47  | 0.49  | 0.45  | 0.47  | 0.45  | 0.52  | 0.49  | 24    |    |
| 10             | 0.47 | 0.48 | 0.44 | 0.44 | S    | 0.56 | 0.50 | 0.50 | 0.47 | 0.50 | 0.49  | 0.49  | 0.46  | 0.48  | 0.46  | 0.47  | 0.45  | 0.49  | 0.43  | 0.44  | 0.47  | 0.45  | 0.48  | 0.44  | 0.43  | 0.56  | 0.47  | 24    |    |
| 11             | 0.47 | 0.46 | 0.47 | S    | 0.48 | 0.44 | 0.43 | 0.43 | 0.44 | 0.42 | 0.44  | 0.43  | 0.47  | 0.47  | 0.47  | 0.44  | 0.42  | 0.47  | 0.45  | 0.48  | 0.41  | 0.43  | 0.43  | 0.46  | 0.41  | 0.48  | 0.45  | 24    |    |
| 12             | 0.51 | 0.47 | S    | 0.49 | 0.63 | 0.54 | 0.51 | 0.48 | 0.53 | 0.50 | 0.53  | 0.51  | 0.49  | 0.53  | 0.51  | 0.56  | 0.51  | 0.59  | 0.62  | 0.53  | 0.64  | 0.60  | 0.53  | 0.53  | 0.47  | 0.64  | 0.54  | 24    |    |
| 13             | 0.59 | S    | 0.62 | 0.60 | 0.61 | 0.60 | 0.60 | 0.54 | 0.74 | 0.59 | 0.53  | 0.54  | 0.54  | 0.47  | 0.56  | 0.51  | 0.47  | 0.50  | 0.45  | 0.50  | 0.51  | 0.40  | 0.40  | 0.40  | 0.40  | 0.74  | 0.53  | 24    |    |
| 14             | S    | 0.54 | 0.42 | 0.42 | 0.41 | 0.43 | 0.47 | 0.42 | 0.46 | 0.43 | 0.44  | 0.42  | 0.42  | 0.39  | 0.36  | 0.40  | 0.45  | 0.48  | 0.44  | 0.42  | 0.47  | 0.45  | 0.42  | S     | 0.36  | 0.54  | 0.44  | 24    |    |
| 15             | 0.44 | 0.42 | 0.45 | 0.41 | 0.42 | 0.45 | 0.45 | 0.44 | 0.42 | 0.44 | 0.43  | 0.44  | 0.43  | 0.42  | 0.39  | 0.43  | 0.40  | 0.41  | 0.43  | 0.43  | 0.44  | 0.52  | S     | 0.56  | 0.39  | 0.56  | 0.44  | 24    |    |
| 16             | 0.53 | 0.50 | 0.49 | 0.48 | 0.43 | 0.46 | 0.47 | 0.48 | 0.46 | 0.49 | 0.70  | 0.50  | 0.56  | 0.51  | 0.47  | 0.47  | 0.56  | 0.52  | 0.50  | 0.61  | 0.59  | S     | 0.61  | 0.55  | 0.43  | 0.70  | 0.52  | 24    |    |
| 17             | 0.56 | 0.52 | 0.54 | 0.59 | 0.56 | 0.48 | 0.51 | 0.51 | 0.54 | 0.56 | 0.52  | 0.55  | 0.50  | 0.57  | 0.59  | 0.59  | 0.62  | 0.65  | 0.55  | 0.52  | S     | 0.50  | 0.48  | 0.50  | 0.48  | 0.65  | 0.54  | 24    |    |
| 18             | 0.48 | 0.48 | 0.43 | 0.45 | 0.42 | 0.43 | 0.43 | 0.44 | 0.52 | 0.52 | 0.44  | 0.47  | 0.48  | 0.50  | 0.48  | 0.48  | 0.49  | 0.55  | 0.50  | S     | 0.49  | 0.46  | 0.45  | 0.50  | 0.42  | 0.55  | 0.47  | 24    |    |
| 19             | 0.55 | 0.61 | 0.54 | 0.53 | 0.53 | 0.50 | 0.46 | 0.46 | 0.50 | 0.45 | 0.46  | 0.44  | 0.46  | 0.45  | 0.48  | 0.46  | 0.48  | 0.50  | S     | 0.72  | 0.62  | 0.56  | 0.52  | 0.68  | 0.44  | 0.72  | 0.52  | 24    |    |
| 20             | 0.64 | 0.70 | 0.61 | 0.66 | 0.74 | 0.78 | 0.75 | 0.52 | 0.56 | 0.53 | 0.68  | 0.50  | 0.52  | 0.52  | 0.53  | 0.71  | 0.73  | S     | 0.49  | 0.56  | 0.48  | 0.50  | 0.50  | 0.49  | 0.48  | 0.78  | 0.60  | 24    |    |
| 21             | 0.48 | 0.50 | 0.46 | 0.39 | 0.40 | 0.45 | 0.44 | 0.42 | 0.43 | 0.48 | 0.47  | 0.43  | 0.44  | 0.44  | 0.46  | 0.43  | S     | 0.46  | 0.48  | 0.48  | 0.42  | 0.41  | 0.46  | 0.48  | 0.54  | 0.39  | 0.54  | 0.45  | 24 |
| 22             | 0.58 | 0.46 | 0.53 | 0.51 | 0.46 | 0.40 | 0.39 | 0.39 | 0.41 | 0.40 | 0.38  | 0.35  | 0.37  | 0.41  | 0.39  | S     | 0.41  | 0.41  | 0.37  | 0.40  | 0.39  | 0.36  | 0.36  | 0.36  | 0.35  | 0.58  | 0.41  | 24    |    |
| 23             | 0.39 | 0.35 | 0.41 | 0.43 | 0.41 | 0.41 | 0.40 | 0.40 | 0.39 | 0.37 | 0.38  | 0.42  | 0.36  | 0.40  | S     | 0.46  | 0.43  | 0.39  | 0.39  | 0.39  | 0.38  | 0.41  | 0.42  | 0.39  | 0.35  | 0.46  | 0.40  | 24    |    |
| 24             | 0.41 | 0.45 | 0.40 | 0.43 | 0.43 | 0.40 | 0.43 | 0.44 | 0.43 | 0.44 | 0.46  | 0.46  | 0.49  | S     | 0.47  | 0.48  | 0.44  | 0.46  | 0.44  | 0.43  | 0.49  | 0.45  | 0.44  | 0.47  | 0.40  | 0.49  | 0.44  | 24    |    |
| 25             | 0.48 | 0.51 | 0.62 | 0.50 | 0.50 | 0.48 | 0.51 | 0.55 | 0.52 | 0.49 | 0.54  | 0.46  | S     | 0.49  | 0.45  | 0.47  | 0.44  | 0.44  | 0.51  | 0.49  | 0.42  | 0.45  | 0.45  | 0.47  | 0.42  | 0.62  | 0.49  | 24    |    |
| 26             | 0.45 | 0.46 | 0.44 | 0.44 | 0.46 | 0.44 | 0.45 | 0.46 | 0.43 | 0.44 | 0.47  | S     | 0.49  | 0.49  | 0.49  | 0.53  | 0.52  | 0.50  | 0.49  | 0.47  | 0.43  | 0.45  | 0.49  | 0.50  | 0.43  | 0.53  | 0.47  | 24    |    |
| 27             | 0.47 | 0.47 | 0.43 | 0.46 | 0.42 | 0.49 | 0.51 | 0.47 | 0.44 | 0.43 | S     | 0.47  | 0.43  | 0.42  | 0.43  | 0.42  | 0.48  | 0.48  | 0.50  | 0.43  | 0.43  | 0.49  | 0.48  | 0.51  | 0.42  | 0.51  | 0.46  | 24    |    |
| 28             | 0.50 | 0.52 | 0.48 | 0.49 | 0.61 | 0.55 | 0.55 | 0.68 | 0.71 | S    | 0.69  | 0.44  | 0.43  | 0.42  | 0.46  | 0.41  | 0.44  | 0.43  | 0.44  | 0.42  | 0.42  | 0.42  | 0.40  | 0.40  | 0.40  | 0.71  | 0.49  | 24    |    |
| 29             | 0.41 | 0.40 | 0.41 | 0.39 | 0.39 | 0.38 | 0.39 | 0.37 | S    | 0.47 | 0.43  | 0.43  | 0.43  | 0.38  | 0.37  | 0.40  | 0.39  | 0.39  | 0.37  | 0.41  | 0.38  | 0.40  | 0.44  | 0.49  | 0.37  | 0.49  | 0.41  | 24    |    |
| 30             | 0.49 | 0.39 | 0.36 | 0.34 | 0.35 | 0.38 | 0.39 | S    | 0.42 | 0.38 | 0.38  | 0.38  | 0.42  | 0.38  | 0.40  | 0.39  | 0.40  | 0.38  | 0.44  | 0.43  | 0.41  | 0.42  | 0.41  | 0.45  | 0.34  | 0.49  | 0.40  | 24    |    |
| HOURLY MAX     | 0.67 | 0.75 | 0.81 | 0.77 | 0.95 | 0.78 | 0.75 | 0.77 | 0.74 | 0.59 | 0.70  | 0.55  | 0.56  | 0.60  | 0.59  | 0.71  | 0.73  | 0.65  | 0.62  | 0.79  | 0.65  | 0.92  | 0.83  | 0.68  |       |       |       |       |    |
| HOURLY AVG     | 0.48 | 0.47 | 0.47 | 0.47 | 0.48 | 0.47 | 0.46 | 0.47 | 0.48 | 0.45 | 0.47  | 0.44  | 0.45  | 0.45  | 0.45  | 0.46  | 0.46  | 0.46  | 0.46  | 0.48  | 0.46  | 0.47  | 0.47  | 0.47  |       |       |       |       |    |

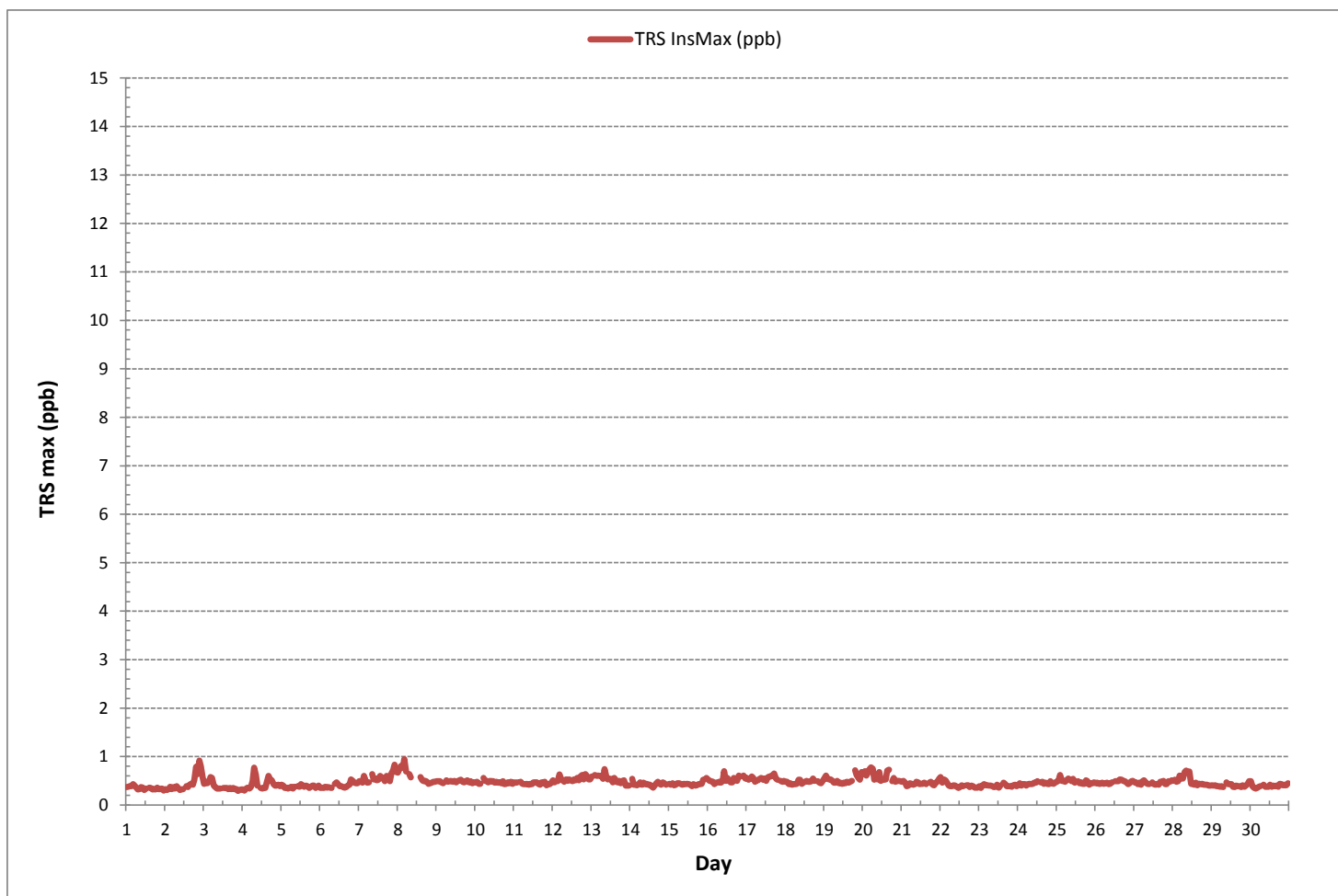
STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

MONTHLY SUMMARY

|                              |  |      |     |                   |   |        |   |  |  |     |
|------------------------------|--|------|-----|-------------------|---|--------|---|--|--|-----|
|                              |  |      |     |                   |   |        |   |  |  |     |
| NUMBER OF NON-ZERO READINGS: |  | 684  |     |                   |   |        |   |  |  |     |
| MAXIMUM INSTANTANEOUS VALUE: |  | 0.95 | ppb | @ HOUR            | 4 | ON DAY | 8 |  |  |     |
|                              |  |      |     |                   |   |        |   |  |  |     |
| IZS CALIBRATION TIME:        |  | 31   | hrs | OPERATIONAL TIME: |   | 720    |   |  |  | hrs |
| MONTHLY CALIBRATION TIME:    |  | 5    | hrs |                   |   |        |   |  |  |     |
| STANDARD DEVIATION:          |  | 0.09 |     |                   |   |        |   |  |  |     |

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

## TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1              | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.02 | 2.01 | 2.00 | 1.99  | 2.04  | 2.02  | S     | 2.00  | 1.99  | 1.99  | 2.01  | 2.02  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 1.99  | 2.04  | 2.01  | 24    |
| 2              | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.04 | 2.03 | 2.01 | 2.03  | 2.04  | S     | 2.06  | 2.03  | 2.00  | 2.00  | 2.04  | 2.00  | 2.13  | 2.04  | 2.06  | 2.06  | 2.15  | 2.00  | 2.15  | 2.03  | 24    |
| 3              | 2.07 | 2.17 | 2.12 | 2.11 | 2.05 | 2.02 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01  | S     | 2.01  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.02  | 2.01  | 2.00  | 2.00  | 2.00  | 2.17  | 2.03  | 24    |
| 4              | 2.01 | 2.09 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | S     | 1.99  | 1.99  | 1.98  | 1.98  | 2.00  | 2.00  | 2.00  | 1.99  | 1.99  | 1.98  | 1.98  | 1.98  | 1.99  | 1.98  | 2.09  | 2.00  | 24    |
| 5              | 1.99 | 1.99 | 1.99 | 1.98 | 2.03 | 1.99 | 2.00 | 2.00 | 1.98 | S    | 1.98  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 2.01  | 2.01  | 2.02  | 2.02  | 2.01  | 2.01  | 2.08  | 1.98  | 2.08  | 2.00  | 24    |
| 6              | 2.05 | 2.03 | 1.99 | 2.02 | 2.00 | 1.99 | 2.06 | 2.06 | S    | 2.01 | 2.02  | 2.00  | 2.00  | 1.99  | 1.99  | 1.99  | 2.00  | 2.01  | 2.02  | 3.14  | 4.25  | 2.53  | 2.04  | 2.03  | 1.99  | 4.25  | 2.18  | 24    |
| 7              | 2.03 | 2.04 | 2.05 | 2.44 | 2.44 | 2.08 | 2.30 | S    | 4.50 | 2.55 | 2.08  | 2.07  | 2.07  | 2.08  | 2.09  | 2.08  | 2.07  | 3.19  | 3.29  | 2.05  | 2.35  | 2.97  | 4.93  | 2.83  | 2.03  | 4.93  | 2.55  | 24    |
| 8              | 2.86 | 3.80 | 4.49 | 3.24 | 7.34 | 2.81 | S    | 3.37 | 2.47 | 2.99 | 2.41  | 2.19  | C     | C     | C     | C     | 2.07  | 2.22  | 2.17  | 2.17  | 2.12  | 2.18  | 2.21  | 2.23  | 2.07  | 7.34  | 2.91  | 24    |
| 9              | 2.17 | 2.17 | 2.23 | 2.22 | 2.17 | S    | 2.08 | 2.18 | 2.08 | 2.08 | 2.04  | 2.05  | 2.05  | 2.06  | 2.07  | 2.07  | 2.09  | 2.13  | 2.13  | 2.06  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.23  | 2.09  | 24    |
| 10             | 2.01 | 2.01 | 2.01 | 2.02 | S    | 3.08 | 2.00 | 1.99 | 1.99 | 1.99 | 1.99  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.98  | 3.08  | 2.04  | 24    |
| 11             | 1.99 | 2.00 | 2.00 | S    | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.00  | 2.01  | 2.13  | 2.23  | 2.50  | 2.48  | 2.22  | 2.21  | 2.13  | 2.10  | 2.03  | 2.02  | 2.03  | 2.10  | 1.99  | 2.50  | 2.10  | 24    |
| 12             | 2.13 | 2.16 | S    | 2.30 | 4.61 | 3.47 | 3.20 | 2.06 | 2.06 | 2.06 | 2.07  | 2.06  | 2.11  | 2.79  | 2.54  | 3.74  | 2.85  | 3.98  | 4.50  | 2.30  | 6.92  | 7.05  | 3.70  | 3.49  | 2.06  | 7.05  | 3.22  | 24    |
| 13             | 4.59 | S    | 4.83 | 4.78 | 4.11 | 5.20 | 3.87 | 2.74 | 5.04 | 2.45 | 2.38  | 4.14  | 2.31  | 3.89  | 4.67  | 4.74  | 2.11  | 2.37  | 2.07  | 2.11  | 2.03  | 1.97  | 1.95  | 1.95  | 1.95  | 5.20  | 3.32  | 24    |
| 14             | S    | 2.01 | 1.96 | 1.97 | 1.98 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98  | 1.97  | 1.97  | 1.98  | 1.99  | 2.02  | 2.01  | 2.03  | 2.03  | 2.03  | 2.02  | 2.02  | 2.02  | S     | 1.96  | 2.03  | 2.00  | 24    |
| 15             | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.98  | S     | 1.99  | 1.98  | 2.02  | 2.00  | 24    |
| 16             | 2.00 | 2.00 | 2.00 | 1.99 | 2.01 | 2.00 | 2.00 | 1.99 | 2.00 | 2.21 | 2.97  | 2.19  | 2.37  | 2.26  | 2.09  | 2.16  | 2.52  | 2.26  | 2.08  | 2.39  | 2.34  | S     | 2.33  | 2.58  | 1.99  | 2.97  | 2.21  | 24    |
| 17             | 2.39 | 2.35 | 2.37 | 2.30 | 2.59 | 2.21 | 2.09 | 2.10 | 2.10 | 2.09 | 2.06  | 2.19  | 2.07  | 2.22  | 2.22  | 2.19  | 2.14  | 2.16  | 2.12  | 2.16  | S     | 2.14  | 2.12  | 2.03  | 2.03  | 2.59  | 2.19  | 24    |
| 18             | 2.04 | 2.02 | 2.00 | 2.00 | 2.00 | 1.99 | 1.98 | 1.98 | 2.03 | 2.02 | 2.01  | 2.02  | 2.01  | 2.01  | 2.01  | 2.02  | 2.02  | 2.01  | 2.13  | S     | 2.06  | 2.10  | 2.11  | 2.19  | 1.98  | 2.19  | 2.03  | 24    |
| 19             | 2.22 | 2.21 | 2.23 | 2.21 | 2.25 | 2.35 | 2.20 | 2.03 | 2.01 | 2.02 | 2.02  | 2.02  | 2.01  | 2.00  | 2.00  | 2.00  | 2.00  | 1.99  | S     | 2.32  | 2.48  | 2.57  | 2.24  | 2.60  | 1.99  | 2.60  | 2.17  | 24    |
| 20             | 3.29 | 2.57 | 2.49 | 2.45 | 2.55 | 2.49 | 2.76 | 2.35 | 2.30 | 2.30 | 2.59  | 2.27  | 2.28  | 2.31  | 2.29  | 2.76  | 2.70  | S     | 2.30  | 2.34  | 2.37  | 2.36  | 2.36  | 2.26  | 2.26  | 3.29  | 2.47  | 24    |
| 21             | 2.27 | 2.27 | 2.24 | 2.14 | 2.20 | 2.23 | 2.29 | 2.19 | 2.28 | 2.23 | 2.25  | 2.25  | 2.35  | 2.37  | 2.33  | 2.37  | S     | 2.32  | 2.60  | 2.46  | 2.26  | 2.35  | 2.52  | 2.40  | 2.14  | 2.60  | 2.31  | 24    |
| 22             | 2.43 | 2.24 | 2.27 | 2.16 | 2.03 | 2.00 | 1.98 | 1.97 | 1.96 | 1.95 | 1.95  | 1.96  | 1.94  | 1.95  | 1.95  | S     | 1.95  | 1.96  | 1.96  | 1.96  | 1.97  | 1.96  | 1.99  | 2.00  | 1.94  | 2.43  | 2.02  | 24    |
| 23             | 2.01 | 2.02 | 2.03 | 2.04 | 2.03 | 2.04 | 2.03 | 2.01 | 2.01 | 2.01 | 2.00  | 2.00  | 1.99  | 1.99  | S     | 1.98  | 1.99  | 1.99  | 2.00  | 2.00  | 1.99  | 2.00  | 2.01  | 2.02  | 1.98  | 2.04  | 2.01  | 24    |
| 24             | 1.99 | 2.04 | 2.01 | 2.00 | 2.07 | 2.00 | 2.00 | 2.05 | 2.07 | 2.12 | 2.12  | 2.14  | 2.17  | S     | 2.06  | 2.06  | 2.06  | 2.06  | 2.08  | 2.02  | X     | 2.02  | 2.02  | 2.19  | 1.99  | 2.19  | 2.06  | 23    |
| 25             | 2.17 | 2.19 | 2.38 | 2.43 | 2.22 | 2.22 | 2.36 | 2.34 | 2.26 | 2.23 | 2.21  | 2.14  | S     | 2.20  | 2.23  | 2.23  | 2.27  | 2.07  | 2.21  | 2.23  | 2.23  | 2.15  | 2.07  | 2.14  | 2.07  | 2.43  | 2.22  | 24    |
| 26             | 2.20 | 2.14 | 2.07 | 2.15 | 2.18 | 2.21 | 2.06 | 2.17 | 2.13 | 2.07 | 2.07  | S     | 2.09  | 2.16  | 2.08  | 2.11  | 2.13  | 2.12  | 2.17  | 2.12  | 2.10  | 2.11  | 2.21  | 2.17  | 2.06  | 2.21  | 2.13  | 24    |
| 27             | 2.14 | 2.13 | 2.15 | 2.23 | 2.27 | 2.32 | 2.31 | 2.32 | 2.22 | 2.19 | S     | 2.12  | 2.15  | 2.12  | 2.09  | 2.10  | 2.10  | 2.11  | 2.09  | 2.07  | 2.08  | 2.19  | 2.17  | 2.22  | 2.07  | 2.32  | 2.17  | 24    |
| 28             | 2.17 | 2.22 | 2.16 | 2.33 | 2.45 | 2.63 | 2.52 | 3.17 | 2.50 | S    | 2.45  | 2.06  | 2.09  | 2.01  | 2.00  | 2.00  | 1.99  | 2.00  | 2.02  | 2.03  | 2.02  | 2.03  | 2.01  | 1.99  | 1.99  | 3.17  | 2.21  | 24    |
| 29             | 1.97 | 1.97 | 1.97 | 1.96 | 1.95 | 1.95 | 1.95 | 1.95 | S    | 1.96 | 2.04  | 1.96  | 1.95  | 1.95  | 1.94  | 1.95  | 1.96  | 1.95  | 1.95  | 1.95  | 1.95  | 2.00  | 2.04  | 2.07  | 1.94  | 2.07  | 1.97  | 24    |
| 30             | 2.07 | 2.05 | 2.04 | 2.04 | 2.05 | 2.06 | 2.07 | S    | 2.04 | 2.03 | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.04  | 2.03  | 2.03  | 2.03  | 2.05  | 2.02  | 2.01  | 2.01  | 2.07  | 2.04  | 24    |
| HOURLY MAX     | 4.59 | 3.80 | 4.83 | 4.78 | 7.34 | 5.20 | 3.87 | 3.37 | 5.04 | 2.99 | 2.97  | 4.14  | 2.37  | 3.89  | 4.67  | 4.74  | 2.85  | 3.98  | 4.50  | 3.14  | 6.92  | 7.05  | 4.93  | 3.49  |       |       |       |       |
| HOURLY AVG     | 2.25 | 2.17 | 2.28 | 2.26 | 2.47 | 2.32 | 2.21 | 2.18 | 2.29 | 2.13 | 2.13  | 2.14  | 2.08  | 2.17  | 2.18  | 2.25  | 2.11  | 2.18  | 2.21  | 2.14  | 2.35  | 2.30  | 2.25  | 2.20  |       |       |       |       |

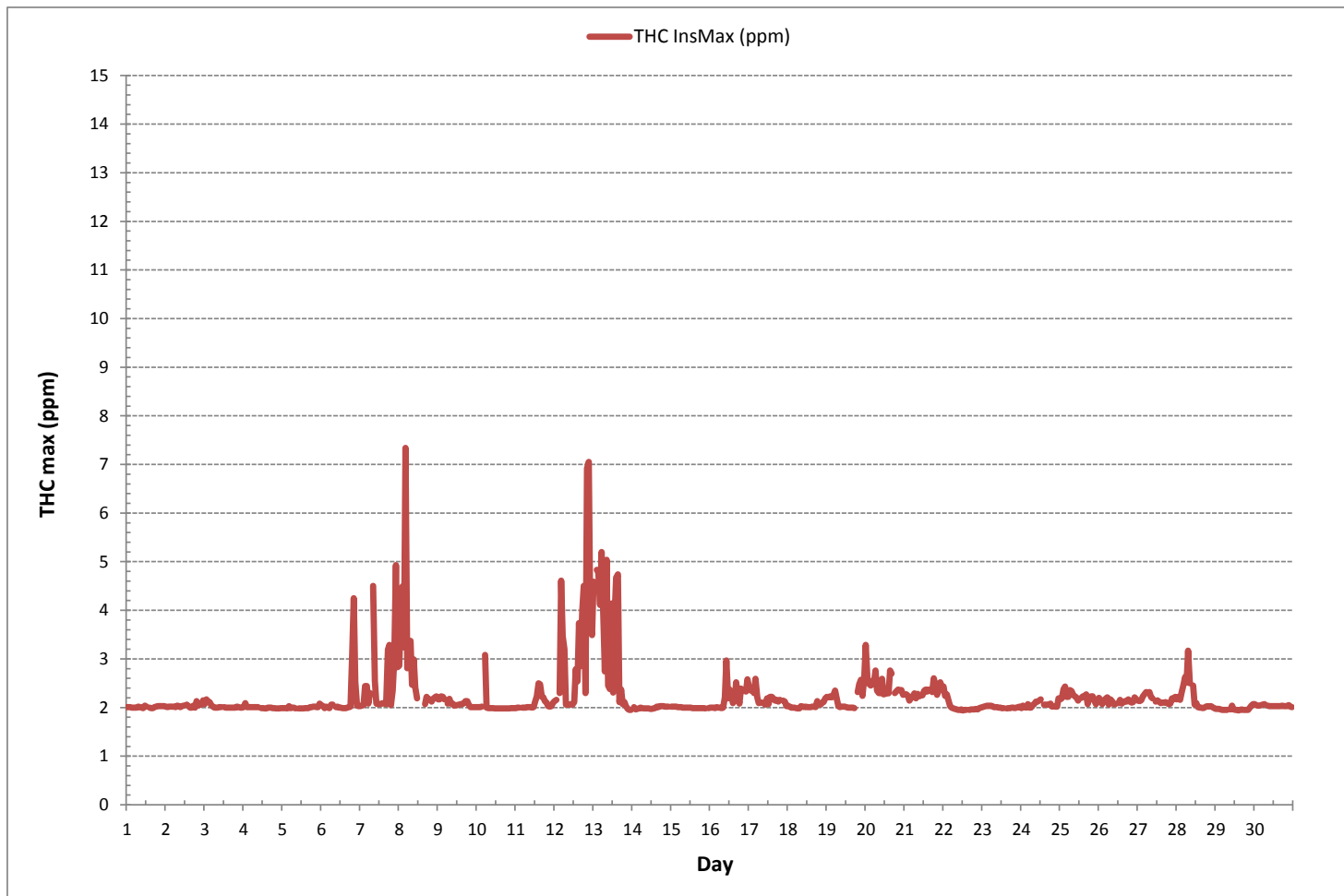
## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

## MONTHLY SUMMARY

|                              |      |     |                   |     |          |
|------------------------------|------|-----|-------------------|-----|----------|
| NUMBER OF NON-ZERO READINGS: | 684  |     |                   |     |          |
| MAXIMUM INSTANTANEOUS VALUE: | 7.34 | ppm | @ HOUR            | 4   | ON DAY 8 |
| IZS CALIBRATION TIME:        | 31   | hrs | OPERATIONAL TIME: | 719 | hrs      |
| MONTHLY CALIBRATION TIME:    | 4    | hrs |                   |     |          |
| STANDARD DEVIATION:          | 0.56 |     |                   |     |          |

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

METHANE MAX Instantaneous Maximum (CH<sub>4</sub> ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1              | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.02 | 2.01 | 2.00 | 1.99  | 2.04  | 2.02  | S     | 2.00  | 1.99  | 1.99  | 2.01  | 2.02  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 1.99  | 2.04  | 2.01  | 24    |
| 2              | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.04 | 2.03 | 2.01 | 2.03  | 2.04  | S     | 2.06  | 2.03  | 2.00  | 2.00  | 2.04  | 2.00  | 2.13  | 2.04  | 2.06  | 2.06  | 2.15  | 2.00  | 2.15  | 2.04  | 24    |
| 3              | 2.07 | 2.17 | 2.12 | 2.11 | 2.05 | 2.02 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01  | S     | 2.01  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.02  | 2.01  | 2.00  | 2.00  | 2.00  | 2.17  | 2.03  | 24    |
| 4              | 2.01 | 2.09 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | S     | 1.99  | 1.99  | 1.98  | 1.98  | 2.00  | 2.00  | 2.00  | 1.99  | 1.99  | 1.98  | 1.98  | 1.98  | 1.99  | 1.98  | 2.09  | 2.00  | 24    |
| 5              | 1.99 | 1.99 | 1.99 | 1.98 | 2.03 | 1.99 | 2.00 | 2.00 | 1.98 | S    | 1.98  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 2.01  | 2.01  | 2.02  | 2.02  | 2.01  | 2.01  | 2.08  | 1.98  | 2.08  | 2.00  | 24    |
| 6              | 2.05 | 2.03 | 1.99 | 2.02 | 2.00 | 1.99 | 2.06 | 2.06 | S    | 2.01 | 2.02  | 2.00  | 2.00  | 1.99  | 1.99  | 1.99  | 2.00  | 2.01  | 2.02  | 3.14  | 4.25  | 2.53  | 2.04  | 2.03  | 1.99  | 4.25  | 2.18  | 24    |
| 7              | 2.03 | 2.04 | 2.05 | 2.44 | 2.44 | 2.08 | 2.30 | S    | 4.50 | 2.55 | 2.08  | 2.07  | 2.07  | 2.08  | 2.09  | 2.08  | 2.07  | 3.19  | 3.29  | 2.05  | 2.35  | 2.97  | 4.93  | 2.83  | 2.03  | 4.93  | 2.55  | 24    |
| 8              | 2.86 | 3.80 | 4.49 | 3.24 | 7.34 | 2.81 | S    | 3.37 | 2.47 | 2.99 | 2.41  | 2.19  | C     | C     | C     | C     | 2.07  | 2.22  | 2.17  | 2.17  | 2.12  | 2.18  | 2.21  | 2.23  | 2.07  | 7.34  | 2.91  | 24    |
| 9              | 2.17 | 2.17 | 2.23 | 2.22 | 2.17 | S    | 2.08 | 2.18 | 2.08 | 2.08 | 2.04  | 2.05  | 2.05  | 2.06  | 2.07  | 2.07  | 2.09  | 2.13  | 2.13  | 2.06  | 2.01  | 2.01  | 2.01  | 2.01  | 2.01  | 2.23  | 2.09  | 24    |
| 10             | 2.01 | 2.01 | 2.01 | 2.02 | S    | 3.08 | 2.00 | 1.99 | 1.99 | 1.99 | 1.99  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.98  | 1.99  | 1.99  | 1.99  | 1.98  | 1.98  | 3.08  | 2.04  | 24    |
| 11             | 1.99 | 2.00 | 2.00 | S    | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.00  | 2.01  | 2.13  | 2.23  | 2.50  | 2.48  | 2.22  | 2.21  | 2.13  | 2.10  | 2.03  | 2.02  | 2.03  | 2.10  | 1.99  | 2.50  | 2.10  | 24    |
| 12             | 2.13 | 2.16 | S    | 2.30 | 4.61 | 3.47 | 3.20 | 2.06 | 2.06 | 2.06 | 2.07  | 2.06  | 2.11  | 2.79  | 2.54  | 3.74  | 2.85  | 3.98  | 4.50  | 2.30  | 6.92  | 7.05  | 3.70  | 3.49  | 2.06  | 7.05  | 3.22  | 24    |
| 13             | 4.59 | S    | 4.68 | 4.78 | 4.11 | 5.20 | 3.87 | 2.74 | 4.95 | 2.45 | 2.38  | 4.14  | 2.31  | 3.89  | 4.67  | 4.74  | 2.06  | 2.37  | 2.07  | 2.06  | 2.03  | 1.97  | 1.95  | 1.95  | 1.95  | 5.20  | 3.30  | 24    |
| 14             | S    | 2.01 | 1.96 | 1.97 | 1.98 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98  | 1.97  | 1.97  | 1.98  | 1.99  | 2.02  | 2.01  | 2.03  | 2.03  | 2.03  | 2.02  | 2.02  | 2.02  | S     | 1.96  | 2.03  | 2.00  | 24    |
| 15             | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.99  | 1.98  | S     | 1.99  | 1.98  | 2.02  | 2.00  | 24    |
| 16             | 2.00 | 2.00 | 2.00 | 1.99 | 2.01 | 2.00 | 2.00 | 1.99 | 2.00 | 2.21 | 2.97  | 2.19  | 2.21  | 2.22  | 2.09  | 2.16  | 2.52  | 2.26  | 2.08  | 2.39  | 2.34  | S     | 2.33  | 2.58  | 1.99  | 2.97  | 2.20  | 24    |
| 17             | 2.39 | 2.35 | 2.37 | 2.30 | 2.59 | 2.21 | 2.09 | 2.10 | 2.10 | 2.09 | 2.06  | 2.19  | 2.07  | 2.22  | 2.22  | 2.19  | 2.14  | 2.16  | 2.12  | 2.16  | S     | 2.14  | 2.12  | 2.03  | 2.03  | 2.59  | 2.19  | 24    |
| 18             | 2.04 | 2.02 | 2.00 | 2.00 | 2.00 | 1.99 | 1.98 | 1.98 | 2.03 | 2.02 | 2.01  | 2.02  | 2.01  | 2.01  | 2.01  | 2.02  | 2.02  | 2.01  | 2.13  | S     | 2.06  | 2.10  | 2.11  | 2.19  | 1.98  | 2.19  | 2.03  | 24    |
| 19             | 2.22 | 2.21 | 2.23 | 2.21 | 2.25 | 2.35 | 2.20 | 2.03 | 2.01 | 2.02 | 2.02  | 2.02  | 2.01  | 2.00  | 2.00  | 2.00  | 2.00  | 1.99  | S     | 2.32  | 2.48  | 2.57  | 2.24  | 2.60  | 1.99  | 2.60  | 2.17  | 24    |
| 20             | 3.29 | 2.57 | 2.49 | 2.45 | 2.55 | 2.49 | 2.76 | 2.35 | 2.30 | 2.30 | 2.59  | 2.27  | 2.28  | 2.31  | 2.29  | 2.76  | 2.70  | S     | 2.30  | 2.34  | 2.37  | 2.36  | 2.36  | 2.23  | 2.23  | 3.29  | 2.47  | 24    |
| 21             | 2.27 | 2.27 | 2.24 | 2.14 | 2.20 | 2.23 | 2.29 | 2.19 | 2.28 | 2.23 | 2.25  | 2.25  | 2.35  | 2.37  | 2.33  | 2.37  | S     | 2.32  | 2.60  | 2.46  | 2.26  | 2.35  | 2.52  | 2.40  | 2.14  | 2.60  | 2.31  | 24    |
| 22             | 2.43 | 2.17 | 2.17 | 2.16 | 2.03 | 2.00 | 1.98 | 1.97 | 1.96 | 1.95 | 1.95  | 1.96  | 1.94  | 1.95  | 1.95  | S     | 1.95  | 1.96  | 1.96  | 1.96  | 1.97  | 1.96  | 1.99  | 2.00  | 1.94  | 2.43  | 2.01  | 24    |
| 23             | 2.01 | 2.02 | 2.03 | 2.04 | 2.03 | 2.04 | 2.03 | 2.01 | 2.01 | 2.01 | 2.00  | 2.00  | 1.99  | 1.99  | S     | 1.98  | 1.99  | 1.99  | 2.00  | 2.00  | 1.99  | 2.00  | 2.01  | 2.02  | 1.98  | 2.04  | 2.01  | 24    |
| 24             | 1.99 | 2.04 | 2.01 | 2.00 | 2.07 | 2.00 | 2.00 | 2.05 | 2.07 | 2.12 | 2.12  | 2.14  | 2.17  | S     | 2.06  | 2.06  | 2.06  | 2.06  | 2.08  | 2.02  | X     | 2.02  | 2.02  | 2.19  | 1.99  | 2.19  | 2.06  | 23    |
| 25             | 2.17 | 2.19 | 2.38 | 2.43 | 2.22 | 2.22 | 2.36 | 2.34 | 2.26 | 2.23 | 2.21  | 2.14  | S     | 2.20  | 2.10  | 2.14  | 2.27  | 2.07  | 2.21  | 2.23  | 2.23  | 2.15  | 2.07  | 2.14  | 2.07  | 2.43  | 2.22  | 24    |
| 26             | 2.20 | 2.14 | 2.07 | 2.15 | 2.18 | 2.21 | 2.06 | 2.17 | 2.13 | 2.07 | 2.07  | S     | 2.09  | 2.16  | 2.08  | 2.11  | 2.13  | 2.12  | 2.17  | 2.12  | 2.10  | 2.11  | 2.21  | 2.17  | 2.06  | 2.21  | 2.13  | 24    |
| 27             | 2.14 | 2.13 | 2.15 | 2.23 | 2.27 | 2.32 | 2.31 | 2.32 | 2.22 | 2.19 | S     | 2.12  | 2.15  | 2.12  | 2.09  | 2.10  | 2.10  | 2.11  | 2.09  | 2.07  | 2.08  | 2.19  | 2.17  | 2.22  | 2.07  | 2.32  | 2.17  | 24    |
| 28             | 2.17 | 2.22 | 2.16 | 2.23 | 2.35 | 2.56 | 2.49 | 3.17 | 2.50 | S    | 2.45  | 2.04  | 2.05  | 2.01  | 2.00  | 2.00  | 1.99  | 2.00  | 2.02  | 2.03  | 2.02  | 2.03  | 2.01  | 1.99  | 1.99  | 3.17  | 2.20  | 24    |
| 29             | 1.97 | 1.97 | 1.97 | 1.96 | 1.95 | 1.95 | 1.95 | 1.95 | S    | 1.96 | 2.04  | 1.96  | 1.95  | 1.95  | 1.94  | 1.95  | 1.96  | 1.95  | 1.95  | 1.95  | 1.95  | 2.00  | 2.04  | 2.07  | 1.94  | 2.07  | 1.97  | 24    |
| 30             | 2.07 | 2.05 | 2.04 | 2.04 | 2.05 | 2.06 | 2.07 | S    | 2.04 | 2.03 | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.03  | 2.04  | 2.03  | 2.03  | 2.03  | 2.05  | 2.02  | 2.01  | 2.01  | 2.07  | 2.04  | 24    |
| HOURLY MAX     | 4.59 | 3.80 | 4.68 | 4.78 | 7.34 | 5.20 | 3.87 | 3.37 | 4.95 | 2.99 | 2.97  | 4.14  | 2.35  | 3.89  | 4.67  | 4.74  | 2.85  | 3.98  | 4.50  | 3.14  | 6.92  | 7.05  | 4.93  | 3.49  |       |       |       |       |
| HOURLY AVG     | 2.25 | 2.17 | 2.27 | 2.26 | 2.47 | 2.32 | 2.21 | 2.18 | 2.29 | 2.13 | 2.13  | 2.14  | 2.07  | 2.17  | 2.18  | 2.25  | 2.11  | 2.18  | 2.21  | 2.14  | 2.35  | 2.30  | 2.25  | 2.20  |       |       |       |       |

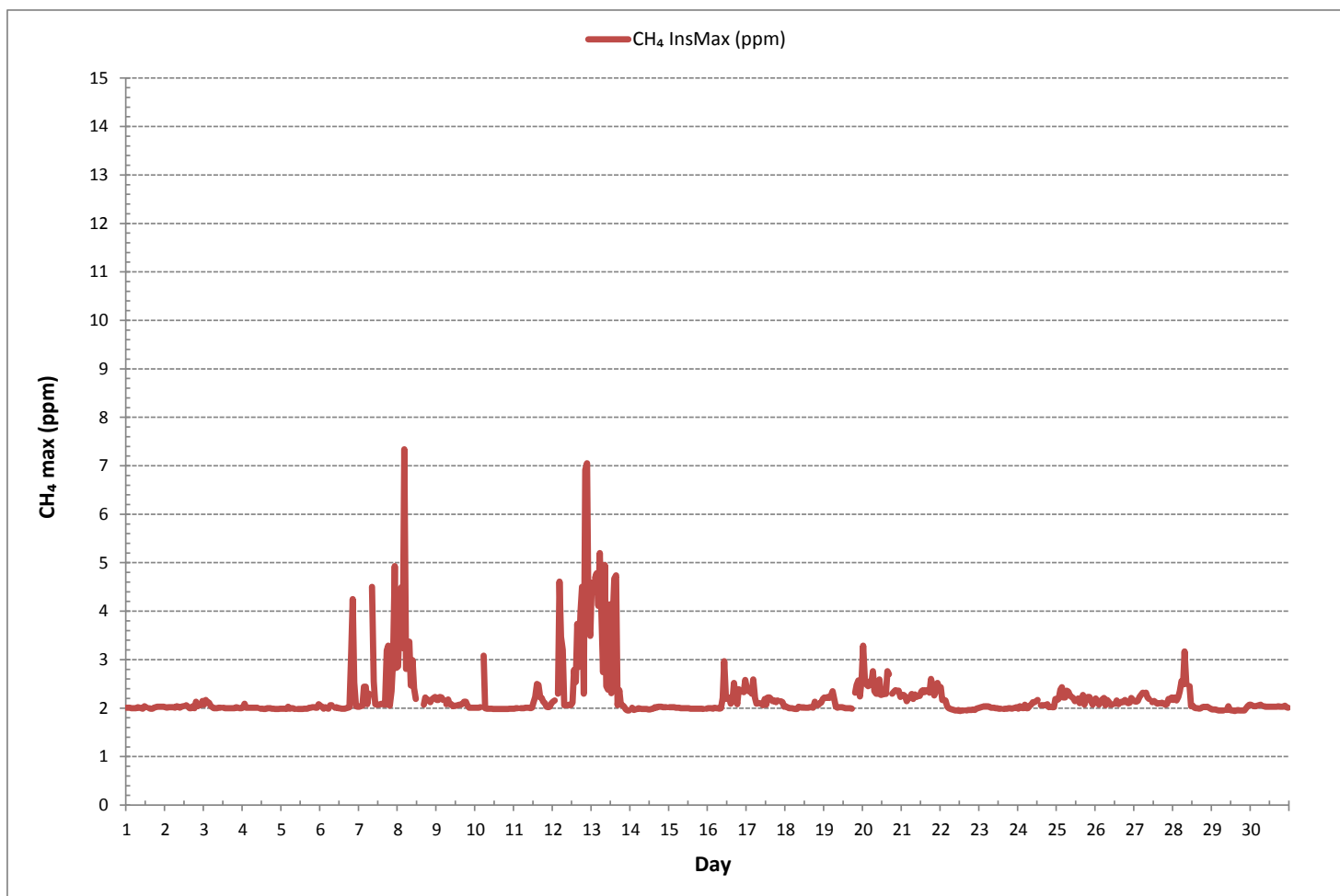
## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

## MONTHLY SUMMARY

|                              |      |      |                   |     |          |
|------------------------------|------|------|-------------------|-----|----------|
| NUMBER OF NON-ZERO READINGS: | 684  |      |                   |     |          |
| MAXIMUM INSTANTANEOUS VALUE: | 7.34 | ppm  | @ HOUR            | 4   | ON DAY 8 |
| IZS CALIBRATION TIME:        | 31   | 1.94 | OPERATIONAL TIME: | 719 | hrs      |
| MONTHLY CALIBRATION TIME:    | 4    | 7.34 |                   |     |          |
| STANDARD DEVIATION:          | 0.56 | 3.30 |                   |     |          |

METHANE MAX Instantaneous Maximum (CH<sub>4</sub> ppm)





## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

## NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |    |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |    |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 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  | 0.02  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.02  | 0.00  | 24 |
| 2              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 24 |
| 3              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24 |
| 4              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S     | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 24 |
| 5              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 6              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24 |
| 7              | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S    | 0.00 | 0.01 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.04  | 0.01  | 0.00  | 0.00  | 0.00  | 0.07  | 0.08  | 0.00  | 0.08  | 0.01  | 24    |    |
| 8              | 0.01 | 0.03 | 0.00 | 0.02 | 0.12 | 0.00 | S    | 0.00 | 0.00 | 0.06 | 0.07  | 0.00  | C     | C     | C     | C     | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.12  | 0.02  | 24 |
| 9              | 0.04 | 0.00 | 0.00 | 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  | 0.04  | 0.00  | 24    |    |
| 10             | 0.00 | 0.00 | 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  | 24 |
| 11             | 0.00 | 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  | 24 |
| 12             | 0.00 | 0.00 | S    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.08  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.02  | 0.00  | 0.00  | 0.00  | 0.08  | 0.00  | 24    |    |
| 13             | 0.05 | S    | 0.26 | 0.00 | 0.00 | 0.11 | 0.00 | 0.04 | 0.14 | 0.07 | 0.08  | 0.09  | 0.00  | 0.00  | 0.00  | 0.00  | 0.06  | 0.09  | 0.01  | 0.07  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.26  | 0.05  | 24    |    |
| 14             | S    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 24    |    |
| 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  | 24    |    |
| 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  | 0.19  | 0.17  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.19  | 0.02  | 24    |    |
| 17             | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.02  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.08  | 0.01  | 24    |    |
| 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     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24    |    |
| 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  | S     | 0.00  | 0.04  | 0.00  | 0.00  | 0.00  | 0.00  | 0.04  | 0.00  | 24    |    |
| 20             | 0.01 | 0.00 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.05  | 0.00  | 0.08  | 0.05  | 0.00  | 0.00  | 0.00  | S     | 0.01  | 0.00  | 0.00  | 0.02  | 0.02  | 0.06  | 0.00  | 0.08  | 0.02  | 24    |    |
| 21             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.08  | 0.04  | 0.00  | 0.00  | 0.00  | 0.02  | 0.00  | 0.00  | 0.08  | 0.01  | 24    |    |
| 22             | 0.01 | 0.10 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.11  | 0.01  | 24    |    |
| 23             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 24    |    |
| 24             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00  | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | X     | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.09  | 23    |    |
| 25             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.03 | 0.00 | 0.00 | 0.00  | 0.00  | S     | 0.00  | 0.13  | 0.13  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.13  | 0.02  | 24    |    |
| 26             | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | S     | 0.00  | 0.00  | 0.00  | 0.00  | 0.03  | 0.00  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.03  | 0.00  | 24    |    |
| 27             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 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  | 0.05  | 0.00  | 24    |    |
| 28             | 0.00 | 0.00 | 0.00 | 0.13 | 0.15 | 0.16 | 0.14 | 0.13 | 0.11 | S    | 0.00  | 0.03  | 0.04  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.16  | 0.04  | 24 |
| 29             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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  | 24    |    |
| 30             | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S    | 0.00 | 0.00 | 0.00  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.01  | 0.00  | 24    |    |
| HOURLY MAX     | 0.05 | 0.10 | 0.26 | 0.13 | 0.15 | 0.16 | 0.14 | 0.13 | 0.14 | 0.07 | 0.08  | 0.09  | 0.19  | 0.17  | 0.13  | 0.13  | 0.06  | 0.09  | 0.04  | 0.07  | 0.04  | 0.02  | 0.07  | 0.08  |       |       |       |       |    |
| HOURLY AVG     | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01  | 0.00  | 0.01  | 0.01  | 0.01  | 0.01  | 0.00  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |       |       |       |       |    |

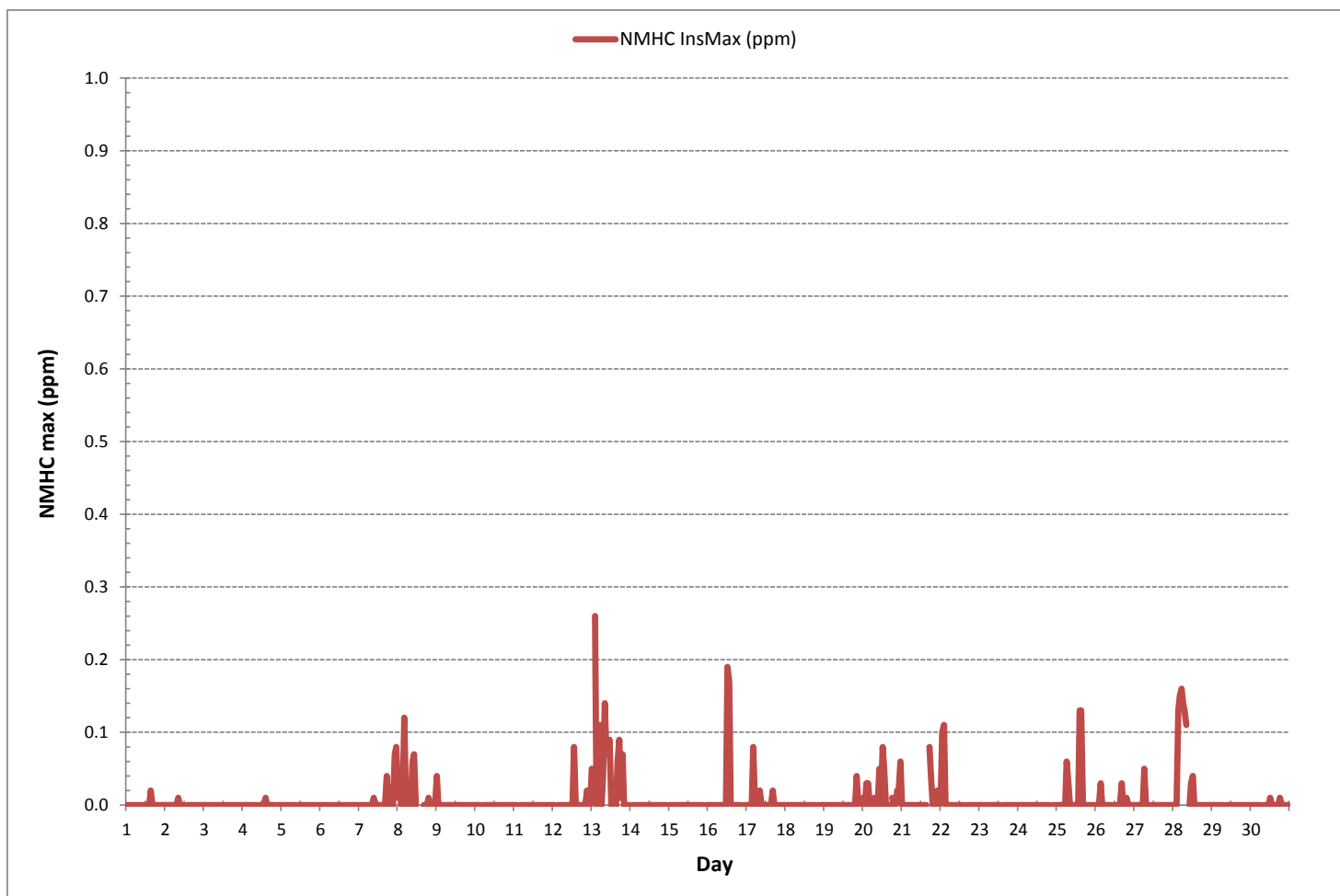
## STATUS FLAG CODES

|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

## MONTHLY SUMMARY

|                              |  |      |      |                   |   |        |         |
|------------------------------|--|------|------|-------------------|---|--------|---------|
| NUMBER OF NON-ZERO READINGS: |  | 71   |      |                   |   |        |         |
| MAXIMUM INSTANTANEOUS VALUE: |  | 0.26 | ppm  | @ HOUR            | 2 | ON DAY | 13      |
| IZS CALIBRATION TIME:        |  | 31   | 0.00 | OPERATIONAL TIME: |   |        | 719 hrs |
| MONTHLY CALIBRATION TIME:    |  | 4    | 0.26 |                   |   |        |         |
| STANDARD DEVIATION:          |  | 0.03 | 0.09 |                   |   |        |         |

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - November 2018

WIND SPEED Instantaneous Maximum (WS kph)

| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|----------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HR END (MST)   | 0:59 | 1:59 | 2:59 | 3:59 | 4:59 | 5:59 | 6:59 | 7:59 | 8:59 | 9:59 | 10:59 | 11:59 | 12:59 | 13:59 | 14:59 | 15:59 | 16:59 | 17:59 | 18:59 | 19:59 | 20:59 | 21:59 | 22:59 | 23:59 | MIN.  | MAX.  | AVG.  |       |
| DAY            |      |      |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1              | 32.2 | 26.4 | 25.8 | 25.8 | 22.4 | 13.4 | 11.6 | 7.2  | 7.2  | 7.2  | 10.8  | 8.4   | 9.2   | 10.2  | 12.8  | 14.8  | 15.0  | 20.8  | 22.4  | 18.0  | 17.0  | 22.0  | 21.8  | 23.4  | 7.2   | 32.2  | 16.9  | 24    |
| 2              | 31.4 | 29.4 | 29.2 | 29.6 | 24.6 | 23.8 | 22.0 | 17.8 | 18.8 | 14.6 | 16.2  | 13.6  | 12.8  | 7.4   | 7.2   | 9.6   | 8.2   | 6.6   | 9.6   | 10.0  | 10.8  | 9.8   | 10.0  | 5.6   | 5.6   | 31.4  | 15.8  | 24    |
| 3              | 6.8  | 4.6  | 3.4  | 9.0  | 12.8 | 26.4 | 18.8 | 16.8 | 19.2 | 15.0 | 16.8  | 16.2  | 15.2  | 10.8  | 10.8  | 10.8  | 16.0  | 14.0  | 14.0  | 16.4  | 18.2  | 20.4  | 17.6  | 21.2  | 3.4   | 26.4  | 14.6  | 24    |
| 4              | 21.8 | 19.4 | 21.4 | 23.4 | 26.2 | 25.8 | 28.0 | 27.2 | 30.4 | 24.6 | 27.4  | 30.4  | 29.2  | 29.2  | 28.8  | 30.2  | 32.6  | 30.4  | 24.8  | 23.6  | 22.6  | 18.2  | 19.8  | 18.0  | 18.0  | 32.6  | 25.6  | 24    |
| 5              | 17.2 | 16.0 | 13.8 | 11.8 | 12.4 | 15.0 | 13.2 | 13.0 | 9.4  | 14.4 | 12.6  | 14.4  | 10.8  | 12.0  | 12.4  | 11.0  | 15.2  | 8.8   | 7.6   | 10.2  | 9.2   | 10.8  | 8.2   | 5.4   | 5.4   | 17.2  | 11.9  | 24    |
| 6              | 5.4  | 6.4  | 6.4  | 7.8  | 4.4  | 4.2  | 2.4  | 4.2  | 4.6  | 8.2  | 10.2  | 12.4  | 13.8  | 15.0  | 16.8  | 16.4  | 15.2  | 14.8  | 16.8  | 2.2   | 6.8   | 8.6   | 9.4   | 8.6   | 2.2   | 16.8  | 9.2   | 24    |
| 7              | 8.4  | 8.4  | 7.4  | 5.8  | 6.6  | 6.4  | 7.2  | 5.6  | 5.6  | 9.2  | 14.6  | 18.0  | 17.0  | 14.2  | 16.2  | 13.4  | 10.8  | 8.4   | 12.8  | 12.4  | 10.4  | 9.2   | 7.8   | 7.6   | 5.6   | 18.0  | 10.1  | 24    |
| 8              | 7.4  | 6.4  | 5.4  | 5.8  | 2.4  | 5.0  | 4.0  | 5.0  | 9.6  | 5.6  | 5.8   | 8.6   | 11.6  | 14.4  | 13.8  | 12.2  | 13.6  | 15.6  | 15.0  | 16.2  | 23.8  | 17.4  | 14.8  | 12.4  | 2.4   | 23.8  | 10.5  | 24    |
| 9              | 15.0 | 10.8 | 13.2 | 12.8 | 8.0  | 12.2 | 18.2 | 20.4 | 13.8 | 13.4 | 21.4  | 18.4  | 13.2  | 13.8  | 12.8  | 10.6  | 13.6  | 15.2  | 20.4  | 16.8  | 19.2  | 25.0  | 21.4  | 13.6  | 8.0   | 25.0  | 15.6  | 24    |
| 10             | 12.4 | 8.4  | 7.8  | 3.8  | 6.8  | 10.4 | 12.8 | 15.6 | 15.0 | 16.4 | 18.6  | 14.6  | 16.6  | 19.2  | 23.0  | 21.2  | 18.2  | 21.4  | 13.4  | 12.6  | 10.4  | 8.2   | 12.2  | 8.4   | 3.8   | 23.0  | 13.6  | 24    |
| 11             | 11.4 | 12.6 | 10.2 | 15.0 | 12.6 | 15.6 | 19.0 | 19.0 | 17.4 | 9.2  | 8.8   | 9.2   | 7.6   | 8.6   | 8.6   | 8.8   | 13.2  | 14.6  | 15.8  | 19.8  | 21.6  | 20.6  | 18.8  | 20.2  | 7.6   | 21.6  | 14.1  | 24    |
| 12             | 12.0 | 10.6 | 9.2  | 7.4  | 7.4  | 11.2 | 12.4 | 13.6 | 16.4 | 20.2 | 19.2  | 15.4  | 22.0  | 16.2  | 16.4  | 15.2  | 10.8  | 11.0  | 8.2   | 4.6   | 7.2   | 9.4   | 13.2  | 13.0  | 4.6   | 22.0  | 12.6  | 24    |
| 13             | 14.0 | 9.4  | 11.4 | 9.4  | 15.8 | 12.8 | 6.4  | 5.4  | 5.2  | 7.0  | 6.8   | 8.0   | 7.0   | 9.0   | 8.6   | 14.8  | 13.6  | 16.0  | 15.0  | 20.8  | 30.4  | 32.8  | 23.0  | 18.6  | 5.2   | 32.8  | 13.4  | 24    |
| 14             | 24.8 | 25.0 | 29.4 | 27.0 | 30.4 | 25.4 | 20.2 | 22.0 | 28.6 | 18.4 | 20.4  | 19.0  | 17.4  | 19.8  | 9.8   | 8.4   | 10.2  | 15.6  | 16.6  | 16.8  | 19.8  | 20.2  | 18.6  | 19.6  | 8.4   | 30.4  | 20.1  | 24    |
| 15             | 21.4 | 19.4 | 22.2 | 17.6 | 18.8 | 18.8 | 16.8 | 19.2 | 17.2 | 17.2 | 17.2  | 19.4  | 23.8  | 23.4  | 25.0  | 32.8  | 28.8  | 26.6  | 29.6  | 36.8  | 32.8  | 37.2  | 31.0  | 29.4  | 16.8  | 37.2  | 24.3  | 24    |
| 16             | 27.0 | 24.6 | 23.4 | 17.8 | 9.8  | 8.6  | 16.0 | 8.2  | 6.0  | 2.4  | 5.0   | 8.0   | 11.0  | 8.8   | 7.2   | 6.4   | 6.2   | 12.8  | 16.4  | 13.4  | 9.6   | 12.6  | 4.8   | 7.2   | 2.4   | 27.0  | 11.4  | 24    |
| 17             | 13.6 | 6.0  | 6.0  | 5.6  | 6.4  | 13.2 | 15.2 | 16.6 | 15.8 | 18.0 | 17.4  | 12.6  | 12.8  | 8.2   | 6.4   | 9.2   | 8.6   | 17.4  | 17.6  | 15.6  | 15.4  | 13.6  | 17.8  | 14.6  | 5.6   | 18.0  | 12.7  | 24    |
| 18             | 14.6 | 19.4 | 18.8 | 12.6 | 17.2 | 15.6 | 21.0 | 21.4 | 29.6 | 23.6 | 26.0  | 25.2  | 18.2  | 15.2  | 12.6  | 10.6  | 9.2   | 5.8   | 6.4   | 15.0  | 16.8  | 19.0  | 19.0  | 17.2  | 5.8   | 29.6  | 17.1  | 24    |
| 19             | 12.4 | 10.0 | 10.0 | 10.0 | 9.8  | 8.4  | 14.0 | 21.0 | 23.6 | 23.8 | 22.0  | 20.4  | 22.4  | 25.4  | 25.6  | 23.0  | 18.6  | 22.6  | 15.8  | 11.4  | 9.0   | 9.2   | 4.8   | 7.2   | 4.8   | 25.6  | 15.9  | 24    |
| 20             | 6.8  | 11.6 | 10.8 | 7.8  | 6.8  | 7.0  | 5.6  | 5.2  | 5.2  | 5.4  | 9.6   | 15.0  | 12.8  | 10.2  | 13.4  | 7.2   | 10.8  | 9.2   | 5.8   | 5.6   | 6.0   | 7.0   | 7.6   | 7.6   | 5.2   | 15.0  | 8.3   | 24    |
| 21             | 10.4 | 12.6 | 14.0 | 13.2 | 14.0 | 10.6 | 15.0 | 9.4  | 10.6 | 11.2 | 11.2  | 12.4  | 9.6   | 9.8   | 9.8   | 7.8   | 13.2  | 14.0  | 13.2  | 16.2  | 14.6  | 16.8  | 12.2  | 15.6  | 7.8   | 16.8  | 12.4  | 24    |
| 22             | 15.2 | 11.6 | 9.6  | 20.0 | 21.8 | 17.8 | 27.0 | 27.6 | 25.6 | 30.4 | 26.4  | 23.2  | 27.2  | 32.8  | 25.2  | 17.8  | 18.0  | 9.8   | 10.6  | 10.2  | 14.4  | 12.4  | 16.2  | 14.4  | 9.6   | 32.8  | 19.4  | 24    |
| 23             | 25.2 | 18.0 | 19.8 | 17.6 | 8.0  | 7.0  | 5.2  | 8.4  | 9.6  | 14.2 | 10.4  | 12.8  | 17.0  | 12.6  | 15.2  | 12.4  | 9.6   | 8.2   | 6.8   | 6.6   | 5.2   | 6.4   | 8.0   | 10.2  | 5.2   | 25.2  | 11.4  | 24    |
| 24             | 13.0 | 18.4 | 16.8 | 15.8 | 15.2 | 18.6 | 18.2 | 17.6 | 15.6 | 13.2 | 11.6  | 13.6  | 13.8  | 15.0  | 13.6  | 10.4  | 9.4   | 6.2   | 7.2   | 5.6   | 6.4   | 6.2   | 4.4   | 3.8   | 3.8   | 18.6  | 12.1  | 24    |
| 25             | 4.0  | 7.8  | 7.2  | 8.8  | 12.2 | 16.0 | 14.0 | 14.6 | 13.2 | 12.8 | 13.6  | 19.8  | 17.2  | 14.0  | 19.4  | 15.2  | 13.0  | 11.6  | 13.8  | 12.0  | 13.4  | 11.8  | 17.4  | 21.2  | 4.0   | 21.2  | 13.5  | 24    |
| 26             | 18.2 | 16.4 | 20.8 | 20.0 | 17.4 | 18.4 | 21.6 | 22.6 | 23.6 | 20.8 | 19.0  | 21.2  | 20.4  | 18.6  | 23.8  | 19.2  | 12.4  | 29.4  | 23.6  | 16.8  | 21.6  | 11.2  | 15.2  | 18.2  | 11.2  | 29.4  | 19.6  | 24    |
| 27             | 14.4 | 16.2 | 14.4 | 14.4 | 17.6 | 15.0 | 16.2 | 12.8 | 18.0 | 23.8 | 17.6  | 16.6  | 13.8  | 18.6  | 16.6  | 17.4  | 16.6  | 14.2  | 15.6  | 14.6  | 13.2  | 14.8  | 13.0  | 12.2  | 12.2  | 23.8  | 15.7  | 24    |
| 28             | 11.8 | 10.4 | 9.4  | 11.8 | 11.0 | 9.0  | 11.8 | 10.0 | 8.8  | 7.6  | 12.4  | 18.8  | 18.2  | 18.8  | 22.4  | 23.2  | 18.4  | 16.4  | 14.4  | 14.6  | 10.8  | 12.2  | 21.2  | 21.2  | 7.6   | 23.2  | 14.4  | 24    |
| 29             | 15.6 | 12.0 | 15.0 | 17.0 | 16.8 | 19.4 | 20.0 | 16.0 | 12.8 | 12.0 | 12.6  | 14.0  | 15.8  | 15.8  | 15.4  | 19.6  | 19.2  | 15.8  | 15.4  | 16.2  | 15.4  | 12.6  | 10.2  | 9.8   | 9.8   | 20.0  | 15.2  | 24    |
| 30             | 10.6 | 10.0 | 8.2  | 8.4  | 10.2 | 11.6 | 12.2 | 11.0 | 9.0  | 12.6 | 12.8  | 14.4  | 13.8  | 13.8  | 12.8  | 13.4  | 13.2  | 13.2  | 11.8  | 11.2  | 10.4  | 7.6   | 10.0  | 7.8   | 7.6   | 14.4  | 11.3  | 24    |
| HOURLY MAX     | 32.2 | 29.4 | 29.4 | 29.6 | 30.4 | 26.4 | 28.0 | 27.6 | 30.4 | 30.4 | 27.4  | 30.4  | 29.2  | 32.8  | 28.8  | 32.8  | 32.6  | 30.4  | 29.6  | 36.8  | 32.8  | 37.2  | 31.0  | 29.4  |       |       |       |       |

STATUS FLAG CODES

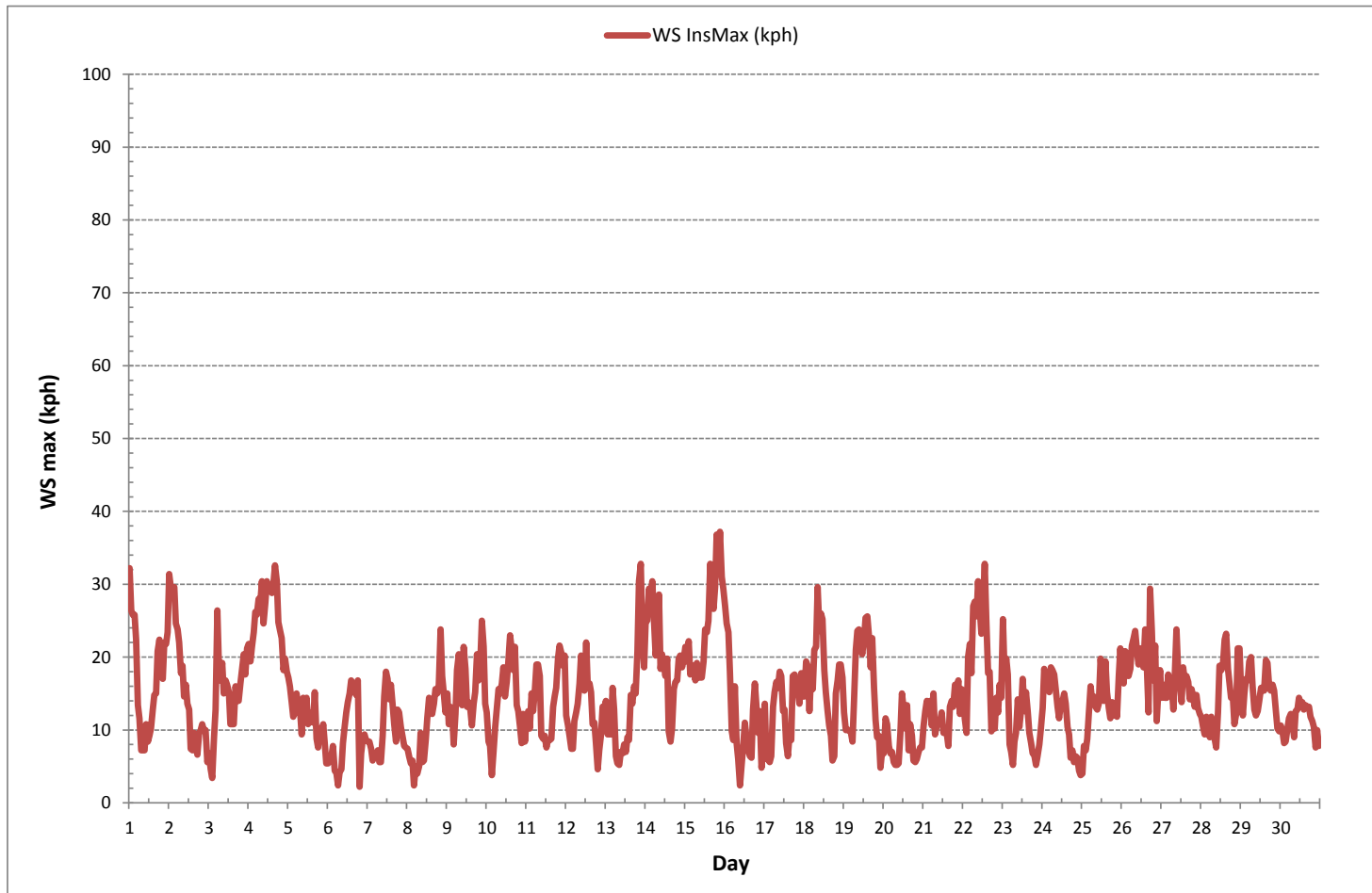
|    |                          |   |                       |
|----|--------------------------|---|-----------------------|
| C  | - MONTHLY CALIBRATION    | Q | - QUALITY ASSURANCE   |
| C1 | - REPEAT CALIBRATION     | R | - RECOVERY            |
| Y  | - MAINTENANCE            | X | - MACHINE MALFUNCTION |
| S  | - DAILY ZERO/SPAN CHECK  | G | - OUT FOR REPAIR      |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE       |

MONTHLY SUMMARY

|                              |      |     |        |    |        |     |
|------------------------------|------|-----|--------|----|--------|-----|
| MAXIMUM INSTANTANEOUS VALUE: | 37.2 | kph | @ HOUR | 21 | ON DAY | 15  |
| OPERATIONAL TIME:            | 720  |     |        |    |        | hrs |

2.2

WIND SPEED Instantaneous Maximum (WS kph)



***APPENDIX IV***  
***REPORT CERTIFICATION FORM***

## Report Certification Form

|                                                                                                              |                                                                                                           |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Alberta Airshed (if applicable)                                                                              | EPA Approval or Code of Practice Registration # (if applicable)                                           |
| YES                                                                                                          | NA                                                                                                        |
| Company Name (if applicable)                                                                                 | Industrial Operation Name (if applicable)                                                                 |
| Peace River Area Monitoring Program Committee                                                                | Reno Station                                                                                              |
| Name of the Representative of the Person Responsible                                                         | Position / Title of the Representative of the Person Responsible                                          |
| Mike Bisaga / Lily Lin                                                                                       | Technical Program Managers                                                                                |
| Is an External Party Certifying the Report?<br>(If 'Yes', fill in the fields below for the external person.) |                                                                                                           |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                          |                                                                                                           |
| Name of External Person Certifying the Report                                                                | Position / Title of External Person Certifying the Report                                                 |
| Cheri Sinclair                                                                                               | Supervisor, Customer Service, Air Services                                                                |
| Company Name for the External Person Certifying the Report                                                   | Identification of Qualifications / Professional Designations of the External Person Certifying the Report |
| Maxxam Analytics, A Bureau Veritas Group Company                                                             | B.Sc.                                                                                                     |

Maxxam Analytics is the designated contractor conducting monitoring and reporting activities. I certify that the submitted data has been (a) reviewed and validated as per the AMD Chapter 6: Ambient Data Quality. I certify that the submitted report (b) accurately reflects the monitoring results and reporting timeframe and (c) meets the specified analysis, summarization and reporting requirements as per the AMD Chapter 9: Reporting.



Signature of the External Person Certifying the Report

14 - Dec - 2018

Report Issued Date (dd-mon-yyyy)

***APPENDIX V***  
***DATA VALIDATION CERTIFICATION FORM***

## Validation Certificate Form

**Client:** Peace River Area Monitoring Program Committee

**Project #:** 196-2018-11-93-C

**Site:** Reno Station

**Contact:** Karla Reesor

**Level 0 Preliminary Verification**

CSA/lnbha

**Date** 05 - Dec - 2018

**Level 1 Primary Validation**

CSA/lnbha

**Date** 11 - Dec - 2018

**Level 2 Final Validation**

CSA/lnbha

**Date** 12 - Dec - 2018

**Level 3 Independent Data Review**

Cheri Smclair

**Date** 14 - Dec - 2018

**Post-Final Validation**

NA

**Date** NA

**Notes**

The Post-Final Validation step serves to re-evaluate the data that errors or omissions are discovered and/or suspected after the initial submittal of data. This validation is performed on an annual basis.