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

JOB #: 196-2017-10-93-C

October 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **November 17, 2017**

Prepared by:

A handwritten signature in blue ink, appearing to read "Wunmi Adekanmbi".

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

Reviewed by:

A handwritten signature in black ink, appearing to read "Cheri Sinclair".

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

SUMMARY

In October 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.

Gas Parameters: The sample manifold blower failed on October 31, resulting in compromised samples not representative of ambient concentrations. Data was invalidated back to the point of failure, determined to be hour 06:00. Eighteen hours of downtime were recorded in October due to this event.

TRS: The first attempt at the routine monthly calibration on October 5 was aborted due to an operator error. The analyzer was restored to as-found settings and the calibration was successfully completed on October 6. Four hours of downtime were recorded due to the initial calibration attempt.

THC/CH₄/NMHC:

- The sample pump was replaced on October 5. Two hours of downtime were recorded due to this maintenance event.
- The span gas was changed out on October 19. A zero/span check was triggered after the replacement to provide a reference for the expected span value based on the concentration of the new gas. Two hours of downtime were incurred due to the additional quality check.

Canister System: One canister event was recorded on October 26 at 20:20, at an initial concentration of 0.33 ppm.

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	9	2	7	4.6	W	1	3	97.6
TRS (ppb)	-	-	-	-	0.43	2.56	26	20	1.9	S	0.81	26	97.0
THC (ppm)	-	-	-	-	2.02	4.06	12	3	1.9	SW	2.32	4	97.0
CH ₄ (ppm)	-	-	-	-	2.02	4.06	12	3	1.9	SW	2.32	4	97.0
NMHC (ppm)	-	-	-	-	0.00	0.10	26	20	1.9	S	0.01	26	97.0
RELATIVE HUMIDITY (%)	-	-	-	-	66	94	25	7	15.4	NNE	89	17	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	936	955	2	8	4.0	W	953	2	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	3.5	21.8	5	15	10.4	WSW	12.6	5	100.0
STATION TEMPERATURE (°C)	-	-	-	-	20.2	23.0	5	16	13.3	WSW	21.2	5	100.0
VECTOR WS (kph)	-	-	-	-	3.6	21.2	6	10	-	WSW	12.8	6	100.0
VECTOR WD (sec)	-	-	-	-	251 (WSW)	-	-	-	-	-	-	-	100.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Reno Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	October

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES	NO. READINGS > REGULATION		MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	97.6	0.009 ppm	0		0.001 ppm	0
TRS	97.0	0.003 ppm	-		0.001 ppm	-
THC	97.0	4.06 ppm	-		2.32 ppm	-
CH ₄	97.0	4.06 ppm	-		2.32 ppm	-
NMHC	97.0	0.10 ppm	-		0.01 ppm	-
RH	100.0	94 %	-		89 %	-
BP	100.0	955 mb	-		953 mb	-
Ambient TPX	100.0	21.8 °C	-		12.6 °C	-
Station TPX	100.0	23.0 °C	-		21.2 °C	-
Wind Speed	100.0	21.2 kph	-		12.8 kph	-
Wind Direction	100.0	-	-		-	-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

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).

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

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

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

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

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

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

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

Data contained in this monthly report has undergone 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. The minimum and maximum statistics are highlighted in the data table and are for reference only. The highlighted cells are based on the software's interpretation of the exact position of the minimum or maximum value. The visual presentation of these statistics may not be the obvious choice in a data range due to rounding, truncating or analyzer specifications.

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

SULPHUR DIOXIDE (SO₂)

- Operational time, for the monitoring period was 97.6%, equivalent to eighteen hours of downtime.
- The routine monthly calibration was performed on October 5.
- The sample manifold blower failed on October 31, resulting in compromised samples not representative of ambient concentrations. Data was invalidated back to the point of failure, determined to be hour 06:00. Eighteen hours of downtime were recorded due to this event.

TOTAL REDUCED SULPHUR (TRS)

- Operational time, for the monitoring period was 97.0%, equivalent to twenty-two hours of downtime.
- The first attempt at the routine monthly calibration on October 5 was aborted due to an operator error. The analyzer was restored to as-found settings and the calibration was successfully completed on October 6. Four hours of downtime were recorded due to the initial calibration attempt.
- The sample manifold blower failed on October 31, resulting in compromised samples not representative of ambient concentrations. Data was invalidated back to the point of failure, determined to be hour 06:00. Eighteen hours of downtime were recorded due to this event.

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

- Operational time, for the monitoring period was 97.0%, equivalent to twenty-two hours of downtime.
- Following a successful shut-down calibration on October 5, the sample pump was replaced. A successful post-repair calibration was subsequently completed. Two hours of downtime were recorded due to this maintenance event.
- The span gas was changed out on October 19. A zero/span check was triggered after the replacement to provide a reference for the expected span value based on the concentration of the new gas. Two hours of downtime were incurred due to the additional quality check.
- The sample manifold blower failed on October 31, resulting in compromised samples not representative of ambient concentrations. Data was invalidated back to the point of failure, determined to be hour 06:00. Eighteen hours of downtime were recorded due to this event.
- Five instances of maximum instantaneous data, occurring between October 6 and October 27, were lost as the data logger yielded an "offscan" error.
- 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. One canister event was recorded at a concentration of 0.33 ppm on October 26, at 20:20.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time, for the monitoring period, was 100%.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

- Operational time, for the monitoring period, was 100%.

BAROMETRIC PRESSURE (BP)

- Operational time, for the monitoring period, was 100%.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time, for the monitoring period, was 100%.

STATION TEMPERATURE (StnTPX)

- Operational time, for the monitoring period, was 100%.

2.0 Project Personnel

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

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

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

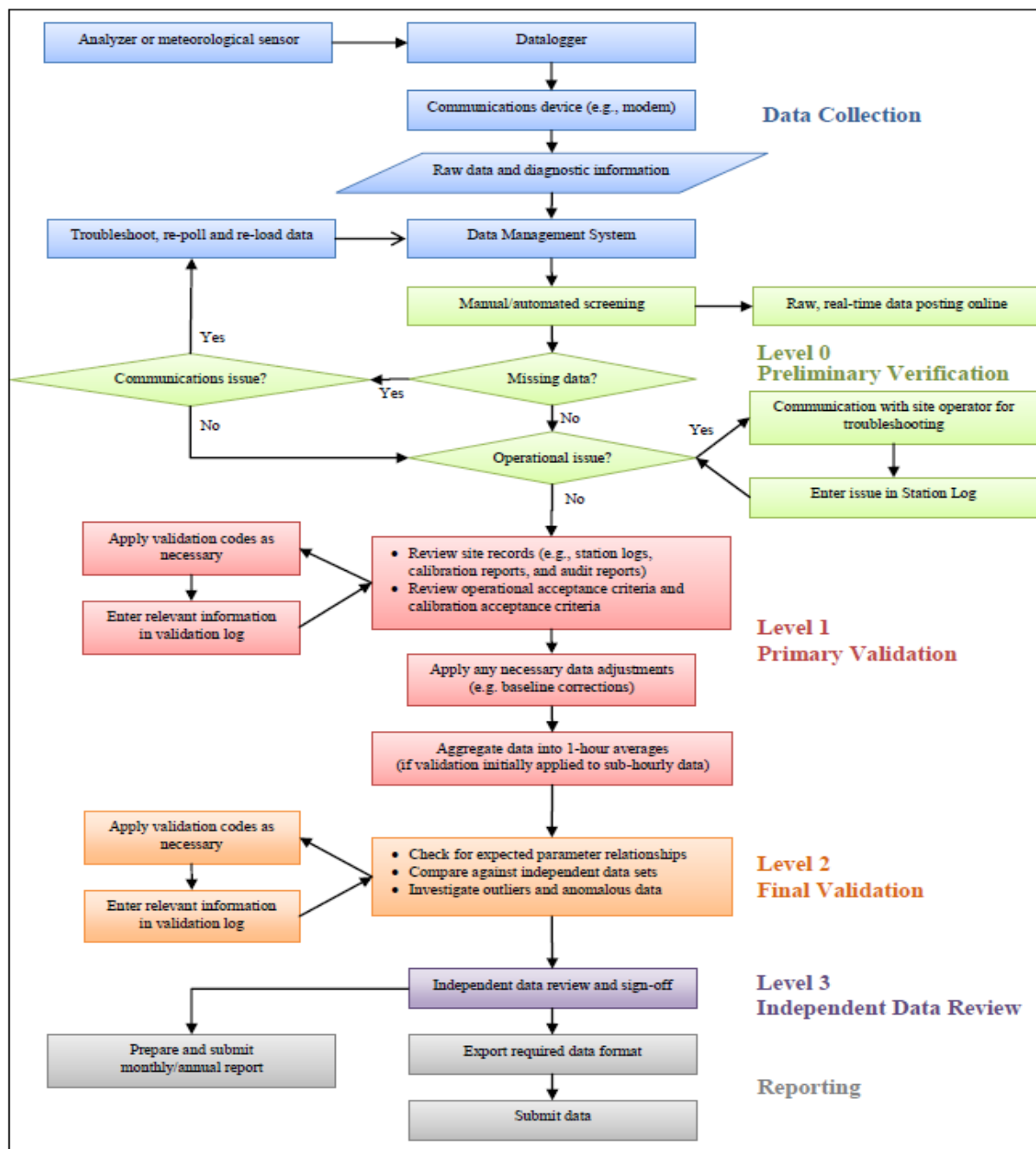
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
2	0	0	0	0	0	S	0	9	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	9	0	24
3	0	0	0	0	0	S	1	0	1	1	1	1	1	0	0	1	0	0	5	0	1	0	0	0	0	0	5	1	24
4	0	0	0	0	0	S	1	1	1	1	1	0	1	1	1	1	0	0	0	1	0	1	0	0	0	0	1	0	24
5	0	0	0	0	0	S	1	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	1	0	24
6	0	0	0	0	0	S	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
7	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	24
8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9	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	24
10	0	0	0	0	0	S	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	24
11	0	0	0	0	0	S	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
12	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	24
13	0	1	0	0	0	S	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
14	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	24
15	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	24
16	0	0	0	0	0	S	1	1	1	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	24
17	0	0	0	0	0	S	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
18	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	24
19	0	0	0	0	0	S	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
20	1	0	0	0	0	S	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
21	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	24
22	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	24
23	0	0	0	0	0	S	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24
24	0	0	0	0	0	S	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
25	0	0	0	0	0	S	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
26	0	0	0	0	0	S	0	4	1	0	1	0	1	1	0	1	1	0	1	1	1	1	0	0	0	0	4	1	24
27	0	0	0	0	0	S	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
28	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	24
29	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	24
30	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	24
31	0	0	3	2	0	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	3	1	6
HOURLY MAX	1	1	3	2	0	NA	1	9	1	1	1	1	1	1	1	1	1	1	5	1	1	1	0	0					
HOURLY AVG	0	0	0	0	0	NA	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

STATUS FLAG CODES

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

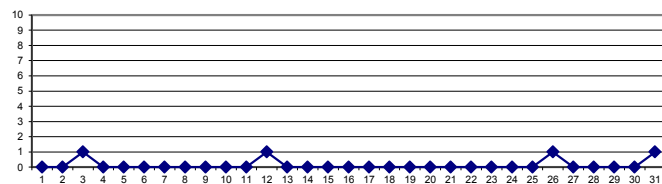
OBJECTIVE LIMIT:

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

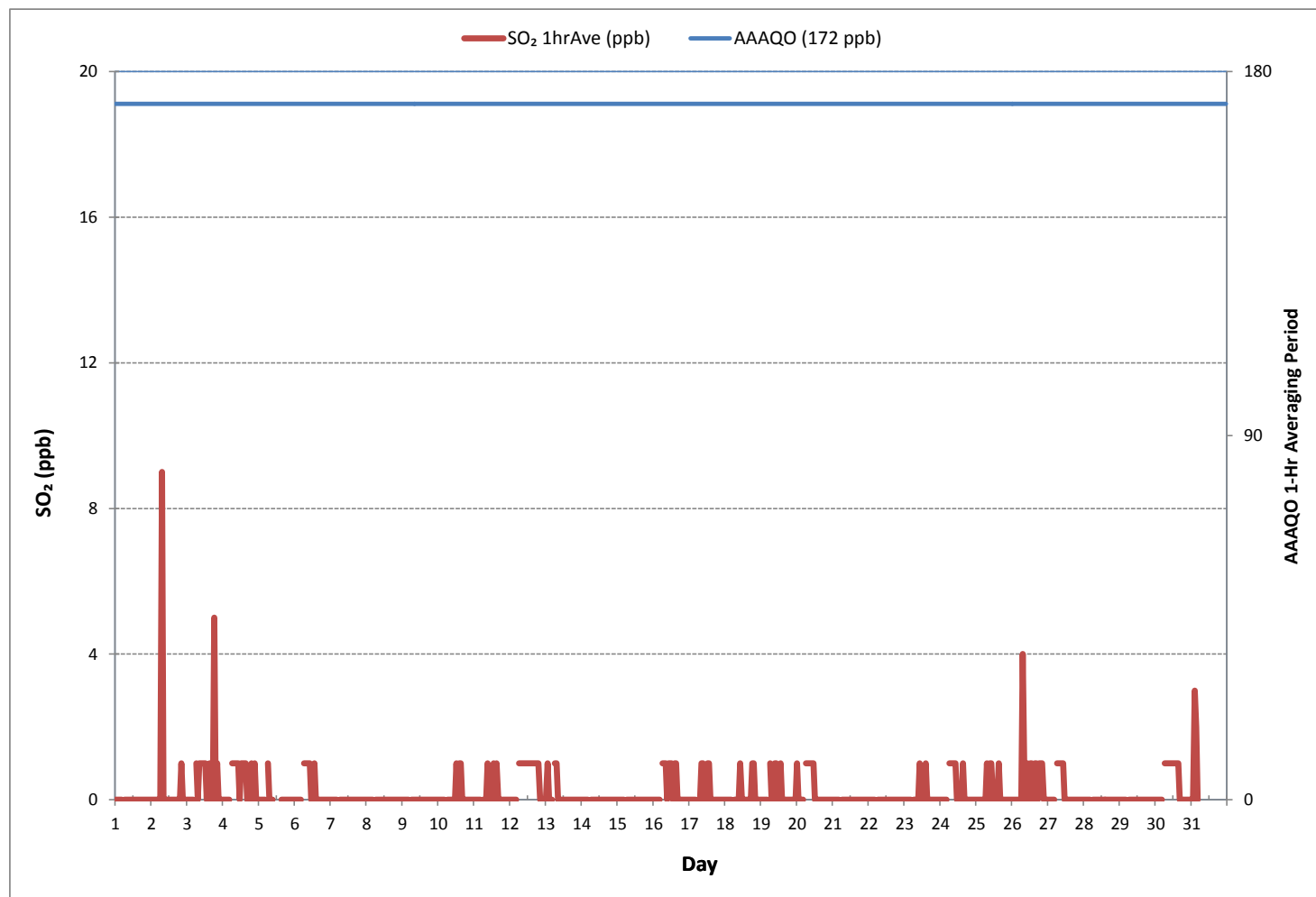
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	117
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	9 ppb @ HOUR 7 ON DAY 2
MAXIMUM 24-HR AVERAGE:	1 ppb ON DAY 3
IZS CALIBRATION TIME:	31 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	726 hrs
AMD OPERATION UPTIME:	97.6 %
STANDARD DEVIATION:	1
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES October 2017



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 2017

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	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	24	
2	0	0	0	0	0	S	0	32	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	32	1	24
3	0	0	0	0	0	S	0	0	0	1	1	1	0	0	0	1	0	0	43	0	0	0	0	0	0	0	43	2	24
4	0	0	0	0	1	S	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
5	0	0	0	0	0	S	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	24
6	0	0	0	0	0	S	1	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0	0	0	0	0	1	0	24
7	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	24
8	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
9	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
10	0	0	0	0	0	S	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	24
11	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	24
12	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	1	0	24
13	0	0	0	0	0	S	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24
14	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
15	0	0	0	0	0	S	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	24	
16	0	0	0	0	0	S	1	1	1	0	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	1	0	24
17	0	0	0	1	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	24
18	0	0	0	0	0	S	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	24
19	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	24	
20	1	1	1	1	0	S	1	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	2	1	24
21	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	24
22	1	0	0	0	1	S	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0	1	0	24
23	0	0	0	0	0	S	0	0	1	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
24	0	0	0	0	0	S	1	1	1	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	24
25	0	0	0	0	0	S	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
26	0	0	0	0	0	S	1	27	1	0	1	1	1	1	1	1	1	1	2	1	1	0	0	0	0	0	27	2	24
27	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
28	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	24
29	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	24
30	0	0	0	0	0	S	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	24
31	0	0	33	32	0	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	33	13	6
HOURLY MAX	1	1	33	32	1	NA	1	32	2	2	1	1	1	1	1	1	1	1	43	1	1	1	1	1					
HOURLY AVG	0	0	1	1	0	NA	0	2	1	0	1	0	1	0	0	1	0	0	2	0	0	0	0	0					

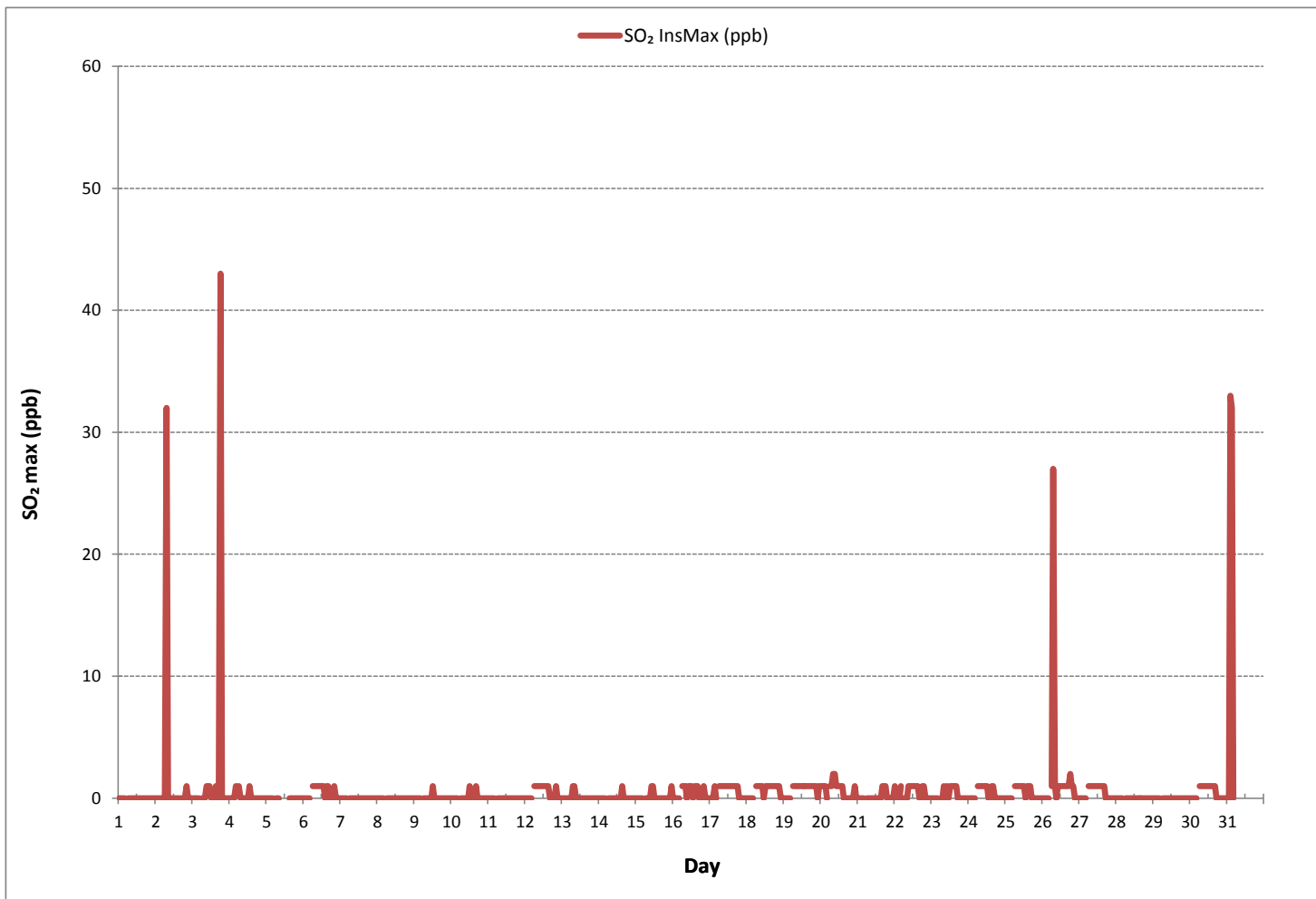
STATUS FLAG CODES

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:	189				
MAXIMUM INSTANTANEOUS VALUE:	43	ppb	@ HOUR	18	ON DAY 3
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	726	hrs
MONTHLY CALIBRATION TIME:	6	hrs			
STANDARD DEVIATION:	3				

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



Wind: PRAMP_RENO
 Poll.: PRAMP_RENO-SO₂[ppb]
 Monthly: 17/10
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

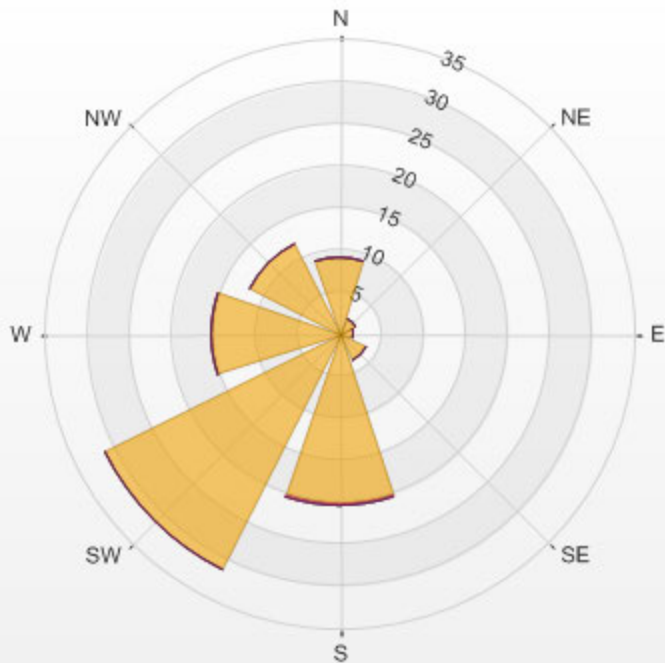
Calm: 4.49%

Calm Avg: 0.47 [ppb]

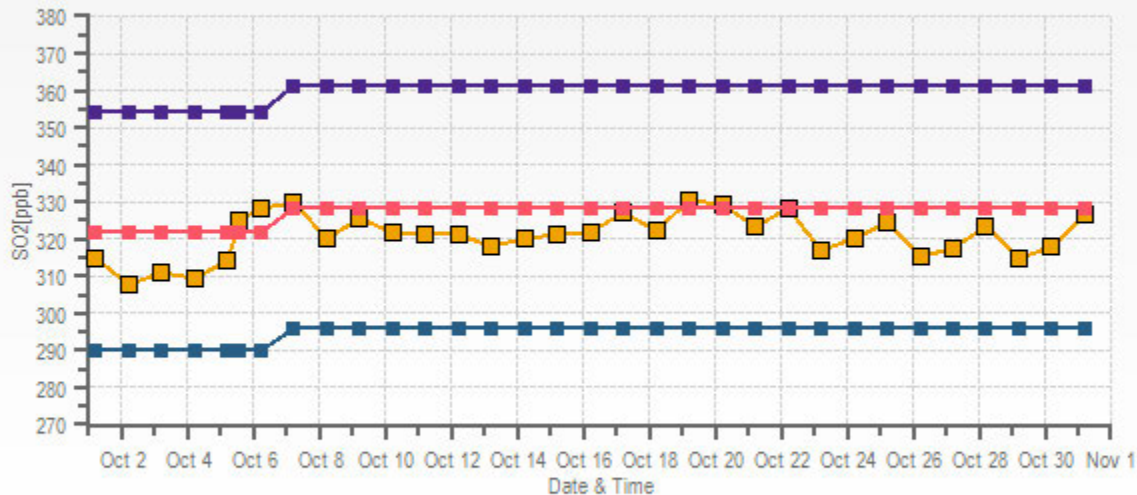
Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	9.1	0.0	0.0	0.0	0.0	9.1
NE	2.0	0.0	0.0	0.0	0.0	2.0
E	1.7	0.0	0.0	0.0	0.0	1.7
SE	3.6	0.0	0.0	0.0	0.0	3.6
S	20.1	0.3	0.0	0.0	0.0	20.4
SW	31.3	0.0	0.0	0.0	0.0	31.3
W	15.2	0.1	0.0	0.0	0.0	15.4
NW	11.9	0.0	0.0	0.0	0.0	11.9
Summary	95.1	0.4	0.0	0.0	0.0	95.5

% Icon	Classes (ppb)	95	0-3	0	3-10	0	10-85	0	85-170	0	>170.0

PRAMP_RENO Poll.: PRAMP_RENO-SO2[ppb] 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.49% Calm Poll
Avg: 0.47[ppb]



SO2[ppb] Calibration: PRAMP_RENO Monthly: 17/10 Type: Span



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

TOTAL REDUCED SULPHUR

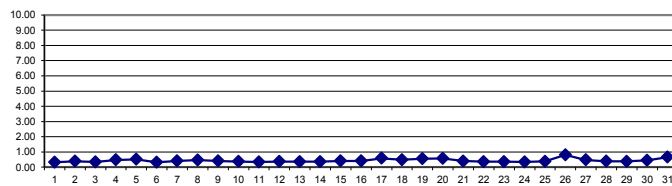
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.31	0.50	0.55	0.56	0.33	S	0.34	0.31	0.31	0.32	0.30	0.29	0.29	0.29	0.26	0.29	0.26	0.26	0.26	0.28	0.28	0.27	0.27	0.26	0.26	0.56	0.32	24
2	0.28	0.29	0.28	0.39	0.50	S	0.31	1.81	0.33	0.30	0.26	0.26	0.26	0.26	0.25	0.27	0.25	0.25	0.25	0.31	0.54	0.41	0.37	0.42	0.25	1.81	0.38	24
3	0.39	0.38	0.28	0.28	0.27	S	0.31	0.26	0.26	0.27	0.28	0.28	0.28	0.30	0.29	0.30	0.32	0.32	1.24	0.33	0.33	0.32	0.32	0.32	0.26	1.24	0.34	24
4	0.37	0.49	0.44	0.33	0.51	S	0.58	0.57	0.67	0.62	0.43	0.40	0.37	0.36	0.33	0.32	0.32	0.34	0.39	0.47	0.41	0.47	0.80	0.98	0.32	0.98	0.48	24
5	0.41	0.34	0.56	0.97	1.02	S	0.92	1.11	0.78	0.42	0.41	0.38	0.38	Y	Y	Y	Y	0.34	0.30	0.28	0.28	0.27	0.27	0.27	0.27	1.11	0.51	20
6	0.30	0.29	0.29	0.29	0.29	S	0.32	0.31	0.29	0.28	C	C	C	C	0.43	0.29	0.30	0.30	0.32	0.32	0.33	0.35	0.36	0.34	0.28	0.43	0.32	24
7	0.36	0.36	0.39	0.42	0.45	S	0.47	0.46	0.47	0.47	0.47	0.50	0.42	0.42	0.44	0.41	0.34	0.37	0.36	0.31	0.37	0.34	0.32	0.37	0.31	0.50	0.40	24
8	0.34	0.35	0.30	0.33	0.43	S	0.44	0.36	0.34	0.27	0.28	0.28	0.27	0.28	0.30	0.30	0.30	0.32	0.58	1.02	1.06	1.07	0.71	0.64	0.27	1.07	0.46	24
9	0.66	0.51	0.54	0.39	0.45	S	0.48	0.48	0.43	0.39	0.36	0.35	0.33	0.33	0.32	0.34	0.33	0.38	0.37	0.36	0.35	0.43	0.43	0.39	0.32	0.66	0.41	24
10	0.38	0.39	0.40	0.39	0.40	S	0.50	0.43	0.46	0.43	0.36	0.34	0.33	0.33	0.32	0.32	0.31	0.32	0.32	0.34	0.35	0.35	0.35	0.37	0.31	0.50	0.37	24
11	0.35	0.34	0.34	0.31	0.33	S	0.37	0.34	0.33	0.32	0.32	0.33	0.32	0.31	0.33	0.32	0.31	0.32	0.35	0.35	0.32	0.38	0.36	0.37	0.31	0.38	0.34	24
12	0.43	0.35	0.34	0.39	0.51	S	0.43	0.41	0.42	0.38	0.35	0.35	0.34	0.35	0.34	0.34	0.34	0.34	0.35	0.33	0.36	0.33	0.34	0.35	0.33	0.51	0.37	24
13	0.45	0.54	0.50	0.40	0.38	S	0.39	0.36	0.34	0.34	0.33	0.32	0.32	0.31	0.29	0.30	0.30	0.30	0.30	0.33	0.39	0.39	0.40	0.36	0.29	0.54	0.36	24
14	0.33	0.37	0.38	0.36	0.40	S	0.39	0.37	0.35	0.36	0.34	0.35	0.35	0.35	0.33	0.33	0.35	0.36	0.40	0.37	0.37	0.38	0.38	0.38	0.33	0.40	0.36	24
15	0.37	0.41	0.47	0.78	0.92	S	0.38	0.34	0.35	0.39	0.39	0.62	0.39	0.35	0.34	0.35	0.35	0.33	0.31	0.31	0.31	0.31	0.30	0.29	0.29	0.92	0.41	24
16	0.29	0.33	0.35	0.35	0.32	S	0.35	0.34	0.34	0.38	0.34	0.33	0.33	0.33	0.32	0.33	0.37	0.43	0.55	0.67	0.58	0.63	0.61	0.59	0.29	0.67	0.41	24
17	0.74	0.89	0.72	0.57	0.55	S	1.03	1.07	0.76	0.66	0.60	0.56	0.44	0.39	0.43	0.43	0.38	0.39	0.43	0.46	0.47	0.44	0.46	0.48	0.38	1.07	0.58	24
18	0.50	0.50	0.51	0.51	0.48	S	0.64	0.59	0.57	0.70	0.67	0.49	0.44	0.36	0.36	0.34	0.34	0.35	0.40	0.40	0.65	0.36	0.36	0.54	0.34	0.70	0.48	24
19	0.73	0.89	0.60	0.51	0.59	S	0.82	0.78	0.65	0.52	0.49	0.51	0.51	0.43	0.47	0.40	0.41	0.51	0.47	0.40	0.57	0.51	0.43	0.61	0.40	0.89	0.56	24
20	0.76	0.80	0.64	0.47	0.43	S	0.46	0.59	1.58	0.83	0.48	0.53	0.43	0.44	0.38	0.36	0.37	0.42	0.49	0.52	0.47	0.44	0.66	0.60	0.36	1.58	0.57	24
21	0.60	0.59	0.47	0.52	0.46	S	0.48	0.51	0.44	0.38	0.40	0.38	0.34	0.33	0.32	0.32	0.31	0.33	0.38	0.32	0.30	0.31	0.30	0.29	0.29	0.60	0.39	24
22	0.30	0.30	0.30	0.31	0.31	S	0.43	0.44	0.37	0.35	0.35	0.39	0.38	0.36	0.35	0.34	0.34	0.36	0.38	0.36	0.37	0.38	0.35	0.34	0.30	0.44	0.35	24
23	0.35	0.33	0.34	0.33	0.32	S	0.36	0.34	0.32	0.34	0.33	0.33	0.32	0.32	0.33	0.34	0.32	0.32	0.36	0.40	0.45	0.44	0.53	0.36	0.32	0.53	0.36	24
24	0.33	0.31	0.33	0.37	0.38	S	0.39	0.37	0.37	0.40	0.37	0.35	0.32	0.32	0.30	0.31	0.32	0.31	0.33	0.35	0.32	0.32	0.33	0.32	0.30	0.40	0.34	24
25	0.31	0.33	0.31	0.30	0.30	S	0.34	0.34	0.35	0.33	0.30	0.31	0.33	0.36	0.37	0.38	0.34	0.33	0.32	0.31	0.82	0.52	0.34	0.79	0.30	0.82	0.38	24
26	1.25	1.68	0.40	0.71	1.25	S	0.35	0.93	0.37	0.39	0.38	0.39	0.37	0.34	0.34	0.35	0.35	0.34	0.67	1.47	2.56	0.95	1.73	0.97	0.34	2.56	0.81	24
27	0.72	0.43	0.47	0.45	0.48	S	0.62	0.53	0.40	0.39	0.51	0.48	0.57	0.55	0.61	0.50	0.40	0.37	0.36	0.40	0.45	0.44	0.45	0.40	0.36	0.72	0.48	24
28	0.44	0.45	0.49	0.52	0.47	S	0.48	0.44	0.41	0.37	0.35	0.32	0.33	0.33	0.35	0.38	0.42	0.40	0.32	0.31	0.31	0.30	0.31	0.30	0.30	0.52	0.38	24
29	0.32	0.31	0.33	0.34	0.35	S	0.38	0.36	0.34	0.35	0.35	0.34	0.34	0.33	0.34	0.34	0.33	0.35	0.38	0.38	0.38	0.48	0.54	0.64	0.31	0.64	0.37	24
30	0.53	0.48	0.47	0.40	0.39	S	0.46	0.43	0.42	0.40	0.40	0.38	0.38	0.35	0.35	0.37	0.38	0.37	0.37	0.40	0.40	0.89	0.68	0.62	0.35	0.89	0.45	24
31	0.48	0.40	1.02	0.89	0.48	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.40	1.02	0.65	6
HOURLY MAX	1.25	1.68	1.02	0.97	1.25	NA	1.03	1.81	1.58	0.83	0.67	0.62	0.57	0.55	0.61	0.50	0.42	0.51	1.24	1.47	2.56	1.07	1.73	0.98				
HOURLY AVG	0.46	0.48	0.45	0.46	0.48	NA	0.47	0.53	0.46	0.41	0.39	0.38	0.36	0.35	0.35	0.34	0.34	0.35	0.41	0.43	0.51	0.45	0.47	0.47				

STATUS FLAG CODES

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

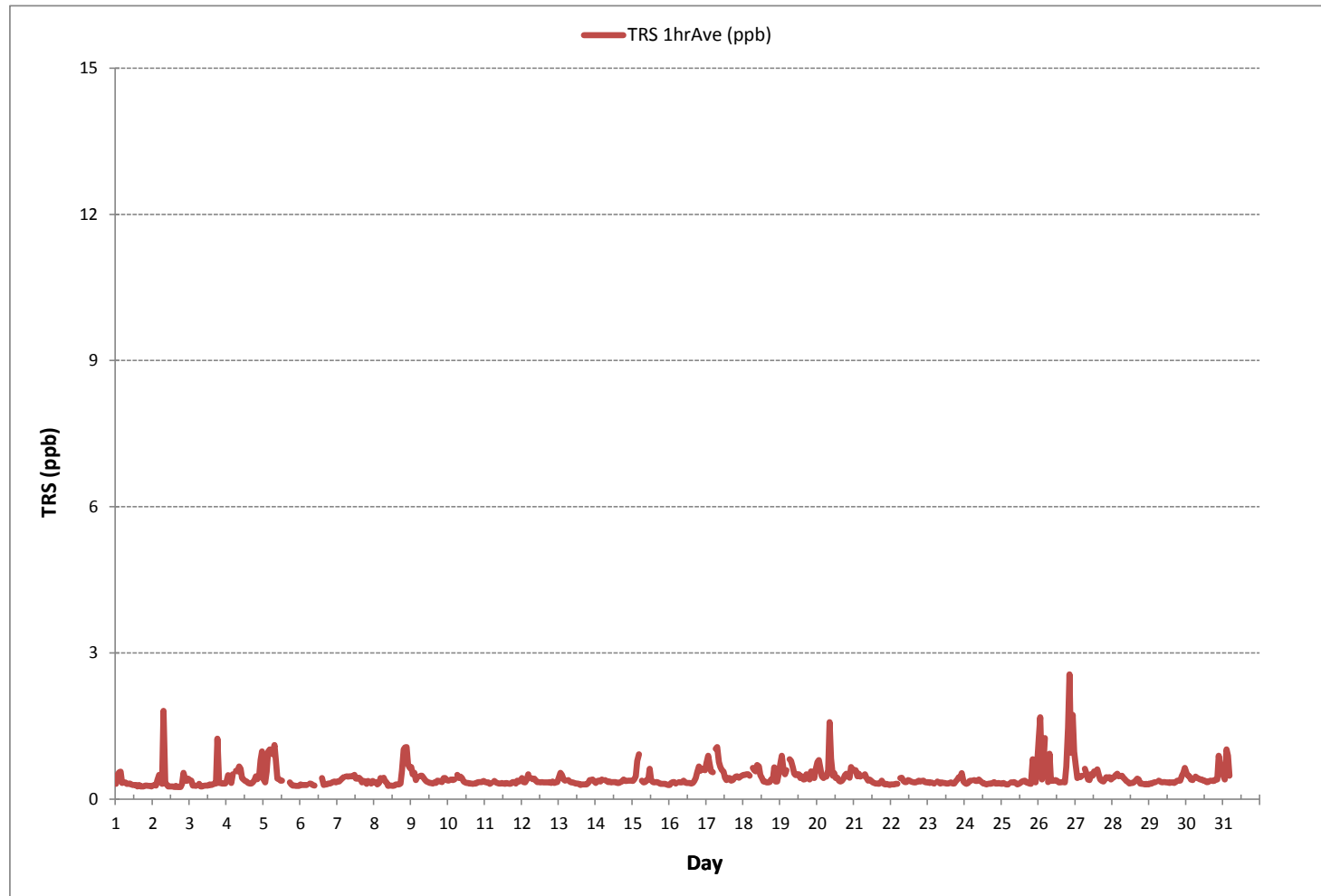
24 HR AVERAGES October 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	687			
MINIMUM 1-HR AVERAGE:	0.25	ppb @ HOUR	14	ON DAY 2
MAXIMUM 1-HR AVERAGE:	2.56	ppb @ HOUR	20	ON DAY 26
MAXIMUM 24-HR AVERAGE:	0.81	ppb		ON DAY 26
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	722 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	97.0 %
STANDARD DEVIATION:	0.20		MONTHLY AVERAGE:	0.43 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	0.40	0.65	0.73	0.76	0.40	S	0.40	0.40	0.37	0.42	0.37	0.37	0.37	0.40	0.35	0.40	0.35	0.37	0.37	0.37	0.40	0.37	0.37	0.42	0.35	0.76	0.43	24
2	0.40	0.42	0.42	0.71	0.71	S	0.45	5.59	0.53	0.50	0.42	0.42	0.42	0.40	0.45	0.42	0.42	0.42	0.42	0.68	1.05	0.63	0.63	0.71	0.40	5.59	0.75	24
3	0.58	0.63	0.45	0.48	0.45	S	0.55	0.45	0.45	0.45	0.45	0.48	0.45	0.48	0.48	0.45	0.50	0.52	8.39	0.50	0.52	0.50	0.53	0.55	0.45	8.39	0.84	24
4	0.73	0.76	0.68	0.50	1.02	S	0.92	0.97	0.97	0.78	0.63	0.55	0.53	0.55	0.53	0.50	0.48	0.48	0.60	0.86	0.68	0.76	1.13	1.44	0.48	1.44	0.74	24
5	0.60	0.52	0.86	1.25	1.23	S	1.25	1.39	1.23	0.60	0.58	0.57	0.53	Y	Y	Y	Y	Y	0.55	0.43	0.45	0.43	0.45	0.45	0.43	1.39	0.74	19
6	0.45	0.43	0.48	0.43	0.45	S	0.50	0.49	0.50	0.48	C	C	C	C	C	0.45	0.48	0.47	0.52	0.45	0.50	0.50	0.48	0.45	0.43	0.52	0.47	24
7	0.45	0.48	0.53	0.56	0.57	S	0.56	0.60	0.56	0.60	0.65	0.63	0.53	0.56	0.58	0.53	0.50	0.50	0.53	0.50	0.58	0.56	0.50	0.56	0.45	0.65	0.55	24
8	0.53	0.57	0.53	0.53	0.65	S	0.63	0.53	0.53	0.42	0.45	0.45	0.42	0.45	0.45	0.45	0.48	0.48	1.50	1.57	1.60	1.36	0.91	0.81	0.42	1.60	0.71	24
9	0.86	0.68	0.73	0.68	0.60	S	0.63	0.63	0.60	0.56	0.53	0.50	0.48	0.48	0.48	0.50	0.48	0.54	0.57	0.53	0.53	0.60	0.58	0.55	0.48	0.86	0.58	24
10	0.53	0.55	0.53	0.58	0.73	S	0.68	0.60	0.60	0.65	0.50	0.48	0.55	0.48	0.45	0.48	0.45	0.48	0.45	0.48	0.50	0.50	0.50	0.55	0.45	0.73	0.53	24
11	0.50	0.50	0.48	0.42	0.45	S	0.50	0.50	0.48	0.48	0.45	0.45	0.48	0.45	0.48	0.48	0.42	0.48	0.50	0.50	0.42	0.55	0.53	0.54	0.42	0.55	0.48	24
12	0.60	0.53	0.48	0.58	0.89	S	0.60	0.58	0.60	0.56	0.48	0.50	0.48	0.48	0.48	0.48	0.48	0.55	0.50	0.47	0.97	0.48	0.50	0.50	0.47	0.97	0.56	24
13	0.68	0.71	0.68	0.63	0.53	S	0.54	0.55	0.50	0.53	0.48	0.48	0.50	0.45	0.45	0.45	0.45	0.42	0.42	0.48	0.54	0.53	0.57	0.48	0.42	0.71	0.52	24
14	0.45	0.50	0.55	0.50	0.53	S	0.53	0.53	0.50	0.48	0.48	0.50	0.48	0.50	0.50	0.50	0.53	0.50	0.57	0.57	0.50	0.57	0.56	0.56	0.45	0.57	0.52	24
15	0.53	0.65	0.71	2.30	2.54	S	0.53	0.50	0.50	0.57	0.65	1.02	0.60	0.52	0.50	0.55	0.52	0.50	0.45	0.50	0.50	0.45	0.48	0.45	0.45	2.54	0.72	24
16	0.48	0.50	0.50	0.56	0.48	S	0.56	0.48	0.50	0.55	0.50	0.48	0.48	0.45	0.48	0.48	0.50	0.60	0.68	0.91	0.89	0.94	0.89	0.76	0.45	0.94	0.59	24
17	1.36	1.52	1.10	0.68	0.68	S	1.50	1.23	1.10	1.17	0.73	0.68	0.58	0.53	0.55	0.56	0.50	0.50	0.53	0.60	0.58	0.53	0.56	0.60	0.50	1.52	0.80	24
18	0.60	0.58	0.63	0.63	0.60	S	0.78	0.78	0.78	0.91	0.94	0.60	0.60	0.48	0.48	0.42	0.42	0.45	0.53	0.60	1.23	0.50	0.45	0.97	0.42	1.23	0.65	24
19	0.91	1.36	0.84	0.68	0.81	S	1.00	1.05	0.84	0.73	0.68	0.63	0.68	0.55	0.68	0.53	0.55	0.65	0.68	0.60	0.76	0.73	0.60	0.97	0.53	1.36	0.76	24
20	1.25	1.15	0.89	0.63	0.63	S	0.65	1.47	1.78	1.55	0.63	0.68	0.65	0.60	0.56	0.53	0.53	0.58	0.65	0.78	0.60	0.56	1.08	0.81	0.53	1.78	0.84	24
21	0.78	0.78	0.63	0.71	0.58	S	0.65	0.68	0.60	0.50	0.53	0.53	0.48	0.48	0.45	0.45	0.45	0.50	0.58	0.48	0.45	0.47	0.45	0.42	0.42	0.78	0.55	24
22	0.45	0.45	0.45	0.45	0.53	S	0.81	0.58	0.53	0.53	0.50	0.53	0.56	0.56	0.50	0.53	0.53	0.56	0.56	0.53	0.53	0.56	0.53	0.50	0.45	0.81	0.53	24
23	0.56	0.56	0.53	0.58	0.50	S	0.56	0.53	0.50	0.50	0.50	0.53	0.50	0.50	0.50	0.50	0.50	0.50	0.56	0.60	0.84	0.78	1.05	0.50	0.50	1.05	0.57	24
24	0.50	0.48	0.48	0.55	0.53	S	0.55	0.52	0.53	0.53	0.54	0.50	0.48	0.48	0.42	0.48	0.48	0.42	0.45	0.50	0.48	0.53	0.45	0.45	0.42	0.55	0.49	24
25	0.48	0.50	0.45	0.42	0.42	S	0.48	0.45	0.48	0.48	0.48	0.42	0.45	0.50	0.53	0.56	0.48	0.50	0.48	0.50	3.78	2.59	0.56	2.51	0.42	3.78	0.80	24
26	2.64	3.42	0.58	1.50	1.80	S	0.53	4.70	0.53	0.58	0.56	0.56	0.53	0.50	0.50	0.53	0.56	0.56	1.39	2.17	4.06	2.04	2.59	1.86	0.50	4.70	1.51	24
27	1.20	0.60	0.63	0.63	0.65	S	0.84	0.92	0.58	0.56	0.76	0.76	0.84	0.78	1.13	0.78	0.55	0.53	0.50	0.58	0.63	0.60	0.63	0.56	0.50	1.20	0.71	24
28	0.58	0.63	0.68	0.71	0.65	S	0.63	0.60	0.57	0.53	0.50	0.48	0.48	0.48	0.53	0.50	0.60	0.57	0.48	0.48	0.48	0.45	0.45	0.48	0.45	0.71	0.55	24
29	0.51	0.50	0.53	0.53	0.53	S	0.53	0.53	0.50	0.53	0.50	0.53	0.50	0.50	0.50	0.50	0.50	0.50	0.56	0.53	0.58	0.65	0.73	0.92	0.50	0.92	0.55	24
30	0.76	0.65	0.63	0.56	0.58	S	0.73	0.58	0.58	0.58	0.58	0.56	0.56	0.53	0.53	0.56	0.56	0.53	0.55	0.65	0.60	1.60	0.97	0.97	0.53	1.60	0.67	24
31	0.71	0.60	6.77	6.17	0.86	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.60	6.77	3.02	6
HOURLY MAX	2.64	3.42	6.77	6.17	2.54	NA	1.50	5.59	1.78	1.55	0.94	1.02	0.84	0.78	1.13	0.78	0.60	0.65	8.39	2.17	4.06	2.59	2.59	2.51				
HOURLY AVG	0.71	0.74	0.81	0.87	0.73	NA	0.67	0.98	0.64	0.61	0.55	0.55	0.52	0.50	0.52	0.50	0.49	0.51	0.85	0.65	0.87	0.74	0.69	0.74				

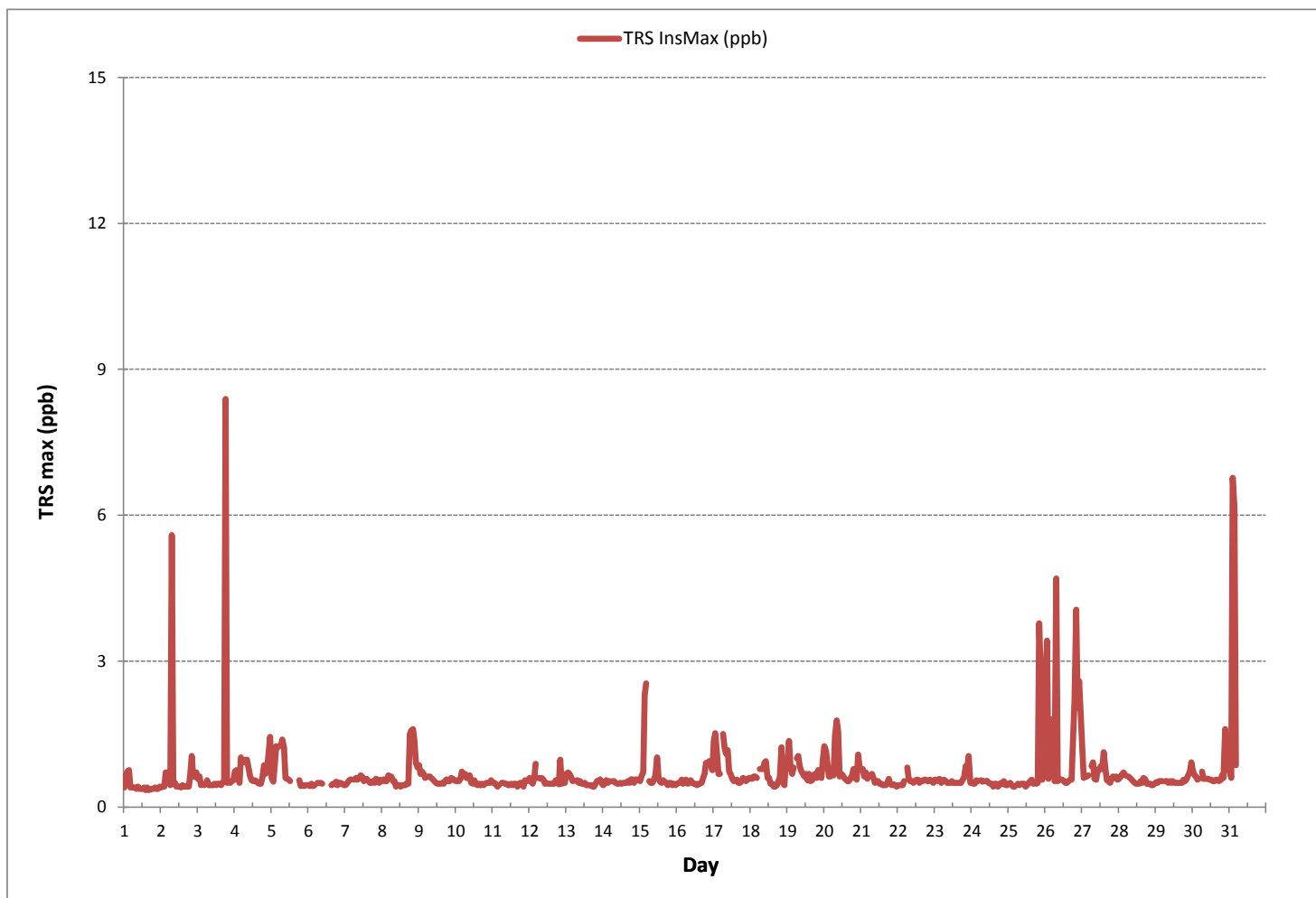
STATUS FLAG CODES

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:	685
MAXIMUM INSTANTANEOUS VALUE:	8.39 ppb @ HOUR 18 ON DAY 3
IZS CALIBRATION TIME:	31 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.61
OPERATIONAL TIME:	721 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-TRS[ppb]
Monthly: 17/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.51%

Calm Avg: 0.52 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	9.2	0.0	0.0	0.0	9.2
NE	2.0	0.0	0.0	0.0	2.0
E	1.8	0.0	0.0	0.0	1.8
SE	3.6	0.0	0.0	0.0	3.6
S	18.8	1.8	0.0	0.0	20.5
SW	31.4	0.0	0.0	0.0	31.4
W	14.9	0.2	0.0	0.0	15.0
NW	11.9	0.0	0.0	0.0	11.9
Summary	93.6	1.9	0.0	0.0	95.5

% Icon Classes (ppb)

94



0-1

2



1-3

0



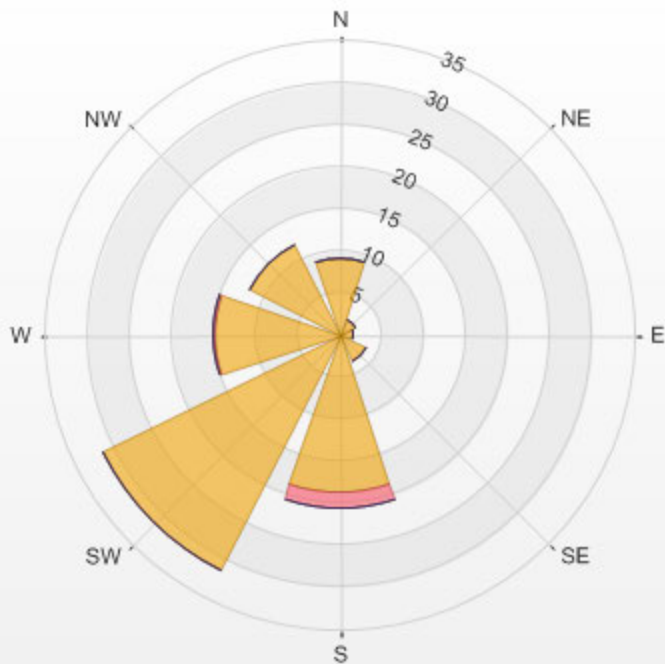
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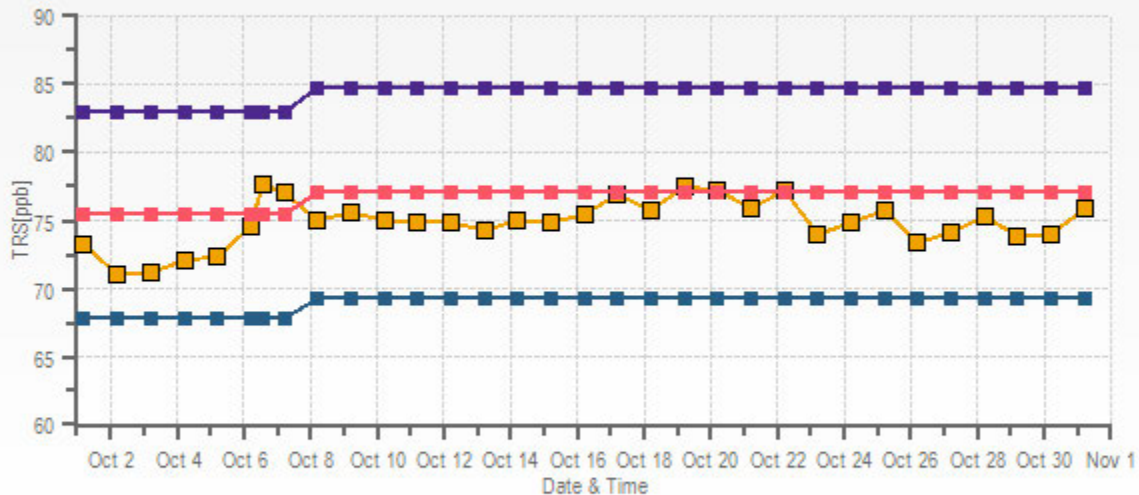


>10.0

PRAMP_RENO Poll.: PRAMP_RENO-TRS[ppb] 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.51% Calm Poll
Avg: 0.52[ppb]



TRS[ppb] Calibration: PRAMP_RENO Monthly: 17/10 Type: Span



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

TOTAL HYDROCARBON

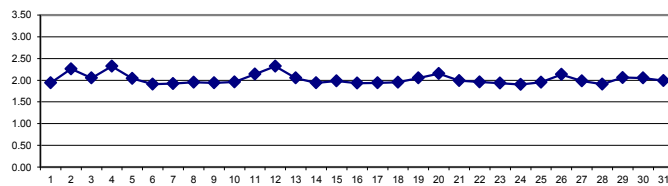
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.92	1.94	1.94	1.93	1.92	S	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.95	1.92	1.95	1.94	24
2	1.95	1.95	1.95	1.96	1.96	S	1.97	1.94	1.99	1.96	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.95	2.41	3.86	3.77	3.01	3.77	1.94	3.86	2.26	24
3	2.67	2.24	2.23	1.98	2.02	S	2.10	2.03	2.06	2.02	2.01	1.98	1.96	1.94	1.93	1.94	1.96	1.97	1.94	2.27	1.96	1.95	1.95	1.96	1.93	2.67	2.05	24
4	2.38	2.68	2.60	2.03	3.42	S	3.06	3.09	2.26	1.99	1.97	1.96	1.94	1.94	1.96	1.94	1.93	1.95	2.24	2.53	2.27	2.43	2.49	2.19	1.93	3.42	2.32	24
5	2.18	2.11	2.09	2.12	2.19	S	2.21	2.15	2.03	1.98	C	C	C	Y	Y	C	C	C	C	1.90	1.90	1.91	1.91	1.92	1.90	2.21	2.04	22
6	1.92	1.92	1.92	1.91	1.91	S	1.92	1.91	1.90	1.91	1.89	1.89	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.89	1.92	1.91	24
7	1.91	1.91	1.90	1.90	1.91	S	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.91	1.91	1.92	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.90	1.94	1.92	24
8	1.94	1.93	1.93	1.93	1.96	S	1.96	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.99	2.14	1.99	1.97	1.96	1.96	1.96	1.93	2.14	1.95	24
9	2.01	1.98	1.97	1.93	1.93	S	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.94	1.92	2.01	1.94	24
10	1.94	1.94	1.95	2.27	1.98	S	1.97	1.95	1.96	1.96	1.95	1.94	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.93	2.27	1.96	24
11	1.94	1.94	1.94	1.94	1.94	S	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.99	2.30	3.60	3.56	2.93	1.93	3.60	2.14	24
12	3.03	3.22	3.42	4.06	2.77	S	2.59	2.54	2.11	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.95	1.95	2.00	2.10	1.99	1.95	1.98	1.99	1.94	4.06	2.32	24
13	2.70	2.70	2.17	1.97	1.95	S	1.95	1.94	1.95	1.97	1.96	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.95	2.16	1.99	2.10	2.11	1.94	2.70	2.05	24
14	2.02	1.99	1.97	1.97	1.96	S	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	2.02	1.94	24
15	1.95	2.30	2.25	2.08	2.06	S	2.05	1.95	1.99	1.94	1.96	1.99	1.92	1.92	1.91	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	2.30	1.98	24
16	1.91	1.91	1.91	1.91	1.91	S	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.98	1.94	1.97	2.04	2.08	1.91	2.08	1.93	24
17	2.02	2.02	1.96	1.92	1.92	S	2.06	1.97	1.96	1.91	1.92	1.90	1.90	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.93	1.91	1.92	1.92	1.90	2.06	1.94	24
18	1.92	1.93	1.93	1.93	1.93	S	1.96	2.17	2.05	1.95	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.97	1.92	1.94	1.92	2.17	1.95	24
19	2.03	2.05	2.06	2.15	2.15	S	2.12	2.04	2.01	2.02	S1	S1	1.94	1.96	1.94	1.91	2.00	2.04	2.12	1.96	1.99	2.08	2.15	2.39	1.91	2.39	2.05	22
20	2.52	2.73	2.43	1.99	1.92	S	2.01	2.17	2.53	2.22	1.93	1.94	1.92	1.92	1.92	1.92	1.92	1.92	2.27	2.31	1.95	1.92	2.94	2.10	1.92	2.94	2.15	24
21	1.95	1.94	1.93	2.07	1.93	S	2.07	2.13	1.93	1.93	1.95	1.92	1.91	1.91	1.91	1.92	1.92	2.06	2.14	2.03	2.12	2.04	2.07	2.02	1.91	2.14	1.99	24
22	2.09	2.06	2.09	2.05	1.95	S	2.02	1.99	1.95	1.94	1.94	1.94	1.92	1.92	1.92	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.92	1.90	2.09	1.96	24
23	1.92	1.92	1.93	1.92	1.92	S	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.91	1.93	1.92	1.91	1.92	2.02	1.95	1.91	2.02	1.93	24
24	1.93	1.92	1.92	1.91	1.89	S	1.89	1.89	1.89	1.89	1.90	1.90	1.90	1.91	1.90	1.91	1.91	1.91	1.90	1.90	1.95	1.90	1.89	1.90	1.89	1.95	1.90	24
25	1.89	1.90	1.89	1.90	1.91	S	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	2.06	2.06	2.18	2.22	1.89	2.22	1.95	24
26	2.21	2.20	1.99	2.11	2.15	S	1.99	1.95	2.02	2.04	1.97	1.97	1.96	1.96	1.95	1.94	1.93	2.11	2.29	2.65	3.04	2.14	2.26	2.11	1.93	3.04	2.13	24
27	2.39	1.98	1.94	1.94	1.94	S	1.99	1.96	1.93	1.93	2.12	1.98	2.01	2.03	2.09	1.94	1.91	1.91	1.91	2.02	1.94	1.88	1.87	1.87	1.87	2.39	1.98	24
28	1.86	1.86	1.86	1.87	1.87	S	1.88	1.90	1.89	1.90	1.91	1.91	1.92	1.93	1.92	1.93	1.93	1.94	1.92	1.92	1.92	1.93	1.93	1.93	1.86	1.94	1.91	24
29	1.93	1.93	1.93	1.95	1.96	S	1.95	1.95	1.94	1.94	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.94	1.97	2.20	2.29	3.27	2.67	1.93	3.27	2.06	24
30	2.12	2.15	2.16	1.99	2.05	S	2.18	2.15	2.01	2.01	2.01	2.01	1.99	1.96	1.96	1.96	1.97	1.97	1.98	1.97	1.96	2.18	2.15	2.15	1.96	2.18	2.05	24
31	1.98	1.96	2.00	2.02	2.01	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.96	2.02	1.99	6
HOURLY MAX	3.03	3.22	3.42	4.06	3.42	NA	3.06	3.09	2.53	2.22	2.12	2.01	2.01	2.03	2.09	1.96	2.00	2.11	2.29	2.65	3.86	3.77	3.56	3.77				
HOURLY AVG	2.10	2.10	2.07	2.05	2.04	NA	2.04	2.04	1.99	1.96	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.95	1.99	2.03	2.09	2.11	2.17	2.12				

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

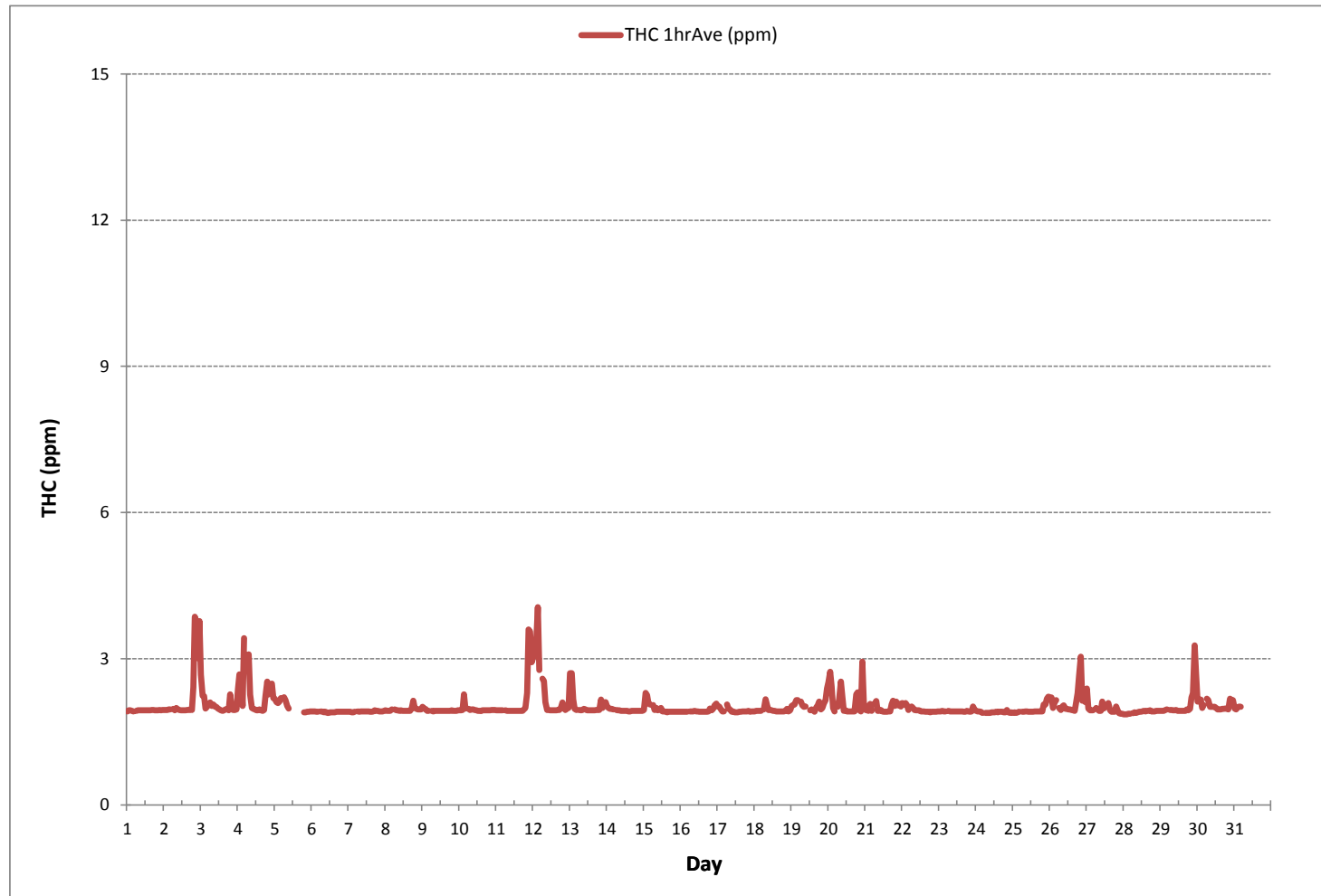
24 HR AVERAGES October 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684			
MINIMUM 1-HR AVERAGE:	1.86	ppm @ HOUR	0	ON DAY 28
MAXIMUM 1-HR AVERAGE:	4.06	ppm @ HOUR	3	ON DAY 12
MAXIMUM 24-HR AVERAGE:	2.32	ppm		ON DAY 4
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	722 hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	97.0 %
STANDARD DEVIATION:	0.26		MONTHLY AVERAGE:	2.02 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 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	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	1.94	1.97	1.97	1.95	1.94	S	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.94	1.97	1.96	24
2	1.96	1.97	1.97	1.98	1.99	S	2.02	2.00	2.02	1.98	1.96	1.96	1.96	1.95	1.96	1.97	1.97	1.97	1.97	3.63	6.70	5.58	4.62	6.98	1.95	6.98	2.74	24
3	4.20	2.46	2.64	2.03	2.33	S	2.31	2.11	2.11	2.08	2.07	2.06	1.98	1.97	1.96	1.97	1.99	1.98	1.98	4.11	1.99	1.98	1.97	2.02	1.96	4.20	2.27	24
4	4.23	4.62	5.21	2.30	7.06	S	4.82	3.55	2.97	2.07	2.05	2.02	1.99	1.98	2.00	1.98	1.98	2.33	2.67	3.66	2.93	2.98	3.12	2.32	1.98	7.06	3.08	24
5	2.37	2.26	2.27	2.31	2.34	S	2.43	2.38	2.16	C	C	C	C	Y	Y	C	C	C	C	C	1.93	1.93	1.94	1.94	1.93	2.43	2.19	22
6	1.94	1.94	1.94	1.93	1.94	S	1.94	1.94	1.93	1.93	1.92	1.91	1.92	X	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.91	1.94	1.93	23	
7	1.93	1.93	1.93	1.93	1.93	S	1.94	1.94	1.94	1.94	1.95	1.94	1.93	1.94	1.97	1.93	1.94	1.97	1.95	1.95	1.94	1.94	1.94	1.96	1.93	1.97	1.94	24
8	1.96	1.95	1.95	1.99	1.99	S	1.99	1.97	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	2.32	2.28	2.19	2.18	2.12	2.10	2.11	1.95	2.32	2.03	24
9	2.22	2.13	2.07	1.95	1.95	S	1.95	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.95	1.95	1.95	1.94	2.22	1.97	24
10	1.96	1.96	1.98	2.75	2.11	S	2.01	1.97	1.98	1.98	1.97	1.96	1.95	1.95	1.95	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	2.75	2.01	24
11	1.96	1.96	1.96	1.96	1.96	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.95	2.00	4.14	5.71	6.13	4.24	1.94	6.13	2.50	24
12	5.02	6.02	5.98	8.99	3.62	S	3.43	3.43	2.66	1.98	1.96	1.96	1.96	1.96	1.97	1.96	1.97	1.98	2.03	2.77	2.31	1.97	2.45	2.45	1.96	8.99	3.08	24
13	4.25	4.47	3.34	2.06	1.97	S	1.96	1.96	1.99	2.00	1.98	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.96	1.96	2.92	2.07	2.21	2.17	1.96	4.47	2.30	24
14	2.14	2.03	1.99	2.02	2.02	S	1.97	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.94	2.14	1.97	24
15	2.25	3.32	3.14	2.33	2.22	S	2.19	2.04	2.10	2.00	2.08	2.16	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	3.32	2.13	24
16	1.93	1.93	1.94	1.93	1.93	S	1.95	2.00	1.94	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.95	1.98	2.04	2.26	2.18	2.21	2.20	1.93	2.26	1.99	24
17	2.30	2.31	2.05	1.94	1.96	S	2.28	2.03	2.09	1.94	1.96	1.93	1.93	1.93	1.93	1.93	1.95	1.94	1.95	1.94	1.95	1.94	1.94	1.95	1.93	2.31	2.00	24
18	1.94	1.95	1.96	1.96	1.96	S	2.27	2.54	2.35	2.00	1.98	1.96	1.96	1.96	1.96	1.98	1.96	1.94	1.94	2.06	2.02	2.08	1.95	2.07	1.94	2.54	2.03	24
19	2.29	2.37	2.37	2.49	2.48	S	2.41	2.27	2.25	2.24	S1	S1	2.02	2.06	2.02	X	2.21	2.17	2.89	2.27	2.13	2.45	2.58	3.22	2.02	3.22	2.36	21
20	3.23	4.00	3.45	2.27	1.96	S	2.28	X	3.05	X	1.96	2.07	1.96	1.95	1.95	1.95	1.94	1.95	3.06	4.43	2.43	1.94	6.38	3.42	1.94	6.38	2.74	22
21	2.21	2.01	1.97	3.32	1.96	S	2.90	2.94	1.96	1.96	2.07	2.00	1.94	1.94	1.94	1.94	1.94	2.30	2.60	2.28	2.34	2.24	2.15	2.15	1.94	3.32	2.22	24
22	2.15	2.18	2.17	2.20	2.15	S	2.32	2.26	1.98	1.97	1.97	1.97	1.95	1.95	1.95	1.94	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.94	1.93	2.32	2.03	24
23	1.95	1.95	1.96	1.95	1.95	S	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.98	2.04	1.98	2.03	2.18	2.03	1.94	2.18	1.97	24
24	1.97	1.95	1.97	1.94	1.93	S	1.93	1.92	1.93	1.93	1.94	1.93	1.93	1.94	1.94	1.94	1.94	1.95	1.92	1.93	2.11	1.92	1.93	1.92	1.92	2.11	1.94	24
25	1.92	1.93	1.92	1.93	1.93	S	1.94	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.94	2.70	2.66	2.89	2.72	1.92	2.89	2.08	24
26	2.52	2.81	2.11	2.46	2.33	S	2.11	2.02	2.23	2.24	2.06	1.99	1.98	1.98	1.97	1.96	1.96	3.01	3.14	3.56	4.36	2.45	2.68	2.60	1.96	4.36	2.46	24
27	3.09	2.10	1.96	1.96	1.96	S	2.41	2.19	1.96	X	2.30	2.08	2.22	2.23	2.29	2.09	1.95	1.94	1.93	2.58	2.16	1.90	1.90	1.89	1.89	3.09	2.14	23
28	1.89	1.89	1.88	1.89	1.89	S	1.91	1.93	1.91	1.92	1.93	1.93	1.95	1.95	1.95	1.95	1.96	1.97	1.95	1.94	1.94	1.94	1.95	1.95	1.88	1.97	1.93	24
29	1.95	1.95	1.97	2.00	1.99	S	1.98	1.97	1.96	1.96	1.99	1.96	1.95	1.95	1.96	1.96	1.96	2.02	1.98	2.40	3.26	4.04	5.01	3.63	1.95	5.01	2.34	24
30	2.37	2.36	2.47	2.02	2.32	S	2.36	2.36	2.13	2.03	2.03	2.02	2.03	2.02	1.99	1.98	1.98	2.00	2.03	2.07	1.97	2.34	2.34	2.36	1.97	2.47	2.16	24
31	2.00	2.00	2.20	2.23	2.26	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.00	2.26	2.14	6
HOURLY MAX	5.02	6.02	5.98	8.99	7.06	NA	4.82	3.55	3.05	2.24	2.30	2.16	2.22	2.23	2.29	2.09	2.21	3.01	3.14	4.43	6.70	5.71	6.38	6.98				
HOURLY AVG	2.45	2.47	2.41	2.35	2.27	NA	2.26	2.19	2.11	1.99	1.99	1.98	1.97	1.97	1.97	1.96	1.96	2.04	2.13	2.39	2.48	2.40	2.61	2.46				

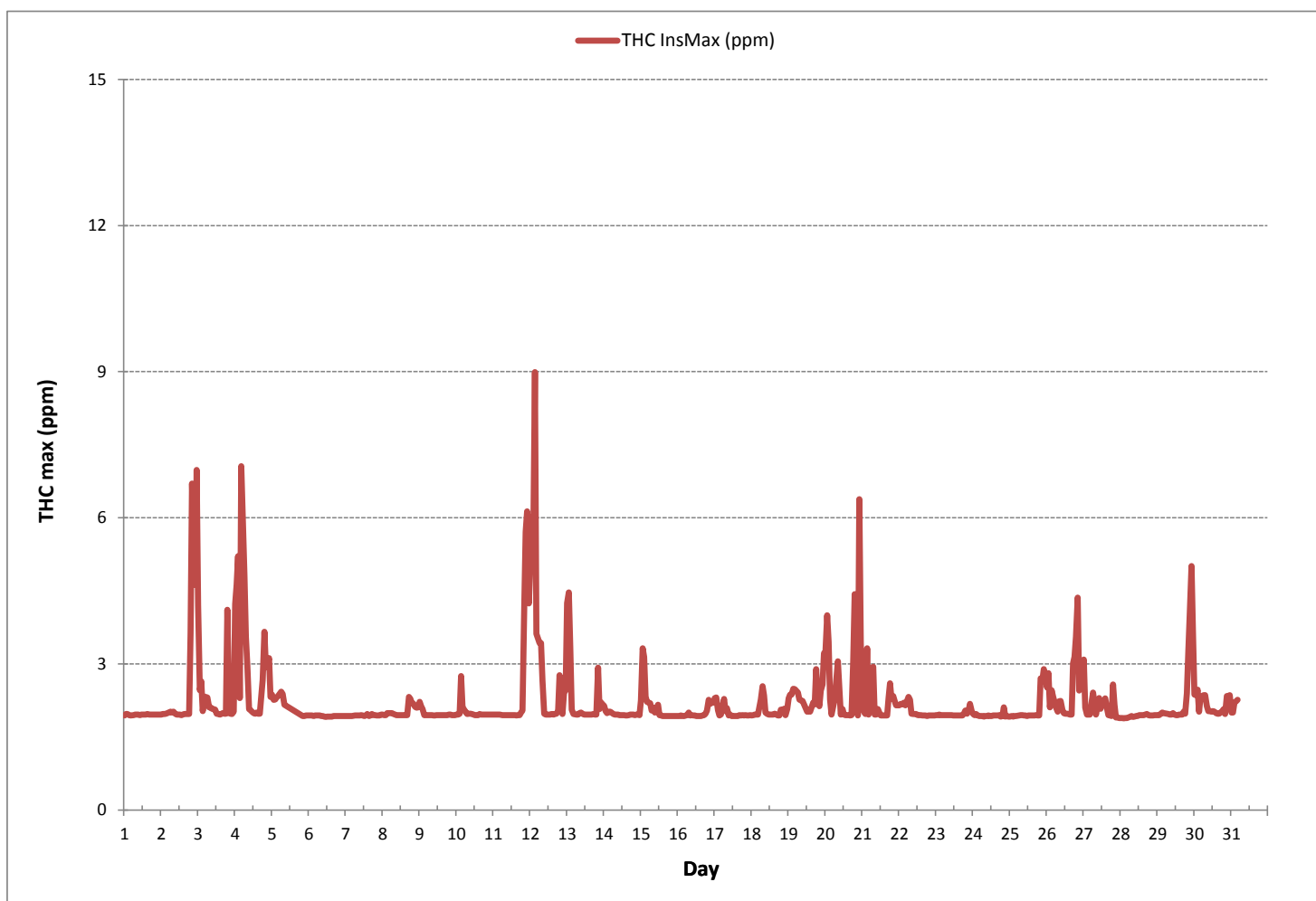
STATUS FLAG CODES

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:	677				
MAXIMUM INSTANTANEOUS VALUE:	8.99	ppm	@ HOUR	3	ON DAY 12
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	717	hrs
MONTHLY CALIBRATION TIME:	9	hrs			
STANDARD DEVIATION:	0.72				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-THC55[ppm]
Monthly: 17/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

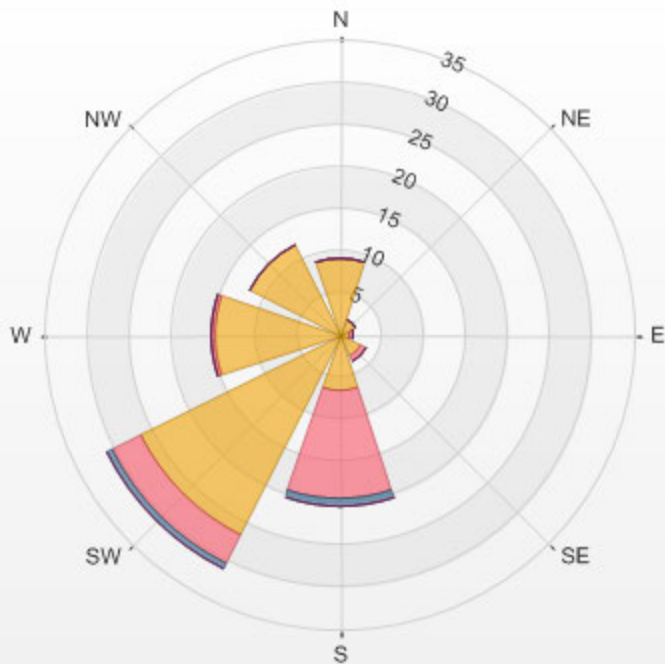
Calm: 4.54%

Calm Avg: 2.26 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	9.2	0.0	0.0	0.0	0.0	9.2
NE	2.1	0.0	0.0	0.0	0.0	2.1
E	1.2	0.6	0.0	0.0	0.0	1.8
SE	2.9	0.7	0.0	0.0	0.0	3.7
S	6.6	12.9	0.9	0.0	0.0	20.4
SW	26.5	3.8	0.7	0.0	0.0	31.0
W	14.9	0.4	0.0	0.0	0.0	15.4
NW	12.0	0.0	0.0	0.0	0.0	12.0
Summary	75.4	18.5	1.6	0.0	0.0	95.5

%	Icon	Classes (ppm)
75		0-2
18		2-3
2		3-5
0		5-10
0		>10.0

PRAMP_RENO Poll.: PRAMP_RENO-THC55[ppm] 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.54% Calm
Poll Avg: 2.26[ppm]



THC55[ppm] Calibration: PRAMP_RENO Monthly: 17/10 Type: Span



Span Meas Span Ref Span Low Span High

METHANE

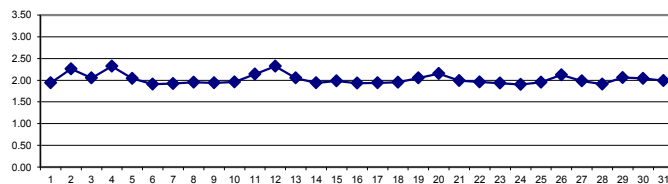
METHANE Hourly Averages (CH₄ ppm)

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	1.92	1.94	1.94	1.93	1.92	S	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.95	1.92	1.95	1.94	24
2	1.95	1.95	1.95	1.96	1.96	S	1.97	1.94	1.99	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.95	2.41	3.86	3.77	3.01	3.77	1.94	3.86	2.26	24
3	2.67	2.24	2.23	1.98	2.02	S	2.10	2.03	2.06	2.02	2.01	1.98	1.96	1.94	1.93	1.94	1.96	1.97	1.94	2.27	1.96	1.95	1.95	1.96	1.93	2.67	2.05	24
4	2.38	2.68	2.60	2.03	3.42	S	3.06	3.09	2.26	1.99	1.97	1.96	1.94	1.94	1.96	1.94	1.93	1.95	2.24	2.53	2.27	2.43	2.49	2.19	1.93	3.42	2.32	24
5	2.18	2.11	2.09	2.12	2.19	S	2.21	2.15	2.03	1.98	C	C	C	Y	Y	C	C	C	C	1.90	1.90	1.91	1.91	1.92	1.90	2.21	2.04	22
6	1.92	1.92	1.92	1.91	1.91	S	1.92	1.91	1.90	1.91	1.89	1.89	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.89	1.92	1.91	24
7	1.91	1.91	1.90	1.90	1.90	S	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.91	1.91	1.92	1.94	1.93	1.93	1.92	1.92	1.92	1.93	1.90	1.94	1.92	24
8	1.94	1.93	1.93	1.93	1.96	S	1.96	1.94	1.94	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.99	2.14	1.99	1.97	1.96	1.96	1.96	1.93	2.14	1.95	24
9	2.01	1.98	1.97	1.93	1.93	S	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.94	1.92	2.01	1.94	24
10	1.94	1.94	1.95	2.27	1.98	S	1.97	1.95	1.96	1.96	1.95	1.94	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.93	2.27	1.96	24
11	1.94	1.94	1.94	1.94	1.94	S	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.99	2.30	3.60	3.56	2.93	1.93	3.60	2.14	24
12	3.03	3.22	3.42	4.06	2.77	S	2.59	2.54	2.11	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.95	1.95	2.00	2.10	1.99	1.95	1.98	1.99	1.94	4.06	2.32	24
13	2.70	2.70	2.17	1.97	1.95	S	1.95	1.94	1.95	1.97	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	2.12	1.99	2.09	2.10	1.94	2.70	2.05	24
14	2.02	1.99	1.97	1.97	1.96	S	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	2.02	1.94	24
15	1.95	2.30	2.25	2.08	2.06	S	2.05	1.95	1.99	1.94	1.96	1.99	1.92	1.92	1.91	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	2.30	1.98	24
16	1.91	1.91	1.91	1.91	1.91	S	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.98	1.94	1.97	2.04	2.08	1.91	2.08	1.93	24
17	2.02	2.01	1.96	1.92	1.92	S	2.06	1.97	1.96	1.91	1.92	1.90	1.90	1.90	1.91	1.91	1.92	1.92	1.92	1.92	1.93	1.91	1.92	1.92	1.90	2.06	1.94	24
18	1.92	1.93	1.93	1.93	1.93	S	1.96	2.17	2.05	1.95	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.97	1.92	1.94	1.92	2.17	1.95	24
19	2.03	2.05	2.06	2.15	2.15	S	2.12	2.04	2.01	2.02	S1	S1	1.94	1.96	1.94	1.91	2.00	2.04	2.12	1.96	1.99	2.08	2.15	2.39	1.91	2.39	2.05	22
20	2.52	2.73	2.43	1.99	1.92	S	2.01	2.17	2.53	2.22	1.93	1.94	1.92	1.92	1.92	1.92	1.92	1.92	2.27	2.31	1.95	1.92	2.94	2.10	1.92	2.94	2.15	24
21	1.95	1.94	1.93	2.07	1.93	S	2.07	2.13	1.93	1.93	1.95	1.92	1.91	1.91	1.91	1.92	1.92	2.06	2.13	2.03	2.12	2.04	2.07	2.02	1.91	2.13	1.99	24
22	2.09	2.06	2.09	2.05	1.95	S	2.02	1.99	1.95	1.94	1.94	1.94	1.92	1.92	1.92	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.92	1.90	2.09	1.96	24
23	1.92	1.92	1.92	1.92	1.92	S	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.91	1.93	1.92	1.91	1.92	2.02	1.95	1.91	2.02	1.93	24
24	1.93	1.92	1.92	1.91	1.89	S	1.89	1.89	1.89	1.89	1.90	1.90	1.90	1.91	1.90	1.91	1.91	1.91	1.90	1.90	1.95	1.90	1.89	1.90	1.89	1.95	1.90	24
25	1.89	1.90	1.89	1.90	1.91	S	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	2.05	2.06	2.17	2.21	1.89	2.21	1.95	24
26	2.21	2.19	1.99	2.11	2.15	S	1.99	1.95	2.02	2.04	1.97	1.97	1.96	1.96	1.95	1.94	1.93	2.11	2.29	2.65	2.94	2.14	2.24	2.11	1.93	2.94	2.12	24
27	2.39	1.98	1.94	1.94	1.94	S	1.99	1.96	1.93	1.93	2.12	1.98	2.01	2.03	2.09	1.94	1.91	1.91	1.91	2.02	1.94	1.88	1.87	1.87	1.87	2.39	1.98	24
28	1.86	1.86	1.86	1.87	1.87	S	1.88	1.90	1.89	1.90	1.91	1.91	1.92	1.93	1.92	1.93	1.93	1.94	1.92	1.92	1.92	1.93	1.93	1.93	1.86	1.94	1.91	24
29	1.93	1.93	1.93	1.95	1.96	S	1.95	1.95	1.94	1.94	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.96	1.94	1.97	2.20	2.29	3.27	2.67	1.93	3.27	2.06	24
30	2.12	2.15	2.16	1.98	2.05	S	2.18	2.15	2.01	2.01	2.01	2.01	1.99	1.96	1.96	1.96	1.97	1.97	1.98	1.97	1.96	2.18	2.15	2.15	1.96	2.18	2.04	24
31	1.98	1.96	2.00	2.02	2.01	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.96	2.02	1.99	6
HOURLY MAX	3.03	3.22	3.42	4.06	3.42	NA	3.06	3.09	2.53	2.22	2.12	2.01	2.01	2.03	2.09	1.96	2.00	2.11	2.29	2.65	3.86	3.77	3.56	3.77				
HOURLY AVG	2.10	2.10	2.07	2.05	2.04	NA	2.04	2.04	1.99	1.96	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.95	1.99	2.03	2.08	2.11	2.16	2.12				

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

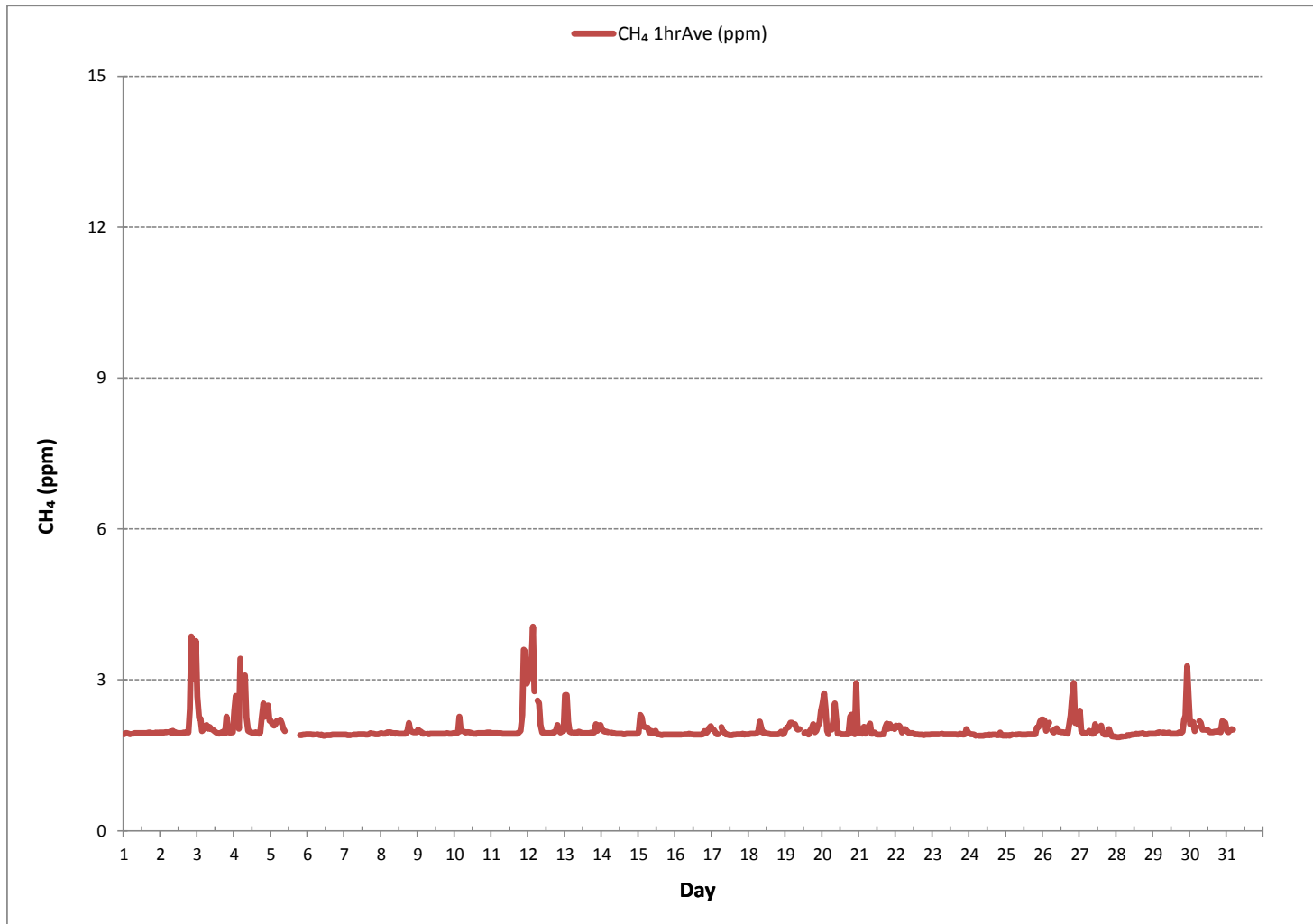
24 HR AVERAGES October 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684			
MINIMUM 1-HR AVERAGE:	1.86	ppm @ HOUR	0	ON DAY 28
MAXIMUM 1-HR AVERAGE:	4.06	ppm @ HOUR	3	ON DAY 12
MAXIMUM 24-HR AVERAGE:	2.32	ppm		ON DAY 4
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	722 hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	97.0 %
STANDARD DEVIATION:	0.26		MONTHLY AVERAGE:	2.02 ppm

METHANE Hourly Averages (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 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	1.93	1.97	1.96	1.94	1.94	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.93	1.97	1.95	24	
2	1.96	1.96	1.96	1.98	1.98	S	2.00	1.99	2.01	1.98	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.97	1.97	3.63	6.70	5.57	4.61	6.97	1.95	6.97	2.74	24	
3	4.20	2.45	2.63	2.02	2.32	S	2.30	2.10	2.10	2.07	2.06	2.05	1.98	1.96	1.95	1.96	1.98	1.98	1.98	4.11	1.98	1.97	1.97	2.01	1.95	4.20	2.27	24	
4	4.22	4.61	5.20	2.29	7.06	S	4.81	3.55	2.96	2.06	2.04	2.01	1.99	1.97	2.00	1.98	1.98	2.32	2.67	3.66	2.92	2.97	3.11	2.31	1.97	7.06	3.07	24	
5	2.36	2.25	2.25	2.30	2.33	S	2.43	2.37	2.15	C	C	C	C	Y	Y	C	C	C	C	C	1.92	1.93	1.93	1.93	1.92	2.43	2.18	22	
6	1.93	1.94	1.94	1.92	1.93	S	1.94	1.93	1.92	1.92	1.90	1.90	1.91	X	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.90	1.94	1.92	23	
7	1.92	1.92	1.91	1.91	1.92	S	1.93	1.94	1.94	1.93	1.94	1.94	1.92	1.93	1.93	1.92	1.93	1.96	1.95	1.94	1.93	1.93	1.93	1.95	1.91	1.96	1.93	24	
8	1.96	1.95	1.94	1.98	1.98	S	1.99	1.96	1.96	1.94	1.95	1.95	1.94	1.94	1.94	1.95	1.95	2.31	2.28	2.19	2.18	2.11	2.09	2.10	1.94	2.31	2.02	24	
9	2.21	2.12	2.06	1.95	1.95	S	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.95	1.96	1.95	1.94	1.95	1.94	2.21	1.97	24	
10	1.95	1.96	1.97	2.74	2.09	S	2.00	1.96	1.97	1.98	1.97	1.95	1.95	1.95	1.95	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	2.74	2.00	24	
11	1.95	1.95	1.95	1.95	1.95	S	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.99	2.03	4.14	5.71	6.13	4.23	1.94	6.13	2.49	24	
12	5.01	6.02	5.97	8.98	3.62	S	3.43	3.43	2.65	1.97	1.96	1.95	1.95	1.95	1.97	1.95	1.96	1.97	2.03	2.76	2.30	1.97	2.44	2.44	1.95	8.98	3.07	24	
13	4.24	4.46	3.34	2.05	1.97	S	1.96	1.95	1.99	2.00	1.97	1.96	1.96	1.95	1.95	1.95	1.95	1.96	1.96	1.96	2.91	2.06	2.21	2.17	1.95	4.46	2.30	24	
14	2.13	2.02	1.99	2.00	2.02	S	1.96	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.93	1.95	1.96	1.95	1.95	1.95	1.94	1.95	1.95	1.94	1.93	2.13	1.97	24
15	2.24	3.31	3.13	2.32	2.21	S	2.18	2.03	2.09	1.99	2.07	2.06	1.94	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	3.31	2.12	24	
16	1.92	1.92	1.93	1.92	1.92	S	1.95	1.99	1.94	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.94	1.95	1.98	2.03	2.05	2.17	2.20	2.19	1.92	2.20	1.98	24	
17	2.13	2.16	2.04	1.94	1.95	S	2.28	2.03	2.08	1.93	1.95	1.92	1.92	1.92	1.92	1.92	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.94	1.92	2.28	1.98	24	
18	1.94	1.95	1.95	1.95	1.95	S	2.25	2.54	2.34	1.99	1.97	1.96	1.95	1.95	1.96	1.98	1.96	1.93	1.94	1.94	2.00	2.07	1.95	2.06	1.93	2.54	2.02	24	
19	2.28	2.36	2.36	2.49	2.47	S	2.41	2.27	2.25	2.23	S1	S1	2.02	2.05	2.02	X	2.20	2.17	2.89	2.27	2.12	2.45	2.57	3.22	2.02	3.22	2.36	21	
20	3.23	4.00	3.44	2.26	1.96	S	2.27	X	3.05	X	1.95	2.06	1.96	1.94	1.94	1.94	1.94	1.94	2.96	4.43	2.43	1.94	6.39	3.42	1.94	6.39	2.74	22	
21	2.21	2.00	1.97	3.31	1.95	S	2.89	2.93	1.95	1.96	2.06	1.99	1.93	1.93	1.94	1.94	1.94	1.94	2.29	2.59	2.28	2.33	2.23	2.14	1.93	3.31	2.21	24	
22	2.14	2.17	2.17	2.20	2.14	S	2.31	2.25	1.98	1.97	1.96	1.96	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	1.93	1.93	1.94	1.94	1.92	2.31	2.02	24	
23	1.94	1.95	1.95	1.94	1.95	S	1.95	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.94	1.94	1.94	1.98	2.04	1.97	2.02	2.18	2.02	1.93	2.18	1.97	24	
24	1.96	1.95	1.96	1.93	1.92	S	1.92	1.91	1.91	1.92	1.93	1.92	1.92	1.93	1.93	1.94	1.93	1.94	1.91	1.92	2.11	1.91	1.92	1.91	1.91	2.11	1.93	24	
25	1.91	1.91	1.91	1.92	1.92	S	1.93	1.94	1.94	1.94	1.93	1.92	1.93	1.94	1.93	1.93	1.93	1.94	1.93	1.93	2.49	2.65	2.88	2.72	1.91	2.88	2.06	24	
26	2.51	2.69	2.10	2.46	2.32	S	2.10	2.00	2.23	2.18	2.05	1.98	1.97	1.97	1.97	1.96	1.96	3.01	3.13	3.56	4.12	2.45	2.58	2.59	1.96	4.12	2.43	24	
27	3.08	2.09	1.96	1.95	1.96	S	2.40	2.18	1.95	X	2.29	2.07	2.22	2.23	2.28	2.08	1.94	1.93	1.92	2.57	2.15	1.89	1.89	1.88	1.88	3.08	2.13	23	
28	1.88	1.88	1.87	1.88	1.88	S	1.90	1.92	1.90	1.91	1.92	1.92	1.94	1.95	1.94	1.95	1.96	1.96	1.94	1.94	1.94	1.94	1.94	1.94	1.87	1.96	1.92	24	
29	1.95	1.95	1.96	1.99	1.99	S	1.97	1.96	1.95	1.95	1.98	1.95	1.95	1.95	1.95	1.95	1.95	2.01	1.97	2.39	3.26	4.03	5.01	3.63	1.95	5.01	2.33	24	
30	2.36	2.35	2.46	2.01	2.31	S	2.36	2.36	2.12	2.02	2.02	2.02	2.02	2.01	1.98	1.97	1.98	1.99	2.03	2.05	1.97	2.33	2.33	2.35	1.97	2.46	2.15	24	
31	2.00	2.00	2.19	2.23	2.26	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.00	2.26	2.14	6	
HOURLY MAX	5.01	6.02	5.97	8.98	7.06	NA	4.81	3.55	3.05	2.23	2.29	2.07	2.22	2.23	2.28	2.08	2.20	3.01	3.13	4.43	6.70	5.71	6.39	6.97					
HOURLY AVG	2.44	2.46	2.40	2.35	2.26	NA	2.26	2.18	2.10	1.98	1.98	1.97	1.96	1.96	1.96	1.95	1.96	2.03	2.12	2.38	2.45	2.39	2.60	2.46					

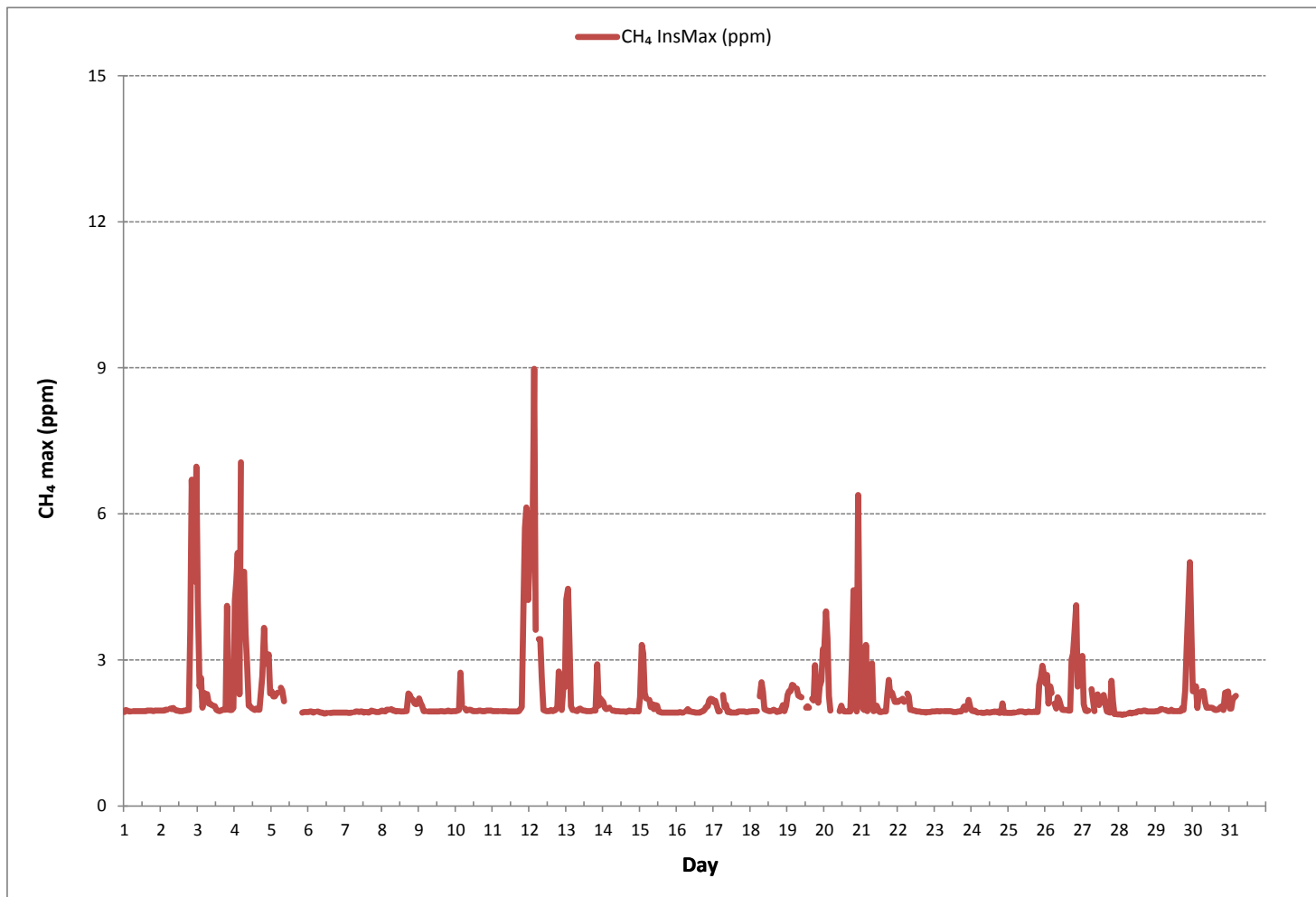
STATUS FLAG CODES

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:	677
MAXIMUM INSTANTANEOUS VALUE:	8.98 ppm @ HOUR 3 ON DAY 12
IZS CALIBRATION TIME:	31 hrs
MONTHLY CALIBRATION TIME:	9 hrs
OPERATIONAL TIME:	717 hrs
STANDARD DEVIATION:	0.72

METHANE MAX Instantaneous Maximum (CH₄ ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-CH₄[ppm]
Monthly: 17/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

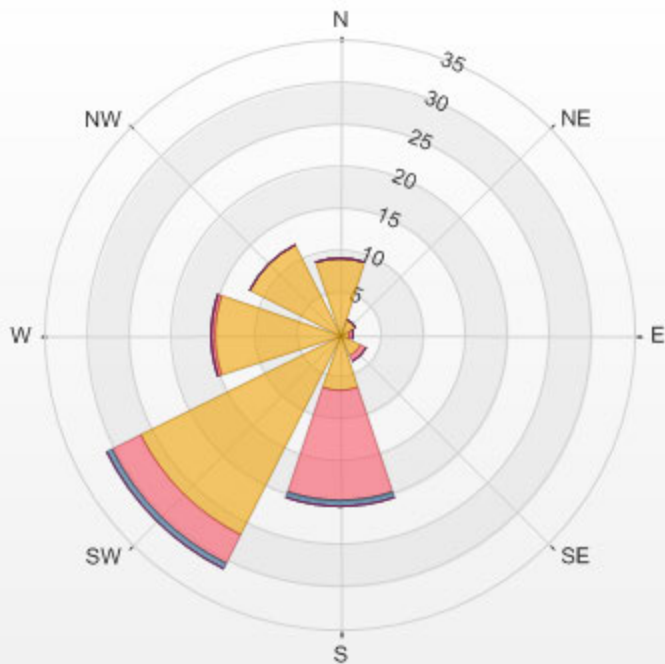
Calm: 4.54%

Calm Avg: 2.26 [ppm]

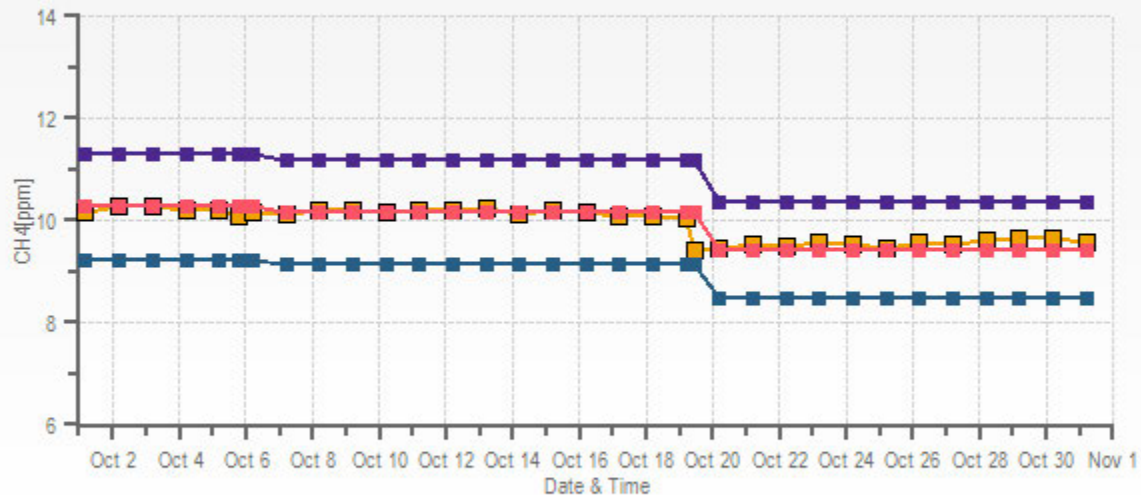
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	9.2	0.0	0.0	0.0	0.0	9.2
NE	2.1	0.0	0.0	0.0	0.0	2.1
E	1.2	0.6	0.0	0.0	0.0	1.8
SE	2.9	0.7	0.0	0.0	0.0	3.7
S	6.6	13.0	0.7	0.0	0.0	20.4
SW	26.5	3.8	0.7	0.0	0.0	31.0
W	14.9	0.4	0.0	0.0	0.0	15.4
NW	12.0	0.0	0.0	0.0	0.0	12.0
Summary	75.4	18.6	1.5	0.0	0.0	95.5

%	Icon	Classes (ppm)
75		0-2
19		2-3
1		3-5
0		5-10
0		>10.0

PRAMP_RENO Poll.: PRAMP_RENO-CH4[ppm] 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.54% Calm Poll
Avg: 2.26[ppm]



CH₄[ppm] Calibration: PRAMP_RENO Monthly: 17/10 Type: Span



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

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 2017

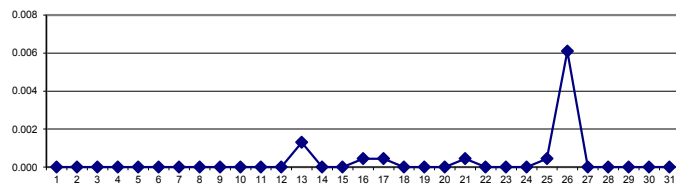
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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	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
2	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
3	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
4	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
5	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	C	C	C	Y	Y	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
6	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
7	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
8	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
9	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	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
12	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
13	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	0.03	0.00	0.00	0.00	0.00	0.03	0.00	24
14	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
15	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
16	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	0.01	0.00	0.00	0.00	0.00	0.01	0.00	24
17	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
18	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
19	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	S1	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
20	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
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
22	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
23	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
24	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
25	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	0.01	0.00	0.00	0.00	0.00	0.01	0.00	24
26	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.02	0.00	0.00	0.10	0.01	24
27	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
28	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
29	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
30	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	6
HOURLY MAX	0.00	0.01	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.10	0.00	0.02	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00	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				

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

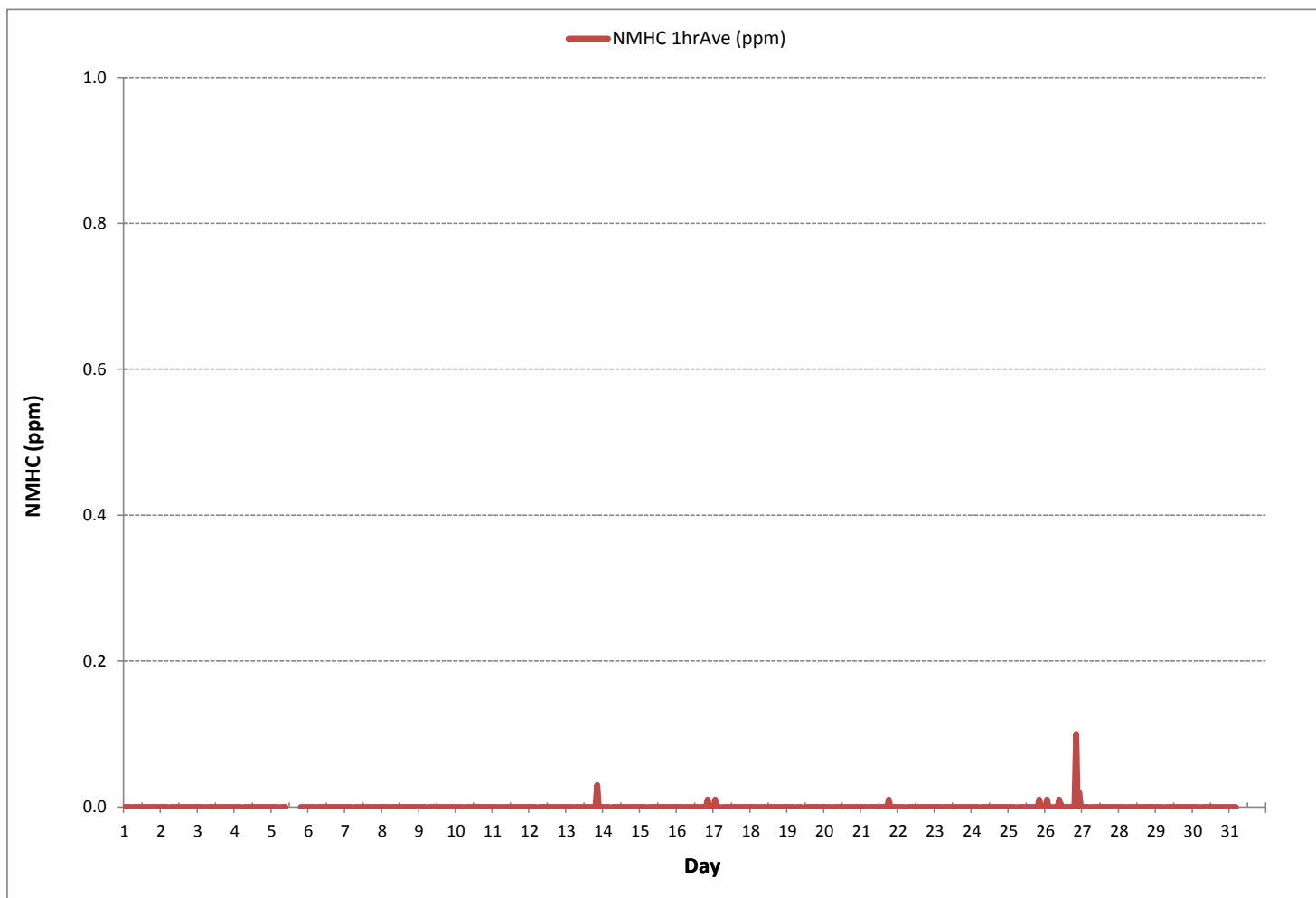
24 HR AVERAGES October 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	9				
MINIMUM 1-HR AVERAGE:	0.00	ppm @ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	0.10	ppm @ HOUR	20	ON DAY	26
MAXIMUM 24-HR AVERAGE:	0.01	ppm		ON DAY	26
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	722	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	97.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 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	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
2	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
3	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.06	0.00	24
4	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	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	24
5	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.06	C	C	C	C	Y	Y	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.06	0.01	22
6	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	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	23
7	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	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	24
8	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
9	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.01	0.00	0.00	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
11	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
12	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
13	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	0.18	0.00	0.00	0.00	0.00	0.18	0.01	24
14	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
15	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	24
16	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	0.21	0.00	0.00	0.00	0.00	0.21	0.01	24
17	0.15	0.16	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	0.16	0.01	24
18	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	0.12	0.00	0.00	0.00	0.00	0.00	0.12	0.01	24
19	0.00	0.00	0.00	0.06	0.00	S	0.00	0.00	0.00	0.00	S1	S1	0.00	0.00	0.00	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	21
20	0.00	0.00	0.00	0.00	0.00	S	0.00	X	0.00	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	0.07	0.00	0.00	0.07	0.00	22
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	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.01	24
22	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
23	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
24	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
25	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	0.20	0.11	0.08	0.08	0.00	0.20	0.02	24
26	0.00	0.14	0.00	0.00	0.00	S	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.13	0.41	0.00	0.22	0.00	0.00	0.41	0.05	24
27	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	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	0.00	23
28	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
29	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	0.04	0.00	0.04	0.00	24
30	0.00	0.00	0.00	0.00	0.00	S	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.12	0.00	0.00	0.00	0.12	0.01	24
31	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	6
HOURLY MAX	0.15	0.16	0.01	0.06	0.00	NA	0.00	0.06	0.06	0.10	0.06	0.11	0.00	0.00	0.05	0.00	0.00	0.00	0.19	0.13	0.41	0.12	0.22	0.08				
HOURLY AVG	0.00	0.01	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.01	0.01	0.00				

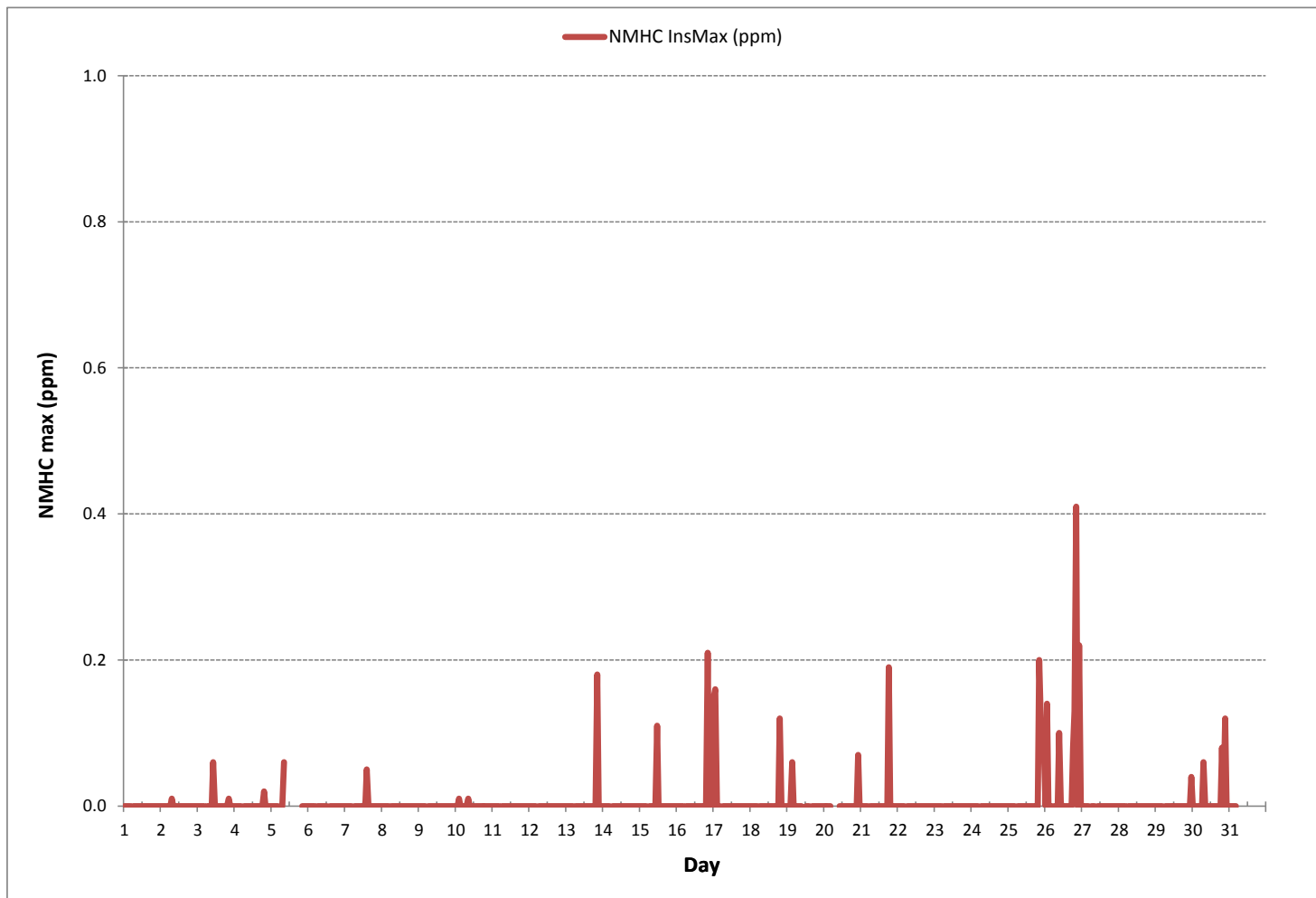
STATUS FLAG CODES

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:	31				
MAXIMUM INSTANTANEOUS VALUE:	0.41	ppm	@ HOUR	20	ON DAY 26
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	717	hrs
MONTHLY CALIBRATION TIME:	9	hrs			
STANDARD DEVIATION:	0.03				

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-NMHC[ppm]
Monthly: 17/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

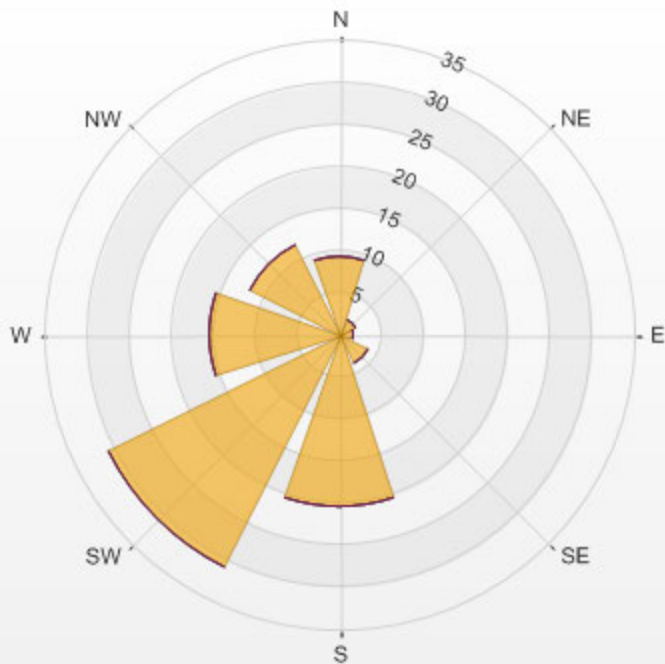
Calm: 4.42%

Calm Avg: 0.00 [ppm]

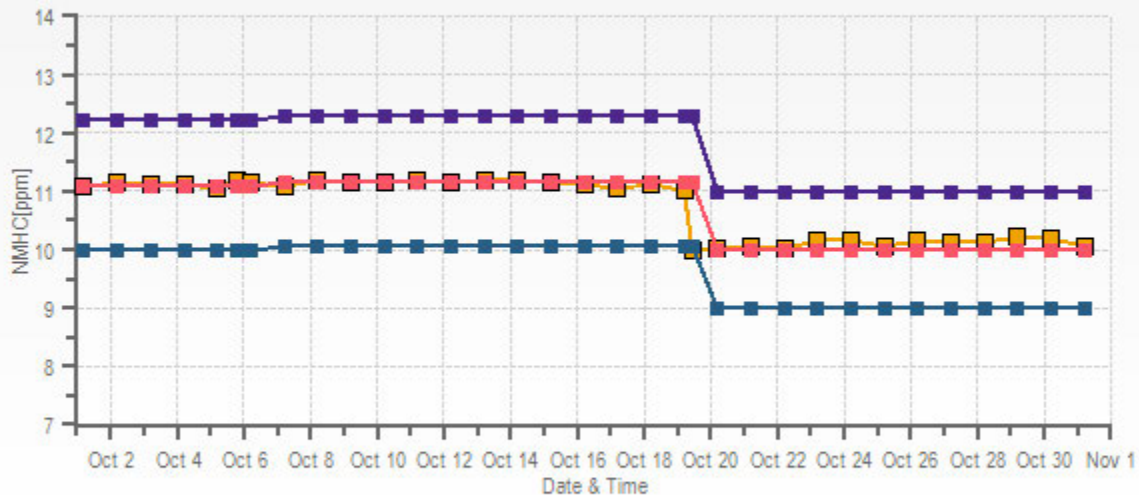
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	9.3	0.0	0.0	0.0	0.0	9.3
NE	2.1	0.0	0.0	0.0	0.0	2.1
E	1.8	0.0	0.0	0.0	0.0	1.8
SE	3.7	0.0	0.0	0.0	0.0	3.7
S	20.5	0.0	0.0	0.0	0.0	20.5
SW	30.8	0.0	0.0	0.0	0.0	30.8
W	15.5	0.0	0.0	0.0	0.0	15.5
NW	12.1	0.0	0.0	0.0	0.0	12.1
Summary	95.6	0.0	0.0	0.0	0.0	95.6

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

PRAMP_RENO Poll.: PRAMP_RENO-NMHC[ppm] 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.42% Calm
Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_RENO Monthly: 17/10 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 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	7.1	5.5	6.5	6.7	9.5	7.9	8.0	8.7	9.8	11.5	11.8	11.9	13.3	13.0	12.5	12.2	12.9	10.5	11.7	12.8	14.4	10.8	12.8	14.5	5.5	14.5	10.5	24
2	11.7	8.8	7.1	6.4	6.4	5.2	5.2	4.6	4.0	9.0	8.6	8.8	9.1	9.4	9.7	8.8	7.2	3.8	0.5	1.4	1.7	2.8	2.4	3.4	0.5	11.7	5.0	24
3	3.9	5.5	6.1	6.6	7.0	6.1	5.2	5.8	8.1	9.0	7.3	9.7	8.5	8.1	8.9	8.1	6.8	3.6	1.4	2.7	4.1	4.6	5.8	3.0	1.4	9.7	5.5	24
4	2.3	3.2	2.0	2.3	1.7	2.9	3.6	3.3	4.3	5.9	5.6	7.4	5.5	6.3	7.3	7.4	6.5	4.2	1.1	2.9	3.1	2.7	3.1	3.9	1.1	7.4	4.0	24
5	4.2	4.6	4.3	3.8	3.5	3.5	3.8	3.2	3.5	6.5	7.5	7.6	11.9	12.0	11.0	10.4	13.3	10.3	7.5	7.3	7.9	11.8	12.8	11.0	3.2	13.3	7.0	24
6	5.7	5.2	7.8	9.3	11.0	9.4	8.0	9.0	17.0	16.5	21.2	19.9	20.4	18.0	15.4	15.1	14.6	14.4	9.6	9.6	13.1	15.5	13.8	13.1	5.2	21.2	12.8	24
7	12.8	13.4	12.2	10.5	10.1	7.9	7.7	7.5	7.9	9.5	7.2	7.7	8.8	9.5	10.4	12.0	10.2	7.2	11.8	12.3	9.1	10.6	7.4	5.9	5.9	13.4	8.3	24
8	7.8	6.7	9.0	4.1	3.9	5.7	4.0	5.6	10.4	8.4	6.3	6.4	6.7	6.9	5.6	4.9	4.0	0.7	1.5	4.0	5.6	6.3	5.6	4.8	0.7	10.4	3.5	24
9	5.3	7.8	8.0	11.5	9.2	9.4	8.1	8.3	9.8	12.8	13.6	13.1	14.2	11.7	12.3	8.9	7.9	4.1	3.5	4.3	4.9	5.8	5.7	5.6	3.5	14.2	7.8	24
10	4.8	4.0	4.7	3.9	3.6	4.1	5.6	6.2	5.5	8.9	12.2	12.2	12.7	13.3	13.7	13.1	12.9	13.0	12.8	10.4	9.5	9.8	9.4	9.2	3.6	13.7	7.4	24
11	9.3	9.1	8.0	8.3	7.5	8.5	6.4	6.1	7.6	8.9	9.8	9.4	8.8	7.7	6.5	6.4	5.6	4.2	1.1	1.7	1.0	1.6	2.0	1.8	1.0	9.8	5.5	24
12	1.7	2.5	2.1	1.9	2.4	3.0	3.6	3.7	4.1	4.2	5.7	4.8	4.2	2.7	3.0	3.4	2.1	1.7	1.4	1.0	2.6	3.6	2.3	2.5	1.0	5.7	2.6	24
13	2.2	2.4	2.4	3.3	4.0	4.4	4.7	3.2	3.0	3.0	4.1	5.8	8.2	9.8	10.0	9.2	8.7	7.0	5.7	4.5	4.9	8.1	8.1	8.6	2.2	10.0	3.9	24
14	10.6	9.4	8.7	7.9	7.2	8.7	9.2	9.7	9.0	8.1	9.9	8.9	11.0	12.8	11.0	13.0	8.9	6.7	4.5	5.4	4.1	3.7	7.5	6.6	3.7	13.0	7.7	24
15	4.2	5.3	4.3	5.0	6.5	8.3	8.6	10.6	8.5	9.9	8.4	11.2	13.5	14.9	14.7	10.9	17.4	20.1	16.6	11.4	13.3	11.3	12.4	18.0	4.2	20.1	10.3	24
16	15.0	14.6	15.0	13.8	11.2	13.4	7.2	6.2	8.1	9.0	8.6	8.2	8.0	8.4	6.8	4.4	1.8	1.4	2.4	0.7	3.9	4.2	4.6	6.5	0.7	15.0	6.9	24
17	8.0	7.4	6.3	4.3	3.6	1.2	1.1	0.5	2.3	2.1	3.9	7.2	9.9	9.0	8.2	10.5	11.0	8.1	9.7	10.3	11.1	11.4	9.5	7.0	0.5	11.4	5.1	24
18	9.7	10.0	6.0	5.2	4.4	5.3	4.2	4.1	3.6	4.1	5.6	6.7	8.1	11.3	10.2	12.2	12.8	9.9	9.4	10.6	9.8	9.0	7.9	5.8	3.6	12.8	5.7	24
19	4.2	5.2	6.6	5.4	5.5	4.2	4.3	4.9	5.0	6.4	6.6	7.5	8.0	7.0	6.9	6.2	1.7	0.5	4.1	5.8	5.7	4.2	3.1	2.8	0.5	8.0	4.9	24
20	2.9	3.5	2.7	2.9	5.0	3.5	1.7	1.1	2.8	4.7	7.1	4.0	5.7	7.3	7.5	6.2	4.7	1.2	2.0	2.8	2.5	3.0	2.4	2.0	1.1	7.5	3.3	24
21	3.2	2.5	4.0	3.4	6.4	6.3	5.6	5.7	9.7	7.1	7.1	8.1	10.1	9.7	9.5	8.2	4.6	0.7	1.6	5.7	7.4	9.1	10.4	9.4	0.7	10.4	4.3	24
22	8.5	8.8	9.4	7.7	5.9	5.7	5.9	3.0	3.3	3.4	5.1	5.6	7.0	7.2	9.5	14.5	9.1	7.4	8.7	7.7	9.2	6.5	5.4	8.2	3.0	14.5	4.5	24
23	7.3	6.0	6.0	5.3	7.1	7.6	7.5	7.9	8.0	7.7	7.7	8.9	11.1	13.3	11.0	6.4	9.7	8.4	7.2	8.2	7.2	8.6	9.5	13.9	5.3	13.9	7.5	24
24	12.5	11.1	9.5	12.4	11.7	15.2	18.2	16.7	15.2	11.8	10.1	12.1	8.7	8.8	5.5	3.1	3.2	3.7	2.0	2.9	5.1	6.6	8.2	11.1	2.0	18.2	3.4	24
25	12.8	14.1	10.9	11.6	9.8	9.9	14.1	15.4	17.2	14.7	13.7	14.0	12.1	11.6	10.6	9.8	8.4	6.3	3.8	2.9	1.8	3.2	3.9	4.7	1.8	17.2	7.4	24
26	4.6	5.7	8.8	7.3	6.0	7.5	11.4	12.6	9.2	8.1	8.0	9.5	8.2	8.9	5.5	6.0	3.0	1.6	0.9	1.7	1.9	2.8	3.7	4.2	0.9	12.6	5.6	24
27	3.6	4.5	3.8	4.1	5.4	7.3	5.9	5.1	6.9	7.8	5.4	7.8	6.7	6.1	3.6	7.7	5.0	6.6	3.3	3.4	6.0	3.8	12.8	14.7	3.3	14.7	5.8	24
28	17.4	13.7	12.1	12.6	9.7	9.5	7.3	6.0	5.9	8.8	10.0	11.5	9.7	7.7	6.8	5.6	4.9	6.1	12.2	12.4	9.0	11.3	10.2	6.5	4.9	17.4	8.0	24
29	7.7	8.4	9.8	10.0	6.9	6.1	7.2	6.6	8.9	11.2	8.4	10.2	10.1	10.4	8.3	8.0	2.7	3.2	3.4	2.4	2.7	3.7	3.8	4.7	2.4	11.2	5.5	24
30	4.9	4.7	6.2	8.7	9.0	7.3	4.6	4.9	4.7	6.7	7.8	6.2	5.3	5.9	4.4	6.7	3.8	3.7	3.2	4.7	4.4	3.6	3.5	3.3	3.2	9.0	4.2	24
31	4.1	5.3	5.8	5.2	5.1	4.7	4.8	7.4	7.4	6.9	7.7	9.3	12.0	9.7	14.2	14.9	14.3	15.1	13.1	12.6	11.0	10.6	10.6	10.9	4.1	15.1	5.6	24
HOURLY MAX	17.4	14.6	15.0	13.8	11.7	15.2	18.2	16.7	17.2	16.5	21.2	19.9	20.4	18.0	15.4	15.1	17.4	20.1	16.6	12.8	14.4	15.5	13.8	18.0				
HOURLY AVG	3.4	3.5	3.8	3.8	3.9	4.1	3.5	3.6	4.0	4.2	4.2	4.4	5.7	5.6	5.5	5.5	4.4	3.4	2.4	2.0	2.2	2.5	2.9	3.2				

STATUS FLAG CODES

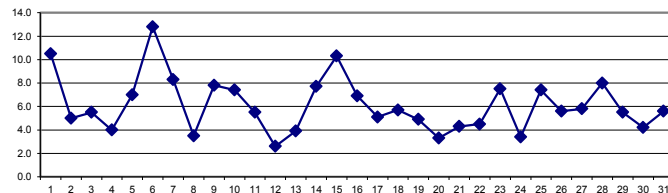
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

LAST CALIBRATION: April 6, 2017
DECLINATION: MAGNETIC DECLINATION 15 DEGREE EAST

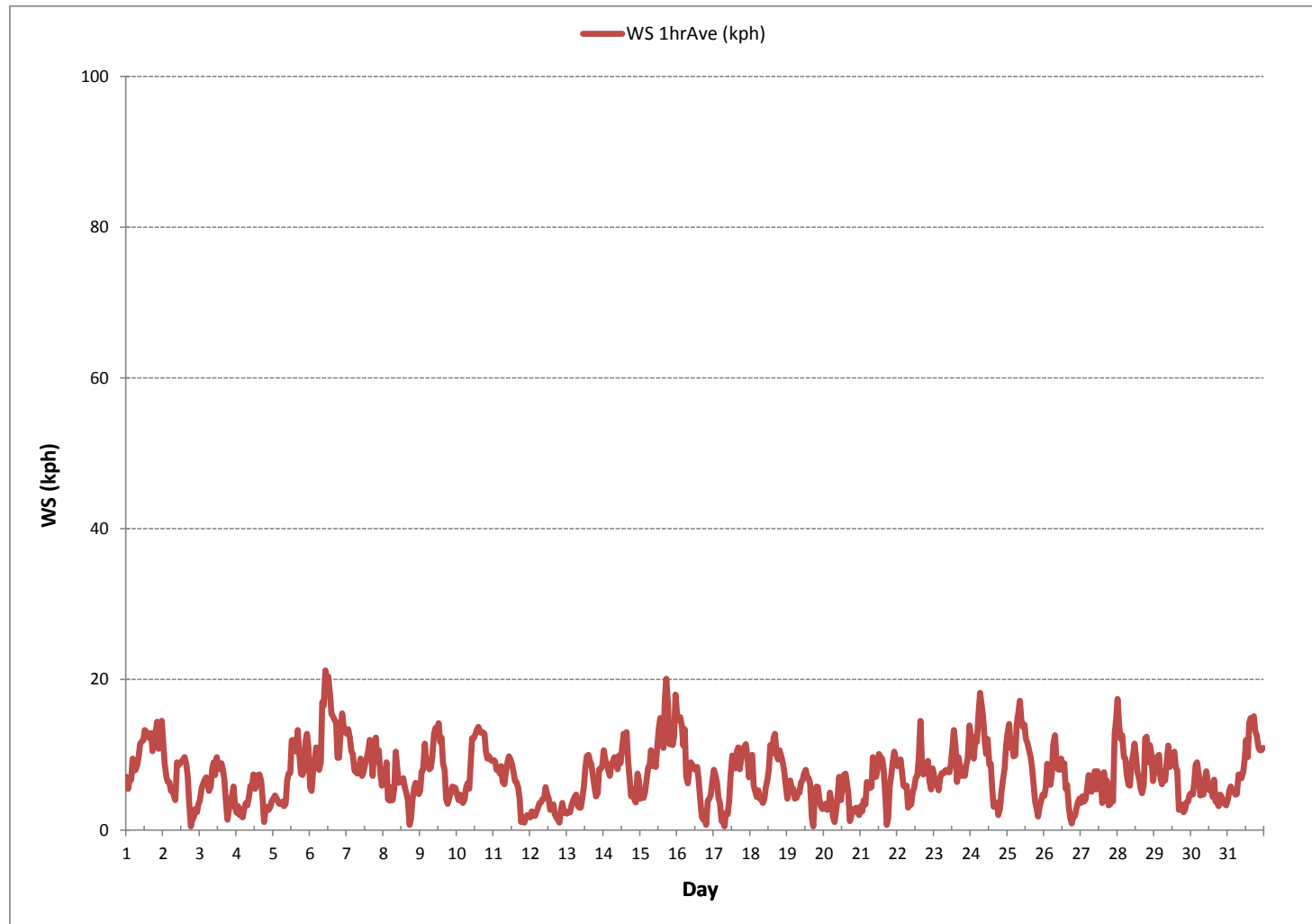
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	744				
MINIMUM 1-HR AVERAGE:	0.5	kph	@ HOUR	18	ON DAY 2
MAXIMUM 1-HR AVERAGE:	21.2	kph	@ HOUR	10	ON DAY 6
MAXIMUM 24-HR AVERAGE:	12.8	kph			ON DAY 6
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	3.8		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	3.6	kph

24 HR AVERAGES October 2017



WIND SPEED Hourly Averages (WS kph)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 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	21.9	17.0	21.0	20.6	24.5	26.3	24.3	25.9	31.9	36.1	38.1	35.9	36.9	33.7	34.8	37.3	35.2	32.7	32.5	37.4	41.0	32.6	38.7	47.0	17.0	47.0	31.8	24
2	36.4	24.1	23.3	18.3	17.8	18.5	16.3	15.7	12.6	21.2	24.3	24.2	25.1	27.1	25.5	24.6	25.0	15.8	3.6	5.3	3.6	5.1	5.4	5.9	3.6	36.4	17.7	24
3	9.6	12.6	14.8	14.7	16.2	14.9	18.3	20.4	23.1	25.8	22.3	25.4	26.4	24.7	23.3	26.7	17.6	12.1	8.2	8.1	10.1	10.1	10.6	8.8	8.1	26.7	16.9	24
4	5.7	6.0	4.4	6.2	3.5	5.0	6.7	7.4	10.1	13.0	15.0	17.3	16.6	17.1	20.2	20.5	19.1	11.3	5.0	6.4	8.7	3.8	4.6	10.8	3.5	20.5	10.2	24
5	13.2	12.1	12.1	8.3	8.0	5.2	7.2	7.2	14.0	22.7	20.0	21.0	33.0	31.5	28.9	28.6	32.2	28.8	19.6	20.5	24.2	29.7	30.5	31.2	5.2	33.0	20.4	24
6	21.3	14.8	18.4	22.3	38.3	29.4	20.1	25.5	44.7	46.4	54.9	55.3	56.4	53.3	43.2	38.2	38.8	41.6	29.0	30.5	33.4	49.4	34.8	33.4	14.8	56.4	36.4	24
7	33.0	41.7	37.4	31.0	29.5	25.9	27.0	25.2	22.4	32.2	31.4	27.6	31.3	33.0	31.1	39.3	39.7	26.1	32.7	33.2	29.8	31.8	21.8	23.4	21.8	41.7	30.7	24
8	26.0	21.7	25.9	19.7	13.7	20.4	14.7	18.8	27.5	25.5	19.0	19.3	18.8	21.0	15.5	20.0	11.9	4.9	6.9	12.4	16.8	16.8	19.2	11.9	4.9	27.5	17.8	24
9	13.4	18.9	20.4	39.0	24.8	21.9	23.0	19.9	34.9	32.7	39.7	38.2	40.2	36.6	45.3	28.5	23.8	12.9	10.3	10.3	11.1	14.2	13.5	15.6	10.3	45.3	24.5	24
10	12.6	9.0	10.5	9.4	10.1	11.4	13.4	15.0	14.1	22.5	26.2	28.1	32.6	29.8	29.8	34.0	29.8	30.2	29.5	25.0	25.0	23.6	24.6	22.0	9.0	34.0	21.6	24
11	22.3	19.4	20.7	19.4	18.8	21.7	17.7	15.6	17.1	20.7	21.4	23.2	23.4	19.9	18.8	16.6	14.5	11.6	5.1	4.5	2.3	3.5	5.4	5.6	2.3	23.4	15.4	24
12	3.7	5.5	4.6	3.8	4.0	4.7	5.7	6.2	6.9	9.3	14.1	17.2	13.2	15.2	11.2	14.4	8.4	5.2	4.8	3.6	7.1	7.8	5.3	5.6	3.6	17.2	7.8	24
13	4.5	4.7	6.3	8.4	8.9	11.4	10.7	8.6	9.1	8.7	14.2	19.8	21.8	26.7	28.1	24.1	25.4	20.4	17.6	9.3	14.1	20.6	20.2	22.3	4.5	28.1	15.2	24
14	32.0	23.4	18.6	19.6	21.1	19.1	22.6	26.2	26.1	27.7	24.9	31.1	33.0	33.2	27.6	33.4	25.9	17.1	14.0	21.2	12.1	11.6	24.2	15.1	11.6	33.4	23.4	24
15	9.1	12.6	8.1	11.0	15.8	23.9	22.1	25.8	20.4	24.9	28.8	27.8	40.4	44.6	54.5	28.5	62.9	59.1	50.7	34.1	33.0	34.0	36.3	47.8	8.1	62.9	31.5	24
16	36.8	39.9	40.2	33.6	27.9	33.5	24.7	12.8	19.3	19.8	22.7	21.0	22.4	21.1	25.0	20.9	8.3	7.7	8.9	4.9	12.8	9.9	11.4	17.1	4.9	40.2	20.9	24
17	19.3	17.4	17.9	14.8	8.0	5.5	3.6	4.0	7.2	6.3	12.9	19.2	32.4	27.3	26.3	34.5	44.6	33.6	30.2	25.8	27.1	33.3	23.1	17.8	3.6	44.6	20.5	24
18	24.6	27.2	16.4	14.3	14.6	12.4	10.2	8.7	9.4	12.8	17.6	18.0	22.5	29.0	27.5	28.0	32.8	26.1	30.6	34.9	35.3	22.3	18.9	17.9	8.7	35.3	21.3	24
19	10.6	13.6	15.2	15.0	13.3	6.3	9.1	12.8	11.6	21.0	19.0	18.3	21.2	17.8	19.0	17.8	6.3	4.6	17.4	17.4	14.4	10.9	12.4	5.2	4.6	21.2	13.8	24
20	5.5	6.1	8.5	6.2	12.2	10.3	7.4	4.9	5.1	16.2	17.1	10.7	19.6	19.1	27.8	18.1	14.5	6.1	7.7	9.6	6.6	8.3	4.6	8.5	4.6	27.8	10.9	24
21	8.5	6.0	11.3	12.1	16.2	13.6	11.7	17.5	19.9	17.9	18.1	26.7	27.1	26.7	27.1	22.0	14.1	6.6	7.7	14.7	16.4	21.2	24.4	21.8	6.0	27.1	17.1	24
22	19.0	19.7	20.4	20.0	16.5	15.8	13.8	8.8	8.4	9.7	13.7	13.5	20.0	17.7	35.7	40.9	32.7	20.1	29.9	22.6	24.7	20.6	16.8	20.7	8.4	40.9	20.1	24
23	22.3	15.7	16.3	12.4	17.1	18.4	19.1	19.4	19.4	22.7	20.3	23.0	29.7	37.7	38.1	21.3	27.9	21.6	33.3	24.8	18.0	28.5	23.2	37.9	12.4	38.1	23.7	24
24	31.9	26.6	29.2	31.5	30.8	45.2	48.2	42.2	41.5	32.4	35.8	30.9	23.9	23.8	18.6	20.2	17.5	12.5	8.1	8.3	12.4	12.3	16.7	21.9	8.1	48.2	25.9	24
25	24.3	25.9	22.3	24.3	24.6	26.5	33.2	39.7	42.5	38.4	36.3	36.7	35.7	32.1	27.5	25.8	26.0	21.6	15.6	10.6	5.0	7.4	8.4	12.7	5.0	42.5	25.1	24
26	10.8	17.9	20.8	17.7	15.0	23.4	29.3	30.3	24.6	20.0	23.1	24.3	21.2	23.2	20.5	19.9	10.4	6.8	2.8	3.7	4.3	7.3	11.0	9.6	2.8	30.3	16.6	24
27	7.7	9.7	9.6	11.9	13.7	16.4	16.3	14.1	15.7	17.4	13.4	17.6	15.9	16.8	11.2	24.7	13.8	20.3	11.8	31.2	25.1	20.7	40.4	39.2	7.7	40.4	18.1	24
28	44.2	35.5	30.3	42.9	24.2	22.8	24.2	21.9	15.9	28.0	32.5	33.5	26.5	26.4	21.3	19.2	17.5	23.7	36.6	35.3	28.3	29.7	31.7	21.3	15.9	44.2	28.1	24
29	23.8	26.8	27.9	30.7	20.6	21.4	25.1	24.9	27.2	29.5	26.1	32.3	25.0	26.8	22.8	23.0	13.3	9.3	9.4	5.3	8.1	10.4	7.9	10.7	5.3	32.3	20.3	24
30	7.7	11.3	15.3	21.1	20.6	17.8	11.5	12.5	12.4	16.5	18.6	17.2	21.9	16.4	16.4	20.9	13.9	9.6	8.7	11.2	11.4	9.6	5.9	5.1	5.1	21.9	13.9	24
31	13.8	15.0	19.3	13.3	12.2	9.4	12.6	19.2	21.6	21.7	22.8	26.7	31.4	31.4	44.9	41.5	42.9	37.1	33.4	34.6	29.5	26.3	27.3	26.7	9.4	44.9	25.6	24
HOURLY MAX	44.2	41.7	40.2	42.9	38.3	45.2	48.2	42.2	44.7	46.4	54.9	55.3	56.4	53.3	54.5	41.5	62.9	59.1	50.7	37.4	41.0	49.4	40.4	47.8				
HOURLY AVG	18.6	18.0	18.3	18.5	17.5	18.0	17.7	18.0	19.9	22.6	24.0	25.2	27.3	27.1	27.3	26.2	24.1	19.3	18.1	18.0	17.8	18.5	18.7	19.4				

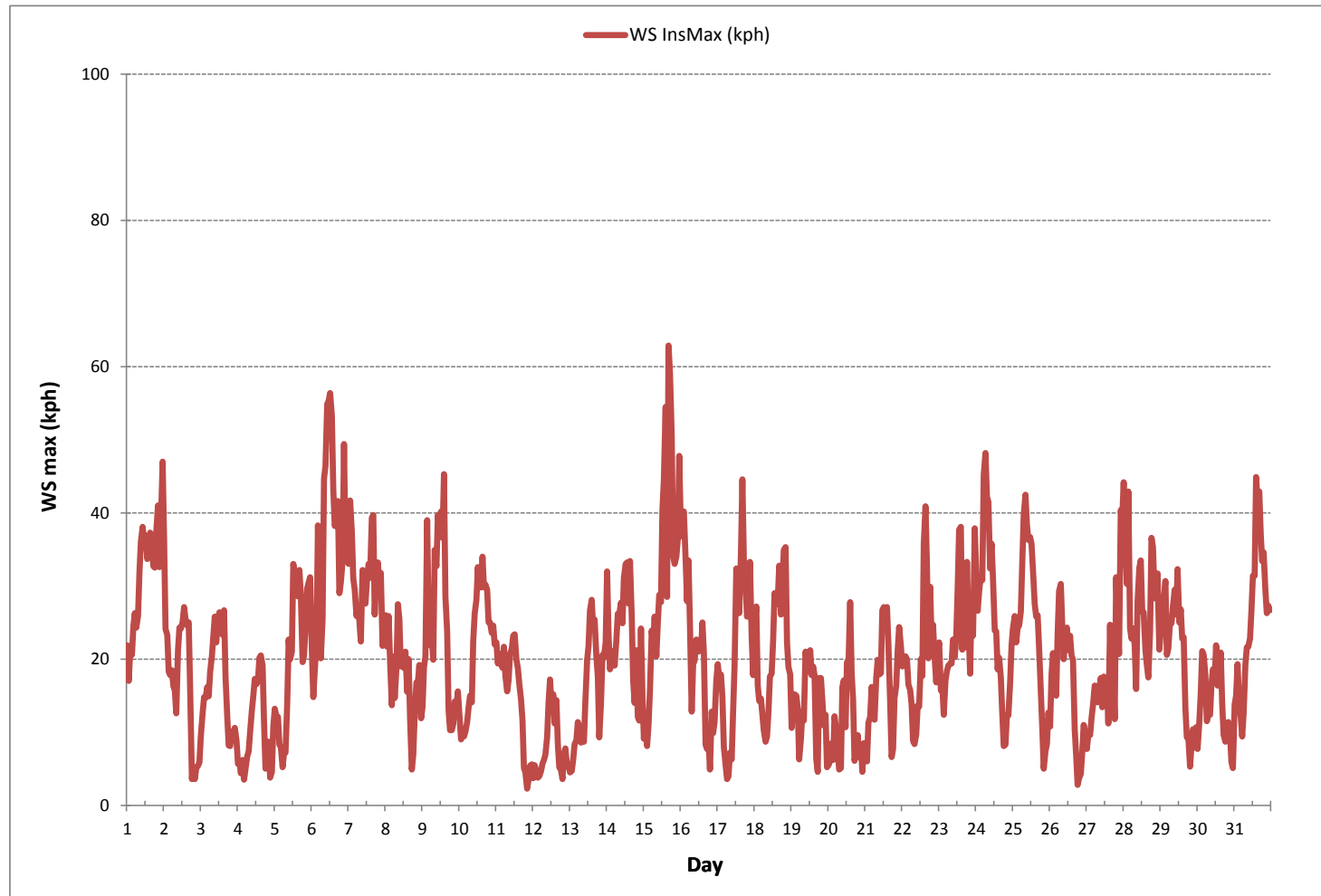
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	62.9	kph	@ HOUR	16	ON DAY	15
OPERATIONAL TIME:	744	hrs				

WIND SPEED Instantaneous Maximum (WS kph)



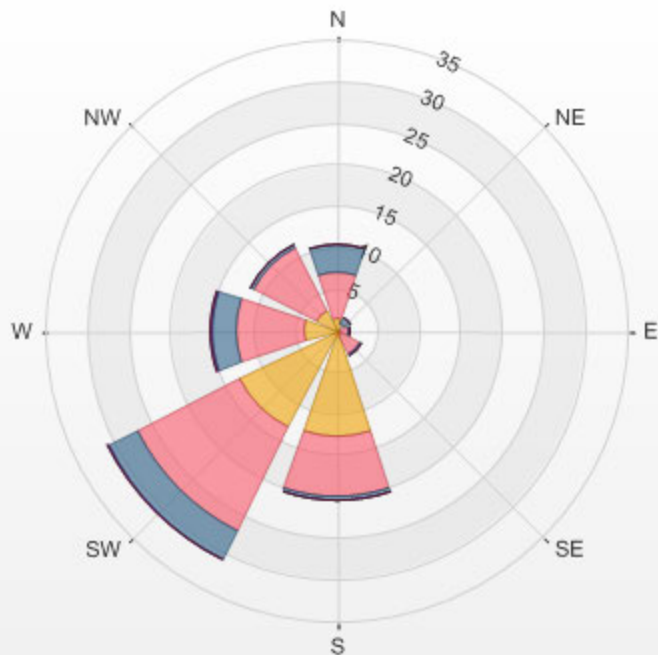
Wind: PRAMP_RENO
 Monitor: WSP [kph]
 Monthly: 17/10
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 4.30%

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	1.6	5.5	3.4	0.0	0.0	0.0	10.5
NE	0.1	0.9	0.8	0.0	0.0	0.0	1.9
E	0.5	0.8	0.3	0.0	0.0	0.0	1.6
SE	0.8	2.3	0.3	0.0	0.0	0.0	3.4
S	12.6	7.4	0.4	0.0	0.0	0.0	20.4
SW	13.0	13.8	3.9	0.1	0.0	0.0	30.9
W	3.9	8.2	3.0	0.3	0.0	0.0	15.3
NW	2.8	8.3	0.5	0.0	0.0	0.0	11.7
Summary	35.5	47.3	12.5	0.4	0.0	0.0	95.7

%	Icon	Classes (kph)	47		6.0-12.0	13		12.0-20.0	0		20.0-29.0	0		29.0-39.0	0		>39.0
35		1.8-6.0															

PRAMP_RENO 2017/10/01 00:00 - 2017/10/31 23:00 Calm: 4.30% Calm Wind Avg Speed: 1.27(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

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

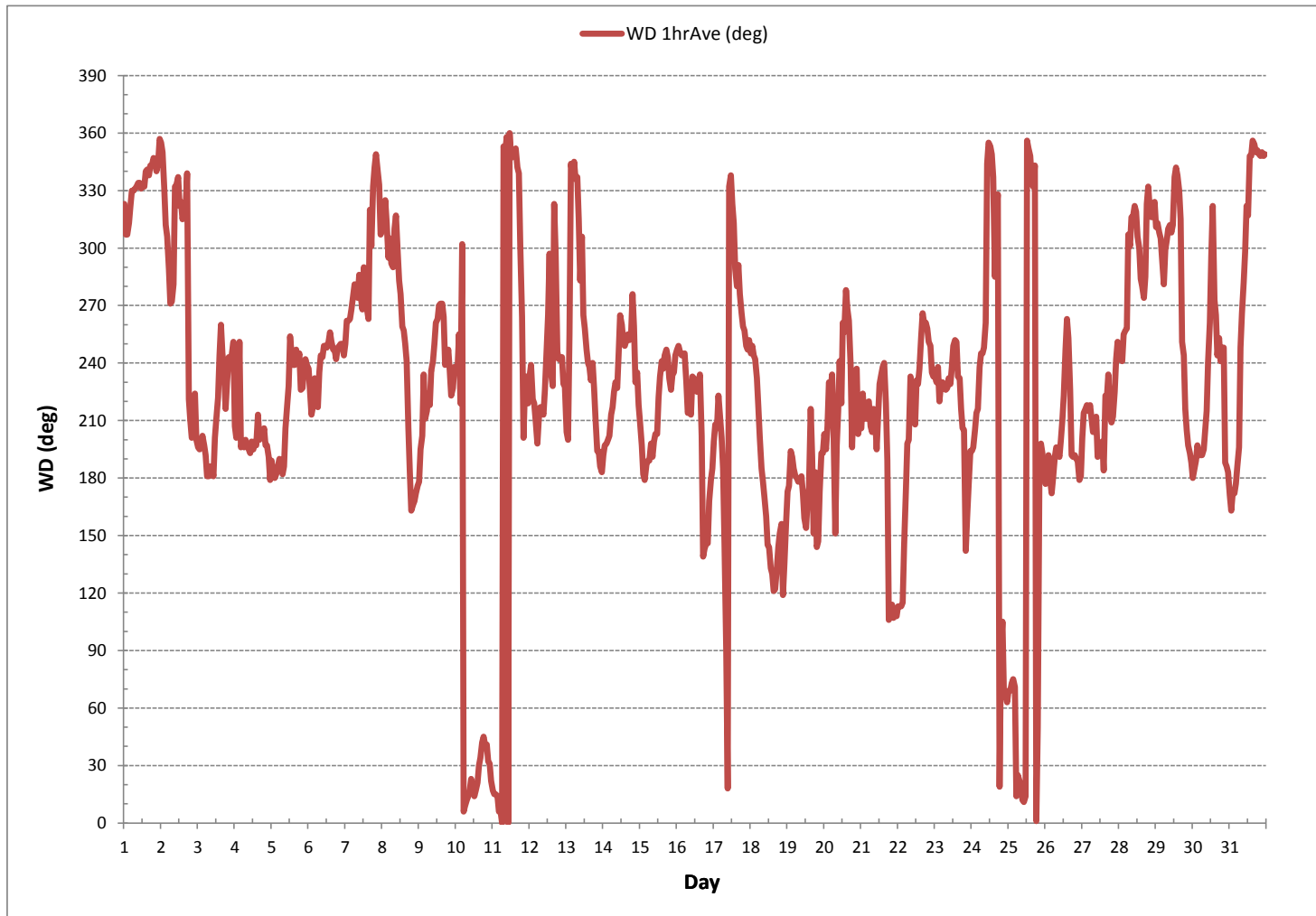
STATUS FLAG CODES

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

LAST CALIBRATION:	April 6, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	75		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	251 (WSW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

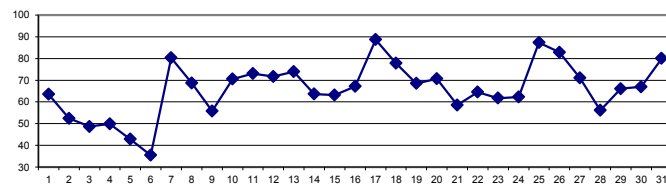
RELATIVE HUMIDITY Hourly Averages (RH %)

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	61	62	63	67	66	68	72	72	68	65	64	64	62	61	59	59	61	63	64	65	65	61	58	53	53	72	63	24
2	56	60	63	64	65	66	69	66	62	54	51	47	42	37	33	28	27	31	44	52	54	57	63	66	27	69	52	24
3	69	65	63	61	63	68	72	75	67	59	47	38	34	26	23	25	26	30	37	44	40	42	44	50	23	75	49	24
4	57	59	64	66	67	70	72	72	64	49	43	37	33	28	27	26	26	29	40	48	48	53	59	61	26	72	50	24
5	64	63	67	71	73	74	76	76	64	55	49	44	34	29	25	19	14	15	15	22	24	20	18	19	14	76	43	24
6	22	26	31	32	29	29	33	32	27	29	33	35	36	34	33	34	35	38	43	45	46	46	50	53	22	53	35	24
7	55	68	80	87	89	90	90	89	87	87	88	81	75	73	73	72	81	86	82	81	82	78	76	77	55	90	80	24
8	78	78	83	84	78	73	77	78	71	64	63	60	57	56	52	47	46	58	70	74	76	77	74	75	46	84	69	24
9	74	70	72	69	75	69	66	66	63	59	51	47	41	37	33	35	37	43	51	53	54	56	57	60	33	75	56	24
10	65	69	73	78	79	80	76	76	76	78	74	64	62	60	62	64	67	69	68	68	69	71	72	73	60	80	71	24
11	75	75	75	74	75	77	79	81	80	76	78	76	68	65	60	59	59	60	68	75	76	79	81	82	59	82	73	24
12	83	83	84	85	86	86	87	87	83	73	66	60	57	55	50	48	53	64	70	71	70	71	74	75	48	87	72	24
13	77	78	79	78	83	89	91	91	91	90	80	66	60	55	55	57	58	59	59	62	71	82	83	81	55	91	74	24
14	80	77	74	72	73	72	71	70	68	65	57	51	49	47	48	53	54	54	57	56	65	72	71	71	47	80	64	24
15	77	78	80	78	75	70	74	74	81	80	79	70	59	50	52	49	43	42	43	49	52	52	53	55	42	81	63	24
16	57	57	59	57	59	53	58	67	60	55	50	45	44	44	48	76	85	87	89	92	92	92	93	93	44	93	67	24
17	91	90	89	86	87	89	92	93	93	93	91	91	92	91	91	89	84	83	81	84	86	86	88	88	81	93	89	24
18	89	84	85	83	83	84	85	86	85	84	82	77	74	68	65	61	60	59	58	66	87	89	87	87	58	89	78	24
19	87	87	82	82	83	87	87	86	80	70	63	63	61	54	50	40	49	55	56	52	62	67	68	73	40	87	69	24
20	76	80	79	76	75	76	79	86	87	84	79	70	62	60	47	46	48	58	67	68	68	70	76	79	46	87	71	24
21	79	79	80	81	77	77	79	81	70	61	57	52	42	37	34	31	34	47	56	51	46	49	50	55	31	81	59	24
22	57	59	59	62	66	72	73	79	80	79	77	73	68	65	56	49	50	54	53	57	61	65	67	66	49	80	64	24
23	69	73	74	78	76	73	73	71	68	64	61	55	46	42	41	40	38	43	45	59	82	79	72	59	38	82	62	24
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25	93	93	92	91	90	92	93	94	94	92	90	87	86	85	83	80	78	79	79	79	86	86	84	84	78	94	87	24
26	84	86	84	83	86	86	84	85	85	83	78	76	73	72	72	71	75	87	91	92	90	89	88	88	71	92	83	24
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28	56	57	59	58	63	65	63	62	60	48	44	44	45	46	49	54	57	55	50	60	63	60	62	67	44	67	56	24
29	68	67	67	73	75	77	76	76	70	62	60	56	49	45	43	45	52	61	70	75	79	80	81	79	43	81	66	24
30	80	79	79	75	73	74	75	75	74	68	63	60	56	49	48	50	56	60	61	60	61	73	79	78	48	80	67	24
31	75	71	70	70	74	81	89	84	82	81	80	74	61	70	66	83	87	89	89	89	89	89	89	88	61	89	80	24
HOURLY MAX	93	93	92	91	90	92	93	94	94	93	91	91	92	91	91	89	87	89	91	92	92	92	93	93				
HOURLY AVG	71	71	73	73	74	74	76	76	73	69	65	61	56	53	51	52	54	58	61	65	68	69	70	71				

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
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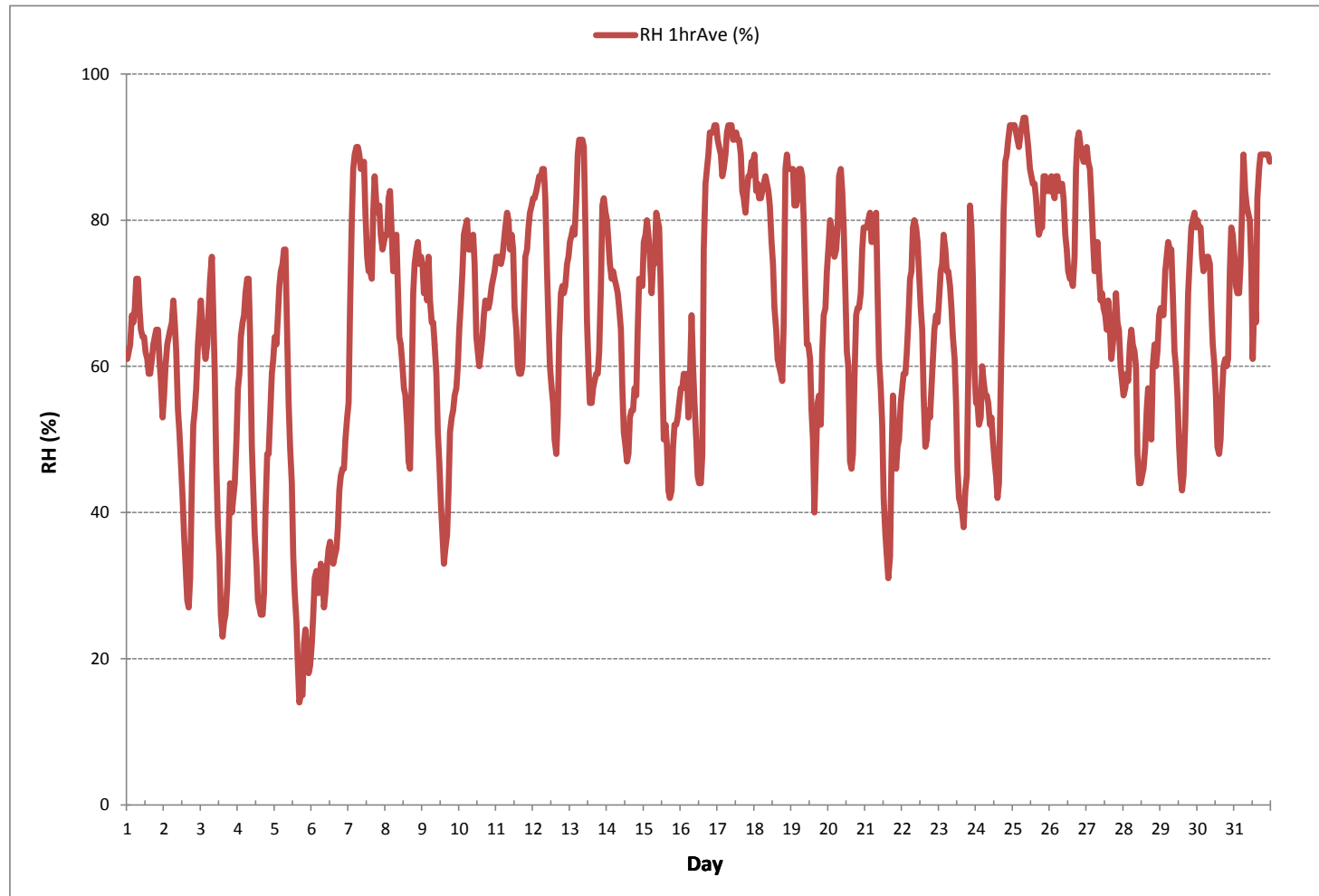
24 HR AVERAGES October 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	14	%	@ HOUR	16	ON DAY	5
MAXIMUM 1-HR AVERAGE:	94	%	@ HOUR	7	ON DAY	25
MAXIMUM 24-HR AVERAGE:	89	%			ON DAY	17
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	17					MONTHLY AVERAGE: 66 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 2017

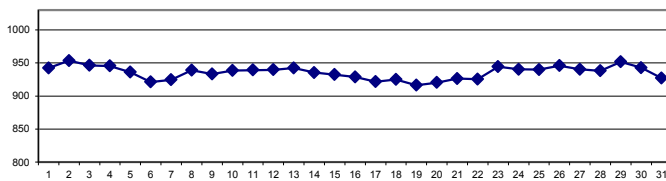
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	934	934	935	936	936	937	938	939	940	941	941	942	942	943	944	945	946	946	947	948	949	949	950	950	934	950	942	24	
2	951	952	952	952	953	953	954	954	955	955	955	955	955	954	954	954	953	953	953	953	952	952	952	952	951	955	953	24	
3	951	951	950	950	949	949	948	947	946	946	946	945	945	944	944	944	944	944	944	945	945	945	946	946	944	951	946	24	
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5	942	941	941	941	940	940	939	939	939	938	938	937	937	936	935	934	933	933	932	932	931	931	930	930	930	930	942	936	24
6	930	929	928	926	925	925	924	923	922	922	922	921	920	919	918	918	918	917	917	917	917	917	917	917	917	917	930	921	24
7	918	918	918	919	920	920	921	921	922	922	923	923	924	924	925	926	927	928	929	930	931	932	934	934	918	934	925	24	
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11	940	939	940	939	939	939	939	939	940	940	939	939	939	939	939	939	939	939	939	939	939	939	939	939	939	940	939	24	
12	939	938	938	938	938	939	939	939	940	940	940	940	940	940	939	940	940	940	940	940	940	940	941	941	941	938	941	940	24
13	941	942	942	942	942	942	943	943	944	944	944	944	944	944	944	944	943	943	942	942	941	940	939	938	938	944	942	24	
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20	917	917	917	917	917	918	918	918	919	919	920	920	921	921	921	921	922	922	923	923	924	924	924	924	917	924	920	24	
21	925	925	926	926	927	927	928	928	928	929	929	929	928	928	927	927	927	926	926	926	924	924	923	922	921	921	929	926	24
22	920	920	919	919	919	919	920	920	921	922	923	924	925	926	926	927	929	930	931	932	933	934	935	936	919	936	925	24	
23	938	939	940	941	942	943	944	945	946	947	948	949	949	949	948	948	947	947	946	945	943	941	939	938	938	949	944	24	
24	938	938	938	938	938	938	939	939	940	941	943	944	944	945	944	944	944	943	942	940	939	938	935	933	933	945	940	24	
25	932	930	928	927	926	927	928	930	932	936	939	941	943	945	946	947	949	949	950	950	950	951	951	951	926	951	940	24	
26	951	950	948	947	947	946	946	945	945	945	945	945	946	946	946	946	946	946	945	945	944	944	944	944	944	951	946	24	
27	943	943	943	943	943	943	943	942	942	942	942	941	941	940	940	939	939	938	938	937	936	936	935	935	935	943	940	24	
28	934	934	934	934	934	934	934	935	936	936	937	937	938	938	939	939	940	940	942	943	944	944	945	946	934	946	938	24	
29	947	947	948	949	949	950	950	951	952	952	953	953	954	954	954	954	954	954	954	953	953	952	952	951	947	954	952	24	
30	950	949	948	947	946	945	944	944	943	943	943	943	943	943	942	943	942	941	941	940	939	937	935	934	934	950	943	24	
31	933	931	929	928	926	925	924	924	923	924	924	924	924	924	925	925	926	927	928	930	930	931	932	932	923	933	927	24	
HOURLY MAX	951	952	952	952	953	953	954	954	955	955	955	955	955	954	954	954	954	954	954	953	953	952	952	952					
HOURLY AVG	935	935	935	935	935	935	935	935	935	936	936	936	936	936	936	936	936	936	936	936	936	936	936	935					

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

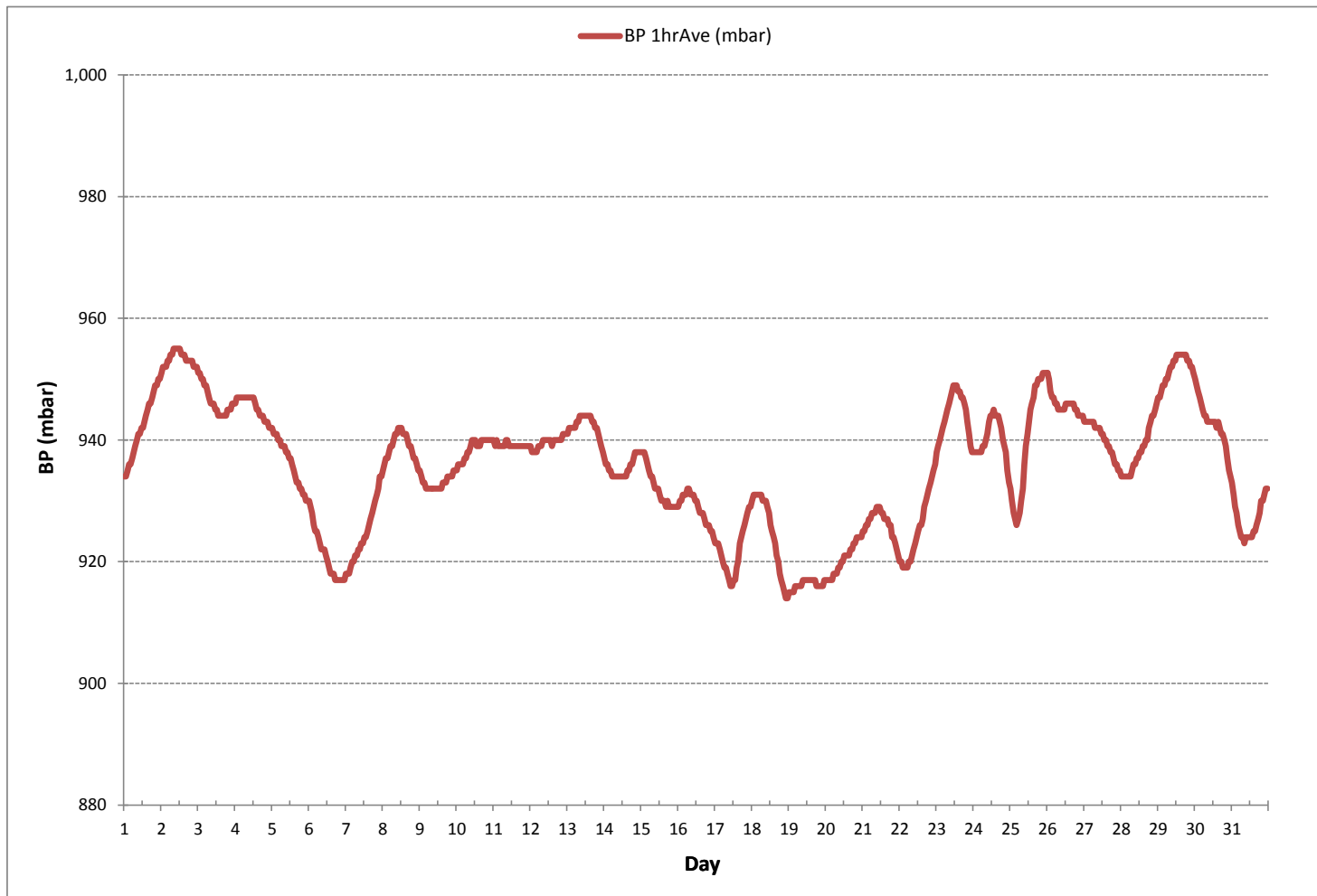
24 HR AVERAGES October 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	914	mbar	@ HOUR	22	ON DAY	18
MAXIMUM 1-HR AVERAGE:	955	mbar	@ HOUR	8	ON DAY	2
MAXIMUM 24-HR AVERAGE:	953	mbar			ON DAY	2
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	10		MONTHLY AVERAGE:		936	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - October 2017

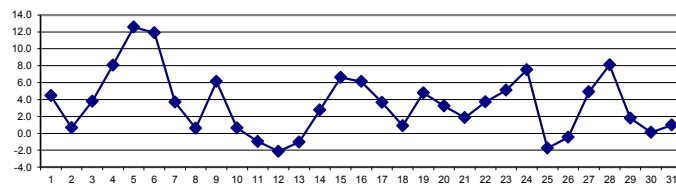
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	7.9	7.4	6.8	5.6	5.3	4.7	3.8	3.3	3.9	4.4	4.6	4.6	4.8	5.1	5.1	4.9	4.4	3.9	3.8	3.4	3.0	2.2	2.0	2.1	2.0	7.9	4.5	24
2	0.7	-0.1	-1.1	-1.5	-1.8	-2.2	-3.2	-2.8	-1.1	0.6	1.5	2.6	3.5	4.8	5.5	6.2	6.3	5.6	1.7	-0.6	-1.5	-2.1	-2.4	-2.8	-3.2	6.3	0.7	24
3	-3.4	-3.0	-2.7	-2.2	-2.6	-3.6	-4.1	-4.3	-1.3	1.3	4.2	6.4	7.8	10.8	11.8	12.2	12.5	11.7	8.8	6.4	7.3	6.3	6.1	4.7	-4.3	12.5	3.8	24
4	2.7	2.1	1.3	1.1	0.7	0.1	-0.4	0.2	4.1	8.4	10.5	12.7	14.7	16.3	17.5	17.7	17.6	16.2	11.6	9.0	9.3	7.6	6.3	6.0	-0.4	17.7	8.1	24
5	5.7	5.9	5.4	4.7	4.2	3.5	3.4	3.5	7.6	11.4	14.1	16.6	18.4	19.6	20.8	21.8	21.7	19.9	17.5	15.5	14.6	15.6	15.3	14.6	3.4	21.8	12.6	24
6	13.8	12.6	11.4	11.5	12.4	12.6	11.1	11.6	13.3	13.5	13.6	13.8	13.3	13.9	14.3	14.1	13.5	12.5	10.5	9.8	9.9	8.8	7.6	6.2	6.2	14.3	11.9	24
7	5.9	5.6	4.4	3.8	2.7	2.9	3.7	3.9	4.0	3.8	3.2	5.3	5.9	6.2	6.2	6.5	4.2	3.8	3.3	2.1	0.8	0.3	-0.1	0.2	-0.1	6.5	3.7	24
8	0.0	-0.3	-0.8	-0.9	-0.7	-0.8	-1.0	-2.1	-2.2	-1.6	-0.9	-0.2	1.2	2.2	3.7	4.8	5.2	3.2	1.0	0.4	0.3	0.9	1.3	1.6	-2.2	5.2	0.6	24
9	2.2	3.5	4.1	6.0	5.5	5.6	5.6	5.5	6.5	7.4	9.3	9.6	10.0	10.3	10.7	9.9	9.4	7.5	5.1	3.7	2.8	2.4	2.3	2.2	2.2	10.7	6.1	24
10	1.5	0.8	0.2	-1.0	-1.3	-2.0	-1.2	-1.3	-1.2	0.1	2.0	2.9	3.0	3.0	2.8	2.1	1.1	0.6	0.7	0.8	0.7	0.6	0.4	0.1	-2.0	3.0	0.6	24
11	-0.1	-0.2	-0.3	-0.5	-0.7	-0.8	-0.9	-1.3	-1.2	-0.8	-0.7	-0.1	0.6	0.8	1.4	1.3	1.1	0.7	-1.3	-2.7	-3.3	-4.1	-4.9	-5.4	-5.4	1.4	-1.0	24
12	-5.5	-6.0	-5.9	-6.1	-6.3	-6.9	-7.2	-6.6	-4.3	-1.4	0.2	1.2	1.8	2.5	3.7	4.0	2.5	-0.3	-2.1	-2.3	-1.9	-0.9	-1.5	-1.8	-7.2	4.0	-2.1	24
13	-2.3	-2.5	-2.3	-2.1	-2.6	-2.9	-3.2	-2.7	-2.1	-1.5	-0.4	0.7	1.3	1.6	1.7	1.2	0.9	0.5	0.1	-0.4	-1.5	-2.1	-2.4	-1.9	-3.2	1.7	-1.0	24
14	-1.7	-1.7	-1.5	-1.1	-0.8	-1.0	-0.7	0.3	2.0	4.2	5.9	6.5	7.0	7.1	6.9	6.6	6.2	5.5	6.0	4.2	2.7	2.6	1.6	1.6	-1.7	7.1	2.8	24
15	-0.4	-0.4	-0.2	0.6	2.1	3.2	2.1	3.4	3.9	5.1	5.8	8.0	10.4	11.7	11.1	11.5	12.2	12.0	11.5	10.0	9.1	8.7	8.7	8.8	-0.4	12.2	6.6	24
16	8.1	7.5	7.0	6.7	6.2	6.7	5.3	3.4	4.7	6.5	8.4	9.2	9.5	9.5	8.8	6.0	5.5	5.0	4.5	3.9	4.0	3.3	3.3	4.0	3.3	9.5	6.1	24
17	5.0	5.5	5.8	5.8	5.3	5.1	4.7	4.7	4.9	5.2	5.3	4.7	3.9	3.3	3.4	3.4	3.0	2.6	2.2	1.3	0.7	0.6	0.6	0.4	0.4	5.8	3.6	24
18	0.0	0.0	-0.8	-1.3	-1.7	-2.2	-3.0	-3.4	-2.6	-1.0	0.5	1.9	2.8	3.3	3.8	3.9	3.8	3.9	4.0	3.2	1.5	1.4	1.7	1.8	-3.4	4.0	0.9	24
19	1.8	1.0	1.3	0.9	0.4	-0.8	-1.0	-0.7	1.0	4.2	7.1	8.0	9.2	11.9	12.0	12.5	10.1	7.7	7.3	7.3	4.5	3.5	3.5	2.4	-1.0	12.5	4.8	24
20	1.7	0.7	0.6	1.5	2.1	2.4	1.8	-0.2	-0.4	1.4	3.1	5.3	7.0	7.8	9.1	9.3	8.5	5.8	3.4	3.1	2.6	1.7	0.1	-0.7	-0.7	9.3	3.2	24
21	-1.0	-1.3	-1.9	-2.1	-1.1	-0.9	-1.7	-2.8	-0.3	2.0	3.6	4.8	6.3	7.2	7.6	7.8	7.1	3.2	0.4	1.2	2.1	1.7	1.7	1.0	-2.8	7.8	1.9	24
22	1.3	1.1	1.2	1.2	0.9	0.7	1.0	0.4	0.3	0.8	2.0	3.7	6.1	6.9	8.9	8.9	8.0	7.1	7.0	5.9	5.3	4.1	3.0	3.1	0.3	8.9	3.7	24
23	2.3	1.4	1.4	0.6	1.2	1.4	1.1	0.9	1.8	3.5	4.7	6.7	8.9	9.8	9.7	10.0	9.8	8.1	7.6	7.0	5.3	5.5	6.0	7.4	0.6	10.0	5.1	24
24	8.2	8.5	9.5	10.3	9.5	11.4	12.0	11.9	11.9	12.6	10.7	9.4	8.8	8.4	8.1	7.9	6.4	5.1	3.6	2.7	2.1	0.7	0.2	0.4	0.2	12.6	7.5	24
25	0.3	0.4	0.6	0.6	0.7	0.2	0.0	0.0	-0.5	-0.7	-0.7	-0.4	-0.4	-0.8	-1.2	-2.0	-2.5	-3.0	-3.2	-4.9	-6.0	-6.5	-6.7	-5.5	-6.7	0.7	-1.8	24
26	-3.8	-4.2	-3.5	-3.5	-4.1	-3.2	-2.0	-1.9	-1.8	-1.0	0.8	1.8	3.0	3.6	3.7	3.7	2.8	0.1	-0.9	-1.0	-0.5	0.2	0.4	-0.2	-4.2	3.7	-0.5	24
27	-0.9	-0.6	-0.2	0.5	1.2	2.1	2.0	1.8	2.5	3.8	4.1	5.4	6.8	8.1	7.9	9.2	9.6	8.7	7.1	6.0	7.0	7.0	8.9	9.7	-0.9	9.7	4.9	24
28	11.1	11.2	10.9	11.6	10.2	9.9	10.1	9.9	9.5	9.8	9.6	9.3	8.9	9.0	8.9	8.0	7.1	6.1	6.5	4.6	3.4	3.6	3.0	2.1	2.1	11.6	8.1	24
29	1.9	1.8	2.1	1.6	1.5	0.9	0.8	0.8	1.4	2.7	3.3	4.1	5.0	5.4	6.0	5.5	4.1	2.0	1.2	-0.4	-1.6	-2.1	-2.7	-2.5	-2.7	6.0	1.8	24
30	-2.9	-3.0	-2.9	-1.9	-1.5	-1.8	-2.0	-2.1	-2.0	-1.0	0.1	1.4	2.7	3.5	4.3	4.6	3.2	1.5	1.2	1.6	1.7	-0.2	-1.1	-0.6	-3.0	4.6	0.1	24
31	-0.1	0.1	0.3	0.5	0.7	0.9	1.0	2.0	3.1	3.8	4.5	5.2	5.9	4.6	3.8	1.2	-0.5	-1.4	-1.6	-1.7	-1.9	-2.0	-2.2	-2.5	-2.5	5.9	1.0	24
HOURLY MAX	13.8	12.6	11.4	11.6	12.4	12.6	12.0	11.9	13.3	13.5	14.1	16.6	18.4	19.6	20.8	21.8	21.7	19.9	17.5	15.5	14.6	15.6	15.3	14.6				
HOURLY AVG	1.9	1.7	1.6	1.6	1.5	1.5	1.2	1.1	2.1	3.4	4.5	5.5	6.4	7.0	7.4	7.3	6.6	5.4	4.1	3.3	2.7	2.2	2.0	1.8				

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

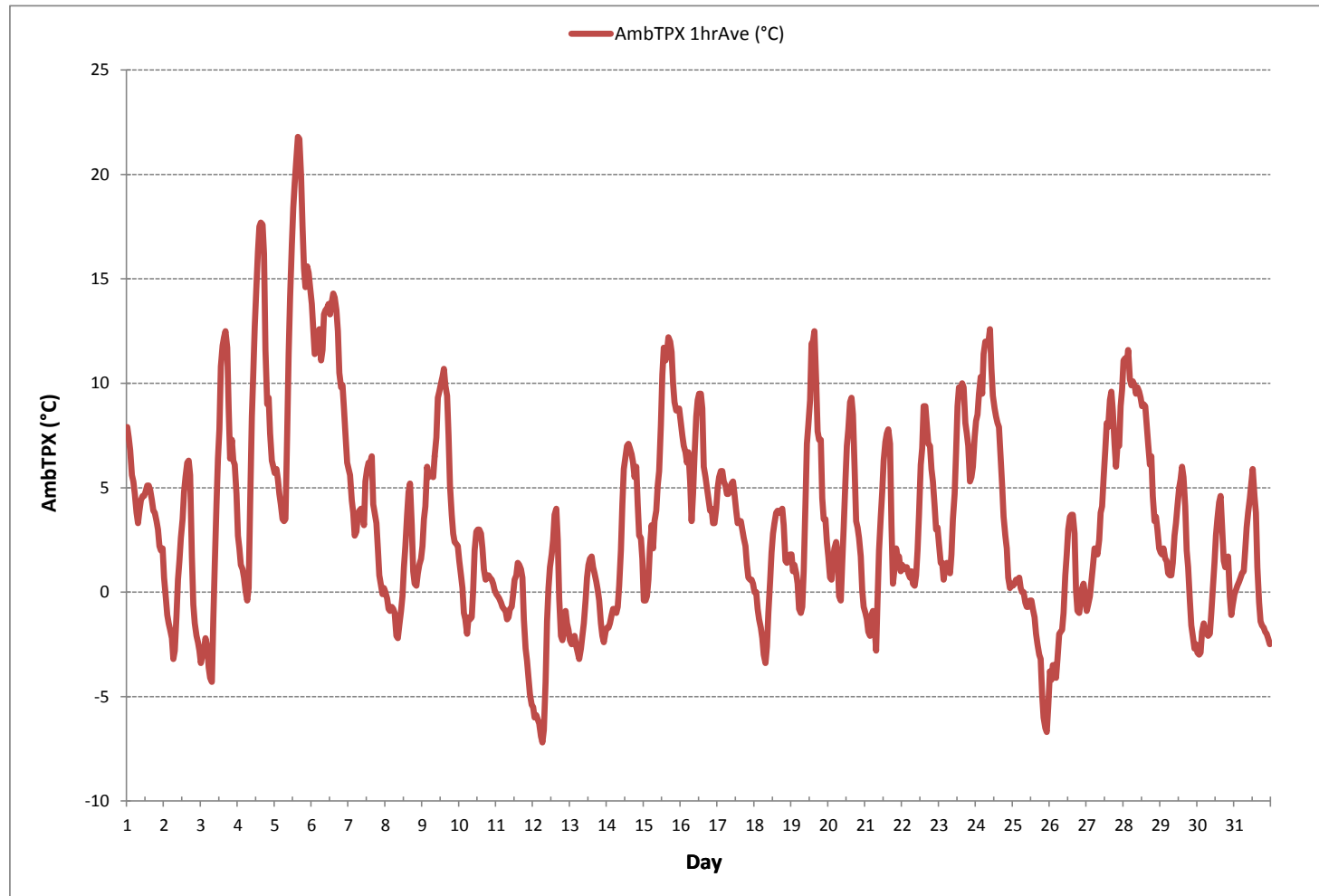
24 HR AVERAGES October 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-7.2 °C	@ HOUR	6	ON DAY	12
MAXIMUM 1-HR AVERAGE:	21.8 °C	@ HOUR	15	ON DAY	5
MAXIMUM 24-HR AVERAGE:	12.6 °C			ON DAY	5
OPERATIONAL TIME:				744	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	4.9			MONTHLY AVERAGE:	3.5 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

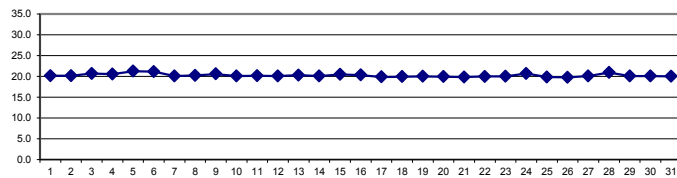
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	20.9	20.6	20.1	20.2	20.0	20.1	20.1	20.0	19.9	20.1	19.8	19.9	20.0	19.7	20.1	19.7	20.1	20.1	20.0	20.0	20.1	20.1	20.1	19.7	21.3	20.1	24
2	20.1	20.1	20.1	20.1	20.1	20.2	20.5	20.1	20.2	19.8	19.7	19.2	19.0	19.2	19.8	20.6	20.9	21.1	20.7	20.3	20.4	20.5	20.7	20.5	19.0	21.1	20.2	24
3	20.5	20.8	20.6	20.5	20.7	20.8	20.4	20.8	20.1	19.6	20.2	20.5	21.0	20.9	20.9	20.9	21.1	21.4	21.2	21.4	21.1	20.6	20.1	20.1	19.6	21.4	20.7	24
4	20.1	20.1	20.2	20.2	20.2	20.2	20.1	20.1	19.9	19.9	20.6	20.7	20.6	20.8	20.9	21.0	21.3	21.5	21.4	21.3	21.2	20.8	20.1	20.1	19.9	21.5	20.6	24
5	20.0	20.0	20.1	20.1	20.1	20.1	20.1	20.1	19.9	20.4	21.5	21.9	22.0	22.1	22.5	22.6	23.0	22.7	22.5	21.8	21.6	21.6	21.4	21.3	19.9	23.0	21.2	24
6	21.3	21.3	21.4	21.4	21.3	21.3	21.2	21.0	21.1	21.2	21.2	21.7	21.9	21.4	20.9	21.2	21.1	21.1	21.2	21.2	21.0	20.6	20.1	20.0	20.0	21.9	21.1	24
7	20.0	20.2	20.1	20.1	20.1	20.1	20.0	20.0	20.1	20.1	20.2	19.8	19.6	20.3	20.0	19.9	19.9	20.1	20.1	20.1	20.1	20.1	20.2	20.2	19.6	20.3	20.1	24
8	20.2	20.2	20.2	20.2	20.2	20.3	20.2	20.2	20.0	20.1	20.0	20.0	19.9	19.4	19.8	20.6	21.0	21.0	20.1	20.4	20.5	20.4	20.4	20.4	19.4	21.0	20.2	24
9	20.3	20.2	20.4	20.4	20.1	20.6	20.2	20.2	20.4	20.0	20.3	20.7	21.1	21.4	21.1	21.3	21.3	21.3	20.6	20.3	20.4	20.5	20.4	20.3	20.0	21.4	20.6	24
10	20.3	20.4	20.5	20.5	20.4	20.3	20.4	20.1	20.1	19.9	19.9	19.6	19.4	19.8	19.9	19.7	20.0	20.1	20.2	20.2	20.2	20.2	20.2	20.2	19.4	20.5	20.1	24
11	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.2	20.1	20.1	20.0	19.5	19.6	19.7	19.9	20.0	20.1	20.2	20.2	20.4	20.1	19.5	20.4	20.1	24
12	20.2	20.4	20.2	20.5	20.2	20.4	20.6	20.5	20.1	19.6	19.6	19.0	19.0	19.2	19.9	20.7	20.6	20.1	20.1	20.2	20.3	20.3	20.3	20.3	19.0	20.7	20.1	24
13	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.3	20.3	20.3	20.1	20.1	20.0	20.1	20.2	20.2	20.3	20.3	20.3	20.3	20.4	20.4	20.4	20.0	20.4	20.3	24
14	20.4	20.4	20.4	20.3	20.3	20.3	20.3	20.3	19.9	19.9	20.1	19.7	19.8	19.7	19.6	19.6	20.2	20.4	20.3	20.1	19.8	20.0	20.1	20.0	19.6	20.4	20.1	24
15	20.0	20.1	20.0	20.0	20.1	20.1	20.0	19.8	20.1	19.9	19.9	20.1	20.8	21.1	21.0	21.1	21.1	21.4	21.5	21.4	20.9	20.5	20.2	19.9	19.8	21.5	20.5	24
16	19.7	20.0	20.2	19.9	19.7	20.2	19.8	19.8	19.9	20.1	20.5	20.9	21.1	21.1	21.1	21.0	21.0	20.9	20.6	20.2	19.9	19.8	20.0	20.1	19.7	21.1	20.3	24
17	19.9	19.8	19.8	19.9	19.9	20.1	19.9	19.8	19.7	19.8	19.8	19.8	19.6	19.9	19.9	19.9	19.9	19.8	19.9	20.0	20.0	20.0	20.0	20.0	19.6	20.1	19.9	24
18	20.0	20.0	20.0	20.1	20.1	20.1	20.0	20.1	20.1	20.0	19.9	19.9	19.5	20.0	19.6	20.0	19.9	19.7	20.0	19.9	20.0	20.0	19.9	20.0	19.5	20.1	20.0	24
19	20.1	20.0	20.0	20.0	20.0	20.1	20.0	20.0	19.9	20.0	18.6	18.9	19.7	20.3	20.4	20.6	20.9	20.9	20.3	19.8	20.0	19.9	19.9	20.1	18.6	20.9	20.0	24
20	19.8	20.0	20.1	20.0	19.9	20.1	20.0	19.8	19.9	19.9	20.0	19.5	19.2	19.4	20.1	20.5	20.5	20.4	19.8	19.8	20.1	20.0	19.9	20.0	19.2	20.5	19.9	24
21	20.1	20.1	20.0	20.0	20.0	20.1	20.0	20.0	20.0	19.6	19.2	18.8	18.7	19.1	19.7	20.4	20.6	19.7	20.0	20.0	19.9	20.0	20.0	20.0	18.7	20.6	19.8	24
22	19.9	19.9	20.0	20.1	19.8	20.0	20.1	19.8	20.0	20.0	19.8	19.8	19.7	19.8	20.2	20.6	20.4	19.9	19.9	19.9	19.9	19.8	20.0	20.0	19.7	20.6	20.0	24
23	19.8	20.0	20.1	19.9	20.0	20.1	20.1	20.0	20.0	19.7	19.8	19.8	19.5	19.8	20.0	20.2	20.4	20.2	19.8	19.8	19.8	20.4	20.4	20.5	19.5	20.5	20.0	24
24	20.6	20.8	21.1	21.1	21.3	21.1	21.2	21.1	21.0	21.1	21.0	21.1	21.0	21.1	20.9	20.8	20.5	20.0	19.8	19.8	19.9	19.9	19.8	20.0	19.8	21.3	20.7	24
25	19.9	19.9	19.9	19.9	19.9	19.9	20.0	19.9	19.8	19.8	19.8	19.6	19.3	19.5	19.5	19.7	19.8	19.8	19.9	19.9	20.0	20.4	19.9	20.3	19.3	20.4	19.8	24
26	20.2	19.9	20.0	20.1	20.3	20.1	20.1	20.0	20.0	20.0	19.8	18.9	18.7	18.9	19.3	19.7	19.6	19.7	19.8	19.9	19.9	19.9	19.9	19.8	18.7	20.3	19.8	24
27	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.4	20.1	19.7	19.6	19.9	20.3	20.7	21.0	21.0	20.6	19.9	20.3	20.1	20.0	19.9	21.0	20.1	24
28	20.1	20.5	20.8	21.2	21.4	21.5	21.5	21.5	21.4	21.3	21.4	21.5	21.5	21.2	21.4	21.4	21.1	20.4	20.0	20.1	20.2	20.1	20.1	20.2	20.0	21.5	20.9	24
29	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	19.7	19.8	19.3	19.3	19.6	20.1	20.6	20.4	19.9	20.2	20.3	20.3	20.3	20.3	20.3	19.3	20.6	20.1	24
30	20.3	20.3	20.4	20.5	20.4	20.3	20.2	20.2	20.3	20.3	20.2	20.1	19.3	19.7	19.4	19.8	19.6	19.9	20.0	20.1	20.1	20.1	20.1	20.1	19.3	20.5	20.1	24
31	20.1	20.1	20.1	20.1	20.2	20.2	20.1	20.1	20.0	19.8	20.2	19.6	20.1	19.7	19.9	19.9	20.0	20.0	20.0	20.0	20.0	20.1	20.1	20.1	19.6	20.2	20.0	24
HOURLY MAX	21.3	21.3	21.4	21.4	21.4	21.5	21.5	21.5	21.4	21.3	21.5	21.9	22.0	22.1	22.5	22.6	23.0	22.7	22.5	21.8	21.6	21.6	21.4	21.3				
HOURLY AVG	20.2	20.2	20.3	20.3	20.2	20.3	20.3	20.2	20.1	20.0	20.1	20.0	20.0	20.1	20.2	20.5	20.5	20.5	20.4	20.3	20.3	20.2	20.2	20.2				

STATUS FLAG CODES

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

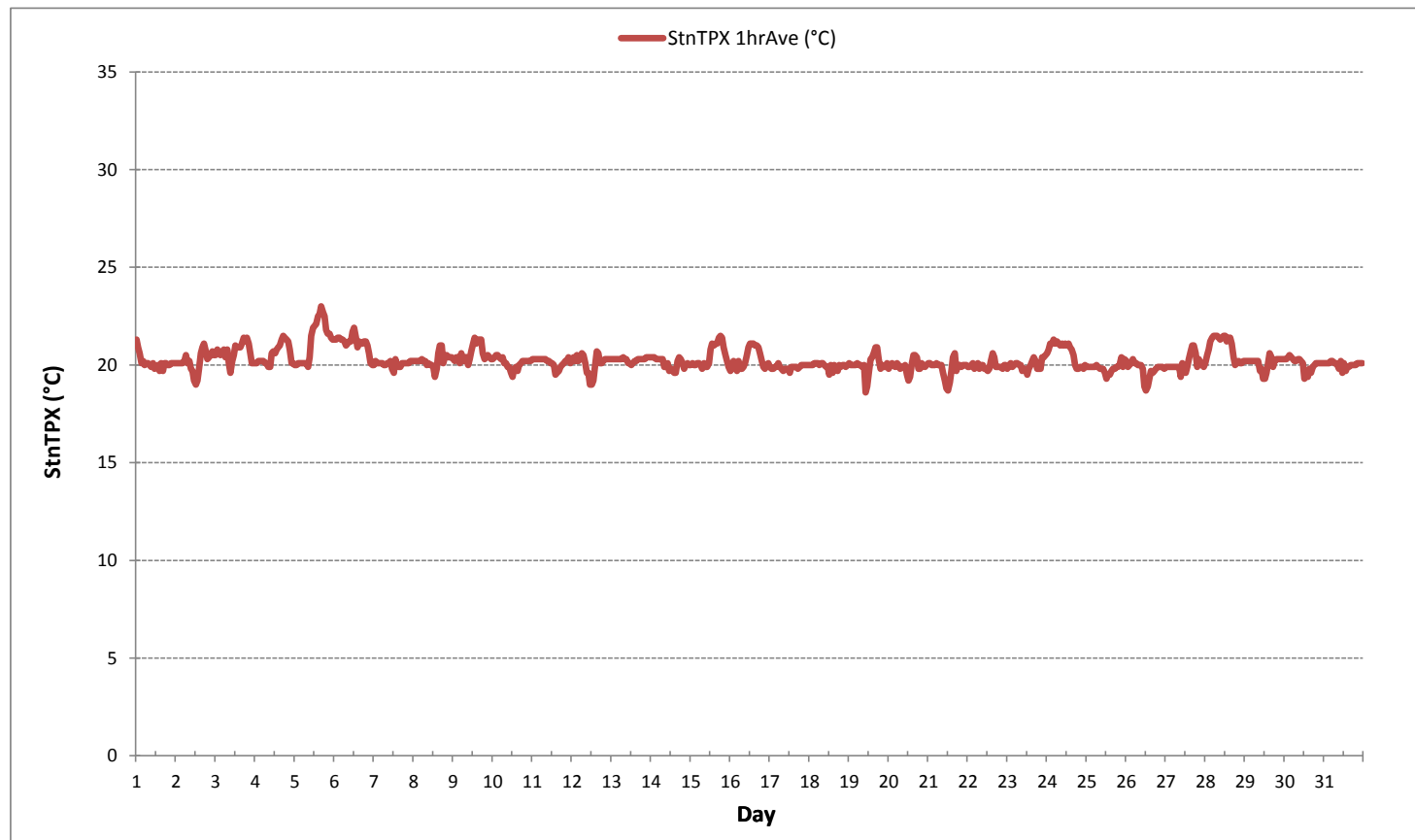
24 HR AVERAGES October 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	18.6	°C	@ HOUR	10	ON DAY	19
MAXIMUM 1-HR AVERAGE:	23.0	°C	@ HOUR	16	ON DAY	5
MAXIMUM 24-HR AVERAGE:	21.2	°C			ON DAY	5
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	0.6		MONTHLY AVERAGE:		20.2	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100A Sulphur Dioxide Analyzer Calibration

Date: October 5, 2017 Company/Airshed: PRAMP Location/Station Name: Reno Parameter: Sulphur Dioxide Start Time 24 hr. (mst): 10:00 End Time 24 hr. (mst): 14:23 Calibration Method: Gas Dilution	Barometer/B.P./units: n/a Thermometer/Station Temp: Fluke 4295 expires November 14, 2017 Weather Conditions: Sunny Calibration Purpose: routine monthly Performed By/Reviewer: Raja Abid / Tom Bourque Cal Gas Expiry Date: May 23, 2019 Converter Model & s/n (if applicable): n/a
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Analyzer: ID# or Serial Number: 841 Last Calibration Date: September 19, 2017 Previous C.F.: 1.000	Range ppb: 500 As Found C.F.: 1.028 New C.F.: 1.000
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Calibration Standards: Low Flow Meter ID/Expiry Date: Definer Low 129069 expires February 5, 2018 High Flow Meter ID/Expiry Date: Definer High 128686 expires February 5, 2018 Calibrator ID/Expiry Date: API id# 690 expires March 17, 2018 Cal Gas Cylinder I.D. # : LL 119513 Cal Gas Conc. (ppm): 50.6	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>380</td></tr> <tr><td>Mid</td><td>180</td></tr> <tr><td>Low</td><td>90</td></tr> </table>	Point	ppb	High	380	Mid	180	Low	90
Point	ppb								
High	380								
Mid	180								
Low	90								

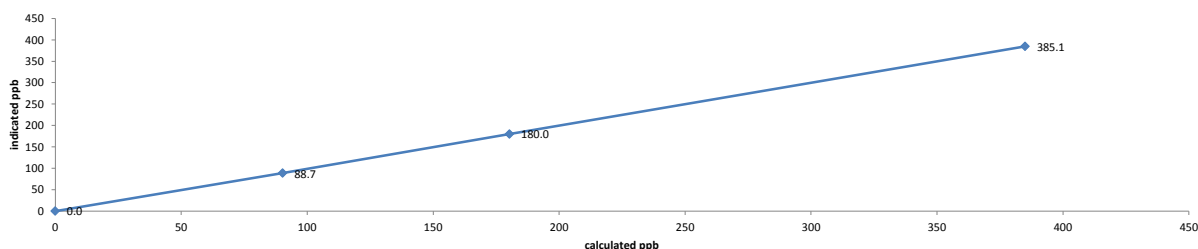
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	5715	0.00	5715	0.0	-0.7	n/a
as found high	5899	45.23	5944	385.0	373.7	1.028
adjusted zero	5715	0.00	5715	0.0	0.0	n/a
adjusted high	5899	45.23	5944	385.0	385.1	1.000
mid	5922	21.18	5943	180.3	180.0	1.002
low	5919	10.58	5929	90.3	88.7	1.018
calibrator zero	5715	0.00	5715	0.0	0.0	n/a
Average C.F. =						1.006

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000 Slope = 0.998 b (Intercept as % of full scale) = 0.14% % change in C.F. from last cal = -2.84%	LIMITS > or = 0.995 0.95-1.05 ± 3% F.S. ± 10%
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API 100A Sulphur Dioxide Analyzer Calibration



As found:	As left:
Slope: 0.956	Slope: 0.980
Offset: 50.2	Offset: 49.7
Hvps: 763	Hvps: 763
Dcps: 2560	Dcps: 2560
Rcell Temp: 49.8	Rcell Temp: 50.2
Box Temp: 32.8	Box Temp: 31.2
Pmt Temp: 7.0	Pmt Temp: 7.1
Izs Temp: 45.1	Izs Temp: 45.0
Converter Temp: n/a	Converter Temp: n/a
Pres: 24.9	Pres: 24.9
Samp Fl: 682	Samp Fl: 682
Pmt: 64.9	Pmt: 65.9
Uv Lamp: 2046.9	Uv Lamp: 2072.6
Lamp Ratio: 92.6	Lamp Ratio: 92.6
Expected Value: 322.0	Expected Value: 328.5

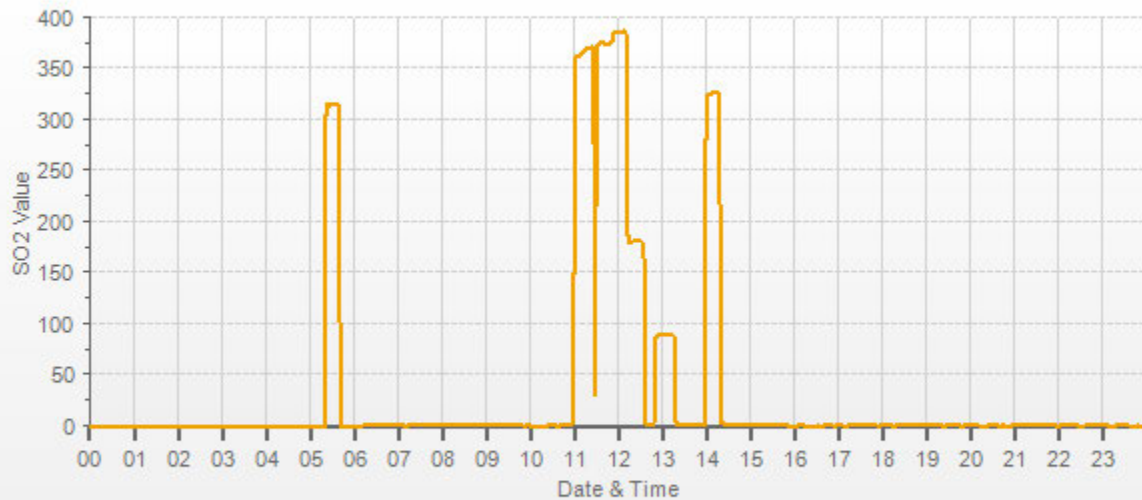
Comments:

The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.

11:27 As found high point aborted and re-started due to slow response. Re-purged the regulator and started again at 11:31, response well within limits. Barometric pressure recorded from Environment Canada site.

Flow measurements after mid point.

SO2[ppb] Station: PRAMP_RENO Daily: 17/10/05 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	October 6, 2017	Barometer/B.P./units:	n/a	27.78	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Fluke 4295 expires November 14, 2017	21.56	°C
Location/Station Name:	Reno	Weather Conditions:	Sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	10:12	Performed By/Reviewer:	Raja Abid	Tom Bourque	
End Time 24 hr. (mst):	14:10	Cal Gas Expiry Date:	December 1, 2018		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD NOVA CDN-101 s/n 534		

Analyzer:	ID# or Serial Number:	1162460022	Range ppb:	100
	Last Calibration Date:	September 19, 2017	As Found C.F.:	1.042
	Previous C.F.:	1.000	New C.F.:	0.999

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):
Low Flow Meter ID/Expiry Date: Definer Low 129069 expires February 5, 2018	Point	Start/End Time 24 hr.: 10:48/10:58
High Flow Meter ID/Expiry Date: Definer High 128686 expires February 5, 2018	High	SO2 Analyzer Range: 500
Calibrator ID/Expiry Date: API id# 829 expires January 27, 2018	Mid	Target Concentration (ppb): 380
Cal Gas Cylinder I.D. #: BLM 001927	Low	As Found Zero: 0.0
Cal Gas Conc. (ppm): 10.3		Analyzer Response: (ppb): 0.0
		Zero Corrected Result (ppb): 0.0

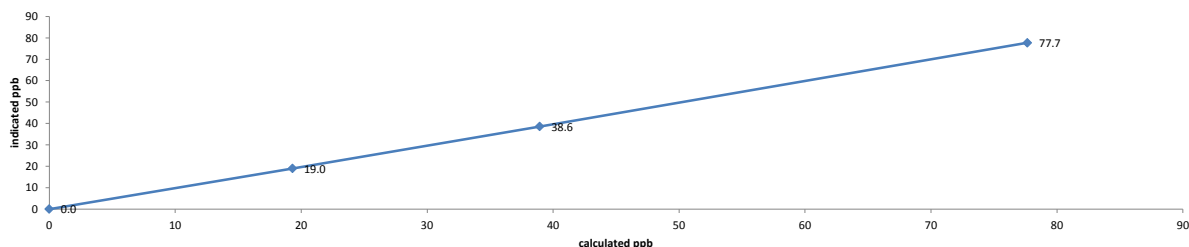
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7446	0.00	7446	0.0	0.2	n/a
as found high	7431	56.45	7487	77.7	74.7	1.042
adjusted zero	7446	0.00	7446	0.0	0.0	n/a
adjusted high	7431	56.45	7487	77.7	77.7	0.999
mid	7424	28.17	7452	38.9	38.6	1.009
low	7448	13.99	7462	19.3	19.0	1.016
calibrator zero	7446	0.00	7446	0.0	0.0	n/a
Average C.F. =						1.008

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	1.000	> or = 0.995
Slope =	0.999	0.95-1.05
b (Intercept as % of full scale) =	0.20%	± 3% F.S.
% change in C.F. from last cal =	-4.24%	± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



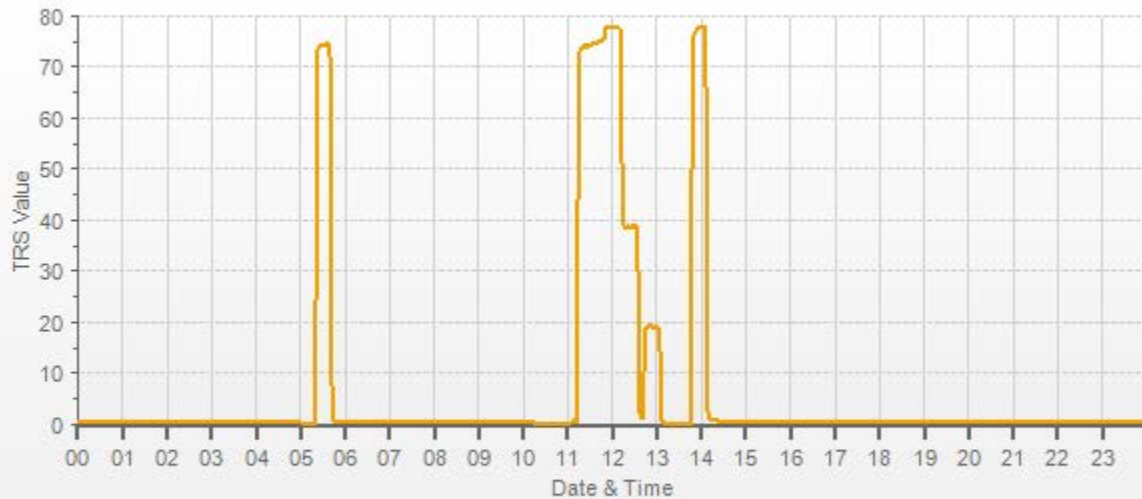
As found:		As left:	
Bkg:	2.02	Bkg:	2.13
Coef:	0.959	Coef:	0.990
Pmt:	-706.3	Pmt:	-706.3
Flash:	992	Flash:	992
Internal:	33.5	Internal:	33.9
Chamber:	44.9	Chamber:	44.9
Perm Oven Gas:	35.00	Perm Oven Gas:	35.00
Perm Oven Heater:	34.16	Perm Oven Heater:	34.15
Pressure:	627.3	Pressure:	626.1
Sample Flow:	0.405	Sample Flow:	0.405
Lamp Intensity:	82	Lamp Intensity:	83
Converter:	825	Converter:	825
Converter Set:	825	Converter Set:	825
Averaging Time:	120	Averaging Time:	120
Expected Value:	75.4	Expected Value:	77.0

Comments:

The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.

Barometric Pressure recorded from Environment Canada site.
Flow measurements after mid-point.

TRS[ppb] Station: PRAMP_RENO Daily: 17/10/06 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	October 5, 2017	Barometer/B.P./units:	F.S. 05544 expires December 5, 2018	27.77	mmHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	n/a	22.57	°C
Location/Station Name:	Reno	Weather Conditions:	Sunny		
Parameter:	CH ₄ / NMHC / THC	Calibration Purpose:	shut down		
Start/End Time 24 hr. (mst):	9:57/12:12	Performed By/Reviewer:	Raja Abid	Tom Bourque	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	January 9, 2021		

Analyzer:		Correction Factors:			
ID# or Serial Number:	1314057759	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow:	77.74 cc/min	CH ₄ =	1.001	0.995	n/a
Last Calibration Date:	September 19, 2017	NMHC =	1.004	1.017	n/a
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.002	1.005	n/a

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Definer Low 129069 expires February 5, 2018	Point	CH ₄	NMHC	THC
High Flow Meter ID/Expiry Date:	Definer High 128686 expires February 5, 2018	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	API id# 829 expires January 27, 2018	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #:	LL 19272	Low	3.00	3.00	6.00
CH ₄ Cylinder Conc.:	880.0 304.0 =C ₃ H ₈ Cylinder Conc.				
CH ₄ expressed as C ₃ H ₈ =	836.0 1716.0 =total CH ₄ equivalent				

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

Calibrator Flow Rates (cc/min)				Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
as found zero	2970	0.00	2970	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2935	50.50	2985	14.89	14.14	29.03	14.96	13.90	28.89	0.995	1.017	1.005
mid	2959	26.30	2986	7.75	7.36	15.12	7.79	7.24	15.06	0.995	1.017	1.004
low	2973	13.05	2986	3.85	3.65	7.50	3.85	3.59	7.47	0.999	1.018	1.004
Average C.F. =										0.996	1.018	1.004

Linear Regression/Calibration Results:			
Correlation Coefficient =	CH ₄	NMHC	THC
Slope =	1.000	1.000	1.000
b (Intercept as % of full scale) =	1.005	0.983	0.995
% change in C.F. from last cal =	-0.03%	0.00%	0.01%
	0.59%	-1.34%	-0.28%
LIMITS			
> or = 0.995			
0.90-1.10			
± 3% F.S.			
± 10%			

As Left Instrument Diagnostics:			
Interface Board Voltages:	Bias Supply:	-289.9	Calibration History cnt'd:
Temperatures:	Detector Oven:	175.0	NM Peak Area:
	Filter:	175.1	Methane Start:
	Column Oven:	75.0	Methane End:
	Internal:	34.8	Backflush:
Cylinder Pressures/reg.:	Carrier:	400	NMHV Start:
	Fuel:	1400	NMHC End:
	Span Gas:	600	Date:
	Zero Air Generator:	45	Time:
Internal Pressures:	Carrier:	31.3	CH ₄ PK HT:
	Fuel:	41.6	CH ₄ RT:
	Air:	25.9	CH ₄ Baseline:
FID Status:	Status:	LIT	CH ₄ LOD:
	Counts:	45571	CH ₄ SD:
	Flame:	405.0	CH ₄ CONC:
	Det Base:	175.0	NM PK HT:
Flame and Power Stats:	Last Power On:	29Jun2017@11:55	NM Peak Area:
	Flameouts:	4	NM CONC:
	Det Oven at Start:	23.6	NM Base Start:
	Col Oven at Start:	23.6	NM Base End:
Calibration History:	Time:	19Sep17@10:38	NM LOD:
	Type:	SPAN	NM Start IDX:
	Status:	GOOD	NM End IDX:
	Check/Adjust:	ADJUST	NM Max Slope:
	CH ₄ Span Conc:	14.62	NM Min Slope:
	CH ₄ SP Ratio:	0.00078	NM PT Count:
	CH ₄ RT:	11.8	Previous CH ₄ :
	CH ₄ PK IDX:	19	Previous NMHC:
	CH ₄ PK HT:	18743	Previous THC:
	NM Span Conc:	14.16	New CH ₄ :
	NM SP Ratio:	0.000161	New NMHC:
			New THC:

Comments:
The analyzer sample inlet filter was changed.

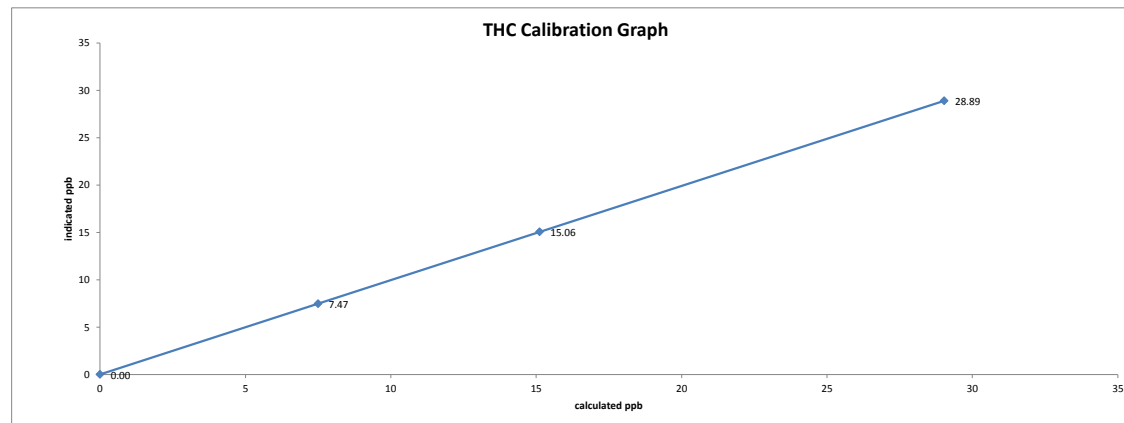
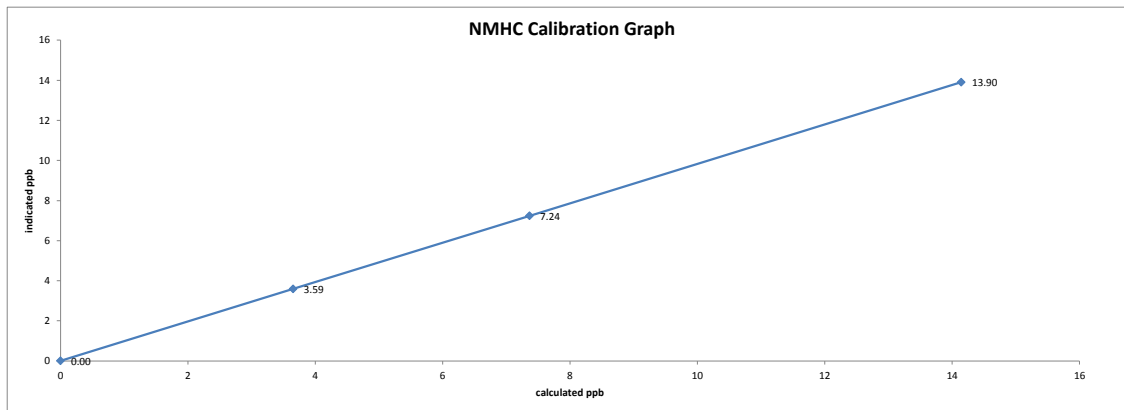
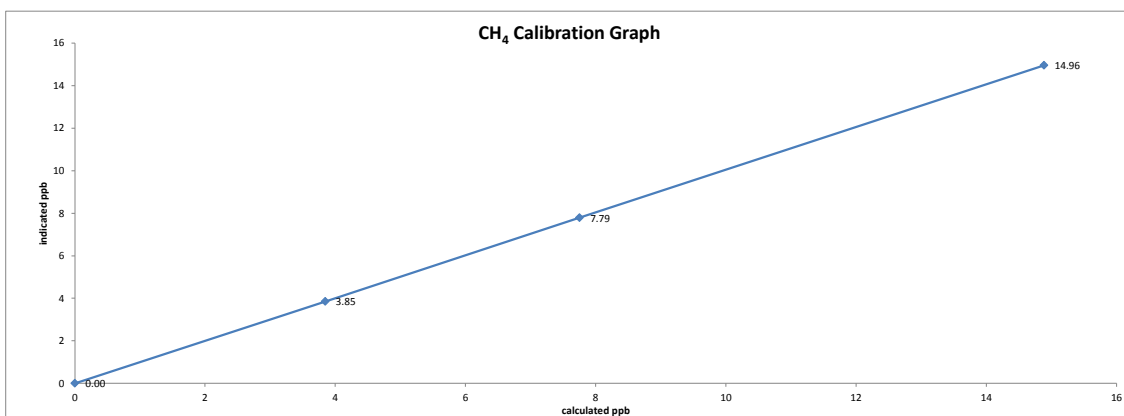
The manifold blower was found to be working normally.

9:58 flow measured. result was 77.74 cc/min. 9:57-12:12 shut down cal was performed to replace internal pump. 12:14-15:00 removed internal pump and installed a new pump. Barometric Pressure recorded from Environment Canada site.

The manifold blower was found to be working normally. Flow measurements after mid-point

Date: October 5, 2017
Company/Airshed: PRAMP
Location/Station Name: Reno

Start/End Time 24 hr. (mst): 9:57/12:12
Calibration Purpose: shut down
Calibration Method: Gas Dilution





Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: October 5, 2017		Barometer/B.P./units: F.S. 05544 expires December 5, 2018		27.77	mmHg
Company/Airshed: PRAMP		Thermometer/Station Temp: n/a		22.57	°C
Location/Station Name: Reno		Weather Conditions: Sunny			
Parameter: CH ₄ / NMHC / THC		Calibration Purpose: post repair			
Start/End Time 24 hr. (mst): 15:03/19:15		Performed By/Reviewer: Raja Abid		Tom Bourque	
Calibration Method: Gas Dilution		Cal Gas Expiry Date:		January 9, 2021	

Analyzer:		Correction Factors:		
ID# or Serial Number: 1314057759		Previous C.F.:	As Found C.F.:	New C.F.:
Measured Flow: 1283.2		CH ₄ = 1.001	n/a	1.000
Last Calibration Date: September 19, 2017		NMHC = 1.004	n/a	1.000
Range ppm: 20 CH ₄ /20 NMHC/40 THC		THC = 1.002	n/a	1.000

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date: Definer Low 129069 expires February 5, 2018		Point	CH₄	NMHC	THC
High Flow Meter ID/Expiry Date: Definer High 128686 expires February 5, 2018		High	13.00	13.00	26.00
Calibrator ID/Expiry Date: API id# 829 expires January 27, 2018		Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #: LL 19272		Low	3.00	3.00	6.00
CH₄ Cylinder Conc.: 880.0	304.0 = C ₃ H ₈ Cylinder Conc.				
CH₄ expressed as C₃H₈: 836.0	1716.0 = total CH ₄ equivalent				

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015												
Calibrator Flow Rates (cc/min)				Calculated CH₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH₄	NMHC	THC
adjusted zero	2971	0.00	2971	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2936	50.59	2986	14.91	14.16	29.07	14.91	14.16	29.07	1.000	1.000	1.000
mid	2958	26.16	2984	7.71	7.33	15.04	7.74	7.33	15.11	0.997	1.000	0.996
low	2978	13.02	2991	3.83	3.64	7.47	3.84	3.64	7.50	0.998	1.000	0.996
calibrator zero	2971	0.00	2971	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
										Average C.F. =		
										0.998 1.000 0.997		

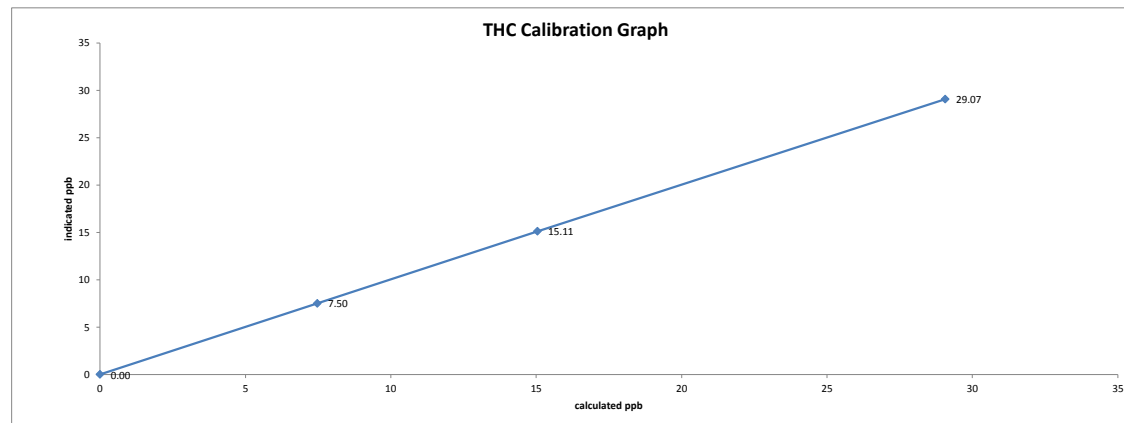
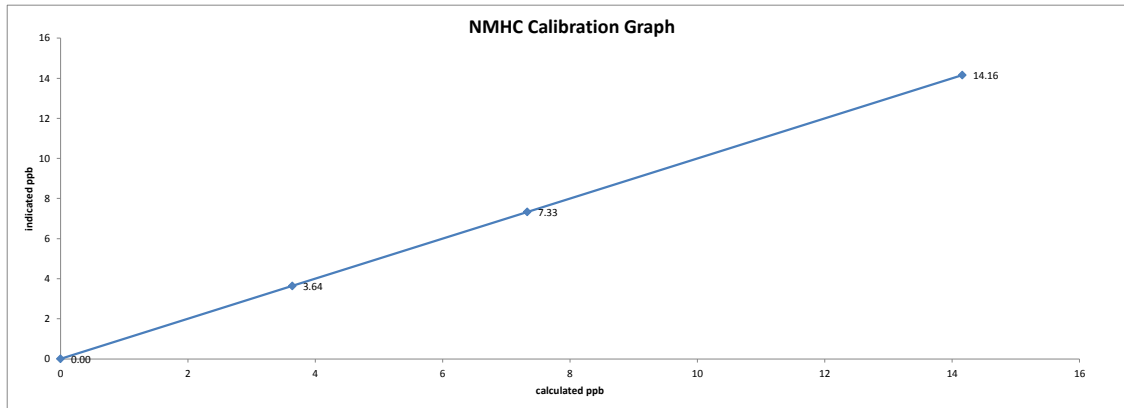
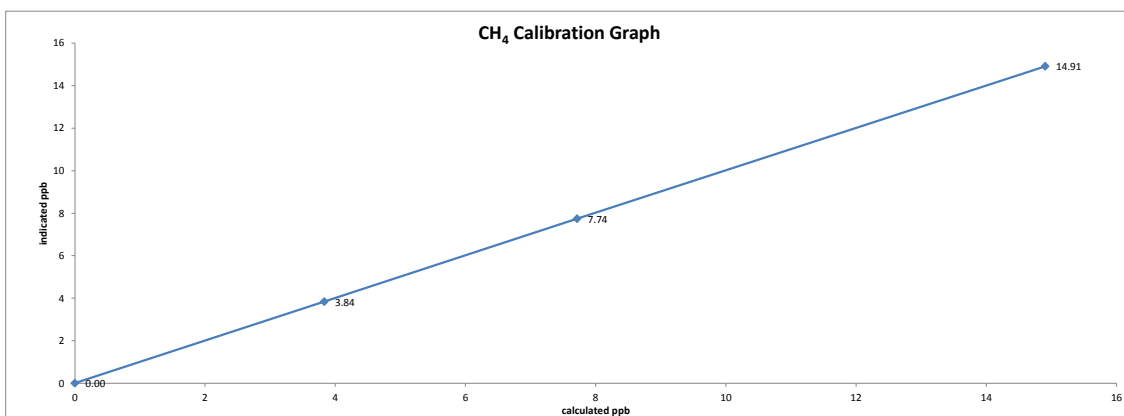
Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	CH₄	NMHC	THC	> or = 0.995	
Slope =	1.000	1.000	1.000	0.95-1.05	
b (Intercept as % of full scale) =	0.04%	0.00%	0.06%	± 3% F.S.	
% change in C.F. from last cal =	n/a	n/a	n/a	n/a	

As Left Instrument Diagnostics:											
Interface Board Voltages:		Bias Supply: -289.2		Calibration History cnt'd:		NM Peak Area: n/a					
Temperatures:		Detector Oven: 175.0		Crucial Settings:		Methane Start: n/a					
		Filter: 175.1				Methane End: n/a					
		Column Oven: 175.0				Backflush: n/a					
		Internal: 31.9				NMHV Start: n/a					
Cylinder Pressures/reg.:		Carrier: 2100 50		Run History>1:		NMHC End: n/a					
		Fuel: 1400 50				Date: 05Oct17					
		Span Gas: 600 20				Time: 15:04					
		Zero Air Generator: 45				CH₄ PK HT: 0					
Internal Pressures:		Carrier: 31.3				CH₄ RT: 8.0					
		Fuel: 41.6				CH₄ Baseline: 1800					
		Air: 25.9				CH₄ LOD: 73					
FID Status:		Status: LIT				CH₄ SD: 24					
		Counts: 22100				CH₄ CONC: 0.00					
		Flame: 405.0				NM PK HT: 0					
		Det Base: 175.0				NM Peak Area: 0					
Flame and Power Stats:		Last Power On: 50Oct2017@14:16				NM CONC: 0.00					
		Flameouts: 1				NM Base Start: 1779					
		Det Oven at Start: 133.5				NM Base End: 1774					
		Col Oven at Start: 74.5				NM LOD: 8					
Calibration History:		Time: n/a				NM Start IDX: 60					
		Type: n/a				NM End IDX: 51					
		Status: n/a				NM Max Slope: -1.2e+00					
		Check/Adjust: n/a				NM Min Slope: -8.1e-01					
		CH₄ Span Conc: n/a				NM PT Count: 0					
		CH₄ SP Ratio: n/a		Expected Values:		Previous CH₄: 10.26					
		CH₄ RT: n/a				Previous NMHC: 11.1					
		CH₄ PK HT: n/a				Previous THC: 21.39					
		NM Span Conc: n/a				New CH₄: 10.17					
		NM SP Ratio: n/a				New NMHC: 11.16					
						New THC: 21.37					

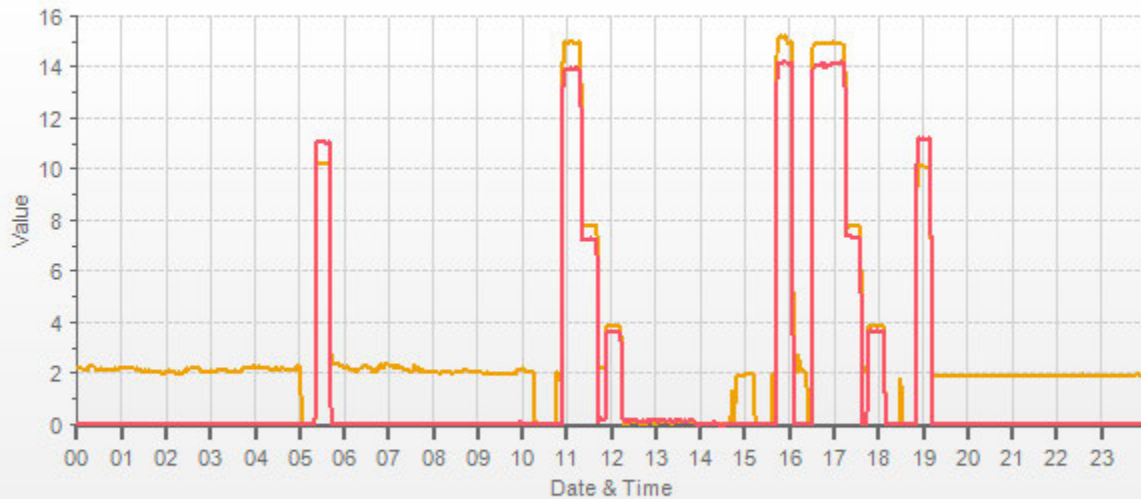
Comments:	
The manifold blower was found to be working normally.	
16:04-16:24 During adjusted high the zero air stopped working which caused the low readings.16:25-16:29 Calibration set up connected to station zero air ;16:30 adjusted high point started again. Barometric Pressure recorded from Environment Canada site. Oct 6 NMHC : 13:29-13:37 in M mode to disconnect calibration gear from station zero air.	
The manifold blower was found to be working normally. Flow measurements after mid-point.	

Date: October 5, 2017
Company/Airshed: PRAMP
Location/Station Name: Reno

Start/End Time 24 hr. (mst): 15:03/19:15
Calibration Purpose: post repair
Calibration Method: Gas Dilution



Station: PRAMP_RENO Daily: 17/10/05 Type: AVG 1 Min. [1 Min.]



— CH4[ppm]

— NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
 Audit Location: Reno
 Audit Date: April 6, 2017

Performed By: Limin Li
 Reviewed By: Trina Whitsitt
 Start /EndTime (mst): 15:20/16:50

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1 V
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200 km/h
Serial #:	149769	Direction Voltage Output Range:	0-1 V
Previous Cal/Audit Date:	February 16, 2017	Direction Unit Output Range:	0-360 degrees

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	18.4	18.4	18.4	0.999
2000	36.9	36.8	36.8	1.003
3000	55.3	55.1	55.1	1.003
4000	73.7	73.5	73.5	1.002
5000	92.2	92.0	92.0	1.003
6000	110.6	110.4	110.4	1.002
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.9	165.9	1.000
10000	184.3	184.4	184.4	0.999
The audit meets AMD requirements.			Average Correction Factor=	1.001

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	353	0.2	1.7	0.9
30	330	30	328	0.4	2.1	1.3
60	300	61	299	-0.8	1.2	1.0
90	270	91	269	-1.1	0.9	1.0
120	240	121	240	-1.3	0.2	0.7
150	210	151	211	-1.2	-0.7	0.9
180	180	181	181	-1.3	-1.2	1.3
210	150	211	151	-0.7	-1.4	1.1
240	120	240	121	0.0	-1.4	0.7
270	90	270	91	0.5	-1.1	0.8
300	60	299	61	1.3	-0.9	1.1
330	30	328	30	2.2	0.3	1.3
355	0	353	0	1.7	0.2	0.9
The audit meets AMD requirements.			Average Absolute Degrees Difference=			1.0

Comments: Wind speed gain adjusted before calibration.

CALIBRATORS

Company <u>Maxxam</u>		Operator: <u>Mike</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>Bios Defender 530</u>
Serial Number	<u>690</u>	Serial Number	<u>HI148944 Lo 152019</u>
Last Verification Date	<u>March 30, 2016\</u>	Temperature (°C)	<u>23.3</u>
NO Cylinder S/N	<u>EY0000597</u>	Barometric Pressure	<u>704.3mmHg</u>
NO [PPM]	<u>49.0 NOx [PPM]</u>		
Expiry Date	<u>December 8, 2019</u>		
Dilution Flow (sccm)			
Pt. #1	<u>4898</u>	Pt. #2	<u>4942</u>
		Pt. #3	<u>4953</u>
Gas Flow (sccm)			
Pt. #1	<u>79.2</u>	Pt. #2	<u>38.6</u>
		Pt. #3	<u>19.3</u>

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4977	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
4977	79.2	0.7792	0.7792	0.7841	0.0012	0.7854	1%	1%
4981	38.6	0.3797	0.3797	0.3813	0.0006	0.3819	0%	1%
492	19.3	0.1902	0.1902	0.1927	0.0002	0.1929	1%	1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO		LIMITS		NOx			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0056	0.90-1.10		m (Slope)=	1.0073		
b (Intercept % of FS)=	0.0357	± 3% F.S.		b (Intercept % of FS)=	0.0304		

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4977	0.000	0.0000	0.7928	0.0014	0.7941	NO ₂	% Diff. Limit
4977	0.500	0.5448	0.2480	0.5391	0.7871	-1%	± 10%
4977	0.250	0.2862	0.5066	0.2861	0.7926	-1%	± 10%
4977	0.100	0.1221	0.6707	0.1193	0.7914	-3%	± 10%
Absolute Average Percent Difference						2%	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO ₂		LIMITS					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	0.9894	0.90-1.10					
b (Intercept % of FS)=	0.0719	± 3% F.S.					

AENV Standards		NO_x Analyzer	
Audit Calibrator			
Make/Model	<u>Thermo 146i</u>	Make/Model	<u>Thermo 42i</u>
Serial/AMU Number	<u>1809</u>	Serial/AMU Number	<u>1868</u>
SRM Gas Cylinder No.	<u>CAL018140</u>	Last Calibration Date	<u>March 15, 2017</u>
Cylinder Conc. (ppm)	<u>48.79</u>	Full Scale (ppm)	<u>1.0</u>
		Cylinder Gas Expiry Date	<u>March 28, 2019</u>

COMMENTS: Gas has ~50ppm SO2

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: March 17, 2017
Location: McIntyre Center Edmonton

Company <u>Maxxam</u>		Operator: <u>Chris</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>Definer 530</u>
Serial Number	<u>829</u>	Serial Number	<u>H-148944, L-152019</u>
Last Verification Date	<u>February 3, 2016</u>	Temperature (°C)	<u>23.5</u>
NO Cylinder S/N	<u>EY0000597</u>	Barometric Pressure	<u>707.1 mmHg</u>
NO [PPM]	<u>49.0</u> NOx [PPM] <u>49.0</u>		
Expiry Date	<u>December 8, 2019</u>		

Dilution Flow (sccm)			
Pt. #1 <u>4846</u>	Pt. #2 <u>4888</u>	Pt. #3 <u>4908</u>	
Gas Flow (sccm)			
Pt. #1 <u>80.6</u>	Pt. #2 <u>38.9</u>	Pt. #3 <u>18.4</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
	0.0	0.0000	0.0000	0.0000	0.0001	0.0001	Limit ± 10%	
4927	80.6	0.8016	0.8016	0.8021	0.0015	0.8036	0.1%	0.2%
4927	38.9	0.3867	0.3867	0.3862	0.0001	0.3863	-0.1%	-0.1%
4927	18.4	0.1830	0.1830	0.1820	0.0004	0.1824	-0.5%	-0.4%
Absolute Average Percent Difference							0.2%	0.1%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO		LIMITS		NOx			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0010	0.90-1.10		m (Slope)=	1.0027		
b (Intercept % of FS)=	-0.0604	± 3% F.S.		b (Intercept % of FS)=	-0.0652		

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4927	0	0.0000	0.8016	0.0010	0.8020	NO ₂	% Diff. Limit
4927	500	0.5450	0.2566	0.5421	0.7987	-0.7%	± 10%
4927	250	0.2797	0.5219	0.2797	0.8016	-0.4%	± 10%
4927	80	0.0954	0.7062	0.0958	0.8026	-0.6%	± 10%
Absolute Average Percent Difference						1%	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>			
NO ₂		LIMITS					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	0.9931	0.90-1.10					
b (Intercept % of FS)=	0.1220	± 3% F.S.					

AENV Standards		NO_x Analyzer	
Audit Calibrator			
Make/Model	<u>Thermo 146i</u>	Make/Model	<u>Thermo 42i</u>
Serial/AMU Number	<u>AMU1809</u>	Serial/AMU Number	<u>AMU 1868</u>
SRM Gas Cylinder No.	<u>CAL018140</u>	Last Calibration Date	<u>January 25, 2017</u>
Cylinder Conc. (ppm)	<u>48.79</u>	Full Scale (ppm)	<u>1.0</u>
		Cylinder Gas Expiry Date	<u>March 25, 2019</u>

COMMENTS: _____

Auditor: Shana Beaton Date: January 27, 2017

Operator Signature: [Signature] Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-086CGA

Company: Maxxam Operator's Name: Chris Wesson
Cylinder #: LL119513 Concentration PPM: 50.6 Tolerance(%): 1 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model: Teco 146i
Serial Number: AMU 1809
Last Verification Date: June 17, 2016
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp. °C: 23.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
Last Calibration: Date: June 17/16 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000			
4976	82.3	0.828	0.01654	60.462	50.1
4985	40.8	0.411	0.00818	122.181	50.2
4965	20.2	0.203	0.00407	245.792	49.9
Average Cylinder Concentration:					50.1

Previous Stated Concentration PPM: 50.6

Percent variance from Stated: 1.1

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: Al Clark
Operator Signature: [Signature]

Date: June 17, 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. 2015-031CGA

Company: Maxxam Operators name: Limin Li
Cylinder #: LL19272 Conc CH₄ (PPM) 880/304 Tolerance (%) 2 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1691
Last Verification Date May 21, 2015
Gas Type CH₄ Conc. 999.2
Cylinder Number D751932
Gas Type C₃H₈ Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC2
Serial Number AMU 1650
Temp. °C 24.0 C
B.P. 703 mmhg

Reference Analyzer:

Make/Model Teco 55C Serial/AMU Number: 1643
Instrument Settings Zero: N/A Span: N/A Range: 20
Last Calibration: Date: May 21/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		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
2600	0.0	0.00	0.00				
2569	51.5	17.77	16.76	0.02005	49.883	886	304
3549	22.3	5.56	5.27	0.00628	159.148	885	305
3523	10.4	2.63	2.49	0.00295	338.750	891	307
Average Cylinder Concentration:						887	305

CH₄ **C₃H₈**
Previous Stated Concentration PPM: 880 304
Percent variance from Stated: 0.8 0.4

Cylinder gas tolerances based on CH₄ only

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

Auditor: Al Clark Date: May 21, 2015
Operator Signature: *Al Clark* 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
Wunmi Adekanmbi	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

November 17, 2017

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 196-2017-10-93-C

Site: Reno Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Carla Reesor

Date November 9, 2017

Level 1 Primary Validation

Carla Reesor

Date November 9, 2017

Level 2 Final Validation

Carla Reesor

Date November 17, 2017

Level 3 Independent Data Review

Cheri Sinclair

Date November 17, 2017

Post-Final Validation

NA

Date NA

Notes

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