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

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

# AMBIENT AIR MONITORING MONTHLY DATA REPORT

## PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

## THREE CREEKS 842B STATION

**JOB #: 8449-2017-03-80-C**

**March 2017**

Prepared for:

**PEACE RIVER AREA MONITORING PROGRAM COMMITTEE**

**Attention: Lily Lin**

DATE: **May 17, 2017**

Prepared by:

Maram Ghaleb, B.Sc.
Project Manager, Customer Service, Air Services

Reviewed by:

Wunmi Adekanmbi, M.Sc., EPt.
Project Manager, Customer Service, Air Services

**SUMMARY**

In March 2017, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 842b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for 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.

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, Three Creeks 842b Station.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3678 or toll-free at 1-800-386-7247.

## Monthly Continuous Data Summary

| Peace River Area Monitoring Program Committee<br>Three Creeks 842b Station | | | | | | MAXIMUM VALUES | | | | | | | OPERATIONAL TIME (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-HOUR | | | | | 24-HOUR | | |
| PARAMETER | OBJECTIVES | | EXCEEDANCES | | MONTHLY AVERAGE | READING | DAY | HOUR | WIND SPEED (kph) | WIND DIRECTION (sector) | READING | DAY | |
| | 1-hr | 24-hr | 1-hr | 24-hr | | | | | | | | | |
| $SO_2$ (ppb) | 172 | 48 | 0 | 0 | 0.1 | 2.0 | 14 | 20 | 10.4 | SE | 0.6 | 13 | 100.0 |
| TRS (ppb) | - | - | - | - | 0.2 | 1.1 | 6 | 0 | 5.6 | ENE | 0.3 | 6 | 100.0 |
| THC (ppm) | - | - | - | - | 2.02 | 2.68 | 1 | 23 | 5.2 | ENE | 2.09 | 16 | 100.0 |
| $CH_4$ (ppm) | - | - | - | - | 2.02 | 2.68 | 1 | 23 | 5.2 | ENE | 2.09 | 16 | 100.0 |
| NMHC (ppm) | - | - | - | - | 0.00 | 0.01 | 2 | 0 | 5.5 | ENE | 0.00 | ALL | 100.0 |
| RELATIVE HUMIDITY (%) | - | - | - | - | 66 | 95 | 16 | VAR | VAR | VAR | 79 | 17 | 100.0 |
| BAROMETRIC PRESSURE (millibar) | - | - | - | - | 942 | 965 | 9 | 6 | 3.8 | ENE | 964 | 9 | 100.0 |
| AMBIENT TEMPERATURE (°C) | - | - | - | - | -6.4 | 13.1 | 30 | 16 | 7.5 | WNW | 5.4 | 30 | 100.0 |
| STATION TEMPERATURE (°C) | - | - | - | - | 22.2 | 24.7 | 14, 28 | 17, 16 | 10.9 | ESE SW | 23.3 | 14 | 100.0 |
| VECTOR WS (kph) | - | - | - | - | 1.4 | 23.5 | 31 | 15 | - | SW | 13.4 | 31 | 100.0 |
| VECTOR WD (sec) | - | - | - | - | 96 (E) | - | - | - | - | - | - | - | 100.0 |

VAR-VARIOUS

## SOUR GAS PROCESSING INDUSTRY

## MONTHLY REPORT SUMMARY

**Three Creeks 842b Station** — Plant Name / Location

**Peace River Area Monitoring Program Committee** — Company

| Licence Number | Report Date | |
|---|---|---|
| | YEAR | MONTH |
| N/A | 2017 | March |

**CONTINUOUS AMBIENT MONITORING**

| | | | ONE - HOUR AVERAGE | | | 24 - HOUR AVERAGE | | |
|---|---|---|---|---|---|---|---|---|
| PARAMETER | STN No. | % TIME OPERATIONAL | MAXIMUM VALUES | | NO. READINGS > REGULATION | MAXIMUM VALUES | | NO. READINGS > REGULATION |
| $SO_2$ | 1 | 100.0 | 0.0020 | ppm | 0 | 0.0006 | ppm | 0 |
| TRS | 1 | 100.0 | 0.0011 | ppm | - | 0.0003 | ppm | - |
| THC | 1 | 100.0 | 2.68 | ppm | - | 2.09 | ppm | - |
| $CH_4$ | 1 | 100.0 | 2.68 | ppm | - | 2.09 | ppm | - |
| NMHC | 1 | 100.0 | 0.01 | ppm | - | 0.00 | ppm | - |
| RH | 1 | 100.0 | 95 | % | - | 79 | % | - |
| BP | 1 | 100.0 | 965 | mb | - | 964 | mb | - |
| Ambient TPX | 1 | 100.0 | 13.1 | °C | - | 5.4 | °C | - |
| Station TPX | 1 | 100.0 | 24.7 | °C | - | 23.3 | °C | - |
| Wind Speed | 1 | 100.0 | 23.5 | kph | - | 13.4 | kph | - |
| Wind Direction | 1 | 100.0 | - | | - | - | | - |

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

# Exceedance Summary Report

## $SO_2$ 1-Hour Exceedances

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

## $SO_2$ 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.*

# TABLE OF CONTENTS

**1.0 Discussion**

This monthly report consists of continuous monitoring results for the following parameters: Sulphur Dioxide ($SO_2$), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane ($CH_4$), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX), Wind Speed (WS) and Wind Direction (WD).

Sample filters for all continuous air monitors are changed 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 the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality (December, 2016). 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.

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 ($SO_2$)** |
| • There were no issues that impacted operational time this month.<br>• The routine monthly calibration was performed on March 2. |
| **TOTAL REDUCED SULPHUR (TRS)** |
| • There were no issues that impacted operational time this month.<br>• The routine monthly calibration was performed on March 2. |
| **TOTAL HYDROCARBONS (THC), METHANE ($CH_4$) and NON-METHANE HYDROCARBONS (NMHC)** |
| • There were no issues that impacted operational time this month.<br>• The routine monthly calibration was performed on March 2.<br>• Slight, sporadic noise was noted for the NMHC parameter when sampling ambient air and this is reflected in the NMHC instantaneous maximum data. With the exception of two isolated instances (March 9 at hour 18:00 - 0.23 ppm; and March 26 at hour 17:00 - 0.20 ppm) this noise remained below the acceptable threshold for this parameter based on AMD requirements (0.2 ppm) and, at all times, remained below a level that might trigger a VOC canister (0.3 ppm). This noise had minimal effect on hourly average data and given the analyzer was demonstrated to be operating within accepted limits, this noise is considered not to be significant. That said, these data are monitored on a daily basis and, should the data quality begin to deteriorate, the analyzer will be replaced.<br>• 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. |
| **WIND SPEED (WS), WIND DIRECTION (WD) and STANDARD DEVIATION WIND DIRECTION (STDWD)** |
| • There were no issues that impacted operational time this month.<br>• 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)** |
| • There were no issues that impacted operational time this month. |
| **BAROMETRIC PRESSURE (BP)** |
| • There were no issues that impacted operational time this month. |
| **AMBIENT TEMPERATURE (AmbTPX)** |
| • There were no issues that impacted operational time this month. |
| **STATION TEMPERATURE (StnTPX)** |
| • There were no issues that impacted operational time this month. |

## 2.0 Project Personnel

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field technician was 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.

## 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-00208: 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 Flourescent Analyzer
Total Reduced Sulphur - Thermo 43i UV Flourescent 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
Station Temperature - Maxxam Supplied Unit
Datalogger - ESC 8832

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**

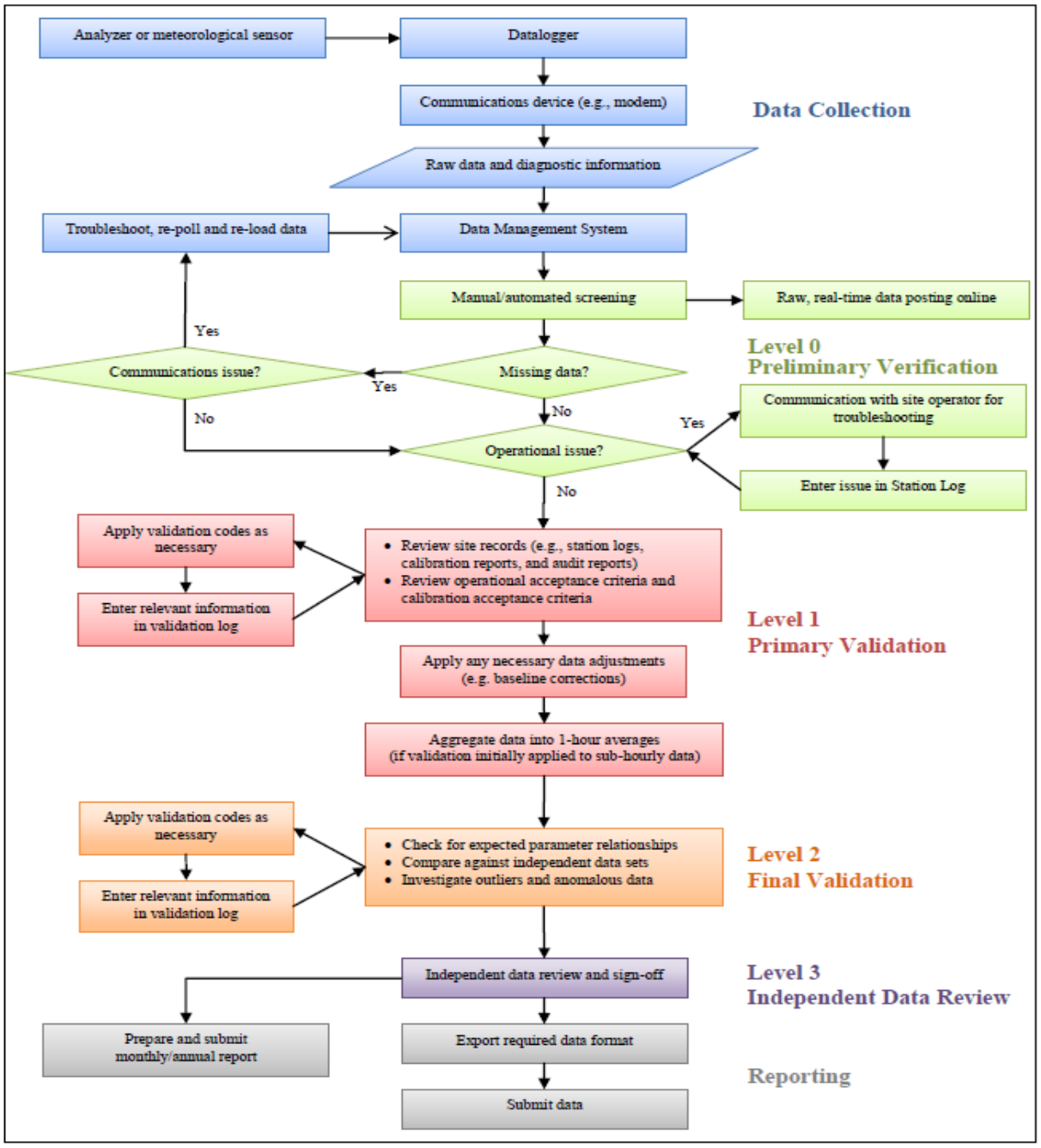
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

**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*

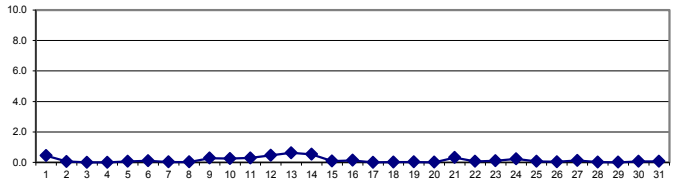
## SULPHUR DIOXIDE Hourly Averages ($SO_2$ ppb)

| HR START (MST) / HR END (MST) | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0.1 | 0.0 | S | 0.4 | 0.7 | 1.3 | 1.5 | 1.2 | 0.9 | 0.8 | 0.8 | 0.5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 | 0.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 1.5 | 0.4 | 24 |
| 2 | 0.6 | S | 0.2 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C | C | C | C | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.1 | 24 |
| 3 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 24 |
| 4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 24 |
| 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 | 0.0 | 0.2 | 0.4 | 0.1 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.4 | 0.1 | 24 |
| 6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.4 | 0.4 | 0.3 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | S | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 | 0.1 | 24 |
| 7 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 24 |
| 8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 24 |
| 9 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.9 | 1.0 | 0.4 | 0.3 | 0.4 | 0.4 | 0.2 | 0.2 | S | 0.1 | 0.3 | 0.4 | 0.6 | 0.5 | 0.2 | 0.0 | 1.0 | 0.3 | 24 |
| 10 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.4 | 0.2 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | 0.2 | 0.4 | 0.3 | S | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.4 | 0.2 | 24 |
| 11 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.2 | 0.2 | 0.3 | 0.3 | 0.1 | 0.3 | 0.2 | 0.4 | 0.4 | 0.3 | S | 0.4 | 0.8 | 0.6 | 0.6 | 0.6 | 0.3 | 0.1 | 0.1 | 0.0 | 0.8 | 0.3 | 24 |
| 12 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.3 | 1.2 | 0.9 | 0.7 | 0.6 | S | 0.6 | 0.4 | 0.7 | 0.6 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.0 | 1.2 | 0.5 | 24 |
| 13 | 0.8 | 0.6 | 0.9 | 0.8 | 0.9 | 0.8 | 0.9 | 0.7 | 0.9 | 0.8 | 0.7 | 0.6 | 0.6 | S | 0.6 | 0.4 | 0.6 | 0.5 | 0.3 | 0.6 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.9 | **0.6** | 24 |
| 14 | 0.2 | 0.2 | 0.4 | 0.3 | 0.2 | 0.4 | 0.2 | 0.1 | 0.1 | 0.2 | 0.3 | 0.0 | S | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 1.1 | 1.9 | **2.0** | 1.7 | 1.6 | 1.0 | 0.0 | **2.0** | 0.5 | 24 |
| 15 | 0.8 | 0.6 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.1 | 24 |
| 16 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 0.4 | 0.3 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 | 24 |
| 17 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 24 |
| 18 | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 24 |
| 19 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 24 |
| 20 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 24 |
| 21 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.5 | 0.2 | 0.3 | 0.6 | 0.7 | 1.2 | 1.5 | 0.7 | 0.3 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 1.5 | 0.3 | 24 |
| 22 | 0.2 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.2 | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.2 | 0.1 | 24 |
| 23 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.1 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.3 | 0.1 | 24 |
| 24 | 0.0 | 0.1 | S | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.6 | 0.5 | 0.5 | 0.7 | 0.4 | 0.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.0 | 0.7 | 0.2 | 24 |
| 25 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 24 |
| 26 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.6 | S | 0.0 | 0.6 | 0.0 | 24 |
| 27 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 0.7 | 0.5 | 0.2 | 0.1 | 0.0 | S | 0.0 | 0.0 | 0.8 | 0.1 | 24 |
| 28 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 24 |
| 29 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 24 |
| 30 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.3 | S | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 24 |
| 31 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.3 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | S | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 24 |
| HOURLY MAX | 0.8 | 0.6 | 0.9 | 0.8 | 0.9 | 1.3 | 1.5 | 1.2 | 0.9 | 0.9 | 1.2 | 1.2 | 1.5 | 0.7 | 0.6 | 0.7 | 0.9 | 0.9 | 1.1 | 1.9 | 2.0 | 1.7 | 1.6 | 1.0 | | | | |
| HOURLY AVG | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | | | | |

**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 March 2017**

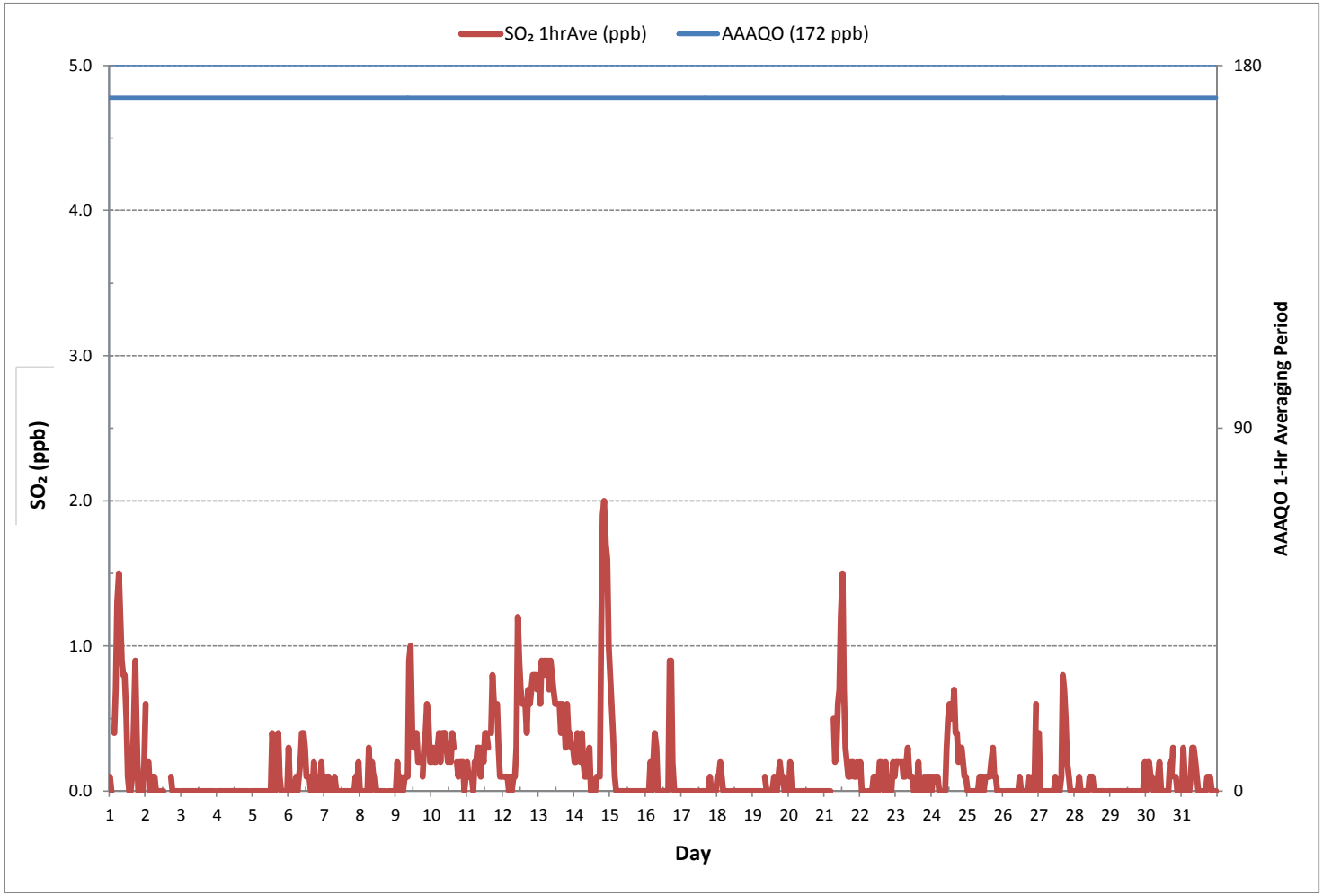



**OBJECTIVE LIMIT:** **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NUMBER OF 1-HR EXCEEDANCES: | | | 0 | | | | |
| NUMBER OF 24-HR EXCEEDANCES: | | | 0 | | | | |
| NUMBER OF NON-ZERO READINGS: | | | 307 | | | | |
| MINIMUM 1-HR AVERAGE | | 0.0 | ppb | @ HOUR(S) | VAR | ON DAY(S) | VAR |
| MAXIMUM 1-HR AVERAGE: | | 2.0 | ppb | @ HOUR(S) | 20 | ON DAY(S) | 14 |
| MAXIMUM 24-HR AVERAGE: | | 0.6 | ppb | | | ON DAY(S) | 13 |
| | | | | | | VAR-VARIOUS | |
| IZS CALIBRATION TIME: | 33 | hrs | | OPERATIONAL TIME: | | | 744 hrs |
| MONTHLY CALIBRATION TIME: | 4 | hrs | | AMD OPERATION UPTIME: | | | 100.0 % |
| STANDARD DEVIATION: | 0.3 | | | MONTHLY AVERAGE: | | | 0.1 ppb |

**SULPHUR DIOXIDE Hourly Averages ($SO_2$ ppb)**



## SULPHUR DIOXIDE Instantaneous Maximum ($SO_2$ 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 | 0.4 | 0.7 | S | 1.0 | 1.3 | 1.9 | 1.9 | 1.9 | 1.3 | 1.3 | 1.3 | 1.3 | 0.4 | 0.1 | 0.4 | 0.4 | 1.0 | 1.6 | 1.0 | 0.7 | 0.1 | 0.1 | 0.1 | 0.7 | 0.1 | 1.9 | 0.9 | 24 |
| 2 | 1.0 | S | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | C | C | C | C | 0.7 | 0.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 1.0 | 0.5 | 24 |
| 3 | S | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 0.7 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.7 | 0.5 | 24 |
| 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.1 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.1 | 0.4 | 0.3 | 24 |
| 5 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.4 | 1.0 | 1.0 | 1.3 | 0.7 | 1.0 | 1.0 | 1.0 | 0.4 | 0.4 | S | 0.4 | 1.0 | 0.1 | 1.3 | 0.6 | 24 |
| 6 | 1.0 | 0.7 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.1 | S | 0.1 | 0.4 | 0.4 | 0.1 | 1.0 | 0.5 | 24 |
| 7 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.2 | 24 |
| 8 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.4 | 0.2 | 24 |
| 9 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 1.3 | 1.3 | 0.7 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | S | 0.1 | 0.7 | 0.7 | 1.0 | 0.7 | 0.4 | 0.1 | 1.3 | 0.5 | 24 |
| 10 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | S | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.7 | 0.4 | 24 |
| 11 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.7 | 1.0 | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 | 0.1 | 0.1 | 1.0 | 0.4 | 24 |
| 12 | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.7 | 1.6 | 1.0 | 1.0 | 0.7 | S | 0.7 | 0.7 | 1.0 | 0.7 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.1 | 1.6 | 0.7 | 24 |
| 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.3 | 1.3 | 1.3 | 1.0 | 1.3 | 1.0 | 1.0 | 1.0 | 1.0 | S | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 | 1.3 | 0.9 | 24 |
| 14 | 0.7 | 0.4 | 1.0 | 0.7 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 1.9 | 2.2 | 2.2 | 2.2 | 2.2 | 1.6 | 0.4 | 2.2 | 0.9 | 24 |
| 15 | 1.3 | 1.0 | 1.0 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 1.3 | 0.5 | 24 |
| 16 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.7 | 1.0 | 0.7 | 0.4 | 0.1 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1.6 | 1.6 | 0.7 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.1 | 1.6 | 0.6 | 24 |
| 17 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | S | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.1 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.1 | 0.7 | 0.3 | 24 |
| 18 | 0.7 | 1.0 | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 | S | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1.0 | 0.6 | 24 |
| 19 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.3 | 24 |
| 20 | 0.1 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.1 | 0.4 | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.4 | 0.1 | 0.1 | 0.4 | 0.2 | 24 |
| 21 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | S | 1.0 | 1.0 | 1.0 | 1.3 | 1.3 | 1.9 | 2.2 | 1.6 | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.1 | 2.2 | 0.9 | 24 |
| 22 | 0.7 | 0.4 | 0.7 | 0.7 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.7 | 0.5 | 24 |
| 23 | 0.4 | 0.4 | 0.7 | S | 0.7 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.7 | 0.4 | 24 |
| 24 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 1.0 | 0.7 | 1.0 | 1.3 | 1.0 | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.1 | 1.3 | 0.6 | 24 |
| 25 | 0.4 | S | 0.7 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | 0.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.7 | 0.5 | 24 |
| 26 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | 1.0 | S | 0.4 | 1.0 | 0.5 | 24 |
| 27 | 1.0 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.4 | 0.7 | 1.3 | 1.0 | 1.0 | 0.7 | 0.4 | 0.4 | S | 0.4 | 0.1 | 1.3 | 0.5 | 24 |
| 28 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.7 | 0.4 | 0.4 | 0.1 | 0.1 | 0.4 | 0.4 | 0.1 | 0.4 | S | 0.4 | 0.4 | 0.1 | 0.7 | 0.4 | 24 |
| 29 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.7 | 0.7 | 0.1 | 0.7 | 0.4 | 24 |
| 30 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 1.0 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 1.0 | 0.4 | 24 |
| 31 | 0.4 | 0.7 | 0.4 | 0.1 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.5 | S | 0.4 | 0.4 | 0.4 | 0.1 | 0.4 | 0.1 | 0.7 | 0.4 | 24 |
| HOURLY MAX | 1.3 | 1.0 | 1.0 | 1.0 | 1.3 | 1.9 | 1.9 | 1.9 | 1.3 | 1.3 | 1.6 | 1.9 | 2.2 | 1.6 | 1.3 | 1.3 | 1.6 | 1.6 | 1.9 | 2.2 | 2.2 | 2.2 | 2.2 | 1.6 | | | | |
| HOURLY AVG | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | | | | |

**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: 707

MAXIMUM INSTANTANEOUS VALUE: 2.2 ppb @ HOUR(S) VAR ON DAY(S) 14

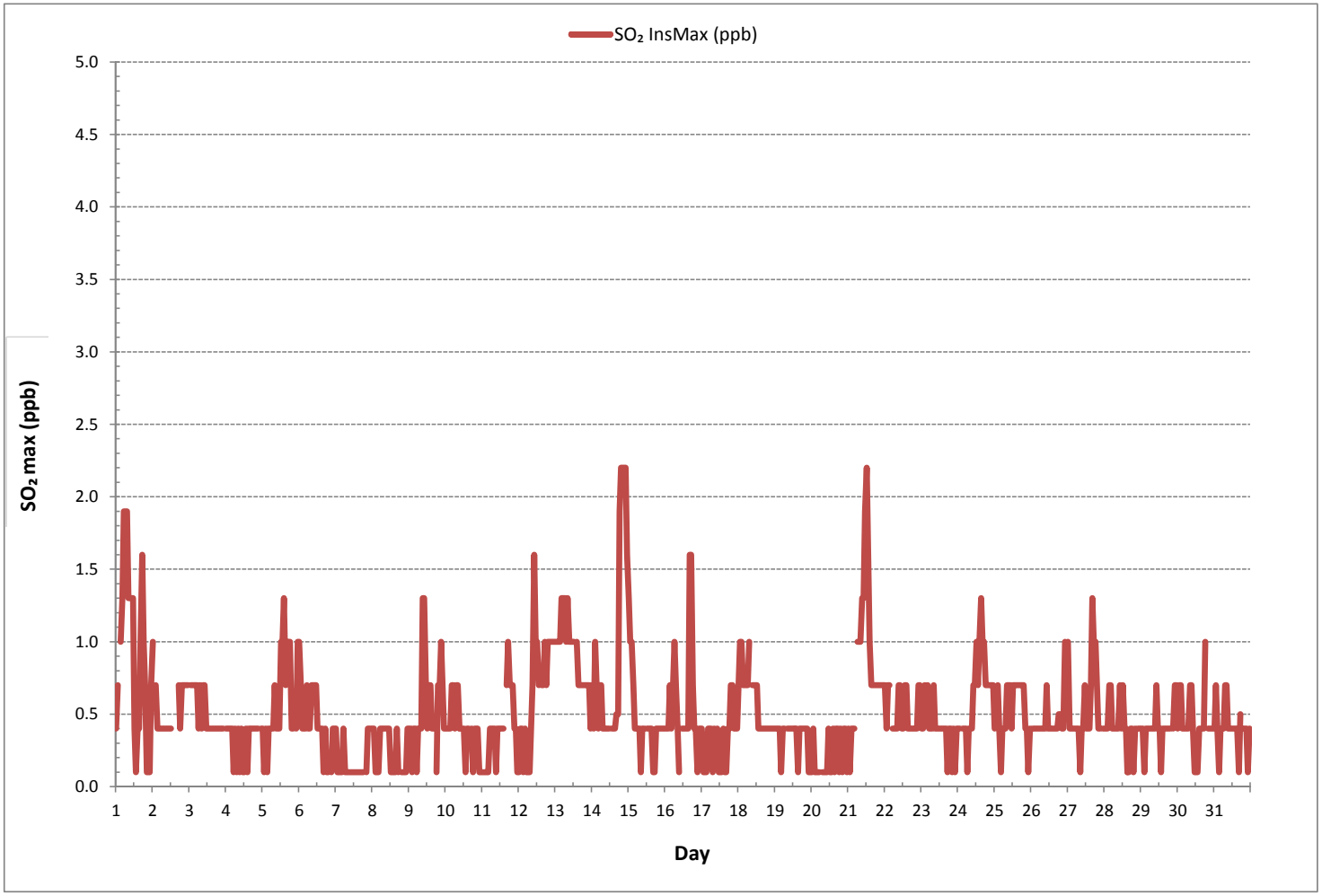
VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 744 hrs

MONTHLY CALIBRATION TIME: 4 hrs

STANDARD DEVIATION: 0.3

**SULPHUR DIOXIDE Instantaneous Maximum ($SO_2$ ppb)**



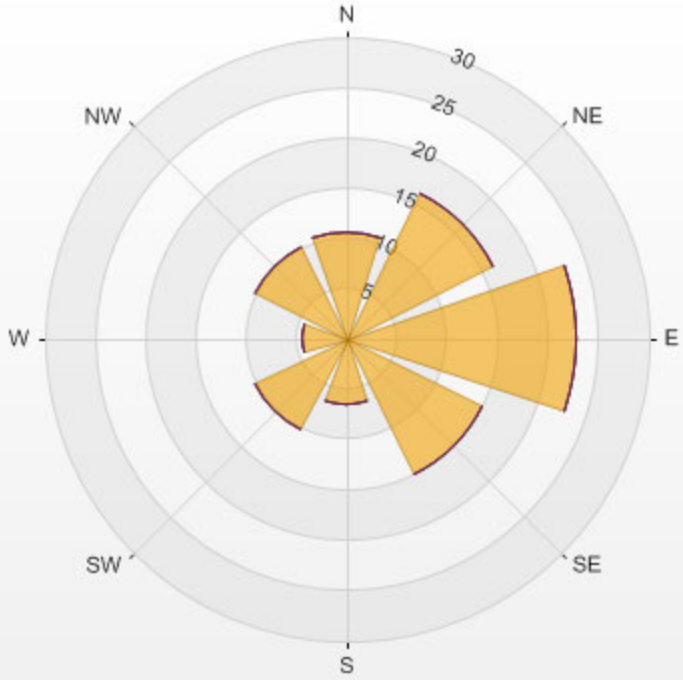
Wind: PRAMP_842
Poll.: PRAMP_842-SO2[ppb]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.54%  Calm Avg: 0.04 [ppb]

| Direction | 0-3 | 3-10 | 10-85 | 85-170 | >170.0 | Total |
|---|---|---|---|---|---|---|
| **N** | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 16.3 | 0.0 | 0.0 | 0.0 | 0.0 | 16.3 |
| **E** | 22.9 | 0.0 | 0.0 | 0.0 | 0.0 | 22.9 |
| **SE** | 15.1 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 |
| **S** | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 |
| **SW** | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 |
| **W** | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 |
| **NW** | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 |
| **Summary** | 96.5 | 0.0 | 0.0 | 0.0 | 0.0 | 96.5 |

| % Icon Classes (ppb) | 96 0-3 | 0 3-10 | 0 10-85 | 0 85-170 | 0 >170.0 |
|---|---|---|---|---|---|

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.54% Calm Poll Avg: 0.04[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 17/03 Type: Span

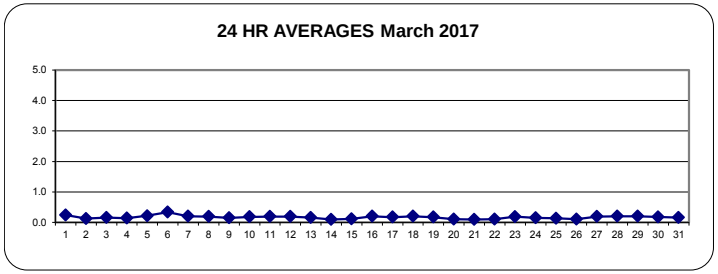
# *TOTAL REDUCED SULPHUR*

## TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

| HR START (MST) / HR END (MST) / DAY | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.2 | 0.4 | 0.2 | 24 |
| 2 | 0.4 | S | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | C | C | C | C | C | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.4 | 0.1 | 24 |
| 3 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | S | 0.1 | 0.2 | 0.2 | 24 |
| 4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.2 | 0.1 | 24 |
| 5 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.7 | 0.1 | 0.7 | 0.2 | 24 |
| 6 | 1.1 | 0.7 | 0.6 | 0.6 | 0.7 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 1.1 | 0.3 | 24 |
| 7 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 24 |
| 8 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| 9 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 24 |
| 10 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 24 |
| 11 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 24 |
| 12 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| 13 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 24 |
| 14 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 24 |
| 15 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 24 |
| 16 | 0.2 | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.4 | 0.2 | 24 |
| 17 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | S | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| 18 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 24 |
| 19 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| 20 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 24 |
| 21 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 24 |
| 22 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 24 |
| 23 | 0.1 | 0.1 | 0.1 | S | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 24 | 0.2 | 0.1 | S | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 24 |
| 25 | 0.1 | S | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 24 |
| 26 | S | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | S | 0.1 | 0.3 | 0.1 | 24 |
| 27 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | S | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 28 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 29 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 30 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | S | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 31 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| HOURLY MAX | 1.1 | 0.7 | 0.6 | 0.6 | 0.7 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.7 | | | | |
| HOURLY AVG | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | | |

**STATUS FLAG CODES**

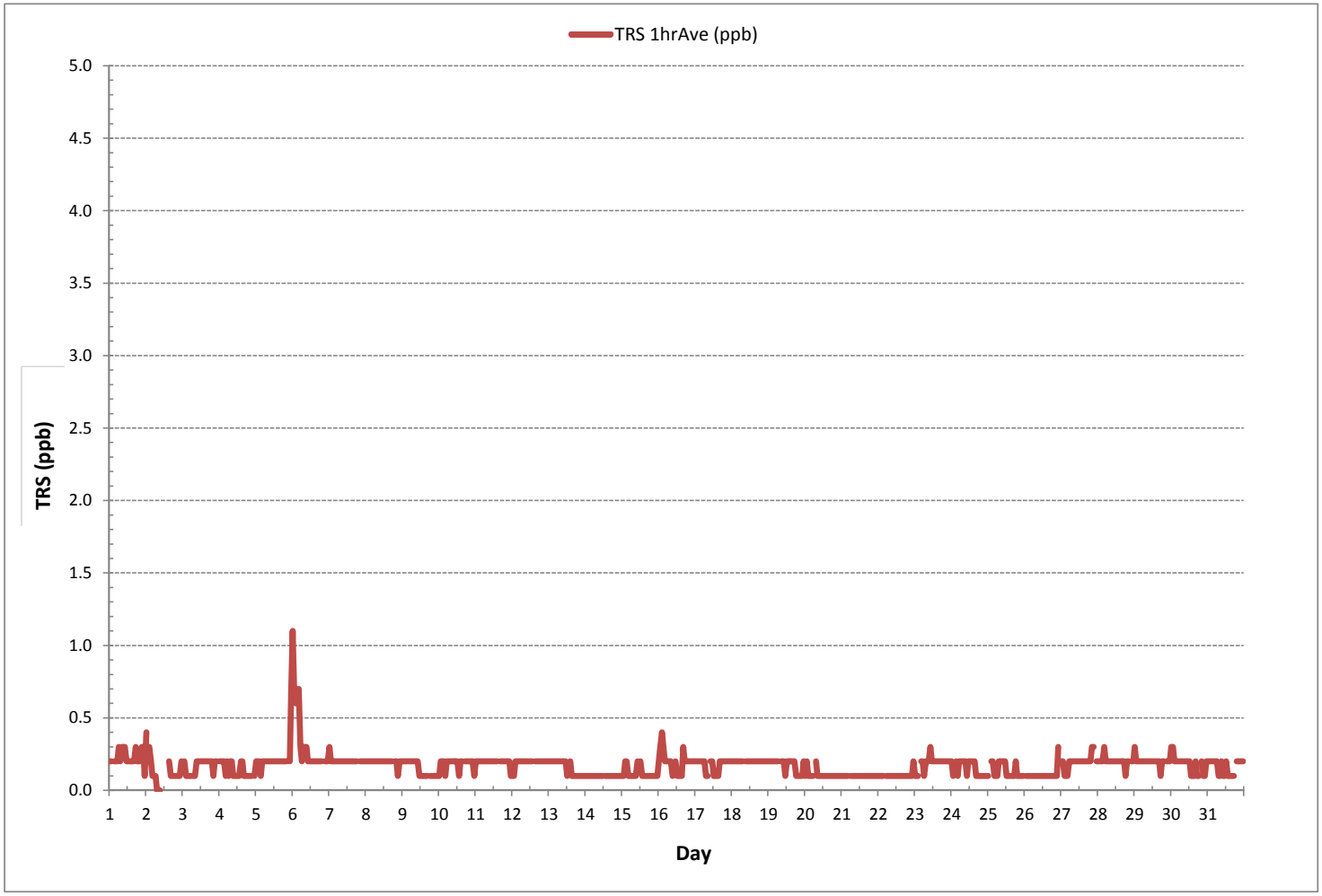
| | | | |
|---|---|---|---|
| C | - MONTHLY CALIBRATION | Q | - QUALITY ASSURANCE |
| C1 | - REPEAT CALIBRATION | R | - RECOVERY |
| Y | - MAINTENANCE | X | - MACHINE MALFUNCTION |
| S | - DAILY ZERO/SPAN CHECK | G | - OUT FOR REPAIR |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE |




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NUMBER OF NON-ZERO READINGS: | | | 703 | | | | |
| MINIMUM 1-HR AVERAGE | | 0.0 | ppb | @ HOUR(S) | VAR | ON DAY(S) | 2 |
| MAXIMUM 1-HR AVERAGE: | | 1.1 | ppb | @ HOUR(S) | 0 | ON DAY(S) | 6 |
| MAXIMUM 24-HR AVERAGE: | | 0.3 | ppb | | | ON DAY(S) | 6 |
| | | | | | | VAR-VARIOUS | |
| IZS CALIBRATION TIME: | 33 | hrs | | OPERATIONAL TIME: | | 744 | hrs |
| MONTHLY CALIBRATION TIME: | 5 | hrs | | AMD OPERATION UPTIME: | | 100.0 | % |
| STANDARD DEVIATION: | 0.1 | | | MONTHLY AVERAGE: | | 0.2 | ppb |

**TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)**



## 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 | 0.0 | 0.0 | S | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.0 | 0.2 | 0.0 | 24 |
| 2 | 0.3 | S | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C | C | C | C | C | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.0 | 0.3 | 0.2 | 24 |
| 3 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | S | 0.2 | 0.3 | 0.2 | 24 |
| 4 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | S | 0.3 | 0.2 | 0.3 | 0.3 | 24 |
| 5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 1.5 | 0.3 | 1.5 | 0.4 | 24 |
| 6 | 1.5 | 0.9 | 0.8 | 0.8 | 0.8 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.3 | 0.4 | 0.3 | 1.5 | 0.5 | 24 |
| 7 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 24 |
| 8 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | S | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 | 24 |
| 9 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 24 |
| 10 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 24 |
| 11 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 24 |
| 12 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 24 |
| 13 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | S | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 24 |
| 14 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 24 |
| 15 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 16 | 0.2 | 0.5 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.5 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.1 | 0.5 | 0.3 | 24 |
| 17 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 24 |
| 18 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 24 |
| 19 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 24 |
| 20 | 0.3 | 0.4 | 0.2 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.4 | 0.3 | 24 |
| 21 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 24 |
| 22 | 0.3 | 0.3 | 0.3 | 0.3 | S | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 24 |
| 23 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | 24 |
| 24 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 24 |
| 25 | 0.2 | S | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 24 |
| 26 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.3 | S | 0.1 | 0.3 | 0.2 | 24 |
| 27 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.4 | S | 0.3 | 0.2 | 0.5 | 0.3 | 24 |
| 28 | 0.3 | 0.3 | 0.2 | 0.4 | 0.4 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | 24 |
| 29 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 30 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 24 |
| 31 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | S | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 24 |
| HOURLY MAX | 1.5 | 0.9 | 0.8 | 0.8 | 0.8 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 1.5 | | | | |
| HOURLY AVG | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | | | | |

### 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 |

### MONTHLY SUMMARY

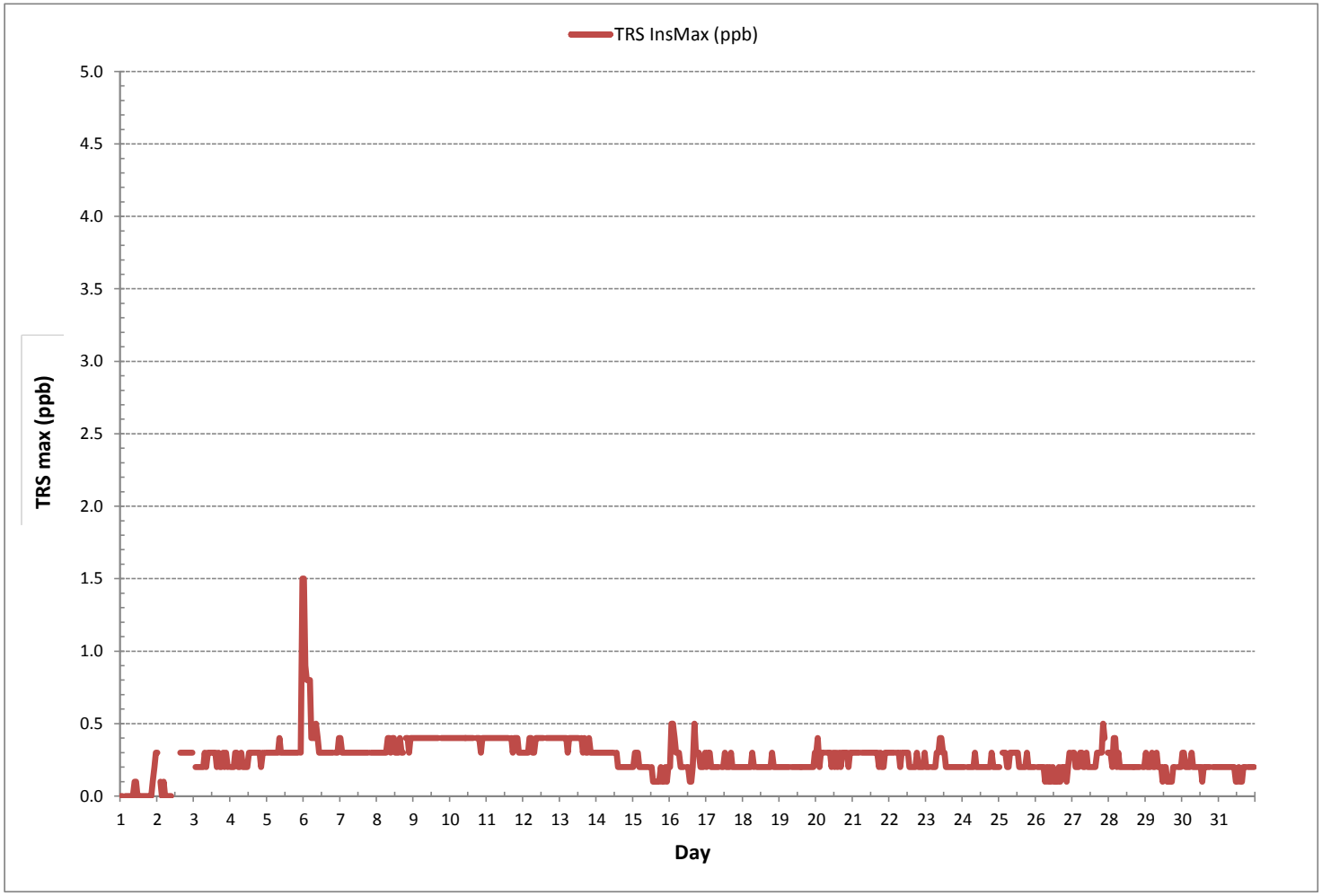
NUMBER OF NON-ZERO READINGS: 682

MAXIMUM INSTANTANEOUS VALUE: 1.5 ppb @ HOUR(S) 23, 0 ON DAY(S) 5, 6

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 744 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.1

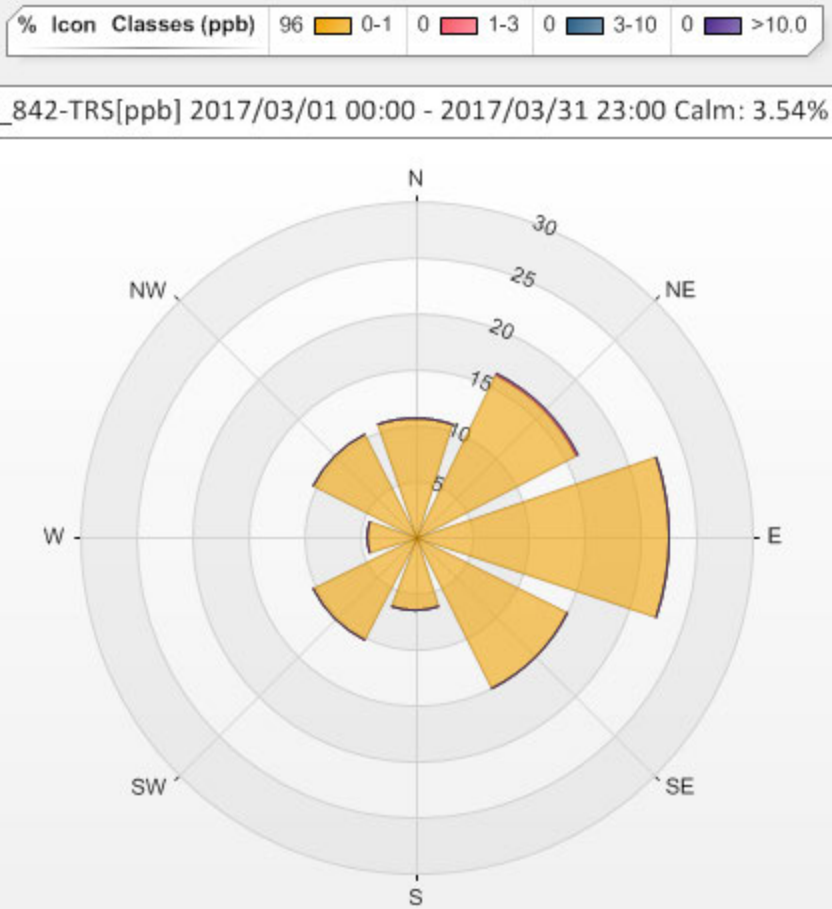
**TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)**



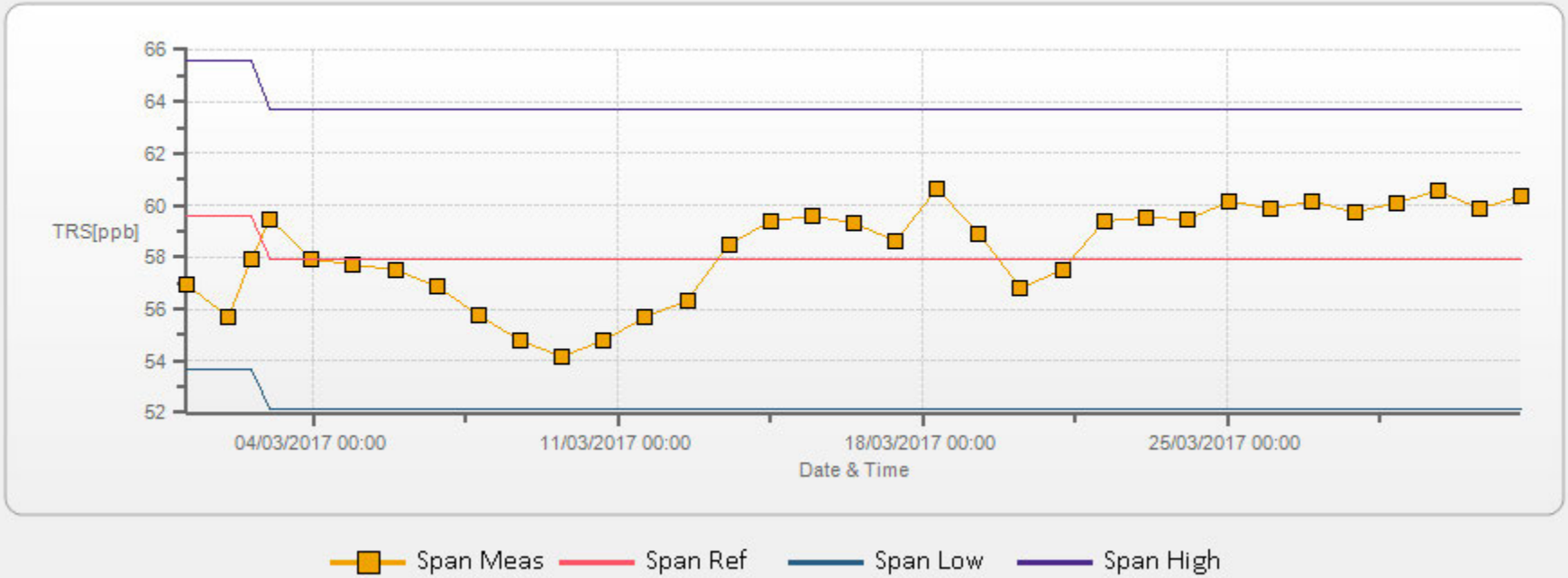
Wind: PRAMP_842
Poll.: PRAMP_842-TRS[ppb]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.54% Calm Avg: 0.17 [ppb]

| Direction | 0-1 | 1-3 | 3-10 | >10.0 | Total |
|---|---|---|---|---|---|
| **N** | 10.6 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 16.2 | 0.1 | 0.0 | 0.0 | 16.3 |
| **E** | 22.7 | 0.0 | 0.0 | 0.0 | 22.7 |
| **SE** | 15.2 | 0.0 | 0.0 | 0.0 | 15.2 |
| **S** | 6.7 | 0.0 | 0.0 | 0.0 | 6.7 |
| **SW** | 10.3 | 0.0 | 0.0 | 0.0 | 10.3 |
| **W** | 4.4 | 0.0 | 0.0 | 0.0 | 4.4 |
| **NW** | 10.3 | 0.0 | 0.0 | 0.0 | 10.3 |
| **Summary** | 96.3 | 0.1 | 0.0 | 0.0 | 96.5 |


% Icon Classes (ppb)
96 0-1
0 1-3
0 3-10
0 >10.0
PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.54% Calm Poll Avg: 0.17[ppb]
N
NE
E
SE
S
SW
W
NW
30
25
20
15
10
5

TRS[ppb] Calibration: PRAMP_842 Monthly: 17/03 Type: Span



# *TOTAL HYDROCARBON*

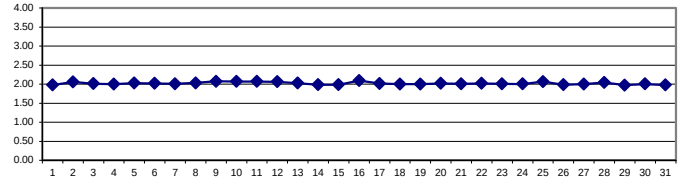
## TOTAL HYDROCARBONS Hourly Averages (THC ppm)

| HR START (MST) / HR END (MST) | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | **1.89** | 1.90 | **S** | 1.91 | 1.91 | 1.90 | 1.91 | 1.92 | 1.92 | 1.91 | 1.91 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 | 2.19 | 2.33 | **2.68** | **1.89** | **2.68** | 1.98 | 24 |
| 2 | 2.62 | **S** | 2.24 | 2.11 | 2.03 | 2.06 | 1.97 | 1.95 | 1.94 | 1.93 | **C** | **C** | **C** | **C** | 2.04 | 2.06 | 2.00 | 2.00 | 2.02 | 2.03 | 2.02 | 2.03 | 2.03 | 2.03 | 1.93 | 2.62 | 2.06 | 24 |
| 3 | **S** | 2.05 | 2.04 | 2.03 | 2.03 | 2.02 | 2.07 | 2.03 | 2.02 | 2.02 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 2.00 | 2.00 | 1.98 | 1.99 | **S** | 1.98 | 2.07 | 2.01 | 24 |
| 4 | 1.99 | 2.00 | 1.99 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.00 | 1.99 | 2.01 | 2.00 | **S** | 2.02 | 1.99 | 2.02 | 2.00 | 24 |
| 5 | 2.18 | 2.13 | 2.07 | 2.04 | 2.03 | 2.01 | 2.01 | 2.06 | 2.08 | 2.03 | 2.01 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | 2.00 | 2.00 | **S** | 2.03 | 2.03 | 1.99 | 2.18 | 2.03 | 24 |
| 6 | 2.03 | 2.03 | 2.04 | 2.06 | 2.06 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | **S** | 2.00 | 2.00 | 2.01 | 2.00 | 2.06 | 2.02 | 24 |
| 7 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | **S** | 2.01 | 2.02 | 2.03 | 2.01 | 2.00 | 2.03 | 2.01 | 24 |
| 8 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.03 | 2.03 | 2.07 | 2.07 | 2.05 | 2.03 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | **S** | 2.02 | 2.02 | 2.02 | 2.15 | 2.07 | 2.01 | 2.15 | 2.03 | 24 |
| 9 | 2.06 | 2.10 | 2.09 | 2.14 | 2.14 | 2.13 | 2.14 | 2.14 | 2.14 | 2.16 | 2.06 | 2.04 | 2.03 | 2.03 | 2.03 | 2.02 | 2.02 | **S** | 2.01 | 2.02 | 2.03 | 2.04 | 2.06 | 2.05 | 2.01 | 2.16 | 2.07 | 24 |
| 10 | 2.05 | 2.18 | 2.08 | 2.06 | 2.06 | 2.12 | 2.31 | 2.06 | 2.07 | 2.05 | 2.04 | 2.05 | 2.04 | 2.04 | 2.05 | 2.04 | **S** | 2.04 | 2.05 | 2.05 | 2.05 | 2.04 | 2.05 | 2.04 | 2.04 | 2.31 | 2.07 | 24 |
| 11 | 2.04 | 2.04 | 2.04 | 2.05 | 2.04 | 2.06 | 2.14 | 2.14 | 2.14 | 2.09 | 2.08 | 2.08 | 2.08 | 2.07 | 2.06 | **S** | 2.05 | 2.06 | 2.07 | 2.07 | 2.06 | 2.05 | 2.04 | 2.03 | 2.03 | 2.14 | 2.07 | 24 |
| 12 | 2.04 | 2.04 | 2.06 | 2.06 | 2.06 | 2.07 | 2.07 | 2.09 | 2.10 | 2.10 | 2.08 | 2.07 | 2.06 | 2.05 | **S** | 2.05 | 2.05 | 2.04 | 2.05 | 2.05 | 2.05 | 2.06 | 2.06 | 2.06 | 2.04 | 2.10 | 2.06 | 24 |
| 13 | 2.06 | 2.05 | 2.04 | 2.03 | 2.04 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | **S** | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.03 | 2.02 | 2.00 | 1.99 | 1.97 | 1.97 | 2.06 | 2.03 | 24 |
| 14 | 1.98 | 1.97 | 1.97 | 1.98 | 1.99 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | **S** | 1.97 | 1.97 | 1.98 | 1.99 | 1.98 | 1.98 | 2.00 | 2.01 | 2.03 | 2.04 | 2.03 | 1.97 | 2.04 | 1.99 | 24 |
| 15 | 2.03 | 2.03 | 2.03 | 2.00 | 1.97 | 1.96 | 1.96 | 1.95 | 1.95 | 1.95 | 1.96 | **S** | 1.96 | 1.96 | 1.96 | 1.97 | 1.98 | 2.00 | 1.99 | 1.99 | 1.98 | 1.98 | 2.00 | 2.01 | 1.95 | 2.03 | 1.98 | 24 |
| 16 | 2.04 | 2.08 | 2.43 | 2.57 | 2.27 | 2.21 | 2.30 | 2.18 | 2.07 | 1.99 | **S** | 1.99 | 2.00 | 1.99 | 1.98 | 1.99 | 2.02 | 2.01 | 2.00 | 2.01 | 2.02 | 2.01 | 2.00 | 2.01 | 1.98 | 2.57 | **2.09** | 24 |
| 17 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | 2.00 | 1.99 | 1.99 | 1.99 | **S** | 2.04 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.03 | 2.04 | 2.06 | 2.05 | 2.04 | 2.02 | 2.01 | 1.99 | 2.06 | 2.01 | 24 |
| 18 | 2.01 | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.01 | 2.00 | **S** | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 2.02 | 2.00 | 24 |
| 19 | 1.98 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | **S** | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 1.98 | 2.01 | 2.00 | 24 |
| 20 | 2.01 | 2.01 | 2.02 | 2.02 | 2.02 | 2.02 | **S** | 2.06 | 2.07 | 2.02 | 2.01 | 2.01 | 2.02 | 2.02 | 2.01 | 2.00 | 2.00 | 2.00 | 2.01 | 2.00 | 2.01 | 2.03 | 2.04 | 2.04 | 2.00 | 2.07 | 2.02 | 24 |
| 21 | 2.03 | 2.01 | 2.02 | 2.02 | 2.02 | **S** | 2.02 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.03 | 2.02 | 1.99 | 2.03 | 2.01 | 24 |
| 22 | 2.03 | 2.03 | 2.02 | 2.02 | **S** | 2.01 | 2.00 | 2.00 | 2.01 | 2.04 | 2.03 | 2.01 | 2.01 | 2.00 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.02 | 2.01 | 2.01 | 2.09 | 2.08 | 1.99 | 2.09 | 2.02 | 24 |
| 23 | 2.04 | 2.02 | 2.01 | **S** | 2.04 | 2.03 | 2.00 | 2.00 | 2.01 | 2.00 | 2.02 | 2.02 | 2.02 | 2.01 | 2.02 | 2.01 | 2.00 | 2.01 | 2.01 | 1.97 | 1.98 | 1.98 | 1.99 | 1.99 | 1.97 | 2.04 | 2.01 | 24 |
| 24 | 1.99 | 2.00 | **S** | 2.00 | 2.00 | 2.00 | 2.00 | 2.04 | 2.01 | 1.97 | 1.98 | 1.98 | 1.99 | 2.00 | 2.01 | 2.01 | 1.98 | 2.00 | 2.02 | 2.03 | 2.01 | 1.98 | 2.02 | 2.07 | 1.97 | 2.07 | 2.00 | 24 |
| 25 | 2.04 | **S** | 2.05 | 2.08 | 2.08 | 2.08 | 2.12 | 2.16 | 2.14 | 2.16 | 2.15 | 2.08 | 2.07 | 2.05 | 2.05 | 2.06 | 2.05 | 2.06 | 2.06 | 2.07 | 1.98 | 1.96 | 1.96 | 1.96 | 1.96 | 2.16 | 2.06 | 24 |
| 26 | **S** | 1.97 | 1.97 | 1.97 | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 | 1.97 | 1.96 | 1.97 | 1.95 | 1.96 | 1.95 | 1.97 | 1.98 | 1.98 | 1.98 | 1.97 | 1.96 | 2.03 | 2.28 | **S** | 1.95 | 2.28 | 1.98 | 24 |
| 27 | 2.16 | 1.97 | 1.95 | 1.95 | 1.96 | 1.97 | 1.98 | 1.98 | 1.99 | 1.98 | 1.99 | 2.00 | 1.99 | 1.99 | 2.00 | 2.01 | 2.02 | 2.02 | 2.03 | 2.02 | 2.02 | 2.02 | **S** | 2.02 | 1.95 | 2.16 | 2.00 | 24 |
| 28 | 2.11 | 2.08 | 2.08 | 2.24 | 2.31 | 2.11 | 2.16 | 2.08 | 2.06 | 2.03 | 2.01 | 1.99 | 1.99 | 1.97 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.98 | **S** | 1.98 | 1.97 | 2.31 | 2.04 | 24 |
| 29 | 1.98 | 1.96 | 1.96 | 1.98 | 1.99 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.96 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.98 | 1.97 | **S** | 1.97 | 1.99 | 2.00 | 1.96 | 2.00 | 1.97 | 24 |
| 30 | 2.01 | 1.99 | 1.98 | 1.99 | 2.01 | 1.99 | 1.97 | 1.98 | 2.00 | 2.01 | 2.00 | 2.01 | 2.00 | 2.00 | 2.01 | 2.00 | 1.99 | 2.00 | 2.00 | **S** | 2.02 | 2.05 | 2.05 | 2.00 | 1.97 | 2.05 | 2.00 | 24 |
| 31 | 1.99 | 1.98 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 1.99 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | **S** | 1.96 | 1.95 | 1.94 | 1.95 | 1.96 | 1.94 | 2.00 | 1.98 | 24 |
| HOURLY MAX | 2.62 | 2.18 | 2.43 | 2.57 | 2.31 | 2.21 | 2.31 | 2.18 | 2.14 | 2.16 | 2.15 | 2.08 | 2.08 | 2.07 | 2.06 | 2.06 | 2.05 | 2.06 | 2.07 | 2.07 | 2.06 | 2.19 | 2.33 | 2.68 | | | | |
| HOURLY AVG | 2.05 | 2.02 | 2.04 | 2.04 | 2.04 | 2.03 | 2.04 | 2.03 | 2.02 | 2.02 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.02 | 2.04 | 2.04 | | | | |

### 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 March 2017

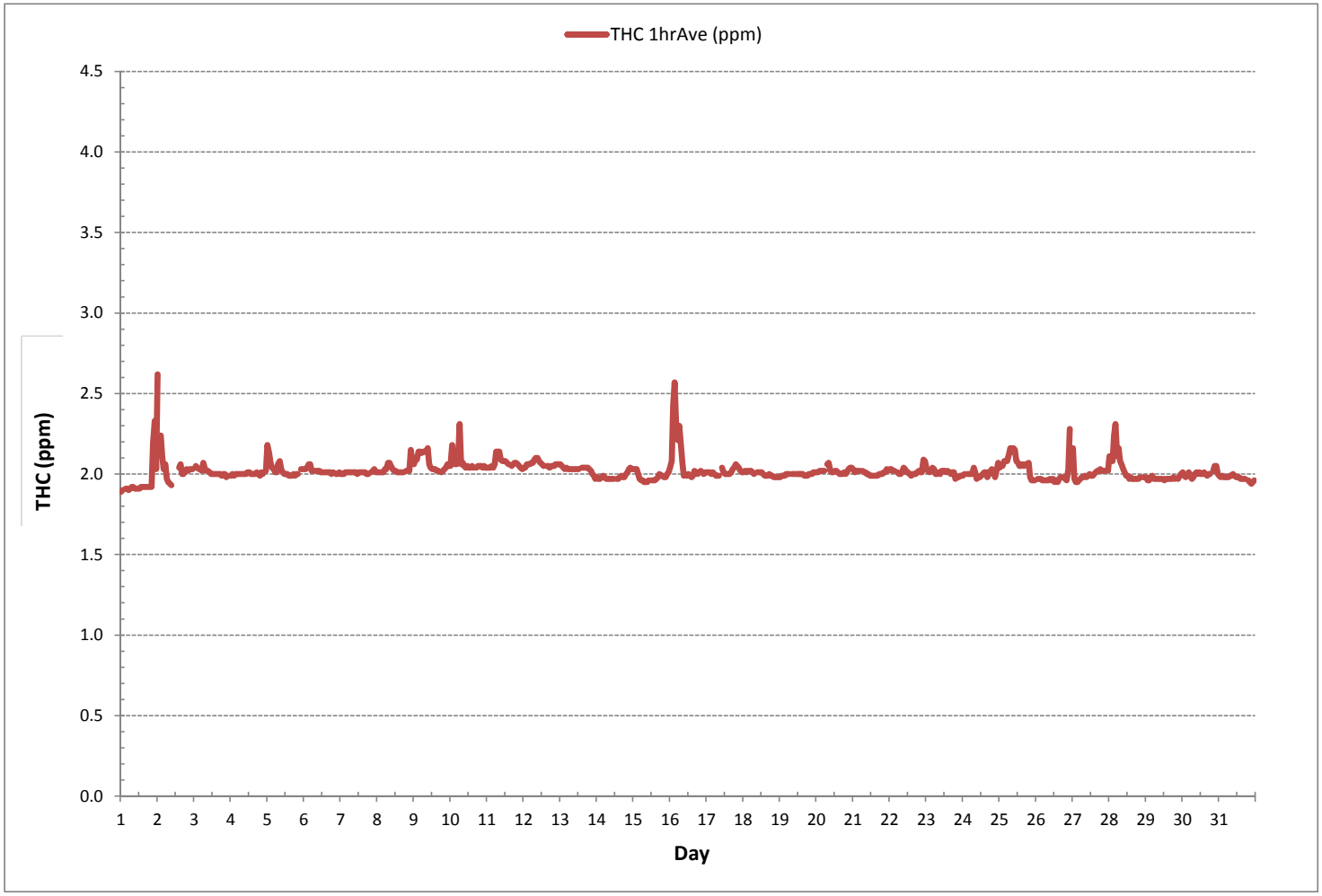



### MONTHLY SUMMARY

| | | | | | | |
|---|---|---|---|---|---|---|
| NUMBER OF NON-ZERO READINGS: | | 707 | | | | |
| MINIMUM 1-HR AVERAGE | 1.89 | ppm | @ HOUR(S) | 0 | ON DAY(S) | 1 |
| MAXIMUM 1-HR AVERAGE: | 2.68 | ppm | @ HOUR(S) | 23 | ON DAY(S) | 1 |
| MAXIMUM 24-HR AVERAGE: | 2.09 | ppm | | | ON DAY(S) | 16 |
| | | | | | VAR-VARIOUS | |

| | | | | | |
|---|---|---|---|---|---|
| IZS CALIBRATION TIME: | 33 | hrs | OPERATIONAL TIME: | 744 | hrs |
| MONTHLY CALIBRATION TIME: | 4 | hrs | AMD OPERATION UPTIME: | 100.0 | % |
| STANDARD DEVIATION: | 0.07 | | MONTHLY AVERAGE: | 2.02 | ppm |

**TOTAL HYDROCARBONS Hourly Averages (THC ppm)**



## 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 | 1.91 | 1.99 | S | 1.92 | 1.92 | 1.92 | 1.93 | 1.96 | 1.94 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.99 | 1.95 | 1.94 | 1.93 | 2.55 | 2.57 | **3.42** | 1.91 | **3.42** | 2.06 | 24 |
| 2 | 3.20 | S | 2.37 | 2.20 | 2.13 | 2.10 | 2.10 | 1.97 | 1.97 | 1.96 | C | C | C | C | 2.09 | 2.10 | 2.03 | 2.02 | 2.03 | 2.06 | 2.03 | 2.06 | 2.07 | 2.06 | 1.96 | 3.20 | 2.13 | 24 |
| 3 | S | 2.07 | 2.07 | 2.06 | 2.04 | 2.04 | 2.13 | 2.06 | 2.04 | 2.08 | 2.02 | 2.07 | 2.03 | 2.19 | 2.08 | 2.12 | 2.13 | 2.09 | 2.09 | 2.02 | 2.01 | 1.99 | 2.10 | S | 1.99 | 2.19 | 2.07 | 24 |
| 4 | 2.01 | 2.03 | 2.05 | 2.01 | 2.06 | 2.01 | 2.01 | 2.02 | 2.01 | 2.02 | 2.01 | 2.02 | 2.02 | 2.01 | 2.06 | 2.07 | 2.02 | 2.03 | 2.03 | 2.01 | 2.04 | 2.03 | S | 2.07 | 2.01 | 2.07 | 2.03 | 24 |
| 5 | 2.31 | 2.24 | 2.14 | 2.10 | 2.07 | 2.01 | 2.03 | 2.12 | 2.12 | 2.06 | 2.04 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | 2.02 | 2.02 | 2.02 | 2.00 | 2.01 | S | 2.06 | 2.12 | 2.00 | 2.31 | 2.07 | 24 |
| 6 | 2.05 | 2.05 | 2.07 | 2.15 | 2.12 | 2.04 | 2.03 | 2.05 | 2.05 | 2.05 | 2.06 | 2.03 | 2.03 | 2.03 | 2.02 | 2.02 | 2.02 | 2.02 | 2.04 | 2.02 | S | 2.07 | 2.02 | 2.02 | 2.02 | 2.15 | 2.05 | 24 |
| 7 | 2.04 | 2.02 | 2.03 | 2.02 | 2.02 | 2.02 | 2.03 | 2.03 | 2.03 | 2.03 | 2.04 | 2.02 | 2.03 | 2.02 | 2.03 | 2.03 | 2.03 | 2.04 | 2.02 | S | 2.05 | 2.09 | 2.10 | 2.06 | 2.02 | 2.10 | 2.04 | 24 |
| 8 | 2.03 | 2.02 | 2.06 | 2.08 | 2.04 | 2.05 | 2.06 | 2.11 | 2.12 | 2.08 | 2.06 | 2.04 | 2.06 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | S | 2.03 | 2.09 | 2.06 | 2.35 | 2.16 | 2.02 | 2.35 | 2.07 | 24 |
| 9 | 2.15 | 2.17 | 2.13 | 2.19 | 2.19 | 2.17 | 2.17 | 2.17 | 2.20 | 2.24 | 2.12 | 2.09 | 2.07 | 2.07 | 2.06 | 2.07 | 2.12 | S | 2.26 | 2.05 | 2.07 | 2.08 | 2.15 | 2.11 | 2.05 | 2.26 | 2.13 | 24 |
| 10 | 2.12 | 2.29 | 2.13 | 2.09 | 2.14 | 2.29 | 2.57 | 2.12 | 2.11 | 2.19 | 2.07 | 2.07 | 2.06 | 2.08 | 2.12 | 2.07 | S | 2.06 | 2.07 | 2.07 | 2.08 | 2.06 | 2.07 | 2.06 | 2.06 | 2.57 | 2.13 | 24 |
| 11 | 2.06 | 2.06 | 2.06 | 2.07 | 2.07 | 2.16 | 2.23 | 2.23 | 2.19 | 2.19 | 2.14 | 2.10 | 2.12 | 2.09 | 2.14 | S | 2.17 | 2.09 | 2.09 | 2.11 | 2.09 | 2.08 | 2.10 | 2.06 | 2.06 | 2.23 | 2.12 | 24 |
| 12 | 2.06 | 2.06 | 2.07 | 2.08 | 2.08 | 2.12 | 2.10 | 2.12 | 2.13 | 2.14 | 2.10 | 2.09 | 2.09 | 2.08 | S | 2.08 | 2.09 | 2.06 | 2.07 | 2.07 | 2.07 | 2.08 | 2.09 | 2.08 | 2.06 | 2.14 | 2.09 | 24 |
| 13 | 2.08 | 2.12 | 2.06 | 2.10 | 2.06 | 2.07 | 2.05 | 2.06 | 2.06 | 2.10 | 2.09 | 2.09 | 2.07 | S | 2.11 | 2.06 | 2.06 | 2.07 | 2.07 | 2.04 | 2.04 | 2.03 | 2.02 | 1.99 | 1.99 | 2.12 | 2.07 | 24 |
| 14 | 1.99 | 2.02 | 1.99 | 2.00 | 2.06 | 2.03 | 1.98 | 1.98 | 1.99 | 1.98 | 1.99 | 1.98 | S | 1.98 | 1.98 | 1.99 | 2.01 | 1.99 | 2.00 | 2.04 | 2.02 | 2.05 | 2.08 | 2.06 | 1.98 | 2.08 | 2.01 | 24 |
| 15 | 2.06 | 2.07 | 2.05 | 2.04 | 1.99 | 1.97 | 1.97 | 1.97 | 1.98 | 1.97 | 1.97 | S | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 2.03 | 2.00 | 2.00 | 2.01 | 2.00 | 2.04 | 2.06 | 1.97 | 2.07 | 2.00 | 24 |
| 16 | 2.10 | 2.16 | 2.80 | 2.88 | 2.56 | 2.39 | 2.43 | 2.23 | 2.24 | 2.02 | S | 2.01 | 2.02 | 2.01 | 1.99 | 2.02 | 2.03 | 2.02 | 2.02 | 2.03 | 2.06 | 2.02 | 2.03 | 2.02 | 1.99 | 2.88 | 2.18 | 24 |
| 17 | 2.03 | 2.02 | 2.02 | 2.01 | 2.02 | 2.01 | 2.00 | 2.02 | 2.01 | S | 2.08 | 2.03 | 2.02 | 2.02 | 2.01 | 2.03 | 2.03 | 2.06 | 2.07 | 2.11 | 2.07 | 2.06 | 2.15 | 2.02 | 2.00 | 2.15 | 2.04 | 24 |
| 18 | 2.11 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.02 | 2.02 | S | 2.10 | 2.03 | 2.03 | 2.03 | 2.02 | 2.00 | 2.01 | 2.01 | 2.01 | 2.03 | 2.02 | 2.01 | 1.99 | 2.01 | 2.02 | 1.99 | 2.11 | 2.03 | 24 |
| 19 | 2.00 | 2.02 | 2.07 | 2.07 | 2.01 | 2.02 | 2.01 | S | 2.02 | 2.02 | 2.02 | 2.02 | 2.16 | 2.01 | 2.01 | 2.01 | 2.02 | 2.01 | 2.02 | 2.02 | 2.01 | 2.05 | 2.02 | 2.02 | 2.00 | 2.16 | 2.03 | 24 |
| 20 | 2.03 | 2.02 | 2.04 | 2.04 | 2.14 | 2.04 | S | 2.11 | 2.12 | 2.06 | 2.06 | 2.02 | 2.03 | 2.03 | 2.09 | 2.01 | 2.02 | 2.07 | 2.07 | 2.03 | 2.03 | 2.10 | 2.06 | 2.06 | 2.01 | 2.14 | 2.06 | 24 |
| 21 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | S | 2.07 | 2.03 | 2.09 | 2.02 | 2.04 | 2.00 | 2.01 | 2.02 | 2.06 | 2.01 | 2.00 | 2.02 | 2.02 | 2.02 | 2.02 | 2.05 | 2.05 | 2.06 | 2.00 | 2.09 | 2.03 | 24 |
| 22 | 2.05 | 2.05 | 2.06 | 2.03 | S | 2.03 | 2.03 | 2.02 | 2.04 | 2.08 | 2.11 | 2.05 | 2.03 | 2.02 | 2.04 | 2.05 | 2.01 | 2.02 | 2.02 | 2.18 | 2.03 | 2.02 | 2.16 | 2.16 | 2.01 | 2.18 | 2.06 | 24 |
| 23 | 2.08 | 2.04 | 2.04 | S | 2.11 | 2.06 | 2.06 | 2.03 | 2.04 | 2.02 | 2.06 | 2.05 | 2.13 | 2.03 | 2.04 | 2.03 | 2.02 | 2.03 | 2.07 | 2.00 | 2.01 | 1.99 | 2.06 | 2.01 | 1.99 | 2.13 | 2.04 | 24 |
| 24 | 2.03 | 2.02 | S | 2.02 | 2.05 | 2.06 | 2.05 | 2.12 | 2.05 | 2.01 | 1.99 | 2.01 | 2.01 | 2.01 | 2.03 | 2.03 | 2.02 | 2.08 | 2.06 | 2.08 | 2.08 | 1.99 | 2.07 | 2.15 | 1.99 | 2.15 | 2.04 | 24 |
| 25 | 2.17 | S | 2.08 | 2.12 | 2.21 | 2.14 | 2.17 | 2.19 | 2.18 | 2.19 | 2.24 | 2.11 | 2.10 | 2.08 | 2.14 | 2.09 | 2.16 | 2.09 | 2.09 | 2.18 | 2.00 | 1.98 | 1.97 | 1.97 | 1.97 | 2.24 | 2.12 | 24 |
| 26 | S | 1.98 | 1.99 | 1.98 | 1.98 | 1.99 | 1.99 | 1.97 | 1.99 | 1.98 | 2.01 | 2.09 | 1.99 | 1.98 | 1.99 | 1.99 | 1.99 | 2.16 | 1.99 | 1.99 | 1.98 | 2.16 | 2.43 | S | 1.97 | 2.43 | 2.03 | 24 |
| 27 | 2.37 | 2.02 | 1.97 | 1.96 | 1.99 | 1.98 | 2.00 | 2.08 | 2.01 | 1.99 | 2.15 | 2.01 | 2.01 | 2.02 | 2.01 | 2.04 | 2.03 | 2.04 | 2.03 | 2.04 | 2.04 | 2.04 | S | 2.05 | 1.96 | 2.37 | 2.04 | 24 |
| 28 | 2.22 | 2.12 | 2.13 | 2.88 | 2.76 | 2.17 | 2.29 | 2.18 | 2.12 | 2.04 | 2.03 | 2.02 | 2.00 | 2.00 | 2.02 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 2.03 | S | 2.09 | 1.99 | 1.98 | 2.88 | 2.13 | 24 |
| 29 | 2.00 | 1.98 | 1.99 | 2.05 | 2.03 | 1.99 | 1.99 | 1.99 | 1.98 | 1.99 | 1.99 | 1.99 | 1.98 | 1.98 | 1.99 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | S | 1.99 | 2.02 | 2.02 | 1.98 | 2.05 | 2.00 | 24 |
| 30 | 2.11 | 2.01 | 2.00 | 2.02 | 2.10 | 2.03 | 1.99 | 2.01 | 2.03 | 2.03 | 2.01 | 2.02 | 2.02 | 2.09 | 2.19 | 2.01 | 2.00 | 2.01 | 2.01 | S | 2.08 | 2.11 | 2.11 | 2.02 | 1.99 | 2.19 | 2.04 | 24 |
| 31 | 2.01 | 2.00 | 2.01 | 2.01 | 2.00 | 2.01 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | S | 1.97 | 1.96 | 1.98 | 2.01 | 2.01 | 1.96 | 2.01 | 2.00 | 24 |
| HOURLY MAX | 3.20 | 2.29 | 2.80 | 2.88 | 2.76 | 2.39 | 2.57 | 2.23 | 2.24 | 2.24 | 2.24 | 2.11 | 2.16 | 2.19 | 2.19 | 2.12 | 2.17 | 2.16 | 2.26 | 2.18 | 2.09 | 2.55 | 2.57 | 3.42 | | | | |
| HOURLY AVG | 2.12 | 2.06 | 2.09 | 2.11 | 2.10 | 2.07 | 2.08 | 2.07 | 2.06 | 2.05 | 2.05 | 2.03 | 2.04 | 2.03 | 2.04 | 2.03 | 2.03 | 2.04 | 2.04 | 2.04 | 2.03 | 2.06 | 2.11 | 2.10 | | | | |

**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: 707

MAXIMUM INSTANTANEOUS VALUE: 3.42 ppm @ HOUR(S) 23 ON DAY(S) 1

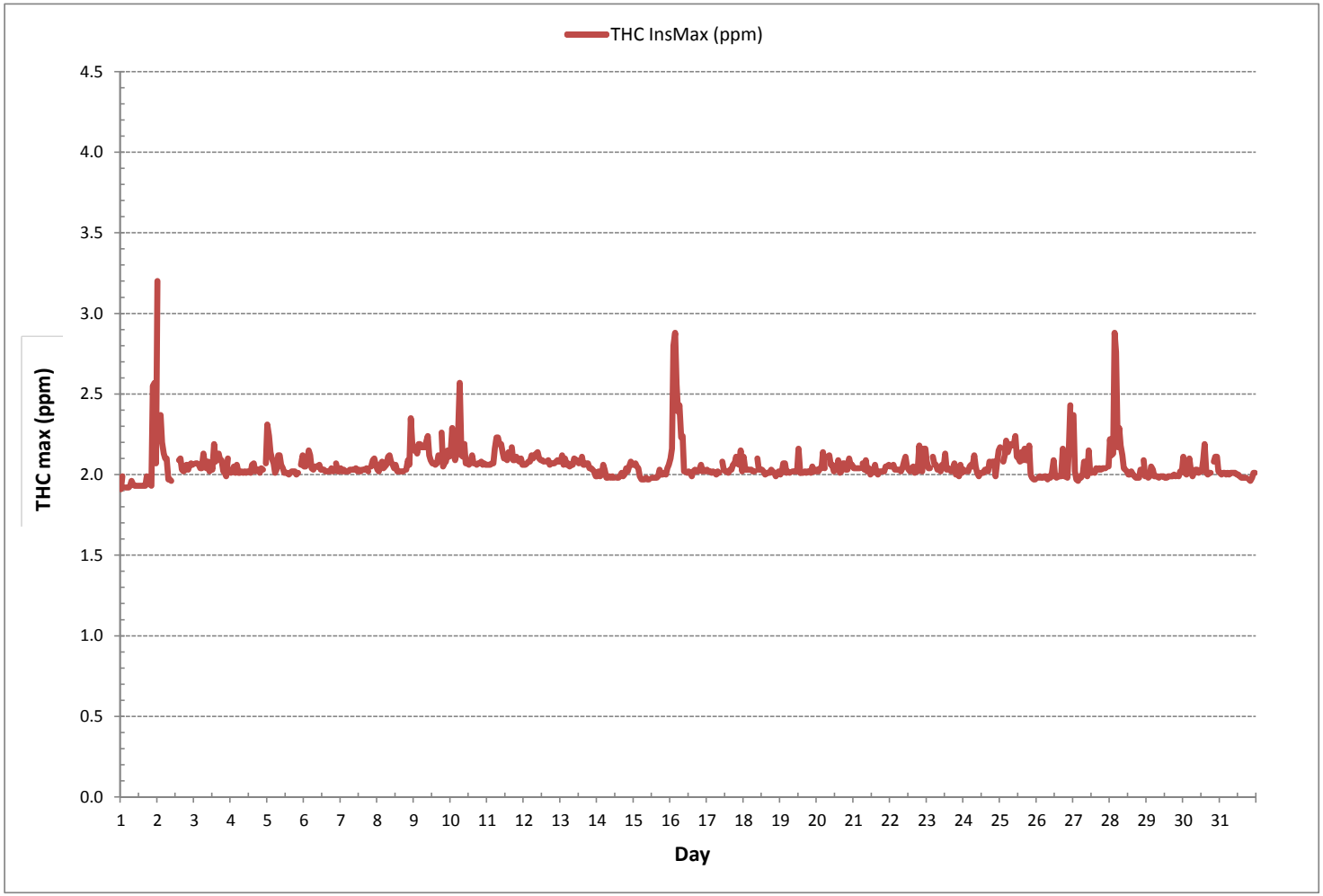
VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 744 hrs

MONTHLY CALIBRATION TIME: 4 hrs

STANDARD DEVIATION: 0.12

**TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)**



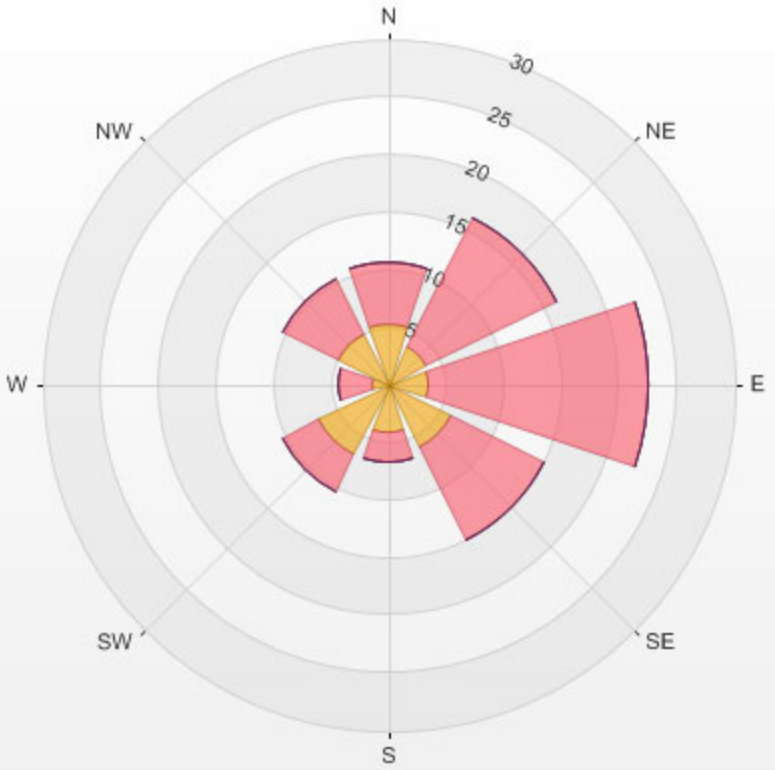
Wind: PRAMP_842
Poll.: PRAMP_842-THC55[ppm]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.54% Calm Avg: 2.02 [ppm]

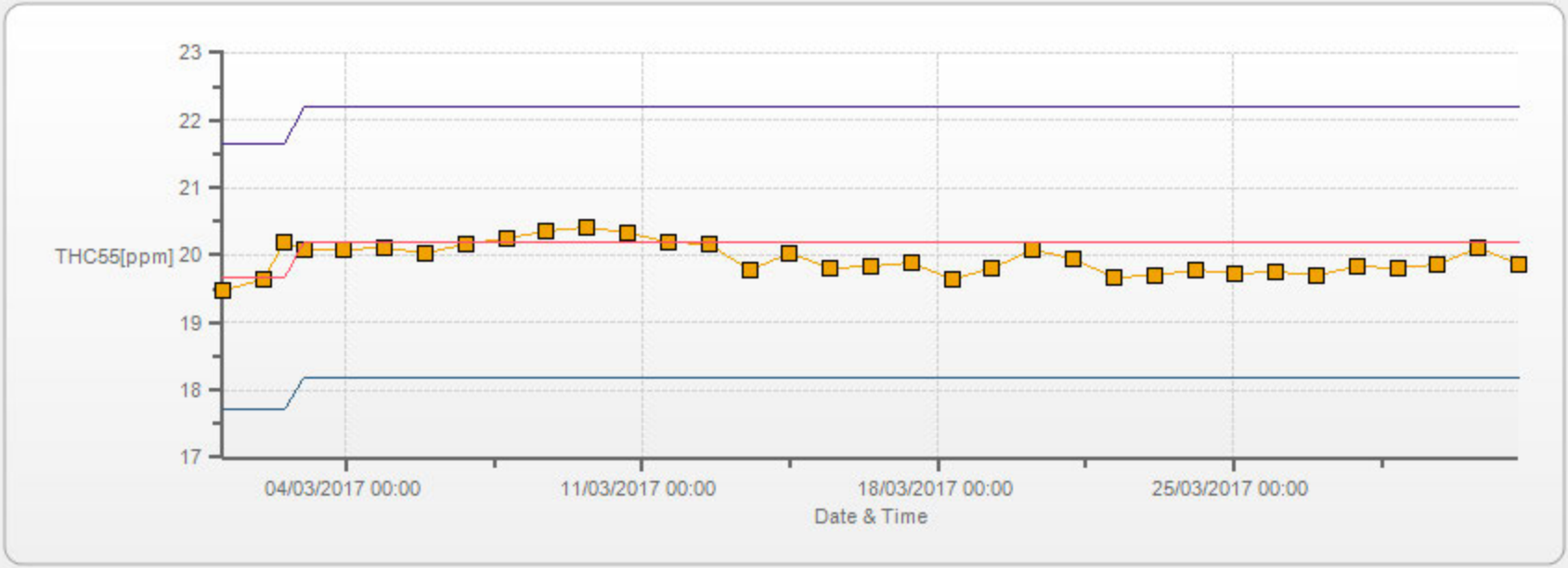
| Direction | 0-2 | 2-3 | 3-5 | 5-10 | >10.0 | Total |
|---|---|---|---|---|---|---|
| **N** | 5.2 | 5.4 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 3.7 | 12.6 | 0.0 | 0.0 | 0.0 | 16.3 |
| **E** | 3.5 | 19.1 | 0.0 | 0.0 | 0.0 | 22.6 |
| **SE** | 6.1 | 9.1 | 0.0 | 0.0 | 0.0 | 15.1 |
| **S** | 4.2 | 2.6 | 0.0 | 0.0 | 0.0 | 6.8 |
| **SW** | 6.8 | 3.5 | 0.0 | 0.0 | 0.0 | 10.3 |
| **W** | 1.4 | 3.0 | 0.0 | 0.0 | 0.0 | 4.4 |
| **NW** | 5.0 | 5.4 | 0.0 | 0.0 | 0.0 | 10.3 |
| **Summary** | 35.9 | 60.5 | 0.0 | 0.0 | 0.0 | 96.5 |

| % Icon Classes (ppm) | 36 0-2 | 61 2-3 | 0 3-5 | 0 5-10 | 0 >10.0 |
|---|---|---|---|---|---|

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.54% Calm Poll Avg: 2.02[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 17/03 Type: Span



***METHANE***

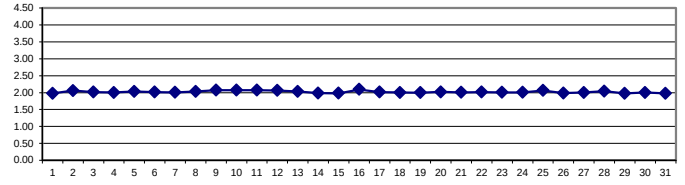
## METHANE Hourly Averages ($CH_4$ ppm)

| HR START (MST) / HR END (MST) | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | **1.89** | 1.90 | **S** | 1.91 | 1.91 | 1.90 | 1.91 | 1.92 | 1.92 | 1.91 | 1.91 | 1.91 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.91 | 1.92 | 1.92 | 1.92 | 2.18 | 2.32 | **2.68** | **1.89** | **2.68** | 1.97 | 24 |
| 2 | 2.61 | **S** | 2.24 | 2.11 | 2.03 | 2.06 | 1.97 | 1.95 | 1.94 | 1.93 | **C** | **C** | **C** | **C** | 2.04 | 2.06 | 2.00 | 2.00 | 2.02 | 2.03 | 2.02 | 2.03 | 2.03 | 2.03 | 1.93 | 2.61 | 2.06 | 24 |
| 3 | **S** | 2.05 | 2.04 | 2.03 | 2.03 | 2.02 | 2.07 | 2.03 | 2.02 | 2.02 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 2.00 | 2.00 | 1.98 | 1.99 | **S** | 1.98 | 2.07 | 2.01 | 24 |
| 4 | 1.99 | 2.00 | 1.99 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.00 | 1.99 | 2.01 | 2.00 | **S** | 2.02 | 1.99 | 2.02 | 2.00 | 24 |
| 5 | 2.18 | 2.13 | 2.07 | 2.04 | 2.03 | 2.01 | 2.01 | 2.06 | 2.08 | 2.03 | 2.01 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | 2.00 | 2.00 | **S** | 2.03 | 2.03 | 1.99 | 2.18 | 2.03 | 24 |
| 6 | 2.03 | 2.03 | 2.04 | 2.06 | 2.06 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | **S** | 2.00 | 2.00 | 2.01 | 2.00 | 2.06 | 2.02 | 24 |
| 7 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | **S** | 2.01 | 2.02 | 2.03 | 2.01 | 2.00 | 2.03 | 2.01 | 24 |
| 8 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.03 | 2.03 | 2.07 | 2.07 | 2.05 | 2.03 | 2.02 | 2.02 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | **S** | 2.02 | 2.02 | 2.02 | 2.15 | 2.07 | 2.01 | 2.15 | 2.03 | 24 |
| 9 | 2.06 | 2.10 | 2.09 | 2.14 | 2.14 | 2.13 | 2.14 | 2.14 | 2.14 | 2.16 | 2.06 | 2.04 | 2.03 | 2.03 | 2.03 | 2.02 | 2.02 | **S** | 2.01 | 2.02 | 2.03 | 2.04 | 2.06 | 2.05 | 2.01 | 2.16 | 2.07 | 24 |
| 10 | 2.05 | 2.18 | 2.08 | 2.06 | 2.06 | 2.12 | 2.31 | 2.06 | 2.07 | 2.05 | 2.04 | 2.05 | 2.04 | 2.04 | 2.05 | 2.04 | **S** | 2.04 | 2.05 | 2.05 | 2.05 | 2.04 | 2.05 | 2.04 | 2.04 | 2.31 | 2.07 | 24 |
| 11 | 2.04 | 2.04 | 2.04 | 2.05 | 2.04 | 2.06 | 2.14 | 2.14 | 2.14 | 2.09 | 2.08 | 2.08 | 2.08 | 2.07 | 2.06 | **S** | 2.05 | 2.06 | 2.07 | 2.07 | 2.06 | 2.05 | 2.04 | 2.03 | 2.03 | 2.14 | 2.07 | 24 |
| 12 | 2.04 | 2.04 | 2.06 | 2.06 | 2.06 | 2.07 | 2.07 | 2.09 | 2.10 | 2.10 | 2.08 | 2.07 | 2.06 | 2.05 | **S** | 2.05 | 2.05 | 2.04 | 2.05 | 2.05 | 2.05 | 2.06 | 2.06 | 2.06 | 2.04 | 2.10 | 2.06 | 24 |
| 13 | 2.06 | 2.05 | 2.04 | 2.03 | 2.04 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | **S** | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.03 | 2.02 | 2.00 | 1.99 | 1.97 | 1.97 | 2.06 | 2.03 | 24 |
| 14 | 1.98 | 1.97 | 1.97 | 1.98 | 1.99 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | **S** | 1.97 | 1.97 | 1.98 | 1.99 | 1.98 | 1.98 | 2.00 | 2.01 | 2.03 | 2.04 | 2.03 | 1.97 | 2.04 | 1.99 | 24 |
| 15 | 2.03 | 2.03 | 2.03 | 2.00 | 1.97 | 1.96 | 1.96 | 1.95 | 1.95 | 1.95 | 1.96 | **S** | 1.96 | 1.96 | 1.96 | 1.97 | 1.98 | 2.00 | 1.99 | 1.99 | 1.98 | 1.98 | 2.00 | 2.01 | 1.95 | 2.03 | 1.98 | 24 |
| 16 | 2.04 | 2.08 | 2.43 | 2.57 | 2.26 | 2.21 | 2.29 | 2.18 | 2.07 | 1.99 | **S** | 1.99 | 2.00 | 1.99 | 1.98 | 1.99 | 2.02 | 2.01 | 2.00 | 2.01 | 2.02 | 2.01 | 2.00 | 2.01 | 1.98 | 2.57 | **2.09** | 24 |
| 17 | 2.01 | 2.01 | 2.01 | 2.00 | 2.01 | 2.00 | 1.99 | 1.99 | 1.99 | **S** | 2.04 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.03 | 2.04 | 2.06 | 2.05 | 2.04 | 2.01 | 2.01 | 1.99 | 2.06 | 2.01 | 24 |
| 18 | 2.01 | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.01 | 2.00 | **S** | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.98 | 2.02 | 2.00 | 24 |
| 19 | 1.98 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | **S** | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 1.98 | 2.01 | 2.00 | 24 |
| 20 | 2.01 | 2.01 | 2.02 | 2.02 | 2.02 | 2.02 | **S** | 2.06 | 2.07 | 2.02 | 2.01 | 2.01 | 2.02 | 2.02 | 2.01 | 2.00 | 2.00 | 2.00 | 2.01 | 2.00 | 2.01 | 2.03 | 2.04 | 2.04 | 2.00 | 2.07 | 2.02 | 24 |
| 21 | 2.03 | 2.01 | 2.02 | 2.02 | 2.02 | **S** | 2.02 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.03 | 2.02 | 1.99 | 2.03 | 2.01 | 24 |
| 22 | 2.03 | 2.03 | 2.02 | 2.02 | **S** | 2.01 | 2.00 | 2.00 | 2.01 | 2.04 | 2.03 | 2.01 | 2.01 | 2.00 | 1.99 | 2.00 | 2.00 | 2.00 | 2.01 | 2.02 | 2.01 | 2.01 | 2.09 | 2.08 | 1.99 | 2.09 | 2.02 | 24 |
| 23 | 2.04 | 2.02 | 2.01 | **S** | 2.04 | 2.03 | 2.00 | 2.00 | 2.01 | 2.00 | 2.02 | 2.02 | 2.02 | 2.01 | 2.02 | 2.01 | 2.00 | 2.01 | 2.01 | 1.97 | 1.98 | 1.98 | 1.99 | 1.99 | 1.97 | 2.04 | 2.01 | 24 |
| 24 | 1.99 | 2.00 | **S** | 2.00 | 2.00 | 2.00 | 2.00 | 2.04 | 2.01 | 1.97 | 1.98 | 1.98 | 1.99 | 2.00 | 2.01 | 2.01 | 1.98 | 2.00 | 2.02 | 2.03 | 2.01 | 1.98 | 2.02 | 2.07 | 1.97 | 2.07 | 2.00 | 24 |
| 25 | 2.04 | **S** | 2.05 | 2.08 | 2.08 | 2.08 | 2.12 | 2.16 | 2.14 | 2.16 | 2.15 | 2.08 | 2.07 | 2.05 | 2.05 | 2.06 | 2.05 | 2.06 | 2.06 | 2.07 | 1.98 | 1.96 | 1.96 | 1.96 | 1.96 | 2.16 | 2.06 | 24 |
| 26 | **S** | 1.97 | 1.97 | 1.97 | 1.96 | 1.96 | 1.96 | 1.96 | 1.96 | 1.97 | 1.96 | 1.96 | 1.95 | 1.96 | 1.95 | 1.97 | 1.98 | 1.98 | 1.98 | 1.97 | 1.96 | 2.03 | 2.28 | **S** | 1.95 | 2.28 | 1.98 | 24 |
| 27 | 2.16 | 1.97 | 1.95 | 1.95 | 1.96 | 1.97 | 1.98 | 1.98 | 1.99 | 1.98 | 1.99 | 2.00 | 1.99 | 1.99 | 2.00 | 2.01 | 2.02 | 2.02 | 2.03 | 2.02 | 2.02 | 2.02 | **S** | 2.02 | 1.95 | 2.16 | 2.00 | 24 |
| 28 | 2.11 | 2.08 | 2.08 | 2.23 | 2.31 | 2.11 | 2.16 | 2.08 | 2.06 | 2.03 | 2.01 | 1.99 | 1.99 | 1.97 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.98 | **S** | 1.98 | 1.98 | 1.97 | 2.31 | 2.04 | 24 |
| 29 | 1.98 | 1.96 | 1.96 | 1.98 | 1.99 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.96 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | 1.98 | 1.97 | **S** | 1.97 | 1.99 | 2.00 | 1.96 | 2.00 | 1.97 | 24 |
| 30 | 2.01 | 1.99 | 1.98 | 1.99 | 2.01 | 1.99 | 1.97 | 1.98 | 2.00 | 2.01 | 2.00 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 1.99 | 2.00 | 2.00 | **S** | 2.02 | 2.05 | 2.05 | 2.00 | 1.97 | 2.05 | 2.00 | 24 |
| 31 | 1.99 | 1.98 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 1.99 | 2.00 | 1.99 | 1.98 | 1.98 | 1.98 | 1.97 | 1.97 | 1.97 | 1.97 | **S** | 1.96 | 1.95 | 1.94 | 1.95 | 1.96 | 1.94 | 2.00 | 1.98 | 24 |
| HOURLY MAX | 2.61 | 2.18 | 2.43 | 2.57 | 2.31 | 2.21 | 2.31 | 2.18 | 2.14 | 2.16 | 2.15 | 2.08 | 2.08 | 2.07 | 2.06 | 2.06 | 2.05 | 2.06 | 2.07 | 2.07 | 2.06 | 2.18 | 2.32 | 2.68 | | | | |
| HOURLY AVG | 2.05 | 2.02 | 2.04 | 2.04 | 2.03 | 2.03 | 2.04 | 2.03 | 2.02 | 2.02 | 2.01 | 2.01 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.01 | 2.01 | 2.01 | 2.02 | 2.04 | 2.04 | | | | |

**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 |

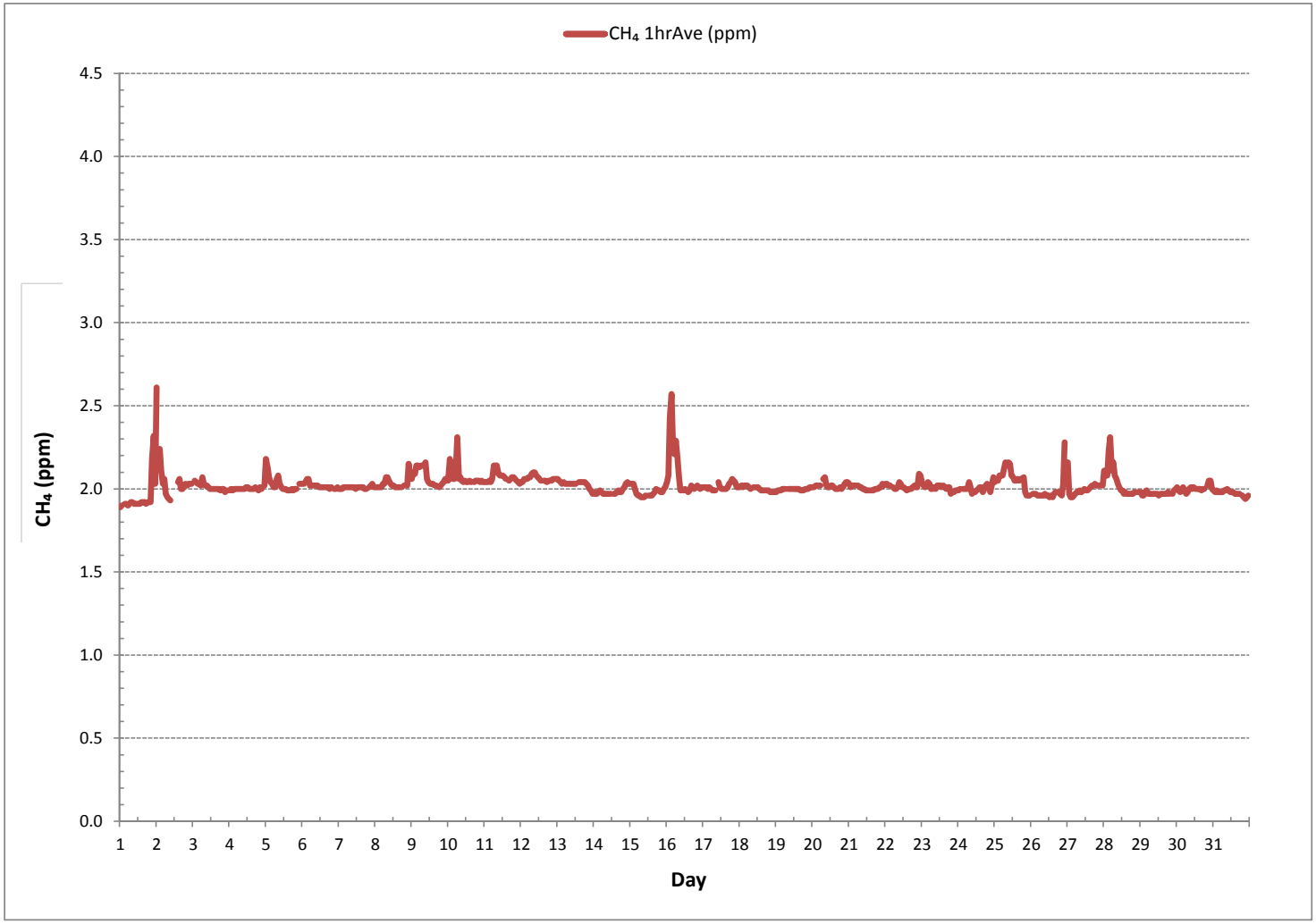
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NUMBER OF NON-ZERO READINGS: | | | 707 | | | | |
| MINIMUM 1-HR AVERAGE | | 1.89 | ppm | @ HOUR(S) | 0 | ON DAY(S) | 1 |
| MAXIMUM 1-HR AVERAGE: | | 2.68 | ppm | @ HOUR(S) | 23 | ON DAY(S) | 1 |
| MAXIMUM 24-HR AVERAGE: | | 2.09 | ppm | | | ON DAY(S) | 16 |
| | | | | | | VAR-VARIOUS | |
| IZS CALIBRATION TIME: | 33 | hrs | | OPERATIONAL TIME: | | 744 | hrs |
| MONTHLY CALIBRATION TIME: | 4 | hrs | | AMD OPERATION UPTIME: | | 100.0 | % |
| STANDARD DEVIATION: | 0.07 | | | MONTHLY AVERAGE: | | 2.02 | ppm |

**METHANE Hourly Averages ($CH_4$ ppm)**



## METHANE MAX Instantaneous Maximum ($CH_4$ 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 | 1.91 | 1.91 | S | 1.92 | 1.93 | 1.92 | 1.93 | 1.93 | 1.93 | 1.95 | 1.92 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.95 | 1.93 | 1.93 | 2.54 | 2.56 | **3.41** | 1.91 | **3.41** | 2.05 | 24 |
| 2 | 3.21 | S | 2.37 | 2.20 | 2.12 | 2.10 | 2.04 | 1.96 | 1.95 | 1.95 | C | C | C | C | 2.09 | 2.09 | 2.03 | 2.03 | 2.03 | 2.05 | 2.03 | 2.05 | 2.06 | 2.05 | 1.95 | 3.21 | 2.13 | 24 |
| 3 | S | 2.07 | 2.05 | 2.05 | 2.05 | 2.04 | 2.13 | 2.06 | 2.04 | 2.07 | 2.02 | 2.06 | 2.03 | 2.19 | 2.03 | 2.11 | 2.01 | 2.03 | 2.09 | 2.03 | 2.01 | 2.00 | 2.01 | S | 2.00 | 2.19 | 2.05 | 24 |
| 4 | 2.01 | 2.02 | 2.03 | 2.01 | 2.05 | 2.01 | 2.01 | 2.01 | 2.02 | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.06 | 2.02 | 2.02 | 2.03 | 2.03 | 2.01 | 2.04 | 2.03 | S | 2.06 | 2.01 | 2.06 | 2.02 | 24 |
| 5 | 2.31 | 2.24 | 2.13 | 2.09 | 2.07 | 2.01 | 2.03 | 2.12 | 2.12 | 2.05 | 2.03 | 2.01 | 2.02 | 2.01 | 2.00 | 2.01 | 2.01 | 2.03 | 2.02 | 2.01 | 2.01 | S | 2.05 | 2.04 | 2.00 | 2.31 | 2.06 | 24 |
| 6 | 2.05 | 2.04 | 2.06 | 2.14 | 2.12 | 2.04 | 2.03 | 2.04 | 2.04 | 2.04 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 | S | 2.02 | 2.02 | 2.03 | 2.02 | 2.14 | 2.04 | 24 |
| 7 | 2.05 | 2.01 | 2.04 | 2.02 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.04 | 2.03 | 2.03 | 2.03 | 2.04 | 2.03 | 2.03 | 2.03 | 2.03 | S | 2.03 | 2.09 | 2.09 | 2.03 | 2.01 | 2.09 | 2.04 | 24 |
| 8 | 2.03 | 2.03 | 2.05 | 2.07 | 2.04 | 2.04 | 2.05 | 2.10 | 2.11 | 2.07 | 2.05 | 2.04 | 2.03 | 2.02 | 2.02 | 2.03 | 2.02 | 2.03 | S | 2.03 | 2.03 | 2.05 | 2.35 | 2.16 | 2.02 | 2.35 | 2.06 | 24 |
| 9 | 2.14 | 2.17 | 2.13 | 2.18 | 2.18 | 2.16 | 2.17 | 2.17 | 2.20 | 2.24 | 2.11 | 2.08 | 2.06 | 2.06 | 2.05 | 2.06 | 2.12 | S | 2.12 | 2.05 | 2.06 | 2.07 | 2.09 | 2.11 | 2.05 | 2.24 | 2.12 | 24 |
| 10 | 2.10 | 2.28 | 2.12 | 2.09 | 2.14 | 2.28 | 2.56 | 2.11 | 2.11 | 2.08 | 2.06 | 2.06 | 2.05 | 2.06 | 2.07 | 2.06 | S | 2.06 | 2.07 | 2.07 | 2.07 | 2.06 | 2.07 | 2.06 | 2.05 | 2.56 | 2.12 | 24 |
| 11 | 2.06 | 2.05 | 2.05 | 2.06 | 2.06 | 2.16 | 2.23 | 2.23 | 2.19 | 2.19 | 2.10 | 2.09 | 2.11 | 2.09 | 2.14 | S | 2.17 | 2.08 | 2.08 | 2.10 | 2.08 | 2.07 | 2.05 | 2.05 | 2.05 | 2.23 | 2.11 | 24 |
| 12 | 2.05 | 2.06 | 2.07 | 2.07 | 2.08 | 2.11 | 2.09 | 2.11 | 2.12 | 2.11 | 2.09 | 2.09 | 2.08 | 2.08 | S | 2.07 | 2.07 | 2.05 | 2.07 | 2.06 | 2.06 | 2.08 | 2.08 | 2.08 | 2.05 | 2.12 | 2.08 | 24 |
| 13 | 2.07 | 2.07 | 2.06 | 2.05 | 2.05 | 2.06 | 2.04 | 2.05 | 2.05 | 2.06 | 2.08 | 2.08 | 2.06 | S | 2.10 | 2.05 | 2.05 | 2.06 | 2.06 | 2.05 | 2.04 | 2.03 | 2.02 | 1.99 | 1.99 | 2.10 | 2.05 | 24 |
| 14 | 1.99 | 1.99 | 1.99 | 1.99 | 2.06 | 2.03 | 1.98 | 1.98 | 1.99 | 1.99 | 1.99 | 1.99 | S | 1.98 | 1.98 | 2.00 | 2.01 | 2.00 | 2.00 | 2.01 | 2.02 | 2.04 | 2.07 | 2.05 | 1.98 | 2.07 | 2.01 | 24 |
| 15 | 2.05 | 2.06 | 2.05 | 2.04 | 1.99 | 1.97 | 1.97 | 1.97 | 1.98 | 1.97 | 1.97 | S | 1.97 | 1.97 | 1.98 | 1.98 | 1.99 | 2.03 | 2.00 | 2.00 | 1.99 | 2.00 | 2.04 | 2.05 | 1.97 | 2.06 | 2.00 | 24 |
| 16 | 2.09 | 2.15 | 2.80 | 2.88 | 2.43 | 2.39 | 2.43 | 2.22 | 2.25 | 2.02 | S | 2.01 | 2.02 | 2.01 | 1.99 | 2.03 | 2.03 | 2.02 | 2.01 | 2.03 | 2.05 | 2.02 | 2.03 | 2.02 | 1.99 | 2.88 | 2.17 | 24 |
| 17 | 2.04 | 2.03 | 2.02 | 2.02 | 2.03 | 2.02 | 2.00 | 2.02 | 2.01 | S | 2.07 | 2.04 | 2.02 | 2.02 | 2.01 | 2.03 | 2.03 | 2.05 | 2.07 | 2.09 | 2.07 | 2.06 | 2.03 | 2.02 | 2.00 | 2.09 | 2.03 | 24 |
| 18 | 2.03 | 2.03 | 2.03 | 2.04 | 2.04 | 2.03 | 2.03 | 2.02 | S | 2.03 | 2.03 | 2.03 | 2.03 | 2.02 | 2.01 | 2.01 | 2.02 | 2.01 | 2.04 | 2.00 | 2.01 | 2.00 | 2.01 | 2.02 | 2.00 | 2.04 | 2.02 | 24 |
| 19 | 2.00 | 2.02 | 2.01 | 2.02 | 2.01 | 2.02 | 2.02 | S | 2.02 | 2.03 | 2.02 | 2.02 | 2.16 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.02 | 2.02 | 2.02 | 2.04 | 2.02 | 2.02 | 2.00 | 2.16 | 2.03 | 24 |
| 20 | 2.03 | 2.03 | 2.03 | 2.03 | 2.04 | 2.04 | S | 2.10 | 2.11 | 2.05 | 2.05 | 2.03 | 2.03 | 2.03 | 2.08 | 2.02 | 2.02 | 2.03 | 2.06 | 2.03 | 2.03 | 2.09 | 2.06 | 2.06 | 2.02 | 2.11 | 2.05 | 24 |
| 21 | 2.05 | 2.03 | 2.04 | 2.04 | 2.03 | S | 2.04 | 2.03 | 2.02 | 2.02 | 2.03 | 2.00 | 2.02 | 2.03 | 2.05 | 2.02 | 2.00 | 2.02 | 2.01 | 2.03 | 2.02 | 2.04 | 2.05 | 2.05 | 2.00 | 2.05 | 2.03 | 24 |
| 22 | 2.04 | 2.05 | 2.05 | 2.03 | S | 2.03 | 2.03 | 2.02 | 2.04 | 2.07 | 2.04 | 2.03 | 2.03 | 2.02 | 2.04 | 2.04 | 2.02 | 2.02 | 2.02 | 2.17 | 2.03 | 2.03 | 2.16 | 2.16 | 2.02 | 2.17 | 2.05 | 24 |
| 23 | 2.08 | 2.04 | 2.04 | S | 2.07 | 2.05 | 2.05 | 2.03 | 2.04 | 2.02 | 2.06 | 2.05 | 2.03 | 2.03 | 2.04 | 2.03 | 2.02 | 2.03 | 2.07 | 1.99 | 2.01 | 1.99 | 2.02 | 2.02 | 1.99 | 2.08 | 2.04 | 24 |
| 24 | 2.04 | 2.02 | S | 2.02 | 2.04 | 2.06 | 2.04 | 2.11 | 2.04 | 2.02 | 1.99 | 2.01 | 2.02 | 2.01 | 2.04 | 2.04 | 2.02 | 2.03 | 2.05 | 2.07 | 2.08 | 1.99 | 2.06 | 2.15 | 1.99 | 2.15 | 2.04 | 24 |
| 25 | 2.17 | S | 2.07 | 2.11 | 2.10 | 2.13 | 2.17 | 2.19 | 2.17 | 2.19 | 2.24 | 2.10 | 2.09 | 2.07 | 2.07 | 2.09 | 2.07 | 2.08 | 2.08 | 2.18 | 2.01 | 1.98 | 1.97 | 1.97 | 1.97 | 2.24 | 2.10 | 24 |
| 26 | S | 1.98 | 1.98 | 1.98 | 1.98 | 1.99 | 1.99 | 1.97 | 1.99 | 1.98 | 2.02 | 1.98 | 1.99 | 1.97 | 1.98 | 1.99 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98 | 2.16 | 2.43 | S | 1.97 | 2.43 | 2.01 | 24 |
| 27 | 2.36 | 2.02 | 1.97 | 1.96 | 1.99 | 1.98 | 2.00 | 2.00 | 2.01 | 1.99 | 2.01 | 2.01 | 2.02 | 2.02 | 2.01 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | S | 2.05 | 1.96 | 2.36 | 2.03 | 24 |
| 28 | 2.22 | 2.12 | 2.13 | 2.75 | 2.76 | 2.17 | 2.28 | 2.17 | 2.11 | 2.05 | 2.03 | 2.02 | 2.01 | 2.00 | 2.02 | 1.99 | 1.98 | 1.98 | 1.98 | 1.98 | 2.03 | S | 2.08 | 1.99 | 1.98 | 2.76 | 2.12 | 24 |
| 29 | 2.00 | 1.98 | 1.99 | 2.04 | 2.03 | 1.99 | 1.99 | 1.99 | 1.98 | 1.99 | 1.99 | 1.99 | 1.99 | 1.98 | 1.99 | 1.99 | 1.99 | 1.99 | 2.00 | 1.99 | S | 1.99 | 2.02 | 2.02 | 1.98 | 2.04 | 2.00 | 24 |
| 30 | 2.04 | 2.01 | 2.00 | 2.02 | 2.09 | 2.04 | 1.99 | 2.01 | 2.03 | 2.03 | 2.02 | 2.02 | 2.02 | 2.02 | 2.01 | 2.01 | 2.00 | 2.01 | 2.01 | S | 2.08 | 2.10 | 2.11 | 2.03 | 1.99 | 2.11 | 2.03 | 24 |
| 31 | 2.01 | 2.00 | 2.01 | 2.01 | 2.00 | 2.01 | 2.00 | 2.01 | 2.01 | 2.01 | 2.01 | 2.00 | 2.00 | 1.99 | 1.99 | 1.98 | 1.98 | 1.98 | S | 1.97 | 1.96 | 1.97 | 2.01 | 2.01 | 1.96 | 2.01 | 2.00 | 24 |
| HOURLY MAX | 3.21 | 2.28 | 2.80 | 2.88 | 2.76 | 2.39 | 2.56 | 2.23 | 2.25 | 2.24 | 2.24 | 2.10 | 2.16 | 2.19 | 2.14 | 2.11 | 2.17 | 2.08 | 2.12 | 2.18 | 2.08 | 2.54 | 2.56 | 3.41 | | | | |
| HOURLY AVG | 2.11 | 2.05 | 2.08 | 2.10 | 2.09 | 2.06 | 2.08 | 2.06 | 2.06 | 2.04 | 2.04 | 2.03 | 2.03 | 2.02 | 2.03 | 2.03 | 2.02 | 2.02 | 2.03 | 2.03 | 2.03 | 2.06 | 2.09 | 2.10 | | | | |

**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: 707

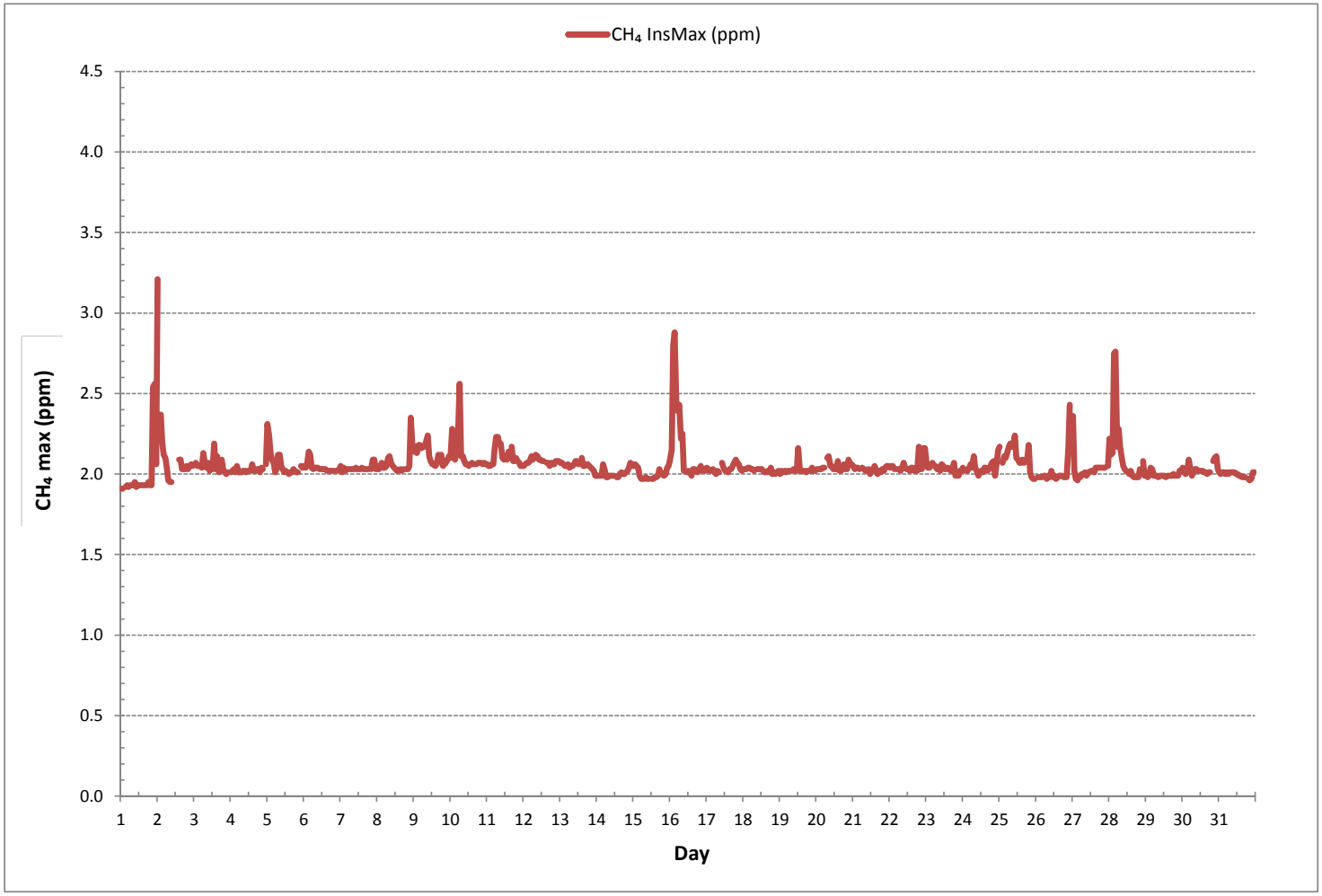
MAXIMUM INSTANTANEOUS VALUE: 3.41 ppm @ HOUR(S) 23 ON DAY(S) 1

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.11

OPERATIONAL TIME: 744 hrs

**METHANE MAX Instantaneous Maximum ($CH_4$ ppm)**



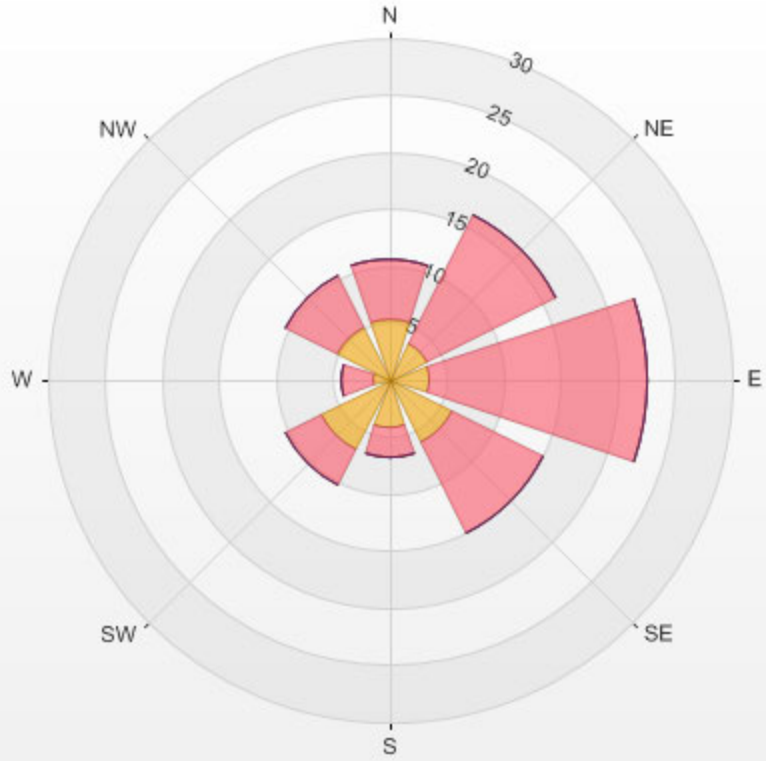
Wind: PRAMP_842
Poll.: PRAMP_842-CH4[ppm]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.54% Calm Avg: 2.02 [ppm]

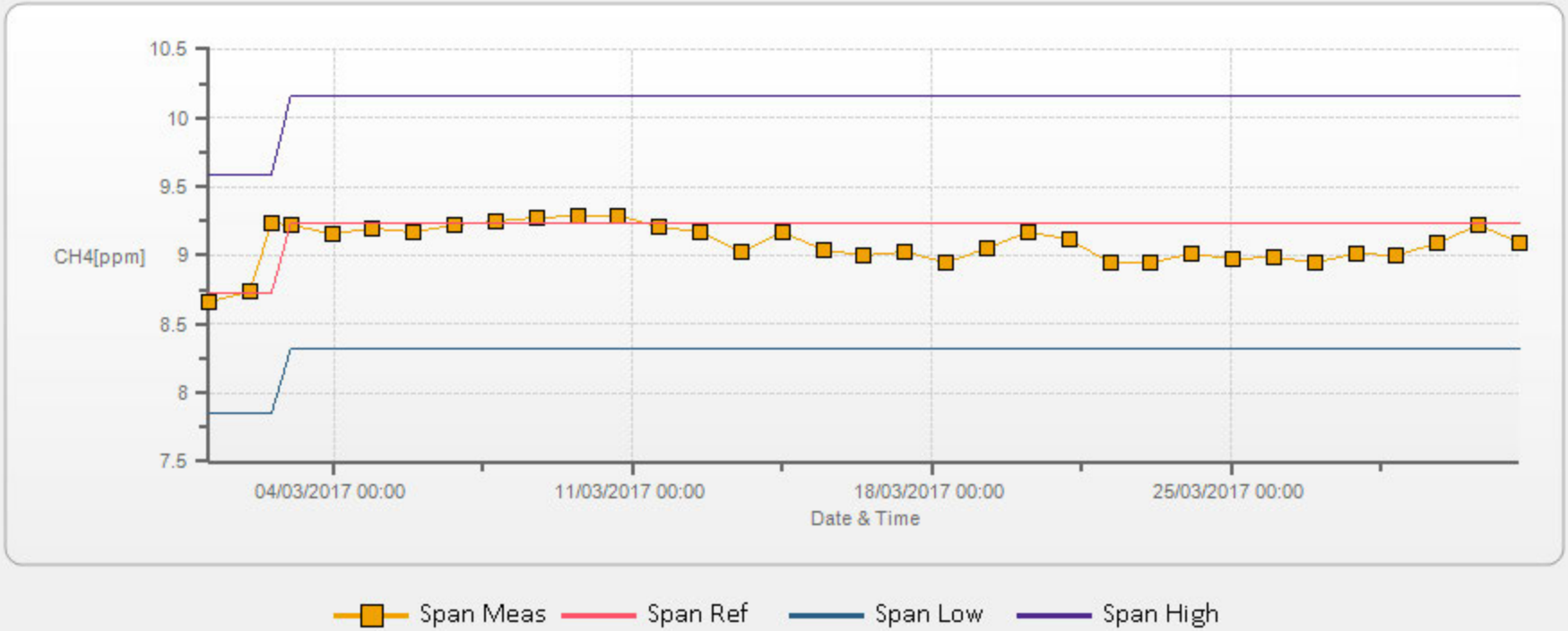
| Direction | 0-2 | 2-3 | 3-5 | 5-10 | >10.0 | Total |
|---|---|---|---|---|---|---|
| **N** | 5.4 | 5.2 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 3.7 | 12.6 | 0.0 | 0.0 | 0.0 | 16.3 |
| **E** | 3.5 | 19.1 | 0.0 | 0.0 | 0.0 | 22.6 |
| **SE** | 6.1 | 9.1 | 0.0 | 0.0 | 0.0 | 15.1 |
| **S** | 4.2 | 2.6 | 0.0 | 0.0 | 0.0 | 6.8 |
| **SW** | 6.8 | 3.5 | 0.0 | 0.0 | 0.0 | 10.3 |
| **W** | 1.4 | 3.0 | 0.0 | 0.0 | 0.0 | 4.4 |
| **NW** | 5.2 | 5.1 | 0.0 | 0.0 | 0.0 | 10.3 |
| **Summary** | 36.3 | 60.1 | 0.0 | 0.0 | 0.0 | 96.5 |

| % Icon Classes (ppm) | 36 0-2 | 60 2-3 | 0 3-5 | 0 5-10 | 0 >10.0 |
|---|---|---|---|---|---|

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.54% Calm Poll Avg: 2.02[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 17/03 Type: Span



# *NON-METHANE HYDROCARBON*

Maxxam
A Bureau Veritas Group Company

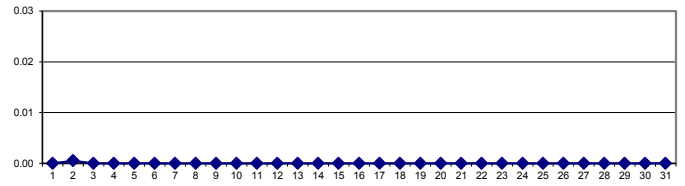
## NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

| HR START (MST) / HR END (MST) | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 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 |
| 2 | **0.01** | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | C | C | C | C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | **0.01** | 0.00 | 24 |
| 3 | 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 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 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 | 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 | 24 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 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 | 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 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 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 | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 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 | 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 |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 |
| 15 | 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 |
| 16 | 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 |
| 17 | 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 |
| 18 | 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 |
| 19 | 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 |
| 20 | 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 |
| 21 | 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 | 24 |
| 22 | 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 |
| 23 | 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 |
| 24 | 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 |
| 25 | 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 |
| 26 | 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 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 24 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 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 | 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 |
| 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 |
| HOURLY MAX | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 | | | | |

**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 |

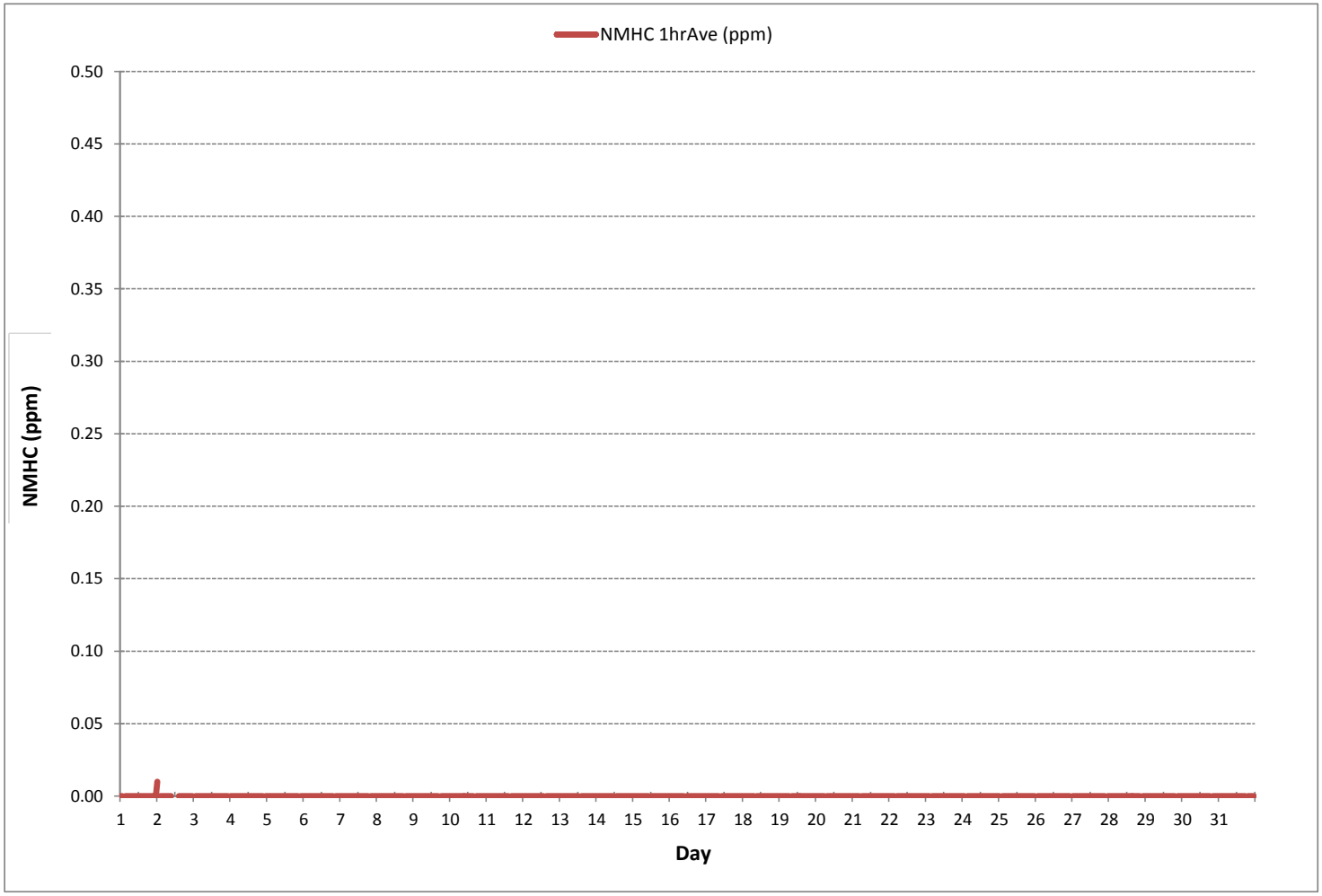
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NUMBER OF NON-ZERO READINGS: | | | 1 | | | | |
| MINIMUM 1-HR AVERAGE | | 0.00 | ppm | @ HOUR(S) | VAR | ON DAY(S) | ALL |
| MAXIMUM 1-HR AVERAGE: | | 0.01 | ppm | @ HOUR(S) | 0 | ON DAY(S) | 2 |
| MAXIMUM 24-HR AVERAGE: | | 0.00 | ppm | | | ON DAY(S) | ALL |
| | | | | | | VAR-VARIOUS | |
| IZS CALIBRATION TIME: | 33 | hrs | | OPERATIONAL TIME: | | 744 | hrs |
| MONTHLY CALIBRATION TIME: | 4 | hrs | | AMD OPERATION UPTIME: | | 100.0 | % |
| STANDARD DEVIATION: | 0.00 | | | MONTHLY AVERAGE: | | 0.00 | ppm |

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



## 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 | 0.09 | S | 0.00 | 0.00 | 0.00 | 0.01 | 0.04 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.01 | 0.00 | 0.03 | 0.08 | 0.04 | 0.00 | 0.09 | 0.02 | 24 |
| 2 | 0.13 | S | 0.00 | 0.05 | 0.02 | 0.00 | 0.13 | 0.00 | 0.02 | 0.04 | C | C | C | C | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.02 | 0.00 | 0.13 | 0.02 | 24 |
| 3 | S | 0.02 | 0.03 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.08 | 0.00 | 0.14 | 0.09 | 0.06 | 0.02 | 0.02 | 0.00 | 0.11 | S | 0.00 | 0.14 | 0.03 | 24 |
| 4 | 0.00 | 0.04 | 0.06 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.08 | 0.01 | 24 |
| 5 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.09 | 0.00 | 0.09 | 0.01 | 24 |
| 6 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.04 | 0.00 | S | 0.08 | 0.00 | 0.02 | 0.00 | 0.08 | 0.01 | 24 |
| 7 | 0.01 | 0.02 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.01 | 0.00 | 0.00 | 0.03 | 0.00 | 0.03 | 0.01 | 24 |
| 8 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | S | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.01 | 24 |
| 9 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.02 | 0.01 | 0.03 | S | **0.23** | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | **0.23** | 0.02 | 24 |
| 10 | 0.05 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.11 | 0.00 | 0.01 | 0.01 | 0.02 | 0.05 | 0.01 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.11 | 0.01 | 24 |
| 11 | 0.00 | 0.02 | 0.01 | 0.00 | 0.01 | 0.05 | 0.04 | 0.05 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.05 | 0.01 | 24 |
| 12 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.02 | 0.05 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.01 | 24 |
| 13 | 0.02 | 0.08 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.01 | 0.01 | 0.01 | S | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.01 | 24 |
| 14 | 0.00 | 0.04 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 24 |
| 15 | 0.00 | 0.03 | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.02 | 0.01 | 0.02 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.01 | 24 |
| 16 | 0.00 | 0.00 | 0.00 | 0.15 | 0.18 | 0.00 | 0.13 | 0.01 | 0.00 | 0.00 | S | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.18 | 0.02 | 24 |
| 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.01 | 0.00 | 0.13 | 0.00 | 0.00 | 0.13 | 0.01 | 24 |
| 18 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.01 | 24 |
| 19 | 0.00 | 0.00 | 0.06 | 0.06 | 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 | 0.06 | 0.01 | 24 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.04 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.01 | 24 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.04 | 0.00 | 0.07 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.01 | 24 |
| 22 | 0.01 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.08 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.08 | 0.01 | 24 |
| 23 | 0.00 | 0.00 | 0.01 | S | 0.05 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.07 | 0.00 | 0.00 | 0.11 | 0.01 | 24 |
| 24 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.06 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.06 | 0.01 | 24 |
| 25 | 0.02 | S | 0.03 | 0.00 | 0.12 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.08 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.02 | 24 |
| 26 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.20 | 0.02 | 24 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.16 | 0.02 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.16 | 0.01 | 24 |
| 28 | 0.00 | 0.05 | 0.01 | 0.13 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.13 | 0.01 | 24 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.02 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 24 |
| 30 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.19 | 0.01 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.19 | 0.02 | 24 |
| 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | S | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 24 |
| HOURLY MAX | 0.13 | 0.09 | 0.06 | 0.15 | 0.18 | 0.05 | 0.13 | 0.09 | 0.07 | 0.11 | 0.16 | 0.12 | 0.11 | 0.09 | 0.19 | 0.08 | 0.14 | 0.20 | 0.23 | 0.04 | 0.06 | 0.08 | 0.13 | 0.09 | | | | |
| HOURLY AVG | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | 0.00 | 0.02 | 0.01 | 0.00 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | | | | |

**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: 220

MAXIMUM INSTANTANEOUS VALUE: 0.23 ppm @ HOUR(S) 18 ON DAY(S) 9

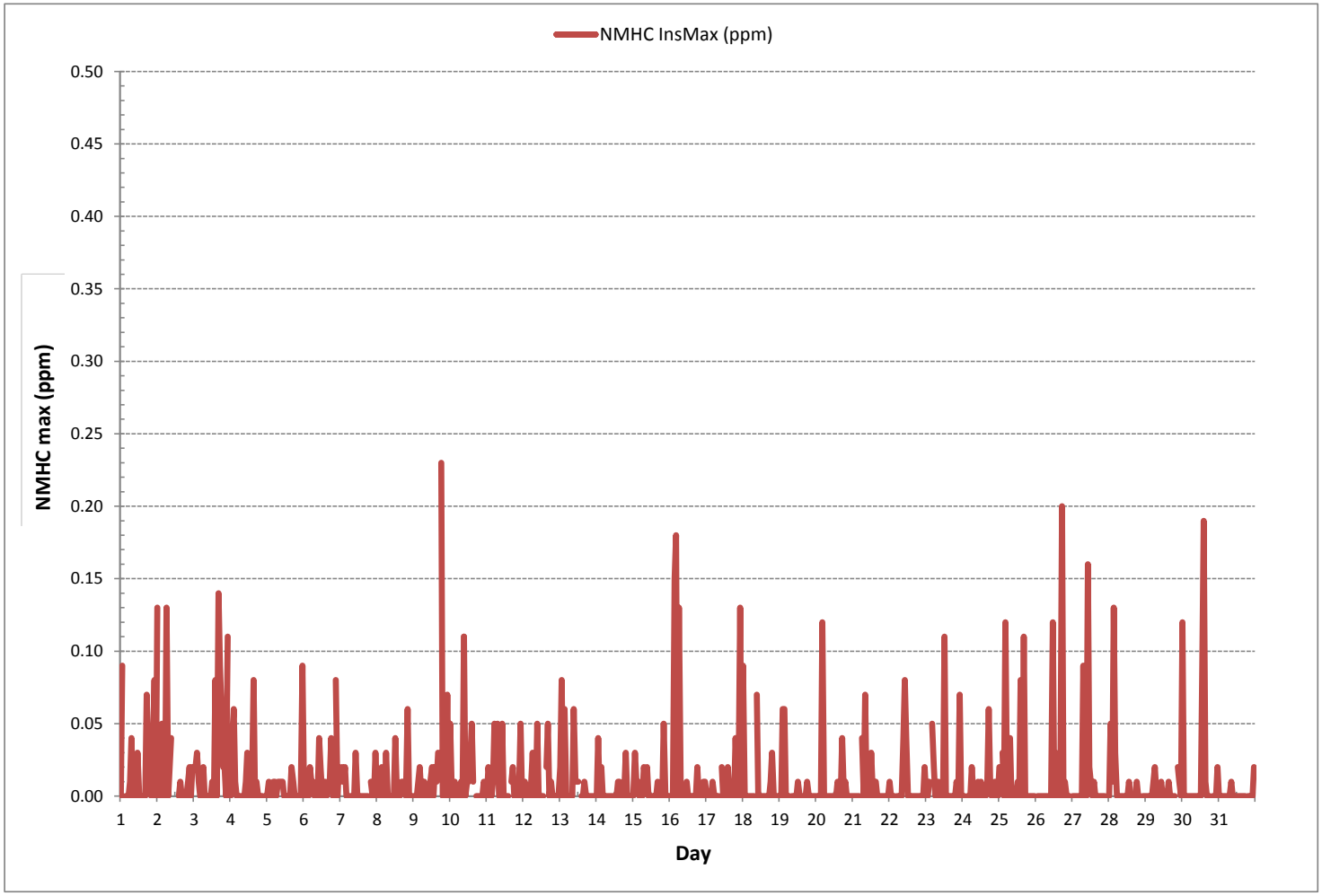
VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 744 hrs

MONTHLY CALIBRATION TIME: 4 hrs

STANDARD DEVIATION: 0.03

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



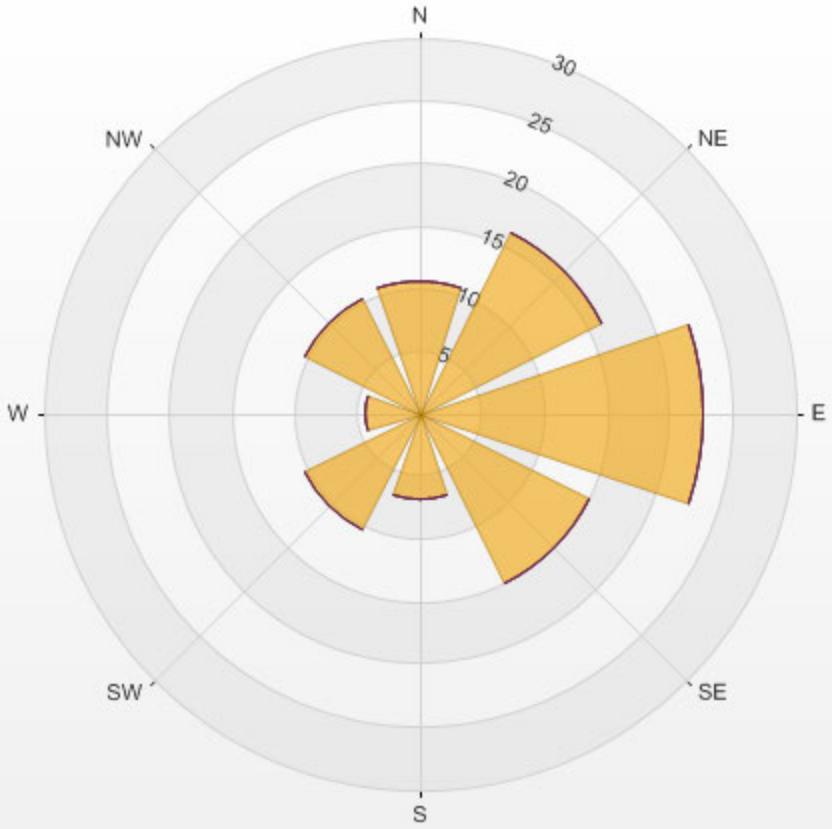
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.54% Calm Avg: 0.00 [ppm]

| Direction | 0-0.1 | 0.1-0.3 | 0.3-1 | 1-2 | >2.0 | Total |
|---|---|---|---|---|---|---|
| **N** | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 16.3 | 0.0 | 0.0 | 0.0 | 0.0 | 16.3 |
| **E** | 22.6 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 |
| **SE** | 15.1 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 |
| **S** | 6.8 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 |
| **SW** | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 |
| **W** | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 |
| **NW** | 10.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 |
| **Summary** | 96.5 | 0.0 | 0.0 | 0.0 | 0.0 | 96.5 |

| % Icon Classes (ppm) | 96 0-0.1 | 0 0.1-0.3 | 0 0.3-1 | 0 1-2 | 0 >2.0 |
|---|---|---|---|---|---|

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.54% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 17/03 Type: Span

***WIND SPEED***

Maxxam
A Bureau Veritas Group Company

## WIND SPEED Hourly Averages (WS kph)

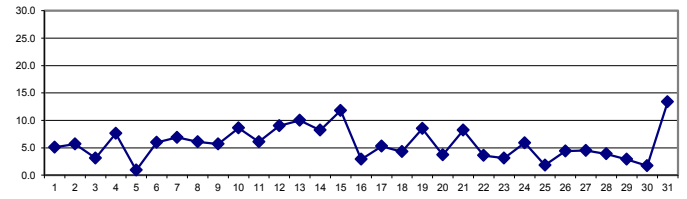
| HR START (MST) | 0:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | 18:00 | 19:00 | 20:00 | 21:00 | 22:00 | 23:00 | DAILY | DAILY | 24-HR | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 10.3 | 10.3 | 10.6 | 11.8 | 10.9 | 10.1 | 7.8 | 7.4 | 7.3 | 8.0 | 7.8 | 4.8 | 13.4 | 11.9 | 11.4 | 10.4 | 6.0 | 2.6 | 1.1 | 0.7 | 2.5 | 3.2 | 3.0 | 5.2 | 0.7 | 13.4 | 5.1 | 24 |
| 2 | 5.5 | 3.3 | 5.3 | 4.9 | 6.0 | 5.8 | 4.2 | 4.1 | 4.3 | 5.3 | 6.3 | 5.7 | 8.1 | 6.5 | 11.4 | 4.2 | 12.0 | 9.6 | 7.0 | 8.0 | 10.0 | 12.3 | 14.7 | 17.3 | 3.3 | 17.3 | 5.7 | 24 |
| 3 | 17.8 | 15.0 | 17.8 | 13.8 | 4.4 | 1.8 | 5.1 | 7.0 | 5.3 | 11.1 | 10.8 | 13.4 | 13.4 | 11.3 | 11.3 | 11.4 | 11.6 | 8.7 | 5.7 | 6.8 | 8.8 | 12.7 | 13.5 | 15.3 | 1.8 | 17.8 | 3.1 | 24 |
| 4 | 13.1 | 14.1 | 10.9 | 9.5 | 11.7 | 11.7 | 10.3 | 9.7 | 10.3 | 8.8 | 7.9 | 7.9 | 11.5 | 11.1 | 11.3 | 8.9 | 5.9 | 6.3 | 5.2 | 3.6 | 3.3 | 1.7 | 2.8 | 2.5 | 1.7 | 14.1 | 7.6 | 24 |
| 5 | 1.3 | 2.1 | 5.1 | 1.7 | 3.0 | 2.9 | 5.4 | 2.4 | 2.4 | 2.0 | 7.5 | 6.4 | 5.8 | 6.4 | 7.6 | 6.2 | 3.2 | 2.7 | 3.5 | 2.0 | 1.7 | 4.0 | 5.6 | 5.9 | 1.3 | 7.6 | 0.9 | 24 |
| 6 | 5.6 | 4.0 | 3.7 | 3.6 | 3.1 | 5.9 | 5.2 | 4.8 | 6.2 | 7.3 | 8.6 | 6.0 | 13.0 | 13.0 | 13.6 | 12.9 | 10.4 | 9.1 | 7.8 | 6.5 | 4.4 | 5.3 | 6.2 | 6.4 | 3.1 | 13.6 | 6.0 | 24 |
| 7 | 7.9 | 6.0 | 5.9 | 5.9 | 7.4 | 6.7 | 7.6 | 6.8 | 8.3 | 8.4 | 9.2 | 9.1 | 9.1 | 9.7 | 13.5 | 13.8 | 11.8 | 10.9 | 5.9 | 4.5 | 4.7 | 4.8 | 8.4 | 7.6 | 4.5 | 13.8 | 6.9 | 24 |
| 8 | 7.5 | 7.3 | 8.1 | 7.9 | 8.3 | 8.0 | 7.5 | 6.8 | 7.2 | 8.6 | 10.0 | 10.4 | 9.3 | 9.5 | 9.5 | 6.7 | 5.5 | 12.4 | 8.2 | 2.7 | 0.7 | 2.6 | 5.2 | 5.5 | 0.7 | 12.4 | 6.1 | 24 |
| 9 | 5.0 | 5.2 | 5.2 | 4.2 | 2.3 | 2.8 | 3.8 | 3.7 | 5.0 | 6.0 | 6.7 | 7.5 | 5.9 | 3.1 | 7.2 | 8.4 | 9.0 | 9.4 | 7.0 | 4.7 | 5.3 | 5.7 | 6.9 | 8.7 | 2.3 | 9.4 | 5.7 | 24 |
| 10 | 8.0 | 7.4 | 8.0 | 10.6 | 9.4 | 6.8 | 6.5 | 9.0 | 9.4 | 10.8 | 10.9 | 9.5 | 10.9 | 10.9 | 11.4 | 10.3 | 10.4 | 10.4 | 8.8 | 8.3 | 8.4 | 7.5 | 5.1 | 3.4 | 3.4 | 11.4 | 8.6 | 24 |
| 11 | 5.1 | 5.4 | 5.0 | 4.8 | 4.6 | 4.8 | 5.0 | 3.4 | 4.0 | 4.8 | 3.4 | 4.6 | 5.1 | 6.5 | 6.7 | 7.7 | 9.2 | 9.9 | 8.8 | 7.2 | 7.6 | 9.5 | 8.6 | 7.6 | 3.4 | 9.9 | 6.1 | 24 |
| 12 | 7.8 | 7.4 | 6.7 | 7.1 | 6.1 | 6.6 | 7.9 | 8.4 | 9.5 | 9.9 | 12.8 | 12.3 | 13.2 | 13.6 | 10.7 | 12.5 | 11.3 | 11.1 | 9.6 | 9.9 | 9.8 | 8.6 | 8.9 | 7.4 | 6.1 | 13.6 | 9.0 | 24 |
| 13 | 6.3 | 7.5 | 8.8 | 8.1 | 8.7 | 9.1 | 9.8 | 10.9 | 20.1 | 19.9 | 18.4 | 19.9 | 15.0 | 15.5 | 17.4 | 16.5 | 11.8 | 10.6 | 7.9 | 6.0 | 6.5 | 8.0 | 7.9 | 5.9 | 5.9 | 20.1 | 10.0 | 24 |
| 14 | 7.1 | 5.6 | 6.9 | 5.9 | 7.6 | 13.1 | 12.6 | 12.6 | 8.2 | 8.4 | 8.2 | 7.0 | 4.9 | 10.1 | 8.7 | 10.1 | 10.6 | 10.9 | 10.5 | 10.3 | 10.4 | 7.7 | 8.0 | 9.3 | 4.9 | 13.1 | 8.2 | 24 |
| 15 | 11.8 | 12.5 | 16.4 | 12.8 | 15.8 | 19.1 | 17.1 | 22.8 | 20.7 | 19.1 | 17.5 | 16.4 | 17.0 | 19.7 | 16.5 | 15.1 | 13.3 | 11.7 | 8.2 | 7.5 | 4.8 | 4.9 | 3.1 | 2.6 | 2.6 | 22.8 | 11.8 | 24 |
| 16 | 4.0 | 3.5 | 3.8 | 4.4 | 5.5 | 8.4 | 6.0 | 5.4 | 8.7 | 1.6 | 4.3 | 7.1 | 7.3 | 6.5 | 9.7 | 3.2 | 7.9 | 6.2 | 5.3 | 2.2 | 3.2 | 2.8 | 3.1 | 3.4 | 1.6 | 9.7 | 2.9 | 24 |
| 17 | 1.6 | 1.7 | 3.7 | 2.4 | 4.0 | 7.1 | 5.7 | 3.8 | 4.8 | 4.5 | 5.8 | 6.2 | 6.3 | 6.8 | 6.9 | 6.6 | 7.1 | 8.9 | 7.9 | 7.4 | 8.3 | 10.0 | 11.5 | 11.3 | 1.6 | 11.5 | 5.3 | 24 |
| 18 | 11.2 | 10.8 | 10.6 | 9.6 | 10.7 | 10.9 | 9.9 | 8.7 | 7.2 | 6.7 | 6.9 | 2.4 | 9.4 | 12.6 | 12.4 | 11.2 | 11.0 | 12.6 | 13.1 | 12.8 | 11.3 | 13.8 | 12.6 | 7.9 | 2.4 | 13.8 | 4.3 | 24 |
| 19 | 8.9 | 6.8 | 6.4 | 6.2 | 4.5 | 5.2 | 6.5 | 7.3 | 10.2 | 8.5 | 9.6 | 12.0 | 10.7 | 9.3 | 9.1 | 7.2 | 7.6 | 8.8 | 12.6 | 8.7 | 11.8 | 12.2 | 11.4 | 8.3 | 4.5 | 12.6 | 8.5 | 24 |
| 20 | 6.0 | 5.6 | 5.8 | 3.9 | 1.2 | 1.6 | 1.7 | 2.8 | 2.9 | 5.9 | 8.2 | 10.0 | 11.0 | 9.9 | 9.6 | 12.0 | 9.4 | 7.4 | 4.4 | 0.8 | 3.0 | 5.3 | 6.2 | 5.9 | 0.8 | 12.0 | 3.7 | 24 |
| 21 | 5.7 | 5.6 | 7.2 | 5.7 | 6.4 | 6.3 | 7.9 | 9.9 | 10.9 | 12.8 | 13.0 | 13.4 | 13.5 | 12.1 | 10.9 | 8.7 | 10.9 | 7.8 | 8.0 | 4.8 | 6.1 | 7.1 | 8.0 | 7.8 | 4.8 | 13.5 | 8.2 | 24 |
| 22 | 8.4 | 7.0 | 6.2 | 6.3 | 6.6 | 6.2 | 6.1 | 3.5 | 1.2 | 4.3 | 6.1 | 6.3 | 5.2 | 6.1 | 7.6 | 9.3 | 11.7 | 9.0 | 5.3 | 4.0 | 6.3 | 4.4 | 3.7 | 6.9 | 1.2 | 11.7 | 3.6 | 24 |
| 23 | 6.7 | 7.1 | 8.7 | 9.1 | 8.5 | 8.9 | 11.0 | 5.7 | 5.6 | 8.3 | 8.1 | 4.4 | 5.0 | 9.9 | 8.0 | 7.6 | 4.9 | 6.6 | 10.3 | 4.0 | 4.0 | 4.8 | 4.5 | 6.2 | 4.0 | 11.0 | 3.1 | 24 |
| 24 | 6.1 | 7.4 | 4.1 | 6.3 | 7.2 | 6.9 | 3.1 | 5.6 | 4.6 | 4.0 | 5.4 | 6.6 | 7.7 | 6.8 | 7.0 | 8.1 | 11.7 | 10.9 | 8.0 | 5.9 | 5.5 | 5.7 | 3.4 | 4.8 | 3.1 | 11.7 | 5.9 | 24 |
| 25 | 4.3 | 3.6 | 4.2 | 4.1 | 2.5 | 1.1 | 0.3 | 3.2 | 3.3 | 1.9 | 2.1 | 4.2 | 1.6 | 7.3 | 7.2 | 8.1 | 7.3 | 5.9 | 4.7 | 6.4 | 6.2 | 7.0 | 6.7 | 6.8 | 0.3 | 8.1 | 1.8 | 24 |
| 26 | 8.2 | 6.7 | 5.8 | 6.2 | 6.4 | 9.2 | 9.2 | 7.8 | 8.8 | 9.0 | 9.9 | 9.2 | 11.2 | 9.1 | 10.0 | 7.0 | 4.4 | 2.9 | 2.3 | 1.9 | 2.8 | 5.6 | 5.7 | 4.5 | 1.9 | 11.2 | 4.4 | 24 |
| 27 | 4.5 | 4.6 | 6.3 | 6.3 | 8.4 | 7.2 | 5.9 | 7.1 | 7.3 | 7.0 | 7.2 | 5.1 | 10.9 | 13.7 | 12.0 | 8.7 | 6.0 | 5.2 | 3.6 | 0.4 | **0.2** | 0.8 | 1.7 | 2.3 | **0.2** | 13.7 | 4.5 | 24 |
| 28 | 3.8 | 3.1 | 2.2 | 3.8 | 3.6 | 5.0 | 6.0 | 5.9 | 7.7 | 10.0 | 10.2 | 8.5 | 12.8 | 11.2 | 11.0 | 10.0 | 5.5 | 5.8 | **0.2** | 3.0 | 5.6 | 7.4 | 1.5 | 4.0 | **0.2** | 12.8 | 3.9 | 24 |
| 29 | 5.6 | 3.3 | 2.5 | 2.6 | 5.2 | 3.1 | 3.3 | 3.6 | 4.7 | 6.4 | 10.3 | 11.1 | 12.4 | 9.9 | 7.5 | 6.2 | 6.3 | 5.2 | 3.4 | 1.2 | 1.3 | 3.2 | 4.7 | 5.5 | 1.2 | 12.4 | 2.9 | 24 |
| 30 | 6.6 | 4.9 | 6.1 | 3.5 | 0.7 | 3.5 | 3.4 | 7.0 | 7.4 | 5.3 | 7.2 | 6.1 | 5.6 | 3.1 | 10.6 | 12.1 | 7.5 | 11.6 | 5.3 | 1.2 | 3.5 | 5.5 | 7.9 | 9.8 | 0.7 | 12.1 | 1.7 | 24 |
| 31 | 7.6 | 6.3 | 10.6 | 10.8 | 9.7 | 9.7 | 11.0 | 11.8 | 13.6 | 15.0 | 14.2 | 17.8 | 21.6 | 21.7 | 21.6 | **23.5** | 22.7 | 21.6 | 17.9 | 16.9 | 15.1 | 12.9 | 12.8 | 15.2 | 6.3 | **23.5** | **13.4** | 24 |
| HOURLY MAX | 17.8 | 15.0 | 17.8 | 13.8 | 15.8 | 19.1 | 17.1 | 22.8 | 20.7 | 19.9 | 18.4 | 19.9 | 21.6 | 21.7 | 21.6 | 23.5 | 22.7 | 21.6 | 17.9 | 16.9 | 15.1 | 13.8 | 14.7 | 17.3 | | | | |
| HOURLY AVG | 4.1 | 3.6 | 3.5 | 3.5 | 3.3 | 3.0 | 2.9 | 2.7 | 2.7 | 1.9 | 1.3 | 0.6 | 1.6 | 2.7 | 2.7 | 2.6 | 1.6 | 1.3 | 0.7 | 1.3 | 2.0 | 2.9 | 3.3 | 3.5 | | | | |

**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: | February 14, 2017 |
| DECLINATION : | MAGNETIC DECLINATION 15 DEGREE EAST |

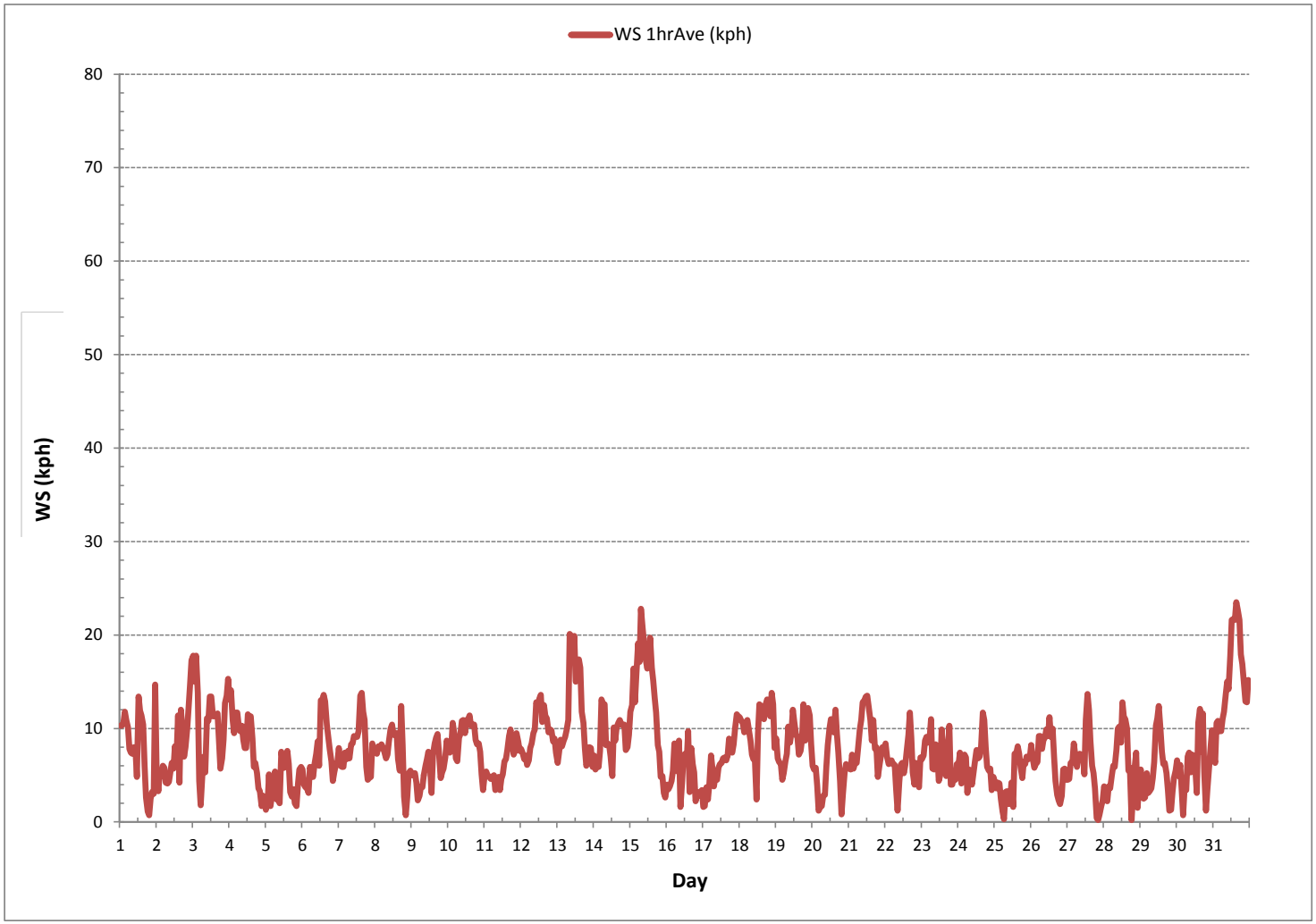
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NUMBER OF NON-ZERO READINGS: | | | 744 | | | | |
| MINIMUM 1-HR AVERAGE | 0.2 | kph | @ HOUR(S) | 20 , 18 | ON DAY(S) | 27 , 28 | |
| MAXIMUM 1-HR AVERAGE: | 23.5 | kph | @ HOUR(S) | 15 | ON DAY(S) | 31 | |
| MAXIMUM 24-HR AVERAGE: | 13.4 | kph | | | ON DAY(S) | 31 | |
| | | | | | VAR-VARIOUS | | |
| | | | OPERATIONAL TIME: | | | 744 | hrs |
| MONTHLY CALIBRATION TIME: | 0 | hrs | AMD OPERATION UPTIME: | | | 100.0 | % |
| STANDARD DEVIATION: | 3.9 | | MONTHLY AVERAGE: | | | 1.4 | kph |

**WIND SPEED Hourly Averages (WS kph)**



## 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 | 24.4 | 24.8 | 23.6 | 29.1 | 28.2 | 28.1 | 19.5 | 18.3 | 18.2 | 16.3 | 15.4 | 21.1 | 21.4 | 20.3 | 18.8 | 17.3 | 12.8 | 7.2 | 3.7 | 2.7 | 4.3 | 6.6 | 6.6 | 7.8 | 2.7 | 29.1 | 16.5 | 24 |
| 2 | 11.8 | 8.1 | 9.9 | 9.8 | 10.2 | 11.2 | 9.0 | 9.3 | 10.2 | 14.5 | 15.0 | 12.0 | 18.8 | 13.2 | 30.5 | 22.4 | 24.4 | 24.1 | 14.5 | 17.6 | 21.4 | 22.7 | 25.6 | 30.0 | 8.1 | 30.5 | 16.5 | 24 |
| 3 | 30.2 | 24.9 | 29.3 | 23.7 | 18.5 | 7.2 | 9.6 | 16.8 | 14.2 | 39.8 | 27.4 | 29.4 | 32.0 | 27.5 | 27.0 | 24.6 | 25.2 | 22.8 | 16.3 | 17.9 | 23.7 | 29.4 | 34.1 | 36.9 | 7.2 | 39.8 | 24.5 | 24 |
| 4 | 31.3 | 31.7 | 29.6 | 21.7 | 26.5 | 26.7 | 23.8 | 20.0 | 25.9 | 19.4 | 18.1 | 18.6 | 25.4 | 26.3 | 24.9 | 21.1 | 14.7 | 18.8 | 13.2 | 9.6 | 7.5 | 4.4 | 5.5 | 4.7 | 4.4 | 31.7 | 19.6 | 24 |
| 5 | 4.3 | 5.1 | 9.0 | 7.4 | 6.6 | 7.8 | 9.7 | 6.5 | 5.3 | 7.3 | 10.9 | 11.1 | 9.9 | 12.3 | 14.4 | 13.3 | 13.1 | 8.7 | 8.9 | 4.9 | 4.6 | 9.0 | 9.9 | 11.3 | 4.3 | 14.4 | 8.8 | 24 |
| 6 | 8.5 | 7.8 | 7.3 | 8.2 | 7.3 | 14.5 | 11.5 | 10.5 | 14.4 | 16.2 | 16.7 | 22.8 | 23.3 | 27.9 | 25.9 | 23.3 | 21.1 | 20.1 | 18.8 | 13.4 | 10.7 | 14.2 | 12.5 | 16.0 | 7.3 | 27.9 | 15.5 | 24 |
| 7 | 19.1 | 15.1 | 15.4 | 15.8 | 15.3 | 14.5 | 18.4 | 13.6 | 18.6 | 20.7 | 20.5 | 20.9 | 23.0 | 25.7 | 25.5 | 23.8 | 22.3 | 22.6 | 15.6 | 14.1 | 10.5 | 13.3 | 19.0 | 18.8 | 10.5 | 25.7 | 18.4 | 24 |
| 8 | 17.4 | 17.9 | 19.1 | 15.5 | 19.0 | 20.0 | 16.4 | 17.2 | 16.2 | 20.7 | 21.1 | 22.9 | 22.5 | 21.1 | 22.6 | 19.9 | 16.8 | 23.8 | 22.4 | 10.2 | 2.5 | 6.8 | 8.8 | 11.8 | 2.5 | 23.8 | 17.2 | 24 |
| 9 | 10.6 | 11.3 | 10.7 | 8.6 | 8.1 | 5.6 | 9.6 | 8.5 | 12.1 | 13.0 | 15.3 | 21.2 | 19.5 | 19.1 | 21.1 | 18.2 | 22.5 | 22.3 | 19.7 | 11.1 | 10.1 | 12.0 | 15.0 | 17.2 | 5.6 | 22.5 | 14.3 | 24 |
| 10 | 15.5 | 16.3 | 16.7 | 19.4 | 19.3 | 16.4 | 13.3 | 18.4 | 19.5 | 27.7 | 26.2 | 24.1 | 25.1 | 25.1 | 26.9 | 24.5 | 25.6 | 24.4 | 22.0 | 20.9 | 23.9 | 21.2 | 15.4 | 10.3 | 10.3 | 27.7 | 20.8 | 24 |
| 11 | 12.9 | 11.7 | 12.3 | 11.9 | 9.4 | 10.8 | 10.1 | 6.6 | 9.4 | 14.5 | 10.9 | 16.4 | 13.7 | 21.0 | 16.9 | 19.5 | 22.4 | 23.1 | 19.6 | 19.6 | 22.3 | 21.6 | 21.6 | 17.8 | 6.6 | 23.1 | 15.7 | 24 |
| 12 | 18.5 | 18.8 | 15.4 | 15.9 | 14.5 | 15.3 | 22.8 | 19.1 | 21.3 | 22.3 | 25.8 | 25.0 | 24.9 | 27.8 | 31.1 | 25.3 | 25.5 | 26.0 | 26.0 | 22.6 | 26.1 | 23.3 | 19.9 | 20.5 | 14.5 | 31.1 | 22.2 | 24 |
| 13 | 15.8 | 18.6 | 21.2 | 21.0 | 18.8 | 17.0 | 18.0 | 23.2 | 37.2 | 30.8 | 35.8 | 35.3 | 26.8 | 28.3 | 33.3 | 29.1 | 25.3 | 19.4 | 13.0 | 15.4 | 15.5 | 16.0 | 15.2 | 10.2 | 10.2 | 37.2 | 22.5 | 24 |
| 14 | 14.8 | 10.3 | 11.9 | 11.0 | 16.9 | 24.0 | 19.2 | 21.2 | 14.5 | 17.9 | 16.7 | 15.5 | 13.4 | 24.0 | 19.1 | 27.2 | 27.7 | 31.6 | 24.5 | 23.9 | 19.8 | 15.7 | 15.3 | 17.4 | 10.3 | 31.6 | 18.9 | 24 |
| 15 | 22.4 | 24.4 | **53.3** | 24.9 | 36.7 | 33.7 | 30.4 | 43.4 | 39.7 | 33.6 | 34.8 | 29.3 | 28.6 | 37.4 | 27.7 | 26.1 | 24.7 | 20.4 | 12.5 | 11.6 | 8.2 | 9.6 | 6.8 | 5.0 | 5.0 | **53.3** | 26.1 | 24 |
| 16 | 8.2 | 7.1 | 5.8 | 6.4 | 10.9 | 12.7 | 12.7 | 11.2 | 21.6 | 18.8 | 14.6 | 17.9 | 18.3 | 18.0 | 21.9 | 25.9 | 20.9 | 18.2 | 15.1 | 12.4 | 11.6 | 5.9 | 7.4 | 6.9 | 5.8 | 25.9 | 13.8 | 24 |
| 17 | 7.0 | 4.7 | 8.1 | 7.8 | 11.7 | 16.1 | 19.8 | 8.2 | 10.4 | 10.6 | 12.5 | 15.5 | 13.6 | 16.2 | 17.2 | 17.1 | 17.0 | 21.0 | 18.1 | 15.3 | 19.3 | 25.1 | 27.9 | 26.9 | 4.7 | 27.9 | 15.3 | 24 |
| 18 | 24.0 | 24.3 | 25.0 | 22.9 | 23.1 | 28.2 | 24.7 | 25.0 | 18.6 | 14.1 | 14.8 | 13.4 | 15.8 | 19.0 | 20.2 | 21.6 | 23.0 | 28.0 | 26.3 | 27.6 | 26.0 | 29.4 | 29.4 | 17.8 | 13.4 | 29.4 | 22.6 | 24 |
| 19 | 21.9 | 14.0 | 15.4 | 14.2 | 12.8 | 13.3 | 19.7 | 19.6 | 21.5 | 21.0 | 18.4 | 21.4 | 22.6 | 20.3 | 19.4 | 17.2 | 20.1 | 17.8 | 27.2 | 21.2 | 28.8 | 27.0 | 28.1 | 18.0 | 12.8 | 28.8 | 20.0 | 24 |
| 20 | 13.7 | 12.6 | 11.5 | 10.8 | 4.5 | 4.2 | 3.8 | 6.6 | 7.2 | 13.3 | 17.3 | 17.5 | 17.9 | 17.0 | 18.6 | 20.6 | 16.5 | 15.3 | 8.1 | 4.2 | 6.8 | 12.4 | 13.5 | 13.7 | 3.8 | 20.6 | 12.0 | 24 |
| 21 | 13.0 | 18.1 | 17.7 | 14.2 | 16.0 | 14.5 | 20.0 | 24.2 | 27.8 | 31.6 | 32.5 | 29.1 | 29.2 | 25.5 | 23.9 | 21.7 | 25.8 | 20.8 | 16.8 | 13.9 | 15.2 | 16.2 | 17.0 | 18.6 | 13.0 | 32.5 | 21.0 | 24 |
| 22 | 20.4 | 16.5 | 16.4 | 16.3 | 15.4 | 14.5 | 15.9 | 9.4 | 7.5 | 8.9 | 12.4 | 15.8 | 18.0 | 20.7 | 18.3 | 18.4 | 21.3 | 19.6 | 11.4 | 9.2 | 15.1 | 14.6 | 8.8 | 15.9 | 7.5 | 21.3 | 15.0 | 24 |
| 23 | 15.0 | 16.5 | 20.0 | 20.8 | 19.0 | 18.7 | 27.8 | 23.8 | 13.4 | 15.5 | 17.1 | 10.9 | 14.3 | 17.4 | 20.0 | 18.0 | 13.2 | 15.7 | 30.2 | 12.4 | 9.0 | 12.0 | 9.9 | 12.9 | 9.0 | 30.2 | 16.8 | 24 |
| 24 | 11.7 | 14.0 | 11.3 | 12.0 | 12.9 | 13.4 | 10.8 | 9.1 | 8.8 | 11.0 | 12.2 | 13.8 | 16.9 | 17.6 | 22.2 | 22.8 | 33.5 | 26.7 | 21.0 | 12.1 | 14.6 | 12.5 | 10.6 | 11.9 | 8.8 | 33.5 | 15.1 | 24 |
| 25 | 9.0 | 8.6 | 7.9 | 7.0 | 5.8 | 5.6 | 3.8 | 6.5 | 7.8 | 6.8 | 15.3 | 13.3 | 6.8 | 12.3 | 14.5 | 16.5 | 13.8 | 12.8 | 7.8 | 16.8 | 14.3 | 11.0 | 13.4 | 15.1 | 3.8 | 16.8 | 10.5 | 24 |
| 26 | 16.6 | 14.6 | 12.0 | 13.4 | 10.5 | 14.2 | 15.0 | 13.7 | 16.3 | 16.3 | 18.8 | 18.0 | 21.0 | 20.5 | 23.1 | 17.1 | 12.0 | 10.2 | 7.4 | 6.6 | 6.2 | 9.9 | 8.4 | 9.0 | 6.2 | 23.1 | 13.8 | 24 |
| 27 | 10.2 | 9.5 | 14.4 | 16.2 | 17.1 | 13.7 | 13.7 | 15.5 | 16.9 | 15.1 | 16.6 | 12.8 | 22.2 | 21.2 | 20.3 | 16.0 | 13.8 | 10.3 | 6.7 | 3.3 | 2.7 | 3.3 | 3.4 | 3.9 | 2.7 | 22.2 | 12.5 | 24 |
| 28 | 8.3 | 7.0 | 6.9 | 6.5 | 8.7 | 11.0 | 12.8 | 12.5 | 18.1 | 18.7 | 18.9 | 18.9 | 21.1 | 19.9 | 19.7 | 19.1 | 11.5 | 10.7 | 4.0 | 6.4 | 10.7 | 12.1 | 9.5 | 7.5 | 4.0 | 21.1 | 12.5 | 24 |
| 29 | 9.1 | 9.1 | 4.8 | 9.8 | 11.2 | 10.2 | 6.7 | 8.2 | 11.5 | 14.1 | 16.9 | 19.4 | 21.0 | 19.7 | 17.8 | 16.6 | 15.0 | 13.0 | 7.4 | 3.6 | 3.8 | 5.6 | 8.0 | 10.7 | 3.6 | 21.0 | 11.4 | 24 |
| 30 | 12.1 | 12.0 | 12.1 | 9.7 | 6.4 | 9.2 | 11.4 | 14.4 | 17.9 | 14.1 | 15.4 | 15.6 | 17.6 | 15.6 | 20.2 | 21.6 | 22.3 | 25.5 | 15.0 | 8.0 | 8.7 | 11.3 | 13.0 | 14.8 | 6.4 | 25.5 | 14.3 | 24 |
| 31 | 12.2 | 11.6 | 19.6 | 16.5 | 16.5 | 17.0 | 17.6 | 20.6 | 25.6 | 27.5 | 28.0 | 35.6 | 40.5 | 41.2 | 40.6 | 43.3 | 39.9 | 38.2 | 32.1 | 34.8 | 32.9 | 39.2 | 26.4 | 31.1 | 11.6 | 43.3 | 28.7 | 24 |
| HOURLY MAX | 31.3 | 31.7 | 53.3 | 29.1 | 36.7 | 33.7 | 30.4 | 43.4 | 39.7 | 39.8 | 35.8 | 35.6 | 40.5 | 41.2 | 40.6 | 43.3 | 39.9 | 38.2 | 32.1 | 34.8 | 32.9 | 39.2 | 34.1 | 36.9 | | | | |
| HOURLY AVG | 15.1 | 14.4 | 15.9 | 14.4 | 14.7 | 15.1 | 15.4 | 15.5 | 17.0 | 18.4 | 19.1 | 19.8 | 20.8 | 21.9 | 22.6 | 21.5 | 20.7 | 19.9 | 16.3 | 13.6 | 14.0 | 15.2 | 15.0 | 15.1 | | | | |

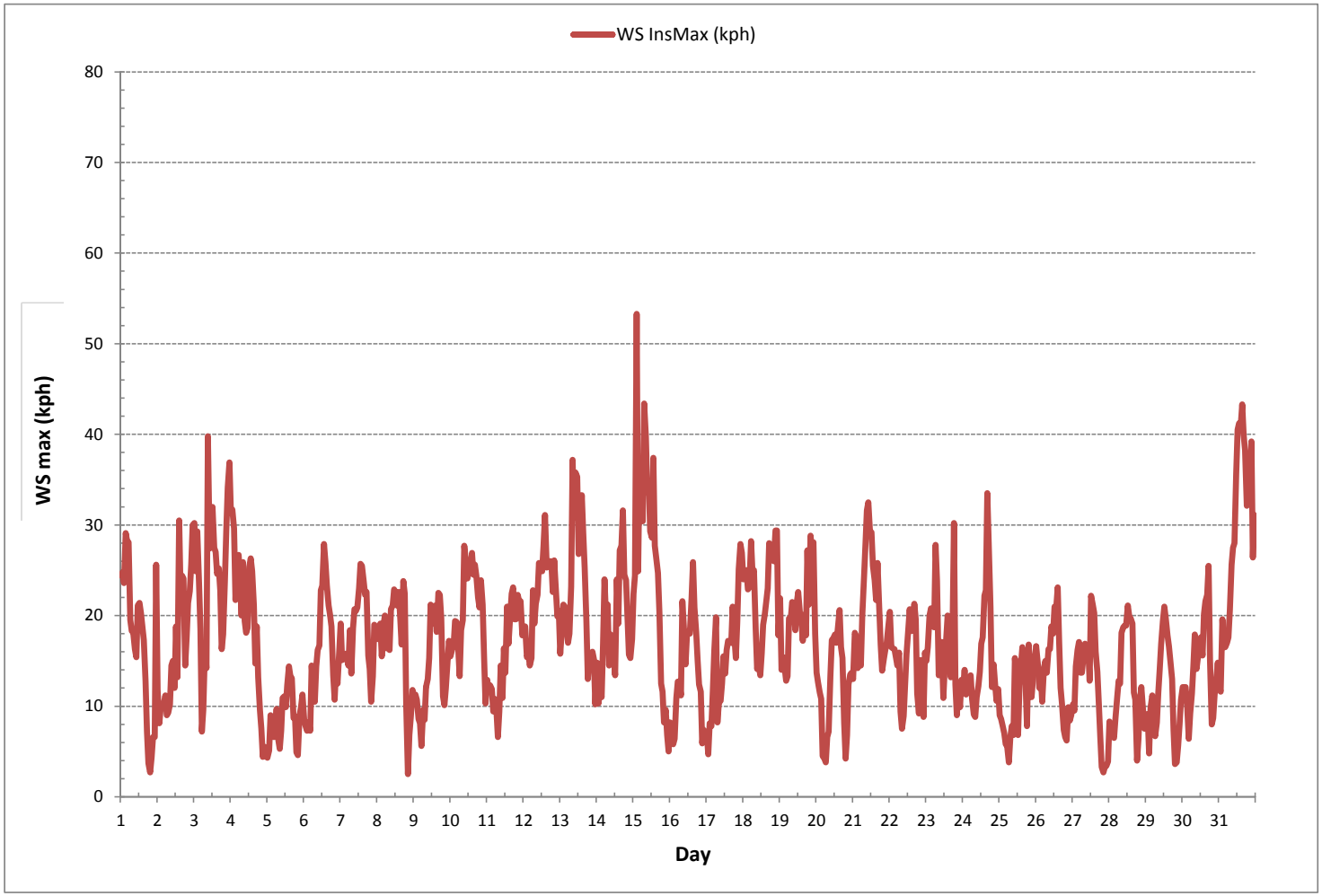
**STATUS FLAG CODES**

| | | | |
|---|---|---|---|
| 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: | 53.3 | kph | @ HOUR(S) | 2 | ON DAY(S) | 15 |
| | | | | VAR-VARIOUS | | |
| OPERATIONAL TIME: | | | | | 744 | hrs |

**WIND SPEED Instantaneous Maximum (WS kph)**



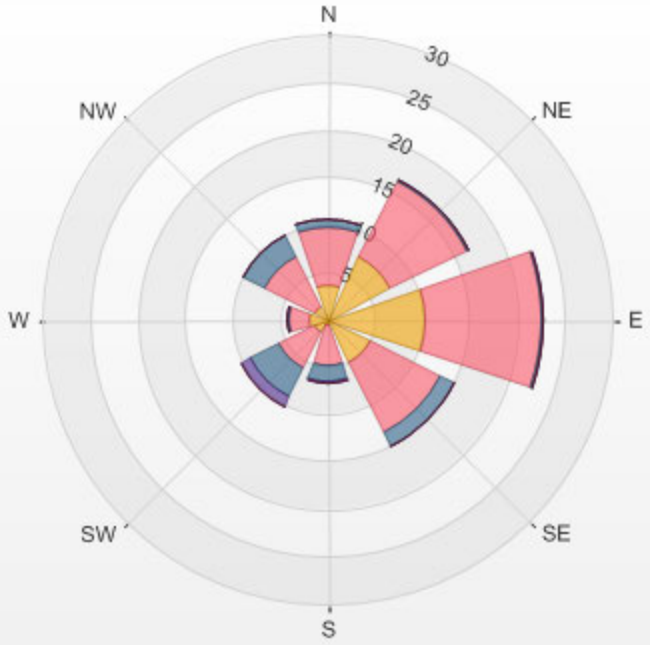
Wind: PRAMP_842
Monitor: WSP [kph]
Monthly: 17/03
Type: WindRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.90%

| 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** | 3.8 | 6.1 | 0.8 | 0.0 | 0.0 | 0.0 | 10.6 |
| **NE** | 7.4 | 9.0 | 0.1 | 0.0 | 0.0 | 0.0 | 16.5 |
| **E** | 10.2 | 12.4 | 0.1 | 0.0 | 0.0 | 0.0 | 22.7 |
| **SE** | 5.1 | 8.1 | 1.9 | 0.0 | 0.0 | 0.0 | 15.1 |
| **S** | 0.7 | 4.2 | 1.8 | 0.1 | 0.0 | 0.0 | 6.7 |
| **SW** | 1.5 | 4.3 | 3.4 | 1.1 | 0.0 | 0.0 | 10.2 |
| **W** | 2.0 | 2.0 | 0.3 | 0.0 | 0.0 | 0.0 | 4.3 |
| **NW** | 1.5 | 5.9 | 2.6 | 0.0 | 0.0 | 0.0 | 9.9 |
| **Summary** | 32.1 | 51.9 | 10.9 | 1.2 | 0.0 | 0.0 | 96.1 |

| % | Icon | Classes (kph) | 52 | 6.0-12.0 | 11 | 12.0-20.0 | 1 | 20.0-29.0 | 0 | 29.0-39.0 | 0 | >39.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | | 1.8-6.0 | | | | | | | | | | |

PRAMP_842 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 3.90% Calm Wind Avg Speed: 1.18(kph)



***WIND DIRECTION***

## 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 | NE | NE | NE | NE | NE | NE | NE | NE | NNE | NE | NE | N | NW | WNW | WNW | NW | NW | WNW | NW | ENE | ENE | ENE | ENE | ENE | NNE | 24 |
| 2 | ENE | ENE | ENE | ENE | ENE | ENE | ENE | E | E | E | E | ENE | SSE | WSW | S | SW | SE | SE | SE | SE | SE | SE | SSE | SSE | SE | 24 |
| 3 | SSE | SSE | SSE | SSE | SE | S | SW | SW | SW | WNW | NNW | NNW | NNW | NNW | NNW | NNW | N | N | N | NNE | NNE | NNE | NNE | NNE | N | 24 |
| 4 | N | N | NNE | NNE | NNE | N | N | NNE | N | N | N | N | NNE | NNE | NE | NE | NE | ENE | E | E | ENE | ENE | ENE | ENE | NNE | 24 |
| 5 | ESE | SE | SE | SSE | SW | SSE | SE | SE | SE | WSW | WSW | WSW | WSW | WSW | WSW | W | NW | W | N | N | ENE | NE | ENE | NE | SW | 24 |
| 6 | ENE | ENE | NE | NNE | NE | NNE | NNE | NNE | NE | NE | NE | N | NW | NNW | NW | NNW | NNW | NNW | NNW | NW | N | NNW | NNE | NNE | N | 24 |
| 7 | NNE | NNE | N | NNW | N | NNW | NNW | N | N | N | NNE | N | NNW | NNW | NW | NW | NW | NNW | NNW | NNE | NE | ENE | ENE | ENE | N | 24 |
| 8 | NE | NE | NE | NE | NE | ENE | ENE | ENE | ENE | ENE | NE | NE | NE | NE | NE | ENE | NW | NW | NNW | NNW | ENE | ENE | ENE | ENE | NE | 24 |
| 9 | ENE | ENE | ENE | ENE | ENE | NE | ENE | ENE | ENE | ENE | ENE | NE | NE | ENE | ENE | NE | NE | NE | NE | NE | ENE | ENE | ENE | ENE | ENE | 24 |
| 10 | ENE | ENE | ENE | ENE | ENE | ENE | ENE | ENE | ENE | E | E | E | E | E | ENE | E | E | E | E | E | E | E | ESE | E | E | 24 |
| 11 | E | E | E | E | E | ENE | ENE | ENE | ENE | E | ENE | ENE | E | E | ENE | ENE | ENE | ENE | ENE | ENE | ENE | E | E | E | E | 24 |
| 12 | E | E | E | E | E | E | ESE | SE | SE | SE | SSE | SE | SSE | SE | SE | SE | SE | ESE | ESE | ESE | ESE | ESE | ESE | ESE | ESE | 24 |
| 13 | ESE | ESE | SE | SE | SE | SSE | SSE | SSE | SSE | SSE | S | S | SW | SW | SW | SSW | SSW | SSW | S | SSE | SSE | SSE | SSE | SE | S | 24 |
| 14 | SSE | SE | ESE | SE | SE | SSE | SSE | SSE | SSE | S | S | SSE | SE | SE | SE | ESE | ESE | ESE | ESE | SE | SE | SE | ESE | SE | SE | 24 |
| 15 | SE | SSE | SW | SW | SSW | SW | SW | SW | SW | SW | SW | SW | SW | SW | SW | SW | SW | SW | SSW | S | SE | SE | ESE | E | SW | 24 |
| 16 | ESE | E | ENE | ENE | ENE | ENE | ENE | ENE | E | WSW | ENE | E | E | E | ESE | SE | WSW | WNW | NNE | NE | WSW | NW | NNE | NE | ENE | 24 |
| 17 | ENE | NE | NNE | NE | NNW | NNW | N | NE | NE | NE | NE | ENE | ENE | ENE | E | E | ENE | ENE | ENE | ENE | ENE | ENE | E | E | ENE | 24 |
| 18 | E | E | E | E | E | E | E | E | E | E | E | E | WNW | NW | NW | NW | NW | NNW | NW | NW | NNW | NW | NNW | NW | N | 24 |
| 19 | NNW | NW | NNW | NNW | N | NNW | NNW | N | N | NNW | NW | NW | NW | NW | NW | NW | NW | WNW | NW | NW | NW | NW | NW | NW | NW | 24 |
| 20 | WNW | WNW | W | W | SW | ESE | E | ESE | SSE | S | WSW | WSW | WSW | WSW | SW | SW | SW | SW | WSW | E | E | ESE | SE | SE | SW | 24 |
| 21 | ESE | E | ESE | E | E | E | E | E | ESE | ESE | ESE | ESE | SE | SSE | SSE | SSE | SSE | SE | SE | ESE | ESE | ESE | ESE | ESE | ESE | 24 |
| 22 | ESE | E | E | E | E | ENE | E | E | NE | N | NNE | NNW | NNE | NNW | NNW | NW | NW | NW | N | NNW | N | NE | ENE | ENE | NNE | 24 |
| 23 | ENE | E | E | E | ENE | E | E | E | NNE | NE | NE | E | SSE | SW | WSW | WSW | SW | SW | SSW | SE | ESE | ESE | ESE | SE | ESE | 24 |
| 24 | SE | SE | SE | SE | ESE | ESE | ESE | ENE | ENE | E | E | ENE | E | E | ENE | E | E | E | E | ENE | E | E | ENE | ENE | E | 24 |
| 25 | E | E | E | E | ENE | ENE | NE | ENE | ENE | ESE | W | WSW | WNW | WSW | WSW | WSW | WSW | WSW | W | SW | WSW | SSE | S | SSW | SW | 24 |
| 26 | S | S | SSE | SSE | SSE | SSE | SSE | SSE | SSE | S | SSW | SW | WSW | SW | SW | SW | SSW | WSW | W | E | NE | ENE | NE | ENE | S | 24 |
| 27 | NNE | N | N | N | NNE | NNE | N | N | NNE | NNE | NE | NE | NW | WNW | NW | NW | WNW | W | WNW | WSW | S | WSW | E | E | NNW | 24 |
| 28 | SE | ESE | ESE | ENE | ESE | ESE | E | ESE | SSE | SSE | S | SSW | WSW | SW | WSW | SW | SW | SW | SSE | SE | SE | SE | SSE | SSE | S | 24 |
| 29 | SSE | SW | E | ESE | SSE | SE | SE | SE | S | SW | SW | SW | SW | SW | WSW | WSW | W | WSW | W | NE | ENE | ENE | ENE | ENE | SSW | 24 |
| 30 | ENE | ENE | ENE | ENE | N | N | NNE | NE | NE | NNE | N | N | N | NW | W | W | WNW | WNW | NW | ESE | SE | SE | SE | SSE | N | 24 |
| 31 | SSE | SSE | SSE | SSE | SSE | SSE | SSE | S | SSW | SSW | SSW | SSW | SSW | SSW | SSW | SW | SW | SW | WSW | WSW | WSW | WSW | SW | SW | SSW | 24 |

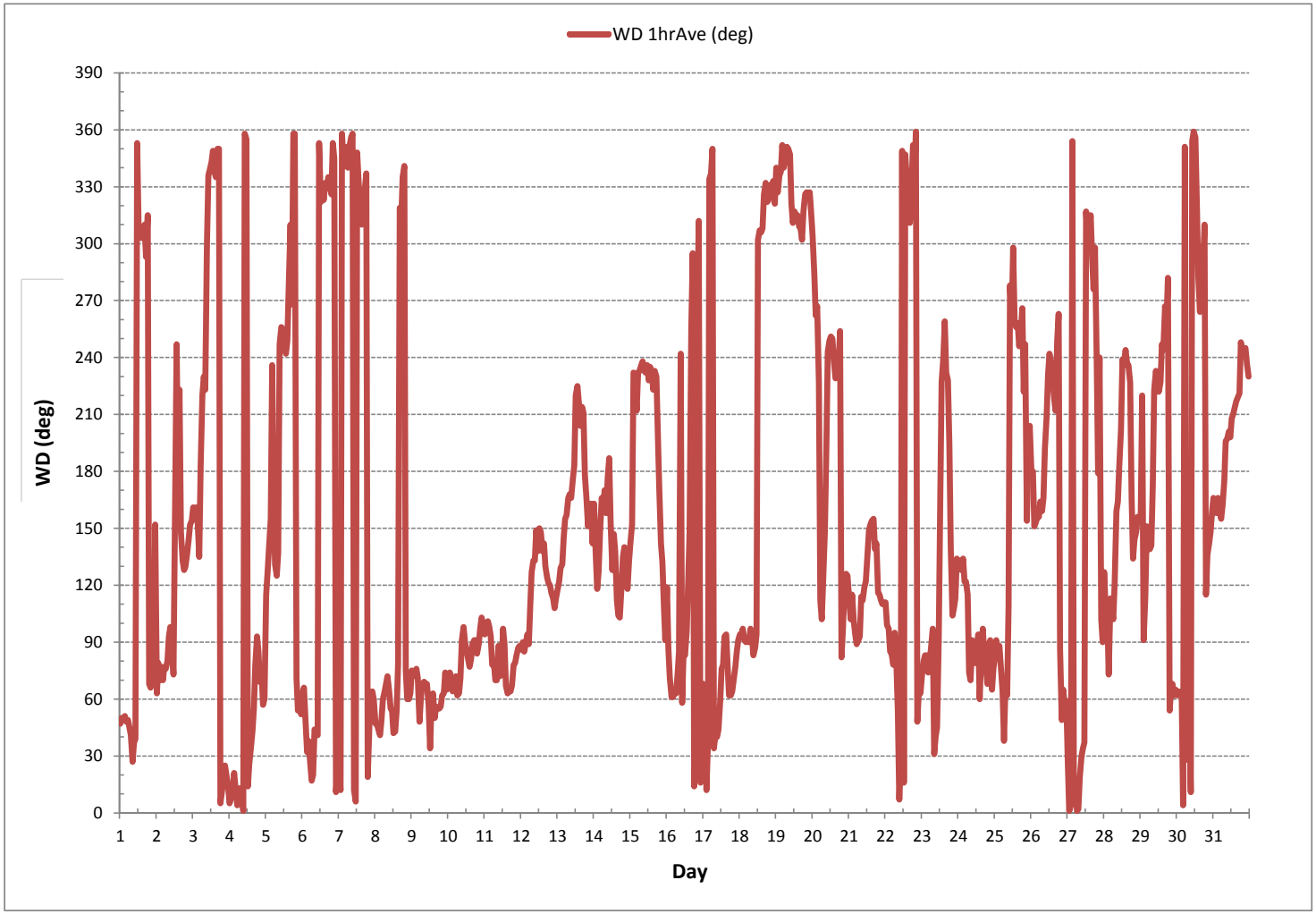
**STATUS FLAG CODES**

| | | | |
|---|---|---|---|
| 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: | February 14, 2017 |
| DECLINATION : | MAGNETIC DECLINATION 15 DEGREE EAST |

| | | | | | |
|---|---|---|---|---|---|
| MONTHLY CALIBRATION TIME: | 0 | hrs | OPERATIONAL TIME: | 744 | hrs |
| STANDARD DEVIATION: | 101 | | AMD OPERATION UPTIME: | 100.0 | % |
| | | | MONTHLY AVERAGE: | 96 (E) | |

**WIND DIRECTION Hourly Averages (WD)**



# *RELATIVE HUMIDITY*

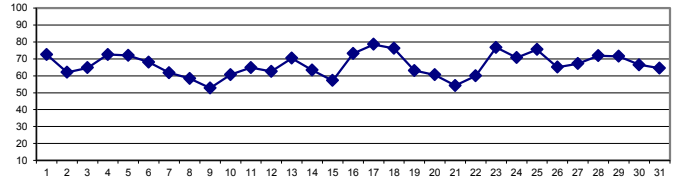
## RELATIVE HUMIDITY Hourly Averages (RH %)

| 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 | 79 | 79 | 78 | 77 | 78 | 77 | 77 | 76 | 74 | 68 | 66 | 68 | 71 | 69 | 67 | 64 | 58 | 57 | 66 | 78 | 79 | 79 | 78 | 78 | 57 | 79 | 73 | 24 |
| 2 | 78 | 78 | 79 | 79 | 79 | 79 | 79 | 79 | 76 | 68 | 61 | 50 | 49 | 51 | 45 | 51 | 44 | 45 | 52 | 54 | 53 | 53 | 53 | 54 | 44 | 79 | 62 | 24 |
| 3 | 56 | 57 | 58 | 58 | 61 | 67 | 70 | 69 | 73 | 74 | 77 | 74 | 73 | 70 | 66 | 59 | 52 | 56 | 59 | 65 | 64 | 63 | 66 | 67 | 52 | 77 | 65 | 24 |
| 4 | 68 | 68 | 70 | 71 | 72 | 73 | 74 | 75 | 74 | 71 | 66 | 63 | 61 | 63 | 68 | 71 | 75 | 78 | 79 | 80 | 80 | 81 | 81 | 79 | 61 | 81 | 73 | 24 |
| 5 | 80 | 79 | 81 | 77 | 83 | 81 | 79 | 77 | 79 | 83 | 81 | 81 | 76 | 64 | 55 | 46 | 40 | 45 | 54 | 73 | 78 | 79 | 79 | 78 | 40 | 83 | 72 | 24 |
| 6 | 77 | 79 | 78 | 79 | 81 | 82 | 80 | 79 | 78 | 65 | 55 | 50 | 58 | 50 | 51 | 51 | 50 | 59 | 66 | 70 | 72 | 75 | 74 | 73 | 50 | 82 | 68 | 24 |
| 7 | 75 | 77 | 79 | 80 | 80 | 79 | 79 | 78 | 74 | 63 | 56 | 45 | 42 | 41 | 46 | 47 | 44 | 47 | 53 | 62 | 66 | 63 | 53 | 53 | 41 | 80 | 62 | 24 |
| 8 | 54 | 56 | 62 | 69 | 72 | 74 | 74 | 71 | 63 | 52 | 46 | 42 | 44 | 43 | 40 | 41 | 40 | 49 | 55 | 61 | 69 | 75 | 76 | 73 | 40 | 76 | 58 | 24 |
| 9 | 65 | 68 | 69 | 71 | 73 | 74 | 75 | 73 | 67 | 52 | 42 | 37 | 32 | 32 | 31 | **29** | 30 | 31 | 38 | 48 | 55 | 58 | 58 | 58 | **29** | 75 | 53 | 24 |
| 10 | 61 | 62 | 65 | 66 | 66 | 66 | 67 | 65 | 61 | 54 | 47 | 47 | 44 | 40 | 43 | 45 | 52 | 59 | 66 | 72 | 74 | 76 | 78 | 79 | 40 | 79 | 61 | 24 |
| 11 | 77 | 77 | 78 | 78 | 78 | 80 | 82 | 80 | 76 | 68 | 58 | 52 | 51 | 51 | 48 | 49 | 53 | 56 | 58 | 60 | 60 | 61 | 62 | 63 | 48 | 82 | 65 | 24 |
| 12 | 65 | 67 | 69 | 70 | 71 | 72 | 72 | 75 | 70 | 64 | 59 | 60 | 56 | 53 | 51 | 51 | 51 | 53 | 57 | 59 | 61 | 63 | 65 | 66 | 51 | 75 | 63 | 24 |
| 13 | 67 | 67 | 71 | 84 | 84 | 83 | 83 | 84 | 80 | 77 | 71 | 64 | 62 | 62 | 61 | 56 | 54 | 55 | 59 | 66 | 74 | 75 | 76 | 75 | 54 | 84 | 70 | 24 |
| 14 | 75 | 82 | 85 | 87 | 92 | 88 | 85 | 83 | 82 | 72 | 61 | 54 | 50 | 42 | 39 | 41 | 43 | 43 | 43 | 44 | 48 | 55 | 61 | 63 | 39 | 92 | 63 | 24 |
| 15 | 63 | 64 | 70 | 76 | 74 | 63 | 60 | 59 | 58 | 56 | 52 | 48 | 45 | 40 | 39 | 40 | 40 | 40 | 45 | 50 | 61 | 68 | 79 | 82 | 39 | 82 | 57 | 24 |
| 16 | 84 | 83 | 85 | 85 | 85 | 83 | 80 | 80 | 64 | 64 | 55 | 48 | 45 | 39 | 34 | 42 | 63 | 78 | 88 | 92 | **95** | **95** | **95** | **95** | 34 | **95** | 73 | 24 |
| 17 | 93 | 91 | 91 | 92 | 92 | 91 | 86 | 85 | 83 | 82 | 82 | 81 | 80 | 73 | 66 | 60 | 56 | 54 | 60 | 74 | 79 | 80 | 78 | 76 | 54 | 93 | **79** | 24 |
| 18 | 72 | 72 | 74 | 76 | 78 | 80 | 81 | 83 | 82 | 79 | 75 | 64 | 60 | 57 | 58 | 67 | 73 | 80 | 88 | 88 | 89 | 87 | 83 | 82 | 57 | 89 | 76 | 24 |
| 19 | 79 | 81 | 82 | 79 | 81 | 80 | 80 | 76 | 65 | 61 | 62 | 62 | 55 | 48 | 48 | 46 | 45 | 45 | 50 | 56 | 54 | 56 | 59 | 64 | 45 | 82 | 63 | 24 |
| 20 | 67 | 67 | 69 | 71 | 78 | 83 | 83 | 81 | 67 | 56 | 52 | 50 | 49 | 45 | 43 | 43 | 44 | 44 | 48 | 62 | 72 | 64 | 57 | 59 | 43 | 83 | 61 | 24 |
| 21 | 59 | 63 | 61 | 63 | 66 | 70 | 72 | 70 | 62 | 51 | 44 | 42 | 41 | 42 | 40 | 38 | 39 | 41 | 45 | 53 | 57 | 60 | 61 | 62 | 38 | 72 | 54 | 24 |
| 22 | 63 | 64 | 67 | 67 | 68 | 68 | 68 | 68 | 64 | 60 | 57 | 45 | 43 | 48 | 49 | 48 | 48 | 47 | 45 | 62 | 68 | 70 | 77 | 76 | 43 | 77 | 60 | 24 |
| 23 | 73 | 71 | 72 | 73 | 75 | 78 | 81 | 81 | 83 | 83 | 78 | 79 | 78 | 76 | 75 | 67 | 61 | 60 | 66 | 77 | 86 | 89 | 89 | 89 | 60 | 89 | 77 | 24 |
| 24 | 86 | 84 | 83 | 84 | 82 | 80 | 82 | 81 | 78 | 71 | 65 | 59 | 57 | 57 | 53 | 51 | 47 | 49 | 54 | 63 | 74 | 79 | 85 | 92 | 47 | 92 | 71 | 24 |
| 25 | 91 | 91 | 91 | 93 | 93 | 93 | 93 | 92 | 76 | 72 | 67 | 72 | 57 | 56 | 55 | 55 | 56 | 56 | 65 | 73 | 78 | 77 | 78 | 82 | 55 | 93 | 76 | 24 |
| 26 | 88 | 89 | 93 | 94 | 92 | 89 | 88 | 87 | 77 | 62 | 51 | 51 | 48 | 46 | 38 | 38 | 34 | 33 | 33 | 60 | 72 | 71 | 64 | 65 | 33 | 94 | 65 | 24 |
| 27 | 62 | 62 | 61 | 66 | 72 | 75 | 79 | 81 | 78 | 67 | 60 | 55 | 54 | 56 | 55 | 50 | 52 | 57 | 61 | 68 | 78 | 84 | 89 | 91 | 50 | 91 | 67 | 24 |
| 28 | 92 | 90 | 93 | 93 | 93 | 93 | 91 | 85 | 80 | 74 | 66 | 62 | 62 | 56 | 52 | 50 | 48 | 51 | 54 | 64 | 66 | 59 | 72 | 80 | 48 | 93 | 72 | 24 |
| 29 | 77 | 81 | 85 | 89 | 88 | 89 | 93 | 88 | 77 | 70 | 69 | 66 | 60 | 56 | 53 | 48 | 46 | 47 | 49 | 65 | 77 | 83 | 82 | 78 | 46 | 93 | 72 | 24 |
| 30 | 78 | 82 | 83 | 82 | 82 | 86 | 88 | 86 | 79 | 62 | 58 | 52 | 46 | 42 | 47 | 44 | 38 | 46 | 46 | 59 | 75 | 80 | 78 | 76 | 38 | 88 | 66 | 24 |
| 31 | 77 | 78 | 83 | 85 | 85 | 87 | 85 | 80 | 71 | 67 | 62 | 53 | 52 | 51 | 48 | 45 | 46 | 48 | 51 | 54 | 55 | 59 | 62 | 64 | 45 | 87 | 65 | 24 |
| HOURLY MAX | 93 | 91 | 93 | 94 | 93 | 93 | 93 | 92 | 83 | 83 | 82 | 81 | 80 | 76 | 75 | 71 | 75 | 80 | 88 | 92 | 95 | 95 | 95 | 95 | | | | |
| HOURLY AVG | 74 | 74 | 76 | 78 | 79 | 79 | 80 | 78 | 73 | 67 | 61 | 57 | 55 | 52 | 50 | 49 | 49 | 52 | 57 | 65 | 70 | 72 | 73 | 73 | | | | |

**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 |

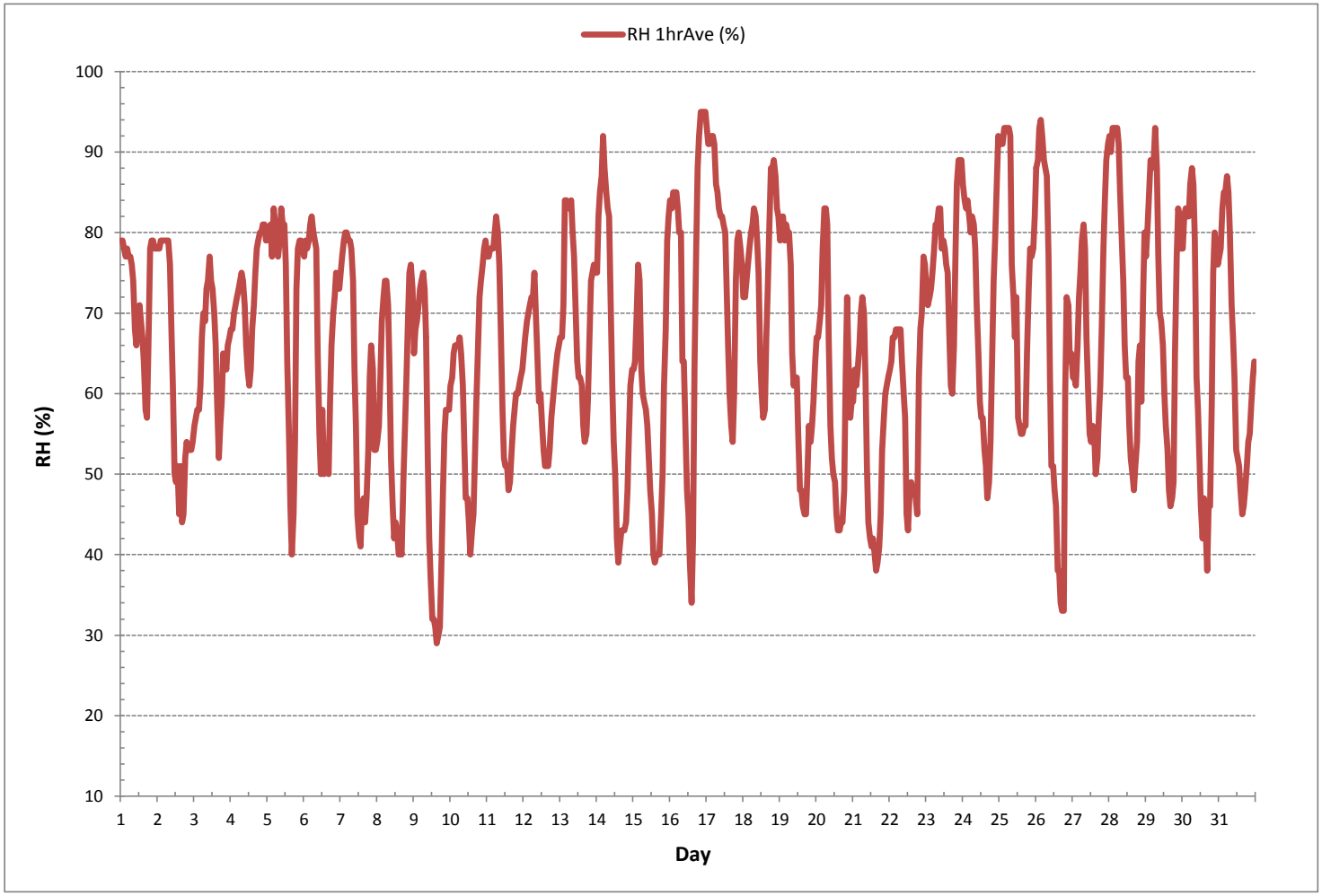
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MINIMUM 1-HR AVERAGE: | 29 | % | @ HOUR(S) | 15 | ON DAY(S) | 9 | |
| MAXIMUM 1-HR AVERAGE: | 95 | % | @ HOUR(S) | VAR | ON DAY(S) | 16 | |
| MAXIMUM 24-HR AVERAGE: | 79 | % | | | ON DAY(S) | 17 | |
| | | | | | VAR-VARIOUS | | |
| | | | OPERATIONAL TIME: | | | 744 | hrs |
| | | | AMD OPERATION UPTIME: | | | 100.0 | % |
| STANDARD DEVIATION: | 15 | | MONTHLY AVERAGE: | | | 66 | % |

**RELATIVE HUMIDITY Hourly Averages (RH %)**



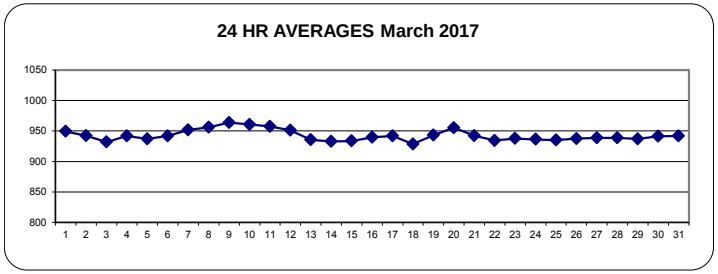
# *BAROMETRIC PRESSURE*

## 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 | 940 | 941 | 941 | 942 | 943 | 944 | 946 | 947 | 948 | 949 | 950 | 950 | 951 | 952 | 952 | 953 | 953 | 954 | 954 | 955 | 955 | 955 | 955 | 954 | 940 | 955 | 949 | 24 |
| 2 | 954 | 953 | 953 | 952 | 951 | 951 | 950 | 949 | 947 | 945 | 944 | 943 | 942 | 941 | 939 | 938 | 937 | 935 | 934 | 933 | 932 | 931 | 930 | 930 | 930 | 954 | 942 | 24 |
| 3 | 929 | 929 | 928 | 928 | 927 | 927 | 927 | 927 | 928 | 929 | 930 | 931 | 932 | 933 | 933 | 934 | 934 | 935 | 936 | 936 | 937 | 937 | 938 | 940 | 927 | 940 | 932 | 24 |
| 4 | 941 | 941 | 941 | 942 | 942 | 942 | 942 | 942 | 943 | 943 | 944 | 944 | 943 | 942 | 942 | 941 | 941 | 941 | 941 | 941 | 941 | 940 | 940 | 940 | 940 | 944 | 942 | 24 |
| 5 | 939 | 939 | 939 | 938 | 938 | 938 | 938 | 938 | 938 | 937 | 936 | 936 | 936 | 936 | 935 | 935 | 935 | 935 | 936 | 937 | 938 | 938 | 938 | 938 | 935 | 939 | 937 | 24 |
| 6 | 938 | 938 | 939 | 939 | 940 | 940 | 941 | 941 | 941 | 941 | 941 | 941 | 941 | 941 | 941 | 941 | 942 | 943 | 944 | 945 | 945 | 946 | 946 | 947 | 938 | 947 | 942 | 24 |
| 7 | 947 | 948 | 949 | 949 | 950 | 951 | 952 | 952 | 953 | 953 | 953 | 952 | 952 | 952 | 952 | 952 | 952 | 952 | 953 | 953 | 953 | 953 | 953 | 953 | 947 | 953 | 952 | 24 |
| 8 | 953 | 953 | 954 | 954 | 954 | 954 | 955 | 955 | 956 | 956 | 955 | 956 | 956 | 956 | 956 | 956 | 956 | 957 | 958 | 959 | 959 | 960 | 961 | 961 | 953 | 961 | 956 | 24 |
| 9 | 961 | 962 | 962 | 963 | 964 | 964 | **965** | 965 | 965 | 965 | 964 | 964 | 965 | 964 | 964 | 964 | 963 | 963 | 963 | 964 | 964 | 964 | 963 | 963 | 961 | **965** | **964** | 24 |
| 10 | 962 | 962 | 962 | 962 | 961 | 961 | 961 | 961 | 961 | 961 | 961 | 960 | 960 | 959 | 959 | 959 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 959 | 962 | 961 | 24 |
| 11 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 959 | 958 | 958 | 958 | 957 | 956 | 955 | 955 | 955 | 955 | 955 | 954 | 954 | 954 | 954 | 954 | 960 | 957 | 24 |
| 12 | 954 | 954 | 954 | 954 | 954 | 954 | 954 | 954 | 954 | 954 | 953 | 953 | 953 | 952 | 952 | 951 | 951 | 949 | 948 | 948 | 947 | 946 | 945 | 943 | 943 | 954 | 951 | 24 |
| 13 | 943 | 942 | 941 | 939 | 938 | 938 | 937 | 936 | 936 | 935 | 935 | 934 | 934 | 934 | 933 | 933 | 933 | 933 | 933 | 933 | 933 | 934 | 934 | 934 | 933 | 943 | 936 | 24 |
| 14 | 935 | 935 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 935 | 935 | 934 | 933 | 932 | 931 | 930 | 929 | 929 | 928 | 927 | 927 | 926 | 926 | 936 | 933 | 24 |
| 15 | 926 | 926 | 929 | 930 | 931 | 932 | 932 | 933 | 934 | 935 | 935 | 935 | 936 | 935 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 936 | 926 | 936 | 934 | 24 |
| 16 | 936 | 936 | 937 | 937 | 937 | 938 | 938 | 938 | 938 | 939 | 940 | 940 | 940 | 940 | 940 | 940 | 941 | 942 | 942 | 943 | 943 | 944 | 944 | 944 | 936 | 944 | 940 | 24 |
| 17 | 944 | 945 | 945 | 945 | 945 | 945 | 945 | 945 | 944 | 944 | 944 | 944 | 943 | 942 | 942 | 941 | 940 | 939 | 938 | 938 | 937 | 936 | 935 | 934 | 934 | 945 | 942 | 24 |
| 18 | 934 | 933 | 932 | 931 | 930 | 930 | 929 | 928 | 928 | 927 | 926 | 926 | 925 | **924** | **924** | 925 | 925 | 926 | 927 | 928 | 930 | 931 | 932 | 933 | **924** | 934 | 929 | 24 |
| 19 | 934 | 936 | 936 | 937 | 938 | 939 | 940 | 940 | 941 | 941 | 942 | 942 | 943 | 944 | 944 | 945 | 945 | 946 | 947 | 948 | 950 | 951 | 952 | 954 | 934 | 954 | 943 | 24 |
| 20 | 955 | 955 | 956 | 957 | 957 | 957 | 958 | 958 | 957 | 957 | 957 | 957 | 956 | 956 | 956 | 955 | 955 | 954 | 953 | 953 | 953 | 953 | 952 | 952 | 952 | 958 | 955 | 24 |
| 21 | 951 | 950 | 950 | 949 | 948 | 947 | 946 | 945 | 944 | 943 | 942 | 942 | 941 | 941 | 940 | 939 | 938 | 938 | 937 | 937 | 937 | 937 | 936 | 936 | 936 | 951 | 942 | 24 |
| 22 | 935 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 934 | 935 | 934 | 934 | 935 | 935 | 935 | 935 | 935 | 934 | 935 | 934 | 24 |
| 23 | 935 | 936 | 936 | 935 | 935 | 935 | 935 | 936 | 937 | 937 | 937 | 938 | 938 | 938 | 939 | 939 | 939 | 940 | 940 | 940 | 940 | 940 | 940 | 940 | 935 | 940 | 938 | 24 |
| 24 | 940 | 940 | 940 | 940 | 939 | 939 | 939 | 938 | 938 | 937 | 937 | 937 | 936 | 935 | 935 | 934 | 933 | 933 | 933 | 933 | 934 | 934 | 934 | 934 | 933 | 940 | 936 | 24 |
| 25 | 934 | 934 | 934 | 934 | 935 | 935 | 935 | 935 | 935 | 936 | 935 | 935 | 935 | 935 | 935 | 935 | 935 | 935 | 936 | 936 | 936 | 936 | 936 | 937 | 934 | 937 | 935 | 24 |
| 26 | 937 | 937 | 937 | 937 | 937 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 937 | 937 | 937 | 937 | 937 | 937 | 937 | 938 | 938 | 24 |
| 27 | 937 | 937 | 937 | 938 | 938 | 938 | 938 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 940 | 940 | 940 | 940 | 940 | 940 | 940 | 940 | 937 | 940 | 939 | 24 |
| 28 | 940 | 940 | 940 | 940 | 940 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 938 | 939 | 939 | 939 | 938 | 940 | 939 | 24 |
| 29 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 938 | 938 | 938 | 938 | 938 | 937 | 936 | 936 | 936 | 935 | 935 | 935 | 935 | 935 | 935 | 935 | 935 | 935 | 939 | 937 | 24 |
| 30 | 935 | 936 | 936 | 936 | 936 | 937 | 938 | 939 | 940 | 941 | 941 | 942 | 942 | 942 | 943 | 944 | 944 | 945 | 945 | 945 | 946 | 946 | 946 | 946 | 935 | 946 | 941 | 24 |
| 31 | 946 | 946 | 946 | 946 | 946 | 945 | 945 | 944 | 944 | 944 | 943 | 942 | 942 | 941 | 940 | 939 | 939 | 938 | 938 | 937 | 938 | 938 | 937 | 937 | 937 | 946 | 942 | 24 |
| HOURLY MAX | 962 | 962 | 962 | 963 | 964 | 964 | 965 | 965 | 965 | 965 | 964 | 964 | 965 | 964 | 964 | 964 | 963 | 963 | 963 | 964 | 964 | 964 | 963 | 963 | | | | |
| HOURLY AVG | 942 | 942 | 943 | 943 | 943 | 943 | 943 | 943 | 943 | 943 | 943 | 943 | 943 | 942 | 942 | 942 | 942 | 942 | 942 | 942 | 942 | 942 | 942 | 942 | | | | |

**STATUS FLAG CODES**

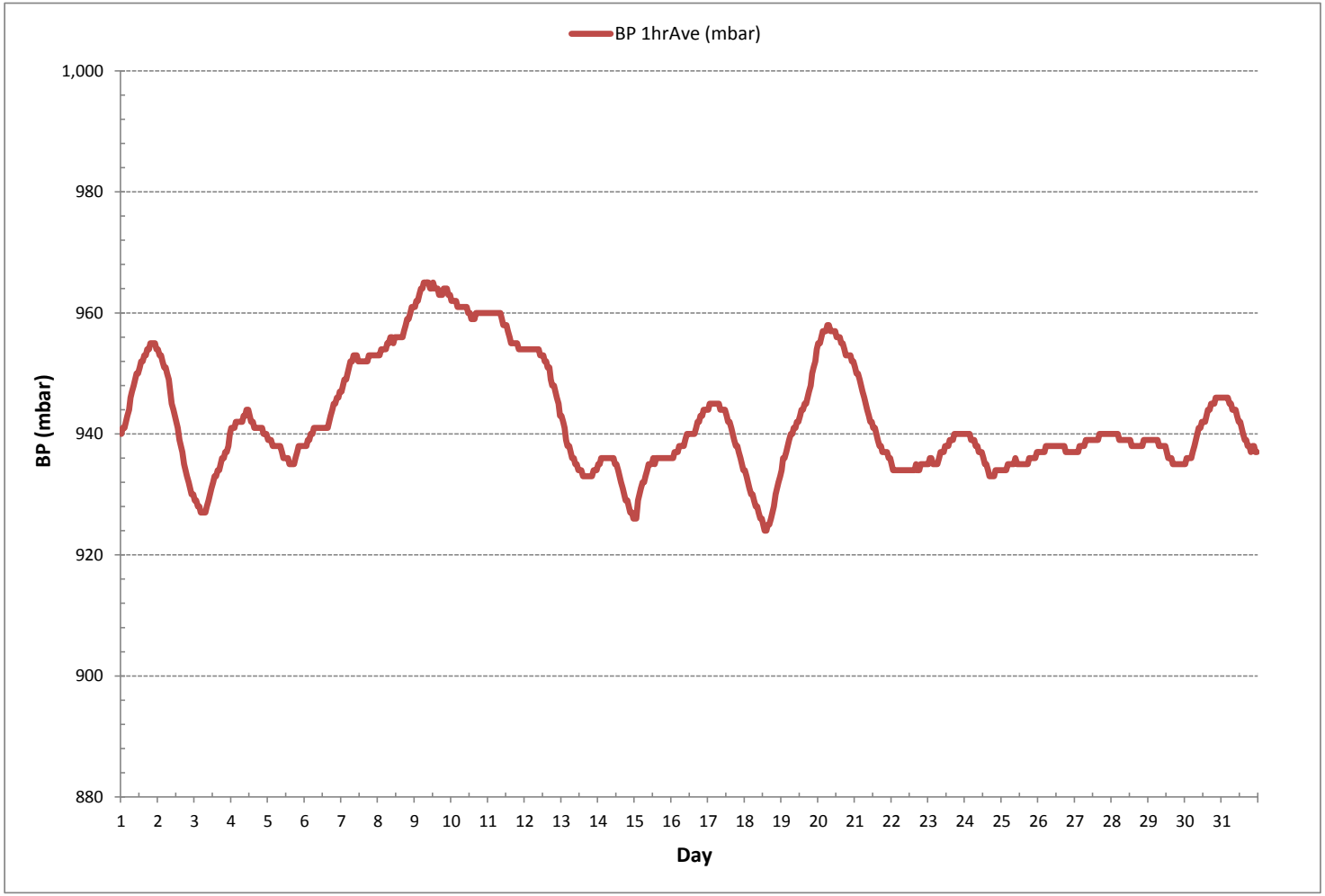
| | | | |
|---|---|---|---|
| C | - MONTHLY CALIBRATION | Q | - QUALITY ASSURANCE |
| C1 | - REPEAT CALIBRATION | R | - RECOVERY |
| Y | - MAINTENANCE | X | - MACHINE MALFUNCTION |
| S | - DAILY ZERO/SPAN CHECK | G | - OUT FOR REPAIR |
| S1 | - REPEAT ZERO/SPAN CHECK | P | - POWER FAILURE |




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MINIMUM 1-HR AVERAGE: | 924 | mbar | @ HOUR(S) | 13 , 14 | ON DAY(S) | 18 , 18 | |
| MAXIMUM 1-HR AVERAGE: | 965 | mbar | @ HOUR(S) | 6 | ON DAY(S) | 9 | |
| MAXIMUM 24-HR AVERAGE: | 964 | mbar | | | ON DAY(S) | 9 | |
| | | | | | VAR-VARIOUS | | |
| | | | OPERATIONAL TIME: | | | 744 | hrs |
| | | | AMD OPERATION UPTIME: | | | 100.0 | % |
| STANDARD DEVIATION: | 9 | | MONTHLY AVERAGE: | | | 942 | mbar |

**BAROMETRIC PRESSURE Hourly Averages (BP mbar)**



# *AMBIENT TEMPERATURE*

Maxxam
A Bureau Veritas Group Company

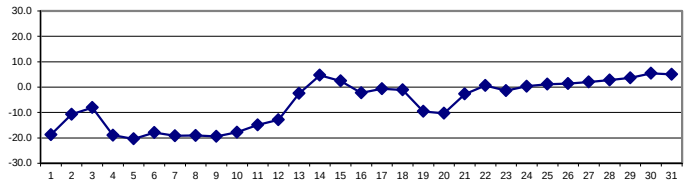
## AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

| HR START (MST) / HR END (MST) | 0:00 / 0:59 | 1:00 / 1:59 | 2:00 / 2:59 | 3:00 / 3:59 | 4:00 / 4:59 | 5:00 / 5:59 | 6:00 / 6:59 | 7:00 / 7:59 | 8:00 / 8:59 | 9:00 / 9:59 | 10:00 / 10:59 | 11:00 / 11:59 | 12:00 / 12:59 | 13:00 / 13:59 | 14:00 / 14:59 | 15:00 / 15:59 | 16:00 / 16:59 | 17:00 / 17:59 | 18:00 / 18:59 | 19:00 / 19:59 | 20:00 / 20:59 | 21:00 / 21:59 | 22:00 / 22:59 | 23:00 / 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | -15.6 | -16.2 | -16.6 | -17.1 | -17.5 | -18.6 | -19.5 | -19.7 | -19.5 | -18.6 | -17.3 | -16.7 | -17.3 | -16.7 | -16.3 | -16.2 | -14.9 | -14.9 | -18.2 | -22.2 | -24.2 | -25.5 | -25.7 | -26.1 | -26.1 | -14.9 | -18.8 | 24 |
| 2 | -26.2 | -25.4 | -25.0 | -23.2 | -22.7 | -22.1 | -21.9 | -21.6 | -18.9 | -14.5 | -10.8 | -5.7 | -3.7 | -4.8 | -1.5 | -3.5 | 0.2 | 0.4 | -1.2 | -1.9 | -1.3 | -1.3 | -0.8 | -0.8 | -26.2 | 0.4 | -10.8 | 24 |
| 3 | -1.1 | -1.4 | -1.6 | -1.6 | -2.4 | -4.2 | -3.9 | -3.1 | -2.6 | -3.4 | -7.9 | -8.9 | -9.9 | -10.3 | -10.1 | -9.7 | -9.6 | -11.3 | -12.6 | -14.2 | -14.2 | -15.2 | -16.4 | -17.4 | -17.4 | -1.1 | -8.0 | 24 |
| 4 | -18.4 | -19.2 | -19.8 | -20.1 | -20.4 | -20.8 | -21.1 | -21.4 | -21.5 | -20.8 | -19.6 | -18.8 | -18.3 | -17.5 | -16.9 | -16.5 | -16.2 | -16.4 | -17.0 | -17.5 | -17.5 | -17.8 | -19.2 | -21.9 | -21.9 | -16.2 | -18.9 | 24 |
| 5 | -23.8 | -23.5 | -23.2 | -24.5 | -24.2 | -23.0 | -24.6 | -26.1 | -24.9 | -18.8 | -19.9 | -18.8 | -17.5 | -16.4 | -15.6 | -13.4 | -11.1 | -12.4 | -15.0 | -20.4 | -22.7 | -23.8 | -23.4 | -22.1 | -26.1 | -11.1 | -20.4 | 24 |
| 6 | -22.7 | -24.0 | -25.4 | -25.6 | -23.6 | -20.3 | -19.9 | -20.2 | -19.4 | -15.8 | -13.0 | -11.6 | -13.8 | -12.1 | -12.9 | -12.9 | -12.8 | -15.2 | -16.9 | -18.2 | -19.0 | -19.1 | -18.2 | -18.0 | -25.6 | -11.6 | -17.9 | 24 |
| 7 | -18.4 | -19.3 | -20.7 | -21.7 | -22.4 | -23.1 | -23.4 | -24.3 | -23.1 | -20.3 | -18.8 | -15.7 | -14.3 | -13.6 | -14.7 | -15.2 | -14.3 | -15.7 | -18.0 | -20.7 | -22.0 | -20.7 | -19.5 | -19.6 | -24.3 | -13.6 | -19.1 | 24 |
| 8 | -19.7 | -19.8 | -20.0 | -20.3 | -20.5 | -21.2 | -22.2 | -22.8 | -21.3 | -18.8 | -16.9 | -15.6 | -15.1 | -14.6 | -13.3 | -14.4 | -13.0 | -14.6 | -16.8 | -19.4 | -22.2 | -24.9 | -25.2 | -24.2 | -25.2 | -13.0 | -19.0 | 24 |
| 9 | -23.3 | -24.9 | -25.7 | -26.9 | -27.8 | **-28.6** | -27.7 | -27.0 | -24.0 | -18.9 | -16.1 | -14.4 | -11.6 | -11.7 | -11.0 | -10.1 | -10.7 | -11.8 | -14.7 | -18.3 | -20.5 | -21.0 | -20.2 | -20.1 | **-28.6** | -10.1 | -19.5 | 24 |
| 10 | -20.9 | -21.2 | -22.1 | -22.3 | -22.1 | -21.9 | -21.9 | -21.7 | -20.7 | -18.9 | -17.7 | -16.3 | -15.2 | -14.0 | -14.0 | -13.7 | -13.9 | -14.4 | -15.0 | -15.4 | -15.7 | -15.8 | -16.0 | -16.4 | -22.3 | -13.7 | -17.8 | 24 |
| 11 | -16.5 | -16.7 | -17.0 | -17.1 | -17.4 | -18.4 | -19.4 | -20.7 | -18.9 | -16.1 | -13.6 | -11.8 | -11.7 | -11.6 | -10.5 | -10.7 | -11.7 | -12.6 | -13.2 | -13.7 | -13.9 | -14.1 | -14.4 | -14.8 | -20.7 | -10.5 | -14.9 | 24 |
| 12 | -15.1 | -15.5 | -16.0 | -16.1 | -16.3 | -16.4 | -16.1 | -16.0 | -15.7 | -14.6 | -13.3 | -12.7 | -11.7 | -10.8 | -10.2 | -9.9 | -9.6 | -9.6 | -10.0 | -10.4 | -10.7 | -10.8 | -11.0 | -10.7 | -16.4 | -9.6 | -12.9 | 24 |
| 13 | -10.3 | -10.1 | -10.0 | -10.0 | -9.1 | -8.5 | -8.2 | -8.7 | -7.3 | -6.2 | -3.6 | -1.0 | 0.7 | 1.0 | 2.3 | 4.8 | 6.0 | 6.2 | 5.1 | 3.0 | 1.0 | 1.2 | 1.0 | 1.0 | -10.3 | 6.2 | -2.5 | 24 |
| 14 | 1.4 | 0.2 | -0.2 | -0.7 | -2.0 | -0.7 | 0.1 | 0.7 | 1.4 | 4.3 | 7.2 | 8.7 | 9.4 | 10.7 | 10.7 | 10.4 | 9.9 | 9.5 | 8.6 | 7.4 | 6.1 | 4.3 | 3.2 | 2.9 | -2.0 | 10.7 | 4.7 | 24 |
| 15 | 3.5 | 3.6 | 3.3 | 3.0 | 3.3 | 3.2 | 2.9 | 2.5 | 2.0 | 2.2 | 2.8 | 3.5 | 4.3 | 4.5 | 5.1 | 5.3 | 5.2 | 5.0 | 3.9 | 1.5 | -0.8 | -2.6 | -4.2 | -5.5 | -5.5 | 5.3 | 2.4 | 24 |
| 16 | -5.8 | -6.6 | -7.2 | -7.5 | -7.8 | -7.3 | -7.2 | -7.0 | -2.5 | -1.2 | 1.1 | 2.2 | 3.3 | 4.7 | 5.3 | 4.6 | 1.0 | -0.3 | -0.5 | -2.8 | -4.3 | -3.1 | -2.6 | -2.8 | -7.8 | 5.3 | -2.3 | 24 |
| 17 | -3.0 | -2.8 | -2.7 | -3.0 | -3.5 | -4.3 | -5.3 | -4.7 | -3.8 | -2.2 | -1.1 | -0.7 | 0.0 | 2.0 | 3.4 | 4.5 | 6.1 | 6.0 | 3.6 | -0.2 | -1.1 | -1.2 | -0.9 | -0.7 | -5.3 | 6.1 | -0.7 | 24 |
| 18 | -0.6 | -0.7 | -0.9 | -1.2 | -1.7 | -2.0 | -2.3 | -2.3 | -1.7 | -0.6 | 0.8 | 3.8 | 4.3 | 4.6 | 3.3 | 0.9 | -0.7 | -1.7 | -2.7 | -3.3 | -4.0 | -5.3 | -6.1 | -6.6 | -6.6 | 4.6 | -1.1 | 24 |
| 19 | -7.9 | -9.3 | -10.1 | -10.9 | -11.4 | -12.2 | -13.1 | -13.0 | -11.5 | -10.7 | -10.6 | -10.3 | -8.2 | -6.3 | -6.2 | -5.7 | -5.2 | -5.5 | -7.1 | -8.9 | -9.6 | -11.0 | -12.1 | -13.0 | -13.1 | -5.2 | -9.6 | 24 |
| 20 | -13.9 | -14.4 | -15.1 | -15.5 | -16.6 | -18.0 | -18.9 | -17.7 | -13.7 | -11.2 | -10.1 | -8.6 | -7.1 | -5.8 | -5.1 | -4.6 | -3.6 | -3.1 | -3.5 | -6.5 | -9.7 | -8.8 | -7.9 | -8.6 | -18.9 | -3.1 | -10.3 | 24 |
| 21 | -8.7 | -9.7 | -8.8 | -9.2 | -9.8 | -10.6 | -10.2 | -8.6 | -5.3 | -2.2 | -0.5 | 0.2 | 1.2 | 1.9 | 3.0 | 4.0 | 4.3 | 4.0 | 2.8 | 0.5 | -0.4 | -0.9 | -1.0 | -1.2 | -10.6 | 4.3 | -2.7 | 24 |
| 22 | -1.3 | -1.8 | -2.5 | -2.2 | -2.3 | -2.3 | -2.2 | -2.1 | -1.1 | 0.3 | 1.0 | 4.5 | 5.6 | 5.0 | 5.5 | 5.4 | 5.4 | 5.5 | 4.8 | 0.2 | -1.2 | -1.9 | -3.5 | -3.4 | -3.5 | 5.6 | 0.6 | 24 |
| 23 | -2.9 | -2.8 | -2.8 | -2.7 | -2.7 | -2.9 | -3.2 | -3.0 | -2.5 | -3.0 | -1.5 | -1.4 | -0.5 | 0.3 | 0.8 | 2.3 | 3.3 | 3.2 | 2.1 | -0.3 | -2.7 | -3.2 | -3.8 | -3.9 | -3.9 | 3.3 | -1.4 | 24 |
| 24 | -3.6 | -3.6 | -3.8 | -4.2 | -4.2 | -3.9 | -4.7 | -4.0 | -1.9 | -0.2 | 2.0 | 3.4 | 3.9 | 4.1 | 5.3 | 5.9 | 6.2 | 6.6 | 5.2 | 3.2 | 1.3 | 0.4 | -2.0 | -3.1 | -4.7 | 6.6 | 0.3 | 24 |
| 25 | -2.9 | -3.4 | -4.3 | -5.2 | -6.4 | -6.7 | -7.2 | -5.3 | -0.5 | 1.4 | 3.3 | 2.7 | 6.6 | 6.7 | 6.8 | 7.3 | 7.4 | 7.6 | 4.9 | 3.3 | 3.3 | 2.9 | 2.5 | 2.0 | -7.2 | 7.6 | 1.1 | 24 |
| 26 | 0.7 | -0.3 | -1.9 | -2.3 | -2.3 | -2.3 | -2.1 | -2.0 | 0.6 | 2.3 | 3.4 | 3.6 | 4.0 | 4.9 | 5.8 | 6.5 | 7.2 | 7.5 | 6.9 | 1.0 | -2.0 | -2.5 | -1.8 | -1.1 | -2.5 | 7.5 | 1.4 | 24 |
| 27 | -1.1 | -1.2 | -1.2 | -1.7 | -1.9 | -1.8 | -2.3 | -2.4 | -0.9 | 2.5 | 4.8 | 6.5 | 7.4 | 7.2 | 7.5 | 9.1 | 8.2 | 6.6 | 5.3 | 3.3 | 0.9 | -0.5 | -1.9 | -2.9 | -2.9 | 9.1 | 2.1 | 24 |
| 28 | -2.8 | -2.4 | -3.8 | -4.1 | -4.2 | -3.2 | -3.3 | -0.6 | 1.6 | 3.8 | 5.8 | 7.1 | 7.7 | 8.6 | 9.1 | 8.9 | 8.9 | 8.0 | 7.4 | 4.2 | 3.1 | 4.3 | 1.5 | -0.1 | -4.2 | 9.1 | 2.7 | 24 |
| 29 | 0.9 | 0.6 | -0.4 | -1.4 | -0.5 | -0.8 | -2.0 | 0.2 | 3.3 | 5.1 | 5.8 | 7.0 | 8.0 | 8.9 | 9.5 | 10.5 | 10.6 | 9.8 | 8.5 | 3.9 | 0.5 | -0.9 | -0.7 | 0.4 | -2.0 | 10.6 | 3.6 | 24 |
| 30 | 0.7 | 0.1 | 0.3 | 0.6 | 0.6 | -0.4 | -0.8 | 0.7 | 3.0 | 7.5 | 9.0 | 10.5 | 12.7 | 13.0 | 11.5 | 11.5 | **13.1** | 11.0 | 10.9 | 6.8 | 2.3 | 1.6 | 2.0 | 2.3 | -0.8 | **13.1** | **5.4** | 24 |
| 31 | 2.0 | 1.7 | 0.9 | 1.0 | 0.7 | 0.5 | 0.8 | 1.6 | 3.5 | 4.2 | 5.0 | 7.2 | 7.8 | 8.4 | 8.6 | 10.0 | 10.3 | 10.2 | 9.3 | 7.0 | 6.3 | 5.5 | 4.6 | 4.1 | 0.5 | 10.3 | 5.1 | 24 |
| HOURLY MAX | 3.5 | 3.6 | 3.3 | 3.0 | 3.3 | 3.2 | 2.9 | 2.5 | 3.5 | 7.5 | 9.0 | 10.5 | 12.7 | 13.0 | 11.5 | 11.5 | 13.1 | 11.0 | 10.9 | 7.4 | 6.3 | 5.5 | 4.6 | 4.1 | | | | |
| HOURLY AVG | -8.9 | -9.4 | -9.8 | -10.1 | -10.3 | -10.4 | -10.7 | -10.3 | -8.6 | -6.6 | -5.2 | -3.8 | -2.9 | -2.2 | -1.8 | -1.4 | -1.1 | -1.7 | -3.0 | -5.5 | -6.9 | -7.5 | -7.9 | -8.1 | | | | |

**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 |

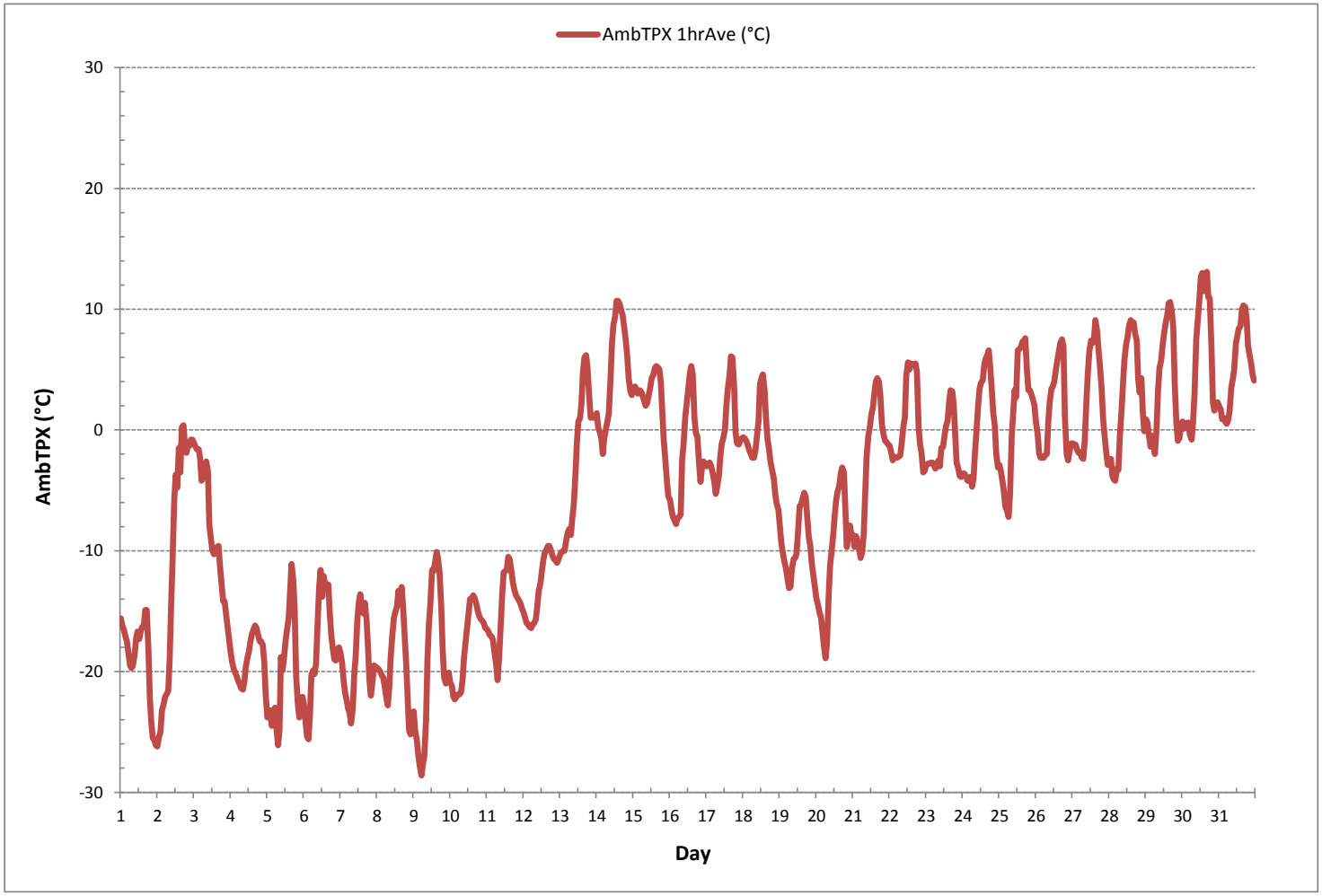
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MINIMUM 1-HR AVERAGE: | | -28.6 | °C | @ HOUR(S) | 5 | ON DAY(S) | 9 |
| MAXIMUM 1-HR AVERAGE: | | 13.1 | °C | @ HOUR(S) | 16 | ON DAY(S) | 30 |
| MAXIMUM 24-HR AVERAGE: | | 5.4 | °C | | | ON DAY(S) | 30 |
| | | | | | | VAR-VARIOUS | |
| | | | | OPERATIONAL TIME: | | 744 | hrs |
| | | | | AMD OPERATION UPTIME: | | 100.0 | % |
| STANDARD DEVIATION: | 10.0 | | | MONTHLY AVERAGE: | | -6.4 | °C |

**AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)**



# *STATION TEMPERATURE*

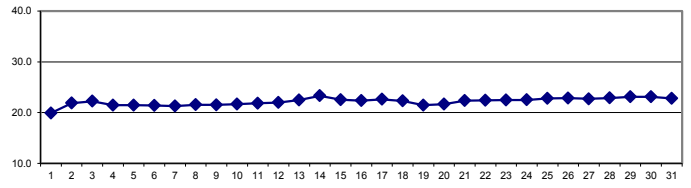
## STATION TEMPERATURE Hourly Averages (StnTPX °C)

| HR START (MST) / HR END (MST) | 0:00 0:59 | 1:00 1:59 | 2:00 2:59 | 3:00 3:59 | 4:00 4:59 | 5:00 5:59 | 6:00 6:59 | 7:00 7:59 | 8:00 8:59 | 9:00 9:59 | 10:00 10:59 | 11:00 11:59 | 12:00 12:59 | 13:00 13:59 | 14:00 14:59 | 15:00 15:59 | 16:00 16:59 | 17:00 17:59 | 18:00 18:59 | 19:00 19:59 | 20:00 20:59 | 21:00 21:59 | 22:00 22:59 | 23:00 23:59 | DAILY MIN. | DAILY MAX. | 24-HR AVG. | RDGS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 19.9 | 19.9 | 20.3 | 19.9 | 20.1 | 20.2 | 19.7 | 19.9 | 19.8 | 19.7 | 20.1 | 19.5 | 19.8 | 19.4 | **19.3** | 19.6 | 19.5 | 19.5 | 20.2 | 20.1 | 20.6 | 20.2 | 20.0 | 20.5 | **19.3** | 20.6 | 19.9 | 24 |
| 2 | 20.0 | 20.5 | 20.1 | 20.1 | 20.5 | 20.1 | 20.4 | 20.4 | 20.2 | 21.5 | 22.4 | 22.7 | 23.1 | 23.4 | 23.5 | 23.2 | 23.0 | 22.8 | 22.8 | 22.7 | 23.0 | 22.7 | 23.0 | 23.0 | 20.0 | 23.5 | 21.9 | 24 |
| 3 | 23.0 | 22.8 | 23.0 | 23.2 | 22.8 | 22.8 | 22.7 | 22.9 | 22.4 | 22.0 | 22.0 | 22.1 | 21.7 | 21.8 | 22.1 | 21.7 | 21.9 | 22.1 | 21.8 | 22.1 | 21.8 | 22.0 | 21.5 | 21.8 | 21.5 | 23.2 | 22.3 | 24 |
| 4 | 21.6 | 21.2 | 21.4 | 21.5 | 21.1 | 21.4 | 21.1 | 21.3 | 21.3 | 20.9 | 21.4 | 21.1 | 21.4 | 21.6 | 21.4 | 22.0 | 21.5 | 22.0 | 21.6 | 21.9 | 21.8 | 21.5 | 22.0 | 21.4 | 20.9 | 22.0 | 21.5 | 24 |
| 5 | 21.5 | 21.5 | 21.2 | 21.3 | 21.3 | 21.1 | 21.5 | 21.0 | 21.2 | 21.2 | 21.1 | 21.4 | 21.2 | 21.7 | 21.5 | 22.0 | 21.9 | 22.2 | 22.0 | 22.1 | 21.4 | 21.7 | 21.3 | 21.2 | 21.0 | 22.2 | 21.5 | 24 |
| 6 | 21.6 | 21.1 | 21.6 | 20.9 | 21.3 | 21.2 | 21.2 | 21.5 | 21.2 | 21.8 | 21.3 | 21.8 | 21.3 | 21.3 | 21.6 | 21.3 | 21.6 | 21.6 | 21.3 | 21.7 | 21.4 | 21.6 | 21.5 | 21.5 | 20.9 | 21.8 | 21.4 | 24 |
| 7 | 21.7 | 21.3 | 21.6 | 21.1 | 21.1 | 21.2 | 20.9 | 20.9 | 20.9 | 21.0 | 20.9 | 21.4 | 21.0 | 21.4 | 21.2 | 21.3 | 21.3 | 21.2 | 21.8 | 21.3 | 21.8 | 21.4 | 21.6 | 21.7 | 20.9 | 21.8 | 21.3 | 24 |
| 8 | 21.3 | 21.7 | 21.4 | 21.5 | 21.6 | 21.3 | 21.6 | 21.2 | 21.6 | 21.1 | 21.6 | 21.6 | 21.6 | 21.9 | 22.1 | 21.7 | 22.2 | 21.5 | 21.8 | 21.3 | 21.7 | 21.2 | 21.3 | 21.4 | 21.1 | 22.2 | 21.6 | 24 |
| 9 | 21.0 | 21.4 | 21.1 | 21.0 | 21.2 | 20.9 | 20.8 | 21.1 | 21.1 | 21.1 | 21.7 | 21.3 | 21.8 | 21.5 | 22.2 | 22.3 | 22.3 | 22.5 | 22.3 | 21.8 | 21.9 | 21.5 | 21.6 | 21.3 | 20.8 | 22.5 | 21.5 | 24 |
| 10 | 21.3 | 21.5 | 21.0 | 21.5 | 21.0 | 21.5 | 20.9 | 21.5 | 21.1 | 21.7 | 21.5 | 21.8 | 21.9 | 21.9 | 22.1 | 22.1 | 21.9 | 22.4 | 21.8 | 22.2 | 21.6 | 22.0 | 21.6 | 21.9 | 20.9 | 22.4 | 21.7 | 24 |
| 11 | 21.7 | 21.6 | 21.8 | 21.5 | 21.6 | 21.8 | 21.3 | 21.6 | 21.4 | 21.4 | 21.9 | 21.6 | 21.9 | 22.1 | 22.1 | 22.3 | 22.3 | 22.4 | 22.0 | 21.9 | 22.2 | 21.8 | 22.1 | 21.7 | 21.3 | 22.4 | 21.8 | 24 |
| 12 | 22.0 | 21.8 | 22.0 | 21.6 | 21.6 | 21.9 | 21.5 | 21.9 | 21.9 | 22.1 | 22.1 | 22.1 | 22.4 | 22.3 | 22.1 | 22.5 | 22.1 | 22.2 | 22.2 | 21.8 | 22.2 | 21.7 | 22.1 | 21.6 | 21.5 | 22.5 | 22.0 | 24 |
| 13 | 22.1 | 21.8 | 22.0 | 21.9 | 21.9 | 22.0 | 22.2 | 22.1 | 22.2 | 22.4 | 22.2 | 22.7 | 22.2 | 22.3 | 22.3 | 23.1 | 23.0 | 23.6 | 23.8 | 23.1 | 22.6 | 22.6 | 22.6 | 22.6 | 21.8 | 23.8 | 22.5 | 24 |
| 14 | 23.0 | 22.4 | 22.7 | 22.2 | 22.7 | 22.6 | 22.7 | 22.7 | 22.5 | 22.7 | 22.2 | 22.8 | 23.7 | 24.6 | 24.6 | 24.6 | 24.6 | **24.7** | 24.6 | 24.4 | 24.0 | 23.3 | 22.5 | 22.7 | 22.2 | **24.7** | **23.3** | 24 |
| 15 | 22.7 | 22.7 | 22.3 | 22.8 | 22.7 | 22.2 | 22.6 | 22.2 | 22.1 | 22.2 | 22.2 | 22.3 | 22.4 | 22.4 | 22.0 | 22.4 | 22.9 | 23.5 | 23.8 | 22.9 | 22.6 | 22.6 | 22.3 | 22.4 | 22.0 | 23.8 | 22.6 | 24 |
| 16 | 22.3 | 22.2 | 22.3 | 22.3 | 22.1 | 22.0 | 22.0 | 22.3 | 22.2 | 22.2 | 22.2 | 22.4 | 22.6 | 23.0 | 22.5 | 22.5 | 22.6 | 22.3 | 22.3 | 22.7 | 22.4 | 22.1 | 22.5 | 22.5 | 22.0 | 23.0 | 22.4 | 24 |
| 17 | 22.4 | 22.3 | 22.1 | 22.3 | 22.4 | 22.1 | 22.0 | 22.2 | 22.3 | 22.5 | 22.5 | 22.3 | 22.6 | 22.6 | 22.1 | 22.6 | 23.5 | 24.3 | 24.4 | 23.4 | 22.6 | 22.6 | 22.4 | 22.9 | 22.0 | 24.4 | 22.6 | 24 |
| 18 | 22.6 | 22.6 | 22.7 | 22.4 | 22.8 | 22.5 | 22.5 | 22.7 | 22.5 | 22.7 | 22.5 | 22.7 | 22.3 | 22.3 | 22.2 | 22.2 | 22.3 | 22.0 | 22.0 | 22.0 | 21.7 | 21.6 | 21.7 | 21.6 | 21.6 | 22.8 | 22.3 | 24 |
| 19 | 22.0 | 21.4 | 21.9 | 21.3 | 21.7 | 21.5 | 21.2 | 21.5 | 21.2 | 21.1 | 21.3 | 21.2 | 21.0 | 21.4 | 21.7 | 21.9 | 21.9 | 22.0 | 21.7 | 21.9 | 21.2 | 21.4 | 21.2 | 20.9 | 20.9 | 22.0 | 21.5 | 24 |
| 20 | 21.4 | 21.3 | 21.0 | 21.5 | 21.2 | 21.3 | 21.2 | 21.0 | 21.4 | 21.1 | 21.6 | 21.6 | 21.5 | 22.0 | 21.9 | 22.0 | 22.3 | 22.4 | 22.4 | 22.6 | 22.1 | 21.9 | 22.2 | 21.8 | 21.0 | 22.6 | 21.7 | 24 |
| 21 | 21.8 | 21.8 | 21.8 | 21.9 | 21.7 | 21.9 | 21.6 | 21.9 | 21.9 | 22.3 | 22.6 | 22.2 | 22.6 | 22.8 | 22.2 | 22.6 | 23.2 | 23.4 | 23.3 | 22.3 | 23.0 | 22.6 | 22.5 | 22.7 | 21.6 | 23.4 | 22.4 | 24 |
| 22 | 22.6 | 22.3 | 22.6 | 22.5 | 22.4 | 22.4 | 22.5 | 22.5 | 22.1 | 22.7 | 22.4 | 22.4 | 22.9 | 22.3 | 22.1 | 21.9 | 22.0 | 22.4 | 22.7 | 22.3 | 22.9 | 22.5 | 22.6 | 22.3 | 21.9 | 22.9 | 22.4 | 24 |
| 23 | 22.3 | 22.5 | 22.5 | 22.6 | 22.5 | 22.3 | 22.4 | 22.6 | 22.5 | 22.4 | 22.3 | 22.5 | 22.5 | 22.4 | 22.5 | 21.8 | 22.5 | 23.2 | 23.0 | 22.5 | 22.5 | 22.4 | 22.2 | 22.3 | 21.8 | 23.2 | 22.5 | 24 |
| 24 | 22.3 | 22.2 | 22.3 | 22.2 | 22.2 | 22.3 | 22.3 | 22.2 | 22.3 | 22.2 | 22.7 | 22.6 | 22.1 | 22.9 | 22.3 | 22.3 | 22.7 | 23.3 | 23.7 | 23.3 | 22.4 | 22.5 | 22.8 | 22.2 | 22.1 | 23.7 | 22.5 | 24 |
| 25 | 22.6 | 22.5 | 22.3 | 22.3 | 22.2 | 22.1 | 21.9 | 22.2 | 22.2 | 22.3 | 22.3 | 22.4 | 22.5 | 22.7 | 23.1 | 23.7 | 24.4 | 24.4 | 24.4 | 23.9 | 23.0 | 22.4 | 22.6 | 22.6 | 21.9 | 24.4 | 22.8 | 24 |
| 26 | 22.6 | 22.7 | 22.4 | 22.6 | 22.4 | 22.4 | 22.3 | 22.5 | 22.6 | 22.5 | 22.6 | 22.0 | 22.2 | 22.5 | 22.7 | 23.4 | 24.5 | 24.4 | 24.5 | 24.1 | 22.7 | 22.4 | 22.9 | 22.4 | 22.0 | 24.5 | 22.8 | 24 |
| 27 | 22.7 | 22.3 | 22.5 | 22.4 | 22.1 | 22.5 | 22.4 | 22.4 | 22.2 | 22.6 | 22.7 | 22.4 | 21.9 | 22.3 | 22.5 | 23.1 | 23.9 | 24.3 | 24.1 | 23.5 | 22.6 | 22.6 | 22.4 | 22.7 | 21.9 | 24.3 | 22.7 | 24 |
| 28 | 22.2 | 22.4 | 22.5 | 22.4 | 22.3 | 22.3 | 22.3 | 22.4 | 22.4 | 22.5 | 22.0 | 22.3 | 22.5 | 22.9 | 23.5 | 24.2 | **24.7** | 24.4 | 24.4 | 23.9 | 23.1 | 22.6 | 22.6 | 22.5 | 22.0 | **24.7** | 22.9 | 24 |
| 29 | 22.5 | 22.7 | 22.5 | 22.5 | 22.6 | 22.5 | 22.2 | 22.7 | 22.4 | 21.8 | 22.9 | 22.8 | 23.2 | 23.8 | 24.4 | 24.2 | 24.3 | 24.4 | 24.6 | 24.5 | 23.5 | 22.4 | 22.5 | 22.9 | 21.8 | 24.6 | 23.1 | 24 |
| 30 | 22.6 | 22.4 | 22.8 | 22.6 | 22.4 | 22.7 | 22.3 | 22.7 | 22.6 | 22.0 | 21.9 | 22.5 | 23.2 | 24.2 | 24.4 | 24.2 | 24.1 | 24.4 | 24.3 | 24.6 | 24.1 | 23.0 | 22.6 | 22.7 | 21.9 | 24.6 | 23.1 | 24 |
| 31 | 22.6 | 22.5 | 22.7 | 22.6 | 22.6 | 22.5 | 22.8 | 22.5 | 22.9 | 22.7 | 22.3 | 22.9 | 22.4 | 22.5 | 22.6 | 22.9 | 23.6 | 24.1 | 24.1 | 23.5 | 22.7 | 22.0 | 22.7 | 22.4 | 22.0 | 24.1 | 22.8 | 24 |
| HOURLY MAX | 23.0 | 22.8 | 23.0 | 23.2 | 22.8 | 22.8 | 22.8 | 22.9 | 22.9 | 22.7 | 22.9 | 22.9 | 23.7 | 24.6 | 24.6 | 24.6 | 24.7 | 24.7 | 24.6 | 24.6 | 24.1 | 23.3 | 23.0 | 23.0 | | | | |
| HOURLY AVG | 22.0 | 21.9 | 21.9 | 21.9 | 21.9 | 21.9 | 21.8 | 21.9 | 21.8 | 21.9 | 22.0 | 22.0 | 22.1 | 22.3 | 22.3 | 22.5 | 22.7 | 22.9 | 22.9 | 22.7 | 22.4 | 22.1 | 22.1 | 22.1 | | | | |

**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 |

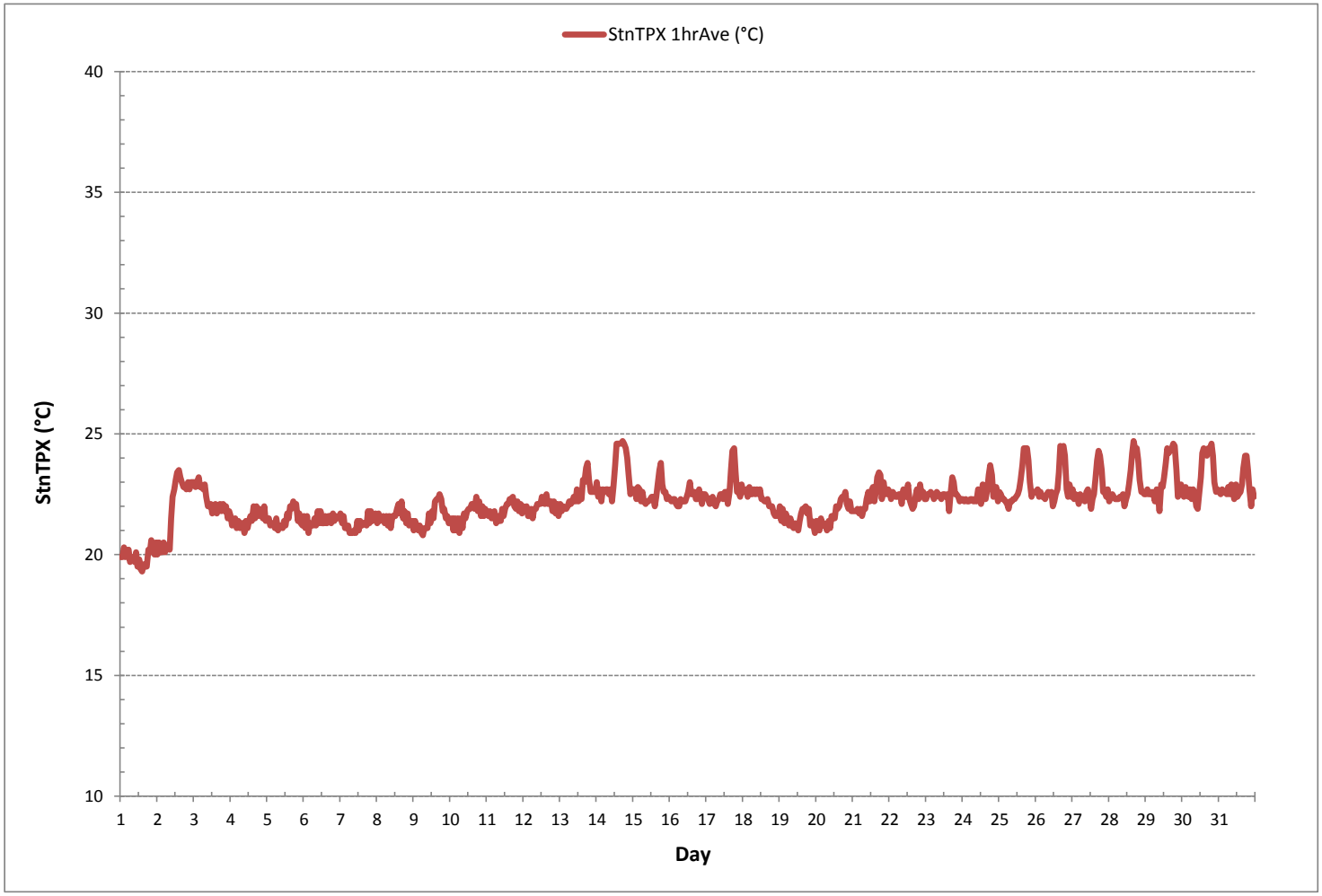
**24 HR AVERAGES March 2017**




**MONTHLY SUMMARY**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MINIMUM 1-HR AVERAGE: | 19.3 | °C | @ HOUR(S) | 14 | ON DAY(S) | 1 | |
| MAXIMUM 1-HR AVERAGE: | 24.7 | °C | @ HOUR(S) | 17 , 16 | ON DAY(S) | 14 , 28 | |
| MAXIMUM 24-HR AVERAGE: | 23.3 | °C | | | ON DAY(S) | 14 | |
| | | | | | VAR-VARIOUS | | |
| | | | OPERATIONAL TIME: | | | 744 | hrs |
| | | | AMD OPERATION UPTIME: | | | 100.0 | % |
| STANDARD DEVIATION: | 0.9 | | MONTHLY AVERAGE: | | | 22.2 | °C |

**STATION TEMPERATURE Hourly Averages (StnTPX °C)**



# *APPENDIX II*
# *EQUIPMENT CALIBRATION RESULTS*

# *SULPHUR DIOXIDE*

# API 100A Sulphur Dioxide Analyzer Calibration

| | | | |
|---|---|---|---|
| **Date:** | March 2, 2017 | **Barometric Pressure:** | 941.2 mB |
| **Company/Airshed:** | PRAMP | **Station Temperature °C:** | 23 |
| **Location/Station Name:** | 842b | **Weather Conditions:** | Sunny |
| **Parameter:** | Sulphur Dioxide | **Calibration Purpose:** | routine monthly |
| **Start Time 24 hr. (mst):** | 13:16 | **Performed By/Reviewer:** | Chris Wesson / Trina Whitsitt |
| **End Time 24 hr. (mst):** | 16:18 | **Cal Gas Expiry Date:** | December 2, 2023 |
| **Calibration Method:** | Gas Dilution | **Converter Model & s/n (if applicable):** | n/a |

**Analyzer:**

| | | | |
|---|---|---|---|
| **ID# or Serial Number:** | 838 | **Range ppb:** | 500 |
| **Last Calibration Date:** | February 1, 2017 | **As Found C.F.:** | 0.995 |
| **Previous C.F.:** | 1.000 | **New C.F.:** | 1.000 |

**Calibrator:**

| | |
|---|---|
| **Flow Meter ID's:** | 148943 & 152020 |
| **Make & Model:** | Sabio 2010 |
| **Serial #:** | 17100415 |
| **Cal Gas Cylinder I.D. # :** | LL119317 |
| **Cal Gas Conc. (ppm):** | 49.9 |

**Standard Calibration Points for Ranges**

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

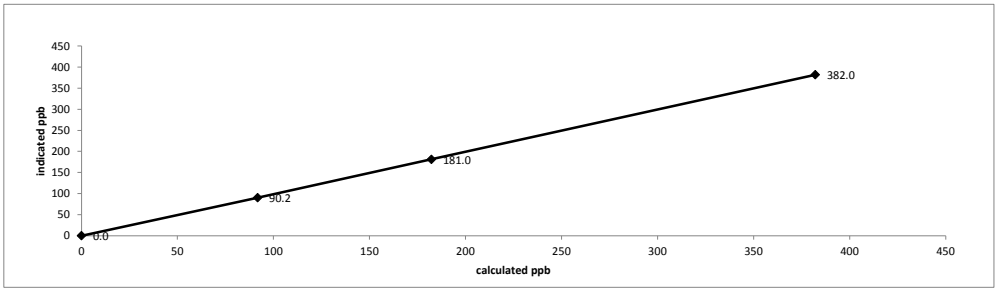
***ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015***

| Calibrator Flow Rates (cc/min) | | | | Calculated Concentration: | Indicated Concentration: | Correction Factors (C.F.): |
|---|---|---|---|---|---|---|
| **Point** | **Diluent** | **Cal Gas** | **Total** | **(ppb)** | **(ppb)** | |
| **as found zero** | 5916 | 0.00 | 5916 | 0.0 | 0.0 | n/a |
| **as found high** | 5871 | 45.31 | 5916 | 382.1 | 384.0 | 0.995 |
| **adjusted zero** | 5916 | 0.00 | 5916 | 0.0 | 0.0 | n/a |
| **adjusted high** | 5871 | 45.31 | 5916 | 382.1 | 382.0 | 1.000 |
| **mid** | 5897 | 21.61 | 5919 | 182.2 | 181.0 | 1.007 |
| **low** | 5901 | 10.87 | 5912 | 91.7 | 90.2 | 1.017 |
| **calibrator zero** | 5916 | 0.00 | 5916 | 0.0 | 0.0 | n/a |
| | | | | | **Average C.F.=** | 1.008 |

**Linear Regression/Calibration Results:**

| | | **LIMITS** |
|---|---|---|
| **Correlation Coeffecient =** | **1.000** | **> or = 0.995** |
| **Slope =** | **0.999** | **.95-1.05** |
| **b (Intercept as % of full scale)=** | **0.17%** | **± 3% F.S.** |
| **% change in C.F. from last cal=** | **0.49%** | **± 10%** |

**API 100A Sulphur Dioxide Analyzer Calibration**




| As found: | | As left: | |
|---|---|---|---|
| SLOPE: | 1.041 | SLOPE: | 1.033 |
| OFFSET: | 19.6 | OFFSET: | 19.6 |
| HVPS: | 686 | HVPS: | 686 |
| DCPS: | 2544 | DCPS: | 2545 |
| RCELL TEMP: | 49.4 | RCELL TEMP: | 50.9 |
| BOX TEMP: | 31.7 | BOX TEMP: | 31.7 |
| PMT TEMP: | 7.2 | PMT TEMP: | 7.2 |
| IZS TEMP: | 60.1 | IZS TEMP: | 60.1 |
| PRES: | 26.3 | PRES: | 26.3 |
| SAMP FL: | 633 | SAMP FL: | 634 |
| PMT: | 57.4 | PMT: | 57.9 |
| UV LAMP: | 2322 | UV LAMP: | 2333 |
| LAMP RATIO: | 93.5 | LAMP RATIO: | 93.6 |
| STR. LGT | 10.2 | STR. LGT | 10.1 |
| DRK PMT: | 34.1 | DRK PMT: | 34.1 |
| DRK LMP: | -7.0 | DRK LMP: | -7.0 |
| Expected Value: | 229.1 | Expected Value: | 236.0 |

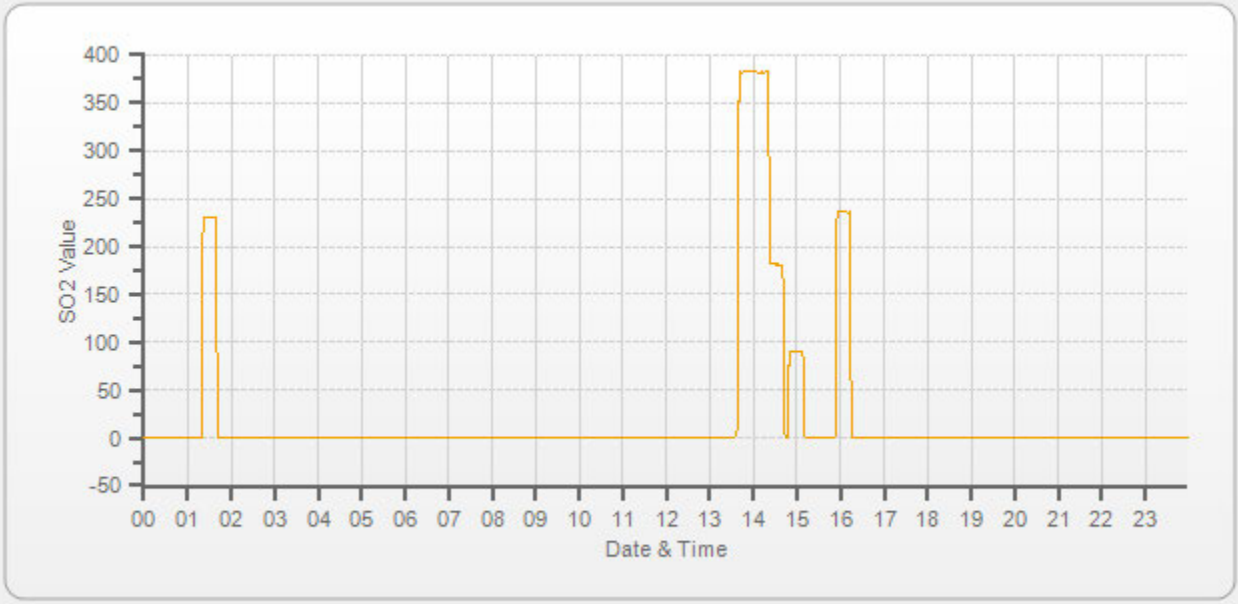
**Comments:**

The analyzer sample inlet filter was changed.

No zero adjustment was required/made. As found zero value copied to adjusted zero value for linearity calculation purposes.

Flow check performed before low point
Flowmeters = Mesalabs Defender 530

SO2[ppb] Station: THREE CREEKS #842 TRAILER Daily: 2017/03/02 Type: AVG 1 Min. [1 Min.]



# *TOTAL REDUCED SULPHUR*

# Thermo 43i Total Reduced Sulphur Analyzer Calibration

| | | | |
|---|---|---|---|
| **Date:** | March 2, 2017 | **Barometric Pressure:** | 943.7 mb |
| **Company/Airshed:** | PRAMP | **Station Temperature °C:** | 22 |
| **Location/Station Name:** | 842b | **Weather Conditions:** | Mainly sunny |
| **Parameter:** | Total Reduced Sulphur | **Calibration Purpose:** | routine monthly |
| **Start Time 24 hr. (mst):** | 10:32 | **Performed By/Reviewer:** | Chris Wesson |
| **End Time 24 hr. (mst):** | 14:24 | **Cal Gas Expiry Date:** | December 1, 2018 |
| **Calibration Method:** | Gas Dilution | **Converter Model & s/n (if applicable):** | CD Nova CDN-101 #534 |

**Analyzer:**

| | | | |
|---|---|---|---|
| **ID# or Serial Number:** | 1162460023 | **Range ppb:** | 100 |
| **Last Calibration Date:** | February 15, 2017 | **As Found C.F.:** | 1.002 |
| **Previous C.F.:** | 1.000 | **New C.F.:** | 1.000 |

**Calibrator:**

| | |
|---|---|
| **Flow Meter ID's:** | 148943 & 152020 |
| **Make & Model:** | Environics 6100 |
| **Serial #:** | 5212 |
| **Cal Gas Cylinder I.D. # :** | BLM001927 |
| **Cal Gas Conc. (ppm):** | 10.3 |

**Standard Calibration Points for Ranges**

| Point | ppb |
|---|---|
| High | 78 |
| Mid | 38 |
| Low | 19 |

**SO2 Scrubber Check (10 mins.)**

| | |
|---|---|
| **Start/End Time 24 hr.:** | 11:14/11:24 |
| **Target Concentration (ppb):** | 780 |
| **Result (ppb):** | 0 |
| **'Zero Corrected Result (ppb):** | 0 |

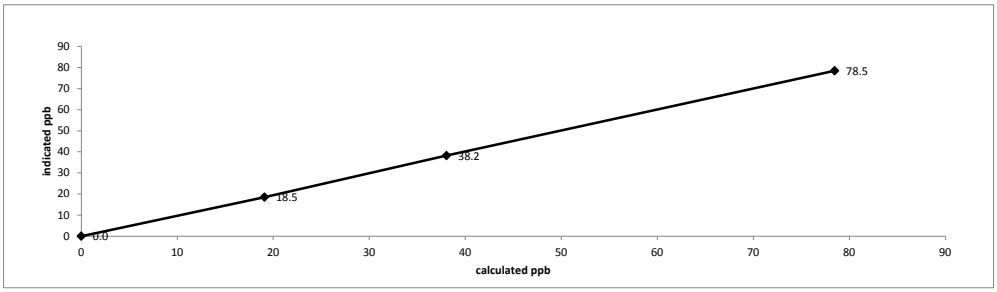
***ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015***

| Calibrator Flow Rates (cc/min) | | | | Calculated Concentration: | Indicated Concentration: | Correction Factors (C.F.): |
|---|---|---|---|---|---|---|
| **Point** | **Diluent** | **Cal Gas** | **Total** | **(ppb)** | **(ppb)** | |
| **as found zero** | 7426 | 0.00 | 7426 | 0.0 | -0.3 | n/a |
| **as found high** | 7356 | 56.47 | 7412 | 78.5 | 78.0 | 1.002 |
| **adjusted zero** | 7426 | 0.00 | 7426 | 0.0 | 0.0 | n/a |
| **adjusted high** | 7356 | 56.47 | 7412 | 78.5 | 78.5 | 1.000 |
| **mid** | 7431 | 27.55 | 7459 | 38.0 | 38.2 | 0.996 |
| **low** | 7441 | 13.81 | 7455 | 19.1 | 18.5 | 1.029 |
| **calibrator zero** | 7426 | 0.00 | 7426 | 0.0 | 0.1 | n/a |
| | | | | | **Average C.F.=** | 1.008 |

**Linear Regression/Calibration Results:**

| | | LIMITS |
|---|---|---|
| **Correlation Coeffecient =** | **1.000** | **> or = 0.995** |
| **Slope =** | **0.997** | **.95-1.05** |
| **b (Intercept as % of full scale)=** | **0.19%** | **± 3% F.S.** |
| **% change in C.F. from last cal=** | **-0.24%** | **± 10%** |

**Thermo 43i Total Reduced Sulphur Analyzer Calibration**




| | As found: | As left: |
|---|---|---|
| BKG: | 3.01 | 2.70 |
| COEF: | 0.879 | 0.882 |
| PMT: | -725.6 | -725.2 |
| FLASH: | 1007 | 1006 |
| INTERNAL: | 31.3 | 32.3 |
| CHAMBER: | 45.1 | 45.0 |
| PERM OVEN GAS: | 45.01 | 45.01 |
| PERM OVEN HEATER: | 44.11 | 44.12 |
| PRESSURE: | 666.6 | 664.5 |
| SAMPLE FLOW: | 0.409 | 0.408 |
| LAMP INTENSITY: | 88 | 88 |
| CONVERTER: | 850 | 850 |
| CONVERTER SET: | 850 | 850 |
| Expected Value: | 59.6 | 57.9 |

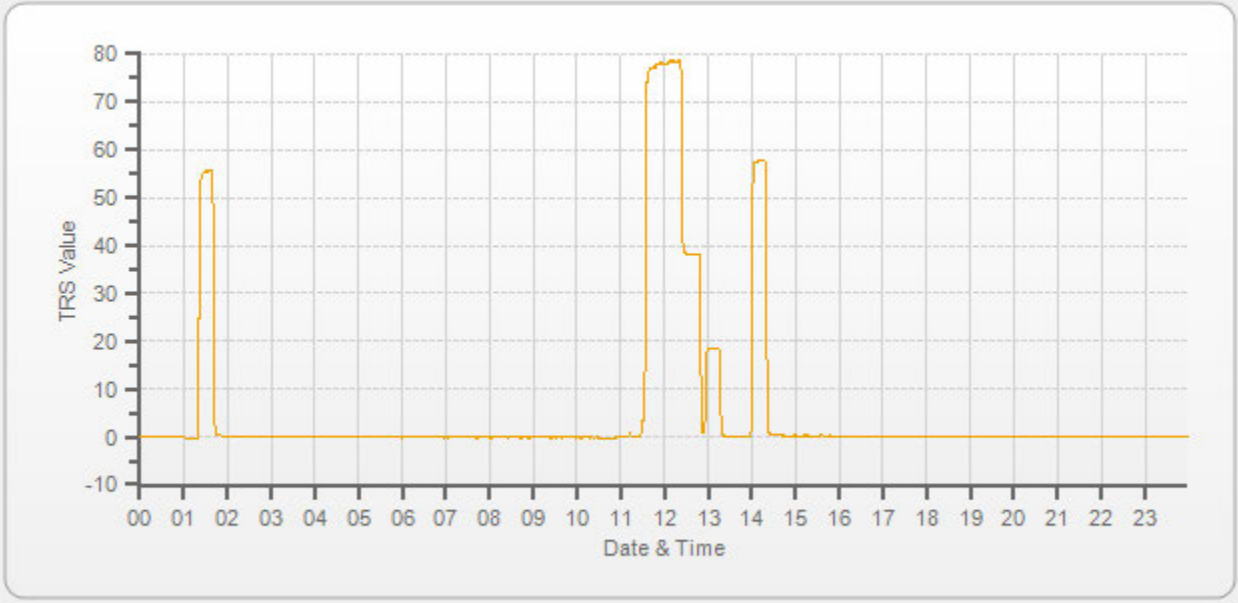
**Comments:**

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

Flow check performed before low point
Analyzer = Thermo 43i-TLE
Flowmeters = Mesalabs Defender 530

TRS[ppb] Station: THREE CREEKS #842 TRAILER Daily: 2017/03/02 Type: AVG 1 Min. [1 Min.]



# *TOTAL HYDROCARBON*

Maxxam
A Bureau Veritas Group Company

# Thermo 55i Methane/Non-Methane Analyzer Calibration

| | | | |
|---|---|---|---|
| **Date:** | March 2, 2017 | **Barometric Pressure:** | 943.7 mB |
| **Company/Airshed:** | PRAMP | **Station Temperature °C:** | 21 |
| **Location/Station Name:** | 842b | **Weather Conditions:** | Mainly sunny |
| **Parameter:** | $CH_4$ / NMHC / THC | **Calibration Purpose:** | routine monthly |
| **Start/End Time 24 hr. (mst):** | 10:32 / 13:54 | **Performed By/Reviewer:** | Chris Wesson / Trina Whitsitt |
| **Calibration Method:** | Gas Dilution | **Cal Gas Expiry Date:** | November 25, 2023 |

**Analyzer:**

| | |
|---|---|
| **ID# or Serial Number:** | 1433563261 |
| **Measured Flow:** | 1.18 L/min |
| **Last Calibration Date:** | February 1, 2017 |
| **Range ppm:** | 20 CH4/20 NMHC/40 THC |

**Correction Factors:**

| | Previous C.F.: | As Found C.F.: | New C.F.: |
|---|---|---|---|
| **$CH_4$ =** | 0.998 | 1.058 | 0.999 |
| **NMHC =** | 0.999 | 1.009 | 0.999 |
| **THC =** | 0.998 | 1.034 | 0.999 |

**Calibrator:**

| | | | |
|---|---|---|---|
| **Flow Meter ID's:** | 148943 & 152020 | | |
| **Make & Model:** | Sabio 2010 | | |
| **Serial #:** | 17100415 | | |
| **Cal Gas Cylinder I.D. # :** | LL86139 | | |
| **CH4 Cylinder Conc.=** | 599.0 | 211.0 | **=$C_3H_8$ Cylinder Conc.** |
| **$CH_4$ as $C_3H_8$=** | 580.3 | 1179.3 | **=total $CH_4$ equivilant** |

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

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

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

| Calibrator Flow Rates (cc/min) | | | | | | | | | | Correction Factors: | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point** | **Diluent** | **Cal Gas** | **Total Flow** | **Calculated $CH_4$ (ppm)** | **Calculated NMHC (ppm)** | **Calculated THC (ppm)** | **Indicated $CH_4$ (ppm)** | **Indicated NMHC (ppm)** | **Indicated THC (ppm)** | **$CH_4$** | **NMHC** | **THC** |
| **as found zero** | 2443 | 0.00 | 2443 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | n/a | n/a | n/a |
| **as found high** | 2383 | 60.27 | 2443 | 14.78 | 14.31 | 29.09 | 13.96 | 14.18 | 28.14 | 1.058 | 1.009 | 1.034 |
| **adjusted zero** | 2443 | 0.00 | 2443 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | n/a | n/a | n/a |
| **adjusted high** | 2383 | 60.27 | 2443 | 14.78 | 14.31 | 29.09 | 14.79 | 14.33 | 29.12 | 0.999 | 0.999 | 0.999 |
| **mid** | 2425 | 30.19 | 2455 | 7.37 | 7.13 | 14.50 | 7.46 | 7.25 | 14.70 | 0.987 | 0.984 | 0.986 |
| **low** | 2439 | 15.67 | 2455 | 3.82 | 3.70 | 7.53 | 3.89 | 3.77 | 7.66 | 0.983 | 0.982 | 0.983 |
| **calibrator zero** | 2443 | 0.00 | 2443 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | n/a | n/a | n/a |
| | | | | | | | | | **Average C.F.=** | 0.990 | 0.988 | 0.989 |

**Linear Regression/Calibration Results:**

| | $CH_4$ | NMHC | THC | LIMITS |
|---|---|---|---|---|
| **Correlation Coeffecient =** | **1.000** | **1.000** | **1.000** | **> or = 0.995** |
| **Slope =** | **1.000** | **1.001** | **1.000** | **.95-1.05** |
| **b (Intercept as % of full scale)=** | **0.21%** | **0.23%** | **0.22%** | **± 3% F.S.** |
| **% change in C.F. from last cal=** | **-6.06%** | **-1.04%** | **-3.58%** | **± 10%** |

| | | As found: | | | | As left: |
|---|---|---|---|---|---|---|
| Interface Board Voltages: | Bias Supply: | -299.6 | | Calibration History cnt'd: | NM Peak Area: | 93337 |
| Temperatures: | Detector Oven: | 175.0 | | Crucial Settings: | Methane Start: | n/a |
| | Filter: | 175.0 | | | Methane End: | n/a |
| | Column Oven: | 75.0 | | | Backflush: | n/a |
| | Internal: | 26.3 | | | NMHV Start: | n/a |
| Cylinder Pressures/reg.: | Carrier: | 900 | 50 | | NMHC End: | n/a |
| | Fuel: | 1200 | 50 | Run History>1: | Date: | 02Mar2017 |
| | Span Gas: | 1400 | 15 | | Time: | 10:33 |
| | Zero Air Generator: | 45 | | | $CH_4$ PK HT: | 0 |
| Internal Pressures: | Carrier: | 28.6 | | | $CH_4$ RT: | 12.2 |
| | Fuel: | 37.6 | | | $CH_4$ Baseline: | 1715 |
| | Air: | 34.3 | | | $CH_4$ LOD: | 12 |
| FID Status: | Status: | LIT | | | $CH_4$ SD: | 4 |
| | Counts: | 20946 | | | $CH_4$ CONC: | 0.00 |
| | Flame: | 350.5 | | | NM PK HT: | 0 |
| | Det Base: | 175.1 | | | NM Peak Area: | 0 |
| Flame and Power Stats: | Last Power On: | 01Feb2017@14:21 | | | NM CONC: | 0.00 |
| | Flameouts: | 1 | | | NM Base Start: | 1718 |
| | Det Oven at Start: | 151.7 | | | NM Base End: | 1734 |
| | Col Oven at Start: | 70.3 | | | NM LOD: | 22 |
| Calibration History: | Time: | 01Feb2017@15:46 | | | NM Start IDX: | 61 |
| | Type: | SPAN | | | NM End IDX: | 89 |
| | Status: | Good | | | NM Max Slope: | 3.9e+00 |
| | Check/Adjust: | Adjust | | | NM Min Slope: | -6.6e+00 |
| | $CH_4$ Span Conc: | 14.62 | | | NM PT Count: | 12 |
| | $CH_4$ SP Ratio: | 0.000675 | | Expected Values: | Previous CH4: | 8.72 |
| | $CH_4$ RT: | 12.4 | | | Previous NMHC | 10.94 |
| | $CH_4$ PK IDX: | 22 | | | Previous THC: | 19.68 |
| | $CH_4$ PK HT: | 21656 | | | New CH4: | 9.24 |
| | NM Span Conc: | 14.02 | | | New NMHC | 10.93 |
| | NM SP Ratio: | 0.00015 | | | New THC: | 20.19 |

**Comments:**

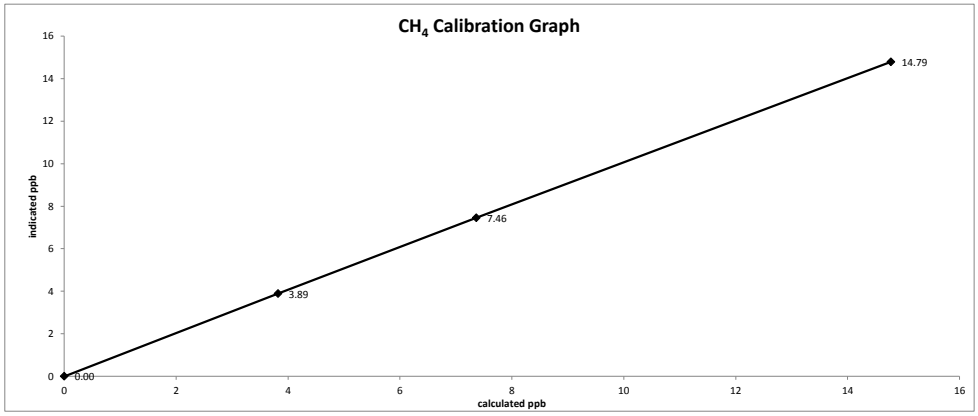
The analyzer sample inlet filter was changed.

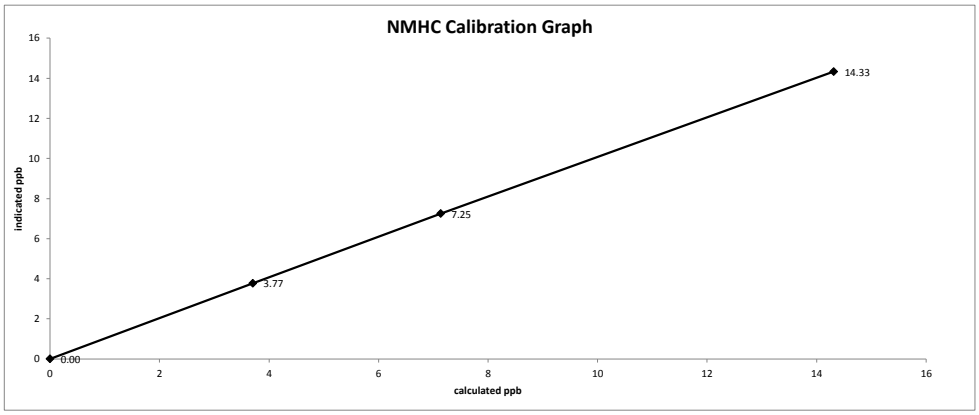
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

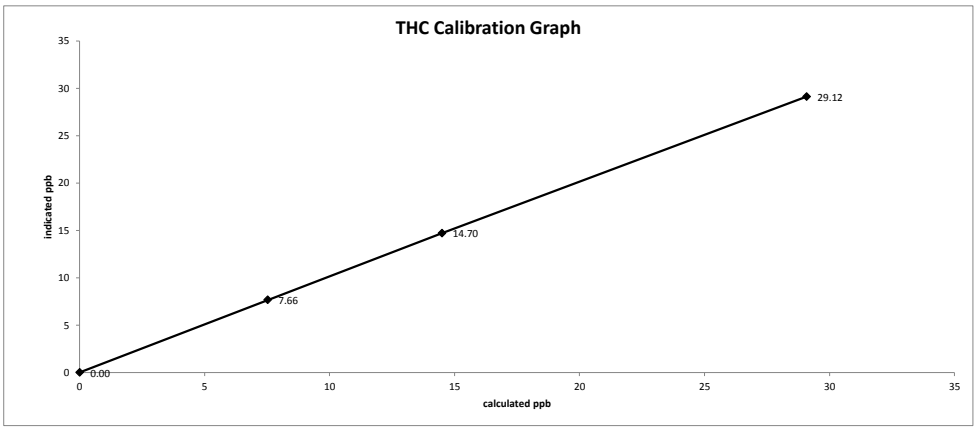
The analyzer cooling fan filter(s) were cleaned.

Flow check performed before low point.
'Flowmeters = Mesalabs Defender 530

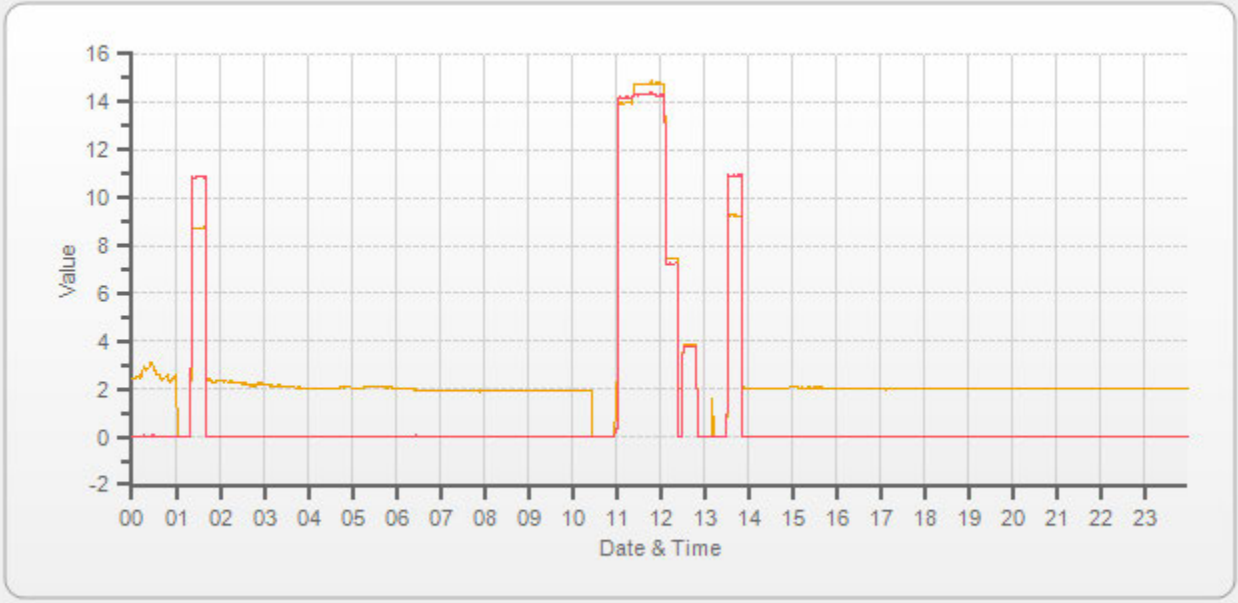
| | | | |
|---|---|---|---|
| **Date:** | **March 2, 2017** | **Start/End Time 24 hr. (mst):** | **10:32 / 13:54** |
| **Company/Airshed:** | **PRAMP** | **Calibration Purpose:** | **routine monthly** |
| **Location/Station Name:** | **842b** | **Calibration Method:** | **Gas Dilution** |



Station: THREE CREEKS #842 TRAILER Daily: 2017/03/02 Type: AVG 1 Min. [1 Min.]



# *WIND SYSTEM*

# Meteorological Sensor Audit/Calibration

**Location Information**

| | | | |
|---|---|---|---|
| **Company:** | PRAMP | **Performed By:** | Chris Wesson |
| **Audit Location:** | 842b | **Reviewed By:** | Trina Whitsitt |
| **Audit Date:** | February 14, 2017 | **Start /EndTime (mst):** | 11:37 / 11:58 |

**Wind Sensor Information**

| **Sensor ID Data:** | | **Sensor Outputs:** | |
|---|---|---|---|
| **Sensor Make:** | RM Young | **Velocity Voltage Output Range:** | 0-1 |
| **Sensor Model:** | 05305VK | **Velocity Unit Output Range:** | 0-200 |
| **Serial #:** | 92411 | **Direction Voltage Output Range:** | 0-1 |
| **Previous Cal/Audit Date:** | October 12, 2016 | **Direction Unit Output Range:** | 0-360 |

**Wind Calibrator Information**

| | | | |
|---|---|---|---|
| **Calibrator Make/ Model:** | RM Young 18802 | **Serial #:** | CA 0309 |
| **Maxxam Unit ID #:** | 13-3357 | **Certification Date:** | October 6, 2016 |

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

| RPM | Wind Speed Generated kph | Clockwise Wind Speed kph | Counter Clockwise Wind Speed kph | Correction Factor |
|---|---|---|---|---|
| 0 | 0 | 0.0 | 0.0 | - |
| 1000 | 17.6 | 17.6 | 17.7 | 1.001 |
| 2000 | 35.3 | 35.1 | 35.2 | 1.005 |
| 3000 | 52.9 | 52.6 | 52.6 | 1.006 |
| 4000 | 70.6 | 70.2 | 70.2 | 1.006 |
| 5000 | 88.2 | 87.7 | 87.7 | 1.006 |
| 6000 | 105.8 | 105.2 | 105.2 | 1.006 |
| 7000 | 123.5 | 122.7 | 122.7 | 1.006 |
| 8000 | 141.1 | 140.2 | 140.2 | 1.007 |
| 9000 | 158.8 | 157.6 | 157.6 | 1.007 |
| 10000 | 176.4 | 175.1 | 175.2 | 1.007 |
| | | **The audit meets AMD requirements.** | **Average Correction Factor=** | **1.006** |

**Wind Direction Audit Data **+/- 5° 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 | 351 | 0.4 | 3.7 | 2.0 |
| 30 | 330 | 30 | 327 | -0.1 | 3.0 | 1.5 |
| 60 | 300 | 60 | 298 | -0.5 | 2.1 | 1.3 |
| 90 | 270 | 90 | 269 | 0.0 | 1.5 | 0.8 |
| 120 | 240 | 120 | 239 | 0.3 | 1.4 | 0.9 |
| 150 | 210 | 150 | 209 | 0.3 | 1.0 | 0.7 |
| 180 | 180 | 180 | 180 | 0.0 | 0.4 | 0.2 |
| 210 | 150 | 209 | 150 | 0.8 | 0.5 | 0.7 |
| 240 | 120 | 240 | 119 | 0.5 | 0.8 | 0.6 |
| 270 | 90 | 270 | 91 | -0.1 | -0.8 | 0.4 |
| 300 | 60 | 298 | 61 | 2.1 | -0.6 | 1.3 |
| 330 | 30 | 328 | 31 | 1.7 | -0.8 | 1.2 |
| 355 | 0 | 351 | 0 | 3.9 | 0.1 | 2.0 |
| **The audit meets AMD requirements.** | | | **Average Absolute Degrees Difference=** | | | **1.0** |

**Comments:**

Alignment with true north confirmed whilst remounting (magnetic declination = 15°)

# *CALIBRATORS*

aemera.org

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2016-077A

| | | | |
|---|---|---|---|
| **Company** | Maxxam | **Operator:** | Christopher Wesson |

| **Calibrator:** | | **Flow Measurement Device:** | |
|---|---|---|---|
| Make/Model | Sabio 2010 | Make/Model | N/A |
| Serial Number | 17100415 | Serial Number | N/A |
| Last Verification Date | May 2015 | Temperature (°C) | N/A |
| NO Cylinder S/N | LL42475 | Barometric Pressure | N/A |
| NO/NOX Concentration | 48.5/48.5 | | |

Dilution Flow (sccm)

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

Gas Flow (sccm)

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

| Calibrator Flow (sccm) | | Calculated Conc.(ppm) | | Indicated Conc.(ppm) | | | % Difference vs Audit Gas | |
|---|---|---|---|---|---|---|---|---|
| Dilution | Gas | NO | NOx | NO | $NO_2$ | NOx | NO | NOx |
| 5000 | 0.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Limit ± 10% | |
| 5001 | 80.7 | 0.783 | 0.783 | 0.810 | -0.004 | 0.806 | 3% | 3% |
| 5001 | 39.4 | 0.382 | 0.382 | 0.395 | -0.001 | 0.393 | 3% | 3% |
| 5000 | 19.8 | 0.192 | 0.192 | 0.198 | 0.000 | 0.198 | 3% | 3% |
| | | | | Absolute Average Percent Difference | | | 3% | 3% |

**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)= | 1.0347 | **0.90-1.10** | m (Slope)= | 1.0292 |
| b (Intercept % of FS)= | -0.0283 | **± 3% F.S.** | b (Intercept % of FS)= | 0.0098 |

| Flow | $O_3$ Conc | NO Decrease | NO | NO2 | NOX | % Diff. Vs Audit gas | |
|---|---|---|---|---|---|---|---|
| 5001 | Lamp C. | 0.000 | 0.808 | -0.004 | 0.804 | $NO_2$ | % Diff. Limit |
| 5001 | 1.316 | 0.476 | 0.332 | 0.472 | 0.804 | 0% | ± 10% |
| 5001 | 0.696 | 0.234 | 0.574 | 0.231 | 0.805 | 0% | ± 10% |
| 5001 | 0.392 | 0.089 | 0.719 | 0.086 | 0.805 | 1% | ± 10% |
| | | | Absolute Average Percent Difference | | | 1% | ± 10% |

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

| **$NO_2$** | | **LIMITS** |
|---|---|---|
| Correlation= | 1.0000 | **≥ 0.995** |
| m (Slope)= | 0.9994 | **0.90-1.10** |
| b (Intercept % of FS)= | -0.3382 | **± 3% F.S.** |

| **AENV Standards** | | **$NO_X$ Analyzer** | |
|---|---|---|---|
| **Audit Calibrator** | | Make/Model | Teco 42i |
| Make/Model | Teco 146i | Serial/AMU Number | AMU 1868 |
| Serial/AMU Number | AMU 1809 | Last Calibration Date | May 18, 2016 |
| | | Full Scale (ppm) | 1.0 |

COMMENTS: Contains 50.3 ppm SO2. Flows not measured as per Chapter 7, Section 5 of AMD.

Auditor: Al Clark Date: May 18, 2016

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

# Calibrator Performance Audit

## Oxides Of Nitrogen

File No. 2016-510A

**Company** Maxxam **Operator:** Mike

**Calibrator:**

| | |
|---|---|
| Make/Model | Environics 6100 |
| Serial Number | 5212 |
| Last Verification Date | February 3, 2016 |
| NO Cylinder S/N | EY0000597 |
| NO [PPM] | 49.0 NOx [PPM] 49.0 |
| Expiry Date | December 8, 2019 |

**Flow Measurement Device:**

| | |
|---|---|
| Make/Model | Bios Defender 530 |
| Serial Number | Hi148944 Lo 152019 |
| Temperature (°C) | 24.6 |
| Barometric Pressure | 701.4mmHg |

Dilution Flow (sccm)

Pt. #1 4919 Pt. #2 4934 Pt. #3 4960

Gas Flow (sccm)

Pt. #1 79.2 Pt. #2 38.3 Pt. #3 19.1

| Calibrator Flow (sccm) | | Calculated Conc.(ppm) | | Indicated Conc.(ppm) | | | % Difference vs Audit Gas | |
|---|---|---|---|---|---|---|---|---|
| Dilution | Gas | NO | NOx | NO | $NO_2$ | NOx | NO | NOx |
| 4987 | 0.0 | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0002 | Limit ± 10% | |
| 4998 | 79.2 | 0.7765 | 0.7765 | 0.7801 | -0.0003 | 0.7798 | 0% | 0% |
| 4977 | 38.3 | 0.3775 | 0.3775 | 0.3790 | 0.0000 | 0.3790 | 0% | 0% |
| 4979 | 19.1 | 0.1880 | 0.1880 | 0.1888 | -0.0001 | 0.1887 | 0% | 0% |
| | | | | Absolute Average Percent Difference | | | 0% | 0% |

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

| NO | | LIMITS | NOx | |
|---|---|---|---|---|
| Correlation= | 1.0000 | **≥ 0.990** | Correlation= | 1.0000 |
| m (Slope)= | 1.0046 | **0.90-1.10** | m (Slope)= | 1.0041 |
| b (Intercept % of FS)= | -0.0080 | **± 3% F.S.** | b (Intercept % of FS)= | 0.0057 |

| Flow | $O_3$ Conc | NO Decrease | NO | NO2 | NOX | % Diff. Vs Audit gas | |
|---|---|---|---|---|---|---|---|
| 4998 | 0.000 | 0.0000 | 0.7799 | -0.0008 | 0.7790 | $NO_2$ | % Diff. Limit |
| 4998 | 0.500 | 0.4949 | 0.2850 | 0.4909 | 0.7776 | -1% | ± 10% |
| 4998 | 0.275 | 0.2765 | 0.5034 | 0.2742 | 0.7776 | -1% | ± 10% |
| 4998 | 0.100 | 0.1003 | 0.6796 | 0.0989 | 0.7786 | -1% | ± 10% |
| | | | | Absolute Average Percent Difference | | 1% | ± 10% |

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

| $NO_2$ | | LIMITS |
|---|---|---|
| Correlation= | 1.0000 | **≥ 0.995** |
| m (Slope)= | 0.9936 | **0.90-1.10** |
| b (Intercept % of FS)= | -0.0733 | **± 3% F.S.** |

**AENV Standards**

**Audit Calibrator**

| | |
|---|---|
| Make/Model | Thermo 146i |
| Serial/AMU Number | 1809 |
| SRM Gas Cylinder No. | CAL018140 |
| Cylinder Conc. (ppm) | 48.79 |

**$NO_X$ Analyzer**

| | |
|---|---|
| Make/Model | Thermo 42i |
| Serial/AMU Number | 1868 |
| Last Calibration Date | February 13, 2017 |
| Full Scale (ppm) | 1.0 |
| Cylinder Gas Expiry Date | March 28, 2019 |

COMMENTS: Gas has ~50ppm SO2

Auditor: Shea Beaton Date: February 14, 2017

Operator Signature: Location: McIntyre Center Edmonton

# *CALIBRATION GASES*

aemera.org

# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-114CGA

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

Cylinder #: LL119317 Concentration PPM: 49.9 Tolerance(%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

Make/Model: Thermo146i
Serial Number: 1809
Last Verification Date: February 2, 2016
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625

**Flow Measurement Device:**

Make/Model: Bios DC-2
Serial Number: Bios D
Temp.°C: 24.5
B.P. 702mmHg

**Reference Analyzer:**

Make/Model: Thermo 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

| Calibrator Flows (sccm) | | Indicated | Gas Flow/ | Concentration | Cylinder |
|---|---|---|---|---|---|
| Dilution | Gas | Concentration (PPM) | Dilution Flow | Factor | Concentration |
| 4945 | 0.00 | 0.000 | | | |
| 4937 | 78.87 | 0.789 | 0.01598 | 62.597 | 49.4 |
| 4956 | 39.38 | 0.392 | 0.00795 | 125.851 | 49.3 |
| 4940 | 19.50 | 0.193 | 0.00395 | 253.333 | 48.9 |
| | | | | Average Cylinder Concentration: | **49.2** |

Previous Stated Concentration PPM: 49.9

Percent variance from Stated: **1.4**

Meets Manufacturer Tolerance. Use manufacturers stated concentration [X] **COMMENTS:** SO2/NO blend 50.3ppm NO

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

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

Auditor: Shea Beaton Date: February 2, 2016

Operator Signature: Location: McIntyre Center Edmonton

aemera.org

# Calibration Gas Audit

## Single Component Cylinder Gas

File No. 2015-109CGA

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

Cylinder #: BLM001927 Concentration PPM: 10.3 Tolerance(%) 2 Certified By: Air Liquide

**Reference Calibrator and Gas:**

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: February 2, 2016
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015584

**Flow Measurement Device:**

Make/Model: Bios DC-2
Serial Number: Bios D
Temp.°C: 24.5
B.P. 702mmHg

**Reference Analyzer:**

Make/Model: Thermo 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 15.3 Span: 1.126 Range: 0.1
Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

| Calibrator Flows (sccm) | | Indicated | Gas Flow/ | Concentration | Cylinder |
|---|---|---|---|---|---|
| Dilution | Gas | Concentration (PPM) | Dilution Flow | Factor | Concentration |
| 5025 | 0.0 | 0.000 | | | |
| 5058 | 37.84 | 0.078 | 0.00748 | 133.668 | 10.4 |
| 5059 | 17.85 | 0.036 | 0.00353 | 283.417 | 10.3 |
| 5031 | 9.15 | 0.019 | 0.00182 | 549.836 | 10.2 |
| | | | | Average Cylinder Concentration: | **10.3** |

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: **0.1**

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

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

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

Auditor: Shea Beaton Date: February 2, 2016

Operator Signature: Location: McIntyre Center Edmonton

aemera.org

# Calibration Gas Audit

## CH4 / C3H8 Cylinder Gas

File No. 2015-091CGA

**Company:** Maxxam **Operators name:** Chris Wesson

Cylinder #: LL86139 Conc CH4 (PPM) 599/211 Tolerance (%) 0.5 Certified By: Praxair

**Reference Calibrator and Gas:**

| | | | |
|---|---|---|---|
| Make/Model | R&R MFC 201 | | |
| Serial Number | AMU 1698 | | |
| Last Verification Date | January 18, 2016 | | |
| Gas Type | CH4 | Conc. | 999.2 |
| Cylinder Number | D751932 | | |
| Gas Type | C3H8 | Conc. | 246.5 |
| Cylinder Number | XF0037998 | | |

**Flow Measurement Device:**

| | |
|---|---|
| Make/Model | Bios DC-2 |
| Serial Number | Bios D |
| Temp.°C | 23 |
| B.P. | 599mmHg |

**Reference Analyzer:**

Make/Model: Thermo 55C Serial/AMU Number: 1643

Instrument Settings Zero: NA Span: NA Range: 20.0

Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

| Calibrator Flows (sccm) | | Indicated Conc. (ppm) | | Gas Flow/ | Concentration | Cylinder Concentration | |
|---|---|---|---|---|---|---|---|
| Dilution | Gas | CH4 | C3H8 | Dilution Flow | Factor | CH4 | C3H8 |
| 2583 | 0.00 | 0.00 | 0.00 | | | | |
| 2635 | 56.52 | 12.80 | 12.59 | 0.02145 | 46.621 | 597 | 213 |
| 2592 | 19.72 | 4.54 | 4.49 | 0.00761 | 131.440 | 597 | 215 |
| 2584 | 9.69 | 2.25 | 2.24 | 0.00375 | 266.667 | 600 | 217 |
| | | | | | Average Cylinder Concentration: | **598** | **215** |

| | CH4 | C3H8 |
|---|---|---|
| Previous Stated Concentration PPM: | 599 | 211 |
| Percent variance from Stated: | **0.2** | **1.9** |

**Cylinder gas tolerances based on CH4 only**

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

<= 5% Outside Manufacturer Tolerance. Use manufacturers concentration [ ] C3H8 manufacturers tolerance 1.1%

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

Auditor: Shea Beaton Date: January 19, 2016

Operator Signature: Location: McIntyre Center Edmonton

# *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** | **Three Creeks 842b Station** |
| **Name of the Representative of the Person Responsible** (Last, First, Middle) | **Position / Title of the Representative of the Person Responsible** |
| **Maram Ghaleb** | **Project Manager, Customer Service, Air Services** |
| **Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.** | |
| ☐ **Yes** ■ **No** | |
| **Name of External Person Certifying the Report** (Last, First, Middle) | **Position / Title of External Person Certifying the Report** |
| **NA** | **NA** |
| **Company Name for the External Person Certifying the Report** | **Identification of Qualifications / Professional Designations of the External Person Certifying the Report** |
| **NA** | **NA** |

**I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.**

Maram

Signature of the Representative of the Person Responsible / External Person Certifying the Report

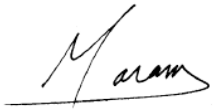
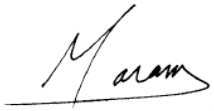
20-04-2017

Report Issued Date (dd-mm-yyyy)

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

# Validation Certificate Form

**Client:** Peace River Area Monitoring Program Committee **Project #:** 8449-2017-03-80-C
**Site:** Three Creeks 842b Station **Contact:** Karla Reesor

| | | | |
|---|---|---|---|
| **Level 0 Preliminary Verification** |  | **Date** | 19-Apr-2017 |
| **Level 1 Primary Validation** |  | **Date** | 19-Apr-2017 |
| **Level 2 Final Validation** |  | **Date** | 20-Apr-2017 |
| **Level 3 Independent Data Review** |  | **Date** | 20-Apr-2017 |
| **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.**