

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

JOB #: 196-2017-03-93-C

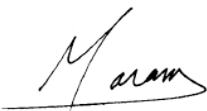
March 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: Lily Lin

DATE: **May 16, 2017**

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SUMMARY

In March 2017, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Reno Station, near Peace River Oil Sands Area 1, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for non-compliance parameters, as requested by the PRAMP Committee.

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

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

THC/CH₄/NMHC: Eleven hours of downtime were recorded this month.

- Two hours were collected on March 6, at lower than historical concentrations and were, therefore invalidated.
- Eight hours of data were discarded on March 9, due to a malfunction of the zero air system. This was caused by cold weather conditions.
- One hour of data collected on March 26, at hour 16:00, was invalidated due to an anomalous spike in NMHC concentration.

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, Reno Station.

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3677 or toll-free at 1-800-386-7247.

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Reno Station						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	0.2	1.8	14	18	7.9	SSE	0.7	12	100.0
TRS (ppb)	-	-	-	-	0.4	0.7	1, 1	21, 22	1.0 0.6	SSW NE	0.5	1	100.0
THC (ppm)	-	-	-	-	2.04	3.65	5	0	2.1	SSW	2.32	5	98.5
CH ₄ (ppm)	-	-	-	-	2.04	3.65	5	0	2.1	SSW	2.32	5	98.5
NMHC (ppm)	-	-	-	-	0.00	0.01	7, 30	14, 21	9.6 1.9	N SSW	0.00	ALL	98.5
RELATIVE HUMIDITY (%)	-	-	-	-	62	95	16	21	1.2	SSW	75	17	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	938	960	9	VAR	VAR	VAR	958	9	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-6.1	11.8	30	16	5.9	WNW	5.2	30	100.0
STATION TEMPERATURE (°C)	-	-	-	-	22.3	24.0	25	16	4.2	WNW	23.1	VAR	100.0
VECTOR WS (kph)	-	-	-	-	1.8	16.3	10	13	-	E	12.2	10	100.0
VECTOR WD (sec)	-	-	-	-	98 (E)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Reno Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	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	0.0018	ppm	0	0.0007	ppm	0
TRS	1	100.0	0.0007	ppm	-	0.0005	ppm	-
THC	1	98.5	3.65	ppm	-	2.32	ppm	-
CH ₄	1	98.5	3.65	ppm	-	2.32	ppm	-
NMHC	1	98.5	0.01	ppm	-	0.00	ppm	-
RH	1	100.0	95	%	-	75	%	-
BP	1	100.0	960	mb	-	958	mb	-
Ambient TPX	1	100.0	11.8	°C	-	5.2	°C	-
Station TPX	1	100.0	24.0	°C	-	23.1	°C	-
Wind Speed	1	100.0	16.3	kph	-	12.2	kph	-
Wind Direction	1	100.0	-		-	-		-

SIGNATURE OF COMPANY REPRESENTATIVE

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Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

This monthly report consists of continuous monitoring results for the following parameters: Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH₄), 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 (SO₂)

- There were no issues that impacted operational time this month. The routine monthly calibration was performed on March 1.
- Maximum instantaneous data collected on March 3, at hour 19:00, was invalidated as the data was considered an anomalous spike (293.3 ppb). The analyzer-to-datalogger cable connections were checked and tightened on March 6, as part of troubleshooting activities.

TOTAL REDUCED SULPHUR (TRS)

- There were no issues that impacted operational time this month. The routine monthly calibration was performed on March 1.

TOTAL HYDROCARBONS (THC), METHANE (CH₄) and NON-METHANE HYDROCARBONS (NMHC)

- The operational time was 98.5%, equivalent to eleven hours of downtime.
- Two hours of data collected on March 6, at hours 02:00 and 03:00, were invalidated as they were lower than historical. This prompted an immediate site visit where troubleshooting was performed. The gas pressures were checked and adjusted as necessary; and analyzer-to-datalogger cable connections were checked and tightened.
- The analyzer started recording lower than historical readings again from hour 04:00 on March 9. It was discovered upon arrival at the station on the same day, that the output outlet of the zero air system was frozen due to weather conditions. Troubleshooting activities performed included output line reconnection, leak check, and restarting the analyzer. The analyzer was back online at hour 12:00. Eight hours of downtime were incurred due to this event.
- One hour of data collected on March 26, at hour 16:00, was invalidated due to an anomalous spike in NMHC concentration.
- 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.
- A 5-minute average concentration of 0.45ppm was recorded on March 26 at 16:20. However, this was not considered to be a valid event as it resulted from the isolated anomalous spike in minute data observed at that period.

WIND SPEED (WS) and WIND DIRECTION (WD)

- There were no issues that impacted operational time this month.
- 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 technicians were Christopher Wesson and Raja Ashraf.

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 Fluorescent Analyzer

Total Reduced Sulphur - Thermo 43i UV Fluorescent Analyzer

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

Wind System - RM Young Unit

Relative Humidity - Met One Unit

Barometric Pressure - Met One Unit

Ambient Temperature - Met One 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

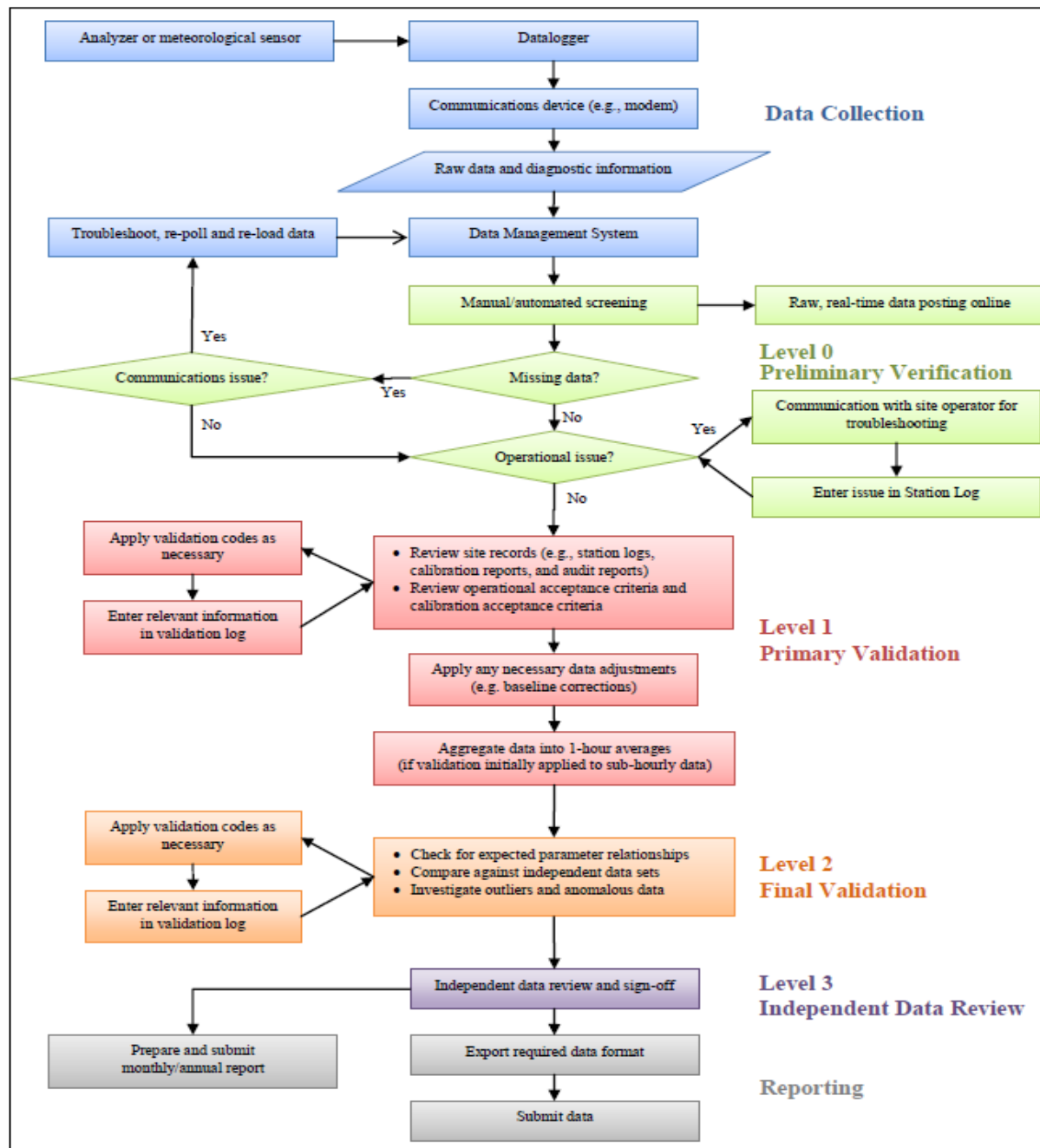
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

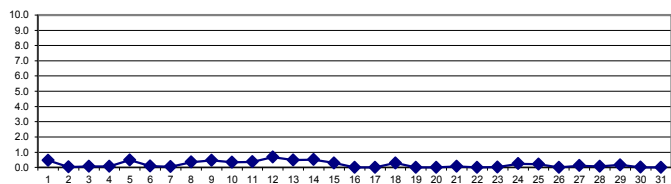
SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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	0.5	0.8	1.2	1.0	1.0	1.0	1.0	1.1	1.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.2	0.5	24
2	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	0.3	0.2	0.1	0.1	0.0	0.0	0.3	0.0	24	
3	S	0.3	0.3	0.1	0.2	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.3	0.1	24	
4	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.1	0.3	0.0	0.2	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	S	0.1	0.0	0.3	0.1	24	
5	0.5	0.6	1.0	0.8	1.0	0.7	0.8	0.7	0.5	0.4	0.5	0.8	0.4	0.2	0.2	0.2	0.1	0.5	0.2	0.0	0.3	S	0.3	0.5	0.0	1.0	0.5	24	
6	0.2	0.2	0.2	0.0	0.5	0.1	0.0	0.3	0.3	0.2	0.2	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	0.5	0.1	24	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.2	0.0	0.0	0.0	0.0	0.3	0.1	24	
8	0.1	0.1	0.1	0.5	0.9	0.5	0.4	0.3	0.4	0.9	0.7	0.7	0.4	0.5	0.2	0.3	0.3	0.0	S	0.1	0.1	0.2	0.2	0.1	0.0	0.9	0.3	24	
9	0.1	0.2	0.4	0.4	0.3	0.1	0.2	0.5	0.4	0.7	1.1	1.0	0.8	0.4	0.3	0.2	0.2	S	0.3	0.5	0.4	0.7	0.6	0.8	0.1	1.1	0.5	24	
10	0.7	0.7	0.7	0.5	0.4	0.2	0.5	0.8	0.8	0.6	0.6	0.5	0.2	0.2	0.2	0.0	S	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.8	0.3	24	
11	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.3	0.2	0.3	0.8	0.4	0.1	S	0.6	0.6	0.7	0.9	1.0	0.9	0.7	0.5	0.0	1.0	0.4	24	
12	0.6	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.3	0.9	1.4	1.2	1.0	0.8	S	0.8	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.6	0.3	1.4	0.7	24	
13	0.7	0.8	0.7	0.7	0.8	0.7	0.9	1.0	0.7	0.7	0.9	0.5	0.6	S	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.0	0.5	24	
14	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.3	0.4	0.2	0.1	S	0.2	0.2	0.3	0.1	0.3	1.8	1.4	1.5	1.6	1.6	1.2	0.0	1.8	0.5	24	
15	1.0	0.9	0.5	0.2	0.1	0.2	0.6	0.7	0.2	0.4	0.5	S	0.5	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	24	
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
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	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	24	
18	0.0	0.2	0.5	0.6	0.6	0.4	0.4	0.5	S	0.6	0.5	0.4	0.4	0.3	0.1	0.4	0.3	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.6	0.3	24	
19	0.0	0.0	0.0	0.0	0.0	0.0	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
20	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
21	0.0	0.0	0.0	0.0	0.0	S	0.7	0.3	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24	
22	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	0.0	0.0	0.0	0.0	24	
23	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	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
24	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.3	0.4	0.5	0.3	0.4	1.0	0.4	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.0	1.0	0.2	24	
25	0.1	S	0.2	0.0	0.0	0.0	0.2	0.3	0.2	0.4	0.7	0.5	0.7	0.4	0.5	0.2	0.0	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.7	0.2	24	
26	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	
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.4	0.5	0.3	0.0	S	0.1	0.0	0.5	0.1	24	
28	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.4	0.1	24	
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2	0.5	0.4	0.4	0.3	0.0	0.2	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	1.2	0.2	24	
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
HOURLY MAX	1.0	0.9	1.0	0.8	1.0	1.2	1.0	1.0	1.0	1.2	1.4	1.2	1.0	0.8	0.6	1.0	0.9	0.8	1.8	1.4	1.5	1.6	1.6	1.2					
HOURLY AVG	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.1	0.1	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



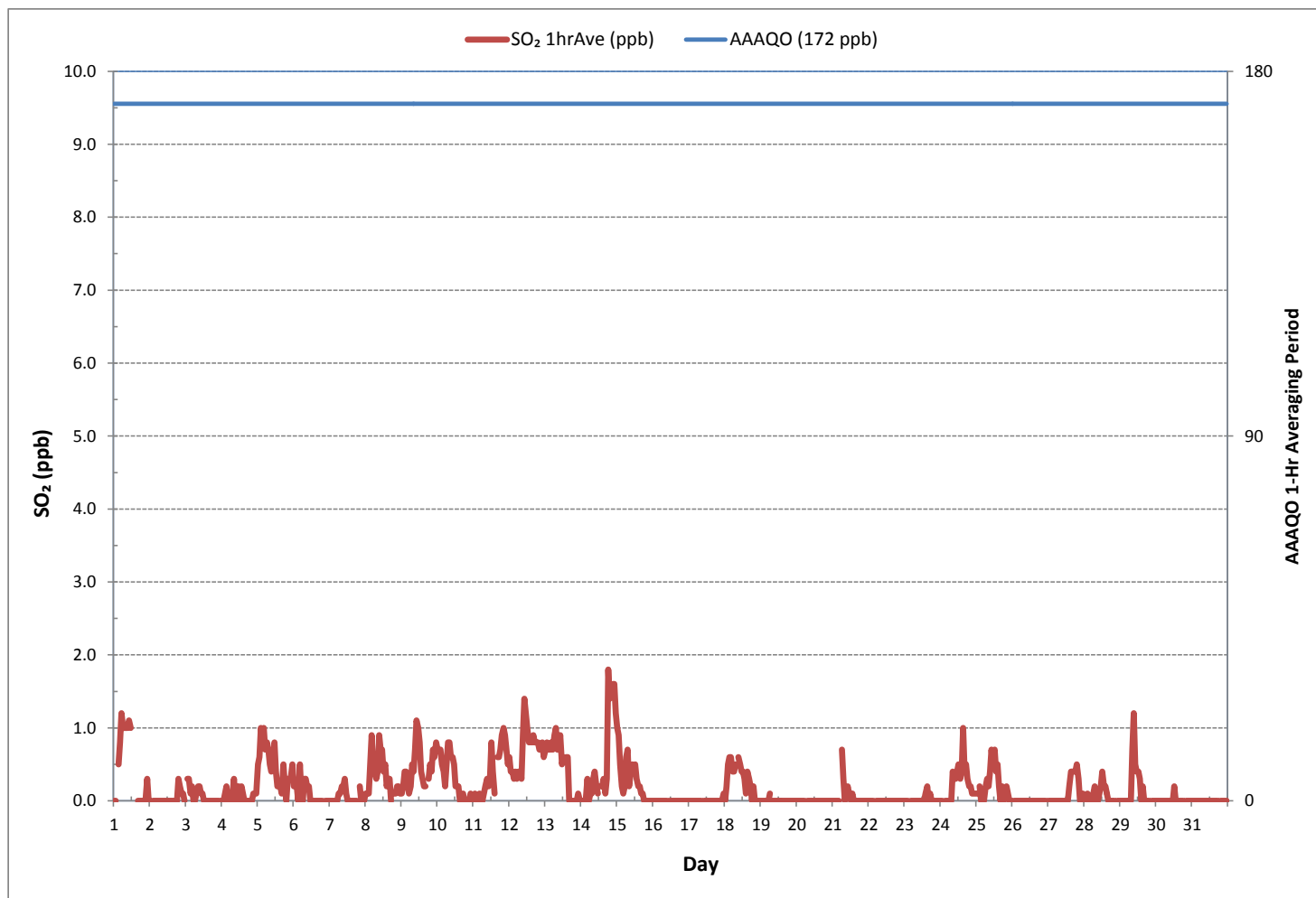
OBJECTIVE LIMIT:

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:	311				
MINIMUM 1-HR AVERAGE:	0.0	ppb @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	1.8	ppb @ HOUR(S)	18	ON DAY(S)	14
MAXIMUM 24-HR AVERAGE:	0.7	ppb		ON DAY(S)	12
				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:	0.2	ppb

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.1	1.4	S	2.0	2.0	2.5	2.3	2.5	2.5	1.7	1.7	1.7	C	C	C	C	C	0.2	1.1	0.8	0.5	2.0	2.3	1.4	0.2	2.5	1.7	24
2	1.7	S	1.1	1.1	1.4	0.8	1.1	1.4	1.1	1.1	0.5	0.2	0.2	0.2	0.5	0.5	0.5	0.2	0.5	0.8	0.8	0.5	0.5	0.5	0.2	1.7	0.7	24
3	S	0.8	0.8	0.8	0.8	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.0	0.2	0.0	0.2	0.2	X	1.1	1.1	0.8	S	0.0	1.1	0.5	23	
4	1.4	0.8	1.1	1.1	0.5	1.1	0.8	0.8	1.4	1.1	1.1	1.1	0.8	1.1	1.1	0.5	0.8	1.1	0.8	0.8	0.8	0.8	S	0.8	0.5	1.4	0.9	24
5	1.4	1.7	2.2	2.5	2.2	1.7	1.7	1.7	1.7	1.4	1.7	2.0	0.8	0.8	0.8	0.8	0.8	1.1	0.5	0.5	1.7	S	1.7	1.7	0.5	2.5	1.4	24
6	1.4	1.7	1.4	1.1	2.0	1.4	1.4	1.7	1.4	2.0	1.7	0.8	0.5	0.5	0.5	0.5	1.7	0.2	0.8	0.8	S	1.1	0.8	0.8	0.2	2.0	1.1	24
7	0.8	0.8	0.8	0.8	0.8	0.8	1.1	1.1	1.1	1.4	1.4	1.1	0.8	0.2	0.8	0.0	0.0	0.0	0.8	S	0.8	0.5	0.8	0.5	0.0	1.4	0.7	24
8	0.8	1.1	1.1	1.1	1.4	1.1	1.1	0.8	1.1	1.4	1.4	1.4	1.1	0.2	0.2	0.2	0.0	0.0	S	0.8	0.2	0.8	1.1	0.2	0.0	1.4	0.8	24
9	0.5	0.5	0.5	0.5	0.8	0.8	0.5	0.8	1.1	1.4	1.4	1.4	1.1	0.2	0.2	0.0	0.0	S	0.2	0.8	0.8	1.1	0.8	1.1	0.0	1.4	0.7	24
10	1.1	0.8	1.1	0.8	0.5	0.5	0.8	1.1	1.1	1.1	1.1	1.1	0.5	0.5	0.8	0.5	S	0.5	0.2	0.2	0.0	0.5	0.5	0.5	0.0	1.1	0.7	24
11	0.5	0.2	0.5	0.2	0.2	0.2	0.5	0.8	0.8	0.5	0.5	0.5	0.5	0.2	0.0	S	0.5	0.5	1.1	1.4	1.4	1.1	1.1	0.8	0.0	1.4	0.6	24
12	0.8	0.8	0.5	0.5	0.5	0.5	0.5	0.8	0.5	1.1	2.0	1.4	1.1	0.5	S	0.5	0.5	0.5	1.1	1.4	1.4	1.1	1.4	1.1	0.5	2.0	0.9	24
13	1.1	1.4	1.4	1.7	1.7	2.0	1.7	2.3	2.0	2.0	1.7	1.4	1.1	S	1.1	1.1	0.5	0.5	0.2	0.2	0.2	0.5	0.5	0.2	0.2	2.3	1.2	24
14	0.2	0.0	0.5	0.2	1.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.2	0.2	0.5	0.8	1.1	2.5	2.0	1.7	1.7	1.4	0.0	2.5	0.9	24	
15	1.1	0.8	0.5	0.2	0.2	0.5	0.8	0.5	0.2	0.2	0.5	S	0.5	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.5	0.0	0.0	1.1	0.4	24
16	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.5	0.5	0.5	S	0.2	0.2	0.2	0.5	0.8	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.8	0.2	24
17	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2	0.0	S	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.5	0.0	0.5	0.1	24
18	0.5	0.5	1.1	1.1	1.1	0.8	1.1	1.1	S	1.1	1.1	1.1	1.1	0.8	0.8	1.1	0.8	0.8	0.5	0.8	0.5	0.2	0.5	0.5	0.2	1.1	0.8	24
19	0.5	0.8	0.5	0.5	0.5	0.2	1.1	S	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.8	1.1	0.8	0.0	1.1	0.4	24
20	0.8	0.8	0.5	0.8	0.5	1.1	S	1.7	1.4	1.1	0.2	0.2	0.2	0.5	0.2	0.5	0.5	0.0	0.2	0.5	0.5	0.0	0.0	0.0	0.0	1.7	0.5	24
21	0.0	0.0	0.5	0.5	1.1	S	2.3	1.7	0.8	1.1	1.4	1.1	1.1	1.1	0.8	0.8	0.8	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.0	2.3	0.8	24
22	0.5	0.5	0.5	0.5	S	0.2	0.5	0.5	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.8	0.5	24
23	0.2	0.2	0.2	S	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.0	0.2	0.2	0.2	0.2	0.0	0.5	0.4	24
24	0.0	0.2	S	0.0	0.0	0.0	0.2	0.2	0.8	0.5	0.8	0.8	0.8	0.5	1.1	1.4	0.8	0.8	0.5	0.5	0.5	0.2	0.2	0.2	0.0	1.4	0.5	24
25	0.2	S	0.5	0.2	0.2	0.5	0.5	0.5	0.5	1.1	1.1	0.8	1.1	1.1	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2	1.1	0.6	24
26	S	0.2	0.0	0.2	0.5	0.0	0.0	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.2	0.5	0.5	0.5	S	0.0	0.5	0.3	24
27	0.5	0.5	0.2	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.8	1.1	1.1	0.8	0.8	0.8	0.5	0.2	S	0.8	0.2	1.1	0.6	24
28	0.2	0.5	0.2	0.0	0.0	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.8	0.5	0.5	0.5	0.2	0.2	0.2	0.2	0.0	S	0.2	0.2	0.0	0.8	0.3	24
29	0.2	0.0	0.8	0.2	0.2	0.2	0.2	0.5	1.7	2.0	1.1	1.1	0.8	0.8	0.5	0.5	0.5	0.5	0.2	0.2	S	0.2	0.2	0.5	0.0	2.0	0.6	24
30	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	1.1	0.8	0.2	0.2	0.0	0.2	0.2	S	0.2	0.0	0.5	0.0	0.0	1.1	0.3	24
31	0.0	0.5	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.0	0.5	0.2	24
HOURLY MAX	1.7	1.7	2.2	2.5	2.2	2.5	2.3	2.5	2.5	2.0	2.0	2.0	1.1	1.1	1.1	1.4	1.7	1.1	2.5	2.0	1.7	2.0	2.3	1.7				
HOURLY AVG	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.8	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.7	0.6				

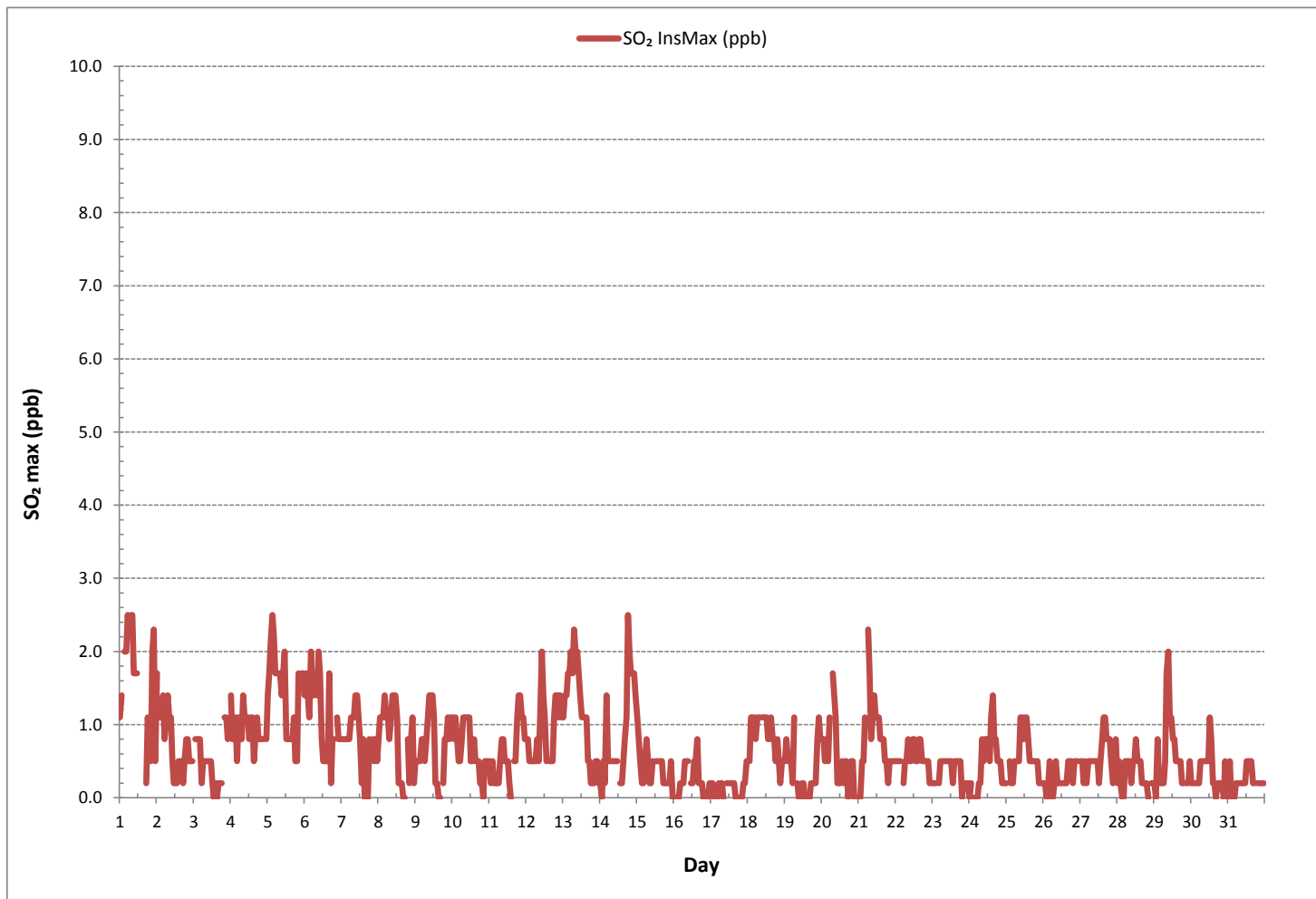
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	644				
MAXIMUM INSTANTANEOUS VALUE:	2.5	ppb	@ HOUR(S)	VAR	ON DAY(S) VAR
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	743	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.5				

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



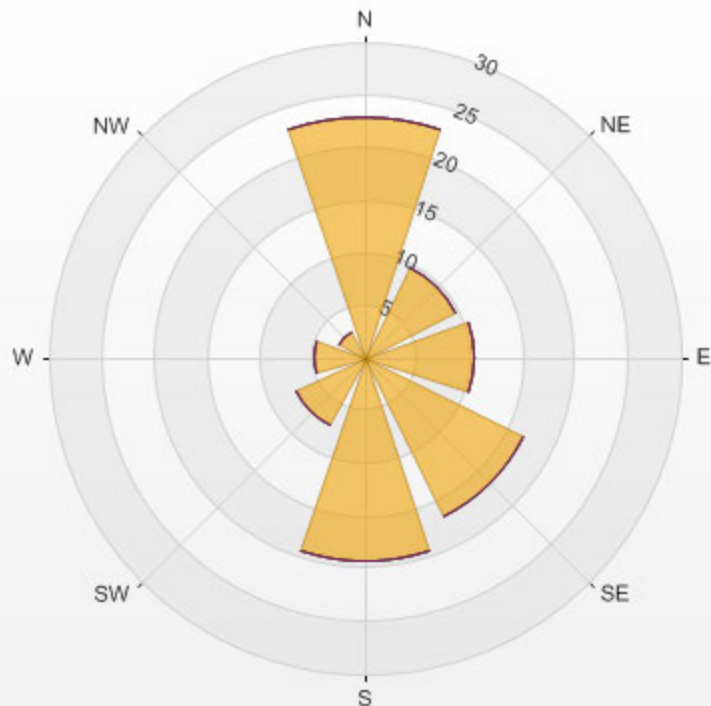
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-SO2[ppb]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.97%

Calm Avg: 0.17 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	22.9	0.0	0.0	0.0	0.0	22.9
NE	9.7	0.0	0.0	0.0	0.0	9.7
E	10.5	0.0	0.0	0.0	0.0	10.5
SE	16.9	0.0	0.0	0.0	0.0	16.9
S	19.3	0.0	0.0	0.0	0.0	19.3
SW	7.2	0.0	0.0	0.0	0.0	7.2
W	4.8	0.0	0.0	0.0	0.0	4.8
NW	2.7	0.0	0.0	0.0	0.0	2.7
Summary	94.0	0.0	0.0	0.0	0.0	94.0

PRAMP_RENO Poll.: PRAMP_RENO-SO2[ppb] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 5.97% Calm Poll Avg: 0.17[ppb]



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



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

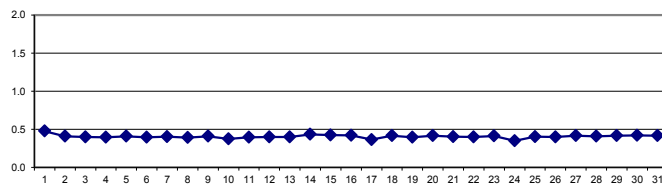
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	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	0.4	S	0.5	0.5	0.4	0.5	0.4	0.5	C	C	C	C	C	C	0.5	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.6	0.4	0.7	0.5	24
2	0.5	S	0.5	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	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
3	S	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	0.4	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	24
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	0.4	0.4	0.3	0.4	0.4	0.4	S	0.4	0.3	0.4	0.4	24
5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	S	0.4	0.4	0.3	0.6	0.4	24
6	0.3	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	0.4	0.4	S	0.4	0.4	0.4	0.3	0.4	0.4	24
7	0.4	0.4	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.4	0.3	0.6	0.4	24
8	0.4	0.3	0.4	0.3	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	0.3	0.4	0.4	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	0.5	0.4	0.4	0.4	0.4	S	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
10	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	S	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	24
11	0.4	0.4	0.3	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	0.3	0.4	0.4	24
12	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	0.4	0.4	0.4	24
13	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	0.4	0.4	0.4	0.4	24
14	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.4	0.5	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	0.5	0.5	0.4	0.6	0.4	24
15	0.5	0.5	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	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	24
16	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.4	0.5	S	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.6	0.4	24
17	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	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	24
18	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	24
19	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	0.3	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
20	0.4	0.4	0.4	0.4	0.4	0.4	S	0.5	0.6	0.5	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	0.6	0.4	24
21	0.4	0.4	0.4	0.4	0.4	S	0.5	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	0.4	0.5	0.4	24
22	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	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	24
23	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	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
24	0.4	0.4	S	0.4	0.4	0.4	0.4	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	0.4	0.3	0.4	0.3	0.4	0.3	24
25	0.4	S	0.4	0.5	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	0.4	0.4	0.4	0.4	0.5	0.4	24
26	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	S	0.3	0.5	0.4	24
27	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	0.4	0.4	0.4	0.5	0.5	S	0.6	0.4	0.6	0.4	24
28	0.5	0.5	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	0.3	0.3	0.4	0.4	0.4	0.4	S	0.5	0.5	0.3	0.5	0.4	24
29	0.5	0.4	0.5	0.5	0.5	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	0.5	0.4	24
30	0.4	0.4	0.4	0.5	0.4	0.4	0.5	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	0.5	0.5	0.5	0.4	0.5	0.4	24
31	0.4	0.5	0.5	0.5	0.5	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	0.5	0.4	24
HOURLY MAX	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.7	0.7	0.6				
HOURLY AVG	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	0.4	0.4	0.4	0.4	0.4	0.4	0.4				

STATUS FLAG CODES

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

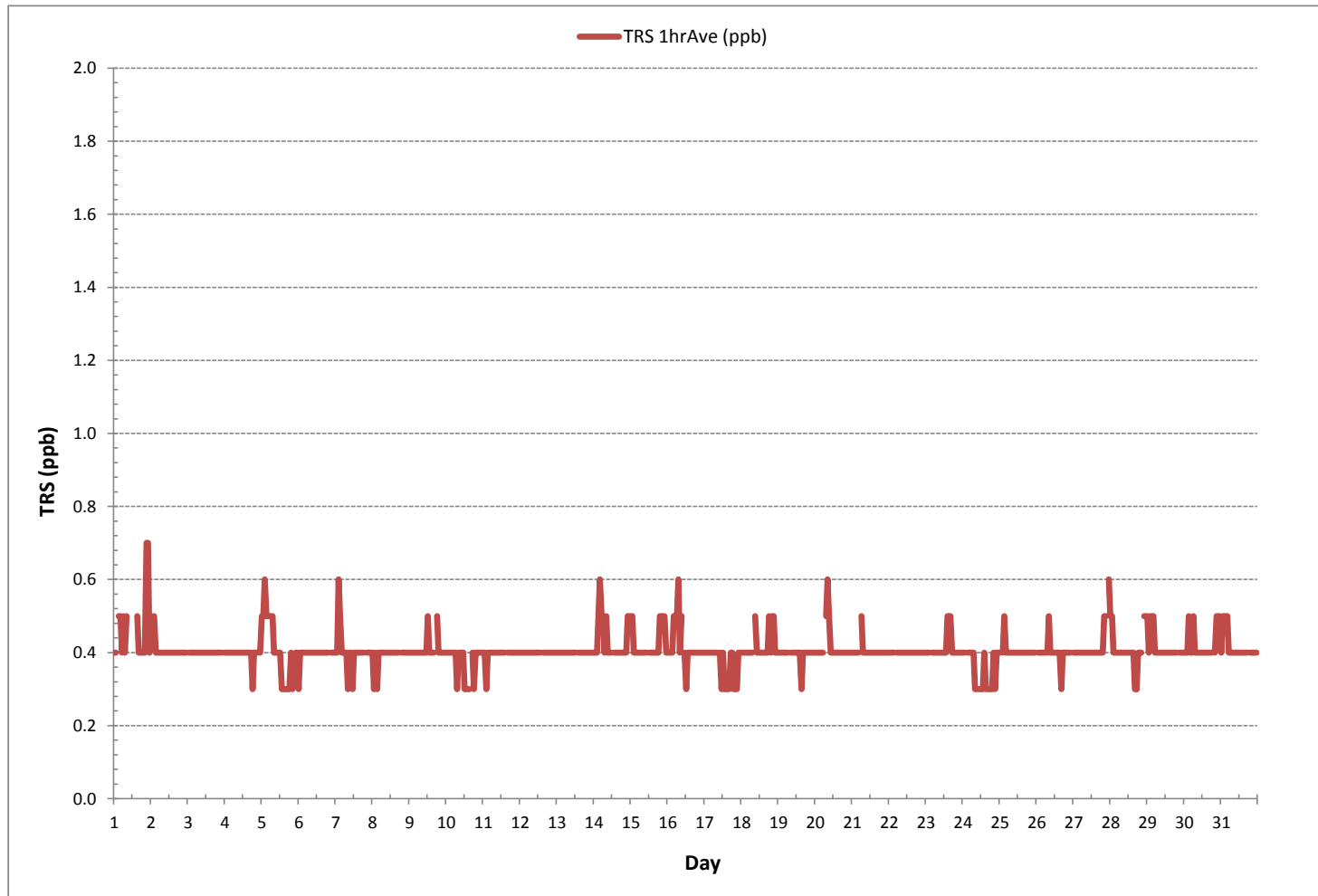
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	705				
MINIMUM 1-HR AVERAGE:	0.3	ppb @ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	0.7	ppb @ HOUR(S)	21 , 22	ON DAY(S)	1 , 1
MAXIMUM 24-HR AVERAGE:	0.5	ppb		ON DAY(S)	1
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.0		MONTHLY AVERAGE:	0.4	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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY 1	0.5	0.5	S	0.6	0.5	0.5	0.5	0.5	0.6	C	C	C	C	C	C	0.7	0.6	0.6	0.5	0.6	0.6	1.2	1.2	0.9	0.5	1.2	0.7	24
2	0.9	S	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.9	0.5	24
3	S	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.5	S	0.4	0.6	0.5	24
4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.5	S	0.5	0.4	0.5	0.5	24
5	0.7	1.0	1.1	1.1	0.9	0.9	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	S	0.5	0.4	0.4	1.1	0.6	24
6	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.6	0.5	0.5	0.4	0.6	0.5	24
7	0.5	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.6	0.5	0.5	0.5	0.4	0.7	0.5	24
8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.5	24
9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	S	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	24
10	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	S	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	24
11	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.5	S	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	24
12	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6	S	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.7	0.5	24
13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.6	S	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	24
14	0.5	0.5	0.6	0.6	0.9	0.6	0.6	0.5	0.5	0.5	0.5	S	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.9	0.5	24
15	0.5	0.6	0.5	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	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.6	0.5	24
16	0.4	0.5	0.5	0.4	0.7	0.6	0.9	0.9	0.5	0.7	S	0.6	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.5	24
17	0.5	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.5	S	0.5	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	0.5	0.4	24
18	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.4	24
19	0.4	0.4	0.4	0.4	0.5	0.4	0.4	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
20	0.4	0.4	0.4	0.4	0.4	0.4	S	0.6	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.7	0.4	24
21	0.4	0.4	0.5	0.4	0.4	S	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
22	0.4	0.4	0.4	0.4	S	0.4	0.4	0.5	0.5	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	0.5	0.4	24
23	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	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
24	0.4	0.4	S	0.4	0.4	0.4	0.4	0.4	0.5	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	0.5	0.4	24
25	0.4	S	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24
26	S	0.4	0.4	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	S	0.3	0.5	0.4	24
27	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	S	0.6	0.3	0.6	0.4	24
28	0.6	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.6	0.6	0.4	0.6	0.4	24
29	0.6	0.4	0.5	0.5	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.4	S	0.4	0.4	0.4	0.3	0.6	0.4	24
30	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	S	0.4	0.6	0.6	0.5	0.3	0.6	0.4	24
31	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	S	0.4	0.4	0.4	0.4	0.4	0.3	0.5	0.4	24
HOURLY MAX	0.9	1.0	1.1	1.1	0.9	0.9	0.9	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	1.2	1.2	0.9				
HOURLY AVG	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5				

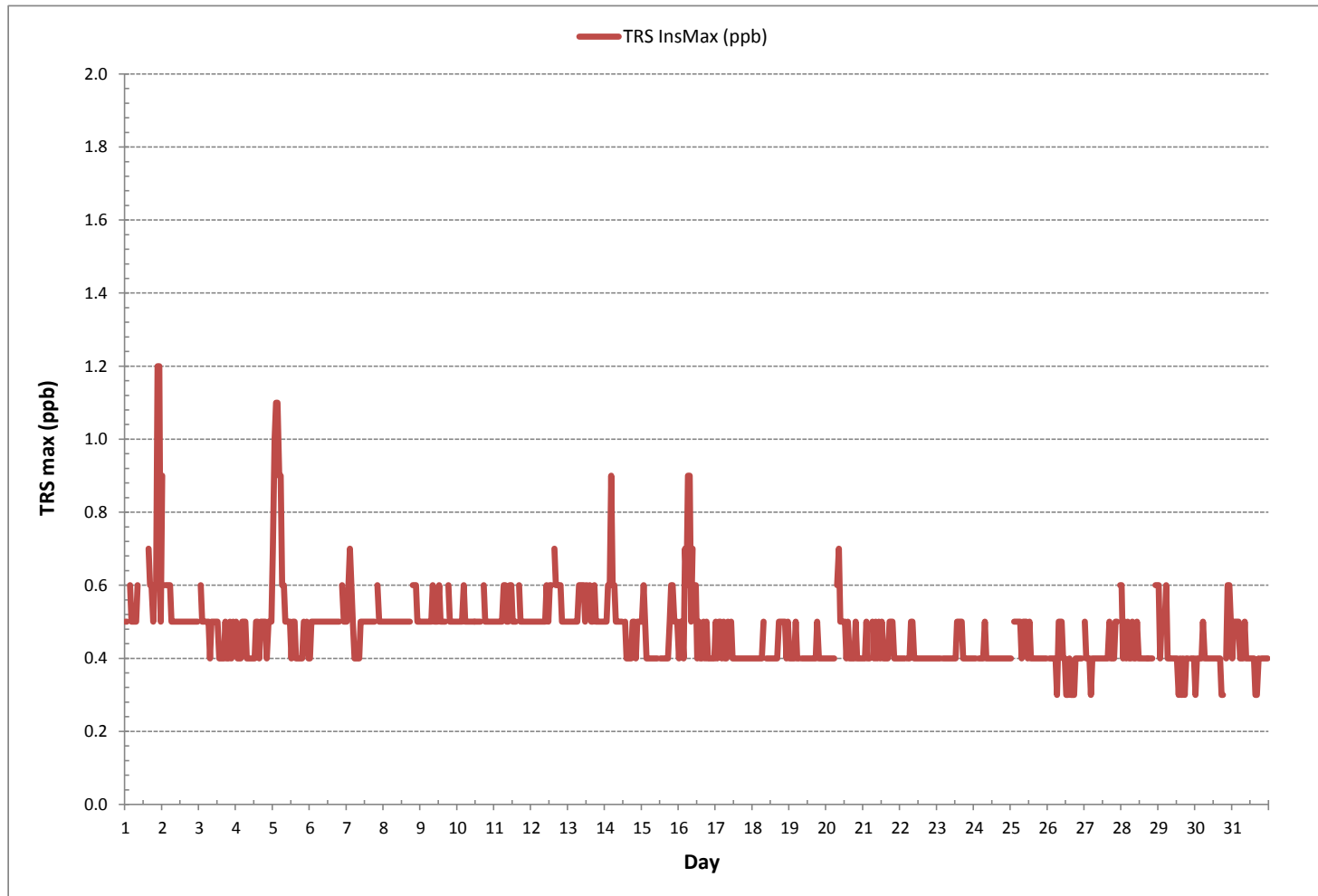
STATUS FLAG CODES

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:	705
MAXIMUM INSTANTANEOUS VALUE:	1.2 ppb @ HOUR(S) 21, 22 ON DAY(S) 1, 1
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	6 hrs
STANDARD DEVIATION:	0.1
OPERATIONAL TIME:	744 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



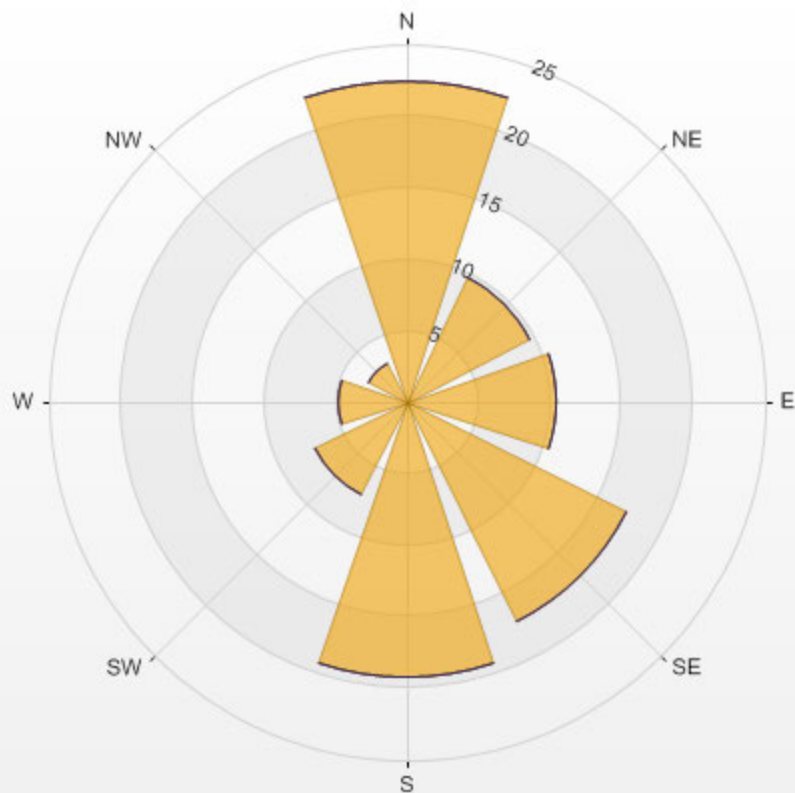
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-TRS[ppb]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.96%

Calm Avg: 0.44 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	22.4	0.0	0.0	0.0	22.4
NE	9.7	0.0	0.0	0.0	9.7
E	10.5	0.0	0.0	0.0	10.5
SE	17.2	0.0	0.0	0.0	17.2
S	19.3	0.0	0.0	0.0	19.3
SW	7.2	0.0	0.0	0.0	7.2
W	4.8	0.0	0.0	0.0	4.8
NW	3.0	0.0	0.0	0.0	3.0
Summary	94.0	0.0	0.0	0.0	94.0

PRAMP_RENO Poll.: PRAMP_RENO-TRS[ppb] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 5.96% Calm Poll Avg: 0.44[ppb]



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



Span Meas Span Ref Span Low Span High

TOTAL HYDROCARBON

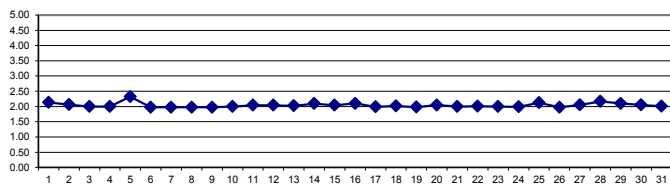
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.87	1.87	S	1.88	1.89	1.89	1.89	1.89	1.89	C	C	C	C	1.98	1.98	1.97	1.95	1.95	1.95	2.09	2.27	3.26	2.80	3.20	1.87	3.26	2.13	24	
2	2.47	S	2.05	2.07	2.01	2.04	2.01	2.01	2.50	1.99	2.11	1.98	2.03	2.03	2.00	2.00	1.99	2.02	2.00	2.01	2.02	2.01	2.04	2.03	1.98	2.50	2.06	24	
3	S	2.07	2.07	2.09	2.04	2.01	2.02	1.98	1.97	1.94	1.94	1.97	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.97	1.97	1.98	1.97	S	1.94	2.09	2.00	24	
4	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.97	1.97	1.98	2.05	1.96	S	2.71	1.95	2.71	2.00	24	
5	3.65	3.09	3.01	2.75	3.01	2.94	2.51	2.55	2.08	2.12	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.98	1.97	1.96	S	1.98	1.99	1.96	3.65	2.32	24	
6	1.99	2.00	X	X	1.99	2.00	2.00	1.99	1.99	1.99	1.98	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	S	1.97	1.97	1.98	1.96	2.00	1.98	22
7	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.95	1.96	1.96	1.96	1.97	S	1.98	1.97	1.97	1.97	1.95	1.98	1.97	24	
8	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	S	1.97	2.00	1.98	1.98	1.98	1.96	2.00	1.97	24	
9	1.98	1.98	1.98	1.98	X	X	X	X	X	X	Y	Y	1.96	1.97	1.96	1.96	1.97	S	1.97	1.97	1.97	1.97	1.97	1.98	1.96	1.98	1.97	16	
10	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.01	2.00	2.01	2.01	2.00	1.99	1.98	S	2.00	2.00	2.00	2.02	2.00	2.00	2.01	1.98	2.02	2.00	24	
11	2.02	2.03	2.02	2.02	2.02	2.09	2.12	2.17	2.15	2.08	2.07	2.05	2.04	2.02	2.02	S	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.17	2.04	24
12	2.02	2.07	2.10	2.05	2.07	2.06	2.05	2.07	2.07	2.06	2.05	2.03	2.03	2.02	S	2.01	2.02	2.02	2.01	2.02	2.01	2.02	2.03	2.02	2.01	2.10	2.04	24	
13	2.01	2.00	2.00	2.00	2.01	2.01	2.00	2.01	2.03	2.02	2.02	2.02	2.04	S	2.06	2.16	2.02	2.10	2.12	1.95	1.95	1.95	2.07	1.96	1.95	2.16	2.02	24	
14	2.03	2.13	2.27	2.26	3.22	2.28	2.09	2.05	2.01	2.01	2.05	1.98	S	1.97	1.95	1.98	1.96	1.94	1.98	1.97	2.00	1.99	2.01	2.01	1.94	3.22	2.09	24	
15	2.01	2.03	2.00	1.94	1.93	1.92	1.93	1.93	1.93	1.93	1.93	S	1.94	1.94	1.94	1.94	1.96	2.00	1.96	2.26	2.51	2.26	2.36	2.39	1.92	2.51	2.04	24	
16	2.26	2.50	2.43	2.37	2.19	2.28	2.38	2.02	1.98	1.97	S	1.98	1.97	2.01	2.02	2.12	1.96	1.96	1.96	1.96	1.96	1.96	2.00	1.99	1.96	2.50	2.10	24	
17	1.98	1.96	1.96	1.96	1.96	2.22	2.01	1.99	1.99	S	1.97	1.96	1.97	1.98	2.01	1.99	1.96	1.95	2.00	1.99	1.95	1.98	1.99	2.04	1.95	2.22	1.99	24	
18	2.02	2.06	2.07	2.08	2.08	2.08	2.04	2.00	S	2.01	2.00	2.02	1.99	1.98	1.98	1.99	1.99	1.99	1.98	2.00	1.99	2.00	1.99	1.98	1.98	2.08	2.01	24	
19	1.98	1.98	1.99	1.99	1.99	1.99	1.99	S	1.98	1.98	1.97	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.99	1.98	24	
20	1.96	1.96	1.97	2.00	1.98	2.07	S	3.08	2.13	1.98	1.96	1.99	2.01	1.99	1.99	1.98	1.99	1.99	1.99	2.01	2.03	2.01	2.00	1.99	1.96	3.08	2.05	24	
21	1.97	1.97	2.01	2.05	2.04	S	2.04	2.02	1.98	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	2.04	2.08	2.01	2.02	2.01	1.99	1.96	2.08	2.00	24	
22	2.03	2.01	2.00	2.07	S	2.04	2.02	2.05	2.04	2.00	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.98	1.98	1.99	2.00	2.00	1.98	1.98	2.07	2.01	24	
23	2.05	1.99	2.00	S	1.99	2.00	2.00	2.03	2.00	2.00	2.02	2.02	1.99	1.98	1.99	1.99	1.98	1.98	1.95	1.93	2.03	2.08	2.01	1.97	1.93	2.08	2.00	24	
24	2.00	1.99	S	2.00	1.96	1.98	1.97	2.04	1.95	1.97	1.97	1.97	1.98	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.98	2.08	2.04	2.04	1.95	2.08	1.99	24	
25	2.04	S	2.09	2.26	2.50	2.45	2.29	2.18	2.10	2.08	2.08	2.07	2.06	2.08	2.09	2.02	1.96	1.97	1.97	1.94	1.95	2.81	2.00	1.95	1.94	2.81	2.13	24	
26	S	1.93	1.94	1.94	1.94	1.94	1.96	2.20	2.19	2.10	1.98	1.96	1.95	1.93	1.93	1.94	X	1.94	1.94	1.93	1.93	1.93	S	1.93	2.20	1.97	23		
27	1.93	1.93	1.93	1.93	1.94	1.95	1.96	1.97	1.98	1.97	1.96	1.97	1.97	1.99	1.99	1.98	1.97	1.97	1.97	1.97	2.53	2.39	S	3.07	1.93	3.07	2.05	24	
28	2.35	2.31	2.32	2.10	2.12	2.09	2.07	2.08	2.08	2.05	2.03	2.00	1.98	1.96	1.98	1.98	1.94	1.96	2.06	2.26	2.12	S	3.28	2.66	1.94	3.28	2.16	24	
29	2.97	2.17	2.67	2.48	2.43	2.54	1.95	1.96	1.97	1.96	1.95	1.95	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.93	S	1.93	1.93	1.93	1.93	2.97	2.10	24	
30	1.93	1.94	1.95	1.95	1.95	1.95	1.98	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	S	1.97	3.06	2.86	1.98	1.93	3.06	2.05	24	
31	1.96	2.15	2.11	2.08	2.19	2.05	1.99	1.98	2.10	2.07	2.09	2.06	1.99	1.97	1.93	1.93	1.93	1.93	S	1.92	1.92	1.92	1.92	1.93	1.92	2.19	2.01	24	
HOURLY MAX	3.65	3.09	3.01	2.75	3.22	2.94	2.51	3.08	2.50	2.12	2.11	2.07	2.06	2.08	2.09	2.16	2.02	2.10	2.12	2.26	2.53	3.26	3.28	3.20					
HOURLY AVG	2.12	2.07	2.10	2.08	2.12	2.10	2.04	2.07	2.03	2.01	2.00	1.99	1.99	1.98	1.98	1.99	1.97	1.98	1.98	2.00	2.04	2.12	2.11	2.13					

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

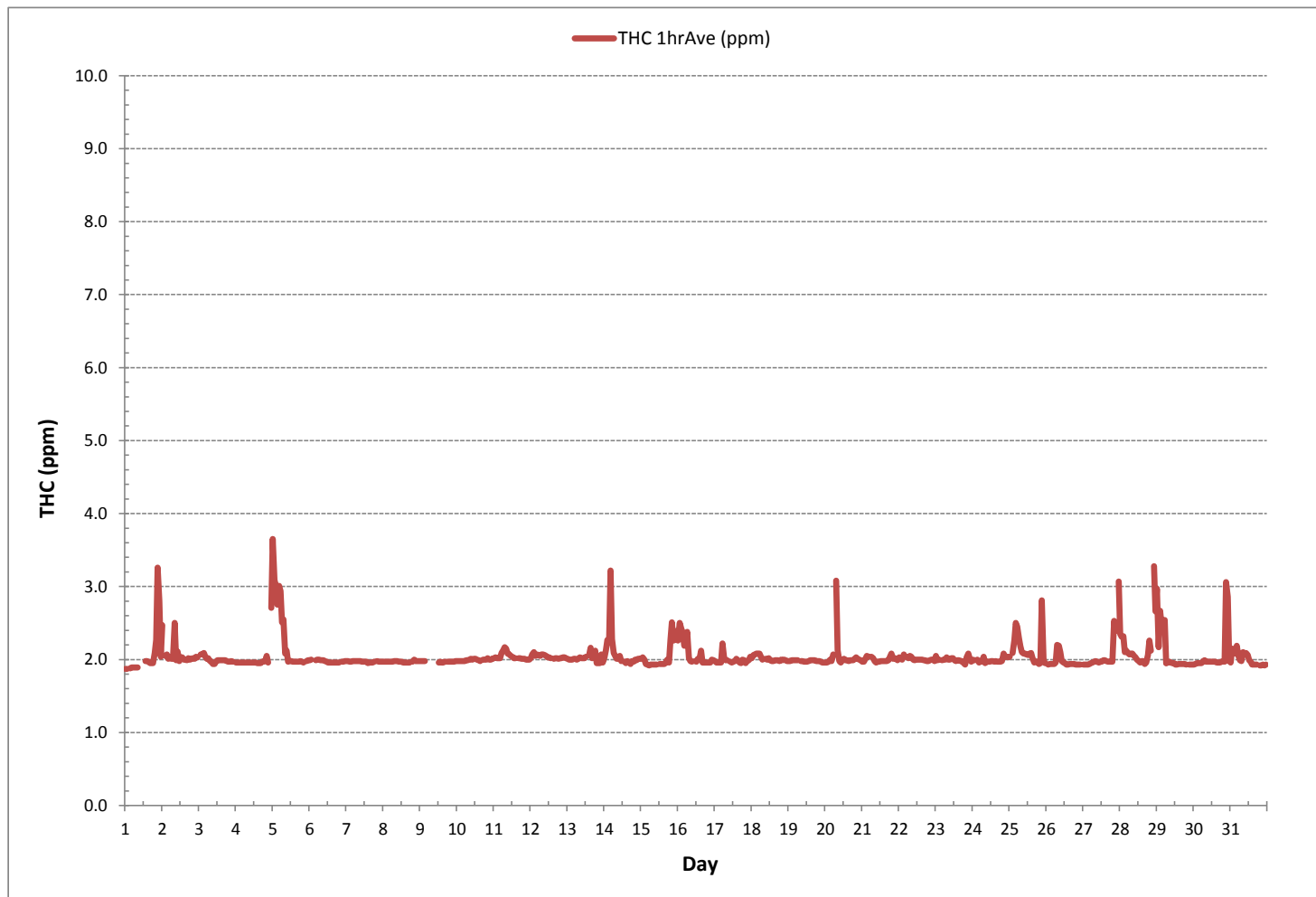
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	696				
MINIMUM 1-HR AVERAGE:	1.87	ppm @ HOUR(S)	0 , 1	ON DAY(S)	1 , 1
MAXIMUM 1-HR AVERAGE:	3.65	ppm @ HOUR(S)	0	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	2.32	ppm		ON DAY(S)	5
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	733	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	98.5	%
STANDARD DEVIATION:	0.20		MONTHLY AVERAGE:	2.04	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																												
1	1.89	1.89	S	1.90	1.91	1.91	1.91	1.91	1.98	C	C	C	C	C	2.00	2.00	1.97	1.99	1.98	2.42	2.53	5.14	5.93	6.29	1.89	6.29	2.64	24
2	3.83	S	2.19	2.31	2.30	2.23	2.08	3.11	3.34	2.02	3.42	2.11	2.18	2.20	2.17	2.12	2.02	2.13	2.04	2.03	2.07	2.13	2.17	2.14	2.02	3.83	2.36	24
3	S	2.21	2.20	2.22	2.14	2.05	2.16	2.01	1.99	1.97	1.97	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.00	1.99	1.99	2.00	1.99	S	1.97	2.22	2.04	24
4	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.98	1.97	1.97	1.97	1.97	2.02	2.03	2.04	2.23	1.99	S	6.79	1.97	6.79	2.20	24
5	6.14	4.45	5.82	5.15	4.33	4.10	4.44	4.80	2.20	2.32	2.05	2.07	2.09	2.02	1.98	1.98	1.99	2.00	1.99	1.99	1.98	S	2.00	2.04	1.98	6.14	3.04	24
6	2.00	2.01	X	X	2.01	2.03	2.03	2.01	2.00	2.00	2.00	1.99	1.98	1.99	1.97	1.98	1.97	1.98	1.98	1.98	S	1.99	1.99	1.99	1.97	2.03	1.99	22
7	2.00	2.00	1.99	1.99	1.99	1.99	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.98	2.00	1.98	1.98	1.98	1.98	S	2.00	1.99	1.98	1.99	1.98	2.00	1.99	24
8	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.98	1.99	1.99	1.99	S	2.00	2.03	2.01	2.00	2.02	1.98	2.03	2.00	24
9	2.00	2.03	2.05	2.00	X	X	X	X	X	X	Y	Y	2.00	1.99	1.98	1.98	1.99	S	1.99	2.00	1.99	1.99	1.99	2.00	1.98	2.05	2.00	16
10	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.04	2.05	2.04	2.03	2.04	2.02	2.02	2.00	S	2.02	2.03	2.03	2.08	2.04	2.03	2.03	2.00	2.08	2.02	24
11	2.05	2.04	2.04	2.04	2.05	2.25	2.58	2.49	2.31	2.12	2.23	2.12	2.06	2.04	2.03	S	2.04	2.04	2.03	2.03	2.03	2.02	2.05	2.03	2.02	2.58	2.12	24
12	2.08	2.14	2.16	2.11	2.14	2.15	2.07	2.08	2.09	2.08	2.07	2.05	2.06	2.04	S	2.03	2.06	2.07	2.04	2.03	2.04	2.05	2.04	2.05	2.03	2.16	2.08	24
13	2.03	2.03	2.03	2.03	2.03	2.10	2.03	2.08	2.11	2.08	2.10	2.05	2.09	S	2.26	2.35	2.11	2.37	2.50	2.05	1.97	1.97	2.64	2.11	1.97	2.64	2.14	24
14	2.84	2.89	3.14	3.66	5.46	3.51	2.55	2.35	2.07	2.03	2.21	2.18	S	2.06	2.03	2.03	2.00	1.98	2.14	2.06	2.05	2.07	2.05	2.10	1.98	5.46	2.50	24
15	2.05	2.17	2.04	1.95	1.95	1.94	1.94	1.95	1.95	1.96	1.95	S	1.96	1.96	1.96	1.95	2.08	2.16	2.00	3.67	4.17	2.45	2.78	2.68	1.94	4.17	2.25	24
16	2.58	2.99	2.97	3.17	2.50	2.52	3.28	2.33	2.06	2.06	S	2.04	2.03	2.11	2.11	3.53	2.07	1.97	1.98	1.98	1.98	2.02	2.10	2.06	1.97	3.53	2.37	24
17	2.05	1.98	1.98	1.98	1.98	3.58	2.10	2.06	2.00	S	1.99	1.98	1.98	2.06	2.11	2.12	1.98	1.97	2.21	2.24	2.01	2.06	2.07	2.10	1.97	3.58	2.11	24
18	2.11	2.12	2.12	2.13	2.13	2.12	2.12	2.02	S	2.04	2.06	2.13	2.06	2.08	2.01	2.02	2.01	2.00	2.01	2.03	2.02	2.02	2.02	2.00	2.00	2.13	2.06	24
19	2.00	2.00	2.00	2.01	2.00	2.01	2.01	S	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.02	2.01	1.98	1.98	1.98	2.02	2.00	24
20	1.98	1.98	1.99	2.05	2.07	2.59	S	4.10	2.81	2.00	1.99	2.06	2.08	2.11	2.09	1.99	2.07	2.03	2.06	2.06	2.38	2.05	2.10	2.04	1.98	4.10	2.20	24
21	1.98	1.98	2.11	2.12	2.07	S	2.07	2.05	2.03	1.98	1.98	1.99	2.00	2.06	2.00	2.06	2.00	2.08	2.10	2.13	2.05	2.12	2.06	2.02	1.98	2.13	2.05	24
22	2.14	2.14	2.03	2.15	S	2.18	2.15	2.21	2.20	2.03	2.01	2.03	2.02	2.03	2.03	2.02	2.01	2.00	2.01	2.00	2.02	2.02	2.02	2.06	2.00	2.21	2.07	24
23	2.15	2.01	2.02	S	2.01	2.03	2.06	2.07	2.04	2.02	2.11	2.14	2.00	2.00	2.02	2.02	2.00	2.00	1.99	1.95	2.35	2.43	2.29	2.09	1.95	2.43	2.08	24
24	2.21	2.26	S	2.23	2.01	2.13	2.05	2.23	2.01	2.03	2.04	2.05	2.08	2.03	2.01	2.03	2.03	2.02	2.05	2.05	2.25	2.22	2.22	2.17	2.01	2.26	2.10	24
25	2.06	S	2.27	2.50	2.84	2.82	2.65	2.51	2.40	2.23	2.22	2.20	2.22	2.24	2.30	2.14	2.00	2.00	2.00	1.96	2.61	5.64	2.16	1.98	1.96	5.64	2.43	24
26	S	1.95	1.96	1.98	1.97	1.96	2.24	2.69	2.63	2.31	2.18	2.11	2.06	1.95	1.96	1.98	X	1.96	1.96	1.95	1.95	1.95	S	1.95	2.69	2.08	23	
27	1.95	1.96	1.95	1.95	1.96	1.97	1.99	1.99	2.00	1.99	1.98	1.98	1.99	2.07	2.03	2.00	1.98	1.99	1.99	1.99	3.14	3.80	S	4.85	1.95	4.85	2.24	24
28	2.63	2.63	3.89	2.44	2.31	2.24	2.14	2.26	2.19	2.13	2.07	2.03	2.00	2.03	2.16	2.11	1.98	2.17	2.36	3.79	2.69	S	7.08	3.21	1.98	7.08	2.63	24
29	5.58	3.09	4.45	3.31	3.38	3.94	1.97	1.98	1.98	1.98	1.97	2.01	1.96	1.97	1.96	2.02	1.97	1.96	1.96	1.95	S	1.95	1.95	1.95	1.95	5.58	2.49	24
30	1.96	1.96	1.97	1.97	1.97	1.98	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.98	S	2.11	6.24	3.97	2.04	1.96	6.24	2.26	24
31	2.03	2.62	2.45	2.47	2.62	2.22	2.13	2.05	2.22	2.23	2.17	2.17	2.11	2.08	1.95	1.95	1.95	1.95	S	1.94	1.94	1.94	1.94	1.95	1.94	2.62	2.13	24
HOURLY MAX	6.14	4.45	5.82	5.15	5.46	4.10	4.44	4.80	3.34	2.32	3.42	2.20	2.22	2.24	2.30	3.53	2.11	2.37	2.50	3.79	4.17	6.24	7.08	6.79				
HOURLY AVG	2.42	2.26	2.42	2.34	2.35	2.36	2.23	2.32	2.16	2.06	2.10	2.05	2.03	2.04	2.04	2.08	2.01	2.03	2.05	2.15	2.23	2.49	2.47	2.51				

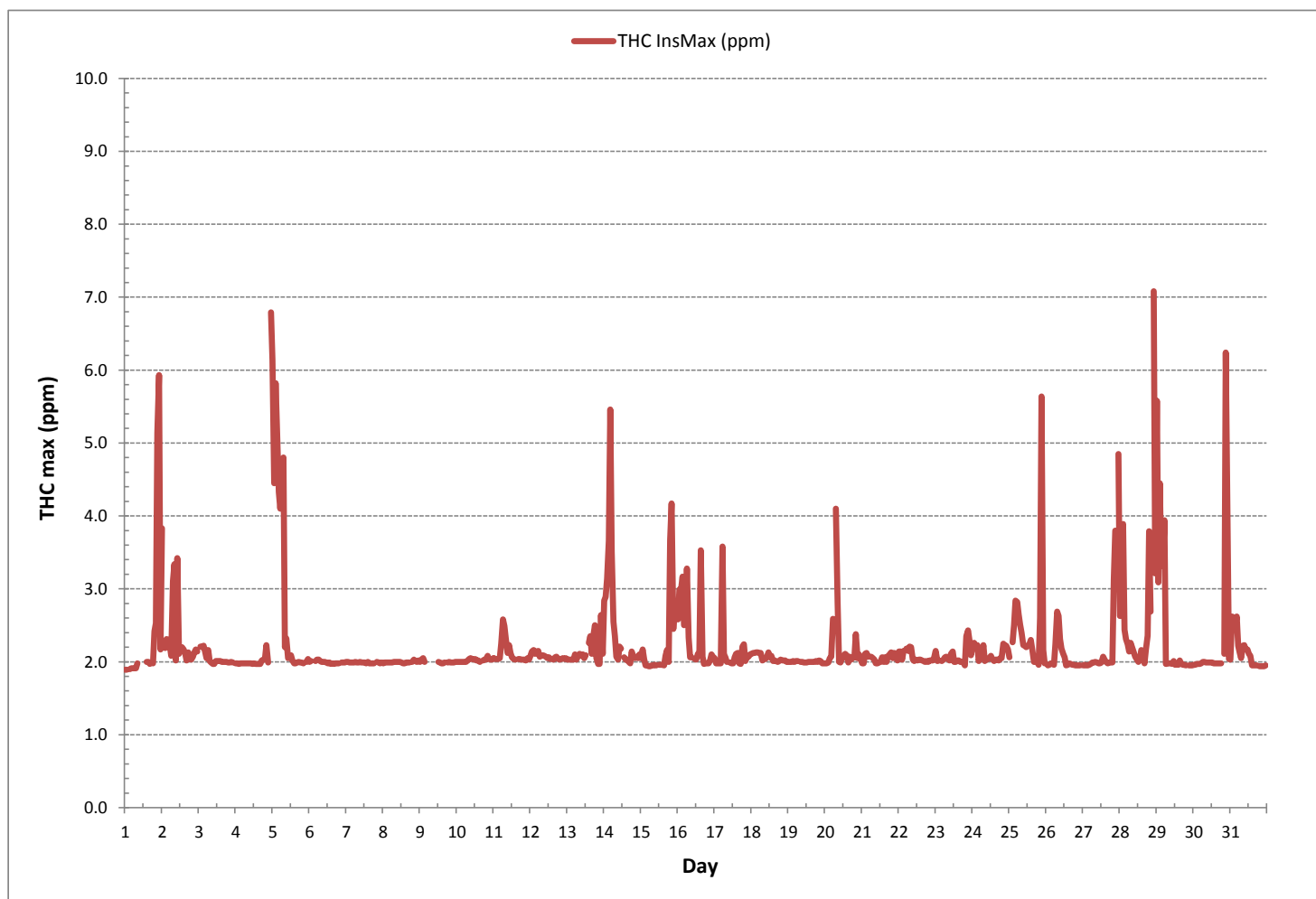
STATUS FLAG CODES

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:	695				
MAXIMUM INSTANTANEOUS VALUE:	7.08	ppm	@ HOUR(S)	22	ON DAY(S) 28
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	733	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.64				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



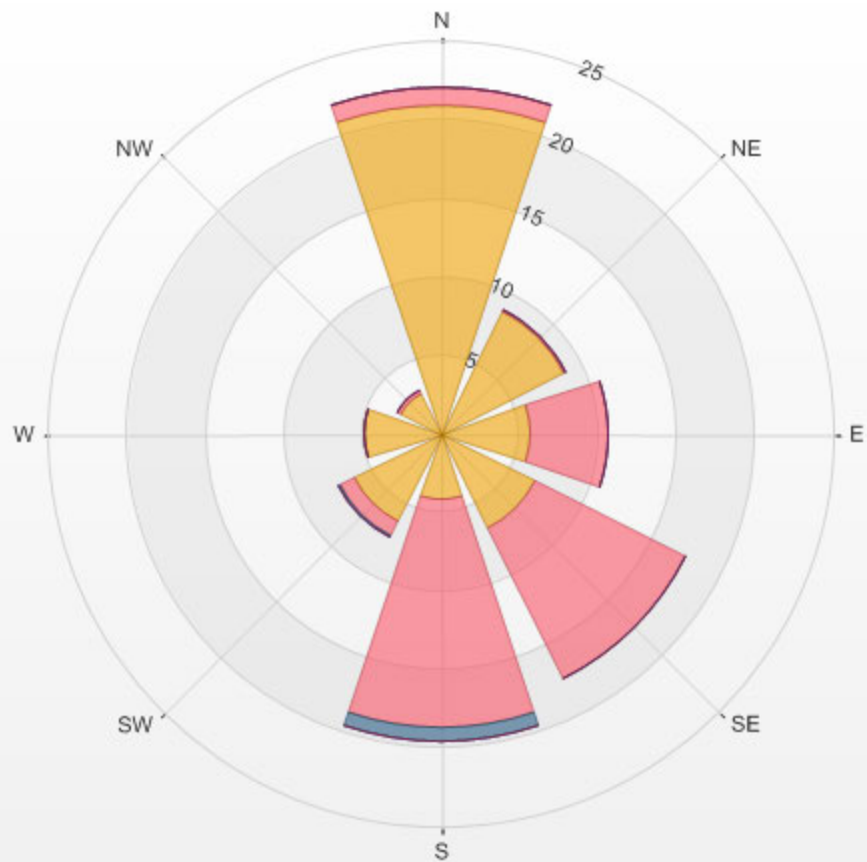
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-THC55[ppm]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.03%

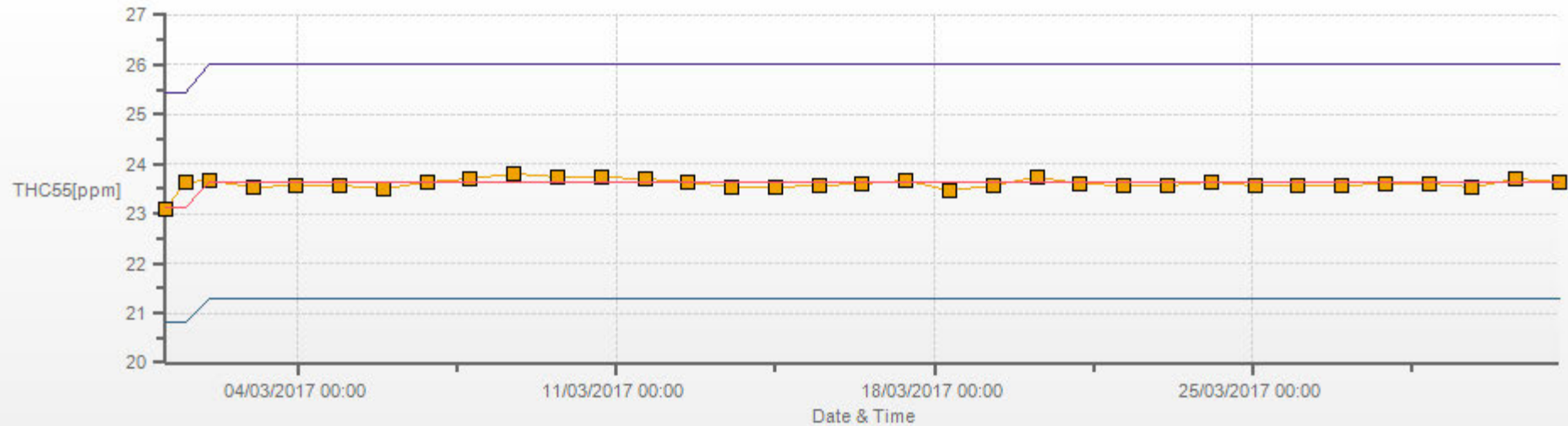
Calm Avg: 2.31 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	21.0	1.2	0.0	0.0	0.0	22.1
NE	8.8	0.1	0.0	0.0	0.0	8.9
E	5.8	4.9	0.0	0.0	0.0	10.6
SE	6.8	10.6	0.0	0.0	0.0	17.4
S	4.2	14.5	0.9	0.0	0.0	19.5
SW	6.2	1.0	0.1	0.0	0.0	7.3
W	4.9	0.0	0.0	0.0	0.0	4.9
NW	2.9	0.3	0.0	0.0	0.0	3.2
Summary	60.4	32.6	1.0	0.0	0.0	94.0

PRAMP_RENO Poll.: PRAMP_RENO-THC55[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 6.03% Calm Poll Avg: 2.31[ppm]



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



Span Meas Span Ref Span Low Span High

METHANE

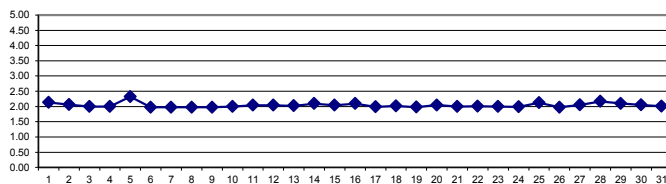
METHANE Hourly Averages (CH₄ ppm)

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	1.87	1.87	S	1.88	1.89	1.89	1.89	1.89	1.89	C	C	C	C	1.98	1.98	1.97	1.95	1.95	1.95	2.09	2.27	3.26	2.80	3.20	1.87	3.26	2.13	24	
2	2.47	S	2.05	2.07	2.01	2.04	2.01	2.01	2.50	1.99	2.11	1.98	2.03	2.03	2.00	2.00	1.99	2.02	2.00	2.01	2.02	2.01	2.04	2.03	1.98	2.50	2.06	24	
3	S	2.07	2.07	2.09	2.04	2.01	2.02	1.98	1.97	1.94	1.94	1.97	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.97	1.97	1.98	1.97	S	1.94	2.09	2.00	24	
4	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.97	1.97	1.97	2.05	1.96	S	2.71	1.95	2.71	2.00	24	
5	3.65	3.09	3.01	2.75	3.01	2.94	2.51	2.55	2.08	2.12	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.98	1.97	1.96	S	1.98	1.98	1.96	3.65	2.32	24	
6	1.99	2.00	X	X	1.99	2.00	2.00	1.99	1.99	1.99	1.98	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	S	1.97	1.97	1.98	1.96	2.00	1.98	22	
7	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.94	1.96	1.96	1.96	1.97	S	1.98	1.97	1.97	1.97	1.94	1.98	1.97	24	
8	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	S	1.97	2.00	1.98	1.98	1.96	2.00	1.97	24	
9	1.98	1.98	1.98	1.98	X	X	X	X	X	X	Y	Y	1.96	1.97	1.96	1.96	1.97	S	1.97	1.97	1.97	1.97	1.97	1.98	1.96	1.98	1.97	16	
10	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.01	2.00	2.01	2.01	2.00	1.99	1.98	S	2.00	2.00	2.00	2.02	2.00	2.00	2.01	1.98	2.02	2.00	24	
11	2.02	2.03	2.02	2.02	2.02	2.09	2.12	2.17	2.15	2.08	2.07	2.05	2.04	2.02	2.02	S	2.02	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.17	2.04	24
12	2.02	2.07	2.10	2.05	2.07	2.06	2.05	2.07	2.06	2.06	2.05	2.03	2.03	2.02	S	2.01	2.02	2.02	2.01	2.02	2.02	2.03	2.03	2.02	2.01	2.10	2.04	24	
13	2.01	2.00	2.00	2.00	2.01	2.01	2.00	2.01	2.03	2.02	2.02	2.02	2.04	S	2.06	2.16	2.02	2.10	2.12	1.95	1.95	1.95	2.07	1.96	1.95	2.16	2.02	24	
14	2.03	2.13	2.27	2.26	3.22	2.28	2.09	2.04	2.01	2.01	2.05	1.98	S	1.97	1.95	1.98	1.96	1.94	1.98	1.97	2.00	1.99	2.01	1.94	3.22	2.09	24		
15	2.01	2.03	2.00	1.94	1.93	1.92	1.93	1.93	1.93	1.93	1.93	S	1.94	1.94	1.94	1.94	1.96	2.00	1.96	2.26	2.51	2.26	2.36	2.39	1.92	2.51	2.04	24	
16	2.25	2.50	2.43	2.37	2.19	2.28	2.38	2.02	1.98	1.97	S	1.98	1.97	2.01	2.02	2.12	1.96	1.96	1.96	1.96	1.96	1.96	2.00	1.99	1.96	2.50	2.10	24	
17	1.98	1.96	1.96	1.96	1.96	2.22	2.01	1.99	1.99	S	1.97	1.96	1.97	1.98	2.01	1.99	1.96	1.95	2.00	1.99	1.95	1.98	1.99	2.04	1.95	2.22	1.99	24	
18	2.02	2.06	2.07	2.08	2.08	2.08	2.04	2.00	S	2.01	2.00	2.02	1.99	1.98	1.98	1.99	1.99	1.99	1.98	2.00	1.99	2.00	1.99	1.98	1.98	2.08	2.01	24	
19	1.98	1.98	1.99	1.99	1.98	1.99	1.99	S	1.98	1.98	1.97	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.97	1.96	1.96	1.96	1.99	1.98	24	
20	1.96	1.96	1.97	2.00	1.98	2.07	S	3.08	2.13	1.98	1.96	1.99	2.01	1.99	1.99	1.98	1.99	1.99	1.99	2.01	2.03	2.01	2.00	1.99	1.96	3.08	2.05	24	
21	1.97	1.97	2.01	2.05	2.04	S	2.04	2.02	1.98	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	2.04	2.08	2.01	2.02	2.01	1.99	1.96	2.08	2.00	24	
22	2.03	2.01	2.00	2.07	S	2.04	2.02	2.05	2.04	2.00	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.98	1.98	1.99	2.00	1.99	1.98	1.98	2.07	2.01	24	
23	2.05	1.99	1.99	S	1.99	2.00	2.00	2.03	2.00	2.00	2.02	2.02	1.99	1.98	1.99	1.99	1.98	1.98	1.94	1.93	2.03	2.08	2.01	1.97	1.93	2.08	2.00	24	
24	2.00	1.99	S	1.99	1.96	1.98	1.97	2.04	1.95	1.97	1.97	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.08	2.03	2.04	2.03	1.95	2.08	1.99	24
25	2.04	S	2.09	2.26	2.50	2.45	2.29	2.18	2.10	2.08	2.08	2.07	2.06	2.08	2.09	2.02	1.96	1.97	1.97	1.94	1.95	2.81	1.99	1.95	1.94	2.81	2.13	24	
26	S	1.93	1.94	1.94	1.94	1.94	1.96	2.20	2.19	2.10	1.98	1.96	1.95	1.93	1.93	1.94	X	1.94	1.94	1.93	1.93	1.93	S	1.93	1.93	2.20	1.97	23	
27	1.93	1.93	1.93	1.93	1.94	1.95	1.96	1.97	1.98	1.97	1.96	1.97	1.97	1.99	1.99	1.98	1.97	1.97	1.97	1.97	2.53	2.39	S	3.07	1.93	3.07	2.05	24	
28	2.35	2.31	2.32	2.10	2.12	2.09	2.07	2.08	2.08	2.05	2.03	2.00	1.98	1.96	1.98	1.98	1.94	1.96	2.06	2.26	2.12	S	3.28	2.66	1.94	3.28	2.16	24	
29	2.97	2.17	2.66	2.48	2.43	2.54	1.95	1.96	1.97	1.96	1.95	1.95	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.92	S	1.93	1.93	1.93	1.92	2.97	2.10	24	
30	1.93	1.94	1.95	1.95	1.95	1.95	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.97	S	1.97	3.05	2.86	1.98	1.93	3.05	2.05	24	
31	1.96	2.14	2.11	2.08	2.19	2.05	1.99	1.98	2.10	2.07	2.09	2.05	1.99	1.97	1.93	1.93	1.93	1.93	S	1.92	1.92	1.92	1.92	1.92	1.92	2.19	2.00	24	
HOURLY MAX	3.65	3.09	3.01	2.75	3.22	2.94	2.51	3.08	2.50	2.12	2.11	2.07	2.06	2.08	2.09	2.16	2.02	2.10	2.12	2.26	2.53	3.26	3.28	3.20					
HOURLY AVG	2.12	2.07	2.10	2.07	2.11	2.10	2.04	2.07	2.03	2.01	2.00	1.99	1.99	1.98	1.98	1.99	1.97	1.98	1.98	2.00	2.04	2.12	2.11	2.13					

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

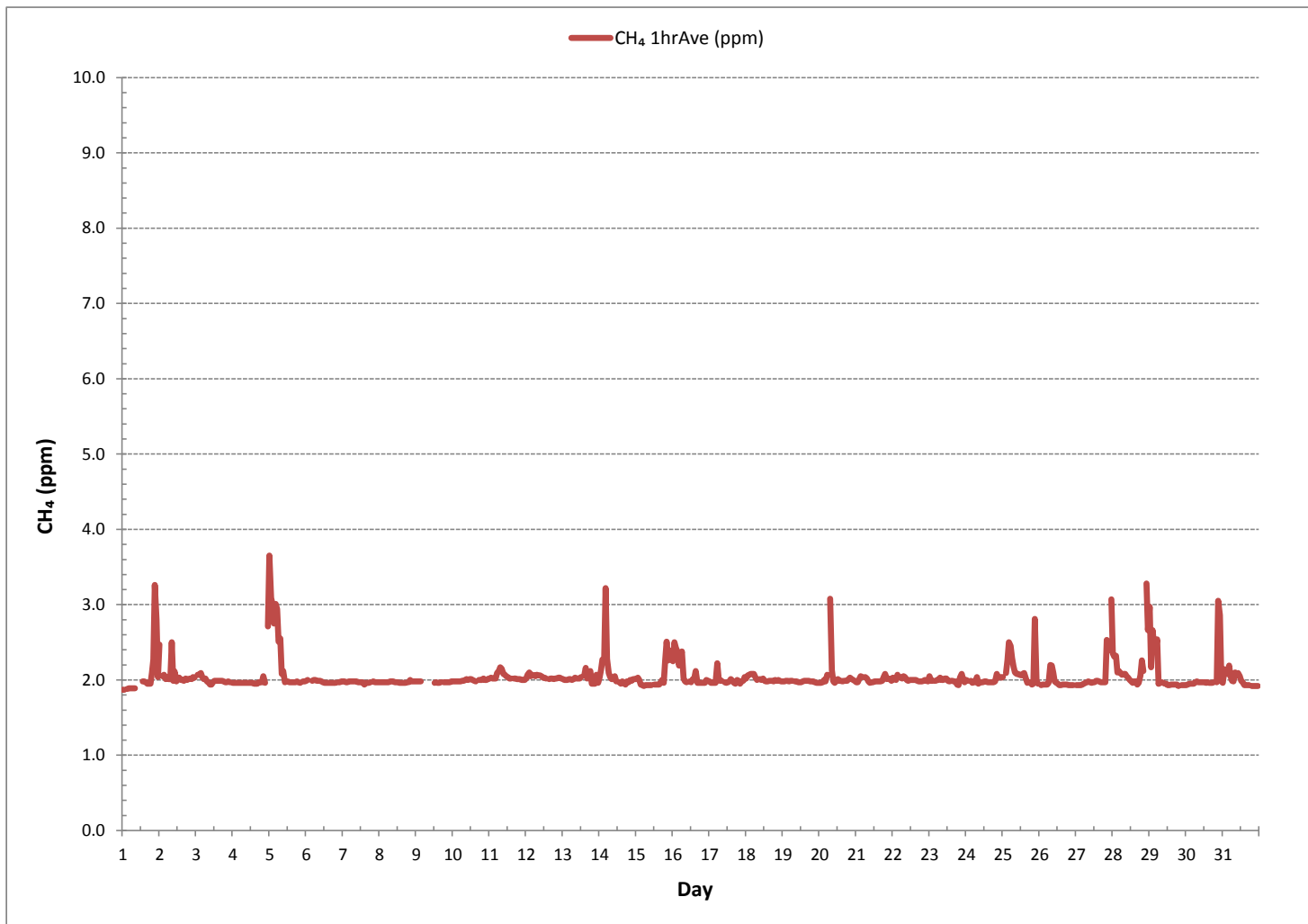
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	696				
MINIMUM 1-HR AVERAGE:	1.87	ppm @ HOUR(S)	0 , 1	ON DAY(S)	1 , 1
MAXIMUM 1-HR AVERAGE:	3.65	ppm @ HOUR(S)	0	ON DAY(S)	5
MAXIMUM 24-HR AVERAGE:	2.32	ppm		ON DAY(S)	5
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	733	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	98.5	%
STANDARD DEVIATION:	0.20		MONTHLY AVERAGE:	2.04	ppm

METHANE Hourly Averages (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

METHANE MAX Instantaneous Maximum (CH₄ 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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	1.88	1.88	S	1.89	1.90	1.90	1.90	1.90	1.90	C	C	C	C	C	1.99	1.99	1.97	1.97	1.97	2.41	2.53	5.13	5.93	6.29	1.88	6.29	2.63	24	
2	3.82	S	2.18	2.30	2.29	2.22	2.08	3.10	3.33	2.01	3.41	2.10	2.16	2.18	2.16	2.11	2.01	2.12	2.03	2.03	2.07	2.12	2.16	2.13	2.01	3.82	2.35	24	
3	S	2.20	2.19	2.21	2.13	2.04	2.15	2.00	1.99	1.96	1.96	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.98	1.99	1.99	S	1.96	2.21	2.03	24	
4	1.97	1.97	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	2.00	2.01	2.04	2.23	1.99	S	6.79	1.96	6.79	2.20	24	
5	6.15	4.44	5.82	5.14	4.33	4.09	4.43	4.78	2.19	2.31	2.04	2.06	2.08	1.98	1.98	1.98	1.99	1.99	1.99	1.98	1.98	S	2.00	2.03	1.98	6.15	3.03	24	
6	2.00	2.00	X	X	2.00	2.02	2.02	2.00	2.00	2.00	2.00	1.99	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.98	S	1.98	1.98	1.99	1.97	2.02	1.99	22	
7	1.99	1.99	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	2.00	1.98	1.97	1.98	1.98	S	1.99	1.99	1.98	1.98	1.97	2.00	1.99	24
8	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.99	2.00	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	S	1.99	2.03	2.01	1.99	2.01	1.98	2.03	1.99	24	
9	2.00	2.01	2.05	1.99	X	X	X	X	X	X	Y	Y	1.99	1.99	1.98	1.97	1.98	S	1.98	1.99	1.98	1.98	1.98	1.99	1.97	2.05	1.99	16	
10	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.03	2.04	2.03	2.02	2.02	2.01	2.00	1.99	S	2.01	2.01	2.01	2.08	2.04	2.02	2.02	1.99	2.08	2.01	24	
11	2.04	2.03	2.04	2.04	2.05	2.24	2.57	2.49	2.30	2.11	2.23	2.11	2.05	2.03	2.03	S	2.03	2.03	2.03	2.02	2.02	2.01	2.05	2.02	2.01	2.57	2.11	24	
12	2.08	2.13	2.15	2.10	2.13	2.13	2.06	2.08	2.07	2.07	2.07	2.04	2.05	2.04	S	2.03	2.06	2.07	2.03	2.03	2.03	2.05	2.04	2.04	2.03	2.15	2.07	24	
13	2.02	2.01	2.01	2.02	2.02	2.09	2.03	2.07	2.11	2.08	2.09	2.04	2.09	S	2.24	2.34	2.10	2.36	2.50	2.04	1.96	1.96	2.63	2.10	1.96	2.63	2.13	24	
14	2.83	2.88	3.13	3.66	5.45	3.51	2.55	2.34	2.07	2.02	2.20	2.17	S	2.06	2.02	2.02	2.00	1.98	2.13	2.06	2.05	2.07	2.05	2.09	1.98	5.45	2.49	24	
15	2.05	2.16	2.03	1.94	1.94	1.93	1.93	1.94	1.94	1.95	1.94	S	1.95	1.95	1.95	1.94	2.08	2.15	2.00	3.67	4.17	2.45	2.77	2.67	1.93	4.17	2.24	24	
16	2.57	2.98	2.96	3.16	2.50	2.52	3.29	2.32	2.05	2.06	S	2.03	2.03	2.10	2.10	3.53	2.07	1.97	1.97	1.98	1.97	2.02	2.09	2.06	1.97	3.53	2.36	24	
17	2.05	1.98	1.97	1.97	1.97	3.57	2.09	2.05	2.00	S	1.99	1.97	1.98	2.05	2.11	2.11	1.98	1.97	2.20	2.23	2.00	2.06	2.07	2.09	1.97	3.57	2.11	24	
18	2.10	2.11	2.11	2.12	2.12	2.11	2.11	2.01	S	2.03	2.06	2.12	2.06	2.08	2.00	2.00	2.00	2.00	2.01	2.02	2.00	2.01	2.00	1.99	1.99	2.12	2.05	24	
19	1.99	2.00	2.00	2.00	2.00	2.00	2.00	S	1.99	1.99	1.99	1.98	1.98	1.99	2.00	2.00	2.00	2.00	2.00	1.99	2.01	2.01	1.97	1.97	1.97	2.01	1.99	24	
20	1.97	1.98	1.98	2.05	2.07	2.58	S	4.10	2.80	2.00	1.98	2.05	2.08	2.10	2.08	1.99	2.07	2.01	2.05	2.06	2.37	2.05	2.09	2.03	1.97	4.10	2.20	24	
21	1.98	1.98	2.10	2.11	2.07	S	2.07	2.04	2.02	1.97	1.98	1.99	1.99	1.99	2.00	2.06	1.99	2.08	2.09	2.12	2.04	2.11	2.05	2.00	1.97	2.12	2.04	24	
22	2.13	2.13	2.02	2.14	S	2.17	2.13	2.21	2.19	2.02	2.00	2.03	2.02	2.02	2.02	2.01	2.00	2.00	2.00	1.99	2.00	2.01	2.01	2.06	1.99	2.21	2.06	24	
23	2.14	2.00	2.01	S	2.01	2.02	2.06	2.07	2.04	2.01	2.11	2.13	2.00	1.99	2.00	2.00	1.99	1.99	1.99	1.94	2.34	2.42	2.28	2.08	1.94	2.42	2.07	24	
24	2.20	2.24	S	2.22	2.01	2.12	2.05	2.23	2.01	2.02	2.03	2.04	2.08	2.02	2.00	2.02	2.03	2.01	2.05	2.05	2.24	2.22	2.22	2.16	2.00	2.24	2.10	24	
25	2.06	S	2.26	2.50	2.83	2.81	2.64	2.51	2.39	2.21	2.22	2.19	2.21	2.23	2.29	2.13	2.00	1.99	2.00	1.96	2.60	5.65	2.15	1.97	1.96	5.65	2.43	24	
26	S	1.94	1.95	1.97	1.96	1.96	2.24	2.69	2.62	2.30	2.17	2.10	2.06	1.94	1.95	1.97	X	1.96	1.95	1.94	1.93	1.94	1.94	S	1.93	2.69	2.07	23	
27	1.94	1.95	1.94	1.94	1.95	1.97	1.98	1.98	2.00	1.99	1.98	1.98	1.98	2.07	2.02	1.99	1.98	1.98	1.98	1.99	3.13	3.80	S	4.84	1.94	4.84	2.23	24	
28	2.62	2.62	3.89	2.43	2.30	2.23	2.13	2.25	2.18	2.12	2.06	2.02	2.00	2.01	2.15	2.10	1.97	2.16	2.35	3.80	2.68	S	6.95	3.20	1.97	6.95	2.62	24	
29	5.58	3.08	4.45	3.30	3.37	3.94	1.97	1.97	1.98	1.98	1.97	2.00	1.95	1.97	1.95	2.00	1.96	1.95	1.95	1.94	S	1.93	1.94	1.94	1.93	5.58	2.48	24	
30	1.95	1.96	1.96	1.97	1.97	1.97	1.99	2.00	1.98	1.98	1.99	1.99	1.98	1.97	1.98	1.97	1.98	1.97	1.98	S	2.10	6.24	3.97	2.03	1.95	6.24	2.26	24	
31	1.98	2.61	2.45	2.47	2.61	2.21	2.12	2.05	2.21	2.22	2.16	2.16	2.10	2.08	1.94	1.94	1.94	1.94	S	1.93	1.93	1.93	1.93	1.93	1.93	2.61	2.12	24	
HOURLY MAX	6.15	4.44	5.82	5.14	5.45	4.09	4.43	4.78	3.33	2.31	3.41	2.19	2.21	2.23	2.29	3.53	2.10	2.36	2.50	3.80	4.17	6.24	6.95	6.79					
HOURLY AVG	2.42	2.25	2.41	2.33	2.34	2.35	2.23	2.31	2.15	2.05	2.09	2.04	2.03	2.03	2.03	2.07	2.00	2.02	2.04	2.14	2.22	2.49	2.46	2.50					

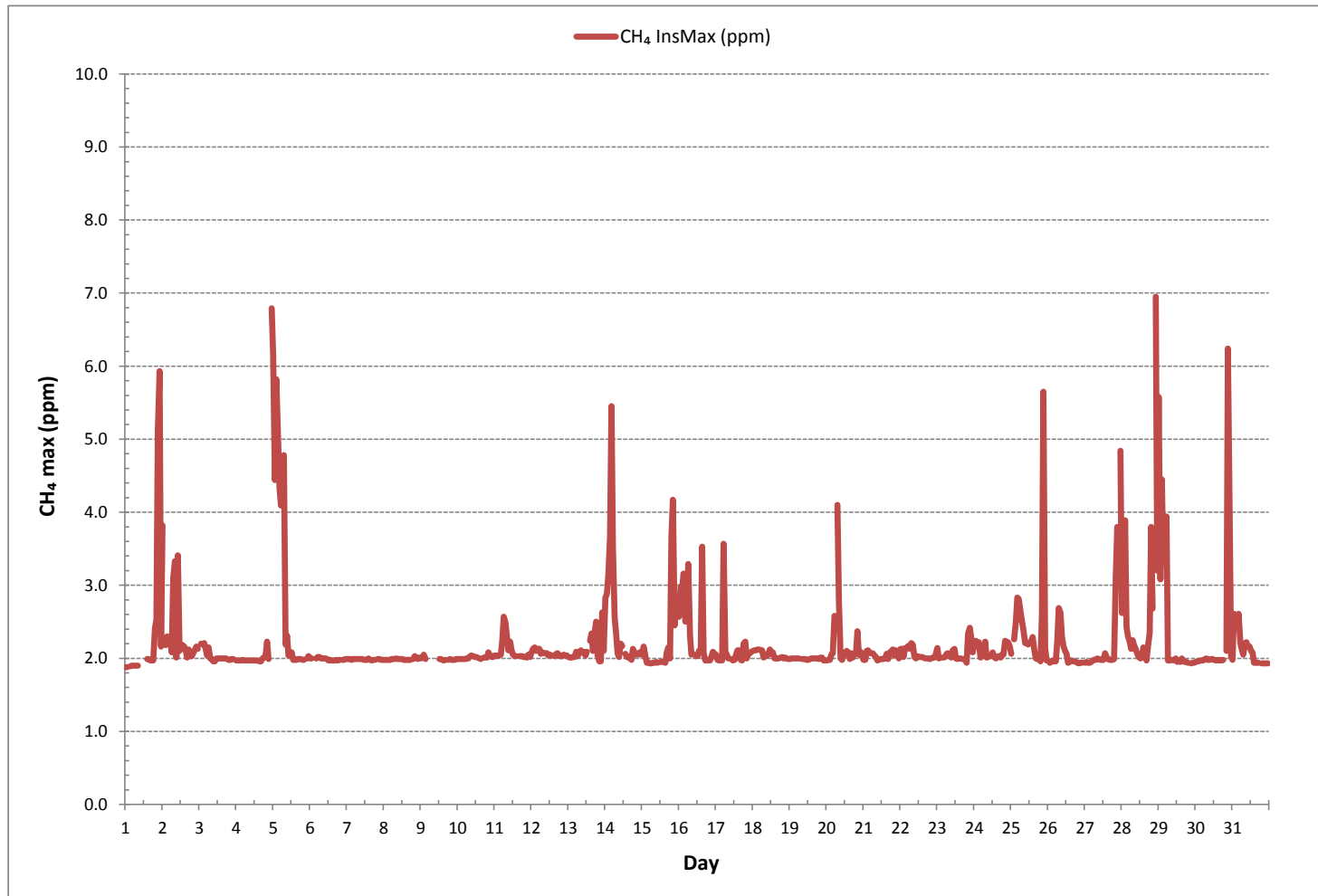
STATUS FLAG CODES

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:	695				
MAXIMUM INSTANTANEOUS VALUE:	6.95	ppm	@ HOUR(S)	22	ON DAY(S) 28
					VAR-VARIOUS
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	733	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.64				

METHANE MAX Instantaneous Maximum (CH₄ ppm)



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

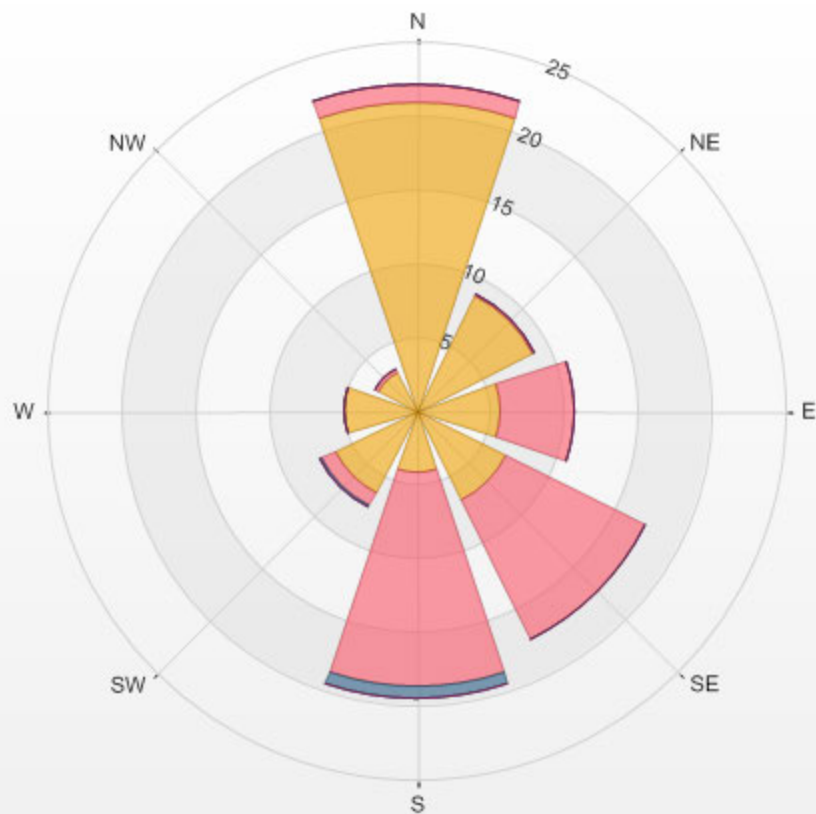
Calm: 6.03%

Calm Avg: 2.30 [ppm]

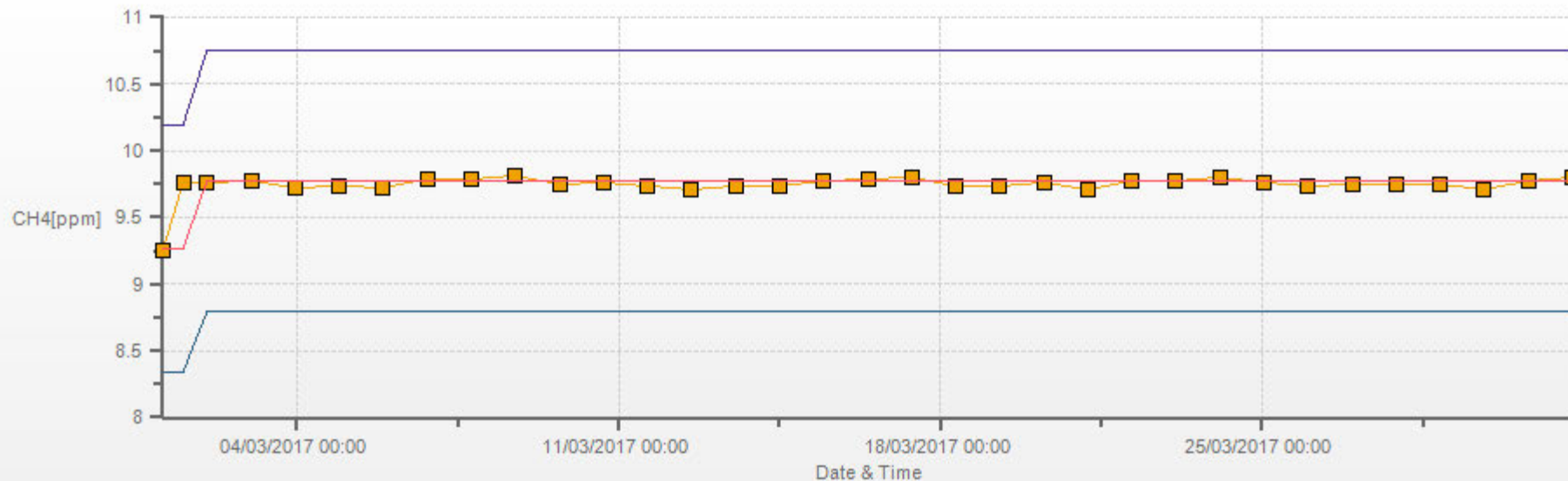
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	21.0	1.2	0.0	0.0	0.0	22.1
NE	8.8	0.1	0.0	0.0	0.0	8.9
E	5.8	4.9	0.0	0.0	0.0	10.6
SE	6.8	10.6	0.0	0.0	0.0	17.4
S	4.2	14.5	0.9	0.0	0.0	19.5
SW	6.2	1.0	0.1	0.0	0.0	7.3
W	4.9	0.0	0.0	0.0	0.0	4.9
NW	2.9	0.3	0.0	0.0	0.0	3.2
Summary	60.4	32.6	1.0	0.0	0.0	94.0

%	Icon	Classes (ppm)
60		0-2
33		2-3
1		3-5
0		5-10
0		>10.0

PRAMP_RENO Poll.: PRAMP_RENO-CH4[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 6.03% Calm Poll Avg: 2.30[ppm]



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



Span Meas Span Ref Span Low Span High

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

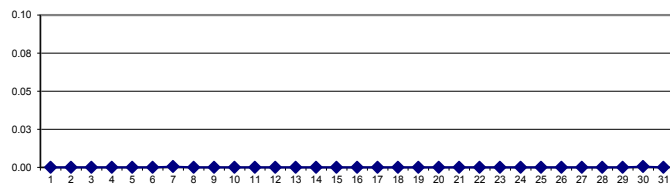
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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

STATUS FLAG CODES

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

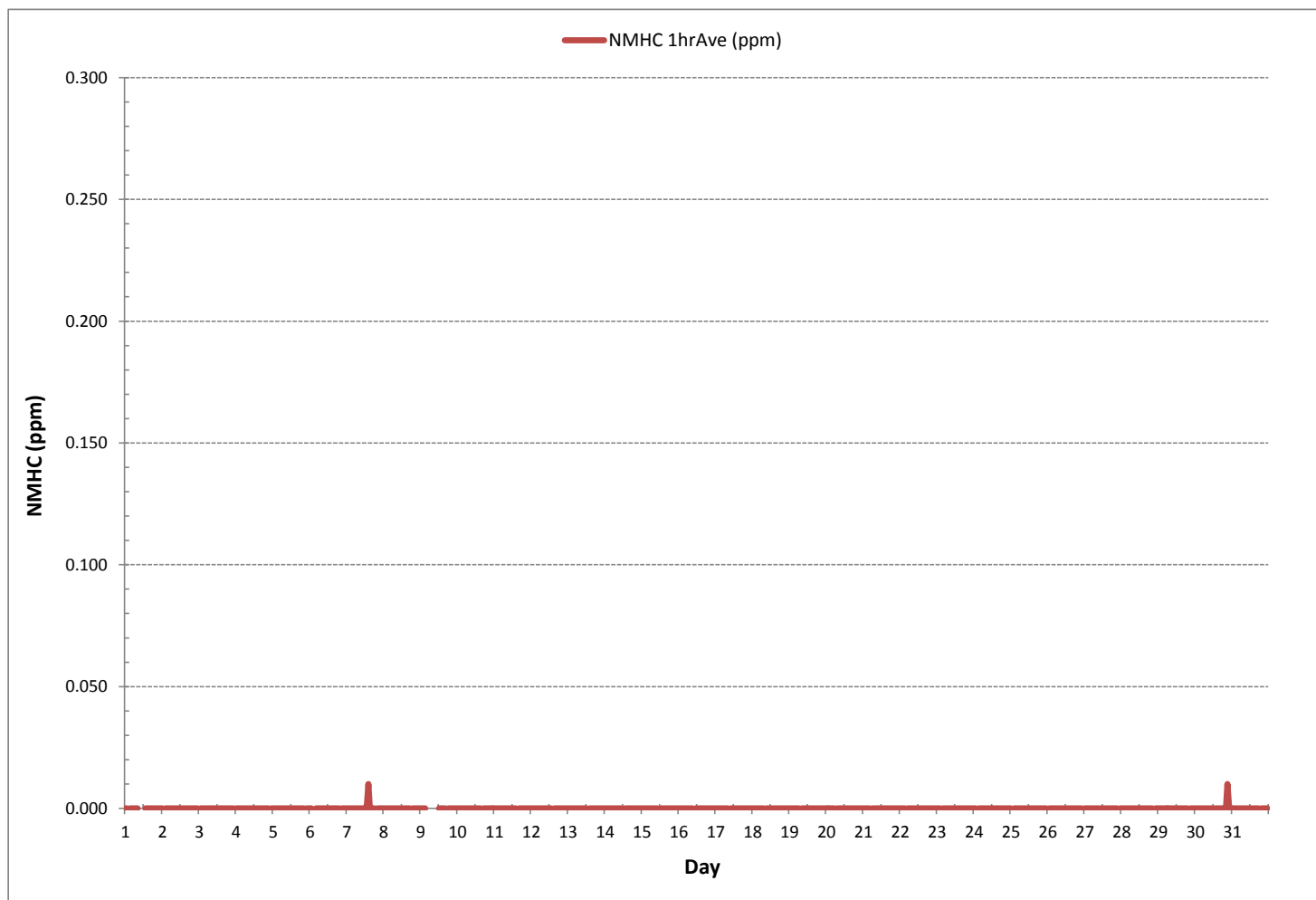
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	2				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR(S)	VAR	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	0.01	ppm	@ HOUR(S)	14 , 21	7 , 30
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ALL
				VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	733	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	98.5	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.07	C	C	C	C	C	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.07	0.01	24
2	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
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	0.04	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.04	0.00	24
6	0.00	0.00	X	X	0.00	0.00	0.00	0.00	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	22
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	0.62	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.62	0.03	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	S	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	X	X	X	X	X	X	Y	Y	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	16
10	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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	S	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	0.08	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	0.08	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
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	0.01	0.00	0.00	0.01	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	0.01	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	0.01	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	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	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	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	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	0.07	0.00	0.00	0.07	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	X	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	23
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	0.14	0.00	0.00	0.14	0.01	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.20	0.00	0.00	0.00	0.20	0.01	24
31	0.05	0.00	0.00	0.00	0.00	0.00	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	0.05	0.00	24
HOURLY MAX	0.05	0.01	0.00	0.00	0.08	0.00	0.00	0.01	0.07	0.00	0.00	0.04	0.00	0.07	0.62	0.00	0.00	0.04	0.00	0.00	0.00	0.20	0.14	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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00				

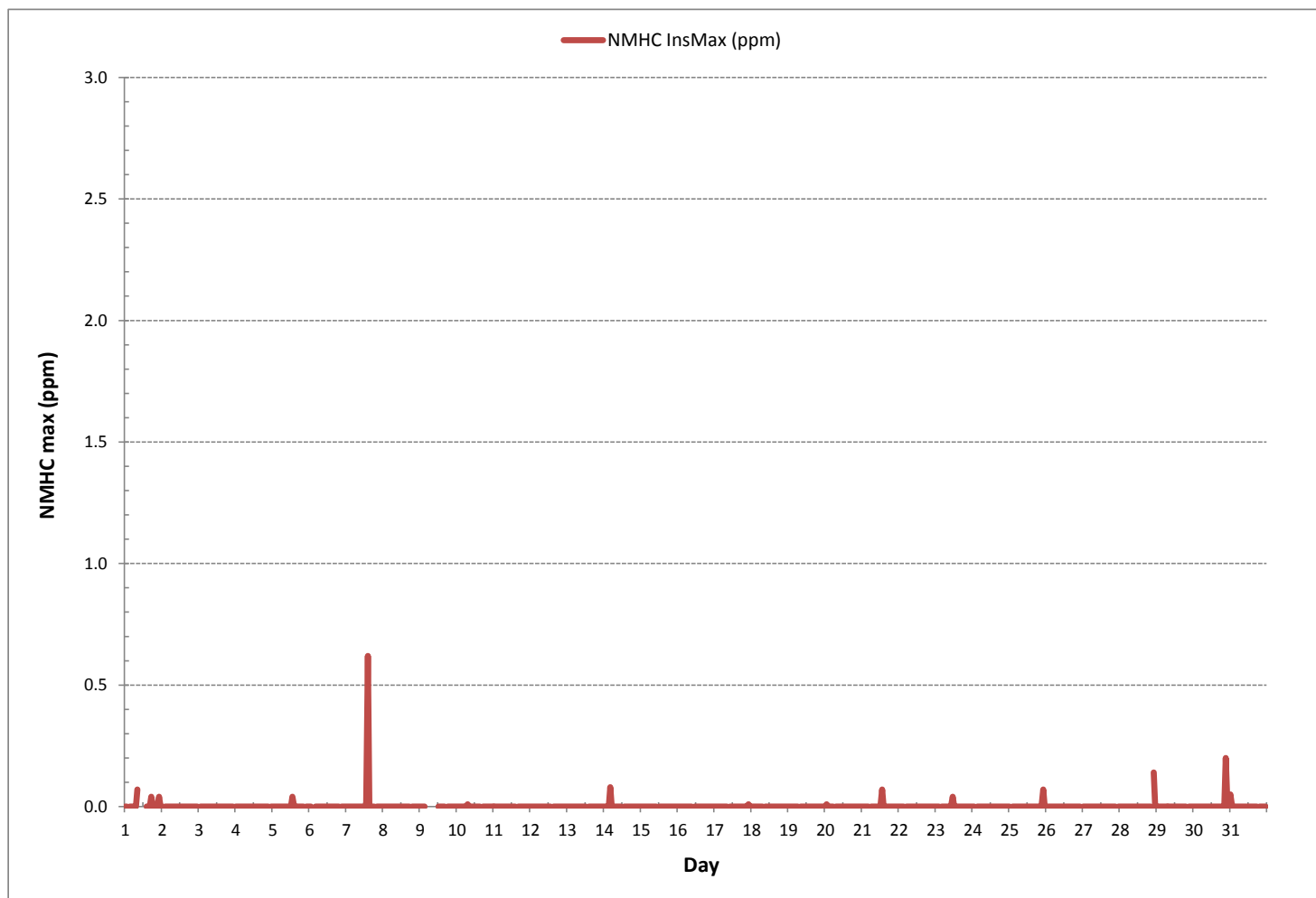
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	15
MAXIMUM INSTANTANEOUS VALUE:	0.62 ppm @ HOUR(S) 14 ON DAY(S) 7
	VAR-VARIOUS
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.03
OPERATIONAL TIME:	733 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



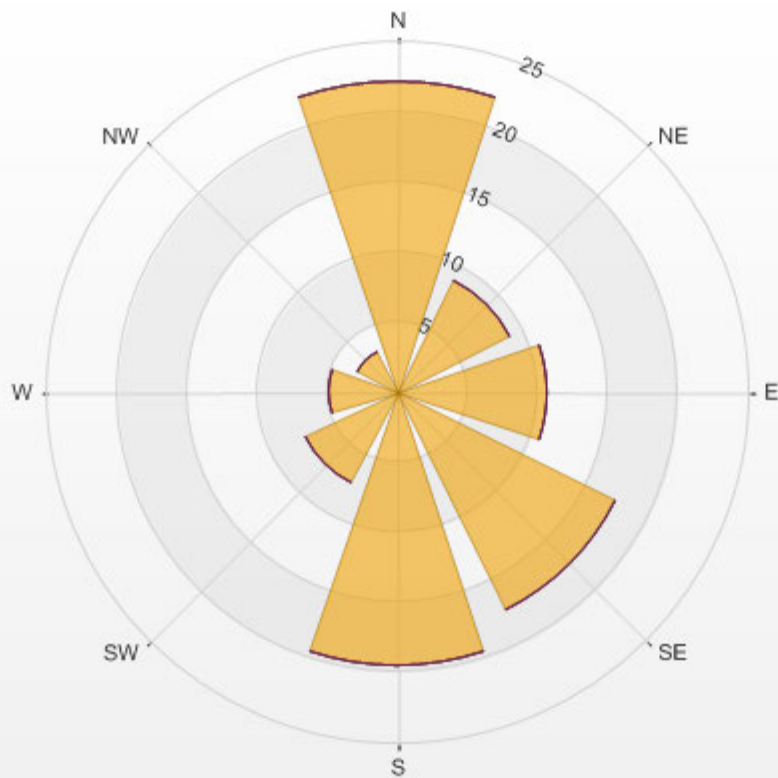
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-NMHC[ppm]
Monthly: 17/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.03%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	22.1	0.0	0.0	0.0	0.0	22.1
NE	8.9	0.0	0.0	0.0	0.0	8.9
E	10.6	0.0	0.0	0.0	0.0	10.6
SE	17.4	0.0	0.0	0.0	0.0	17.4
S	19.5	0.0	0.0	0.0	0.0	19.5
SW	7.3	0.0	0.0	0.0	0.0	7.3
W	4.9	0.0	0.0	0.0	0.0	4.9
NW	3.2	0.0	0.0	0.0	0.0	3.2
Summary	94.0	0.0	0.0	0.0	0.0	94.0

PRAMP_RENO Poll.: PRAMP_RENO-NMHC[ppm] 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 6.03% Calm Poll Avg: 0.00[ppm]



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



Span Meas Span Ref Span Low Span High

WIND SPEED

WIND SPEED Hourly Averages (WS kph)

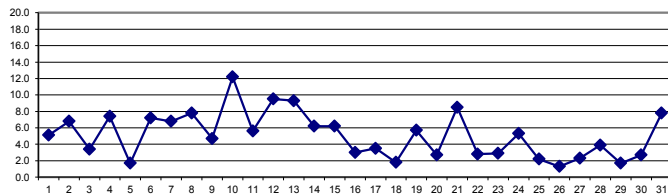
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	12.4	11.5	13.0	12.1	11.7	9.2	7.1	7.9	5.2	7.0	8.0	8.2	8.6	7.9	6.2	6.1	4.5	2.7	0.7	0.5	0.3	1.0	0.6	0.6	0.3	13.0	5.1	24
2	2.6	2.9	3.7	4.1	5.9	6.7	8.3	7.0	7.1	7.6	8.9	7.7	7.9	7.7	7.8	7.4	8.0	8.6	7.6	9.2	10.6	8.7	8.5	8.2	2.6	10.6	6.8	24
3	8.6	8.6	8.1	7.4	6.6	5.9	4.5	4.7	5.6	7.9	6.7	8.1	10.5	11.6	11.8	12.5	10.3	9.5	9.1	8.4	9.5	8.3	13.8	15.6	4.5	15.6	3.4	24
4	14.7	16.0	14.8	11.7	12.5	12.9	12.5	11.7	8.4	8.5	9.8	11.0	10.8	10.1	8.3	7.3	5.8	7.0	5.1	3.4	1.9	2.8	0.2	1.1	0.2	16.0	7.4	24
5	2.1	1.6	1.4	1.6	1.8	0.5	1.3	1.6	1.4	1.6	2.3	1.7	2.0	6.3	8.1	7.5	4.9	4.3	4.2	5.4	4.9	5.0	5.1	3.7	0.5	8.1	1.7	24
6	4.1	3.3	3.8	1.9	6.1	7.1	7.7	6.5	6.2	7.4	9.3	9.2	9.7	9.8	10.9	10.7	11.0	9.5	7.1	8.3	9.1	8.1	8.0	7.1	1.9	11.0	7.2	24
7	6.7	7.0	6.8	6.7	7.4	7.5	6.2	6.0	5.1	7.3	8.6	7.7	8.4	9.8	9.6	10.5	9.2	6.7	5.2	6.0	4.6	5.2	9.4	7.7	4.6	10.5	6.8	24
8	8.5	9.7	12.1	10.1	10.1	11.8	11.3	8.8	8.1	7.6	9.9	10.8	10.3	6.6	9.7	8.9	8.9	9.5	7.7	6.6	4.5	2.8	2.5	2.7	2.5	12.1	7.8	24
9	4.4	2.7	4.0	5.4	4.8	4.4	5.0	4.6	5.5	4.0	4.0	5.9	7.5	7.9	8.9	8.0	7.1	5.1	3.6	3.0	5.9	9.6	12.3	12.9	2.7	12.9	4.7	24
10	10.4	10.0	10.3	12.7	12.9	13.2	14.4	14.7	13.7	13.2	14.8	15.4	15.7	16.3	14.1	14.9	14.6	12.1	10.8	10.4	9.1	10.4	9.1	7.1	7.1	16.3	12.2	24
11	7.6	6.4	6.1	5.0	4.5	4.1	4.4	4.7	5.3	5.7	2.4	2.5	7.0	9.2	8.4	6.7	8.3	11.5	10.8	11.6	12.2	10.1	10.4	11.1	2.4	12.2	5.6	24
12	11.0	8.3	8.3	8.3	8.6	9.2	7.6	7.4	8.4	10.2	9.7	10.8	11.0	11.1	10.6	10.3	10.3	10.9	10.5	9.0	10.3	9.0	9.9	11.4	7.4	11.4	9.5	24
13	9.2	9.3	9.4	12.8	13.0	11.3	11.3	11.7	12.5	13.5	12.9	11.5	11.5	10.5	8.2	6.9	5.8	5.9	6.3	9.3	9.2	10.9	7.2	8.8	5.8	13.5	9.3	24
14	8.2	7.2	6.0	4.7	4.1	5.7	6.4	6.0	6.8	6.0	5.5	6.0	6.2	6.5	8.1	11.1	10.9	11.1	7.9	7.6	7.4	7.2	7.5	6.9	4.1	11.1	6.2	24
15	7.2	7.5	9.6	7.5	8.4	9.1	9.9	10.2	11.9	12.4	11.7	11.5	11.2	9.3	6.8	5.3	2.6	4.1	3.0	3.1	3.9	3.7	3.6	4.1	2.6	12.4	6.2	24
16	3.7	2.7	4.5	3.7	1.0	1.6	3.8	5.4	6.2	9.1	9.7	9.1	8.4	5.1	8.0	6.1	3.4	7.1	7.9	4.0	2.3	1.2	2.0	1.6	1.0	9.7	3.0	24
17	3.7	6.4	6.4	2.9	4.0	1.5	0.5	0.7	3.3	4.5	5.0	4.9	3.2	3.2	1.1	2.2	4.6	4.3	3.4	5.6	11.1	10.7	10.1	9.6	0.5	11.1	3.5	24
18	8.2	7.4	8.1	7.5	7.3	8.7	7.5	7.3	6.9	6.1	5.7	3.9	6.0	3.5	6.2	5.4	7.8	8.3	6.9	6.8	7.1	5.5	8.6	6.5	3.5	8.7	1.8	24
19	5.2	5.6	5.2	5.7	5.9	4.3	5.5	7.7	8.5	9.3	9.3	6.9	6.6	6.2	7.1	8.9	8.0	6.0	5.6	5.0	4.0	5.0	7.6	4.8	4.0	9.3	5.7	24
20	5.6	5.4	3.0	2.0	2.6	2.2	2.3	2.0	2.7	3.1	3.6	4.7	5.0	4.6	6.0	5.7	3.9	3.6	4.3	5.1	5.8	5.5	6.8	6.1	2.0	6.8	2.7	24
21	8.2	8.7	7.7	7.9	9.7	10.9	10.1	11.9	10.6	10.5	11.5	10.1	9.9	8.1	7.4	6.5	7.0	7.3	7.9	8.1	8.1	7.8	7.8	7.5	6.5	11.9	8.5	24
22	7.0	8.0	6.5	6.1	5.2	4.5	4.0	2.8	0.8	2.6	3.1	5.7	6.4	6.1	7.4	7.1	9.2	6.9	4.9	5.6	3.9	2.7	3.7	7.5	0.8	9.2	2.8	24
23	6.3	7.6	11.1	10.3	11.6	11.4	11.4	6.2	4.0	3.5	1.4	4.3	7.0	6.6	6.0	6.0	3.8	4.8	5.0	3.3	3.3	4.5	5.3	5.0	1.4	11.6	2.9	24
24	4.8	5.0	5.4	5.4	5.4	5.1	5.8	7.9	8.1	6.9	6.5	6.2	5.9	6.9	7.1	8.7	6.8	6.5	4.9	5.3	5.8	3.8	2.4	0.6	0.6	8.7	5.3	24
25	2.2	2.8	1.6	0.8	0.8	1.8	2.6	4.0	3.6	5.4	5.4	4.9	3.7	4.7	4.7	3.8	4.2	3.5	5.6	4.6	1.2	3.2	5.7	6.4	0.8	6.4	2.2	24
26	5.7	5.2	5.5	4.2	5.8	5.8	5.3	5.0	4.3	5.2	5.5	6.3	4.7	4.2	4.7	3.5	5.0	5.9	5.7	4.7	3.7	4.4	5.9	5.9	3.5	6.3	1.3	24
27	5.4	5.3	5.3	4.9	3.4	2.4	4.3	6.3	6.9	6.1	4.9	5.6	2.5	2.3	0.9	5.6	5.1	4.4	1.9	0.3	1.5	0.8	0.5	2.2	0.3	6.9	2.3	24
28	2.0	3.1	4.7	4.8	4.8	5.9	6.7	7.3	6.2	6.1	6.3	5.5	3.9	3.9	3.3	2.1	1.1	1.4	4.1	1.9	2.5	3.5	2.7	1.7	1.1	7.3	3.9	24
29	2.7	1.6	3.2	3.1	3.5	4.8	6.0	5.4	5.2	6.3	4.8	4.8	6.1	4.5	4.7	1.8	4.4	3.9	2.7	3.7	3.8	3.3	2.5	2.5	1.6	6.3	1.7	24
30	5.1	5.8	4.1	2.1	2.5	3.5	4.6	3.7	4.5	4.7	6.2	7.7	6.3	4.8	6.2	6.6	5.9	4.5	2.7	2.0	0.5	1.9	3.2	5.0	0.5	7.7	2.7	24
31	5.7	5.3	5.0	6.8	5.9	5.4	4.8	5.2	5.8	7.7	8.3	9.1	10.2	8.3	8.6	14.5	14.4	12.5	12.7	11.0	9.9	7.5	10.1	6.8	4.8	14.5	7.8	24
HOURLY MAX	14.7	16.0	14.8	12.8	13.0	13.2	14.4	14.7	13.7	13.5	14.8	15.4	15.7	16.3	14.1	14.9	14.6	12.5	12.7	11.6	12.2	10.9	13.8	15.6				
HOURLY AVG	2.5	2.6	2.7	2.7	2.8	2.8	2.7	2.5	2.2	2.0	2.0	1.7	1.3	0.8	0.9	1.2	1.8	1.9	0.8	1.3	2.1	2.1	2.7	2.5				

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 16, 2017
DECLINATION: MAGNETIC DECLINATION 15 DEGREE EAST

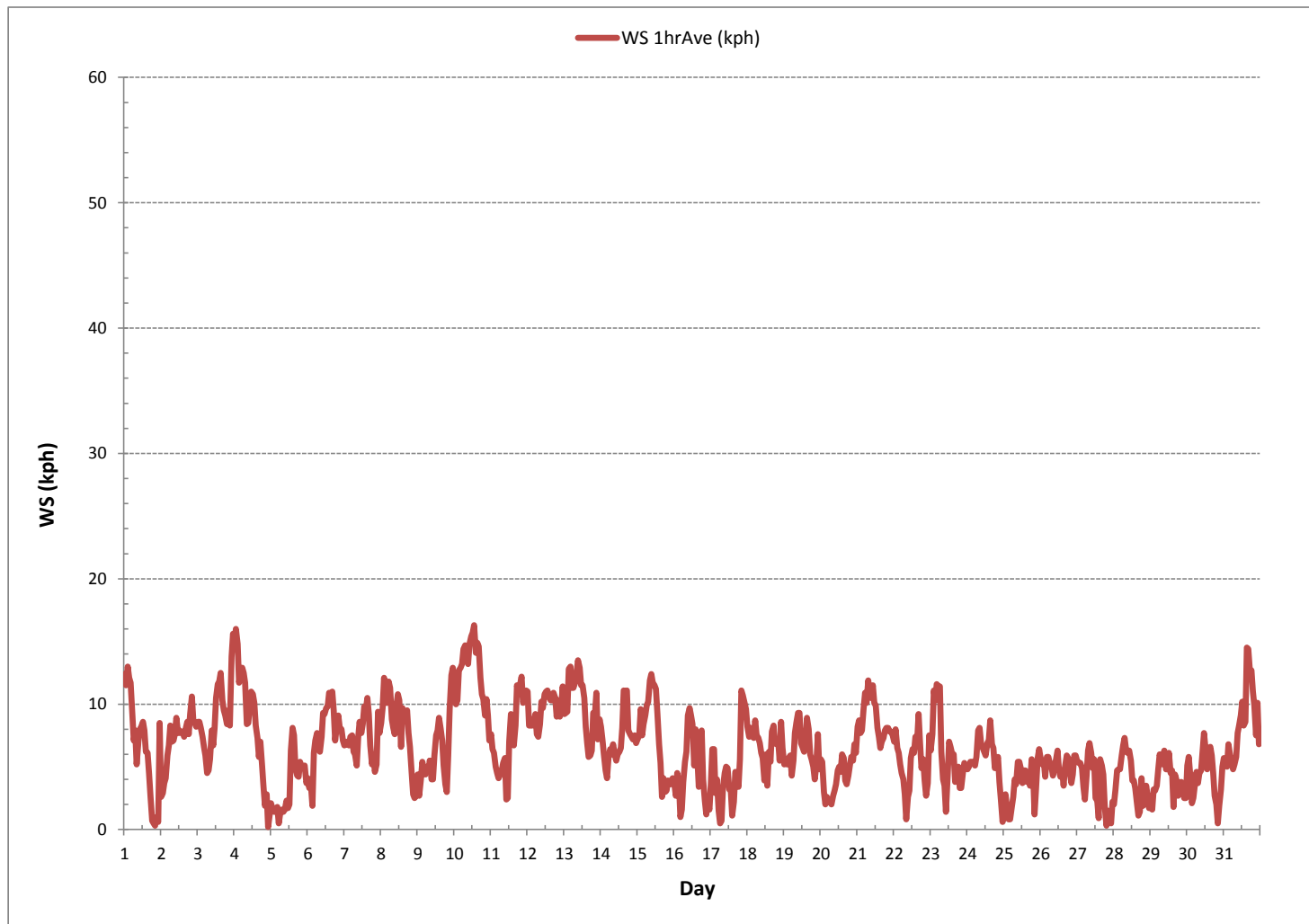
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744				
MINIMUM 1-HR AVERAGE	0.2	kph	@ HOUR(S)	22	ON DAY(S)	4
MAXIMUM 1-HR AVERAGE:	16.3	kph	@ HOUR(S)	13	ON DAY(S)	10
MAXIMUM 24-HR AVERAGE:	12.2	kph			ON DAY(S)	10
VAR-VARIOUS						
MONTHLY CALIBRATION TIME:		0	hrs	OPERATIONAL TIME:	744	hrs
				AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	3.2		MONTHLY AVERAGE:	1.8	kph	

WIND SPEED Hourly Averages (WS kph)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

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	22.0	22.1	26.6	25.1	23.1	19.4	15.9	18.0	13.7	16.7	17.0	15.4	19.2	18.3	17.1	17.8	12.1	8.0	3.7	2.5	2.5	3.7	3.7	7.4	2.5	26.6	14.6	24
2	5.3	9.8	12.2	12.4	13.6	17.3	20.0	19.7	19.0	18.9	19.9	18.8	21.8	17.4	23.5	17.5	21.7	24.1	20.9	20.6	26.3	24.1	22.6	23.6	5.3	26.3	18.8	24
3	23.1	22.8	20.1	19.8	18.0	15.9	21.5	14.5	26.1	27.8	20.6	23.5	25.8	26.5	26.3	27.5	30.3	22.5	23.1	20.4	22.1	24.7	32.5	35.3	14.5	35.3	23.8	24
4	39.4	37.7	34.6	30.2	30.8	32.4	28.4	28.5	23.9	21.1	24.8	25.6	25.3	23.6	20.9	19.0	13.5	15.4	13.1	9.8	9.7	8.6	3.2	3.5	3.2	39.4	21.8	24
5	4.1	2.8	4.1	4.9	3.2	5.9	5.3	3.6	4.2	4.5	5.1	7.6	8.4	13.5	15.3	15.7	11.9	9.3	10.3	12.9	12.0	11.9	11.1	8.4	2.8	15.7	8.2	24
6	9.5	8.4	8.9	7.0	14.0	14.8	15.0	14.4	13.3	14.1	16.5	17.3	22.6	22.3	25.0	25.7	27.1	23.7	17.7	20.5	22.5	17.6	18.1	15.5	7.0	27.1	17.1	24
7	16.3	16.3	17.1	18.7	17.2	17.2	15.9	14.2	12.0	17.4	18.2	18.6	19.4	20.5	22.0	23.2	20.5	16.4	14.0	15.8	11.5	18.1	19.8	14.9	11.5	23.2	17.3	24
8	18.0	21.4	22.0	19.4	18.8	21.2	19.9	17.8	16.3	15.1	18.4	20.5	19.0	15.7	21.9	20.7	19.8	21.8	17.4	16.2	12.3	8.0	8.7	6.5	6.5	22.0	17.4	24
9	10.3	8.9	10.8	11.5	14.0	10.4	12.8	12.0	10.9	7.9	9.4	12.1	15.1	14.4	17.3	17.2	15.5	12.7	10.5	5.7	13.5	21.0	23.2	27.9	5.7	27.9	13.5	24
10	22.8	21.1	20.9	24.2	27.8	28.3	28.1	31.6	31.4	30.7	28.9	28.7	30.0	27.5	26.7	27.5	28.4	21.6	21.5	19.2	24.0	25.1	24.9	18.3	18.3	31.6	25.8	24
11	18.1	15.9	15.4	14.0	12.3	10.0	8.5	10.7	13.5	11.7	9.5	10.6	15.8	18.0	16.8	20.1	20.7	22.5	18.9	23.9	24.0	20.1	23.0	25.8	8.5	25.8	16.7	24
12	28.5	20.6	19.1	20.3	19.6	22.8	19.9	19.5	19.0	28.9	25.2	26.7	27.8	27.5	26.9	26.4	26.9	25.5	28.0	21.5	25.6	21.8	25.3	29.0	19.0	29.0	24.3	24
13	27.3	24.8	26.9	34.0	34.1	31.9	28.2	28.0	25.2	31.4	27.5	26.5	28.8	24.2	18.5	17.7	16.3	16.5	13.8	22.2	21.7	22.8	20.5	24.4	13.8	34.1	24.7	24
14	20.4	19.6	18.7	7.5	6.1	8.7	14.2	15.8	15.7	16.2	13.0	16.8	16.9	17.2	19.6	25.4	27.2	29.6	24.7	25.2	19.4	19.6	19.8	19.7	6.1	29.6	18.2	24
15	18.1	21.2	28.1	21.8	23.3	27.9	25.4	27.5	29.4	27.8	26.3	24.5	26.0	23.5	19.2	15.7	11.5	10.4	7.8	9.7	11.0	7.5	6.8	8.3	6.8	29.4	19.1	24
16	9.4	7.2	10.2	11.2	6.4	12.1	13.3	15.8	13.9	21.7	21.1	21.5	24.3	14.0	23.7	16.1	12.3	18.3	20.4	14.7	8.4	7.0	7.7	7.3	6.4	24.3	14.1	24
17	8.8	13.9	13.3	9.0	10.0	7.0	3.8	6.2	7.6	9.6	11.0	12.2	7.8	10.1	6.8	7.9	10.1	9.2	11.1	11.9	25.1	23.8	24.9	23.2	3.8	25.1	11.8	24
18	19.7	18.5	22.3	17.3	18.8	19.9	16.5	17.3	17.5	17.2	15.9	12.7	12.2	12.6	15.9	16.1	19.5	22.1	26.6	31.2	21.9	16.1	22.4	18.9	12.2	31.2	18.7	24
19	14.3	15.0	12.8	13.5	12.6	10.5	15.3	18.0	17.8	21.7	20.5	15.4	14.4	15.3	20.4	22.1	18.5	16.1	14.7	13.8	11.5	13.5	21.9	18.1	10.5	22.1	16.2	24
20	18.7	14.2	12.8	7.4	6.3	6.9	4.5	4.6	4.9	8.1	9.6	10.4	12.0	12.1	14.5	13.5	12.2	12.0	11.2	11.4	12.6	13.2	14.9	14.1	4.5	18.7	10.9	24
21	22.6	19.9	17.8	17.1	21.3	22.9	23.9	27.5	27.8	26.3	31.9	28.3	29.5	25.4	19.6	18.6	19.6	18.0	19.2	20.8	18.7	23.2	18.0	18.1	17.1	31.9	22.3	24
22	17.7	18.5	18.7	13.3	13.2	10.8	10.8	9.2	5.4	7.1	10.3	13.3	15.4	15.0	17.1	16.7	19.7	17.6	12.8	15.9	10.2	10.1	13.9	16.5	5.4	19.7	13.7	24
23	15.8	17.9	22.9	23.1	24.3	24.9	27.0	18.3	10.1	8.1	7.5	13.7	18.4	17.0	18.8	15.3	12.9	10.3	23.6	9.2	11.7	16.9	13.3	13.4	7.5	27.0	16.4	24
24	16.0	13.9	15.0	13.0	12.9	14.2	13.6	17.1	20.0	16.9	16.2	14.2	17.5	18.8	25.4	21.9	20.6	17.6	13.6	10.5	11.6	13.4	7.2	4.6	4.6	25.4	15.2	24
25	4.6	6.2	5.5	3.8	4.0	5.9	11.0	13.2	11.9	15.2	16.1	13.5	10.7	12.5	13.4	16.4	14.7	12.5	27.9	18.4	8.2	8.4	12.3	16.6	3.8	27.9	11.8	24
26	13.2	11.0	10.4	9.2	12.3	11.7	12.0	9.2	15.0	13.7	15.7	13.8	17.0	14.4	16.3	11.2	14.0	11.8	10.3	7.2	7.3	12.3	12.1	7.2	7.2	17.0	12.2	24
27	12.1	12.0	10.2	10.8	10.3	6.0	11.0	13.8	14.9	13.2	12.5	13.4	16.4	8.9	18.1	14.9	13.0	12.5	7.4	3.0	5.5	3.1	2.1	4.9	2.1	18.1	10.4	24
28	4.4	8.2	14.1	13.0	14.9	16.8	18.4	19.5	17.8	16.3	15.1	13.4	11.2	11.2	10.2	6.9	5.4	5.7	14.0	8.9	5.7	8.0	4.7	5.6	4.4	19.5	11.2	24
29	5.7	10.8	7.1	8.3	6.0	12.0	13.1	13.7	15.7	15.1	12.4	14.1	16.7	16.6	18.2	11.5	13.1	12.0	7.1	10.0	8.7	7.3	8.5	8.1	5.7	18.2	11.3	24
30	11.9	13.0	8.7	5.7	9.0	9.2	12.9	9.4	9.8	12.2	13.3	15.0	14.8	15.7	20.3	17.0	17.0	13.6	10.6	5.0	5.8	5.9	9.3	12.7	5.0	20.3	11.6	24
31	15.1	12.5	7.0	15.0	15.7	8.3	8.7	10.5	19.1	19.9	23.1	22.9	24.7	24.2	20.7	40.1	36.2	38.8	33.0	31.5	24.6	20.6	22.8	20.1	7.0	40.1	21.5	24
HOURLY MAX	39.4	37.7	34.6	34.0	34.1	32.4	28.4	31.6	31.4	31.4	31.9	28.7	30.0	27.5	26.9	40.1	36.2	38.8	33.0	31.5	26.3	25.1	32.5	35.3				
HOURLY AVG	15.9	15.7	15.9	14.9	15.3	15.6	16.0	16.2	16.0	17.2	17.1	17.5	18.8	18.0	19.2	19.0	18.0	17.1	16.5	15.2	14.7	14.6	15.5	15.6				

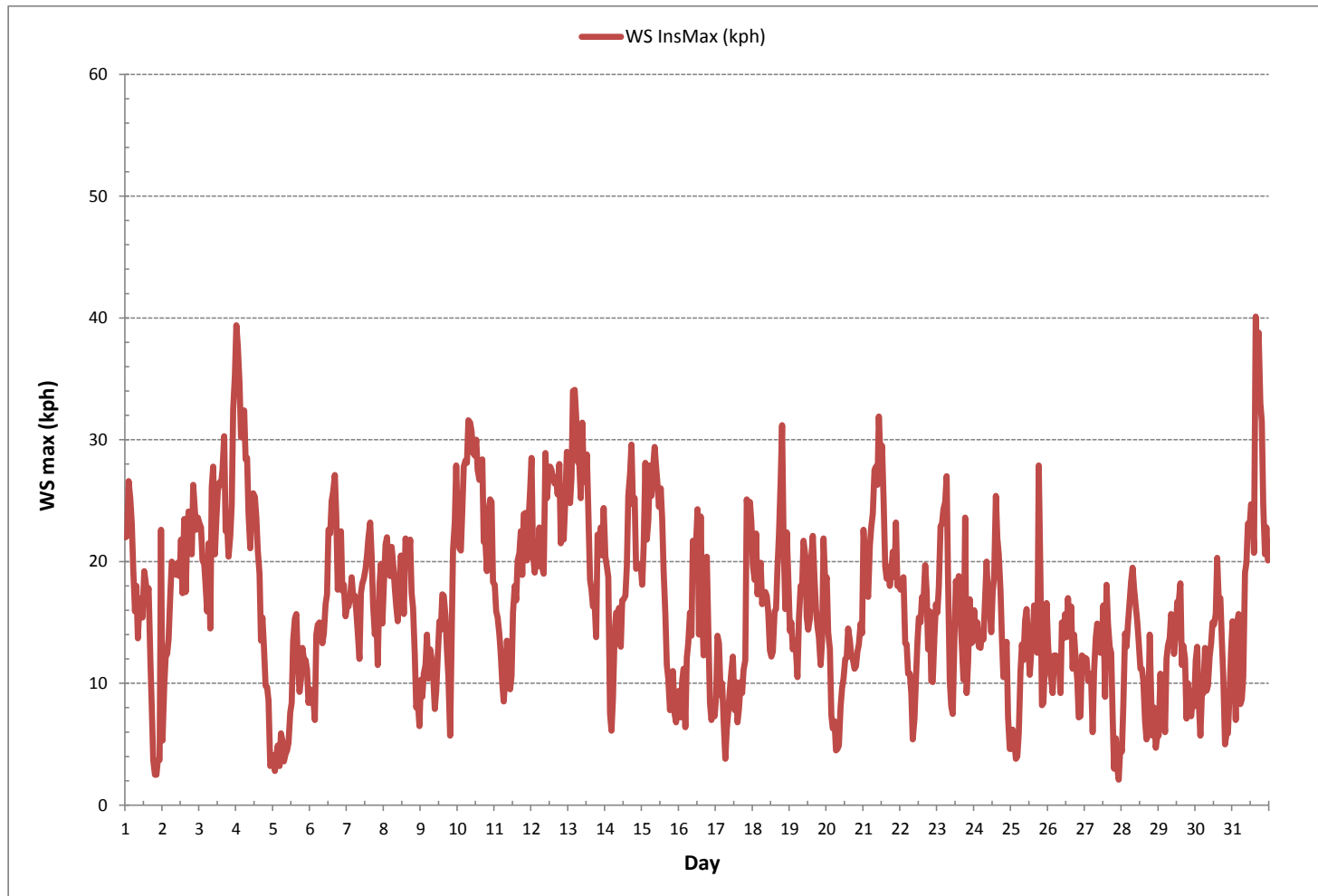
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	40.1	kph	@ HOUR(S)	15	ON DAY(S)	31
VAR-VARIOUS						
OPERATIONAL TIME:						744 hrs

WIND SPEED Instantaneous Maximum (WS kph)



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

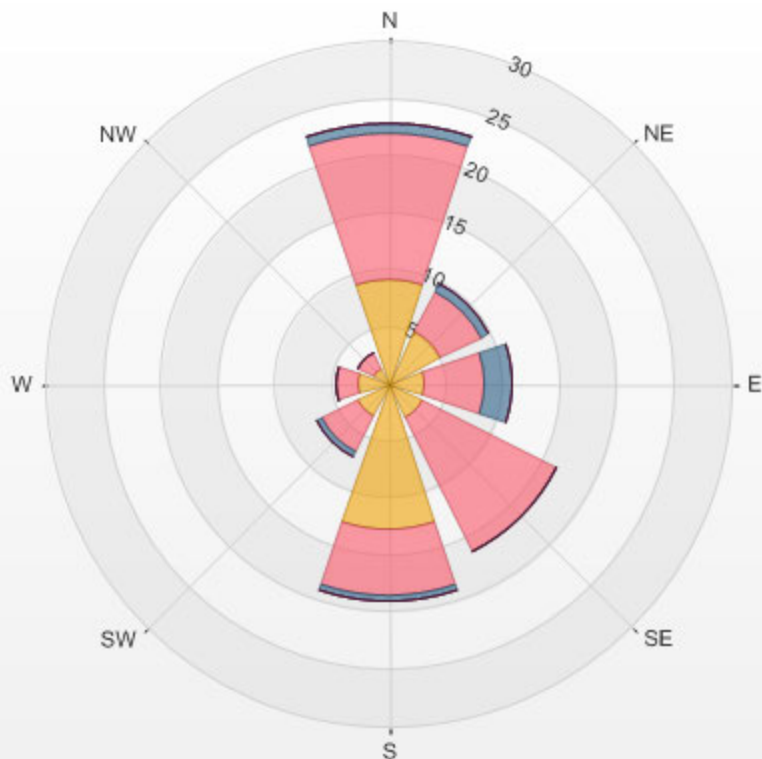
Calm: 5.91%

Calm Avg: 0.00 [kph]

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	9.3	12.6	0.9	0.0	0.0	0.0	22.8
NE	5.1	3.9	0.8	0.0	0.0	0.0	9.8
E	3.2	5.2	2.4	0.0	0.0	0.0	10.9
SE	3.4	13.0	0.1	0.0	0.0	0.0	16.5
S	12.8	5.8	0.5	0.0	0.0	0.0	19.1
SW	3.1	3.5	0.5	0.0	0.0	0.0	7.1
W	2.7	1.9	0.1	0.0	0.0	0.0	4.7
NW	1.5	1.6	0.0	0.0	0.0	0.0	3.1
Summary	41.0	47.6	5.5	0.0	0.0	0.0	94.1

%	Icon	Classes (kph)
41		1.8-6.0
48		6.0-12.0
6		12.0-20.0
0		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_RENO 2017/03/01 00:00 - 2017/03/31 23:00 Calm: 5.91% Calm Wind Avg Speed: 1.09(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

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

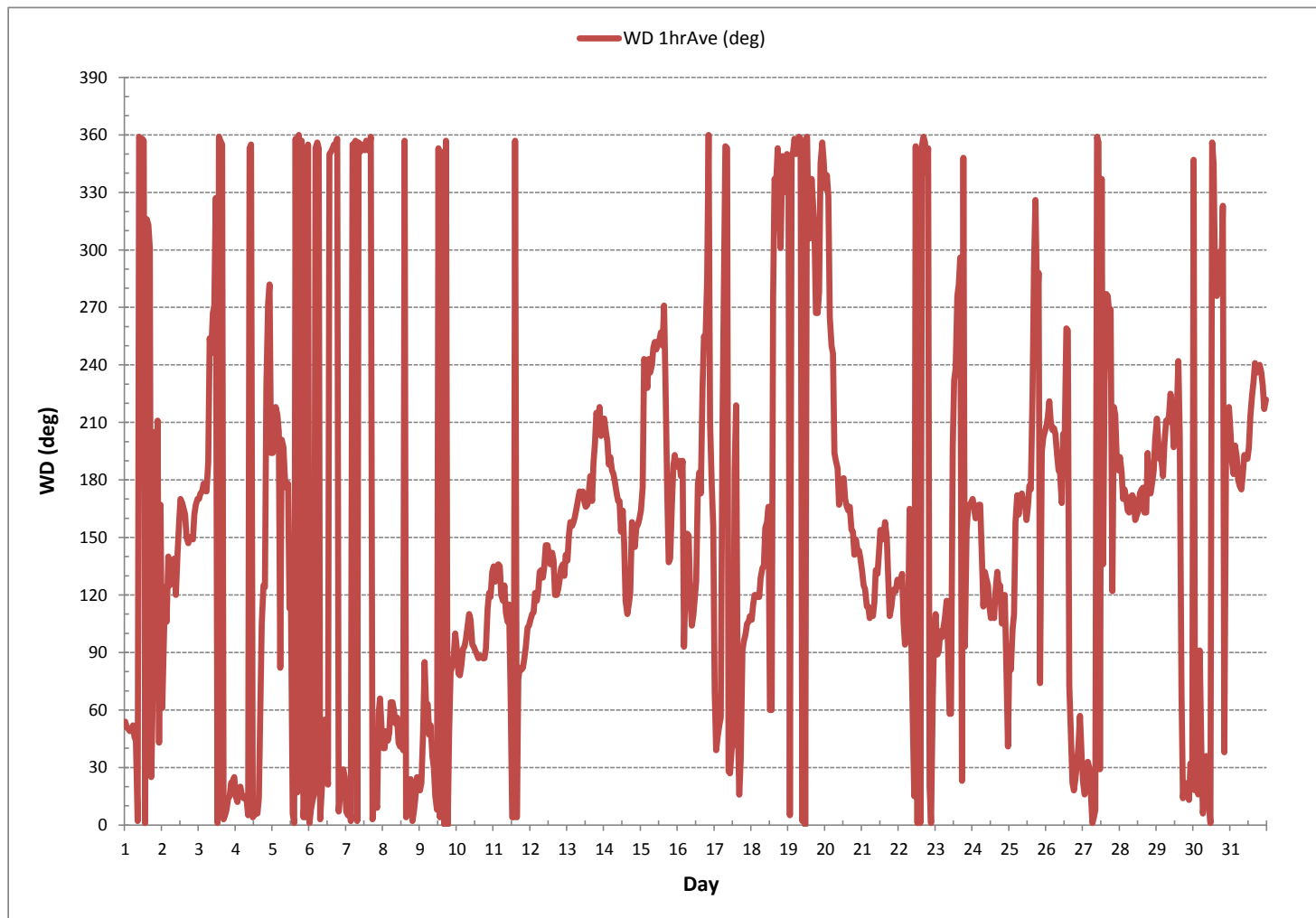
STATUS FLAG CODES

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 16, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	102		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	98 (E)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

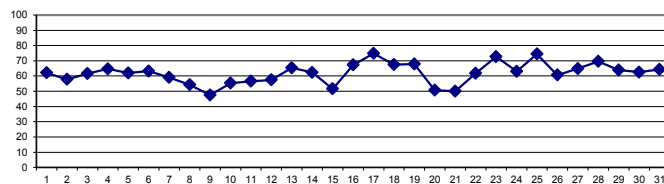
RELATIVE HUMIDITY Hourly Averages (RH %)

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	65	66	67	67	65	66	69	69	69	67	62	59	54	52	47	46	47	53	61	66	68	69	68	68	46	69	62	24
2	68	69	66	67	65	63	64	65	63	59	55	52	49	52	48	50	49	49	52	53	54	57	60	60	48	69	58	24
3	63	64	65	65	66	67	67	63	67	54	41	56	68	67	67	65	61	58	59	58	59	61	58	58	41	68	62	24
4	60	61	60	60	60	62	63	64	63	62	62	61	62	62	64	67	68	68	71	70	71	72	70	69	60	72	65	24
5	69	68	67	65	65	64	67	69	71	71	66	57	53	53	52	51	51	51	59	59	62	66	66	66	51	71	62	24
6	67	67	68	69	71	72	72	71	69	66	60	55	51	53	53	54	56	60	62	62	63	64	65	66	51	72	63	24
7	68	70	70	71	70	70	68	67	66	63	58	54	52	50	47	47	47	49	54	56	57	58	53	53	47	71	59	24
8	55	57	56	61	64	63	62	63	60	56	58	58	52	43	39	41	41	42	48	52	54	56	59	61	39	64	54	24
9	60	56	61	53	53	54	56	55	56	53	46	40	41	38	37	36	38	37	45	51	48	43	42	42	36	61	48	24
10	45	47	49	49	48	48	46	47	52	53	55	56	55	53	53	53	57	60	64	68	68	65	67	68	45	68	55	24
11	66	66	67	66	65	66	68	68	63	57	51	49	47	49	50	51	47	46	49	51	52	54	53	55	46	68	57	24
12	60	65	66	66	67	68	68	67	63	58	51	50	50	47	47	46	47	49	52	55	57	59	60	61	46	68	57	24
13	61	63	69	76	77	77	78	78	78	76	72	65	60	57	55	52	52	55	60	59	61	59	63	65	52	78	65	24
14	69	74	73	80	82	84	84	83	78	69	60	55	52	48	43	41	39	38	49	52	54	60	63	66	38	84	62	24
15	68	69	71	70	68	55	57	53	50	47	44	41	36	33	31	28	30	42	45	55	61	63	61	60	28	71	52	24
16	60	59	62	63	62	62	66	60	51	43	38	35	35	42	55	87	89	85	91	93	94	95	94	93	35	95	67	24
17	93	93	94	94	93	92	93	93	92	92	91	91	82	64	51	53	58	65	64	49	45	48	51	52	45	94	75	24
18	55	56	59	62	65	68	72	75	75	70	66	57	53	48	51	62	65	70	72	77	88	88	84	82	48	88	68	24
19	81	79	76	74	75	78	73	69	61	58	59	66	67	64	60	55	64	66	74	77	73	65	56	57	55	81	68	24
20	57	57	60	64	70	72	73	69	59	50	42	40	35	32	36	38	37	39	43	44	48	50	51	51	32	73	51	24
21	47	50	53	55	57	59	61	60	55	48	44	42	43	41	40	40	41	41	46	50	53	56	58	59	40	61	50	24
22	59	59	61	62	64	63	64	66	64	64	70	67	55	49	49	51	51	54	59	65	73	73	74	66	49	74	62	24
23	63	68	70	71	71	70	73	77	81	82	77	69	69	66	59	53	49	63	79	88	87	88	86	84	49	88	73	24
24	81	80	79	78	78	78	75	68	64	60	60	55	54	47	41	40	44	47	49	53	57	67	75	81	40	81	63	24
25	86	88	87	89	89	89	89	84	79	75	75	64	57	51	50	44	42	48	66	83	84	88	90	88	42	90	74	24
26	89	90	89	87	81	80	80	79	74	67	56	41	37	31	28	31	33	41	46	58	63	62	58	54	28	90	61	24
27	52	52	54	59	63	73	74	75	70	61	57	58	54	50	49	55	59	63	66	71	80	84	88	89	49	89	65	24
28	91	91	89	88	89	88	87	86	83	75	70	62	54	46	45	42	41	46	51	58	66	70	76	77	41	91	70	24
29	78	80	84	85	87	86	83	76	67	63	55	53	52	47	42	39	41	41	50	60	66	65	67	66	39	87	64	24
30	68	72	76	80	73	70	80	77	70	61	62	58	54	49	45	41	40	40	44	56	65	69	75	76	40	80	63	24
31	76	81	86	81	81	85	86	84	77	73	68	61	55	50	44	37	38	42	47	52	54	59	63	64	37	86	64	24
HOURLY MAX	93	93	94	94	93	92	93	93	92	92	91	91	82	67	67	87	89	85	91	93	94	95	94	93				
HOURLY AVG	67	68	69	70	70	71	72	70	67	63	59	56	53	49	48	48	49	52	57	61	64	66	66	66				

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

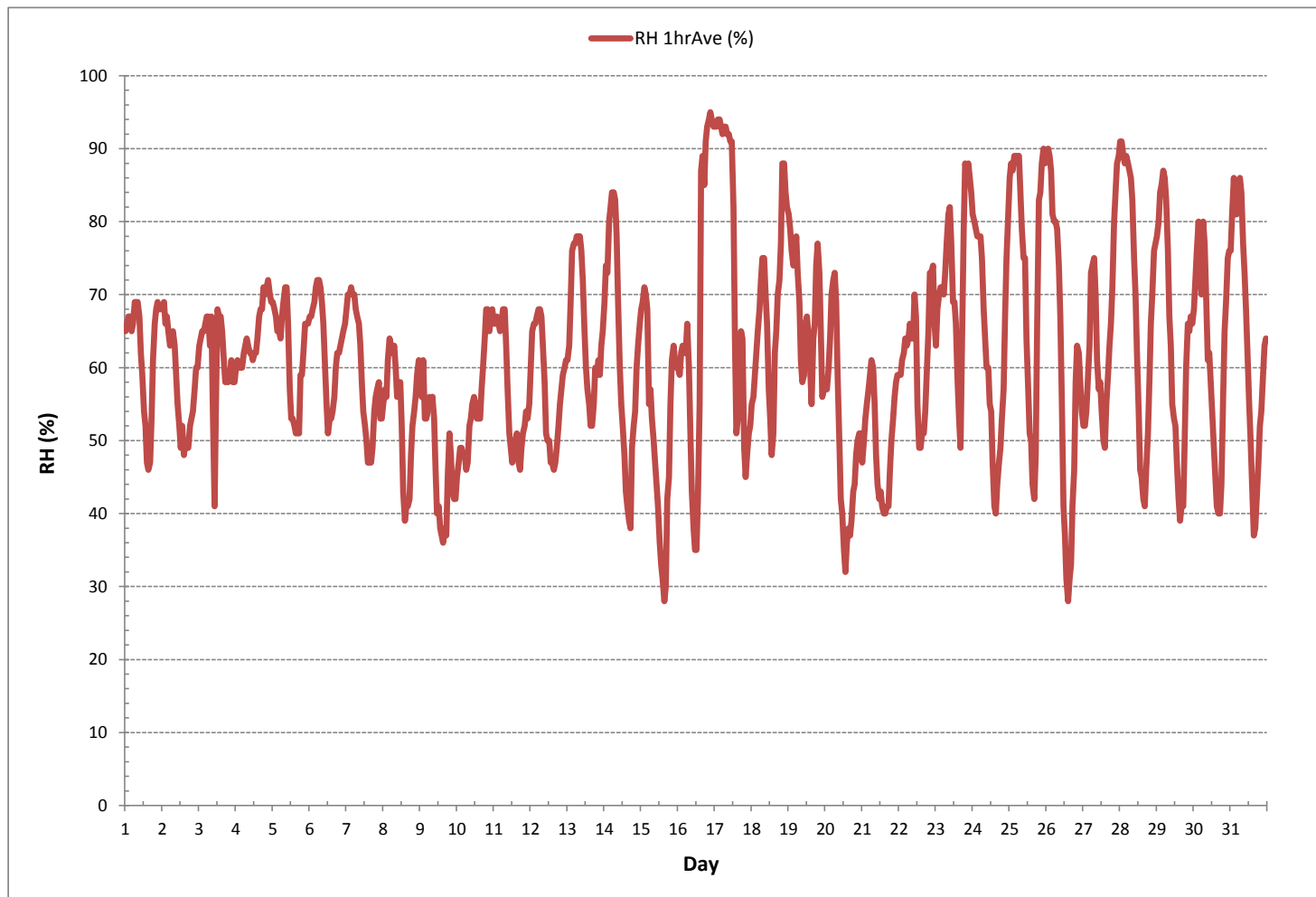
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	28	%	@ HOUR(S)	15 , 14	ON DAY(S)	15 , 26
MAXIMUM 1-HR AVERAGE:	95	%	@ HOUR(S)	21	ON DAY(S)	16
MAXIMUM 24-HR AVERAGE:	75	%			ON DAY(S)	17
					VAR-VARIOUS	
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	14				MONTHLY AVERAGE:	62 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE

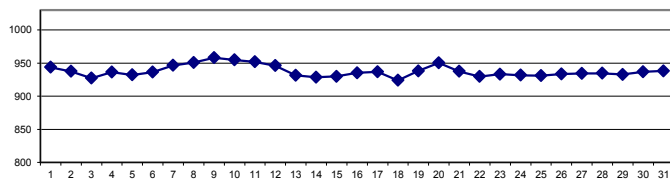
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	933	934	934	936	937	938	940	941	942	943	944	945	946	947	947	948	949	949	949	949	949	949	949	949	933	949	944	24	
2	948	948	947	947	946	945	944	943	942	941	939	938	937	936	934	933	932	931	930	929	928	927	926	926	926	926	948	937	24
3	925	925	924	923	923	922	922	924	924	925	925	926	927	928	928	929	929	930	931	931	931	932	932	932	934	922	934	927	24
4	934	934	935	936	936	936	936	937	937	938	938	938	937	936	936	936	936	936	936	936	936	935	935	935	935	934	938	936	24
5	934	934	934	933	933	933	933	933	932	932	932	931	931	931	931	930	930	931	931	932	932	932	932	932	930	934	932	24	
6	932	933	933	933	934	934	935	935	936	936	936	936	936	936	936	936	937	938	938	939	940	940	941	941	932	941	936	24	
7	942	942	943	944	945	946	946	947	947	948	948	948	948	948	948	948	947	947	948	947	947	948	947	947	942	948	947	24	
8	947	947	948	948	948	948	949	949	950	950	950	951	951	951	951	951	951	952	953	953	954	954	955	955	947	955	951	24	
9	956	956	957	957	958	958	958	959	959	960	960	960	960	960	959	959	958	958	958	958	958	957	957	957	956	960	958	24	
10	956	956	955	955	955	955	955	954	955	955	955	954	954	954	954	954	954	954	955	955	955	955	955	955	954	956	955	24	
11	955	955	955	955	955	954	954	954	954	954	954	953	953	952	951	950	950	949	949	949	949	948	948	948	948	955	952	24	
12	948	949	949	949	949	949	949	949	949	949	949	949	948	948	947	947	946	945	944	943	943	941	940	939	938	938	949	946	24
13	937	937	936	935	934	933	933	932	931	931	930	930	930	930	929	929	929	929	929	929	930	930	931	931	929	937	931	24	
14	931	932	932	932	932	932	932	932	932	932	932	931	930	930	928	927	926	925	925	924	923	923	923	922	922	932	929	24	
15	922	923	925	926	927	928	929	930	930	931	931	932	932	932	932	932	932	932	932	932	932	932	932	932	922	932	930	24	
16	931	931	932	932	932	932	932	933	934	934	934	935	935	936	936	936	937	937	938	939	939	939	940	940	931	940	935	24	
17	940	940	940	940	940	940	940	940	940	939	939	939	938	938	937	936	935	934	933	932	932	931	930	930	930	940	937	24	
18	929	928	927	927	926	925	924	923	923	923	922	921	920	920	920	920	920	921	922	924	925	926	928	929	920	929	924	24	
19	929	930	931	932	933	934	934	935	935	936	937	938	938	939	939	940	941	941	942	944	945	946	947	949	929	949	938	24	
20	950	950	951	952	952	952	952	953	952	952	952	952	952	951	951	950	950	949	949	948	948	948	947	947	947	953	950	24	
21	946	945	944	944	943	942	941	940	939	938	937	937	936	936	935	934	934	933	933	933	932	932	931	931	931	946	937	24	
22	930	930	930	929	929	929	929	929	929	929	930	929	930	930	930	930	930	930	930	930	930	930	930	930	929	930	930	24	
23	931	931	930	930	930	930	930	931	932	932	933	933	934	934	934	935	935	935	936	936	936	936	936	936	930	936	933	24	
24	936	936	936	935	935	934	934	933	933	933	932	932	931	930	930	929	929	928	929	929	929	929	929	929	928	936	932	24	
25	929	929	929	929	930	930	930	930	931	931	931	931	931	931	931	931	931	931	932	932	932	932	932	933	929	933	931	24	
26	933	933	933	933	933	934	934	934	934	934	934	934	934	934	934	933	933	933	933	932	932	932	932	932	932	934	933	24	
27	932	932	932	932	932	933	933	933	934	934	934	935	935	935	935	935	935	936	936	936	936	936	936	936	932	936	934	24	
28	935	935	935	935	935	935	935	935	935	935	935	935	935	934	934	934	934	934	934	934	934	934	934	935	934	935	935	24	
29	935	935	935	935	935	934	934	934	934	934	934	934	933	932	932	931	931	931	930	930	930	931	931	930	930	935	933	24	
30	931	931	931	931	932	932	933	934	935	936	937	937	938	938	939	939	940	941	941	941	942	942	942	942	931	942	937	24	
31	942	942	942	942	942	941	941	941	941	940	939	939	938	937	936	936	935	934	934	934	934	934	934	934	934	942	938	24	
HOURLY MAX	956	956	957	957	958	958	958	959	959	960	960	960	960	960	959	959	958	958	958	958	958	957	957	957					
HOURLY AVG	937	938	938	938	938	938	938	938	938	938	938	938	938	938	938	937	937	937	937	937	937	937	937	938					

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

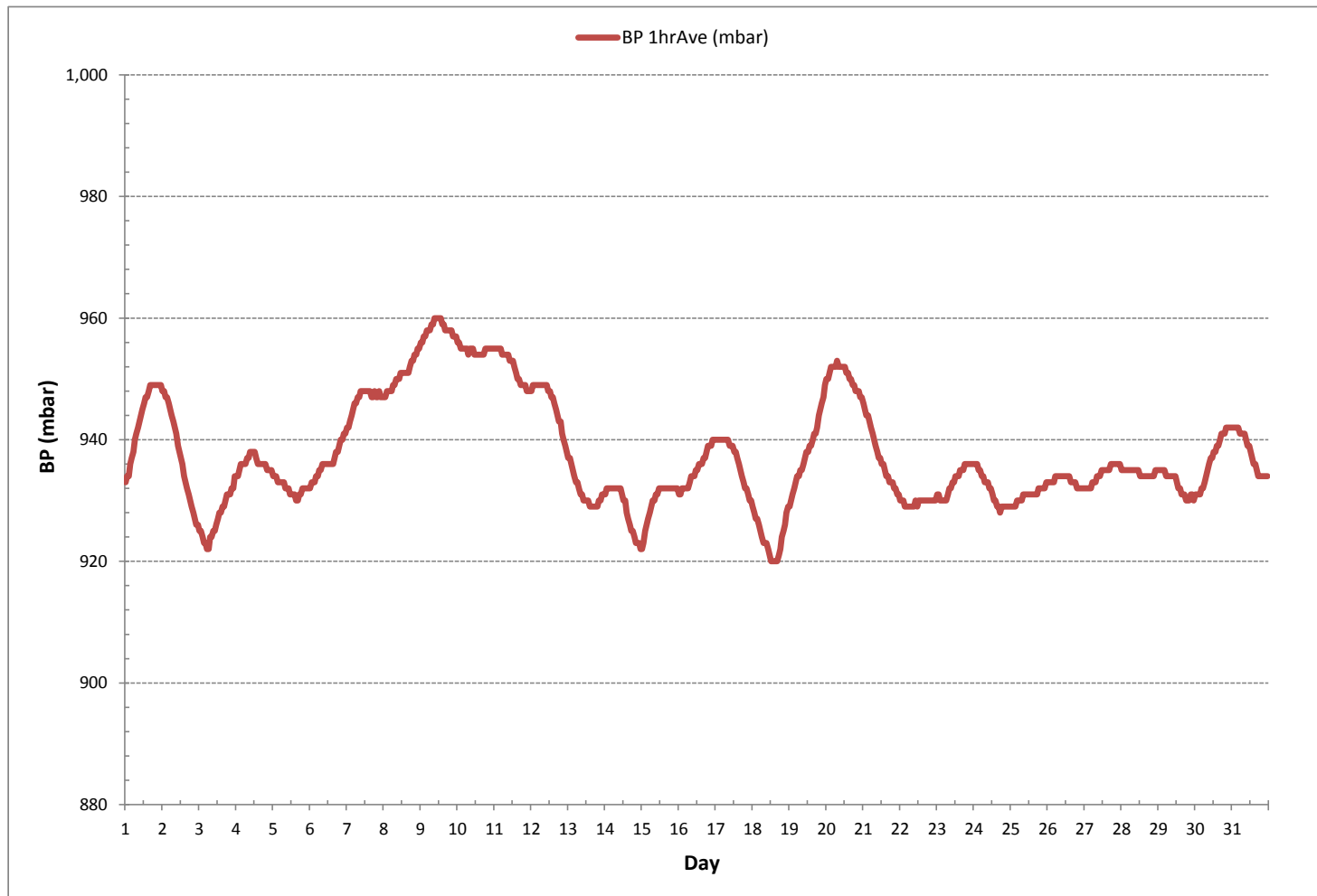
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	920	mbar	@ HOUR(S)	VAR	ON DAY(S)	18
MAXIMUM 1-HR AVERAGE:	960	mbar	@ HOUR(S)	VAR	ON DAY(S)	9
MAXIMUM 24-HR AVERAGE:	958	mbar			ON DAY(S)	9
					VAR-VARIOUS	
					OPERATIONAL TIME:	744 hrs
					AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	9				MONTHLY AVERAGE:	938 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - March 2017

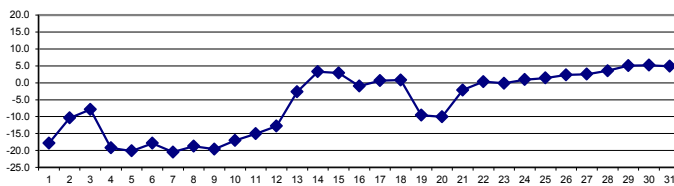
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	-13.1	-13.4	-14.2	-15.3	-16.2	-17.2	-17.3	-17.9	-18.6	-18.2	-17.8	-17.1	-16.1	-15.7	-15.5	-15.5	-15.5	-17.7	-19.9	-21.7	-22.8	-23.8	-24.0	-24.3	-24.3	-13.1	-17.9	24
2	-23.4	-22.3	-20.5	-21.3	-20.0	-19.1	-18.4	-17.9	-17.1	-14.5	-11.0	-7.6	-5.5	-4.8	-2.2	-1.9	-1.0	-0.8	-2.2	-2.9	-3.2	-3.6	-4.1	-4.0	-23.4	-0.8	-10.4	24
3	-4.8	-4.9	-5.1	-4.8	-4.9	-5.0	-4.6	-2.6	-1.9	0.1	1.1	-2.0	-7.8	-9.4	-9.9	-10.3	-10.7	-11.8	-13.0	-14.2	-15.0	-16.0	-15.4	-16.1	-16.1	1.1	-7.9	24
4	-17.1	-18.4	-19.2	-19.6	-19.9	-20.2	-20.5	-20.8	-20.8	-20.7	-20.7	-20.3	-19.6	-18.7	-17.8	-17.2	-16.9	-16.9	-17.3	-17.6	-18.1	-19.3	-21.2	-23.0	-23.0	-16.9	-19.2	24
5	-23.3	-24.2	-25.1	-26.8	-26.7	-27.2	-25.1	-22.8	-20.9	-19.1	-17.6	-16.3	-15.1	-14.3	-14.8	-15.0	-15.4	-15.5	-17.7	-18.0	-20.0	-21.0	-20.5	-20.6	-27.2	-14.3	-20.1	24
6	-20.9	-21.3	-21.7	-20.7	-20.1	-20.4	-20.9	-20.4	-19.7	-18.0	-15.3	-13.8	-12.9	-13.5	-13.5	-13.9	-15.2	-16.7	-17.7	-17.8	-18.7	-18.9	-18.7	-18.7	-21.7	-12.9	-17.9	24
7	-19.3	-19.8	-20.8	-22.1	-23.2	-23.6	-24.5	-24.9	-23.8	-22.3	-21.0	-20.1	-19.1	-18.2	-17.3	-17.1	-17.1	-18.1	-19.9	-20.6	-20.8	-19.7	-19.0	-19.2	-24.9	-17.1	-20.5	24
8	-19.3	-19.4	-19.6	-19.6	-19.9	-20.5	-21.0	-22.0	-22.3	-20.6	-19.5	-18.5	-17.0	-15.3	-14.2	-14.0	-14.1	-15.4	-18.0	-18.5	-19.2	-19.8	-20.5	-21.6	-22.3	-14.0	-18.7	24
9	-22.4	-23.7	-25.1	-23.5	-23.0	-23.4	-23.6	-22.8	-22.4	-20.9	-18.7	-16.7	-16.7	-15.4	-14.6	-14.3	-14.6	-14.9	-17.4	-20.0	-20.6	-19.1	-18.5	-18.4	-25.1	-14.3	-19.6	24
10	-19.3	-19.7	-19.7	-19.4	-19.3	-19.2	-18.9	-18.9	-18.9	-18.4	-17.7	-16.8	-15.7	-14.9	-14.5	-14.3	-14.4	-14.7	-15.1	-15.4	-15.4	-15.7	-16.2	-16.5	-19.7	-14.3	-17.0	24
11	-16.7	-16.8	-16.9	-17.0	-17.1	-17.7	-18.6	-18.8	-17.9	-16.8	-14.9	-14.3	-13.4	-13.0	-12.4	-12.2	-12.0	-12.4	-12.9	-13.3	-13.6	-13.9	-14.0	-14.3	-18.8	-12.0	-15.0	24
12	-14.8	-15.3	-15.8	-15.9	-15.9	-16.0	-16.3	-16.6	-16.0	-14.8	-13.1	-12.5	-12.0	-11.0	-10.1	-9.6	-9.3	-9.6	-10.1	-10.4	-10.4	-10.4	-10.3	-10.3	-16.6	-9.3	-12.8	24
13	-10.2	-10.1	-10.2	-10.1	-10.1	-10.4	-11.0	-11.0	-9.8	-8.2	-6.4	-3.6	-1.5	1.0	3.6	5.6	6.0	5.9	4.7	5.0	4.5	4.9	3.5	3.4	-11.0	6.0	-2.7	24
14	3.0	2.0	1.6	-3.1	-3.5	-3.2	-3.2	-2.7	-1.9	1.2	4.1	5.9	6.9	7.6	9.3	9.7	10.1	9.7	6.6	5.3	4.8	3.4	2.9	2.2	-3.5	10.1	3.3	24
15	1.9	1.6	2.8	3.3	3.1	3.2	2.6	2.6	3.3	3.6	4.2	4.4	5.8	6.5	6.9	7.4	6.9	5.3	3.5	0.1	-1.3	-2.4	-2.8	-3.1	-3.1	7.4	2.9	24
16	-3.5	-3.4	-4.3	-4.5	-4.3	-4.5	-5.6	-3.8	-1.5	1.3	2.8	4.0	4.4	4.4	3.0	0.8	1.0	1.0	-0.8	-1.4	-1.8	-2.1	-2.7	-2.9	-5.6	4.4	-1.0	24
17	-3.2	-2.7	-2.4	-2.4	-2.8	-4.2	-3.1	-3.2	-3.5	-2.2	-1.4	-0.4	1.9	4.8	7.5	5.9	5.9	4.8	3.3	2.4	2.9	2.6	2.2	1.9	-4.2	7.5	0.6	24
18	1.2	0.8	0.5	0.2	0.0	-0.2	-0.4	-0.3	0.2	1.5	2.6	4.0	4.7	5.7	6.7	4.4	2.9	1.3	-0.2	-1.1	-2.2	-3.1	-4.3	-5.4	-5.4	6.7	0.8	24
19	-5.7	-6.4	-7.0	-7.7	-8.7	-10.3	-11.3	-11.7	-11.1	-10.8	-10.9	-11.1	-10.7	-9.0	-7.9	-7.6	-8.5	-8.1	-9.5	-10.8	-11.2	-10.5	-11.3	-12.6	-12.6	-5.7	-9.6	24
20	-13.8	-14.4	-15.3	-16.4	-18.3	-19.2	-19.7	-18.9	-15.0	-11.7	-9.5	-8.2	-6.3	-5.0	-4.0	-3.0	-2.0	-2.2	-3.5	-4.8	-6.5	-7.2	-7.7	-8.3	-19.7	-2.0	-10.0	24
21	-7.4	-8.0	-8.2	-8.0	-8.0	-8.3	-7.8	-7.0	-5.3	-2.7	-1.4	0.1	1.3	2.3	3.3	4.2	4.1	3.8	2.0	0.8	0.1	-0.3	-0.6	-0.8	-8.3	4.2	-2.2	24
22	-1.2	-1.2	-1.2	-1.4	-1.6	-1.6	-1.7	-1.5	-0.8	-0.6	-0.4	0.6	2.2	3.9	4.1	3.9	4.3	4.0	2.4	0.6	-0.9	-1.9	-1.6	-0.8	-1.9	4.3	0.3	24
23	-1.0	-1.8	-1.9	-1.7	-1.7	-1.4	-1.8	-2.0	-2.2	-1.9	-1.0	0.8	1.5	2.7	4.6	5.4	5.2	3.3	1.0	-1.0	-1.6	-2.2	-2.5	-2.8	-2.8	5.4	-0.2	24
24	-2.8	-3.1	-3.0	-3.2	-3.4	-3.7	-3.2	-2.0	-0.8	0.8	1.9	2.8	3.6	5.0	6.4	6.9	6.7	5.9	5.4	3.4	2.3	0.4	-1.3	-2.6	-3.7	6.9	0.9	24
25	-3.4	-3.4	-3.5	-4.3	-4.8	-4.5	-4.4	-2.8	-0.8	0.9	1.5	3.8	5.9	7.7	8.0	9.5	9.6	8.0	4.4	2.9	2.2	0.7	0.6	0.5	-4.8	9.6	1.4	24
26	0.0	-0.8	-1.3	-1.6	-0.7	-1.1	-1.7	-1.3	0.1	1.8	4.1	5.3	6.5	7.7	8.0	6.9	6.6	6.3	4.6	1.9	0.6	0.6	1.3	1.3	-1.7	8.0	2.3	24
27	1.2	1.2	0.9	0.4	0.2	-1.2	-1.6	-1.3	0.1	2.7	4.6	5.4	6.6	7.5	8.3	8.3	6.9	5.7	4.6	3.1	1.0	-0.4	-1.2	-1.5	-1.6	8.3	2.6	24
28	-1.3	-1.8	-1.0	-1.0	-1.3	-1.1	-1.1	-0.5	0.4	2.7	4.7	7.1	8.9	9.9	9.1	9.4	9.7	8.8	7.4	5.7	3.7	3.2	1.6	1.2	-1.8	9.9	3.5	24
29	1.4	2.1	1.8	1.6	0.5	0.8	0.9	2.1	3.9	5.3	7.3	8.4	8.8	9.8	10.2	10.3	9.6	9.7	7.8	4.8	3.7	3.7	3.3	3.1	0.5	10.3	5.0	24
30	2.3	1.7	0.9	0.0	0.4	0.7	-0.5	0.5	2.3	5.2	6.0	8.0	9.4	11.1	11.6	11.5	11.8	11.1	9.9	6.7	4.6	3.9	2.8	2.3	-0.5	11.8	5.2	24
31	2.7	1.6	0.2	1.3	1.1	0.1	-0.2	0.7	2.5	3.5	4.3	6.3	8.0	8.5	9.0	11.1	11.1	10.6	9.2	7.5	6.3	5.0	3.9	3.6	-0.2	11.1	4.9	24
HOURLY MAX	3.0	2.1	2.8	3.3	3.1	3.2	2.6	2.6	3.9	5.3	7.3	8.4	9.4	11.1	11.6	11.5	11.8	11.1	9.9	7.5	6.3	5.0	3.9	3.6				
HOURLY AVG	-8.2	-8.6	-8.8	-9.2	-9.4	-9.7	-9.8	-9.4	-8.4	-6.8	-5.5	-4.3	-3.3	-2.3	-1.6	-1.4	-1.6	-2.2	-3.8	-5.1	-6.0	-6.5	-7.0	-7.4				

STATUS FLAG CODES

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

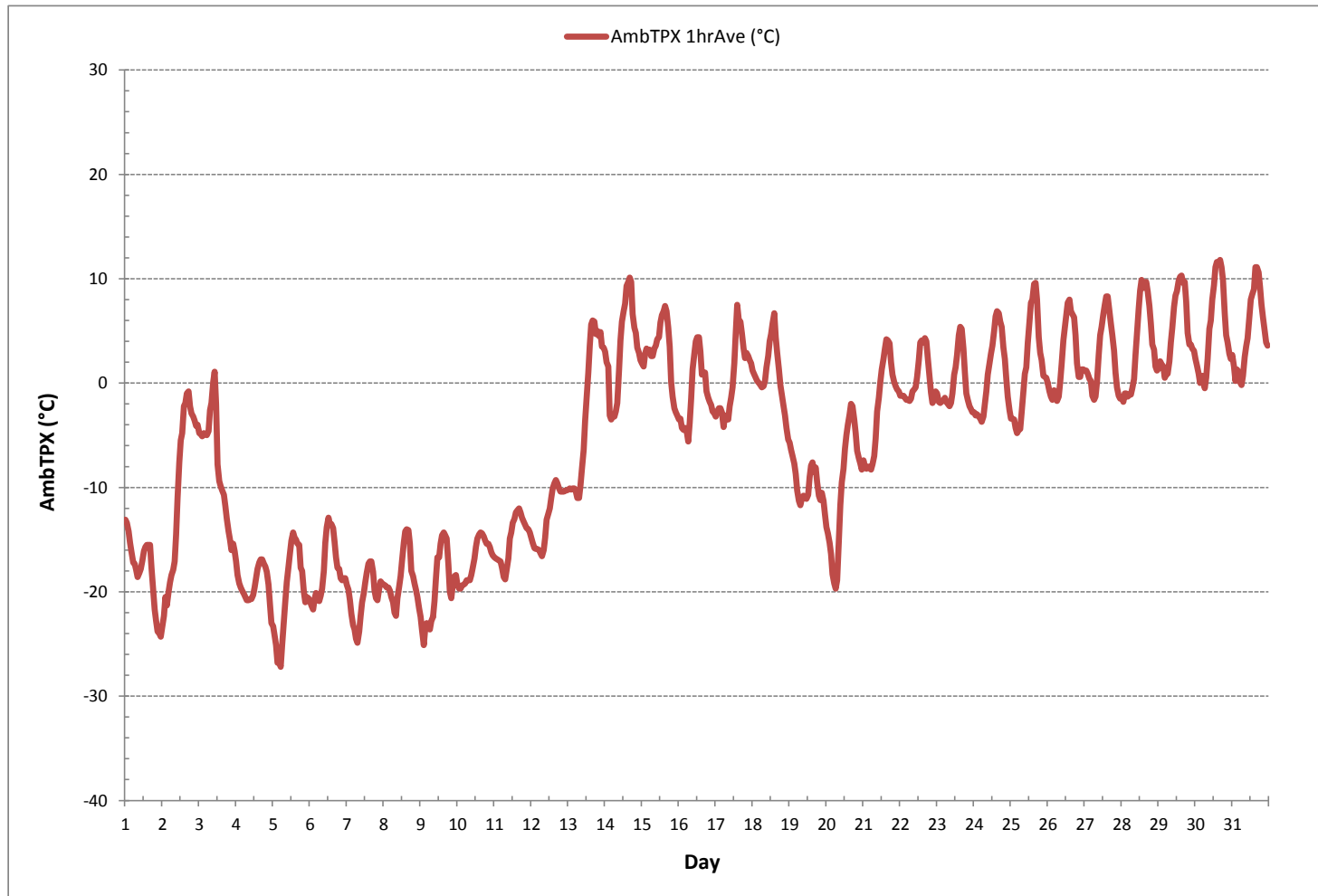
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-27.2 °C	@ HOUR(S)	5	ON DAY(S)	5
MAXIMUM 1-HR AVERAGE:	11.8 °C	@ HOUR(S)	16	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:	5.2 °C			ON DAY(S)	30
				VAR-VARIOUS	
		OPERATIONAL TIME:		744	hrs
		AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	9.9	MONTHLY AVERAGE:		-6.1	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

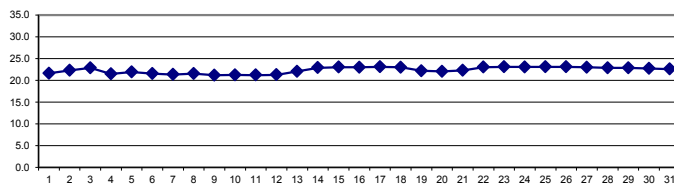
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	21.3	21.4	21.3	21.3	21.4	21.4	21.3	21.4	21.3	21.6	23.3	23.1	22.8	22.6	22.6	21.3	19.6	21.0	21.2	21.4	21.5	21.6	21.7	21.6	19.6	23.3	21.6	24	
2	21.7	21.6	21.7	21.6	21.7	21.7	21.6	21.6	21.6	21.5	21.1	21.3	22.4	22.8	22.6	22.5	22.6	22.8	23.0	23.3	23.3	23.6	23.6	23.6	21.1	23.6	22.3	24	
3	23.7	23.6	23.4	23.3	23.2	23.2	23.1	23.1	23.2	23.4	23.3	22.9	23.1	23.1	23.3	23.2	23.2	23.0	22.4	21.6	21.4	21.4	21.5	21.5	21.4	23.7	22.8	24	
4	21.6	21.5	21.5	21.5	21.5	21.6	21.5	21.5	21.5	21.6	21.5	21.5	21.4	21.4	21.5	21.4	21.4	21.4	21.5	21.5	21.6	21.6	21.6	21.6	21.4	21.6	21.5	24	
5	21.6	21.6	21.6	21.6	21.6	21.7	21.6	21.6	21.6	21.6	21.6	21.5	21.4	21.6	22.0	22.4	22.9	23.3	23.3	23.0	21.9	21.4	21.6	21.6	21.6	21.4	23.3	21.9	24
6	21.7	21.6	21.7	21.7	21.6	21.6	21.5	21.6	21.6	21.6	21.4	21.1	21.2	21.5	21.7	22.0	22.0	21.8	21.2	21.4	21.4	21.5	21.5	21.5	21.1	22.0	21.6	24	
7	21.5	21.5	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.3	21.2	21.0	20.9	20.7	21.2	21.2	21.4	21.3	21.2	21.5	21.5	21.5	21.6	21.5	20.7	21.6	21.4	24	
8	21.5	21.5	21.5	21.5	21.5	21.5	21.6	21.5	21.5	21.6	21.5	21.4	21.3	21.1	21.4	21.8	22.2	22.3	21.9	21.3	21.5	21.5	21.5	21.6	21.1	22.3	21.6	24	
9	21.5	21.6	21.6	21.6	21.7	21.8	21.7	21.8	21.7	20.7	20.8	19.8	19.4	20.5	20.7	21.0	21.3	21.6	21.2	21.0	21.1	21.1	21.2	21.3	19.4	21.8	21.2	24	
10	21.3	21.2	21.2	21.2	21.2	21.2	21.3	21.3	21.4	21.4	21.3	21.3	21.2	21.2	21.2	21.2	21.3	21.1	21.2	21.2	21.2	21.3	21.2	21.3	21.1	21.4	21.2	24	
11	21.2	21.2	21.2	21.2	21.2	21.1	21.2	21.2	21.2	21.2	21.0	21.0	21.1	21.3	21.5	21.8	21.6	21.1	21.0	21.1	21.2	21.1	21.2	21.3	21.0	21.8	21.2	24	
12	21.3	21.3	21.3	21.3	21.3	21.2	21.2	21.2	21.2	21.2	21.1	21.0	21.1	21.1	21.4	21.6	21.7	21.4	21.3	21.3	21.3	21.2	21.3	21.2	21.0	21.7	21.3	24	
13	21.2	21.2	21.1	21.2	21.1	21.1	21.1	21.1	21.1	21.0	21.3	21.9	22.9	22.9	23.0	23.2	23.2	23.1	22.3	22.6	22.7	22.9	22.8	22.9	21.0	23.2	22.0	24	
14	22.9	22.9	23.0	23.1	23.2	23.2	23.4	23.4	23.2	23.0	22.7	22.6	22.7	22.7	22.8	22.9	22.9	22.8	22.5	22.6	22.6	22.8	22.8	23.0	22.5	23.4	22.9	24	
15	22.9	23.0	23.2	23.0	23.0	23.0	23.1	23.1	23.1	23.1	23.1	23.0	23.1	23.2	23.2	23.2	23.4	23.2	22.2	22.5	22.8	23.0	23.2	23.3	22.2	23.4	23.0	24	
16	23.4	23.3	23.3	23.3	23.2	23.1	22.9	22.7	22.9	23.2	23.1	22.8	22.9	22.7	22.6	22.7	22.8	23.1	23.0	22.9	23.0	23.0	23.0	23.1	22.6	23.4	23.0	24	
17	23.1	23.2	23.1	23.2	23.2	23.3	23.3	23.3	23.3	23.0	22.9	22.8	23.0	23.1	23.1	23.7	23.9	23.4	22.1	22.5	22.8	22.9	23.0	23.0	22.1	23.9	23.1	24	
18	23.0	23.0	23.1	23.1	23.1	23.3	23.1	23.2	23.1	23.0	22.8	22.7	23.1	23.2	23.2	22.7	22.6	22.6	22.7	22.9	23.0	23.1	23.1	23.2	22.6	23.3	23.0	24	
19	23.3	23.3	23.3	23.2	23.0	22.7	22.3	21.9	21.5	21.4	21.4	21.5	21.7	21.8	22.2	22.8	22.9	22.9	22.7	22.2	21.4	21.0	21.1	21.1	21.0	23.3	22.2	24	
20	21.2	21.2	21.3	21.2	21.3	21.2	21.3	21.3	21.1	20.9	21.0	21.8	22.6	22.6	22.7	22.9	23.1	23.0	22.6	22.9	23.4	23.3	22.9	22.5	20.9	23.4	22.1	24	
21	22.0	21.6	21.3	21.3	21.3	21.3	21.4	21.4	21.2	21.4	22.1	22.9	22.8	22.9	23.1	23.1	23.0	22.9	22.7	22.8	22.9	23.1	23.1	23.3	21.2	23.3	22.3	24	
22	23.3	23.3	23.3	23.1	23.2	23.2	23.2	23.2	23.1	23.0	23.0	22.8	23.0	23.0	23.0	22.8	23.0	23.0	22.5	22.6	22.9	23.0	23.2	23.2	22.5	23.3	23.0	24	
23	23.3	23.2	23.3	23.3	23.4	23.4	23.4	23.3	23.2	23.1	23.1	22.9	22.9	23.0	23.1	23.3	23.0	22.7	22.6	22.7	23.0	23.1	23.3	23.3	22.6	23.4	23.1	24	
24	23.3	23.4	23.3	23.4	23.3	23.2	23.1	23.0	23.2	23.3	23.1	23.0	22.9	22.9	23.1	23.1	22.8	22.8	22.7	22.7	22.8	22.9	23.0	23.2	22.7	23.4	23.1	24	
25	23.3	23.3	23.2	23.4	23.3	23.3	23.1	23.2	23.1	22.7	22.6	22.7	22.9	23.2	23.6	23.9	24.0	23.5	22.6	22.9	22.6	22.8	22.9	23.0	22.6	24.0	23.1	24	
26	23.1	23.1	23.2	23.2	23.2	23.2	23.3	23.2	23.2	22.8	22.7	22.8	22.9	23.2	23.4	23.9	23.9	23.7	22.7	22.5	22.7	22.9	23.0	23.0	22.5	23.9	23.1	24	
27	23.1	23.0	23.0	23.1	23.1	23.1	23.2	23.2	23.1	22.8	22.7	22.9	23.0	23.0	23.8	23.3	23.2	22.9	22.5	22.5	22.7	22.8	22.9	23.1	22.5	23.8	23.0	24	
28	23.1	23.3	23.1	23.2	23.1	23.2	23.3	23.1	22.9	22.6	22.5	22.7	22.9	23.5	23.3	22.7	22.3	22.2	22.4	22.4	22.5	22.6	22.7	22.8	22.2	23.5	22.9	24	
29	22.9	22.8	22.8	22.8	22.8	22.9	22.9	23.0	22.6	22.6	22.5	22.8	22.8	23.4	23.4	23.7	23.8	23.5	23.0	22.0	22.2	22.3	22.5	22.5	22.0	23.8	22.9	24	
30	22.6	22.6	22.6	22.7	22.7	22.7	22.8	22.7	22.6	22.3	22.3	22.4	22.5	23.2	23.5	23.6	23.6	23.6	23.2	22.0	22.1	22.3	22.3	22.5	22.0	23.6	22.7	24	
31	22.6	22.5	22.6	22.7	22.6	22.6	22.8	22.7	22.5	22.4	22.4	22.4	22.4	22.4	22.6	22.8	23.0	23.0	22.8	22.7	22.6	22.4	22.4	22.5	22.4	23.0	22.6	24	
HOURLY MAX	23.7	23.6	23.4	23.4	23.4	23.4	23.4	23.4	23.3	23.4	23.3	23.1	23.1	23.5	23.8	23.9	24.0	23.7	23.2	23.3	23.4	23.6	23.6	23.6					
HOURLY AVG	22.4	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.2	22.1	22.1	22.1	22.3	22.4	22.6	22.7	22.6	22.6	22.3	22.2	22.2	22.3	22.3	22.4					

STATUS FLAG CODES

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

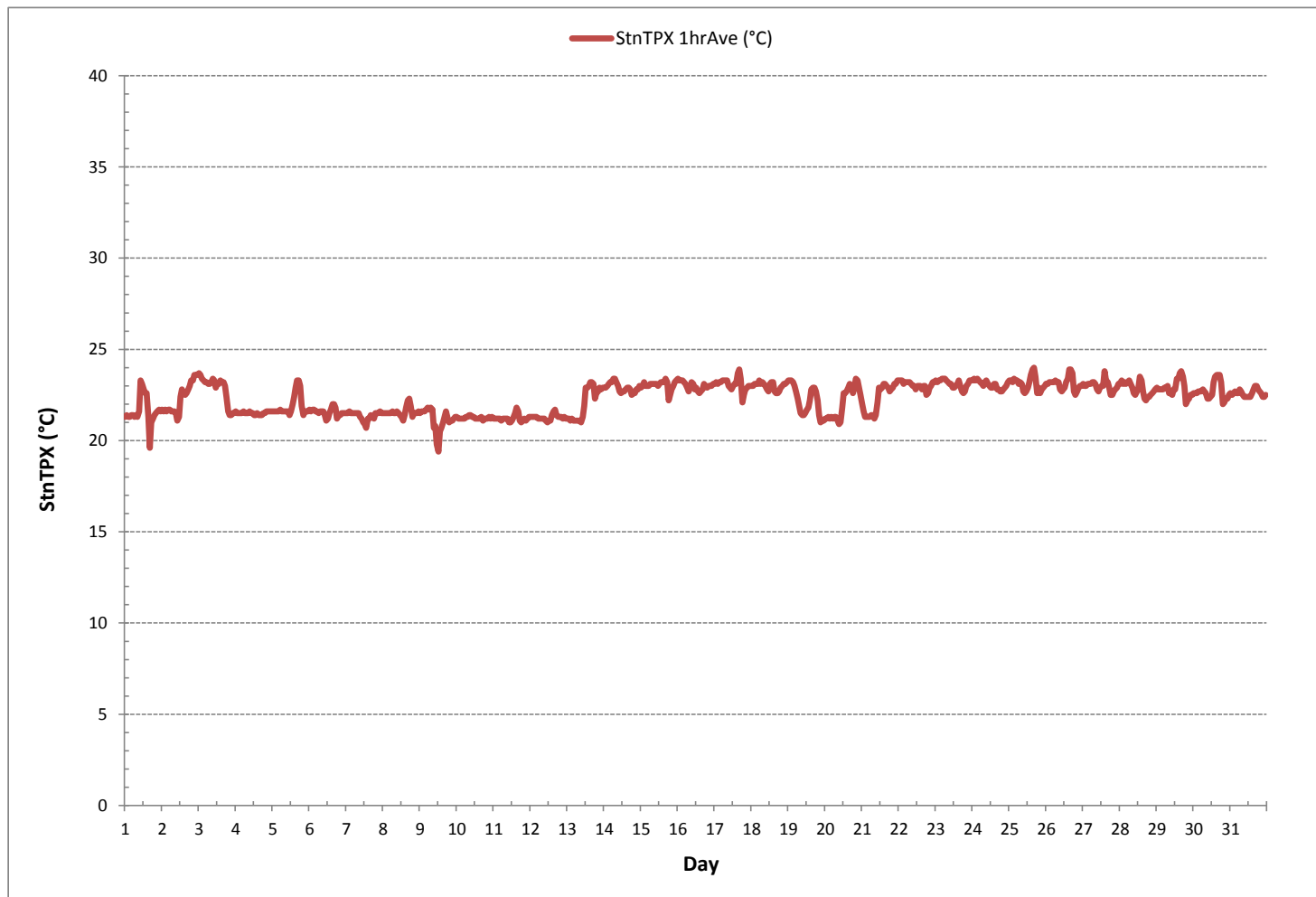
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	19.4	°C	@ HOUR(S)	12	ON DAY(S)	9
MAXIMUM 1-HR AVERAGE:	24.0	°C	@ HOUR(S)	16	ON DAY(S)	25
MAXIMUM 24-HR AVERAGE:	23.1	°C			ON DAY(S)	VAR
					VAR-VARIOUS	
					OPERATIONAL TIME:	744 hrs
					AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.8				MONTHLY AVERAGE:	22.3 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A Sulphur Dioxide Analyzer Calibration

Date: March 1, 2017

Company/Airshed: PRAMP

Location/Station Name: Reno

Parameter: Sulphur Dioxide

Start Time 24 hr. (mst): 12:35

End Time 24 hr. (mst): 16:02

Calibration Method: Gas Dilution

Barometric Pressure: 946.5 mB

Station Temperature °C: 22

Weather Conditions: Mainly clear

Calibration Purpose: routine monthly

Performed By/Reviewer: Chris Wesson Trina Whitsitt

Cal Gas Expiry Date: December 2, 2023

Converter Model & s/n (if applicable): n/a

Analyzer:

ID# or Serial Number: 841

Last Calibration Date: February 7, 2017

Previous C.F.: 1.001

Range ppb: 500

As Found 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	5920	0.00	5920	0.0	0.5	n/a
as found high	5863	45.51	5909	384.4	385.0	1.000
adjusted zero	5920	0.00	5920	0.0	0.0	n/a
adjusted high	5863	45.51	5909	384.4	384.4	1.000
mid	5915	21.69	5937	182.3	182.2	1.000
low	5908	10.90	5919	91.9	90.4	1.016
calibrator zero	5920	0.00	5920	0.0	-0.1	n/a
Average C.F.=						1.005

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000

Slope = 0.999

b (Intercept as % of full scale)= 0.12%

% change in C.F. from last cal= 0.14%

LIMITS

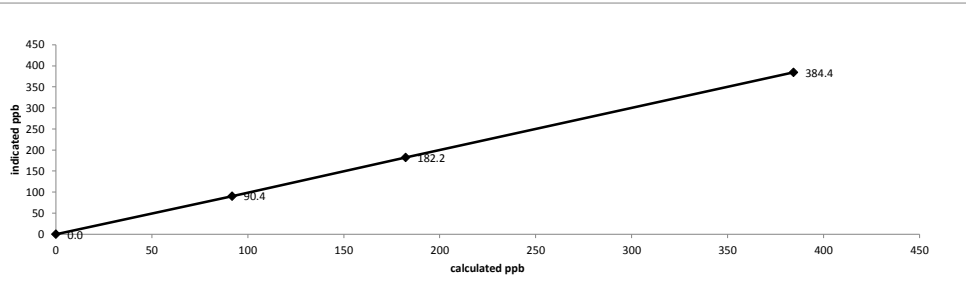
> or = 0.995

.95-1.05

± 3% F.S.

± 10%

API 100A Sulphur Dioxide Analyzer Calibration



As found:

SLOPE: 0.982

OFFSET: 44.2

HVPS: 763

DCPS: 2561

RCELL TEMP: 50.6

BOX TEMP: 31.4

PMT TEMP: 7.1

IZS TEMP: 45.0

Converter Temp: n/a

PRES: 25.2

SAMP FL: 690

PMT: 61.0

UV LAMP: 2014.0

LAMP RATIO: 90.6

STR. LGT: 21.7

DRK PMT: 25.9

DRK LMP: -16.9

Expected Value: 320.0

As left:

SLOPE: 0.981

OFFSET: 44.2

HVPS: 763

DCPS: 2560

RCELL TEMP: 50.9

BOX TEMP: 30.7

PMT TEMP: 7.1

IZS TEMP: 45.2

Converter Temp: n/a

PRES: 25.3

SAMP FL: 692

PMT: 60.4

UV LAMP: 2181.8

LAMP RATIO: 97.9

STR. LGT: 21.7

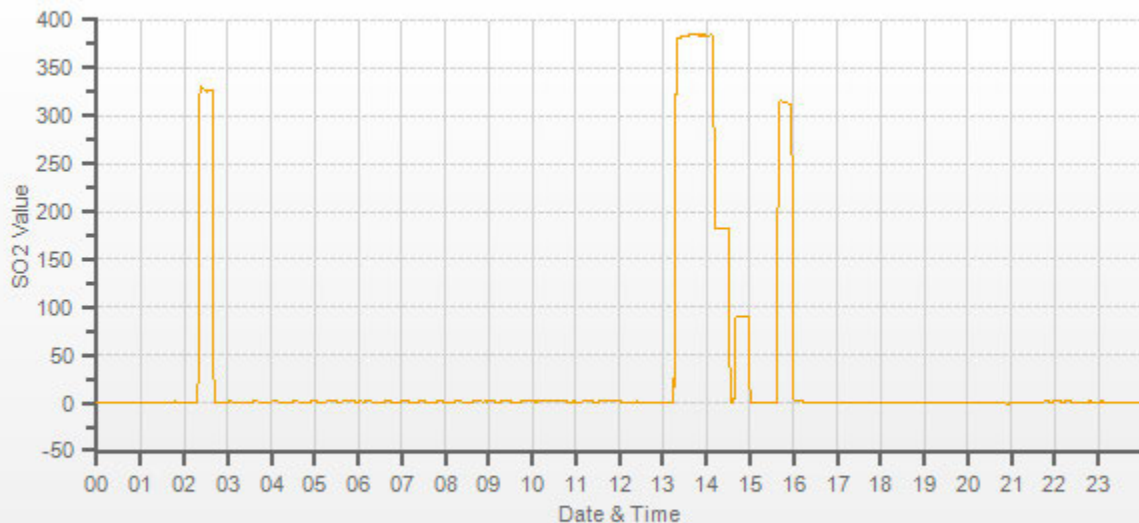
DRK PMT: 26.1

DRK LMP: -16.9

Expected Value: 326.0

Comments:

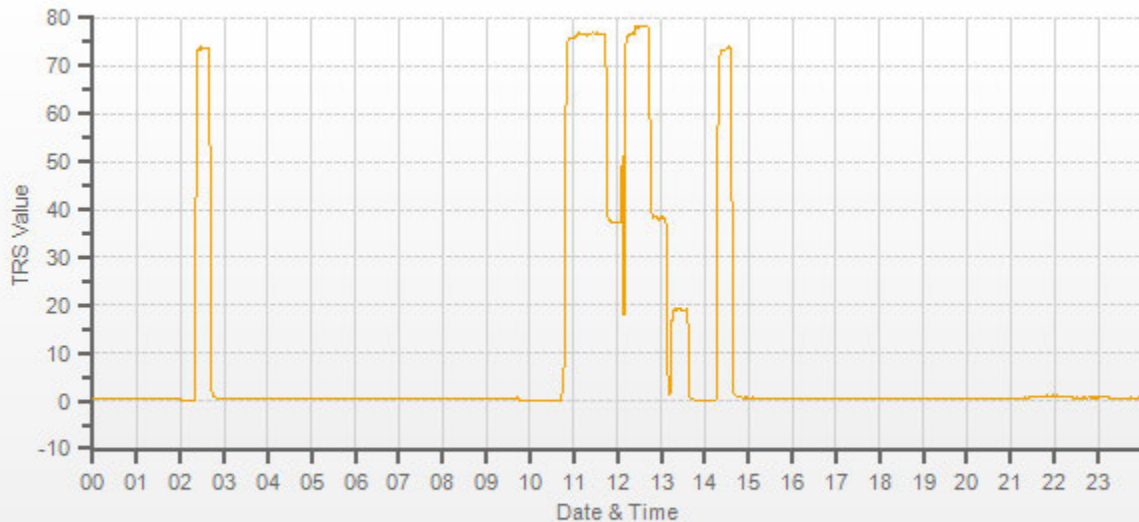
Flow check performed before low point.



— SO2[ppb]

TOTAL REDUCED SULPHUR

Thermo 43i Total Reduced Sulphur Analyzer Calibration																																																																									
Date: March 1, 2017 Company/Airshed: PRAMP Location/Station Name: Reno Parameter: Total Reduced Sulphur Start Time 24 hr. (mst): 9:45 End Time 24 hr. (mst): 14:41 Calibration Method: Gas Dilution		Barometric Pressure: 943.9 mB Station Temperature °C: 22 Weather Conditions: Light snow Calibration Purpose: routine monthly Performed By/Reviewer: Chris Wesson / Trina Whitsitt Cal Gas Expiry Date: December 1, 2018 Converter Model & s/n (if applicable): CD Nova CDN-101 #534																																																																							
Analyzer: ID# or Serial Number: 1162460022 Last Calibration Date: February 7, 2017 Previous C.F.: 1.000		Range ppb: 100 As Found C.F.: 1.019 New C.F.: 1.000																																																																							
Calibrator: Flow Meter ID's: 148943 & 152020 Make & Model: Envirotronics 6100 Serial #: 5212 Cal Gas Cylinder I.D. #: BLM001927 Cal Gas Conc. (ppm): 10.3		Standard Calibration Points for Ranges <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Point</th> <th>ppb</th> </tr> <tr> <td>High</td> <td>78</td> </tr> <tr> <td>Mid</td> <td>38</td> </tr> <tr> <td>Low</td> <td>19</td> </tr> </table>		Point	ppb	High	78	Mid	38	Low	19																																																														
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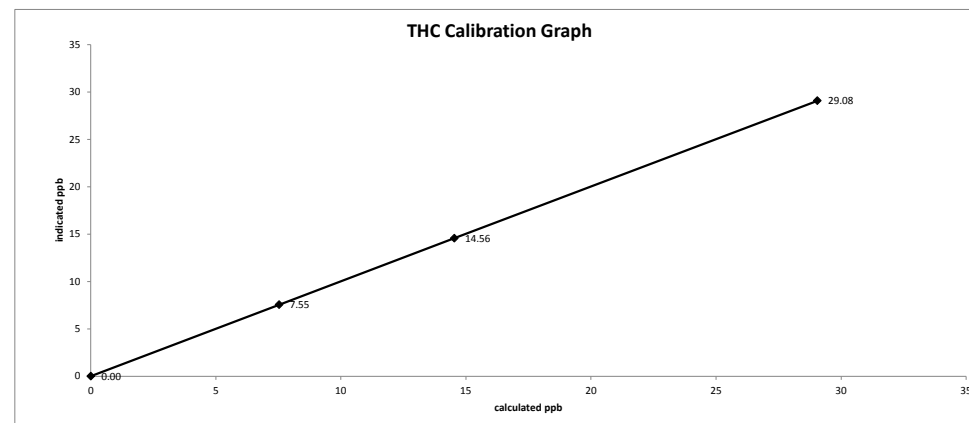
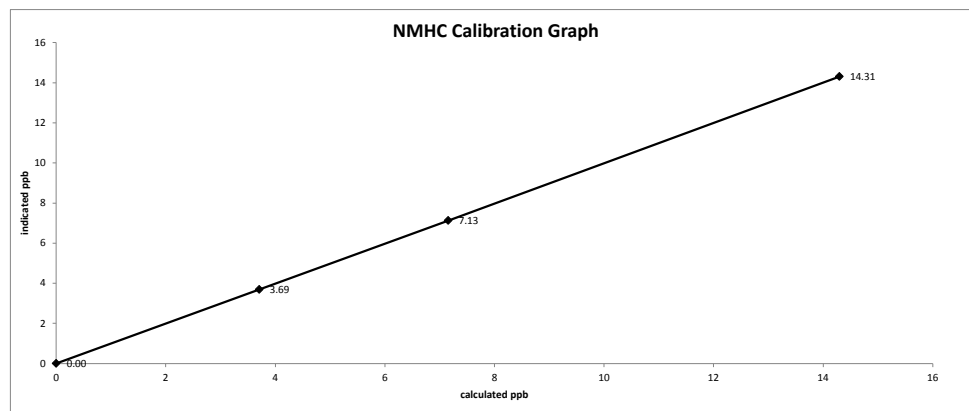
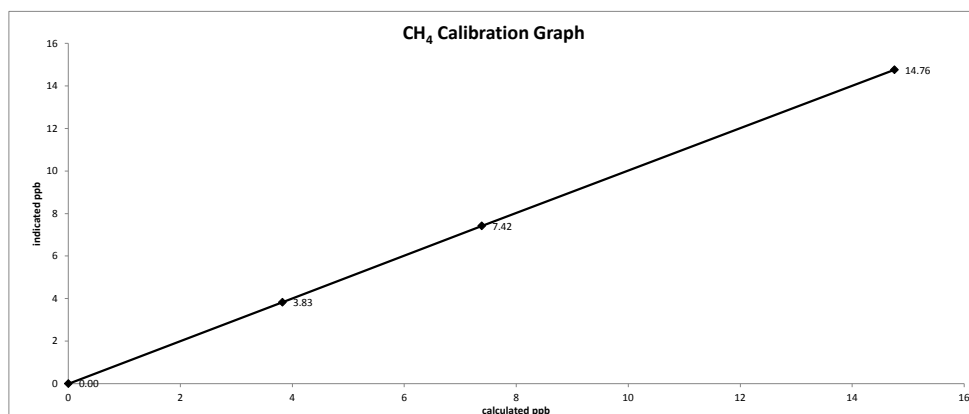


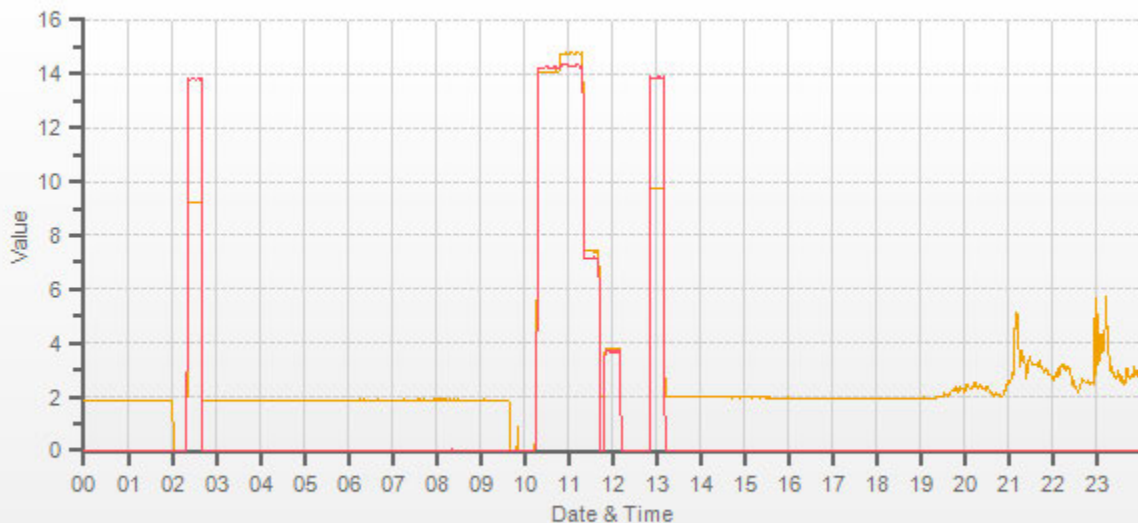
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TOTAL HYDROCARBON

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Comments: The analyzer sample inlet filter was changed. A new hydrogen cylinder was installed. The analyzer cooling fan filter(s) were cleaned. Flow check performed before low point.'Flowmeters = Mesalabs Defender 530																																																																																																																																			

Date:	March 1, 2017	Start/End Time 24 hr. (mst):	09:52 / 13:15
Company/Airshed:	PRAMP	Calibration Purpose:	routine monthly
Location/Station Name:	Reno	Calibration Method:	Gas Dilution





WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
Audit Location: Reno
Audit Date: February 16, 2017

Performed By: Chris Wesson
Reviewed By: Trina Whitsitt
Start /EndTime (mst): 10:34/11:22

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	149769	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	November 15, 2016	Direction Unit Output Range:	0-360

Wind Calibrator Information

Calibrator Make/ Model: RM Young 18802
Maxxam Unit ID #: 13-3357
Serial #: CA 0309
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	0.1	0.1	-
1000	17.6	17.7	17.6	0.999
2000	35.3	35.4	35.3	0.998
3000	52.9	53.0	53.0	0.999
4000	70.6	70.7	70.6	0.999
5000	88.2	88.3	88.3	0.999
6000	105.8	106.0	106.0	0.998
7000	123.5	123.8	123.8	0.997
8000	141.1	141.5	141.5	0.997
9000	158.8	159.3	159.3	0.997
10000	176.4	177.1	177.1	0.996
The audit meets AMD requirements.			Average Correction Factor=	0.998

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	354	0.2	1.5	0.9
30	330	30	328	0.3	1.9	1.1
60	300	61	299	-0.5	1.4	0.9
90	270	90	270	-0.3	0.5	0.4
120	240	120	240	-0.4	0.2	0.3
150	210	150	211	0.0	-0.6	0.3
180	180	180	181	0.0	-1.0	0.5
210	150	210	150	0.4	0.1	0.3
240	120	239	121	1.4	-0.8	1.1
270	90	269	91	1.0	-0.9	1.0
300	60	299	61	1.2	-0.9	1.0
330	30	328	29	1.9	1.2	1.5
355	0	354	0	0.8	0.2	0.5
The audit meets AMD requirements.			Average Absolute Degrees Difference=			0.8

Comments:

CALIBRATORS

Company Maxxam **Operator:** Christopher Wesson

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

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO 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	NO ₂	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	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
		Last Calibration Date	<u>May 18, 2016</u>
		Full Scale (ppm)	<u>1.0</u>

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: [Signature] Location: McIntyre Center Edmonton

Company Maxxam		Operator: Mike	
Calibrator:		Flow Measurement Device:	
Make/Model	EnviroNics 6100	Make/Model	Bios Defender 530
Serial Number	5212	Serial Number	Hi148944 Lo 152019
Last Verification Date	February 3, 2016	Temperature (°C)	24.6
NO Cylinder S/N	EY0000597	Barometric Pressure	701.4mmHg
NO [PPM]	49.0	NOx [PPM]	49.0
Expiry Date	December 8, 2019		

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 ₂ Conc	NO Decrease	NO	NO ₂	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)

NO₂	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		NO_x Analyzer	
Audit Calibrator		Make/Model Thermo 42i	
Make/Model	Thermo 146i	Serial/AMU Number	1868
Serial/AMU Number	1809	Last Calibration Date	February 13, 2017
SRM Gas Cylinder No.	CAL018140	Full Scale (ppm)	1.0
Cylinder Conc. (ppm)	48.79	Cylinder Gas Expiry Date	March 28, 2019

COMMENTS: Gas has ~50ppm SO₂

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: February 14, 2017
Location: McIntyre Center Edmonton

CALIBRATION GASES



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 Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4945	0.00	0.000	~~0.01598~~	~~62.597~~	~~49.4~~
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 ☒ 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
Operator Signature: [Signature]

Date: February 2, 2016
Location: McIntyre Center Edmonton



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 Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
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 ☒ COMMENTS: _____
<=5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐ _____
> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐ _____

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: February 2, 2016
Location: McIntyre Center Edmonton



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 (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
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

	<u>CH₄</u>	<u>C₃H₈</u>
Previous Stated Concentration PPM:	<u>599</u>	<u>211</u>
Percent variance from Stated:	<u>0.2</u>	<u>1.9</u>

Cylinder gas tolerances based on CH₄ only

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒

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

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

COMMENTS: C₃H₈ manufacturers tolerance 1.1%

Auditor: Shea Beaton
Operator Signature: [Signature]

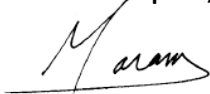
Date: January 19, 2016
Location: McIntyre Center Edmonton

APPENDIX III
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Reno Station
Name of the Representative of the Person Responsible (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.



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

21-04-2017

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 196-2017-03-93-C

Site: Reno Station

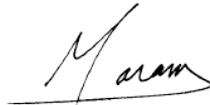
Contact: Karla Reesor

Level 0 Preliminary Verification



Date 10-April-17

Level 1 Primary Validation



Date 19-April-17

Level 2 Final Validation



Date 20-April-17

Level 3 Independent Data Review



Date 21-April-17

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.