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

JOB #: 196-2018-09-93-C

September 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: October 16, 2018

Prepared by:

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SUMMARY

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

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

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

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (June, 2017).

Data-logger Upgrade: A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred across parameters, between September 18 and September 19, due to activities surrounding the upgrade.

The summary of results is presented on the following pages.

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

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL 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	1	25	6	2.1	SSW	0	1	99.0
TRS (ppb)	-	-	-	-	0.35	1.33	8	1	3.6	NNE	0.58	8	99.0
THC (ppm)	-	-	-	-	2.00	2.81	27	23	1.3	SW	2.09	18	99.0
CH ₄ (ppm)	-	-	-	-	2.00	2.81	27	23	1.3	SW	2.09	18	99.0
NMHC (ppm)	-	-	-	-	0.00	0.00	1	0	5.5	SW	0.00	1	99.0
RELATIVE HUMIDITY (%)	-	-	-	-	71	95	11	8	2.3	SW	91	8	99.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	943	953	29	9	10.4	N	952	29	99.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	4.7	19.5	7	14	2.2	WSW	13.7	7	99.0
STATION TEMPERATURE (°C)	-	-	-	-	22.5	25.4	14	15	2.1	NE	23.4	12	99.0
VECTOR WS (kph)	-	-	-	-	0.7	14.2	11	17	-	NNE	7.5	6	99.0
VECTOR WD (sec)	-	-	-	-	12 (NNE)	-	-	-	-	-	-	-	99.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Reno Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2018	September

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	99.0	0.001 ppm		0	0.000 ppm	0
TRS	99.0	0.001 ppm		-	0.001 ppm	-
THC	99.0	2.81 ppm		-	2.09 ppm	-
CH ₄	99.0	2.81 ppm		-	2.09 ppm	-
NMHC	99.0	0.00 ppm		-	0.00 ppm	-
RH	99.0	95 %		-	91 %	-
BP	99.0	953 mb		-	952 mb	-
Ambient TPX	99.0	19.5 °C		-	13.7 °C	-
Station TPX	99.0	25.4 °C		-	23.4 °C	-
Wind Speed	99.0	14.2 kph		-	7.5 kph	-
Wind Direction	99.0	-		-	-	-

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- The routine monthly calibration was performed on September 13.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- The routine monthly calibration was performed on September 13.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.

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

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- The routine monthly calibration was performed on September 13.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.
- One instance of maximum instantaneous data was discarded on September 23 at hour 21:00, as the data was considered invalid likely due to issues from the data-logger configuration.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month. A trigger test was performed during the routine monthly calibration on September 13 to assess the effectiveness of the canister system. No deficiencies were found.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- An anemometer sensor check was conducted on September 13. The result was satisfactory.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.
- 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 99.0%, equivalent to seven hours of downtime.
- A humidity sensor check was conducted on September 13. The result was satisfactory.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- A pressure sensor check was conducted on September 13. The result was satisfactory.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.
- Two minutes of data collected on September 18, at 11:51-11:52, were discarded due to interference from station activities. The corresponding hourly average was recalculated.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- A temperature sensor check was conducted on September 13. The result was satisfactory.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 99.0%, equivalent to seven hours of downtime.
- A data-logger upgrade was implemented this month. The Ultimate data-logger was installed to replace the resident ESC 8832. Seven hours of downtime were incurred between September 18 and September 19 due to activities surrounding the upgrade.

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

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

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (June, 2017).

4.0 Calculations and Results

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

5.0 Methods and Procedures

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

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

Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - API 100A UV Fluorescent Analyzer

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - ESC 8832 and Envidas Ultimate

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

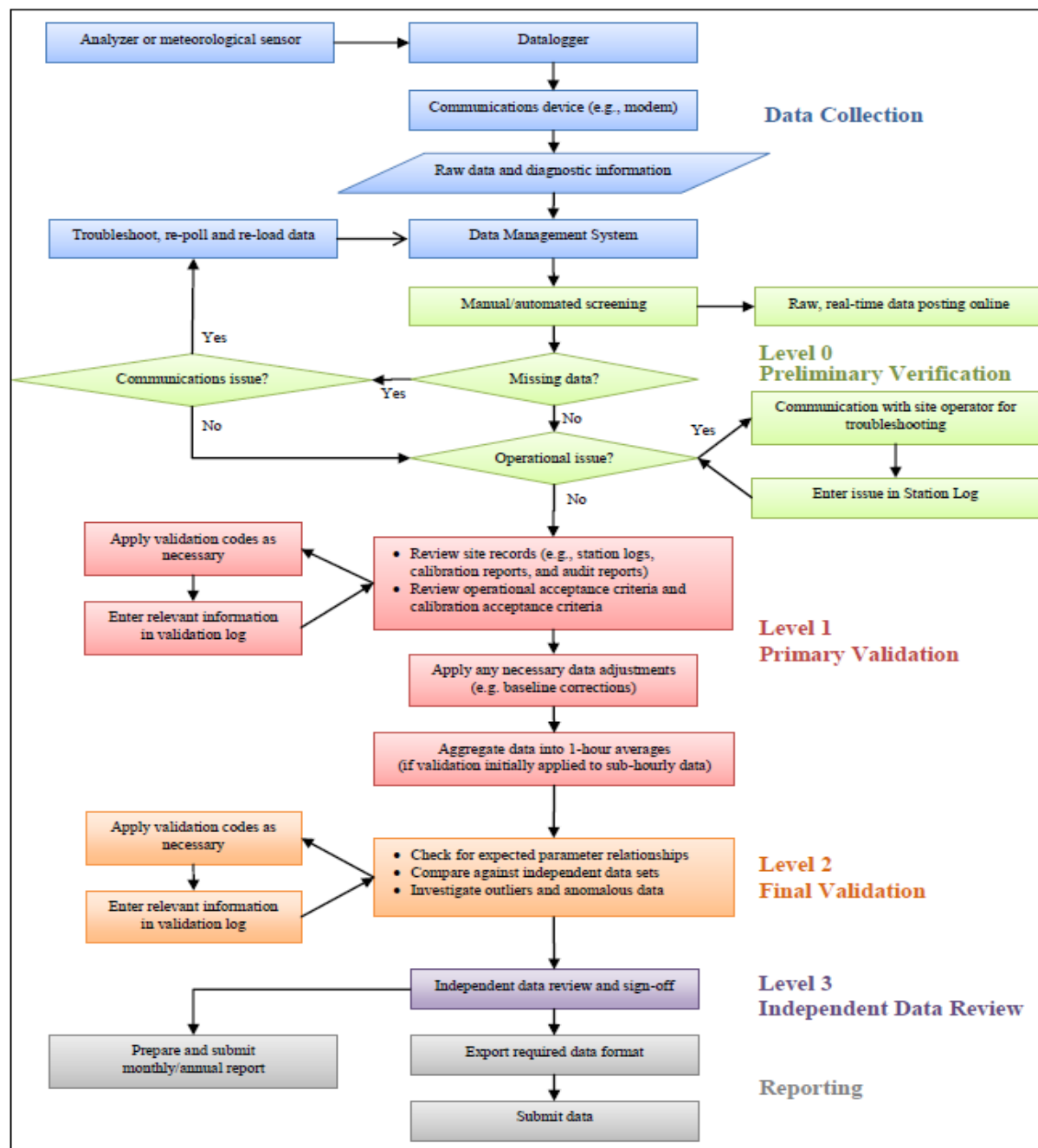
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

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

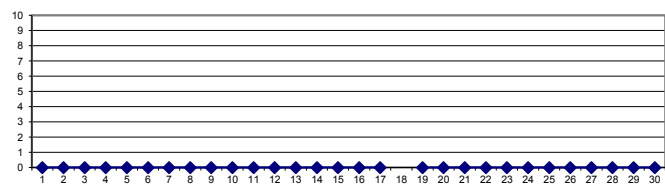
OBJECTIVE LIMIT:

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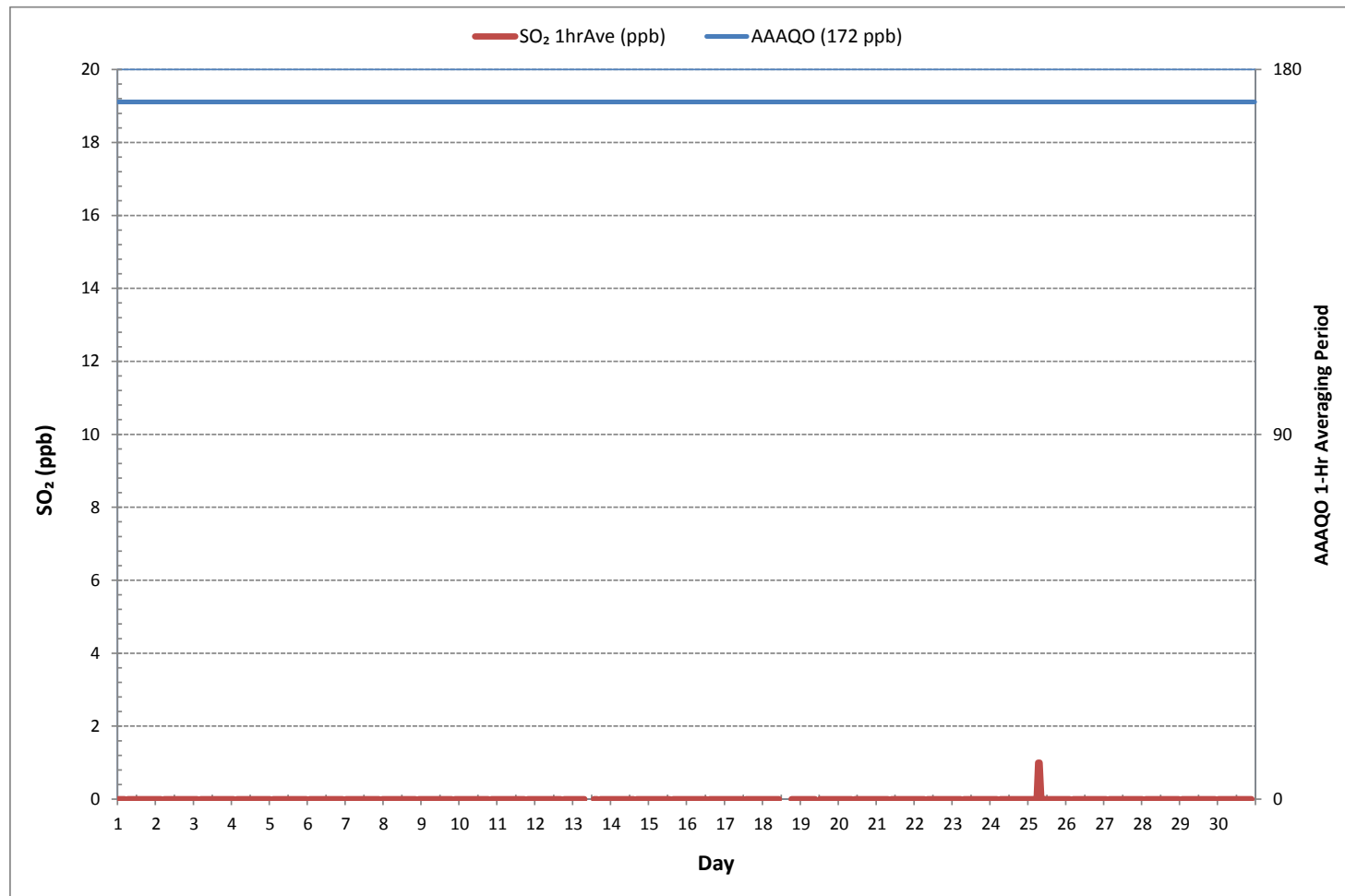
MONTHLY SUMMARY

ANALYSIS SUMMARY						
NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF 24-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		2				
MINIMUM 1-HR AVERAGE:		0	ppb	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:		1	ppb	@ HOUR	6	ON DAY 25
MAXIMUM 24-HR AVERAGE:		0	ppb			ON DAY 1
IZS CALIBRATION TIME:		32	hrs	OPERATIONAL TIME:		713 hrs
MONTHLY CALIBRATION TIME:		5	hrs	AMD OPERATION UPTIME:		99.0 %
STANDARD DEVIATION:		0		MONTHLY AVERAGE:		0 ppb

24 HR AVERAGES September 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



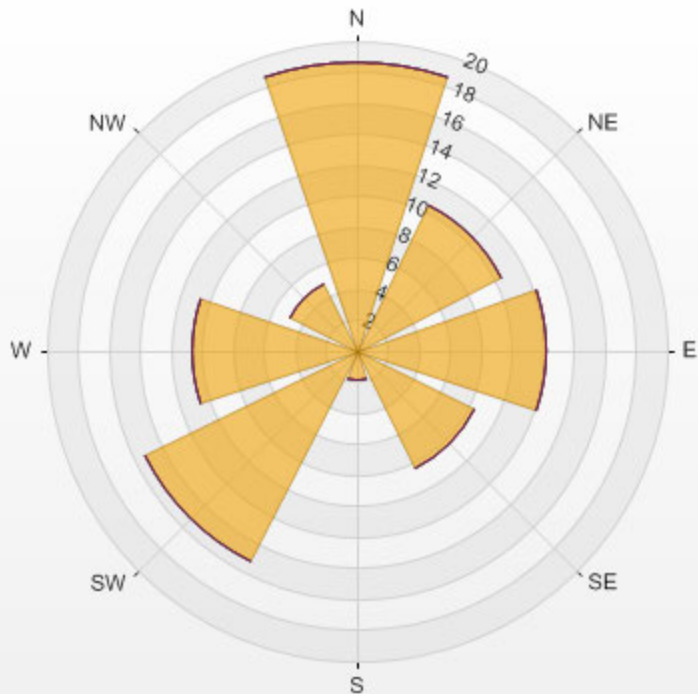
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-SO₂[ppb]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 17.31%

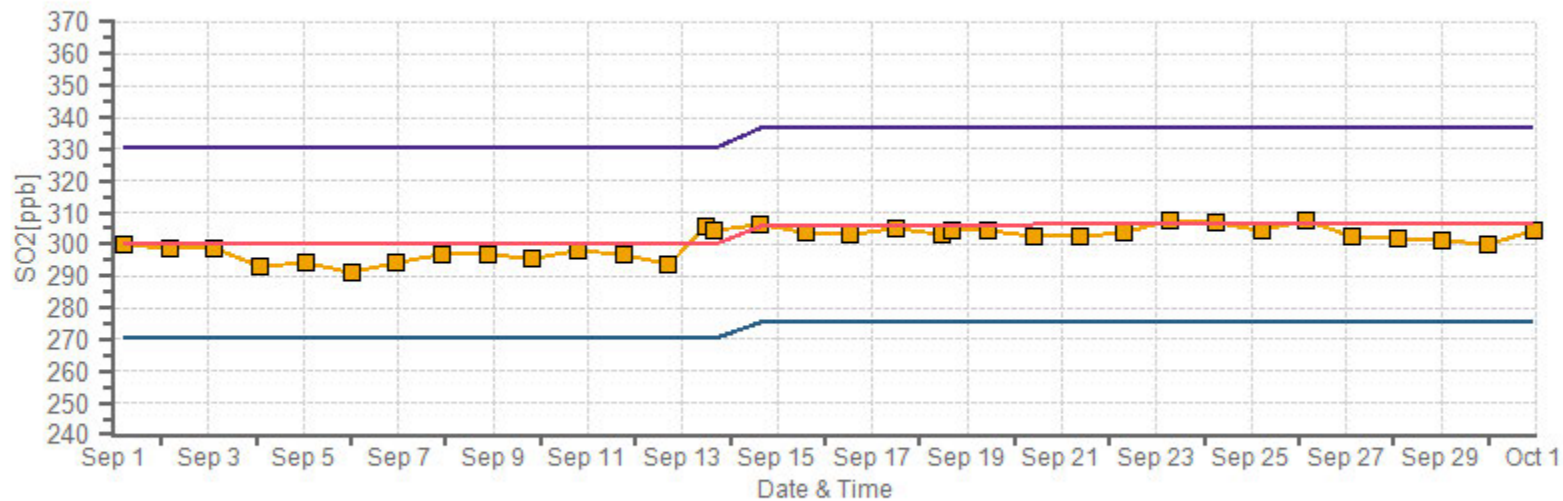
Calm Avg: 0.01 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	18.6	0.0	0.0	0.0	0.0	18.6
NE	10.5	0.0	0.0	0.0	0.0	10.5
E	12.3	0.0	0.0	0.0	0.0	12.3
SE	8.6	0.0	0.0	0.0	0.0	8.6
S	1.9	0.0	0.0	0.0	0.0	1.9
SW	15.2	0.0	0.0	0.0	0.0	15.2
W	10.7	0.0	0.0	0.0	0.0	10.7
NW	4.9	0.0	0.0	0.0	0.0	4.9
Summary	82.7	0.0	0.0	0.0	0.0	82.7

PRAMP_RENO Poll.: PRAMP_RENO-SO₂[ppb] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.31% Calm Poll Avg: 0.01[ppb]



SO₂[ppb] Calibration: PRAMP_RENO Monthly: 18/09 Type: Span



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

TOTAL REDUCED SULPHUR

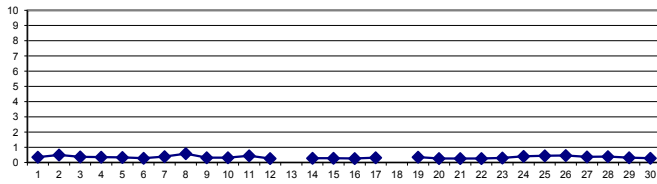
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.49	0.49	0.49	0.48	0.41	S	0.38	0.36	0.33	0.32	0.30	0.31	0.30	0.29	0.30	0.28	0.26	0.28	0.29	0.33	0.32	0.46	0.41	0.36	0.26	0.49	0.36	24	
2	0.38	0.42	0.49	0.54	S	0.53	0.61	0.54	0.47	0.48	0.48	0.46	0.45	0.43	0.46	0.47	0.47	0.47	0.50	0.45	0.54	0.54	0.51	0.49	0.38	0.61	0.49	24	
3	0.49	0.47	0.48	S	0.48	0.50	0.52	0.49	0.35	0.33	0.32	0.33	0.31	0.30	0.31	0.30	0.30	0.26	0.30	0.34	0.35	0.35	0.33	0.33	0.26	0.52	0.37	24	
4	0.32	0.39	S	0.37	0.43	0.34	0.43	0.53	0.34	0.31	0.30	0.32	0.32	0.29	0.30	0.28	0.26	0.27	0.29	0.42	0.46	0.44	0.34	0.36	0.26	0.53	0.35	24	
5	0.48	S	0.39	0.38	0.43	0.37	0.32	0.45	0.50	0.36	0.32	0.28	0.26	0.26	0.25	0.27	0.25	0.25	0.26	0.36	0.40	0.45	0.36	0.25	0.25	0.50	0.34	24	
6	S	0.26	0.26	0.26	0.25	0.26	0.28	0.29	0.29	0.29	0.29	0.28	0.28	0.27	0.27	0.27	0.28	0.30	0.31	0.31	0.29	0.30	0.29	S	0.25	0.31	0.28	24	
7	0.32	0.32	0.32	0.31	0.33	0.32	0.34	0.33	0.38	0.37	0.37	0.33	0.34	0.34	0.33	0.33	0.36	0.36	0.41	0.53	0.61	0.62	S	0.59	0.31	0.62	0.39	24	
8	1.25	1.33	1.12	1.01	1.31	0.94	0.61	0.45	0.38	0.36	0.37	0.39	0.40	0.35	0.32	0.32	0.34	0.33	0.33	0.32	0.36	S	0.34	0.33	0.32	1.33	0.58	24	
9	0.35	0.35	0.37	0.36	0.37	0.35	0.36	0.38	0.32	0.34	0.30	0.30	0.31	0.29	0.29	0.30	0.29	0.27	0.26	0.26	S	0.27	0.27	0.26	0.26	0.38	0.31	24	
10	0.27	0.27	0.27	0.31	0.37	0.31	0.31	0.27	0.28	0.26	0.26	0.27	0.26	0.31	0.32	0.33	0.33	0.33	0.36	S	0.30	0.42	0.46	0.51	0.26	0.51	0.32	24	
11	0.36	0.62	0.55	0.47	0.50	0.59	0.64	0.65	0.63	0.52	0.47	0.41	0.34	0.34	0.31	0.30	0.31	0.32	S	0.33	0.35	0.35	0.33	0.31	0.30	0.65	0.44	24	
12	0.30	0.30	0.30	0.29	0.28	0.27	0.27	0.27	0.27	0.28	0.27	0.25	0.24	0.26	0.26	0.24	0.24	S	0.25	0.24	0.23	0.24	0.21	0.21	0.21	0.30	0.26	24	
13	0.20	0.20	0.22	0.20	0.22	0.23	0.22	0.20	C	C	C	C	C	C	C	0.25	S	0.26	0.23	0.22	0.20	0.20	0.20	0.20	0.20	0.26	0.22	24	
14	0.22	0.22	0.23	0.22	0.28	0.33	0.31	0.31	0.28	0.27	0.26	0.26	0.28	0.27	0.27	S	0.30	0.29	0.30	0.31	0.29	0.32	0.31	0.28	0.22	0.33	0.28	24	
15	0.31	0.29	0.31	0.34	0.29	0.27	0.31	0.30	0.29	0.27	0.28	0.25	0.25	0.26	S	0.27	0.26	0.25	0.26	0.28	0.28	0.29	0.27	0.26	0.25	0.34	0.28	24	
16	0.26	0.26	0.25	0.26	0.25	0.24	0.25	0.26	0.24	0.24	0.25	0.26	0.25	S	0.27	0.25	0.25	0.25	0.31	0.35	0.33	0.31	0.25	0.30	0.24	0.35	0.27	24	
17	0.29	0.29	0.48	0.46	0.25	0.25	0.26	0.29	0.27	0.27	0.25	0.27	S	0.28	0.28	0.27	0.29	0.30	0.29	0.34	0.39	0.44	0.47	0.48	0.25	0.48	0.32	24	
18	0.47	0.48	0.47	0.48	0.51	0.52	0.50	0.50	0.49	0.45	0.36	S	Y	Y	Y	Y	Y	Y	Y	0.30	0.40	0.59	0.55	0.51	0.55	0.30	0.59	0.48	18
19	0.44	0.54	0.52	0.56	0.34	0.34	0.41	0.44	0.42	0.43	S	Y	0.32	0.28	0.25	0.24	0.24	0.24	0.28	0.47	0.34	0.26	0.25	0.25	0.24	0.56	0.36	23	
20	0.39	0.33	0.28	0.25	0.25	0.25	0.24	0.24	0.24	S	0.29	0.28	0.26	0.25	0.25	0.25	0.25	0.27	0.27	0.29	0.27	0.29	0.31	0.28	0.24	0.39	0.27	24	
21	0.25	0.27	0.26	0.27	0.27	0.25	0.25	0.25	S	0.27	0.27	0.26	0.26	0.25	0.24	0.26	0.27	0.25	0.26	0.29	0.26	0.27	0.30	0.30	0.24	0.30	0.26	24	
22	0.33	0.29	0.26	0.28	0.25	0.25	0.27	S	0.30	0.28	0.27	0.27	0.27	0.26	0.27	0.27	0.26	0.27	0.26	0.28	0.26	0.27	0.28	0.30	0.25	0.33	0.27	24	
23	0.29	0.30	0.29	0.29	0.29	0.30	S	0.33	0.34	0.30	0.28	0.27	0.26	0.27	0.26	0.26	0.26	0.27	0.28	0.32	0.32	0.36	0.35	0.34	0.26	0.36	0.30	24	
24	0.36	0.36	0.37	0.37	0.38	S	0.42	0.40	0.45	0.41	0.35	0.36	0.36	0.34	0.34	0.35	0.36	0.37	0.42	0.50	0.41	0.67	0.56	0.55	0.34	0.67	0.41	24	
25	0.59	0.60	0.63	0.56	S	0.61	0.64	0.62	0.47	0.42	0.41	0.38	0.34	0.33	0.32	0.32	0.32	0.34	0.34	0.37	0.39	0.42	0.42	0.40	0.32	0.64	0.45	24	
26	0.42	0.40	0.41	S	0.46	0.46	0.43	0.35	0.36	0.38	0.36	0.43	0.37	0.36	0.40	0.43	0.43	0.45	0.49	0.47	0.41	0.45	0.86	0.93	0.35	0.93	0.46	24	
27	0.86	0.86	S	0.45	0.73	0.40	0.29	0.28	0.37	0.38	0.32	0.28	0.24	0.26	0.27	0.29	0.29	0.25	0.26	0.33	0.34	0.31	0.34	0.43	0.24	0.86	0.38	24	
28	0.33	S	0.56	0.54	0.78	0.70	0.71	0.46	0.60	0.42	0.26	0.27	0.26	0.27	0.26	0.26	0.30	0.29	0.29	0.26	0.25	0.28	0.29	0.31	0.25	0.78	0.39	24	
29	S	0.36	0.38	0.37	0.36	0.35	0.37	0.30	0.29	0.29	0.30	0.29	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.38	0.31	S	0.28	0.38	0.31	24		
30	0.52	0.39	0.33	0.34	0.31	0.28	0.27	0.26	0.26	0.28	0.26	0.28	0.27	0.27	0.27	0.26	0.26	0.25	0.26	0.28	0.28	0.24	S	0.30	0.24	0.52	0.29	24	
HOURLY MAX	1.25	1.33	1.12	1.01	1.31	0.94	0.71	0.65	0.63	0.52	0.48	0.46	0.45	0.43	0.46	0.47	0.47	0.47	0.50	0.53	0.61	0.67	0.86	0.93					
HOURLY AVG	0.41	0.42	0.40	0.39	0.41	0.39	0.39	0.37	0.36	0.34	0.32	0.31	0.30	0.30	0.29	0.29	0.30	0.30	0.31	0.34	0.35	0.37	0.36	0.37					

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

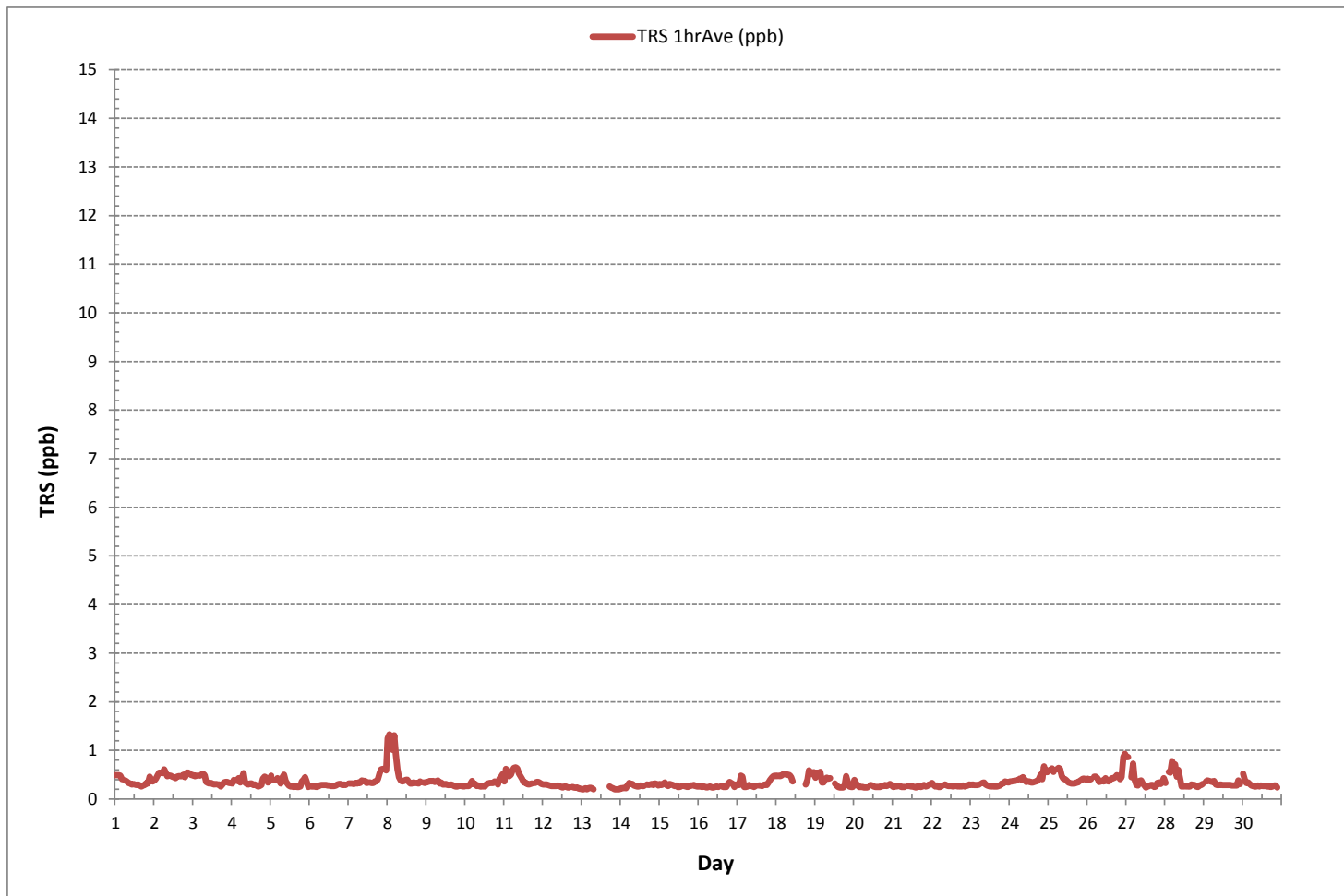
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	674				
MINIMUM 1-HR AVERAGE:	0.20	ppb	@ HOUR	0	ON DAY 13
MAXIMUM 1-HR AVERAGE:	1.33	ppb	@ HOUR	1	ON DAY 8
MAXIMUM 24-HR AVERAGE:	0.58	ppb			ON DAY 8
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	713	hrs
MONTHLY CALIBRATION TIME:	7	hrs	AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	0.13		MONTHLY AVERAGE:	0.35	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-TRS[ppb]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

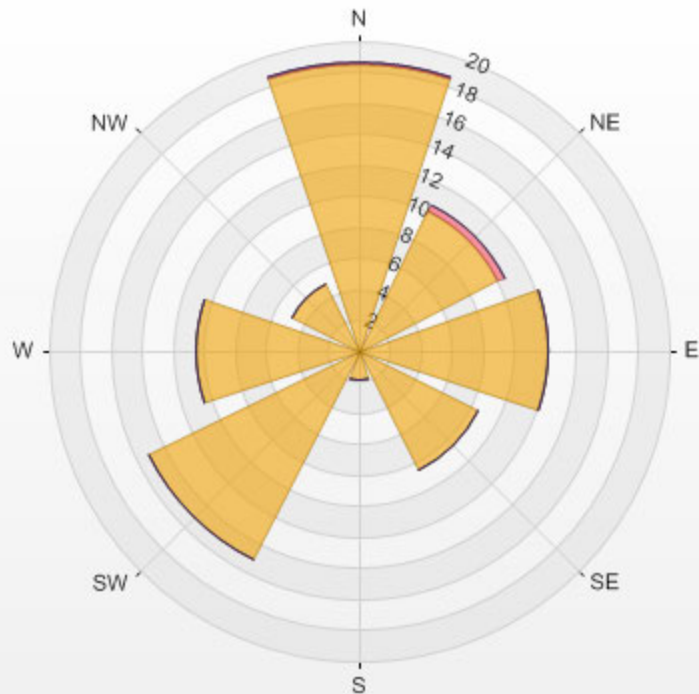
Calm: 17.36%

Calm Avg: 0.38 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	18.6	0.2	0.0	0.0	18.7
NE	10.1	0.5	0.0	0.0	10.5
E	12.3	0.0	0.0	0.0	12.3
SE	8.6	0.0	0.0	0.0	8.6
S	1.9	0.0	0.0	0.0	1.9
SW	15.1	0.0	0.0	0.0	15.1
W	10.5	0.0	0.0	0.0	10.5
NW	4.9	0.0	0.0	0.0	4.9
Summary	82.1	0.6	0.0	0.0	82.7

% Icon	Classes (ppb)	82	0-1	1	1-3	0	3-10	0	>10.0

PRAMP_RENO Poll.: PRAMP_RENO-TRS[ppb] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.36% Calm Poll Avg: 0.38[ppb]



TRS[ppb] Calibration: PRAMP_RENO Monthly: 18/09 Type: Span



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

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

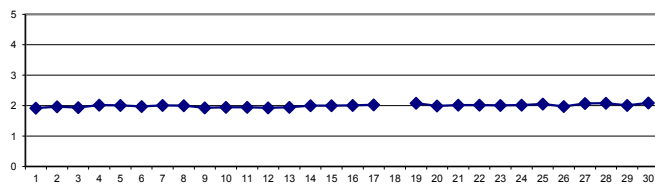
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.90	1.91	1.92	1.92	1.91	S	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.97	1.97	1.92	1.90	1.97	1.92	24	
2	1.93	1.94	1.95	1.96	S	1.96	2.06	2.02	1.96	1.96	1.95	1.94	1.93	1.94	1.95	1.94	1.94	1.99	1.97	1.92	2.02	2.04	1.94	1.93	1.92	2.06	1.96	24	
3	1.92	1.92	1.93	S	1.95	1.95	1.95	1.93	1.92	1.92	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.94	1.95	1.95	1.94	1.95	1.96	1.92	1.96	1.94	24	
4	1.97	1.97	S	1.97	2.13	2.16	2.26	2.24	2.01	1.95	1.95	1.96	1.95	1.93	1.93	1.93	1.93	1.94	1.95	2.12	2.14	2.10	1.98	1.97	1.93	2.26	2.02	24	
5	2.23	S	2.14	2.17	2.26	2.31	2.06	2.00	1.98	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.95	1.94	1.93	2.31	2.01	24	
6	S	1.95	1.95	1.95	1.95	1.96	1.95	1.96	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	2.00	2.01	1.99	1.99	1.98	S	1.95	2.01	1.97	24	
7	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.03	2.05	2.03	2.02	2.00	2.02	2.01	2.01	2.01	2.02	1.99	1.99	1.99	2.00	2.02	S	2.11	1.99	2.11	2.01	24	
8	2.06	2.02	2.03	2.04	2.04	2.03	2.05	2.03	2.01	2.01	2.00	2.00	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.97	1.95	S	1.93	1.93	1.93	2.06	2.00	24	
9	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.93	S	1.96	1.94	1.94	1.92	1.96	1.93	24
10	1.93	1.93	1.94	1.94	1.94	1.95	1.96	1.99	1.99	1.96	1.95	1.95	1.94	1.94	1.94	1.94	1.93	1.93	S	1.93	1.96	1.96	1.97	1.93	1.99	1.95	24		
11	1.97	1.96	1.95	1.94	1.96	1.98	1.98	2.00	1.99	1.97	1.96	1.96	1.93	1.94	1.93	1.93	1.93	S	1.92	1.93	1.93	1.92	1.92	1.92	2.00	1.95	24		
12	1.92	1.94	1.94	1.93	1.94	1.94	1.94	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.93	1.92	1.93	1.94	1.93	1.92	1.94	1.93	24	
13	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.92	1.94	1.91	1.92	C	C	C	C	S	1.97	1.97	1.97	1.97	1.97	1.98	1.91	1.98	1.95	24		
14	1.98	1.99	2.00	1.99	2.02	1.99	1.99	1.99	1.99	1.98	2.00	1.99	1.99	1.99	1.98	S	2.00	1.99	2.01	2.00	2.02	2.02	2.01	2.00	1.98	2.02	2.00	24	
15	1.99	2.00	1.99	2.00	2.01	2.01	2.02	2.01	2.00	2.00	1.99	1.99	1.99	1.99	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	1.99	2.02	2.00	24	
16	2.02	2.02	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	S	1.99	2.00	1.99	1.99	1.99	1.99	2.02	2.10	2.04	2.11	1.99	2.11	2.01	24	
17	2.05	2.12	2.01	2.01	2.00	1.99	2.06	2.06	2.03	2.05	2.07	2.04	S	2.02	2.01	2.02	2.02	2.02	2.01	2.02	2.03	2.04	2.04	2.05	1.99	2.12	2.03	24	
18	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.06	2.04	2.03	S	Y	Y	Y	Y	Y	Y	1.99	2.02	2.31	2.15	2.20	2.19	1.99	2.31	2.09	18	
19	2.12	2.37	2.34	2.48	2.06	2.04	2.12	2.25	2.04	2.01	S	Y	2.01	2.00	1.98	1.98	1.97	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.97	2.48	2.08	23	
20	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.99	1.99	S	1.99	1.98	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	2.02	1.99	24	
21	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	S	2.04	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	1.99	2.01	2.03	2.15	2.09	2.14	1.99	2.15	2.02	24	
22	2.12	2.05	2.07	2.10	2.01	2.00	2.03	S	2.02	2.00	1.99	1.98	1.99	1.99	1.99	1.98	1.99	2.00	2.02	2.04	2.05	2.04	2.03	2.03	1.98	2.12	2.02	24	
23	2.03	2.03	2.03	2.05	2.02	2.08	S	2.06	2.12	2.07	2.04	2.02	2.01	2.01	2.00	1.97	1.96	1.96	1.96	1.97	1.97	1.98	1.98	1.99	1.96	2.12	2.01	24	
24	1.98	1.99	1.98	1.98	1.98	S	1.97	1.98	1.98	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	2.03	2.58	2.28	2.21	1.96	2.58	2.02	24	
25	2.24	2.11	2.23	2.21	S	2.20	2.27	2.23	2.12	2.02	2.01	2.00	1.98	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.95	2.27	2.05	24	
26	1.97	1.97	1.97	S	1.97	1.98	1.98	1.97	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.96	1.98	1.97	24	
27	1.99	1.99	S	2.01	2.01	2.06	2.08	2.08	2.09	2.06	2.00	2.00	2.00	2.00	1.99	1.99	1.99	2.00	2.00	1.99	1.99	1.99	2.00	2.46	2.81	1.99	2.81	2.07	24
28	2.19	S	2.74	2.60	2.16	2.07	2.04	2.06	2.05	2.01	1.99	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.98	2.00	2.01	2.02	2.00	1.98	2.74	2.08	24	
29	S	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.21	2.13	S	1.99	2.21	2.01	24	
30	2.59	2.27	2.20	2.32	2.32	2.12	2.04	2.01	2.06	2.05	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.00	2.00	2.00	S	2.02	2.00	2.59	2.09	24	
HOURLY MAX	2.59	2.37	2.74	2.60	2.32	2.31	2.27	2.25	2.12	2.07	2.07	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.12	2.31	2.58	2.46	2.81					
HOURLY AVG	2.04	2.01	2.04	2.05	2.02	2.02	2.02	2.02	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.00	2.03	2.02	2.04					

STATUS FLAG CODES

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

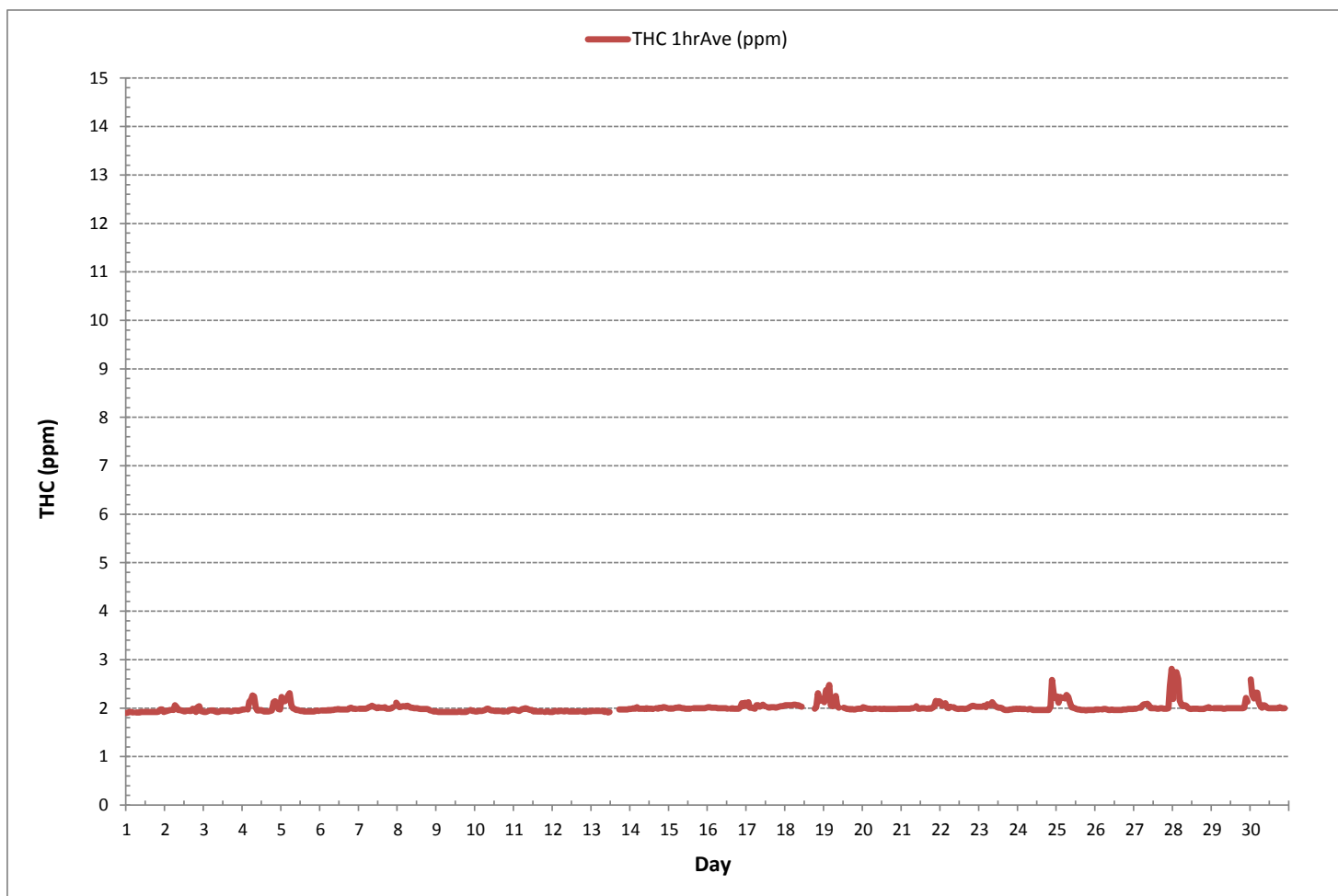
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677				
MINIMUM 1-HR AVERAGE:	1.90	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	2.81	ppm	@ HOUR	23	ON DAY 27
MAXIMUM 24-HR AVERAGE:	2.09	ppm			ON DAY 18
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	713	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	0.09		MONTHLY AVERAGE:	2.00	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-THC55[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 17.58%

Calm Avg: 2.06 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.5	2.2	0.0	0.0	0.0	18.8
NE	8.6	1.9	0.0	0.0	0.0	10.5
E	7.5	4.9	0.0	0.0	0.0	12.4
SE	4.4	4.1	0.0	0.0	0.0	8.6
S	0.3	1.6	0.0	0.0	0.0	1.9
SW	8.7	6.4	0.0	0.0	0.0	15.1
W	8.9	1.5	0.0	0.0	0.0	10.3
NW	4.0	0.9	0.0	0.0	0.0	4.9
Summary	58.9	23.5	0.0	0.0	0.0	82.4

% Icon Classes (ppm)

59 0-2

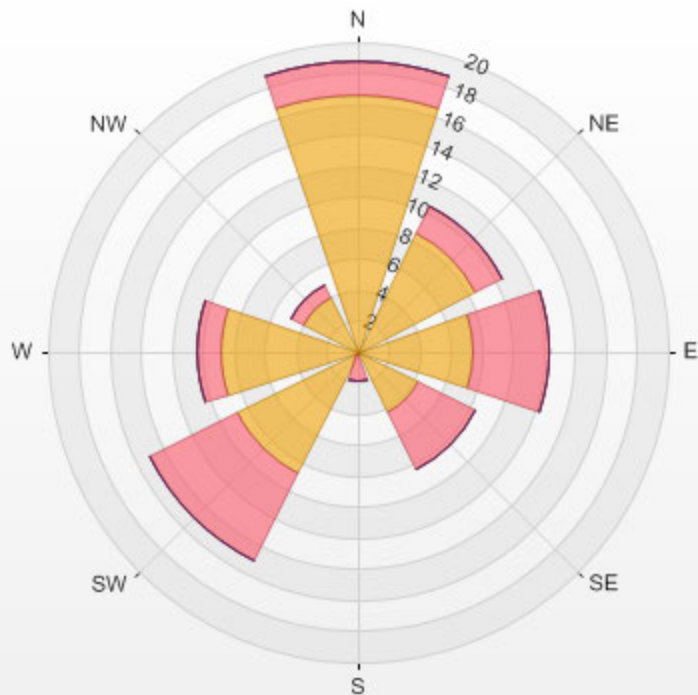
23 2-3

0 3-5

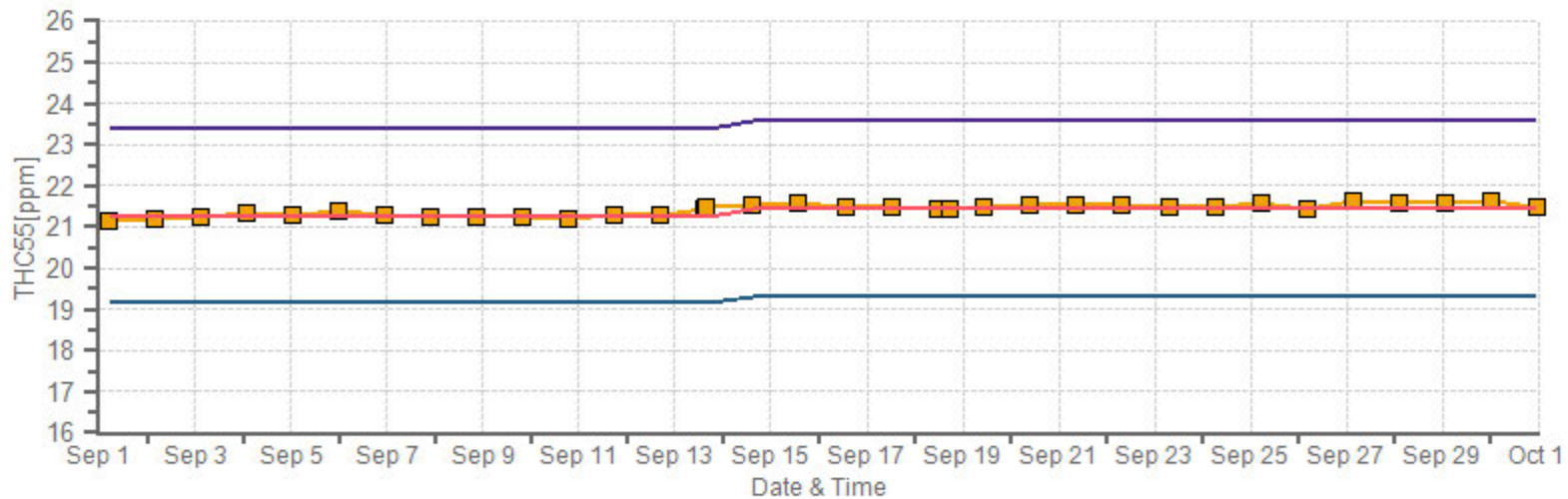
0 5-10

0 >10.0

PRAMP_RENO Poll.: PRAMP_RENO-THC55[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.58% Calm Poll Avg: 2.06[ppm]



THC55[ppm] Calibration: PRAMP_RENO Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

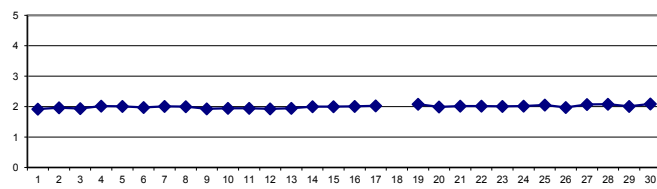
METHANE Hourly Averages (CH₄ ppm)

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 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	1.90	1.91	1.92	1.92	1.91	S	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.97	1.97	1.92	1.90	1.97	1.92	24
2	1.93	1.94	1.95	1.96	S	1.96	2.06	2.02	1.96	1.96	1.95	1.94	1.93	1.94	1.95	1.94	1.94	1.99	1.97	1.92	2.02	2.04	1.94	1.93	1.92	2.06	1.96	24
3	1.92	1.92	1.93	S	1.95	1.95	1.95	1.93	1.92	1.92	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.94	1.95	1.95	1.94	1.95	1.96	1.92	1.96	1.94	24
4	1.97	1.97	S	1.97	2.13	2.16	2.26	2.24	2.01	1.95	1.95	1.96	1.95	1.93	1.93	1.93	1.93	1.94	1.95	2.12	2.14	2.10	1.98	1.97	1.93	2.26	2.02	24
5	2.23	S	2.14	2.17	2.26	2.31	2.06	2.00	1.98	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.95	1.94	1.93	2.31	2.01	24
6	S	1.95	1.95	1.95	1.95	1.96	1.95	1.96	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	2.00	2.01	1.99	1.99	1.98	S	1.95	2.01	1.97	24
7	1.99	1.99	1.99	1.99	1.99	2.00	2.02	2.03	2.05	2.03	2.02	2.00	2.02	2.01	2.01	2.01	2.02	1.99	1.99	1.99	2.00	2.02	S	2.11	1.99	2.11	2.01	24
8	2.06	2.02	2.03	2.04	2.04	2.03	2.05	2.03	2.01	2.01	2.00	2.00	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.97	1.95	S	1.93	1.93	1.93	2.06	2.00	24
9	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.92	1.93	S	1.96	1.94	1.94	1.92	1.96	1.93	24
10	1.93	1.93	1.94	1.94	1.94	1.95	1.96	1.99	1.99	1.96	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.93	1.93	S	1.93	1.96	1.96	1.97	1.93	1.99	1.95	24
11	1.97	1.96	1.95	1.94	1.96	1.98	1.98	2.00	1.99	1.97	1.96	1.96	1.93	1.94	1.93	1.93	1.93	1.93	S	1.92	1.93	1.93	1.92	1.92	1.92	2.00	1.95	24
12	1.92	1.94	1.94	1.93	1.94	1.94	1.94	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.93	1.92	1.93	1.94	1.93	1.92	1.94	1.93	24
13	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.92	1.94	1.91	1.92	C	C	C	C	S	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.91	1.98	1.95	24
14	1.98	1.99	2.00	1.99	2.02	1.99	1.99	1.99	1.99	1.98	2.00	1.99	1.99	1.99	1.98	S	2.00	1.99	2.01	2.00	2.02	2.02	2.01	2.00	1.98	2.02	2.00	24
15	1.99	2.00	1.99	2.00	2.01	2.01	2.02	2.01	2.00	2.00	1.99	1.99	1.99	1.99	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	1.99	2.02	2.00	24
16	2.02	2.02	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	S	1.99	2.00	1.99	1.99	1.99	1.99	2.02	2.10	2.04	2.11	1.99	2.11	2.01	24
17	2.05	2.12	2.01	2.01	2.00	1.99	2.06	2.06	2.03	2.05	2.07	2.04	S	2.02	2.01	2.02	2.01	2.02	2.01	2.02	2.03	2.04	2.04	2.05	1.99	2.12	2.03	24
18	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.06	2.06	2.04	2.03	S	Y	Y	Y	Y	Y	Y	1.99	2.02	2.31	2.15	2.20	2.19	1.99	2.31	2.09	18
19	2.12	2.37	2.34	2.48	2.06	2.04	2.12	2.25	2.04	2.01	S	Y	2.01	2.00	1.98	1.98	1.97	1.98	1.97	1.97	1.98	1.99	1.99	1.99	1.97	2.48	2.08	23
20	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.99	1.99	S	1.99	1.98	1.98	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	2.02	1.99	24
21	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	S	2.04	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	1.99	2.01	2.03	2.15	2.09	2.14	1.99	2.15	2.02	24
22	2.12	2.05	2.07	2.10	2.01	2.00	2.03	S	2.02	2.00	1.99	1.98	1.99	1.99	1.99	1.98	1.99	2.00	2.02	2.04	2.05	2.04	2.03	2.03	1.98	2.12	2.02	24
23	2.03	2.03	2.03	2.05	2.02	2.08	S	2.06	2.12	2.07	2.04	2.02	2.01	2.01	2.00	1.97	1.96	1.96	1.96	1.97	1.97	1.98	1.98	1.99	1.96	2.12	2.01	24
24	1.98	1.99	1.98	1.98	1.98	S	1.97	1.98	1.98	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	2.03	2.58	2.28	2.21	1.96	2.58	2.02	24
25	2.24	2.11	2.23	2.21	S	2.20	2.27	2.23	2.12	2.02	2.01	2.00	1.98	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.95	2.27	2.05	24
26	1.97	1.97	1.97	S	1.97	1.98	1.98	1.97	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.96	1.98	1.97	24
27	1.99	1.99	S	2.01	2.01	2.06	2.08	2.08	2.09	2.06	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	1.99	1.99	1.99	2.00	2.46	2.81	1.99	2.81	2.07	24
28	2.19	S	2.74	2.60	2.16	2.07	2.04	2.06	2.05	2.01	1.99	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.98	2.00	2.01	2.02	2.00	1.98	2.74	2.08	24
29	S	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.21	2.13	S	1.99	2.21	2.01	24
30	2.59	2.27	2.20	2.32	2.32	2.12	2.04	2.01	2.06	2.05	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.00	2.00	2.00	S	2.02	2.00	2.59	2.09	24
HOURLY MAX	2.59	2.37	2.74	2.60	2.32	2.31	2.27	2.25	2.12	2.07	2.07	2.04	2.02	2.02	2.01	2.02	2.02	2.02	2.02	2.12	2.31	2.58	2.46	2.81				
HOURLY AVG	2.04	2.01	2.04	2.05	2.02	2.02	2.02	2.00	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	2.00	2.03	2.02	2.04				

STATUS FLAG CODES

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

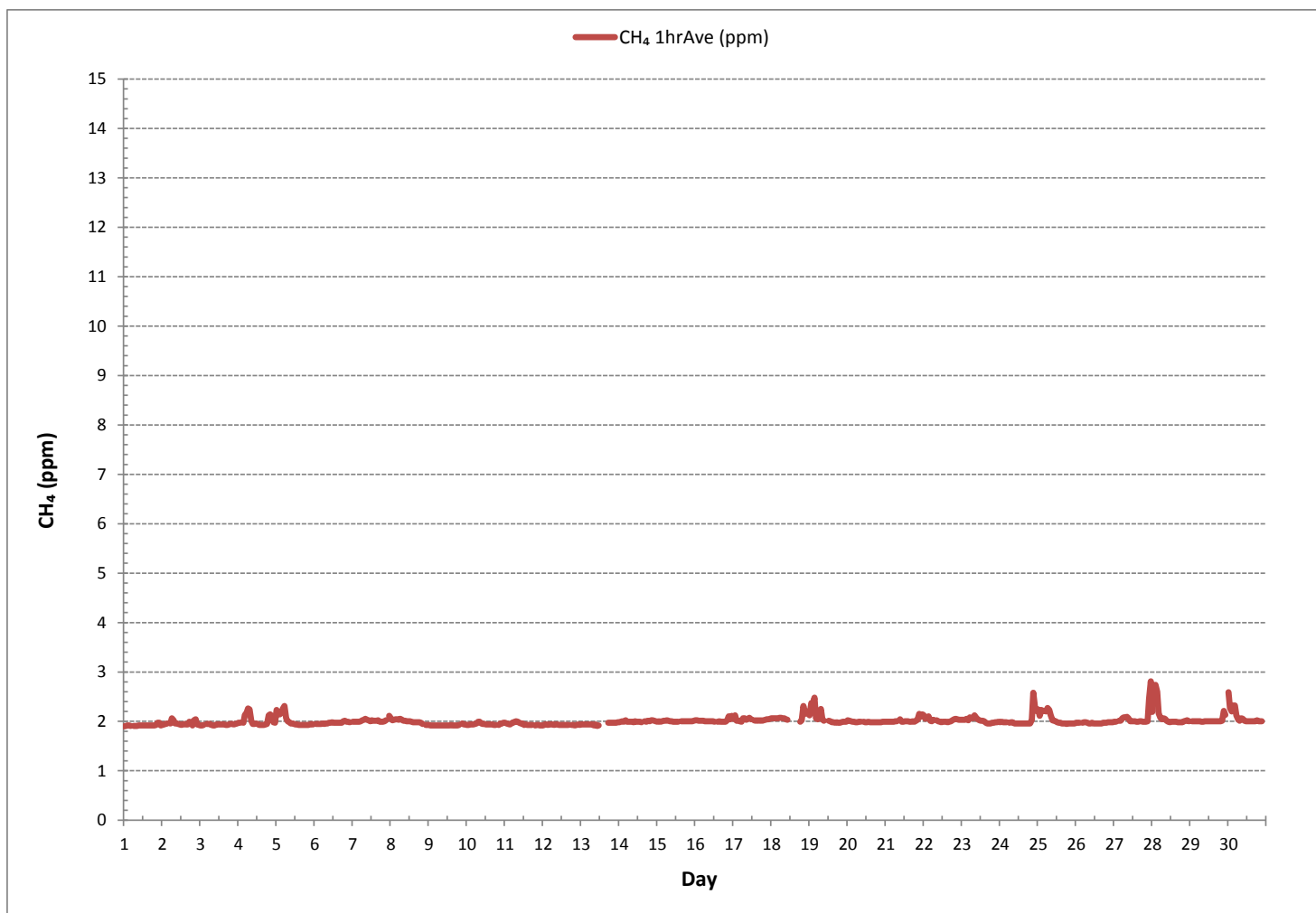
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	677				
MINIMUM 1-HR AVERAGE:	1.90	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	2.81	ppm	@ HOUR	23	ON DAY 27
MAXIMUM 24-HR AVERAGE:	2.09	ppm			ON DAY 18
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	713	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	0.09		MONTHLY AVERAGE:	2.00	ppm

METHANE Hourly Averages (CH₄ ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-CH₄[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 17.58%

Calm Avg: 2.06 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.5	2.2	0.0	0.0	0.0	18.8
NE	8.6	1.9	0.0	0.0	0.0	10.5
E	7.5	4.9	0.0	0.0	0.0	12.4
SE	4.4	4.1	0.0	0.0	0.0	8.6
S	0.3	1.6	0.0	0.0	0.0	1.9
SW	8.7	6.4	0.0	0.0	0.0	15.1
W	8.9	1.5	0.0	0.0	0.0	10.3
NW	4.0	0.9	0.0	0.0	0.0	4.9
Summary	58.9	23.5	0.0	0.0	0.0	82.4

% Icon Classes (ppm)

59 0-2

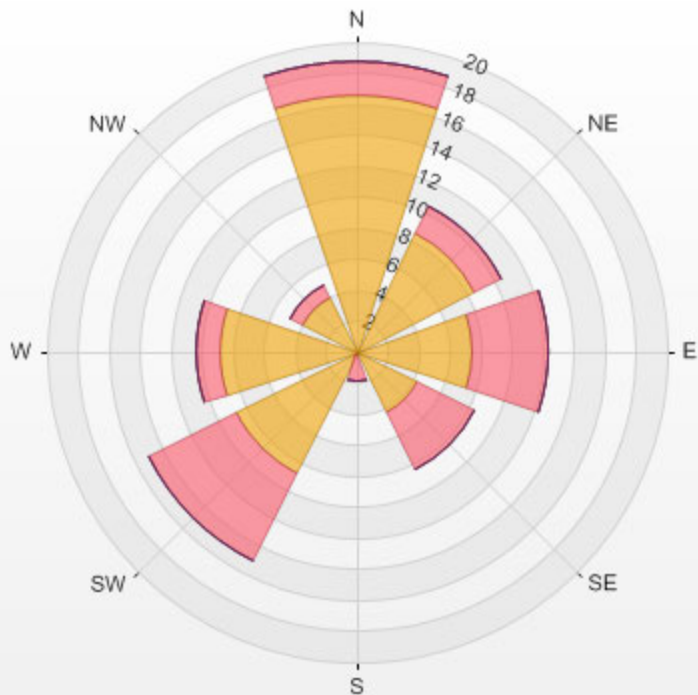
23 2-3

0 3-5

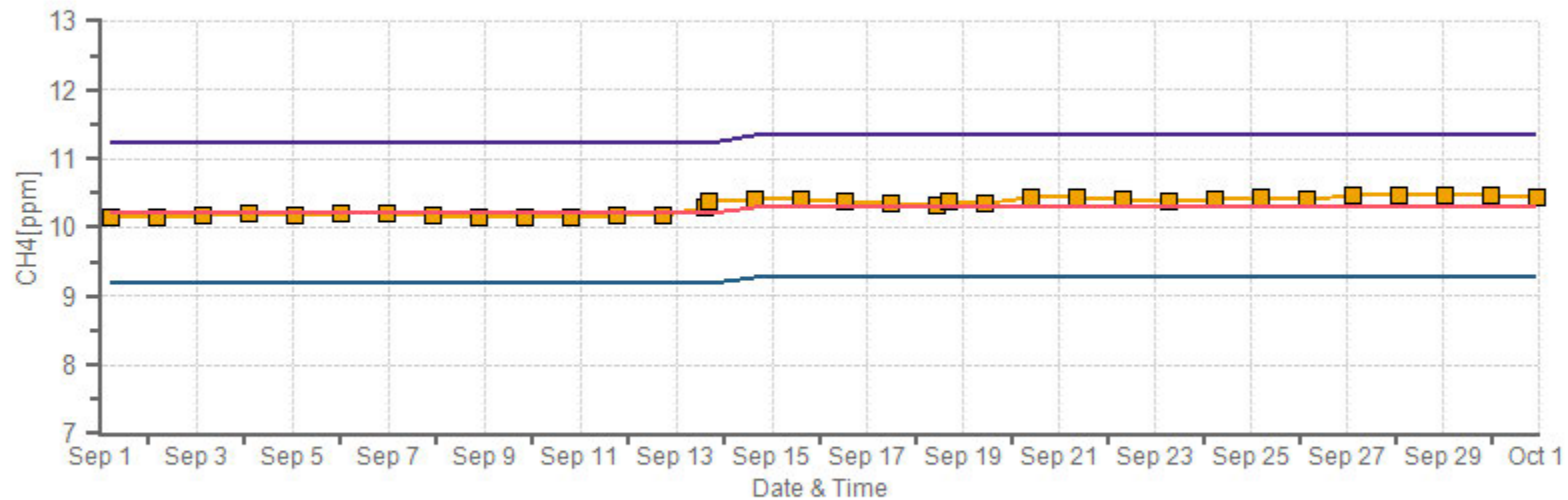
0 5-10

0 >10.0

PRAMP_RENO Poll.: PRAMP_RENO-CH4[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.58% Calm Poll Avg: 2.06[ppm]



CH4[ppm] Calibration: PRAMP_RENO Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

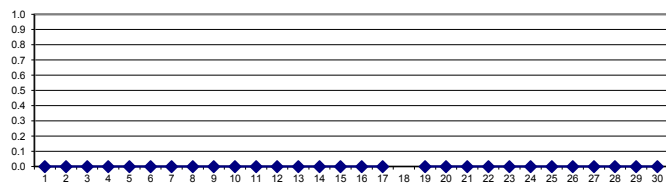
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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

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

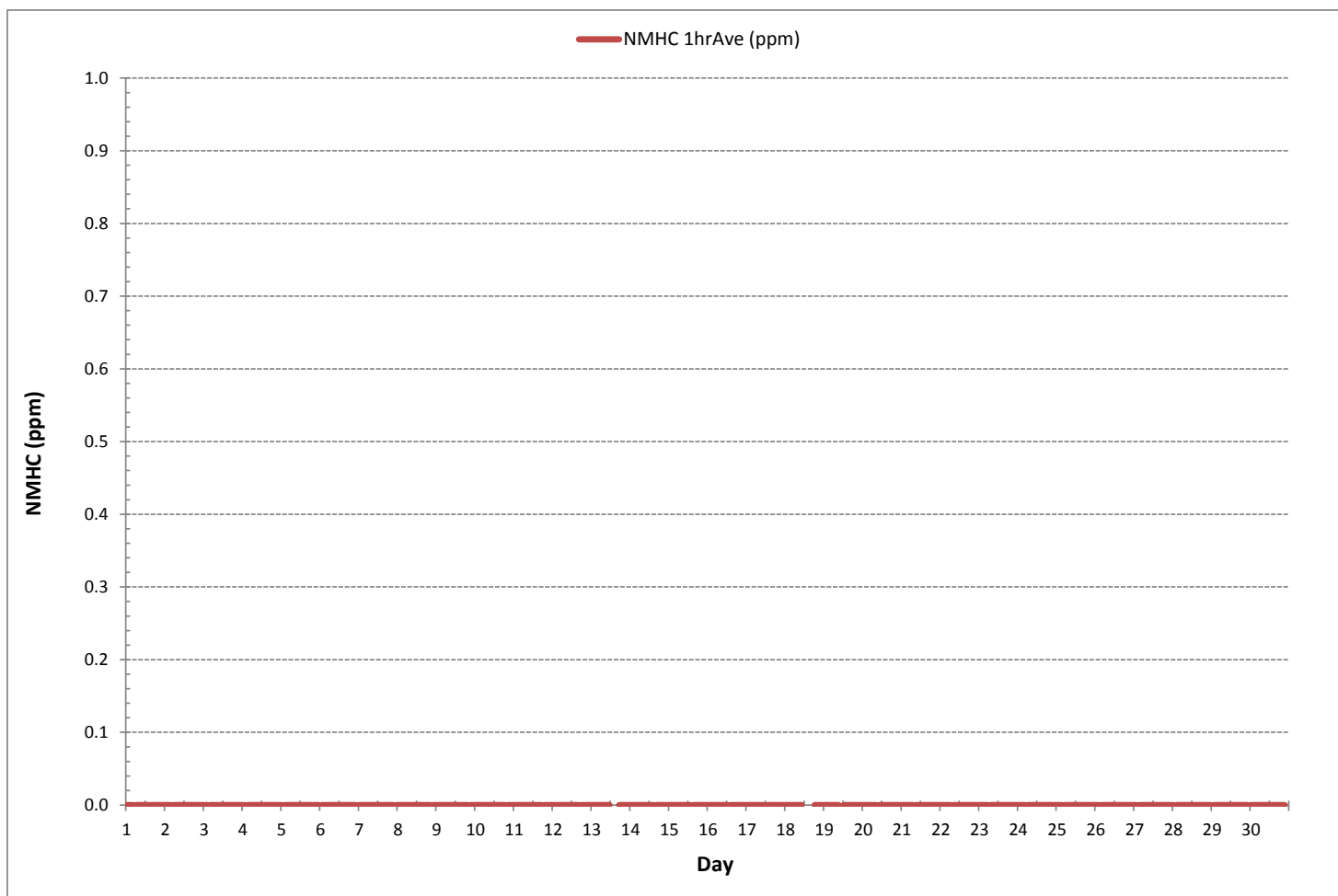
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	713	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-NMHC[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 17.58%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	18.8	0.0	0.0	0.0	0.0	18.8
NE	10.5	0.0	0.0	0.0	0.0	10.5
E	12.4	0.0	0.0	0.0	0.0	12.4
SE	8.6	0.0	0.0	0.0	0.0	8.6
S	1.9	0.0	0.0	0.0	0.0	1.9
SW	15.1	0.0	0.0	0.0	0.0	15.1
W	10.3	0.0	0.0	0.0	0.0	10.3
NW	4.9	0.0	0.0	0.0	0.0	4.9
Summary	82.4	0.0	0.0	0.0	0.0	82.4

% Icon Classes (ppm)

82 0-0.1

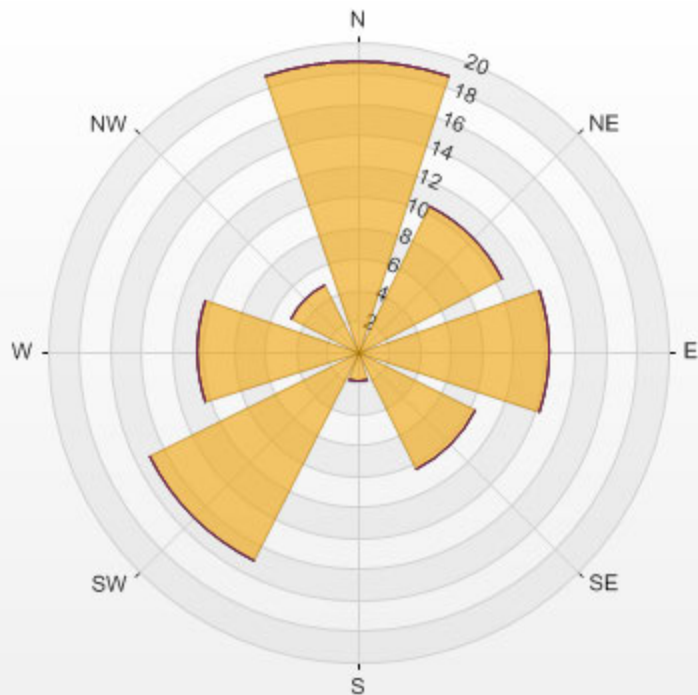
0 0.1-0.3

0 0.3-1

0 1-2

0 >2.0

PRAMP_RENO Poll.: PRAMP_RENO-NMHC[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.58% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

WIND SPEED Hourly Averages (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	5.5	7.6	6.0	8.0	8.1	8.1	8.6	9.3	8.9	9.0	9.2	8.2	7.3	7.7	8.0	8.4	7.7	6.6	4.4	1.7	0.3	0.7	1.9	1.7	0.3	9.3	6.0	24	
2	4.3	4.3	4.6	1.9	4.1	3.5	2.9	4.1	4.0	3.3	5.4	6.1	7.3	2.4	1.2	2.7	2.3	1.5	1.1	2.9	2.4	2.7	4.1	4.7	1.1	7.3	3.4	24	
3	5.3	5.7	6.6	7.1	7.6	5.8	5.2	5.3	7.5	8.7	10.9	10.3	10.1	8.4	8.1	6.9	6.4	4.6	2.9	1.4	2.0	0.9	1.0	0.9	0.9	10.9	4.2	24	
4	1.6	1.6	2.2	2.1	1.9	2.1	1.7	1.8	3.9	5.9	7.1	7.3	7.3	7.4	6.8	7.8	8.5	6.9	4.4	1.3	1.6	2.3	3.3	3.3	1.3	8.5	4.1	24	
5	3.6	2.8	3.5	2.5	3.2	3.6	3.4	1.8	3.9	7.5	7.3	7.0	6.4	5.8	6.3	7.5	8.4	7.0	5.8	3.6	3.4	3.9	4.2	6.1	1.8	8.4	2.9	24	
6	9.7	8.5	8.8	8.0	6.5	6.7	8.4	7.7	9.0	11.7	10.7	9.8	8.1	8.0	7.6	5.8	3.9	3.6	5.6	5.5	6.5	7.7	7.5	7.6	3.6	11.7	7.5	24	
7	7.2	7.1	7.4	6.1	6.2	6.7	4.5	3.8	1.4	2.3	5.4	4.2	1.0	1.6	2.2	2.1	2.0	4.1	2.1	3.4	2.9	0.4	0.7	1.2	0.4	7.4	2.1	24	
8	2.7	3.6	1.9	1.5	2.8	6.0	5.3	8.1	7.1	6.3	5.8	4.3	2.5	8.1	8.1	7.8	6.2	5.8	5.6	6.2	6.2	8.6	8.5	9.1	1.5	9.1	3.7	24	
9	9.6	10.0	9.5	8.6	7.8	8.2	6.9	7.5	7.7	7.5	6.9	6.9	5.9	5.6	4.3	5.1	4.9	5.6	5.7	3.4	4.2	4.6	4.7	5.4	3.4	10.0	5.2	24	
10	5.7	5.9	5.6	4.6	4.2	4.5	5.2	5.2	5.2	5.4	4.2	4.0	5.4	6.1	6.7	5.5	6.3	4.1	3.2	2.8	1.4	0.7	0.8	1.5	0.7	6.7	2.6	24	
11	2.0	1.1	2.4	2.7	1.7	1.9	1.3	1.8	2.3	2.2	3.0	2.1	2.4	2.1	3.9	6.1	13.5	14.2	12.2	11.3	11.7	10.5	9.9	8.8	1.1	14.2	3.6	24	
12	8.8	6.8	7.8	8.2	7.9	7.9	4.9	6.6	7.6	7.6	7.3	8.3	8.8	7.8	6.9	5.4	5.5	5.2	3.4	2.9	2.6	2.5	2.5	2.0	2.0	8.8	5.9	24	
13	2.3	2.3	2.3	2.0	1.8	2.1	1.9	2.9	2.2	2.6	0.9	0.5	1.6	2.2	2.8	3.5	3.7	2.9	3.3	2.9	2.3	1.7	1.1	0.6	0.5	3.7	0.9	24	
14	0.2	0.8	0.6	0.6	0.9	2.4	1.6	2.6	3.1	4.0	1.9	3.3	2.2	2.8	1.4	2.1	2.1	1.4	2.7	3.7	4.5	3.0	3.2	1.9	0.2	4.5	1.6	24	
15	1.3	1.7	2.4	2.0	2.7	2.2	1.8	2.6	6.4	10.4	10.2	8.6	9.7	7.3	6.5	7.4	7.4	6.6	5.0	3.2	3.1	3.6	4.3	4.4	1.3	10.4	4.8	24	
16	5.5	5.9	4.3	6.1	7.0	7.9	8.7	9.6	9.8	9.1	10.0	9.2	10.4	9.0	8.9	8.8	7.7	5.4	3.0	0.3	2.2	3.7	2.4	1.6	0.3	10.4	6.4	24	
17	2.6	2.5	2.2	3.0	4.6	3.9	2.8	3.1	2.3	1.9	3.0	2.5	2.3	2.2	2.3	1.6	4.2	4.4	1.9	1.8	1.6	2.3	2.2	1.6	1.6	4.6	1.4	24	
18	1.8	2.4	3.9	4.4	5.2	4.0	4.0	4.9	4.2	3.4	2.9	2.8	Y	Y	Y	Y	Y	Y	4.5	2.3	1.7	1.2	2.3	2.0	1.2	5.2	2.8	18	
19	3.0	2.6	2.2	3.3	4.1	1.1	1.4	1.4	2.4	4.1	3.2	Y	Y	1.1	2.4	4.7	4.6	4.1	3.0	3.5	2.3	1.7	2.5	1.8	1.5	1.1	4.7	0.6	23
20	6.4	8.2	9.2	7.4	5.7	6.6	5.8	5.4	6.9	7.5	8.2	7.3	7.0	6.0	5.2	3.5	4.1	3.9	2.4	2.0	0.1	1.3	0.6	0.2	0.1	9.2	4.8	24	
21	0.4	0.8	1.1	0.6	1.6	1.7	1.9	2.2	3.4	2.2	3.1	2.6	3.8	1.2	2.6	0.9	3.1	2.8	1.0	2.1	4.0	2.9	0.8	1.6	0.4	4.0	1.3	24	
22	1.4	2.1	3.1	3.5	3.5	4.3	5.2	7.4	8.4	8.7	9.9	10.0	6.0	8.4	8.3	7.2	8.9	9.1	7.5	5.5	5.9	4.3	4.2	3.4	1.4	10.0	5.9	24	
23	3.7	2.4	2.0	1.3	1.2	1.2	1.7	2.0	3.0	5.5	7.4	7.8	11.3	9.0	6.4	9.3	8.8	6.6	3.8	3.6	5.2	5.2	4.9	4.8	1.2	11.3	4.2	24	
24	5.1	5.7	4.9	5.4	6.0	7.1	4.1	2.2	3.9	5.5	4.5	7.8	9.5	10.7	9.4	7.5	5.6	4.3	2.8	0.7	0.7	1.9	2.3	2.0	0.7	10.7	3.8	24	
25	2.0	0.8	1.5	2.5	2.3	2.7	2.1	2.5	2.8	4.6	7.2	10.4	11.0	12.6	9.1	13.0	10.2	9.5	8.5	8.4	8.2	7.4	8.7	7.5	0.8	13.0	6.2	24	
26	7.6	6.6	5.3	5.3	5.0	3.7	2.4	4.1	4.5	6.2	6.5	4.3	3.4	3.8	5.4	5.9	3.9	4.4	3.2	3.0	3.6	3.6	3.6	3.9	2.4	7.6	2.9	24	
27	4.5	4.2	0.0	0.2	1.4	0.9	0.6	0.6	0.8	0.7	1.5	2.2	2.0	4.6	4.4	5.5	6.6	7.2	4.5	5.5	3.3	0.3	0.5	1.3	0.0	7.2	2.1	24	
28	1.1	0.0	0.4	0.4	1.4	0.7	0.6	0.3	3.5	3.0	4.1	4.5	6.1	4.7	4.8	5.1	6.2	5.8	3.7	2.6	1.6	1.5	1.7	2.8	0.0	6.2	2.1	24	
29	1.9	4.8	3.6	3.5	3.7	2.3	4.9	6.9	7.5	10.4	9.8	9.6	9.3	7.4	7.7	7.3	5.8	5.9	2.6	0.5	0.4	1.2	1.1	0.4	0.4	10.4	4.6	24	
30	0.9	0.4	0.5	0.2	0.0	1.8	1.6	2.7	3.3	3.3	3.0	4.5	5.3	1.8	0.2	2.7	4.4	3.0	3.3	2.5	1.2	0.2	1.6	1.7	0.0	5.3	1.3	24	
HOURLY MAX	9.7	10.0	9.5	8.6	8.1	8.2	8.7	9.6	9.8	11.7	10.9	10.4	11.3	12.6	9.4	13.0	13.5	14.2	12.2	11.3	11.7	10.5	9.9	9.1					

STATUS FLAG CODES

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

LAST CALIBRATION:

April 5, 2018

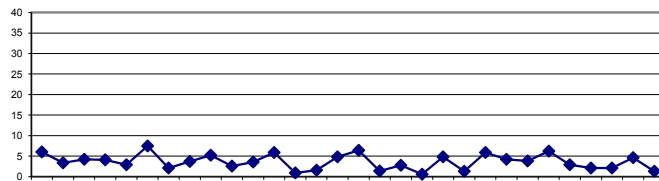
DECLINATION :

MAGNETIC DECLINATION 15 DEGREE EAST

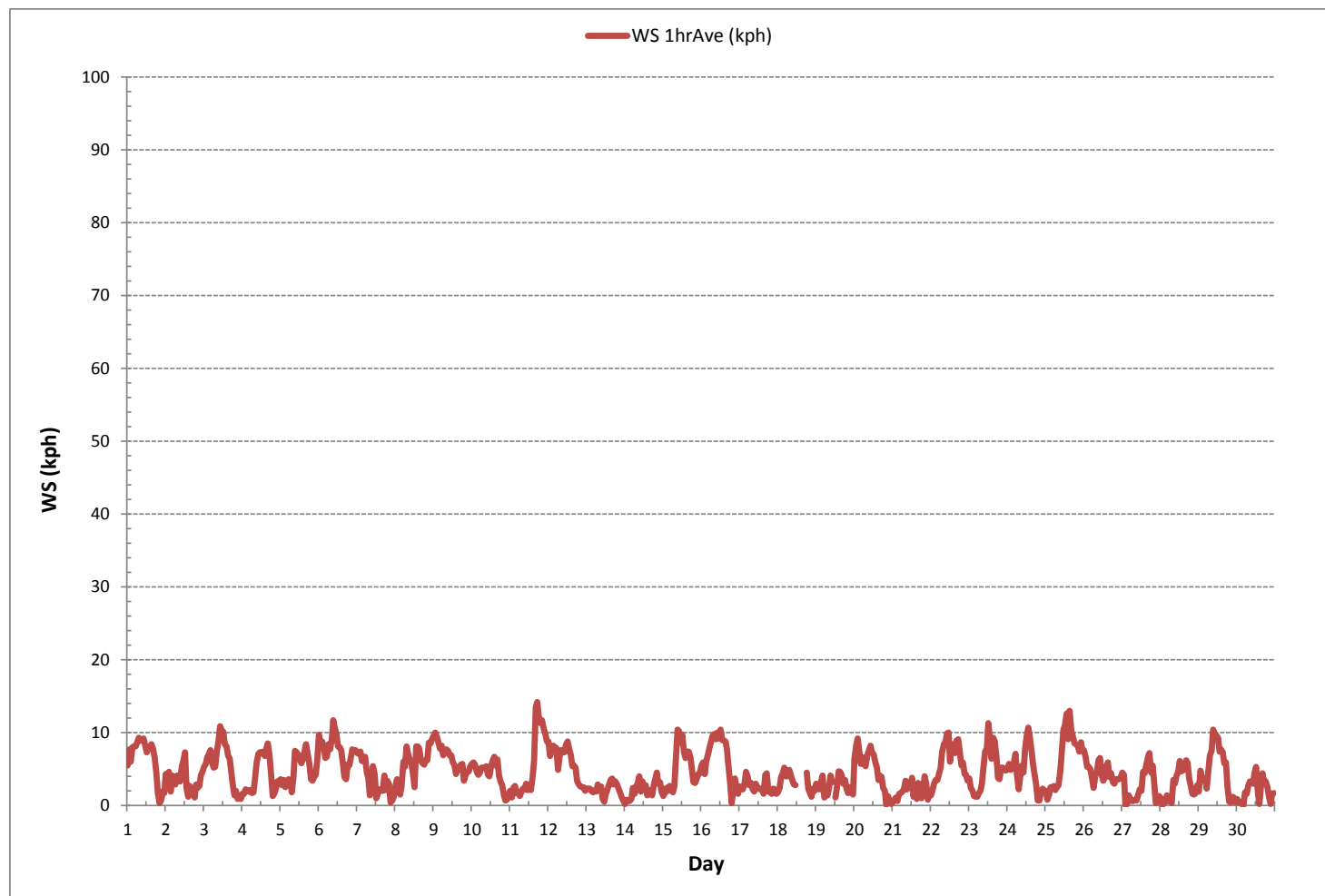
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	710				
MINIMUM 1-HR AVERAGE	0.0	kph	@ HOUR	2	ON DAY 27
MAXIMUM 1-HR AVERAGE:	14.2	kph	@ HOUR	17	ON DAY 11
MAXIMUM 24-HR AVERAGE:	7.5	kph			ON DAY 6
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	713	hrs
STANDARD DEVIATION:	2.8		AMD OPERATION UPTIME:	99.0	%
			MONTHLY AVERAGE:	0.7	kph

24 HR AVERAGES September 2018



WIND SPEED Hourly Averages (WS kph)



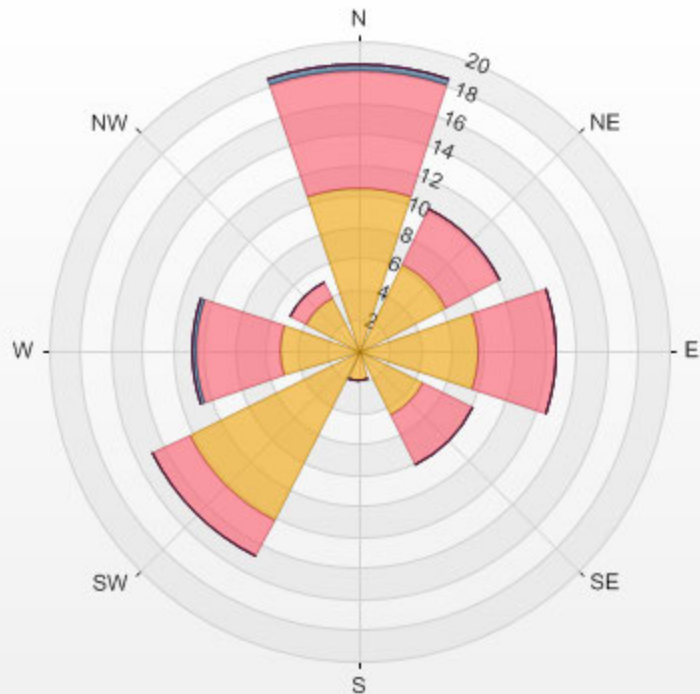
Wind: PRAMP_RENO
 Monitor: WSP [kph]
 Monthly: 18/09
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 17.67%

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	10.5	7.6	0.4	0.0	0.0	0.0	18.5
NE	6.3	3.9	0.0	0.0	0.0	0.0	10.2
E	7.7	5.1	0.0	0.0	0.0	0.0	12.8
SE	4.6	3.7	0.0	0.0	0.0	0.0	8.3
S	2.0	0.0	0.0	0.0	0.0	0.0	2.0
SW	12.2	2.7	0.0	0.0	0.0	0.0	14.9
W	5.1	5.5	0.3	0.0	0.0	0.0	10.8
NW	3.8	1.1	0.0	0.0	0.0	0.0	4.9
Summary	52.2	29.5	0.7	0.0	0.0	0.0	82.3

%	Icon	Classes (kph)
52		1.8-6.0
29		6.0-12.0
1		12.0-20.0
0		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_RENO 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 17.67% Calm Wind Avg Speed: 1.05(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

WIND DIRECTION Hourly Averages (WD)

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

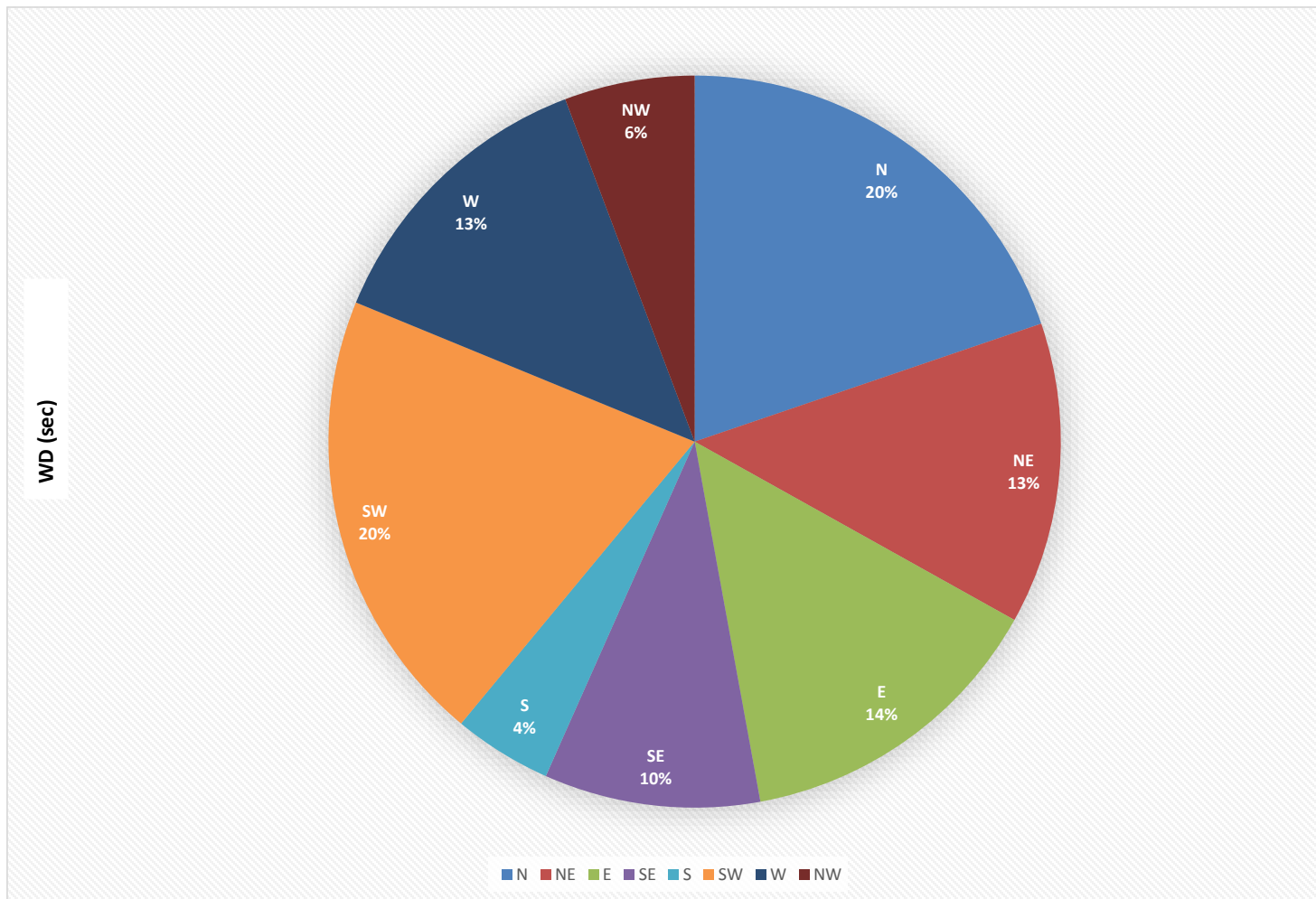
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	713	hrs
STANDARD DEVIATION:	108		AMD OPERATION UPTIME:	99.0	%
			MONTHLY AVERAGE:	12 (NNE)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP_RENO Monthly: 18/09 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

RELATIVE HUMIDITY

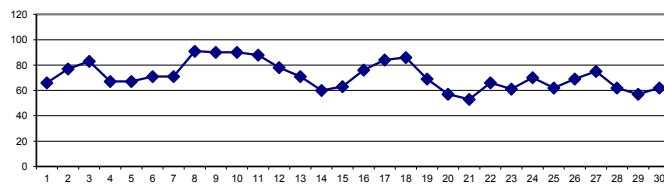
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	81	80	82	84	82	82	82	80	69	57	52	51	50	51	45	37	36	36	44	58	72	84	91	92	36	92	66	24	
2	92	90	91	91	92	92	91	86	78	72	63	52	52	65	67	59	63	65	68	75	86	88	88	87	52	92	77	24	
3	87	87	87	86	87	90	91	92	91	90	90	87	84	80	76	77	73	67	70	74	76	77	86	90	67	92	83	24	
4	88	88	90	91	92	92	93	88	78	69	60	53	46	39	35	34	34	39	48	63	72	73	71	75	34	93	67	24	
5	80	85	86	86	89	89	86	83	82	75	62	53	43	40	40	39	40	44	53	66	74	77	74	70	39	89	67	24	
6	71	76	73	82	85	87	88	87	82	72	69	66	63	59	57	54	52	54	61	67	71	74	77	81	52	88	71	24	
7	81	80	80	80	81	79	81	78	79	72	66	59	54	53	52	57	59	55	62	67	75	80	84	86	52	86	71	24	
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9	92	92	92	92	92	93	93	93	94	94	94	92	90	87	86	86	86	87	87	87	87	87	88	89	86	94	90	24	
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11	93	94	94	94	94	94	94	94	95	95	94	86	74	76	68	62	77	86	89	91	92	92	91	91	62	95	88	24	
12	89	90	89	89	87	85	86	86	84	81	76	69	63	62	64	68	71	71	73	76	79	80	80	81	62	90	78	24	
13	85	85	86	87	87	88	88	86	81	68	60	58	54	55	56	57	59	61	63	66	68	70	72	73	54	88	71	24	
14	78	76	79	81	79	76	76	73	68	55	49	45	42	40	39	42	37	46	52	56	53	64	67	72	37	81	60	24	
15	80	77	79	82	83	85	84	78	68	56	47	45	41	43	47	46	48	50	53	61	63	64	65	69	41	85	63	24	
16	70	70	72	73	73	75	77	78	82	84	83	77	66	60	61	66	75	75	80	84	85	83	85	87	60	87	76	24	
17	87	88	90	91	90	89	89	88	86	82	75	73	69	69	68	74	86	87	88	91	91	92	92	92	68	92	84	24	
18	92	92	93	93	93	94	94	94	93	90	85	80	Y	Y	Y	Y	Y	Y	Y	60	69	79	83	82	85	60	94	86	18
19	86	87	89	89	89	88	91	88	77	78	69	Y	54	47	40	36	34	35	46	60	69	73	77	84	34	91	69	23	
20	85	85	79	70	63	60	62	62	60	55	45	38	37	40	42	41	41	42	48	54	63	62	65	68	37	85	57	24	
21	66	64	63	71	66	64	63	61	58	50	43	42	40	34	33	32	33	37	47	54	54	58	68	76	32	76	53	24	
22	80	83	83	83	82	84	80	73	66	59	53	49	49	51	50	49	53	57	63	66	66	68	71	72	49	84	66	24	
23	73	75	76	79	83	87	87	84	75	67	57	50	43	45	39	31	30	32	42	50	55	60	65	68	30	87	61	24	
24	69	70	70	70	71	74	87	89	87	79	70	61	53	48	60	44	49	47	54	76	85	87	86	88	44	89	70	24	
25	85	81	83	86	85	88	90	87	76	67	62	52	44	39	38	34	37	41	44	47	52	55	57	58	34	90	62	24	
26	59	60	59	59	58	57	54	47	46	46	60	79	81	80	78	79	80	82	83	77	76	79	83	83	46	83	69	24	
27	82	85	86	89	90	89	86	82	79	74	69	64	57	57	59	63	63	66	70	70	75	82	85	87	57	90	75	24	
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29	51	51	56	56	56	57	57	55	53	51	52	53	52	50	50	51	50	50	57	65	71	71	74	77	50	77	57	24	
30	79	81	83	83	84	79	80	75	69	66	54	45	42	40	40	40	38	42	51	55	64	69	69	69	38	84	62	24	
HOURLY MAX	93	94	94	94	94	94	94	94	95	95	94	92	91	90	88	88	91	92	92	91	92	92	93	93					
HOURLY AVG	81	81	82	83	83	83	83	81	77	72	67	63	58	57	56	54	55	57	62	68	73	76	78	79					

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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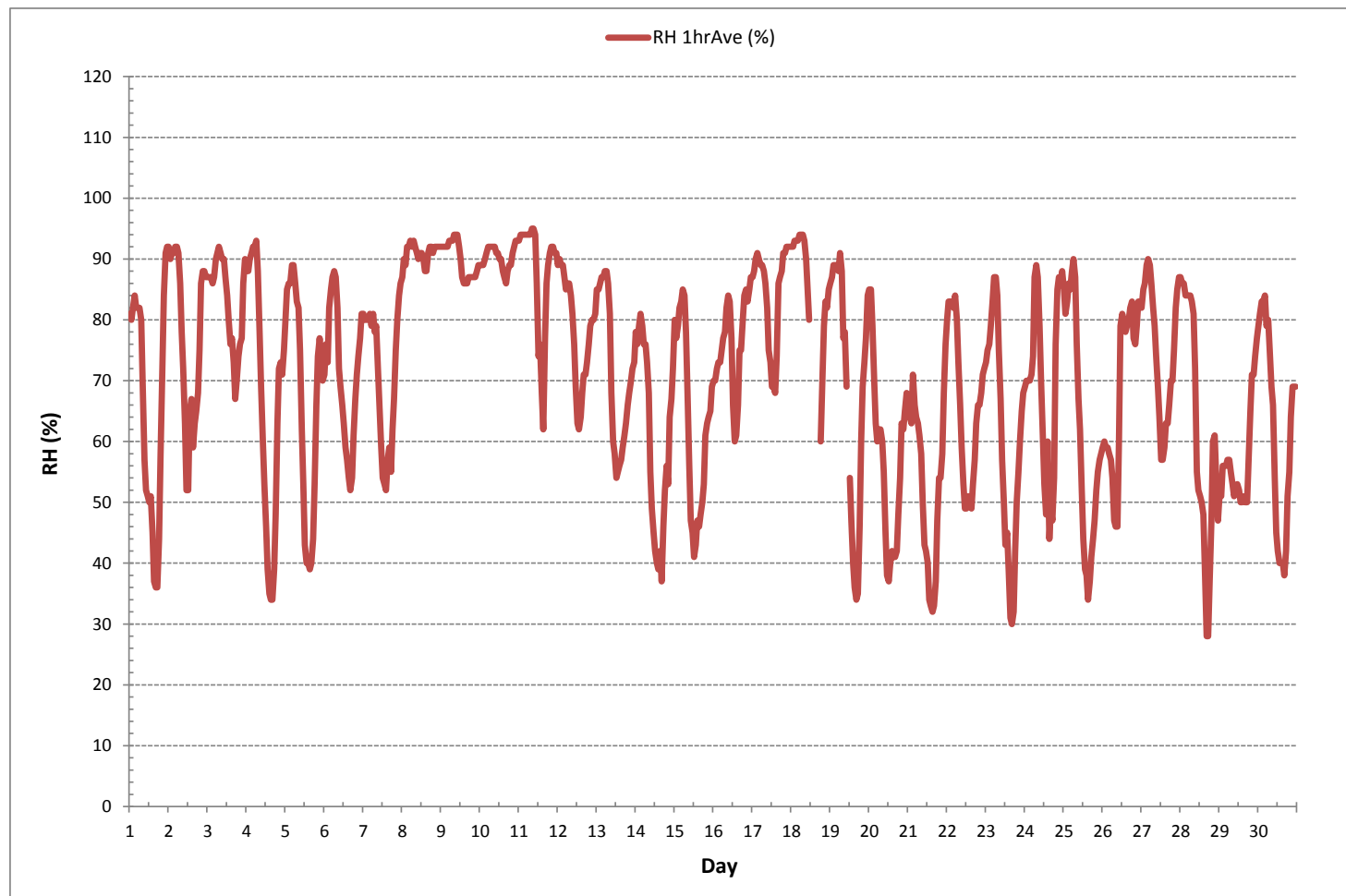
24 HR AVERAGES September 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	28	%	@ HOUR	16	ON DAY	28
MAXIMUM 1-HR AVERAGE:	95	%	@ HOUR	8	ON DAY	11
MAXIMUM 24-HR AVERAGE:	91	%			ON DAY	8
OPERATIONAL TIME:						713 hrs
AMD OPERATION UPTIME:						99.0 %
STANDARD DEVIATION:	17		MONTHLY AVERAGE:			71 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

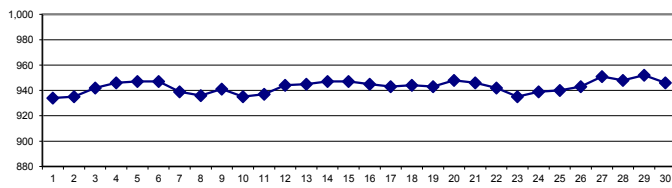
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	928	929	929	931	932	932	933	934	934	935	935	935	935	936	936	936	937	937	936	936	936	937	936	936	928	937	934	24
2	936	936	936	936	936	936	936	936	936	936	935	935	935	935	935	934	934	934	933	933	934	933	934	934	933	936	935	24
3	934	934	935	935	936	936	937	938	939	940	942	943	944	945	945	946	946	946	947	947	948	948	948	948	934	948	942	24
4	948	948	948	948	948	948	948	948	948	948	948	947	946	946	945	945	944	944	943	943	943	944	944	944	943	948	946	24
5	944	944	944	945	945	945	945	946	947	947	947	948	948	948	948	948	948	948	948	949	949	949	949	950	944	950	947	24
6	950	950	950	950	949	949	949	949	949	949	948	948	947	946	946	946	945	945	945	944	944	944	944	943	943	950	947	24
7	942	942	941	941	940	940	940	939	939	939	938	938	938	938	938	938	937	937	937	937	937	937	937	937	937	942	939	24
8	936	936	935	935	935	934	935	934	935	935	935	935	935	936	936	936	937	937	938	938	939	939	939	939	934	939	936	24
9	940	940	940	941	941	942	942	942	943	943	943	943	943	943	943	942	942	941	941	941	940	939	938	938	938	943	941	24
10	938	937	937	936	936	935	935	935	935	935	934	934	934	934	935	935	935	935	935	935	935	935	935	935	934	938	935	24
11	935	935	935	935	935	935	935	935	936	936	936	936	936	936	936	936	937	938	939	939	940	941	942	942	935	942	937	24
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18	943	943	943	943	943	944	944	944	944	945	945	945	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	944	944	944	18
19	943	943	943	943	943	943	943	944	944	944	944	Y	Y	943	943	942	942	941	941	941	941	941	942	942	941	944	943	23
20	942	943	944	945	945	946	947	948	949	949	950	950	950	950	950	949	949	949	949	949	949	948	948	948	942	950	948	24
21	947	947	947	947	946	946	946	947	947	947	947	947	946	946	945	945	945	944	944	944	944	945	944	944	944	947	946	24
22	944	944	944	943	943	943	943	943	943	943	943	943	943	943	942	942	942	942	941	941	941	940	940	939	939	944	942	24
23	938	938	937	937	936	936	935	935	935	935	934	934	934	933	933	933	933	933	933	933	934	934	934	934	933	938	935	24
24	934	934	934	934	935	936	937	938	939	939	940	940	940	940	940	941	941	942	942	942	942	942	942	942	934	942	939	24
25	943	942	942	942	942	942	941	942	942	941	941	941	940	940	940	939	939	939	939	939	939	939	939	939	939	943	940	24
26	939	939	939	939	939	940	940	940	941	942	943	943	944	944	944	945	945	945	945	945	946	946	947	947	939	947	943	24
27	948	948	948	949	949	950	950	950	951	951	951	952	952	952	951	951	951	951	951	951	951	951	951	951	948	952	951	24
28	951	951	950	950	949	949	949	949	948	949	948	948	948	948	947	947	947	947	947	947	947	947	947	948	947	951	948	24
29	949	949	949	950	950	951	951	952	952	953	953	953	953	953	953	953	953	953	953	953	953	953	952	952	949	953	952	24
30	952	951	951	950	950	949	949	948	948	948	948	947	947	946	945	944	943	943	942	942	941	941	940	940	940	952	946	24
HOURLY MAX	952	951	951	950	950	951	951	952	952	953	953	953	953	953	953	953	953	953	953	953	953	953	952	952				
HOURLY AVG	943	942	942	943	942	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943	943				

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

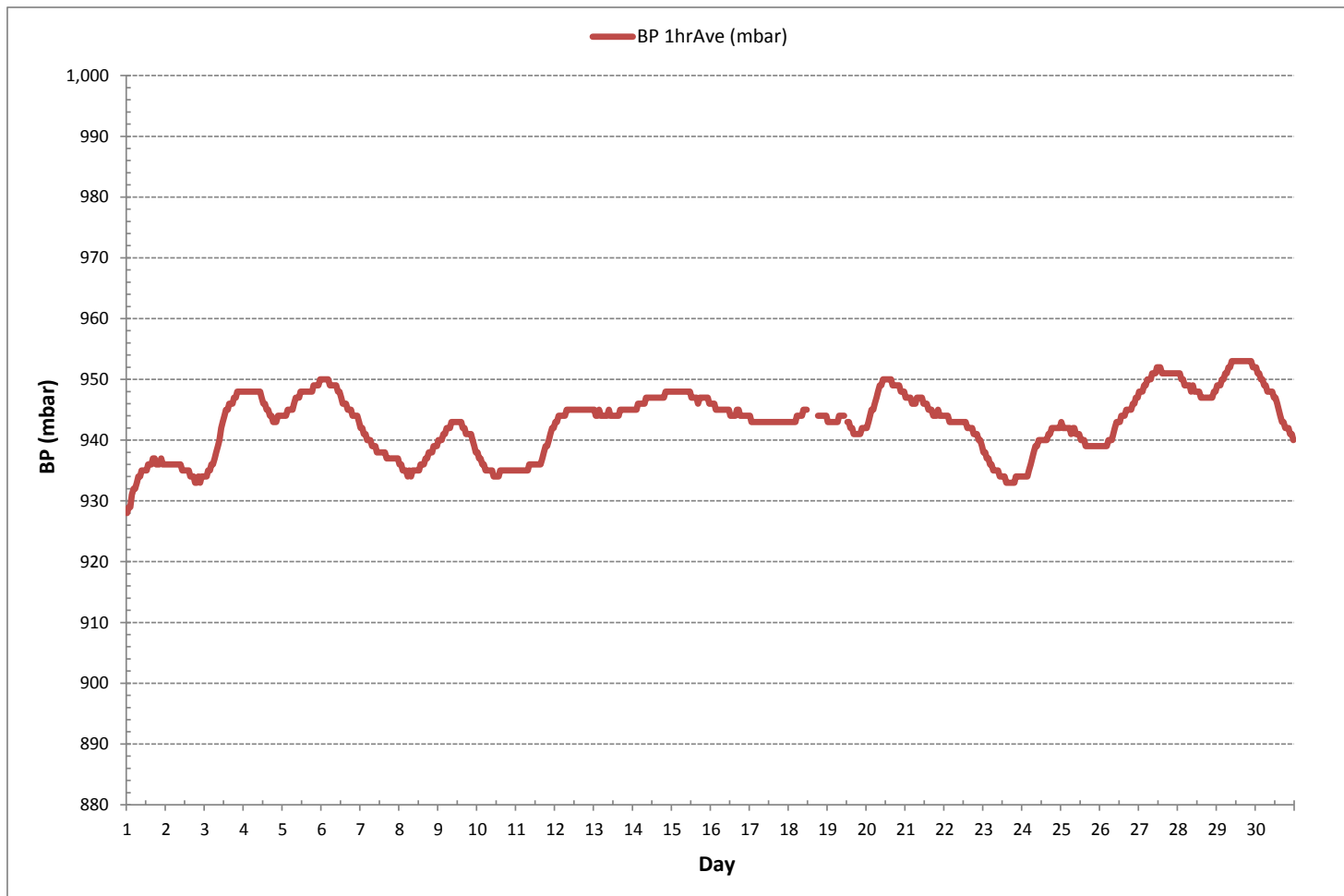
24 HR AVERAGES September 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	928	mbar	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	953	mbar	@ HOUR	9	ON DAY	29
MAXIMUM 24-HR AVERAGE:	952	mbar			ON DAY	29
OPERATIONAL TIME:					713	hrs
AMD OPERATION UPTIME:					99.0	%
STANDARD DEVIATION:	5				MONTHLY AVERAGE:	943 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

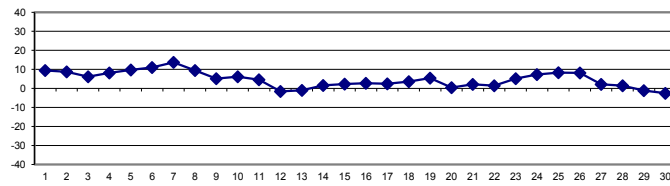
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	9.0	8.8	8.4	7.9	7.8	7.5	7.4	8.0	9.9	11.6	12.5	12.7	12.6	12.3	12.1	12.0	11.6	12.0	10.5	8.8	7.5	6.5	4.8	4.6	4.6	12.7	9.4	24
2	4.8	5.0	4.8	4.0	3.5	3.3	3.3	5.5	8.2	10.6	12.0	13.7	13.6	12.2	12.7	13.2	12.9	13.0	12.3	10.8	8.4	7.6	7.5	7.0	3.3	13.7	8.7	24
3	6.5	5.9	6.2	6.6	6.1	5.5	5.4	6.2	7.0	7.3	6.3	6.0	6.3	6.9	6.7	6.6	6.8	7.3	7.2	6.8	6.4	5.8	4.5	3.2	3.2	7.3	6.2	24
4	3.8	3.0	1.5	0.7	0.5	0.1	0.3	2.4	6.0	8.2	10.1	11.4	13.2	14.3	15.3	15.7	15.7	15.5	13.8	10.7	8.3	7.6	7.9	7.4	0.1	15.7	8.1	24
5	6.5	4.9	4.6	4.5	3.2	3.3	4.2	5.3	6.4	7.9	11.3	14.2	15.8	16.5	16.5	16.7	16.4	15.5	13.8	11.2	9.7	9.0	9.1	9.3	3.2	16.7	9.8	24
6	9.1	8.4	8.1	6.8	6.5	6.4	6.6	7.0	8.3	10.6	11.3	12.1	13.5	14.7	15.6	16.4	17.1	16.7	14.8	13.1	11.5	10.4	10.1	9.8	6.4	17.1	11.0	24
7	9.6	9.7	9.5	9.6	9.5	9.7	9.3	10.0	10.7	12.6	14.4	16.6	18.1	18.9	19.5	18.7	18.5	18.7	17.1	15.1	13.8	13.2	13.2	12.8	9.3	19.5	13.7	24
8	12.0	11.3	11.1	10.8	10.4	10.0	9.6	9.3	9.5	10.1	10.3	10.3	10.4	10.3	10.0	9.8	9.3	9.0	8.7	8.5	8.1	7.4	6.7	6.2	6.2	12.0	9.5	24
9	5.8	5.5	5.3	5.1	5.0	4.7	4.4	4.3	4.0	4.1	4.3	5.0	5.2	5.5	5.9	6.0	6.1	6.0	6.0	5.9	5.6	5.4	5.2	4.9	4.0	6.1	5.2	24
10	4.8	4.8	4.9	5.1	5.0	5.1	5.3	5.7	6.1	6.8	7.3	7.6	7.9	7.9	8.0	7.8	7.4	6.8	6.3	6.1	5.5	5.1	5.0	4.7	4.7	8.0	6.1	24
11	4.7	4.8	5.0	5.2	5.0	4.9	5.1	5.4	5.9	6.4	6.8	7.8	8.6	8.8	9.8	9.9	6.1	1.6	0.5	-0.1	-0.1	-0.2	-0.6	-1.0	-1.0	9.9	4.6	24
12	-1.5	-1.7	-1.9	-2.2	-2.4	-2.6	-2.6	-2.5	-2.2	-1.8	-1.1	-0.4	-0.2	-0.5	-0.5	-0.8	-1.0	-1.2	-1.3	-1.3	-1.5	-1.6	-1.8	-1.8	-2.6	-0.2	-1.5	24
13	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2	-2.2	-1.9	-1.5	-1.1	-0.7	-0.4	0.4	0.3	0.4	0.5	0.4	0.2	-0.1	-0.7	-1.0	-1.0	-1.1	-1.2	-2.2	0.5	-1.0	24
14	-1.5	-1.6	-1.4	-1.4	-1.3	-1.4	-0.9	0.1	1.7	3.0	3.7	4.0	5.2	6.1	4.7	6.7	4.9	4.0	3.1	2.6	1.1	0.2	-0.6	-1.6	-1.6	6.7	1.6	24
15	-1.7	-1.3	-1.6	-1.8	-1.8	-2.0	-1.8	-0.2	2.7	4.2	5.1	5.0	5.8	5.4	5.6	5.8	5.4	5.0	4.4	3.4	2.7	2.3	2.3	1.8	-2.0	5.8	2.3	24
16	1.7	1.9	1.5	1.7	1.9	1.9	1.8	1.7	1.7	1.8	2.7	3.4	4.9	5.3	5.1	4.6	3.7	3.7	3.4	2.9	2.7	1.9	1.4	1.4	1.4	5.3	2.7	24
17	1.7	1.3	-0.4	-1.3	-0.2	0.1	0.0	0.6	2.1	3.0	3.7	4.2	4.8	4.9	5.0	4.5	3.3	3.5	3.4	3.1	3.0	2.6	2.6	2.7	-1.3	5.0	2.4	24
18	2.7	2.7	2.6	2.6	2.4	2.3	2.2	2.4	2.9	3.7	4.6	5.1	Y	Y	Y	Y	Y	Y	8.0	6.5	4.7	3.9	3.7	2.4	2.2	8.0	3.6	18
19	2.2	1.6	1.2	0.9	1.4	0.7	-0.8	1.1	4.2	3.0	5.3	Y	10.1	11.9	12.3	12.5	12.4	12.0	9.6	6.0	4.6	4.8	3.7	2.5	-0.8	12.5	5.4	23
20	0.8	-0.2	-0.7	-0.6	-0.4	-0.6	-0.5	-0.7	-0.4	0.6	1.4	2.6	2.7	2.2	1.9	1.9	2.1	2.1	1.5	0.4	-0.8	-0.8	-1.3	-2.0	-2.0	2.7	0.5	24
21	-1.9	-1.6	-1.4	-2.6	-2.5	-2.7	-2.7	-1.7	0.8	3.7	5.1	5.5	6.3	7.7	8.2	8.6	7.9	7.5	4.5	2.5	2.1	0.9	-0.8	-1.9	-2.7	8.6	2.1	24
22	-2.4	-2.4	-2.5	-3.0	-3.2	-3.3	-2.4	-0.7	1.1	2.4	3.8	4.9	5.6	5.1	5.5	6.2	5.2	4.2	3.1	2.5	2.2	1.9	1.6	1.3	-3.3	6.2	1.5	24
23	1.1	1.1	1.1	0.0	-1.0	-2.1	-2.4	-1.1	2.1	4.2	6.3	7.5	9.1	9.1	11.4	13.3	13.7	13.1	9.8	7.2	6.7	5.6	4.7	4.2	-2.4	13.7	5.2	24
24	4.2	4.4	4.8	5.3	5.6	6.2	5.1	4.9	5.7	7.5	9.0	10.4	12.0	12.8	10.0	13.0	12.3	12.4	10.0	6.0	4.1	3.4	3.7	3.0	3.0	13.0	7.3	24
25	3.3	4.2	3.2	1.9	1.9	0.7	-0.1	1.6	5.4	7.6	9.1	11.6	13.6	14.6	15.3	15.6	14.6	13.7	12.6	11.7	10.3	9.4	9.1	9.2	-0.1	15.6	8.3	24
26	9.2	9.0	8.9	8.7	8.7	8.6	8.7	9.7	10.1	10.2	8.9	7.3	7.6	8.0	8.4	8.5	8.5	8.2	7.6	6.9	6.6	6.1	5.1	4.3	4.3	10.2	8.1	24
27	4.0	2.6	1.6	0.1	-0.1	-0.1	-0.8	-0.2	1.5	3.2	3.9	4.5	5.8	6.1	6.5	6.1	6.4	4.8	2.8	1.3	-0.2	-1.8	-2.3	-2.6	-2.6	6.5	2.2	24
28	-3.2	-2.9	-1.8	-1.0	-0.8	-0.8	-0.8	-0.8	0.1	1.5	3.3	4.1	4.7	5.0	5.1	5.9	6.3	5.2	2.9	0.8	-1.2	-1.4	0.3	2.0	-3.2	6.3	1.4	24
29	1.7	1.5	0.5	-0.1	-0.8	-1.0	-1.1	-1.0	-0.6	-0.3	-0.3	-0.2	-0.1	0.3	0.2	0.0	-0.1	-0.4	-1.9	-3.6	-4.3	-4.9	-5.6	-6.1	-6.1	1.7	-1.2	24
30	-6.9	-6.3	-6.5	-7.2	-7.2	-6.2	-7.3	-5.1	-3.1	-1.3	0.4	1.0	2.0	2.8	2.5	2.8	3.0	1.9	-0.5	-2.1	-3.7	-3.9	-4.6	-4.8	-7.3	3.0	-2.5	24
HOURLY MAX	12.0	11.3	11.1	10.8	10.4	10.0	9.6	10.0	10.7	12.6	14.4	16.6	18.1	18.9	19.5	18.7	18.5	18.7	17.1	15.1	13.8	13.2	13.2	12.8				
HOURLY AVG	2.9	2.7	2.5	2.1	2.0	1.9	1.7	2.5	3.8	5.0	6.0	6.8	7.7	8.1	8.3	8.5	8.2	7.7	6.5	5.1	4.1	3.5	3.1	2.8				

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 September 2018

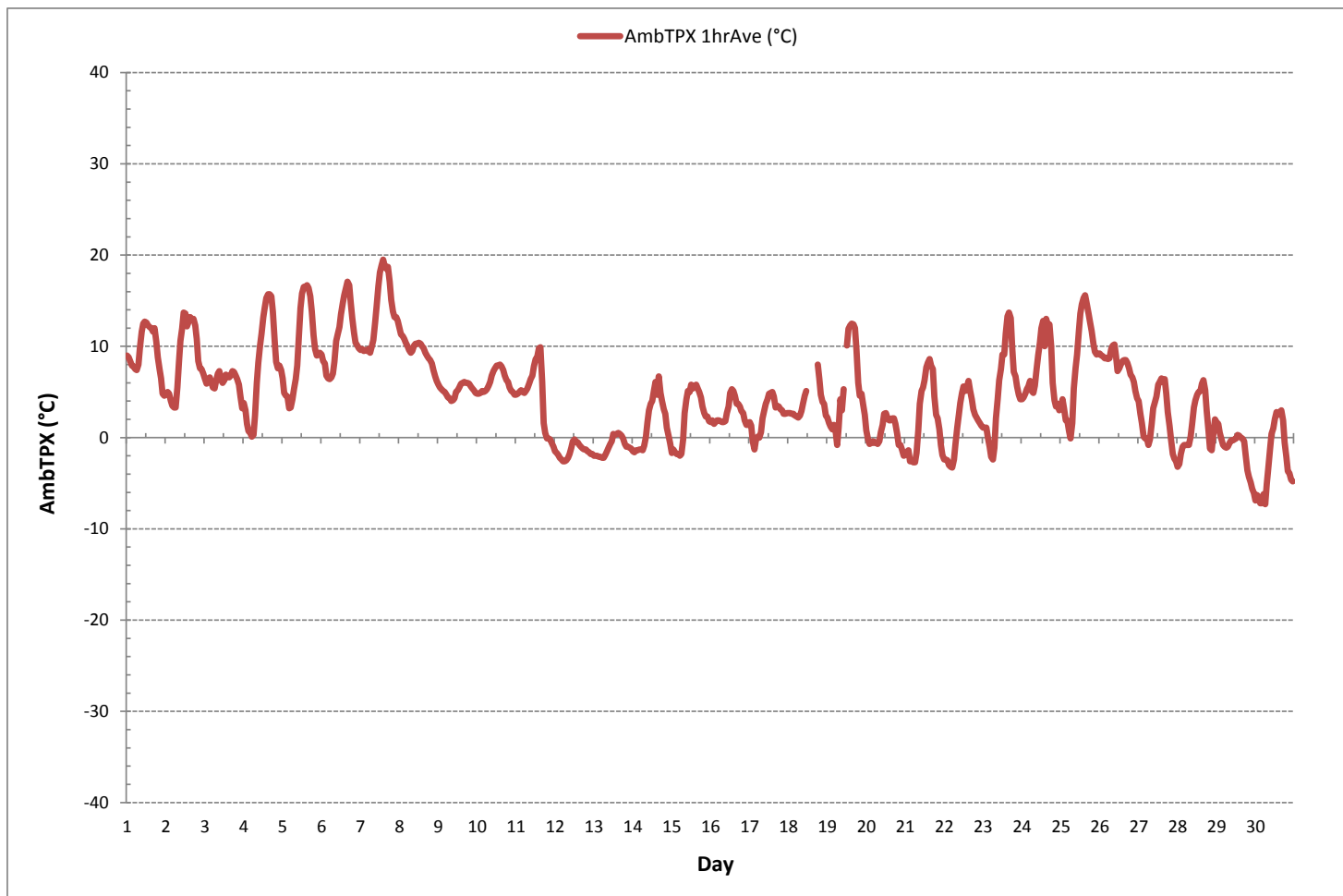


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-7.3	°C	@ HOUR	6	ON DAY	30
MAXIMUM 1-HR AVERAGE:	19.5	°C	@ HOUR	14	ON DAY	7
MAXIMUM 24-HR AVERAGE:	13.7	°C			ON DAY	7

OPERATIONAL TIME:	713	hrs
AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	5.1	
MONTHLY AVERAGE:	4.7	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

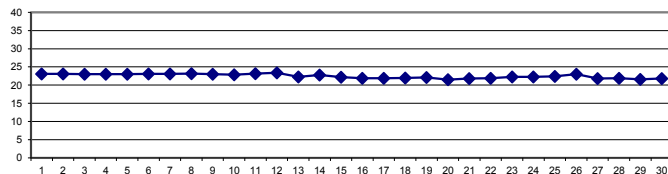
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	22.9	22.6	22.8	22.6	22.9	23.0	22.6	22.8	23.1	22.8	23.2	23.6	23.1	23.5	23.4	23.4	23.6	23.2	23.6	23.5	23.2	22.8	22.7	22.9	22.6	23.6	23.1	24
2	23.0	23.0	22.9	23.1	22.8	22.9	23.0	22.7	23.0	23.1	23.5	23.1	23.2	23.1	23.5	23.1	23.3	23.1	23.7	23.4	23.3	22.9	22.5	22.8	22.5	23.7	23.1	24
3	22.9	23.0	22.8	22.9	22.8	22.9	23.0	23.1	23.4	22.9	23.6	23.4	23.4	22.8	23.4	22.9	23.1	22.9	22.8	22.7	22.9	22.9	22.9	23.0	22.7	23.6	23.0	24
4	23.0	23.1	22.9	23.2	22.7	23.0	23.2	23.2	22.8	23.0	23.0	23.3	23.0	23.1	23.0	22.9	22.9	22.9	23.1	23.8	23.6	23.1	22.6	22.9	22.6	23.8	23.0	24
5	23.0	22.7	22.9	22.7	23.2	22.6	22.8	23.0	22.9	23.3	22.9	23.3	23.1	22.8	22.7	23.0	22.7	22.9	23.0	23.7	23.7	23.5	23.2	23.0	22.6	23.7	23.0	24
6	22.7	22.5	23.0	22.9	22.7	22.5	22.8	22.9	22.9	23.0	23.2	23.7	23.3	23.1	23.3	23.1	22.9	23.3	23.6	23.5	23.9	23.7	23.4	23.2	22.5	23.9	23.1	24
7	23.0	22.8	22.7	22.7	22.4	22.5	22.9	22.6	22.7	23.0	23.1	23.2	22.8	23.1	22.7	22.7	23.1	22.6	23.6	23.7	24.0	23.5	24.1	24.3	22.4	24.3	23.1	24
8	23.7	23.8	23.7	23.6	23.6	23.5	23.3	23.1	23.0	23.0	23.2	23.3	23.3	23.1	23.2	23.2	23.2	23.1	22.9	22.6	23.1	22.9	23.5	23.0	22.6	23.8	23.2	24
9	23.5	23.2	23.3	23.2	23.3	23.5	23.0	23.0	23.0	23.0	23.1	22.9	23.2	22.9	22.8	23.0	23.1	22.9	22.8	22.9	22.9	22.5	22.9	23.0	22.5	23.5	23.0	24
10	23.0	22.8	23.0	23.1	23.2	23.0	23.0	22.7	22.9	23.0	22.5	23.1	23.0	22.9	23.0	23.0	22.6	23.0	22.6	22.9	22.8	22.5	22.5	22.9	22.5	23.2	22.9	24
11	23.1	23.2	23.3	23.2	23.1	22.8	22.8	22.9	22.9	22.7	22.7	22.8	22.8	22.8	23.0	23.3	23.4	23.8	23.6	23.7	23.7	23.6	24.5	23.8	22.3	24.5	23.2	24
12	23.7	23.6	23.7	24.3	23.5	23.4	23.6	23.9	24.5	23.7	23.0	23.6	23.5	23.6	22.9	23.3	23.5	23.4	22.8	22.9	22.9	23.1	23.1	23.1	22.8	24.5	23.4	24
13	23.1	23.1	23.2	23.1	23.2	23.2	23.2	23.0	21.5	21.8	22.3	21.3	21.7	23.0	22.1	21.7	21.9	21.9	21.9	22.0	22.0	22.0	22.0	22.0	21.3	23.2	22.3	24
14	22.0	22.0	22.1	22.1	22.1	22.0	22.1	22.1	21.9	21.9	21.7	22.2	22.9	23.5	24.7	25.4	24.8	24.6	24.4	23.8	23.0	22.1	22.0	22.0	21.7	25.4	22.8	24
15	22.0	22.0	22.1	22.2	22.2	22.2	22.3	22.3	22.2	21.9	21.9	22.0	22.4	22.5	22.7	22.8	22.7	22.2	22.2	22.2	22.2	22.2	22.2	22.2	21.9	22.8	22.2	24
16	22.2	22.1	22.1	22.1	21.9	22.0	21.9	22.0	21.9	22.0	21.8	21.7	21.7	22.2	22.3	22.1	21.8	21.8	21.7	21.7	21.7	21.7	21.8	21.7	21.7	22.3	21.9	24
17	21.7	21.8	21.7	21.8	21.8	21.7	21.7	21.8	21.7	21.5	21.6	21.9	22.3	22.5	22.7	22.6	22.4	22.2	22.1	21.8	21.6	21.7	21.7	21.6	21.5	22.7	21.9	24
18	21.7	21.6	21.7	21.7	21.7	21.7	21.7	21.7	21.6	21.7	21.7	21.7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	21.6	23.5	22.0	18
19	22.0	22.1	22.0	22.0	22.0	22.0	22.0	22.0	21.7	21.6	21.3	Y	22.8	21.8	21.8	22.8	22.8	23.0	22.8	22.9	22.2	21.5	21.5	21.5	21.3	23.0	22.1	23
20	21.6	21.5	21.6	21.6	21.5	21.5	21.6	21.6	21.6	21.6	21.4	21.2	21.1	21.2	21.4	21.4	21.4	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.1	21.6	21.5	24
21	21.5	21.6	21.5	21.5	21.6	21.5	21.5	21.6	21.5	21.4	21.1	21.3	21.8	22.6	22.6	22.6	22.8	22.9	22.8	21.9	21.5	21.5	21.6	21.6	21.1	22.9	21.8	24
22	21.6	21.6	21.6	21.6	21.7	21.6	21.6	21.7	21.5	21.3	21.5	21.6	22.0	22.4	22.8	23.1	23.0	22.8	22.2	21.5	21.6	21.5	21.5	21.5	21.3	23.1	21.9	24
23	21.5	21.5	21.5	21.6	21.5	21.6	21.7	21.6	21.5	21.5	22.2	22.8	22.8	22.8	22.9	23.0	23.1	23.2	23.0	23.1	23.1	22.9	22.3	21.8	21.5	23.2	22.3	24
24	21.6	21.6	21.7	21.7	21.7	21.9	21.7	21.5	21.6	21.9	22.7	22.7	22.8	22.8	22.9	23.0	23.1	23.1	23.1	23.2	22.8	22.0	21.6	21.6	21.5	23.2	22.3	24
25	21.7	21.6	21.6	21.6	21.6	21.6	21.7	21.6	21.5	21.9	22.7	22.7	22.8	23.0	23.0	23.2	23.1	23.2	23.1	23.1	23.0	23.1	23.3	23.1	21.5	23.3	22.4	24
26	23.3	23.3	23.3	23.2	23.3	23.3	23.3	23.2	23.1	23.1	23.0	23.1	23.1	23.0	23.1	23.1	23.1	23.1	23.3	23.2	22.9	22.6	22.2	21.7	21.7	23.3	23.0	24
27	21.5	21.5	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.5	21.3	21.7	22.2	22.5	22.7	22.9	23.0	22.6	21.7	21.6	21.7	21.6	21.6	21.3	23.0	21.8	24
28	21.7	21.7	21.7	21.7	21.6	21.6	21.6	21.6	21.6	21.4	21.1	21.4	22.0	22.4	22.8	22.8	22.8	22.8	22.7	21.8	21.6	21.6	21.7	21.6	21.1	22.8	21.9	24
29	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.5	21.5	21.5	21.5	21.4	21.4	21.4	21.5	21.5	21.6	21.6	21.7	21.7	21.7	21.8	21.4	21.8	21.6	24
30	21.7	21.7	21.7	21.7	21.8	21.7	21.8	21.7	21.7	21.6	21.5	21.3	21.4	21.9	22.3	22.3	22.8	22.9	22.3	21.5	21.6	21.6	21.7	21.7	21.3	22.9	21.8	24
HOURLY MAX	23.7	23.8	23.7	24.3	23.6	23.5	23.6	23.9	24.5	23.7	23.6	23.7	23.5	23.6	24.7	25.4	24.8	24.6	24.4	23.8	24.0	23.7	24.5	24.3				
HOURLY AVG	22.4	22.3	22.3	22.4	22.4	22.3	22.4	22.3	22.3	22.3	22.3	22.4	22.6	22.7	22.8	22.9	22.9	22.9	22.8	22.7	22.6	22.4	22.4	22.3				

STATUS FLAG CODES

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

24 HR AVERAGES September 2018

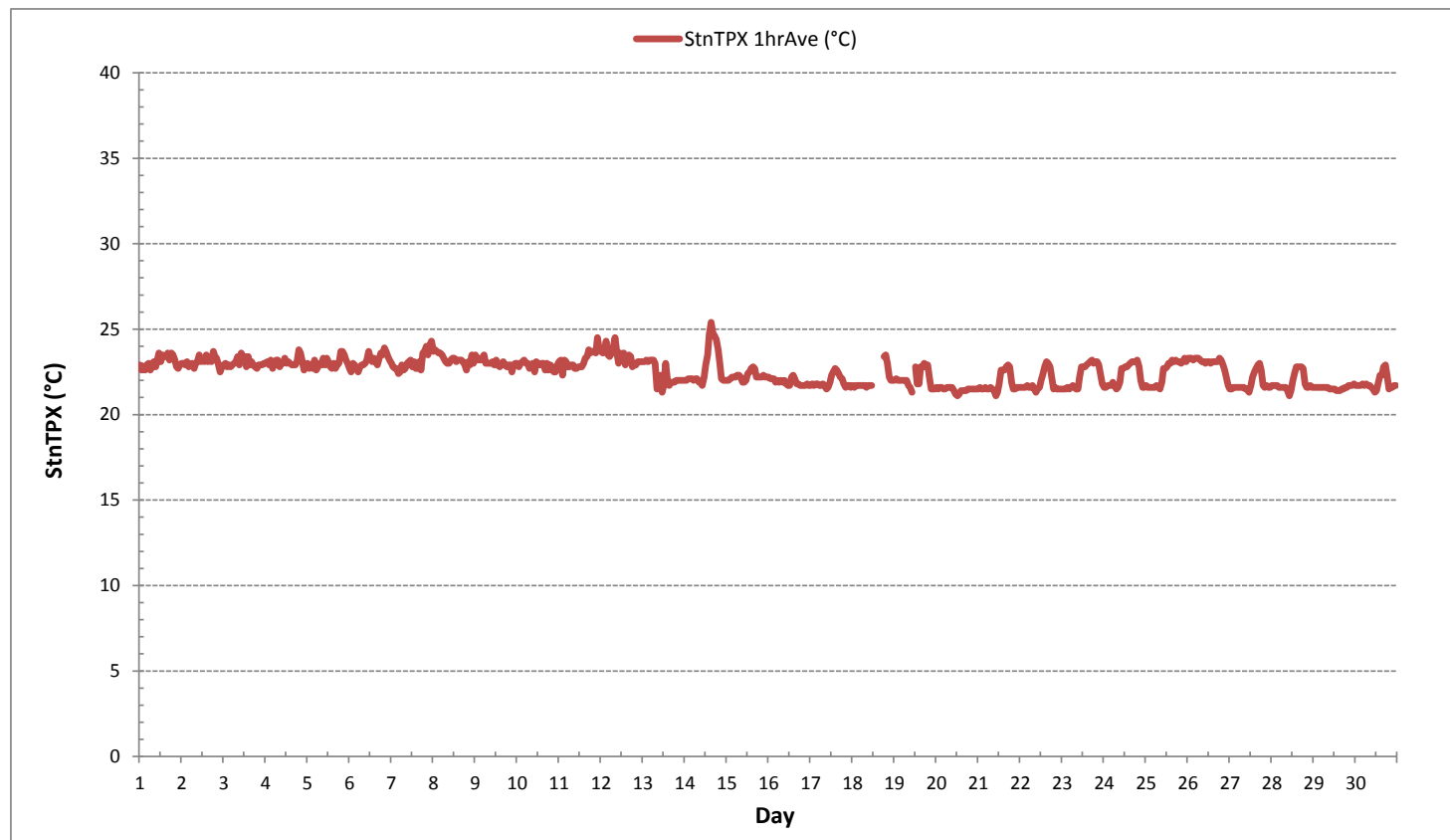


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	21.1	°C	@ HOUR	12	ON DAY	20
MAXIMUM 1-HR AVERAGE:	25.4	°C	@ HOUR	15	ON DAY	14
MAXIMUM 24-HR AVERAGE:	23.4	°C			ON DAY	12

OPERATIONAL TIME:	713	hrs
AMD OPERATION UPTIME:	99.0	%
STANDARD DEVIATION:	0.8	
MONTHLY AVERAGE:	22.5	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A Sulphur Dioxide Analyzer Calibration

Date:	September 13, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.87	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.43	°C
Location/Station Name:	RENO	Weather Conditions:	Cloudy/Overcast		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:28	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	12:33	Cal Gas Expiry Date:	May 23, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	841	Maxxam	Range ppb:	500	
Last Calibration Date:	August 9, 2018		As Found C.F.:	1.040	
Previous C.F.:	0.999		New C.F.:	0.997	

Calibration Standards:	Standard Calibration Points for Ranges		
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Point	ppb
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	High	380
Calibrator ID/Expiry Date:	Envionics id# 1991 expires March 15, 2019	Mid	180
Cal Gas Cylinder I.D. #:	LL119513	Low	90
Cal Gas Conc. (ppm):	50.6		

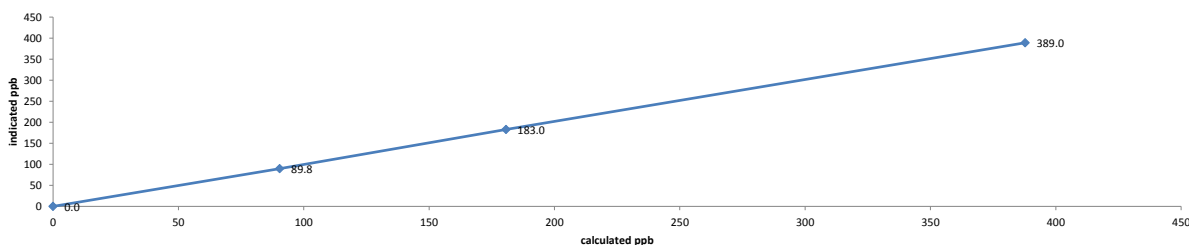
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	5962	0.00	5962	0.0	0.0	n/a
as found high	5901	45.57	5946	387.8	373.0	1.040
adjusted zero	5962	0.00	5962	0.0	0.0	n/a
adjusted high	5901	45.57	5946	387.8	389.0	0.997
mid	5976	21.42	5998	180.7	183.0	0.987
low	5980	10.71	5991	90.4	89.8	1.007
calibrator zero	5962	0.00	5962	0.0	0.8	n/a
Average C.F. =						0.997

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.996		0.95-1.05
b (Intercept as % of full scale) =	0.00%		± 3% F.S.
% change in C.F. from last cal =	-4.07%		± 10%

API 100A Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Slope:	1.073	Slope:	1.118
Offset:	48.6	Offset:	48.6
Hvps:	763	Hvps:	763
Dcps:	2560	Dcps:	2559
Rcell Temp:	50.5	Rcell Temp:	50.0
Box Temp:	30.4	Box Temp:	31.3
Pmt Temp:	7.1	Pmt Temp:	7.1
Izs Temp:	35.2	Izs Temp:	35.1
Pres:	25.1	Pres:	25.0
Samp Fl:	685	Samp Fl:	682
Pmt:	64.0	Pmt:	64.4
Uv Lamp:	1879.4	Uv Lamp:	1835.4
Lamp Ratio:	93.7	Lamp Ratio:	91.2
Str Lgt:	26.1	Str Lgt:	27.2
Drk Pmt:	25.7	Drk Pmt:	25.4
Drk Lmp:	16.9	Drk Lmp:	16.9
Expected Value:	300.0	Expected Value:	305.7

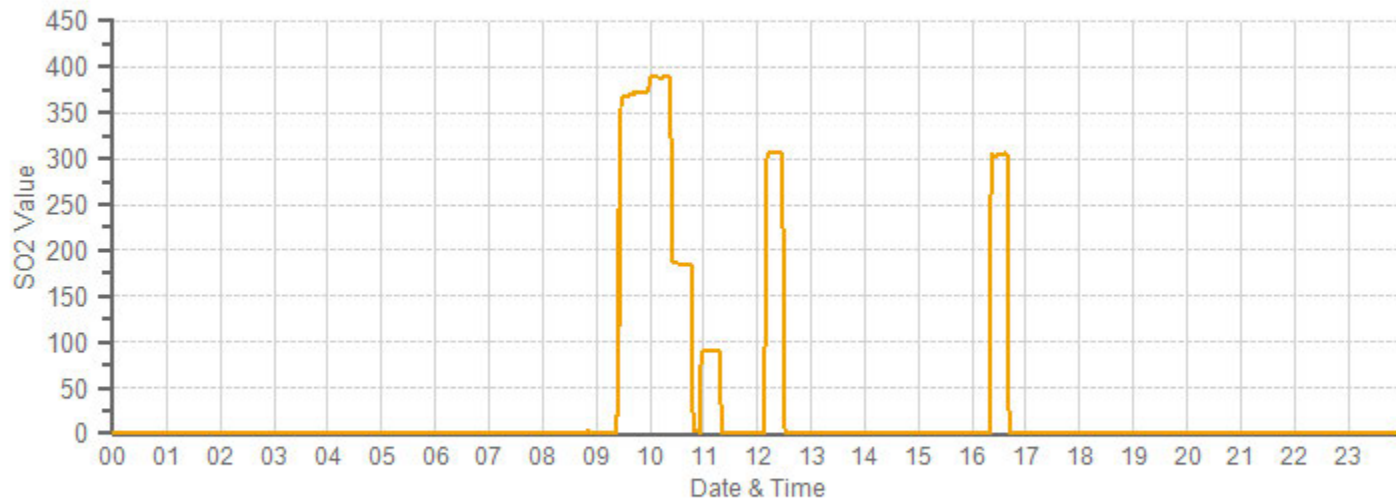
Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

No zero adjustment was required/made. The "as found" zero value was copied to the adjusted zero value field for linearity calculation purposes.

SO2[ppb] Station: PRAMP_RENO Daily: 18/09/13 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	September 13, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.87	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.43	°C
Location/Station Name:	RENO	Weather Conditions:	Cloudy/Overcast		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:28	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	14:39	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD-NOVA CDN-101 #534		
Analyzer:					
Serial Number/Owner:	1162460022 Maxxam	Range ppb:	100		
Last Calibration Date:	August 9, 2018	As Found C.F.:	0.966		
Previous C.F.:	1.000	New C.F.:	0.998		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Start/End Time 24 hr.:	9:40/9:50
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires August 21, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119500	As Found Zero:	0.0
Cal Gas Conc. (ppm):	9.8	Analyzer Response: (ppb):	0.0
		Zero Corrected Result (ppb):	0.0

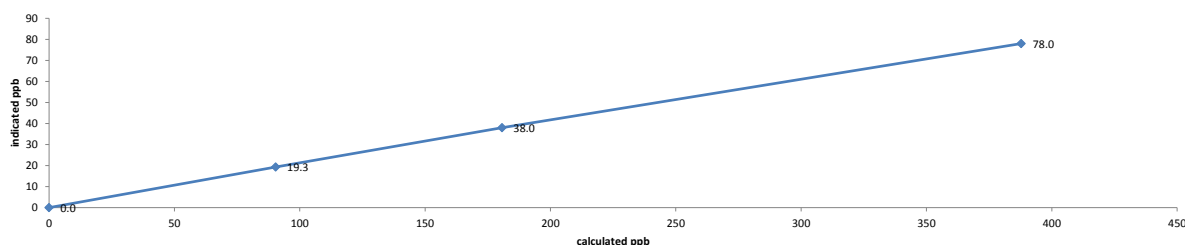
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7553	0.00	7553	0.0	0.1	n/a
as found high	7500	60.04	7561	77.8	80.6	0.966
adjusted zero	7553	0.00	7553	0.0	0.0	n/a
adjusted high	7501	60.04	7561	77.8	78.0	0.998
mid	7564	29.37	7594	37.9	38.0	0.997
low	7589	14.72	7604	19.0	19.3	0.983
calibrator zero	7553	0.00	7553	0.0	0.2	n/a
Average C.F. =						0.993

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.999		0.95-1.05
b (Intercept as % of full scale) =	-0.12%		± 3% F.S.
% change in C.F. from last cal =	3.39%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:	As left:
Bkg: 2.14	Bkg: 2.12
Coef: 0.976	Coef: 0.943
Pmt: -706.3	Pmt: -706.3
Flash: 986	Flash: 987
Internal: 28.3	Internal: 29.7
Chamber: 44.8	Chamber: 44.9
Perm Oven Gas: 34.98	Perm Oven Gas: 35.01
Perm Oven Heater: 34.11	Perm Oven Heater: 34.15
Pressure: 641.9	Pressure: 641.6
Sample Flow: 0.411	Sample Flow: 0.412
Lamp Intensity: 83	Lamp Intensity: 82
Converter: 825	Converter: 825
Converter Set: 825	Converter Set: 825
Averaging Time: 120	Averaging Time: 120
Expected Value: 45.9	Expected Value: 41.6

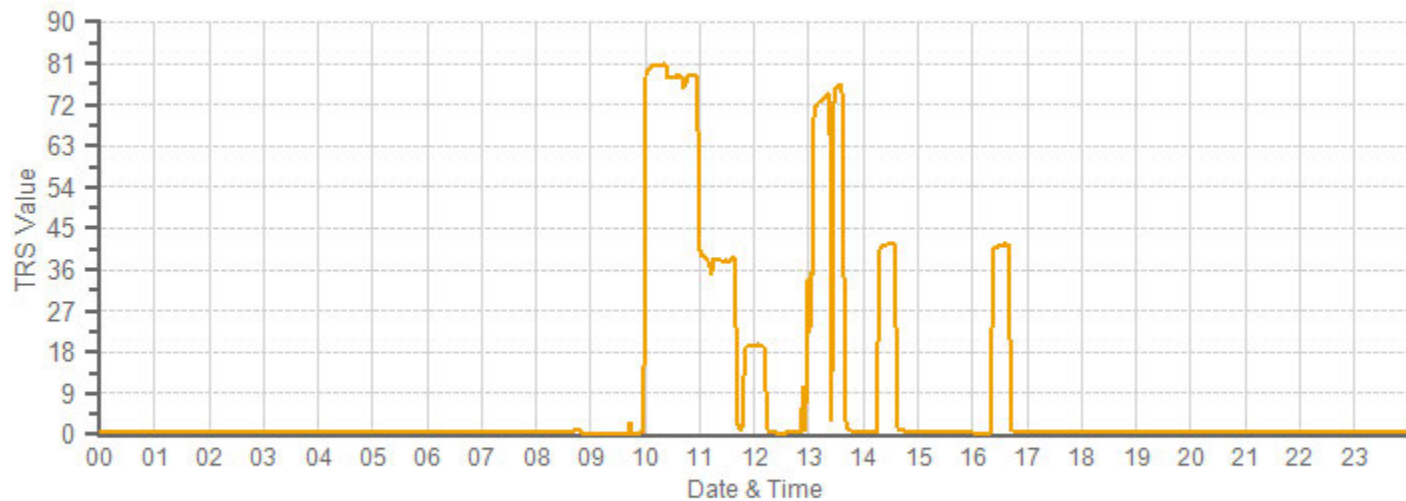
Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

The high point was rechecked from 12:45 to 13:45pm.

TRS[ppb] Station: PRAMP_RENO Daily: 18/09/13 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	September 13, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.86	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	21.34	°C
Location/Station Name:	RENO	Weather Conditions:	Cloudy/Overcast		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	routine monthly		
Start/End Time 24 hr. (mst):	11:52/15:40	Performed By/Reviewer:	Limin Li	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:		Correction Factors:			
Serial Number/Owner:	1314057759 Maxxam	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow:	1263.9 sccm	CH ₄ =	1.000	1.029	0.996
Last Calibration Date:	August 21, 2018	NMHC =	1.001	1.006	1.001
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.001	1.018	0.999

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Point	CH ₄	NMHC	THC
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	EnviroNics id# 1991 expires March 15, 2019	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #:	LL168404	Low	3.00	3.00	6.00
CH ₄ Cylinder Conc. =	597.0 206.0 =C ₃ H ₈ Cylinder Conc.				
CH ₄ expressed as C ₃ H ₈ =	566.5 1163.5 =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	3505	0.00	3505	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	3420	84.75	3505	14.44	13.70	28.14	14.03	13.62	27.65	1.029	1.006	1.018
adjusted zero	3505	0.00	3505	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	3420	84.75	3505	14.44	13.70	28.14	14.50	13.68	28.18	0.996	1.001	0.999
mid	3461	42.29	3503	7.21	6.84	14.04	7.22	6.84	14.06	0.998	1.000	0.999
low	3492	18.06	3510	3.07	2.91	5.99	3.05	2.91	5.96	1.007	1.002	1.004
calibrator zero	3505	0.00	3505	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F. =										1.000	1.001	1.001

Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995	
Slope =	1.005	0.999	1.002	0.95-1.05	
b (Intercept as % of full scale) =	-0.09%	0.01%	-0.04%	± 3% F.S.	
% change in C.F. from last cal =	-2.91%	-0.49%	-1.66%	± 10%	

As Left Instrument Diagnostics:												
Interface Board Voltages:	Bias Supply:	-289.0	Calibration History cnt'd:	NM Peak Area:	85930							
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	8							
	Filter:	175.1		Methane End:	16							
	Column Oven:	75.0		Backflush:	18							
Cylinder Pressures/reg.:	Internal:	30.9		NMHC Start:	26							
	Carrier:	1300 50		NMHC End:	56							
	Fuel:	700 50	Run History>1:	Date:	13Sep18							
	Span Gas:	1300 30		Time:	09.04							
	Zero Air Generator:	52		CH ₄ PK HT:	2545							
Internal Pressures:	Carrier:	31.3		CH ₄ RT:	11.6							
	Fuel:	41.6		CH ₄ Baseline:	2004							
	Air:	25.9		CH ₄ LOD:	87							
FID Status:	Status:	LIT		CH ₄ SD:	29							
	Counts:	23984		CH ₄ CONC:	1.92							
	Flame:	405.0		NM PK HT:	0							
	Det Base:	175.1		NM Peak Area:	0							
Flame and Power Stats:	Last Power On:	21Aug2018 12:59		NM CONC:	0.00							
	Flameouts:	5		NM Base Start:	1973							
	Det Oven at Start:	38.7		NM Base End:	1975							
	Col Oven at Start:	30.6		NM LOD:	10							
Calibration History:	Time:	21Aug2018 16:24		NM Start IDX:	48							
	Type:	SPAN		NM End IDX:	65							
	Status:	GOOD		NM Max Slope:	3.8e-01							
	Check/Adjust:	ADJUST		NM Min Slope:	-5.8e-01							
	CH ₄ Span Conc:	14.33	Expected Values:	NM PT Count:	0							
	CH ₄ SP Ratio:	0.000755		Previous CH ₄ :	10.19							
	CH ₄ RT:	11.6		Previous NMHC:	11.04							
	CH ₄ PK IDX:	18		Previous THC:	21.26							
	CH ₄ PK HT:	18988		New CH ₄ :	10.30							
	NM Span Conc:	13.60		New NMHC:	11.09							
	NM SP Ratio:	0.000158		New THC:	21.43							

Comments:

The analyzer sample inlet filter was changed.

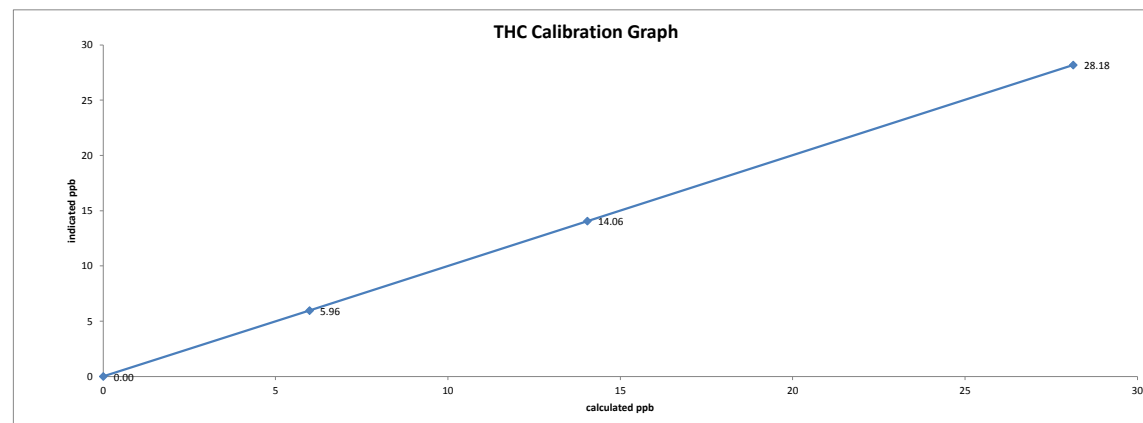
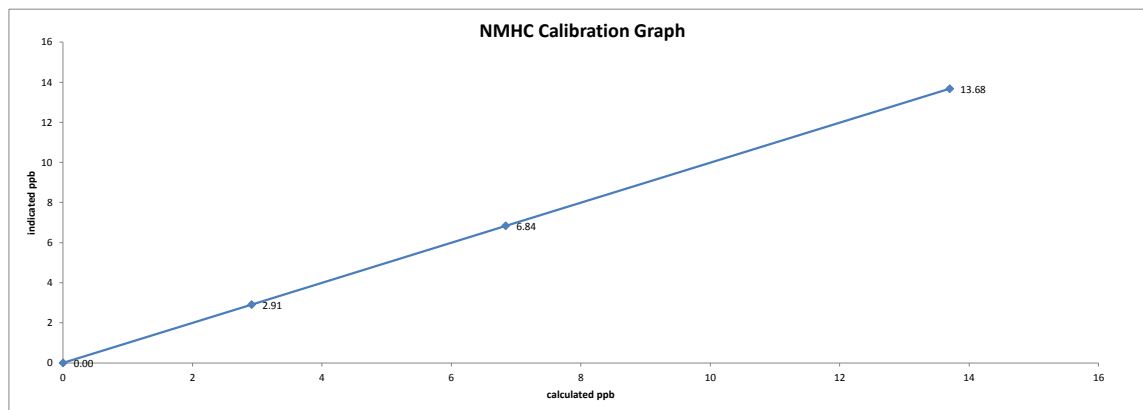
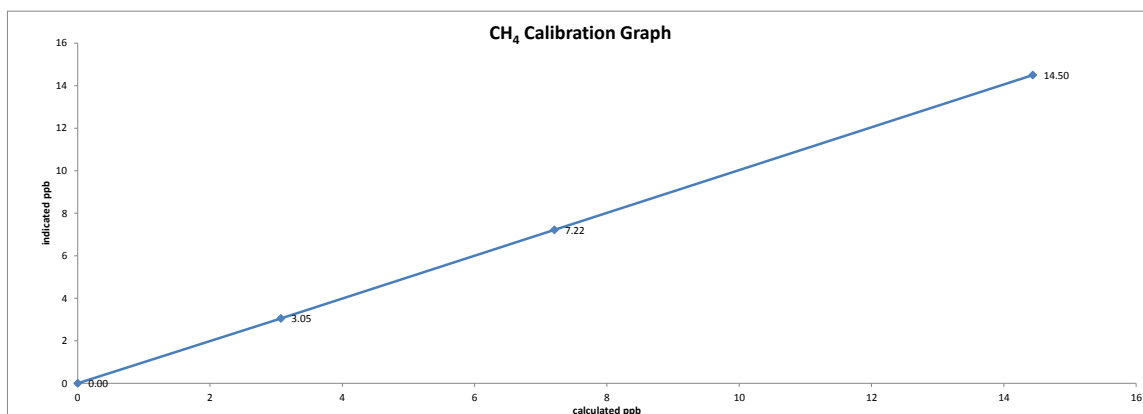
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

The analyzer cooling fan filter(s) were cleaned.

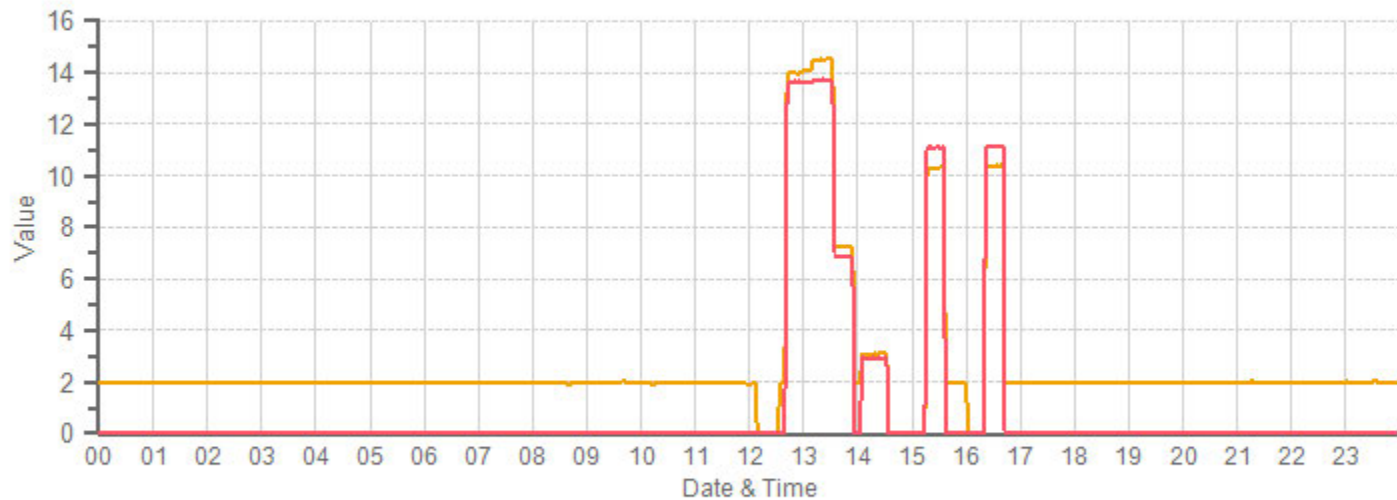
The manifold blower was found to be working normally.

Date: September 13, 2018
Company/Airshed: PRAMP
Location/Station Name: RENO

Start/End Time 24 hr. (mst): 11:52/15:40
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution



Station: PRAMP_RENO Daily: 18/09/13 Type: AVG 1 Min. [1 Min.]



— CH4[ppm]

— NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

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

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1V
Sensor Model:	530SVK	Velocity Unit Output Range:	0-200 KPH
Serial #:	149769	Direction Voltage Output Range:	0-1 V
Previous Cal/Audit Date:	April 6, 2017	Direction Unit Output Range:	0-360 DEG

Wind Calibrator Information

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

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

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

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

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

Comments:

METEOROLOGICAL SYSTEMS CHECK



Meteorological System Checklist

Date:	September 13, 2018		
Technician:	Limin Li		
Reviewer:	Rob Fisher		
Station:	RENO		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	RM Young	43172VC	60837897
Barometric Pressure Sensor:	MetOne	92	R12877
Relative Humidity Sensor:	RM Young	43172VC	60837897
Anemometer:	RM Young	05305VK	149769
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	August 9, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	F.S. 160348895 expires June 19, 2020		
Reference Temperature (°C):	-0.6		
Station - Ambient Temperature (°C):	-0.6		
Temperature Difference (°C):	-0.1		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	August 9, 2018		
Reference Barometer ID:	Brunton 05535 expires December 15, 2018		
Reference Pressure - Units/Reading:	inHg	27.87	
Station Pressure - Units/Reading:	inHg	27.89	
Pressure Tolerance +/- 15% of error:	24 - 32	-0.07%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	August 9, 2018		
Reference Hygrometer ID:	F.S. id# 160348895 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	61.99		
Station Hygrometer % RH- Reading:	58.86		
RH Tolerance +/- 15% of difference:	52.69 - 71.29	5.0%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	August 9, 2018	Previous check date:	August 9, 2018
Wind Speed Observed (kph):	5~15	Wind Direction Observed:	N
Wind speed on Data Logger (kph):	10	Wind Direction on Data Logger:	N
		Wind Direction Pass/Fail?:	Pass

CALIBRATORS

Company: Maxxam Operator: Chris W

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

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

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

LINEAR REGRESSION ANALYSIS

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

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

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

LINEAR REGRESSION ANALYSIS

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

NO₂		LIMITS	
Correlation=	1.0000	≥ 0.995	
m (Slope)=	0.9885	0.90-1.10	
b (Intercept % of FS)=	-0.0567	± 3% F.S.	

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

COMMENTS: Cylinder contains 47.9 ppm SO₂.

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: March 15, 2018
Location: McIntyre Center Edmonton

Company <u>Maxxam</u>		Operator: <u>Mike</u>	
Calibrator: Make/Model <u>Sabio</u> Serial Number <u>17200415</u> Last Verification Date <u>May 16, 2017</u> NO Cylinder S/N <u>LL104183</u> NO [PPM] <u>50.8</u> NOx [PPM] <u>50.9</u> Expiry Date <u>October 24, 2020</u>		Flow Measurement Device: Make/Model <u>Bios Definer 220</u> Serial Number <u>H=128686; L=129069</u> Temperature (°C) <u>22.2 C</u> Barometric Pressure <u>706.1mmHg</u>	
Dilution Flow (sccm) Pt. #1 <u>5057</u> Pt. #2 <u>5055</u> Pt. #3 <u>5070</u> Gas Flow (sccm) Pt. #1 <u>77.4</u> Pt. #2 <u>37.9</u> Pt. #3 <u>19.1</u>			

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

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)			
NO		LIMITS		NOx			
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000		
m (Slope)=	1.0253	0.90-1.10		m (Slope)=	1.0266		
b (Intercept % of FS)=	-0.0176	± 3% F.S.		b (Intercept % of FS)=	-0.0763		

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

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)			
NO₂		LIMITS					
Correlation=	1.0000	≥ 0.995					
m (Slope)=	1.0020	0.90-1.10					
b (Intercept % of FS)=	-0.0259	± 3% F.S.					

AENV Standards		NO_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>APEX1170572</u>	Last Calibration Date	<u>August 16, 2018</u>
Cylinder Conc. (ppm)	<u>49.99</u>	Full Scale (ppm)	<u>1.0</u>
		Cylinder Gas Expiry Date	<u>November 15, 2020</u>

COMMENTS:

Auditor: Shea Beaton
 Operator Signature: [Signature]

Date: August 21, 2018
 Location: McIntyre Center Edmonton

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. 2017-213CGA

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 9.8

Percent variance from Stated: 3

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: September 22, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-488CGA

Company: Maxxam **Operators name:** Mike
Cylinder #: LL168404 **Conc CH₄ (PPM)** 597/206 **Tolerance (%)** 2 **Certified By:** Praxair
Expiry Date: October 2025

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

Reference Analyzer:

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

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

	CH ₄	C ₃ H ₈
Previous Stated Concentration PPM:	597	206
Percent variance from Stated:	0	1

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: December 13, 2017
Operator Signature: *[Signature]* Location: McIntyre Center Edmonton

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

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

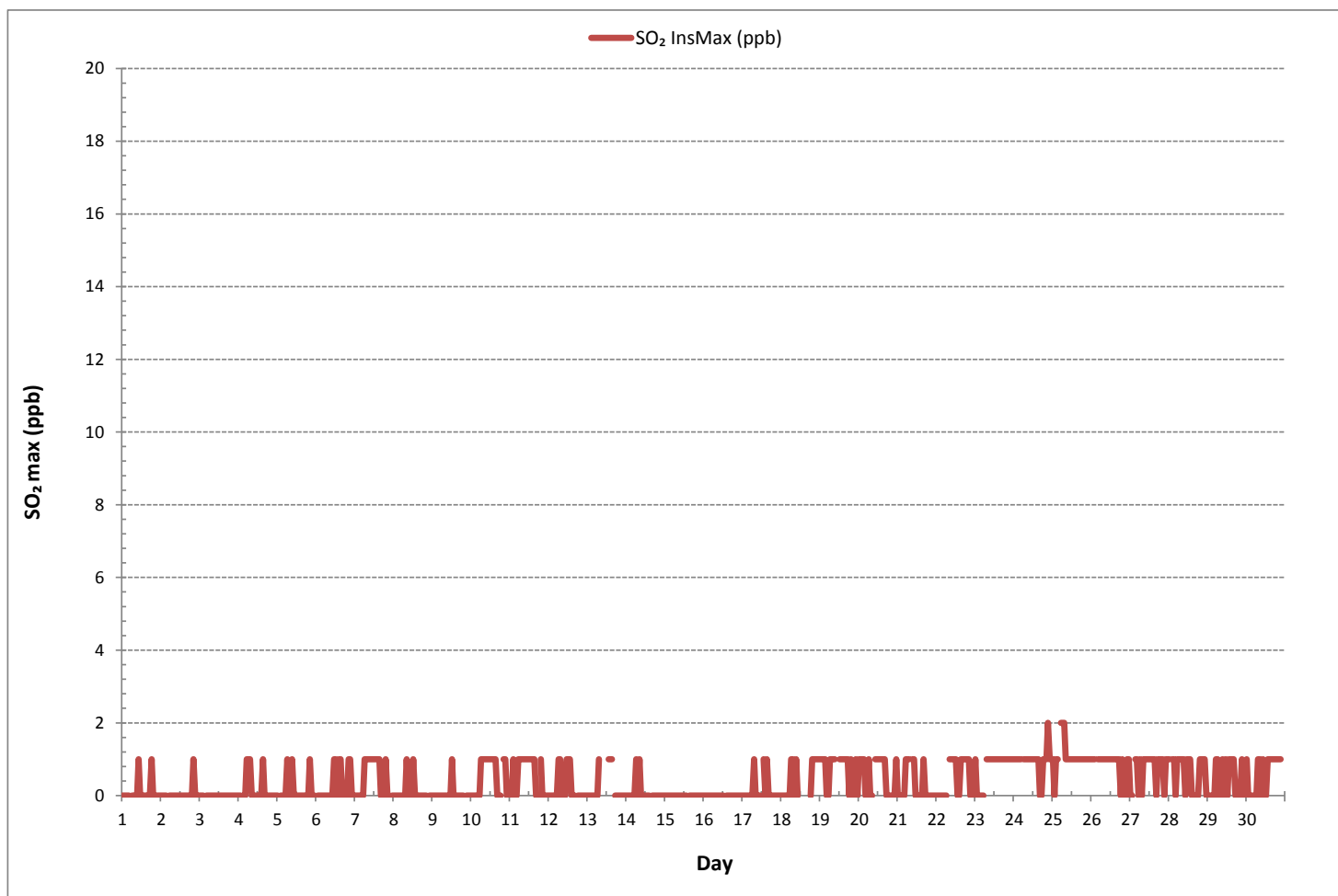
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		258					
MAXIMUM INSTANTANEOUS VALUE:		2	ppb	@ HOUR	21	ON DAY	24
IZS CALIBRATION TIME:		32	hrs	OPERATIONAL TIME:		713	hrs
MONTHLY CALIBRATION TIME:		5	hrs				
STANDARD DEVIATION:		0					

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Reno Station - September 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.60	0.63	0.65	0.61	0.58	S	0.55	0.48	0.45	0.42	0.42	0.42	0.45	0.40	0.37	0.40	0.42	0.37	0.40	0.48	0.42	0.65	0.61	0.48	0.37	0.65	0.49	24	
2	0.50	0.50	0.60	0.65	S	0.65	0.78	0.76	0.58	0.60	0.60	0.58	0.55	0.55	0.58	0.68	0.60	0.60	0.68	0.60	0.73	0.68	0.63	0.65	0.50	0.78	0.62	24	
3	0.65	0.63	0.61	S	0.60	0.65	0.63	0.99	0.48	0.45	0.45	0.48	0.45	0.42	0.40	0.40	0.42	0.40	0.42	0.45	0.53	0.56	0.45	0.45	0.40	0.99	0.52	24	
4	0.50	0.53	S	0.62	0.65	0.53	0.73	0.81	0.53	0.42	0.42	0.48	0.45	0.40	0.45	0.42	0.40	0.37	0.48	0.58	0.63	0.65	0.53	0.55	0.37	0.81	0.53	24	
5	0.78	S	0.55	0.53	0.58	0.53	0.55	0.63	0.78	0.55	0.50	0.42	0.42	0.42	0.40	0.42	0.40	0.40	0.45	0.57	0.63	0.73	0.58	0.45	0.40	0.78	0.53	24	
6	S	0.42	0.42	0.42	0.42	0.40	0.40	0.48	0.45	0.42	0.45	0.45	0.40	0.40	0.40	0.45	0.42	0.40	0.45	0.47	0.45	0.40	0.42	S	0.40	0.48	0.43	24	
7	0.42	0.45	0.42	0.45	0.45	0.45	0.45	0.48	0.55	0.53	0.53	0.50	0.45	0.48	0.42	0.45	0.50	0.48	0.53	0.78	0.86	0.91	S	0.76	0.42	0.91	0.54	24	
8	2.09	1.96	1.44	1.47	1.60	1.47	0.86	0.65	0.50	0.50	0.48	0.55	0.55	0.48	0.45	0.45	0.53	0.50	0.48	0.48	0.50	S	0.45	0.45	0.45	2.09	0.82	24	
9	0.50	0.50	0.50	0.50	0.53	0.50	0.50	0.55	0.50	0.50	0.47	0.45	0.45	0.45	0.42	0.45	0.45	0.40	0.42	0.45	S	0.42	0.45	0.42	0.40	0.55	0.47	24	
10	0.42	0.42	0.42	0.50	0.50	0.45	0.45	0.42	0.40	0.40	0.43	0.40	0.40	0.48	0.48	0.50	0.45	0.50	0.50	S	0.45	0.63	0.73	0.81	0.40	0.81	0.49	24	
11	0.58	0.86	0.68	0.60	0.65	0.76	0.78	0.84	0.76	0.65	0.63	0.58	0.47	0.45	0.42	0.45	0.48	0.48	S	0.45	0.48	0.48	0.50	0.45	0.42	0.86	0.59	24	
12	0.45	0.45	0.45	0.45	0.42	0.42	0.42	0.45	0.43	0.45	0.42	0.42	0.42	0.48	0.47	0.45	0.45	S	0.48	0.45	0.48	0.50	0.50	0.50	0.42	0.50	0.45	24	
13	0.48	0.50	0.55	0.50	0.56	0.57	0.62	0.53	C	C	C	C	C	C	C	C	S	0.53	0.45	0.42	0.40	0.39	0.42	0.40	0.39	0.62	0.49	24	
14	0.45	0.42	0.45	0.42	0.50	0.50	0.48	0.48	0.45	0.45	0.40	0.40	0.42	0.40	0.42	S	0.45	0.43	0.45	0.48	0.45	0.50	0.50	0.40	0.40	0.50	0.45	24	
15	0.45	0.50	0.48	0.50	0.42	0.42	0.45	0.45	0.48	0.42	0.42	0.40	0.42	0.40	S	0.42	0.42	0.40	0.45	0.45	0.45	0.45	0.45	0.42	0.40	0.50	0.44	24	
16	0.42	0.42	0.37	0.42	0.40	0.37	0.40	0.43	0.40	0.42	0.42	0.42	0.40	S	0.42	0.40	0.42	0.40	0.50	0.53	0.53	0.45	0.40	0.50	0.37	0.53	0.43	24	
17	0.45	0.50	0.76	0.81	0.40	0.37	0.40	0.48	0.40	0.45	0.37	0.40	S	0.42	0.42	0.40	0.45	0.48	0.48	0.48	0.55	0.55	0.65	0.63	0.37	0.81	0.49	24	
18	0.65	0.60	0.60	0.60	0.65	0.68	0.63	0.63	0.60	0.58	0.53	S	Y	Y	Y	Y	Y	Y	Y	0.42	0.69	0.78	0.72	0.72	0.68	0.42	0.78	0.63	18
19	0.65	0.79	0.73	0.77	0.50	0.56	0.60	0.61	0.59	0.59	S	Y	0.48	0.44	0.37	0.40	0.38	0.39	0.44	0.67	0.53	0.39	0.40	0.42	0.37	0.79	0.53	23	
20	0.56	0.49	0.43	0.41	0.42	0.38	0.38	0.39	0.38	S	0.47	0.43	0.41	0.43	0.39	0.38	0.39	0.41	0.42	0.44	0.42	0.41	0.49	0.45	0.38	0.56	0.43	24	
21	0.39	0.42	0.46	0.45	0.45	0.40	0.44	0.39	S	0.44	0.40	0.42	0.44	0.40	0.40	0.40	0.43	0.40	0.43	0.44	0.40	0.42	0.42	0.44	0.39	0.46	0.42	24	
22	0.52	0.45	0.41	0.46	0.40	0.39	0.42	S	0.44	0.44	0.41	0.42	0.41	0.45	0.40	0.42	0.42	0.46	0.43	0.44	0.43	0.44	0.44	0.45	0.39	0.52	0.43	24	
23	0.50	0.44	0.48	0.45	0.45	0.48	S	0.46	0.49	0.51	0.43	0.42	0.39	0.42	0.38	0.39	0.40	0.40	0.43	0.47	0.47	0.47	0.53	0.47	0.38	0.53	0.45	24	
24	0.47	0.47	0.52	0.50	0.52	S	0.56	0.49	0.61	0.57	0.45	0.50	0.47	0.43	0.44	0.48	0.49	0.51	0.61	0.70	0.66	0.93	0.71	0.68	0.43	0.93	0.56	24	
25	0.77	0.80	0.83	0.82	S	0.82	0.83	0.78	0.69	0.53	0.53	0.49	0.44	0.43	0.42	0.42	0.43	0.46	0.43	0.49	0.53	0.57	0.56	0.51	0.42	0.83	0.59	24	
26	0.54	0.52	0.53	S	0.57	0.60	0.54	0.49	0.45	0.53	0.51	0.60	0.53	0.49	0.55	0.58	0.57	0.60	0.72	0.68	0.54	0.61	1.51	1.12	0.45	1.51	0.62	24	
27	1.15	1.05	S	0.68	1.09	0.89	0.51	0.50	0.60	0.59	0.47	0.51	0.43	0.39	0.47	0.42	0.48	0.38	0.42	0.51	0.55	0.47	0.58	0.79	0.38	1.15	0.61	24	
28	0.60	S	0.74	0.75	1.07	1.03	1.03	0.65	0.75	0.61	0.40	0.43	0.38	0.39	0.40	0.42	0.43	0.43	0.45	0.41	0.40	0.43	0.43	0.44	0.38	1.07	0.57	24	
29	S	0.50	0.54	0.51	0.49	0.53	0.50	0.44	0.43	0.44	0.45	0.44	0.45	0.46	0.43	0.43	0.43	0.41	0.45	0.42	0.44	0.84	0.48	S	0.41	0.84	0.48	24	
30	0.96	0.63	0.49	0.50	0.47	0.49	0.42	0.43	0.42	0.46	0.43	0.43	0.44	0.42	0.42	0.44	0.41	0.45	0.45	0.46	0.47	0.45	S	0.49	0.41	0.96	0.48	24	
HOURLY MAX	2.09	1.96	1.44	1.47	1.60	1.47	1.03	0.99	0.78	0.65	0.63	0.60	0.55	0.55	0.58	0.68	0.60	0.60	0.72	0.78	0.86	0.93	1.51	1.12					
HOURLY AVG	0.63	0.60	0.58	0.58	0.58	0.58	0.56	0.56	0.52	0.50	0.46	0.46	0.44	0.44	0.43	0.44	0.45	0.44	0.47	0.52	0.52	0.56	0.56	0.55					

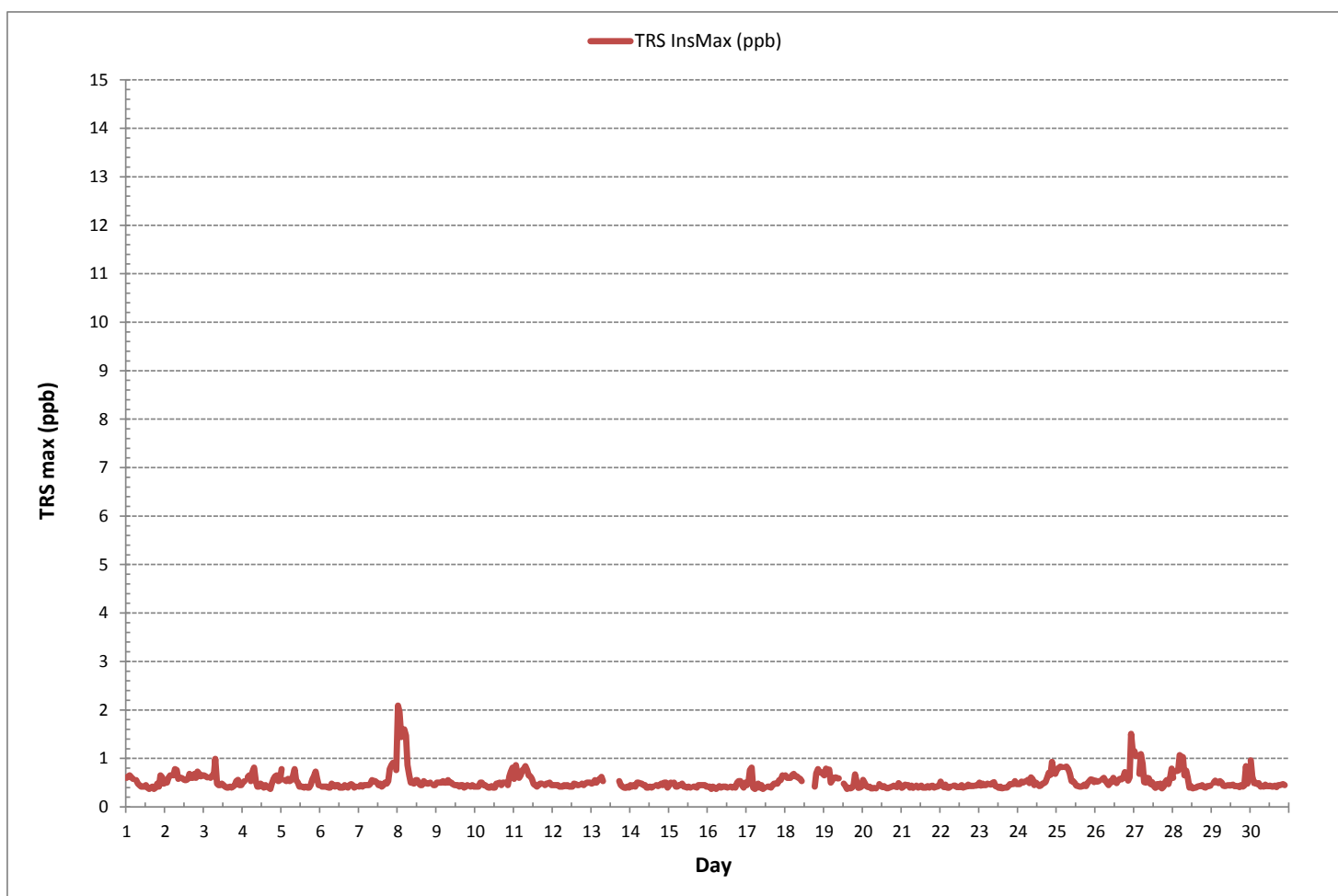
STATUS FLAG CODES

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:	674				
MAXIMUM INSTANTANEOUS VALUE:	2.09	ppb	@ HOUR	0	ON DAY 8
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	713	hrs
MONTHLY CALIBRATION TIME:	7	hrs			
STANDARD DEVIATION:	0.17				

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.92	1.94	1.94	1.95	1.93	S	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	2.02	2.07	2.14	1.94	1.92	2.14	1.96	24	
2	1.96	1.96	1.96	2.00	S	1.98	2.21	2.19	1.97	2.02	1.98	1.96	1.95	1.96	2.02	1.99	1.98	2.08	2.13	1.95	2.30	2.36	2.06	1.95	1.95	2.36	2.04	24	
3	1.95	1.94	1.95	S	1.97	1.97	1.97	1.96	1.94	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.96	1.97	2.02	1.96	1.98	2.03	1.94	2.03	1.97	24	
4	2.10	2.02	S	2.08	2.56	2.66	2.64	2.47	2.23	1.96	1.97	1.97	1.97	1.95	1.95	1.95	1.95	1.96	1.96	2.23	2.25	2.27	2.08	2.07	1.95	2.66	2.14	24	
5	2.60	S	2.28	2.25	2.53	2.81	2.56	2.03	2.03	1.98	1.98	1.97	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.98	1.96	1.95	2.81	2.11	24	
6	S	1.98	1.97	1.96	1.99	2.00	1.97	1.97	1.98	1.99	1.99	2.01	2.01	1.99	2.04	1.99	2.02	2.02	2.05	2.07	2.05	2.04	2.00	S	1.96	2.07	2.01	24	
7	2.02	2.02	2.03	2.02	2.04	2.03	2.06	2.09	2.15	2.09	2.06	2.03	2.09	2.05	2.03	2.04	2.05	2.02	2.02	2.02	2.03	2.14	S	2.23	2.02	2.23	2.06	24	
8	2.13	2.05	2.10	2.10	2.07	2.10	2.09	2.06	2.04	2.03	2.03	2.03	2.03	2.02	2.01	2.00	2.01	2.01	2.01	1.99	1.97	S	1.95	1.94	1.94	2.13	2.03	24	
9	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.98	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.97	S	2.00	1.99	1.98	1.94	2.00	1.95	24	
10	1.95	1.95	1.95	1.95	1.95	1.97	2.00	2.02	2.02	1.99	1.97	1.97	1.96	1.96	1.97	1.96	1.95	1.95	1.95	S	1.96	1.99	1.99	2.02	1.95	2.02	1.97	24	
11	2.05	2.00	1.98	1.96	1.98	2.00	1.99	2.14	2.03	2.01	1.98	1.98	1.95	1.95	1.96	1.95	1.95	1.95	S	1.94	1.95	1.94	1.95	1.94	1.94	2.14	1.98	24	
12	1.94	1.96	1.95	1.95	1.98	1.98	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.95	S	1.95	1.96	1.94	1.95	1.96	1.95	1.94	1.98	1.96	24	
13	1.95	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.96	2.01	1.94	C	C	C	C	C	S	1.99	1.99	1.99	1.99	2.08	1.99	2.12	1.94	2.12	1.99	24	
14	2.07	2.22	2.10	2.13	2.46	2.01	2.11	2.04	2.02	2.00	2.02	2.03	2.05	2.03	2.03	S	2.09	2.05	2.05	2.09	2.29	2.11	2.08	2.09	2.00	2.46	2.09	24	
15	2.05	2.05	2.02	2.02	2.04	2.04	2.08	2.03	2.03	2.02	2.02	2.02	2.02	2.02	S	2.02	2.04	2.03	2.03	2.02	2.02	2.02	2.03	2.08	2.02	2.08	2.03	24	
16	2.26	2.10	2.11	2.16	2.03	2.03	2.03	2.02	2.02	2.02	2.02	2.02	2.02	S	2.02	2.02	2.02	2.02	2.02	2.02	2.25	2.42	2.19	2.65	2.02	2.65	2.11	24	
17	2.17	2.28	2.07	2.08	2.03	2.02	2.17	2.16	2.08	2.57	2.72	2.35	S	2.11	2.09	2.12	2.03	2.04	2.03	2.03	2.05	2.06	2.07	2.09	2.02	2.72	2.15	24	
18	2.08	2.09	2.08	2.08	2.10	2.09	2.09	2.09	2.08	2.07	2.06	S	Y	Y	Y	Y	Y	Y	Y	2.00	2.22	2.53	2.36	2.44	2.40	2.00	2.53	2.17	18
19	2.45	2.73	2.81	2.90	2.25	2.09	2.62	2.64	2.08	2.02	S	Y	2.03	2.03	1.99	1.99	1.98	1.98	1.98	1.99	2.00	2.00	2.00	2.02	1.98	2.90	2.21	23	
20	2.04	2.03	2.04	2.00	2.00	1.99	1.99	1.99	2.00	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	2.00	2.00	2.01	1.98	2.04	2.00	24	
21	1.99	1.99	2.00	2.17	2.01	2.00	2.09	2.05	S	2.07	2.00	2.00	2.00	2.02	2.06	2.02	2.00	2.03	2.00	2.04	2.16	2.25	2.25	2.23	1.99	2.25	2.06	24	
22	2.15	2.11	2.62	2.18	2.04	2.01	2.09	S	2.16	2.01	2.01	1.99	2.01	2.00	2.00	2.00	2.00	2.01	2.06	2.08	2.06	2.05	2.04	2.04	1.99	2.62	2.07	24	
23	2.04	2.04	2.09	2.15	2.04	2.20	S	2.14	2.15	2.14	2.06	2.03	2.02	2.02	2.02	2.00	1.97	1.96	1.97	1.99	1.98	X	1.99	2.02	1.96	2.20	2.05	23	
24	1.99	1.99	1.99	1.99	2.00	S	1.98	1.99	1.99	1.98	1.96	1.97	1.97	1.97	1.97	1.96	1.97	1.97	1.98	1.97	2.61	3.47	2.53	2.34	1.96	3.47	2.11	24	
25	2.44	2.32	2.63	2.42	S	2.40	2.42	2.34	2.23	2.07	2.02	2.01	2.00	1.98	1.97	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.96	2.63	2.13	24	
26	1.98	1.98	1.98	S	1.98	2.04	1.99	1.99	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.97	1.99	1.99	1.99	1.99	2.00	1.97	2.04	1.98	24	
27	2.01	2.01	S	2.02	2.06	2.21	2.16	2.17	2.18	2.16	2.03	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	4.69	4.87	2.00	4.87	2.29	24	
28	2.75	S	3.10	2.93	2.39	2.17	2.07	2.09	2.09	2.03	2.00	1.99	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.03	2.03	2.04	2.04	1.99	3.10	2.16	24	
29	S	2.00	2.00	2.01	2.01	2.02	2.01	2.00	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	2.09	2.68	2.35	S	2.00	2.68	2.06	24	
30	2.97	2.50	2.26	2.39	2.45	2.40	2.07	2.03	2.09	2.08	2.04	2.01	2.01	2.00	2.03	2.01	2.00	2.07	2.24	2.02	2.07	2.04	S	2.05	2.00	2.97	2.17	24	
HOURLY MAX	2.97	2.73	3.10	2.93	2.56	2.81	2.64	2.64	2.23	2.57	2.72	2.35	2.09	2.11	2.09	2.12	2.09	2.08	2.24	2.23	2.61	3.47	4.69	4.87					
HOURLY AVG	2.14	2.08	2.14	2.13	2.10	2.11	2.11	2.09	2.05	2.04	2.02	2.00	1.99	1.99	2.00	1.99	1.99	2.00	2.01	2.01	2.09	2.15	2.17	2.18					

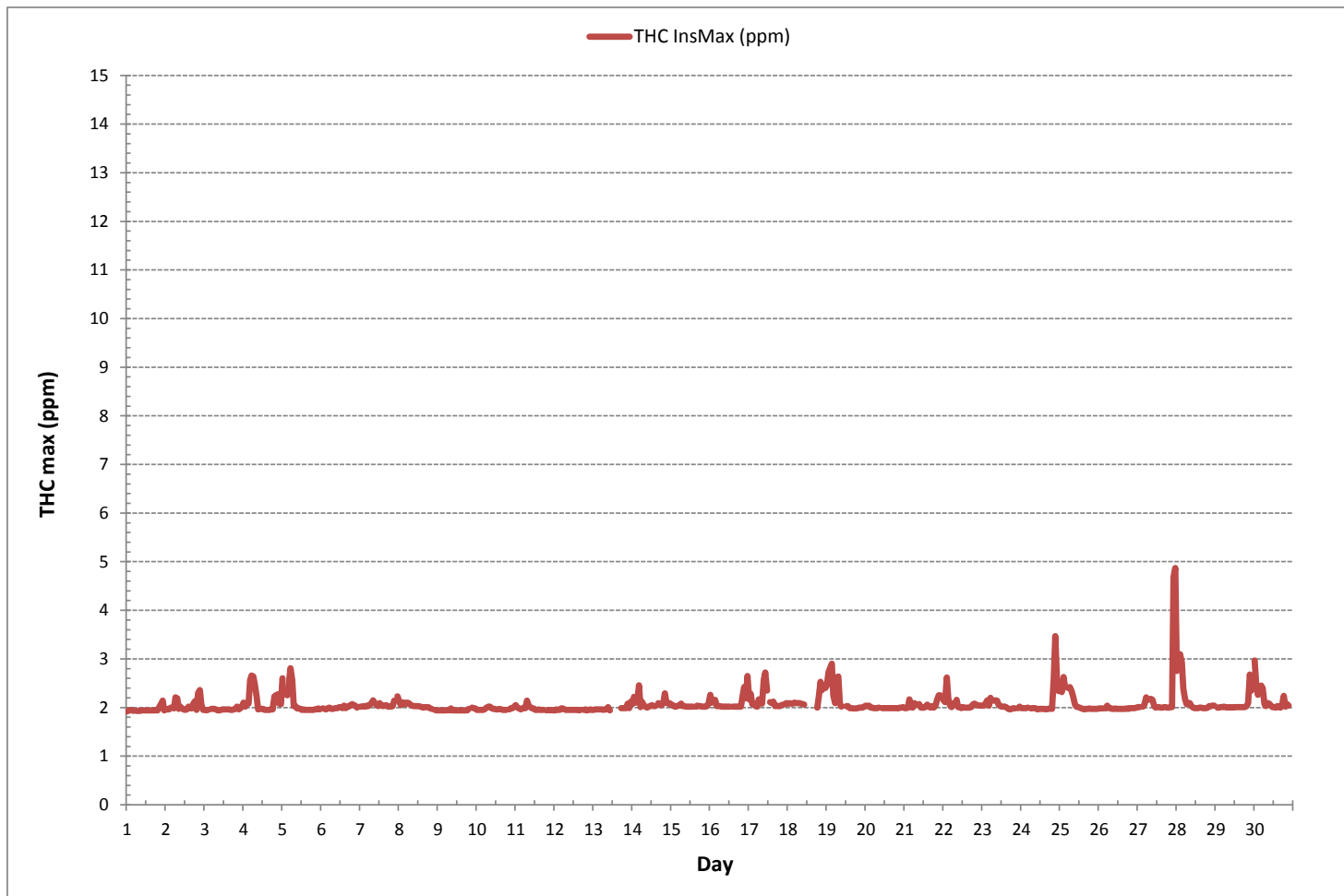
STATUS FLAG CODES

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:	675				
MAXIMUM INSTANTANEOUS VALUE:	4.87	ppm	@ HOUR	23	ON DAY 27
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	712	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.23				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

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	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.91	1.93	1.93	1.94	1.92	S	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.92	1.93	1.94	2.01	2.06	2.13	1.94	1.91	2.13	1.95	24	
2	1.96	1.96	1.96	2.00	S	1.97	2.21	2.19	1.97	2.01	1.97	1.95	1.95	1.95	2.01	1.99	1.97	2.07	2.12	1.95	2.29	2.35	2.05	1.95	1.95	2.35	2.03	24	
3	1.94	1.93	1.95	S	1.96	1.96	1.96	1.95	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	2.01	1.96	1.98	2.01	1.93	2.01	1.96	24		
4	2.09	2.02	S	2.07	2.55	2.66	2.64	2.47	2.22	1.96	1.97	1.97	1.96	1.95	1.94	1.94	1.94	1.95	1.96	2.22	2.24	2.26	2.07	2.06	1.94	2.66	2.14	24	
5	2.59	S	2.27	2.24	2.52	2.80	2.55	2.01	2.01	1.98	1.97	1.97	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.97	1.96	1.94	2.80	2.10	24	
6	S	1.97	1.97	1.96	1.98	2.00	1.96	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.02	2.01	2.04	2.06	2.04	2.03	1.99	S	1.96	2.06	2.00	24	
7	2.00	2.01	2.02	2.01	2.03	2.03	2.05	2.08	2.15	2.08	2.05	2.02	2.08	2.04	2.02	2.02	2.04	2.00	2.01	2.00	2.01	2.13	S	2.23	2.00	2.23	2.05	24	
8	2.12	2.04	2.09	2.09	2.06	2.05	2.08	2.05	2.03	2.01	2.02	2.01	2.01	2.01	2.00	1.99	2.00	1.99	1.99	1.98	1.97	S	1.94	1.94	1.94	2.12	2.02	24	
9	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.97	S	2.00	1.98	1.97	1.93	2.00	1.94	24	
10	1.95	1.95	1.95	1.95	1.95	1.96	1.99	2.01	2.01	1.98	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.94	1.95	S	1.96	1.98	1.99	2.01	1.94	2.01	1.97	24	
11	2.04	1.98	1.97	1.95	1.98	1.99	1.99	2.13	2.01	2.00	1.97	1.97	1.95	1.95	1.95	1.94	1.95	1.94	S	1.94	1.94	1.94	1.94	1.93	1.93	2.13	1.97	24	
12	1.94	1.95	1.95	1.94	1.97	1.97	1.96	1.94	1.95	1.95	1.94	1.95	1.95	1.94	1.95	1.94	1.94	S	1.94	1.95	1.94	1.95	1.95	1.95	1.94	1.97	1.95	24	
13	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	2.00	1.93	C	C	C	C	C	S	1.98	1.98	1.98	1.99	2.07	1.98	2.11	1.93	2.11	1.98	24	
14	2.06	2.22	2.09	2.12	2.45	2.00	2.10	2.02	2.00	2.00	2.02	2.01	2.04	2.01	2.01	S	2.08	2.05	2.04	2.08	2.28	2.10	2.07	2.08	2.00	2.45	2.08	24	
15	2.03	2.03	2.00	2.01	2.02	2.02	2.07	2.02	2.01	2.01	2.01	2.00	2.00	2.01	S	2.01	2.02	2.03	2.03	2.01	2.01	2.01	2.02	2.07	2.00	2.07	2.02	24	
16	2.26	2.09	2.10	2.15	2.02	2.02	2.01	2.01	2.01	2.01	2.01	2.00	2.00	S	2.01	2.02	2.02	2.00	2.00	2.01	2.24	2.42	2.18	2.64	2.00	2.64	2.10	24	
17	2.16	2.26	2.06	2.07	2.02	2.01	2.16	2.15	2.07	2.56	2.71	2.34	S	2.10	2.08	2.11	2.02	2.02	2.02	2.03	2.04	2.05	2.06	2.08	2.01	2.71	2.14	24	
18	2.07	2.08	2.07	2.07	2.09	2.08	2.08	2.08	2.07	2.06	2.05	S	Y	Y	Y	Y	Y	Y	Y	2.00	2.22	2.53	2.36	2.44	2.40	2.00	2.53	2.16	18
19	2.45	2.73	2.81	2.90	2.25	2.09	2.62	2.64	2.08	2.02	S	Y	2.03	2.03	1.99	1.99	1.98	1.98	1.98	1.99	2.00	2.00	2.00	2.02	1.98	2.90	2.21	23	
20	2.04	2.03	2.04	2.00	2.00	1.99	1.99	1.99	2.00	S	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	2.00	2.00	2.01	1.98	2.04	2.00	24	
21	1.99	1.99	2.00	2.17	2.01	2.00	2.09	2.05	S	2.07	2.00	2.00	2.00	2.02	2.06	2.02	2.00	2.03	2.01	2.04	2.16	2.25	2.25	2.23	1.99	2.25	2.06	24	
22	2.15	2.11	2.62	2.18	2.04	2.01	2.09	S	2.16	2.01	2.01	1.99	2.01	2.00	2.00	2.00	2.00	2.01	2.06	2.08	2.06	2.05	2.04	2.04	1.99	2.62	2.07	24	
23	2.04	2.04	2.09	2.15	2.04	2.20	S	2.14	2.15	2.14	2.06	2.03	2.02	2.02	2.00	2.00	1.97	1.96	1.97	1.99	1.98	X	1.99	2.02	1.96	2.20	2.05	23	
24	1.99	1.99	1.99	1.99	2.00	S	1.98	1.99	1.99	1.98	1.96	1.97	1.97	1.97	1.97	1.96	1.97	1.97	1.98	1.97	2.61	3.47	2.53	2.34	1.96	3.47	2.11	24	
25	2.44	2.32	2.63	2.42	S	2.40	2.42	2.34	2.23	2.07	2.02	2.01	2.00	1.98	1.97	1.96	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.96	2.63	2.13	24	
26	1.98	1.98	1.98	S	1.98	1.99	1.99	1.99	1.97	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.97	1.99	1.99	1.99	1.99	2.00	1.97	2.00	1.98	24	
27	2.01	2.01	S	2.02	2.06	2.21	2.16	2.17	2.18	2.16	2.03	2.00	2.01	2.01	2.00	2.00	2.01	2.01	2.00	2.00	2.01	2.01	4.69	4.87	2.00	4.87	2.29	24	
28	2.75	S	3.10	2.93	2.39	2.17	2.07	2.09	2.09	2.03	2.00	1.99	1.99	1.99	2.00	2.00	1.99	1.99	1.99	2.00	2.03	2.03	2.04	2.04	1.99	3.10	2.16	24	
29	S	2.00	2.00	2.01	2.01	2.02	2.01	2.00	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	2.09	2.68	2.35	S	2.00	2.68	2.06	24	
30	2.97	2.50	2.26	2.39	2.45	2.40	2.07	2.03	2.09	2.08	2.04	2.01	2.01	2.00	2.03	2.01	2.00	2.07	2.24	2.02	2.07	2.04	S	2.05	2.00	2.97	2.17	24	
HOURLY MAX	2.97	2.73	3.10	2.93	2.55	2.80	2.64	2.64	2.23	2.56	2.71	2.34	2.08	2.10	2.08	2.11	2.08	2.07	2.24	2.22	2.61	3.47	4.69	4.87					
HOURLY AVG	2.14	2.07	2.14	2.13	2.09	2.10	2.11	2.08	2.04	2.03	2.02	2.00	1.99	1.99	1.99	1.98	1.99	1.99	2.00	2.01	2.08	2.15	2.16	2.18					

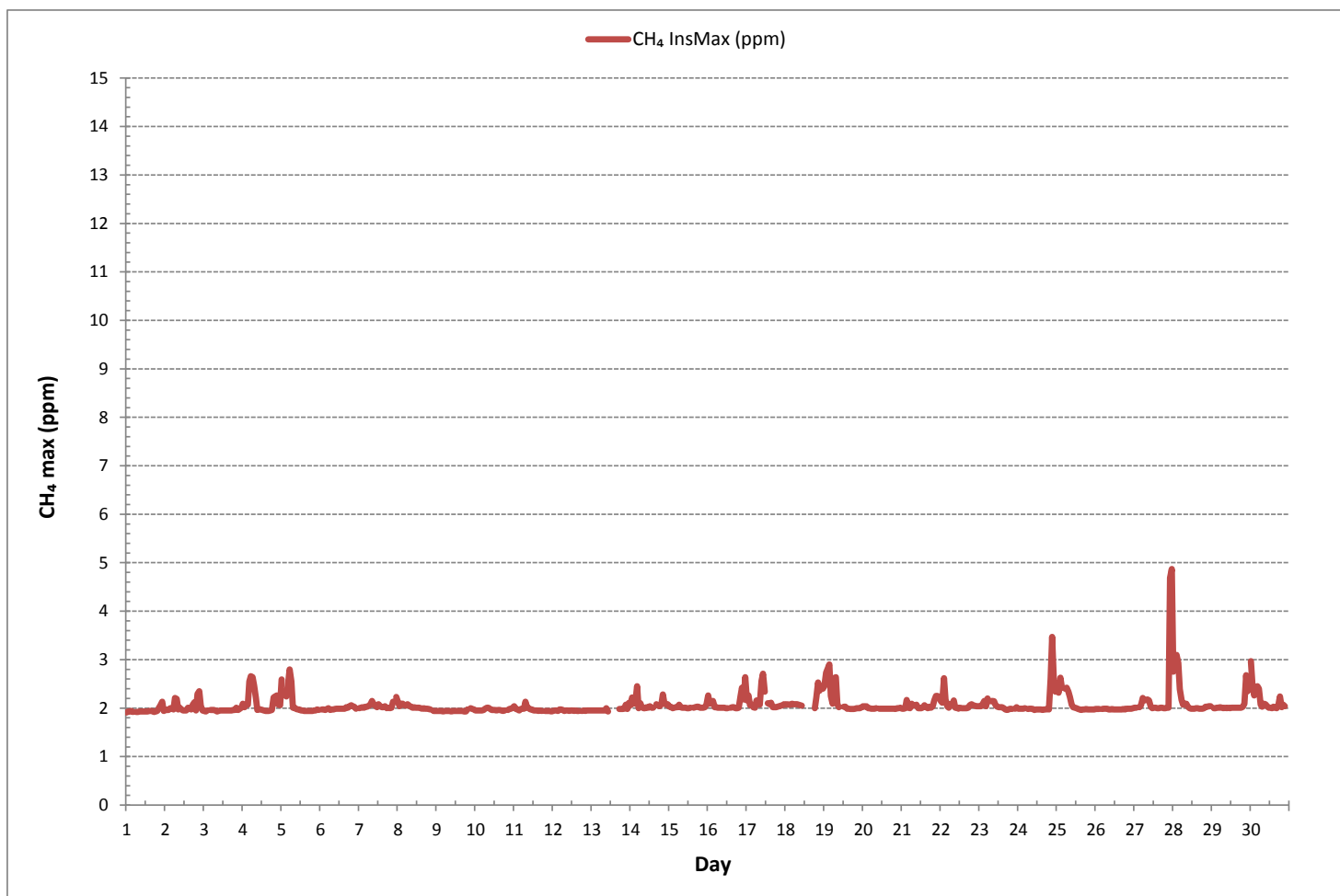
STATUS FLAG CODES

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:	675				
MAXIMUM INSTANTANEOUS VALUE:	4.87	ppm	@ HOUR	23	ON DAY 27
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	712	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.23				

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.		
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.			
DAY																														
1	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
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	0.00	24	
3	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
4	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
5	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
6	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.06	0.00	24	
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24	
8	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	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.05	0.00	0.00	24	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.04	0.00	0.00	24	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
11	0.00	0.03	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24	
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.01	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	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	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	Y	Y	Y	Y	Y	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	Y	0.00	0.00	0.00	0.00	0.00	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
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.01	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	X	0.00	0.00	0.00	0.01	0.00	0.00	23	
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	0.10	0.00	0.00	0.00	0.10	0.00	0.00	24	
25	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	24
27	0.00	0.01	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	24
28	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.03	0.00	0.01	0.00	0.06	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.01	0.00	0.10	0.00	0.00						
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						

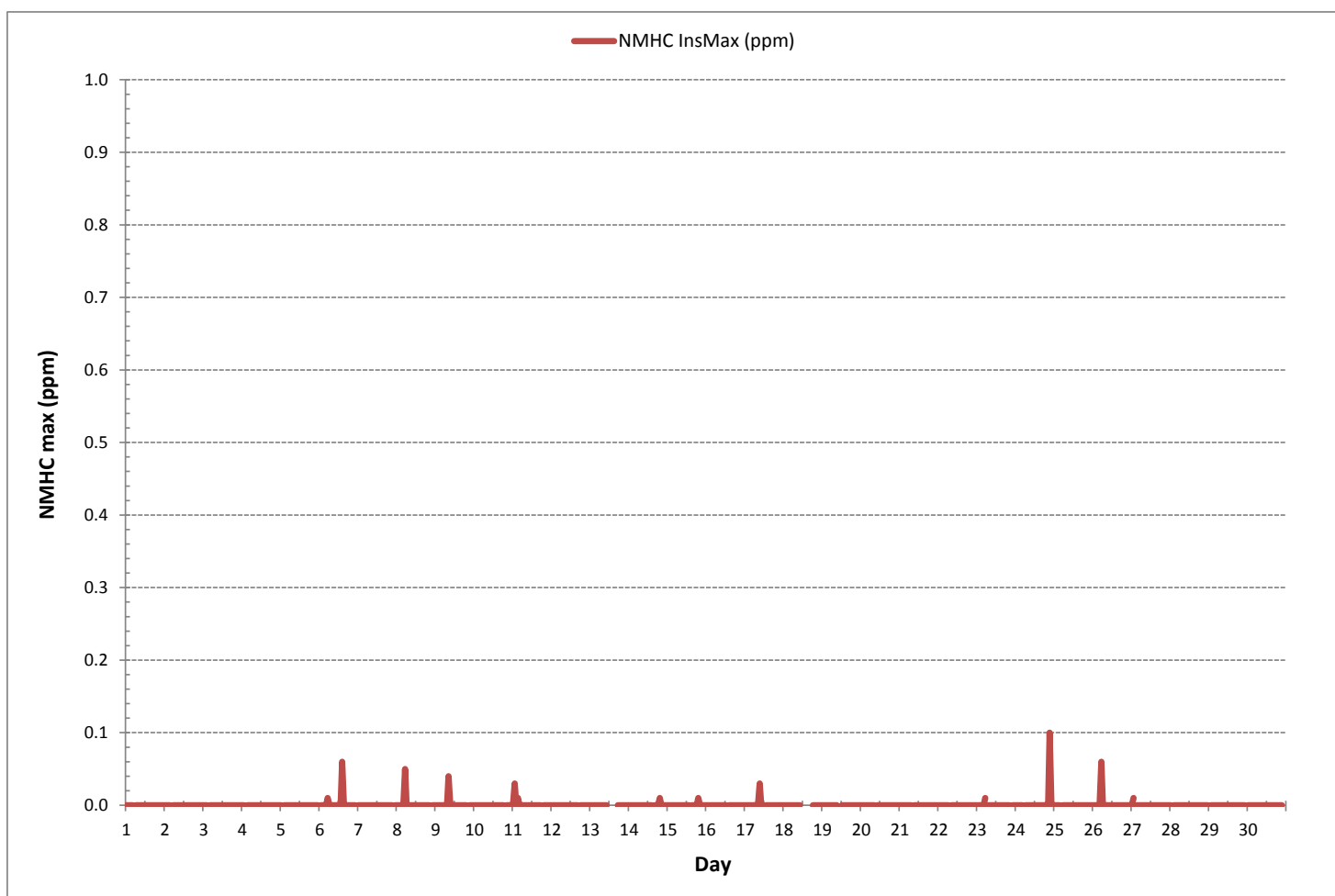
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	13
MAXIMUM INSTANTANEOUS VALUE:	0.10 ppm @ HOUR 21 ON DAY 24
IZS CALIBRATION TIME:	32 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.01
OPERATIONAL TIME:	712 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - September 2018

WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	16.4	18.4	17.6	24.1	21.9	24.7	20.6	26.5	33.5	30.5	27.0	28.5	26.5	25.6	28.3	34.2	28.5	23.1	13.4	6.1	6.6	12.0	6.8	6.4	6.1	34.2	21.1	24
2	14.1	12.7	12.5	9.9	10.5	9.3	8.9	15.9	14.5	14.9	15.9	18.0	20.9	13.7	9.5	10.4	11.4	7.8	16.6	14.2	7.8	7.7	12.3	12.7	7.7	20.9	12.6	24
3	13.3	15.5	15.9	17.7	17.3	19.9	16.9	28.0	24.6	30.0	40.2	34.9	28.1	27.7	21.7	23.4	21.6	15.8	13.3	7.0	12.5	6.2	4.3	5.9	4.3	40.2	19.2	24
4	5.8	4.9	6.7	4.8	3.6	4.2	4.0	7.0	15.7	18.1	23.3	22.9	23.9	23.3	28.1	23.8	26.3	24.4	19.3	5.5	4.3	6.6	11.0	7.4	3.6	28.1	13.5	24
5	6.7	7.3	7.3	6.0	6.6	8.5	8.2	5.7	12.7	20.2	19.6	19.4	23.7	18.3	20.1	21.2	20.5	21.8	17.5	12.6	10.8	13.3	13.5	19.1	5.7	23.7	14.2	24
6	24.4	23.3	24.9	20.5	18.5	19.1	23.3	22.1	23.4	30.4	30.3	27.0	23.1	18.9	23.1	19.6	15.3	13.2	13.0	14.6	15.0	17.8	17.9	18.4	13.0	30.4	20.7	24
7	17.3	21.1	16.6	16.7	15.7	17.8	15.8	13.6	9.9	15.1	14.0	13.6	8.3	11.6	12.5	7.7	8.7	10.7	8.9	11.0	8.5	4.7	10.2	5.1	4.7	21.1	12.3	24
8	9.6	9.7	9.8	6.9	9.4	16.4	16.1	23.2	20.3	18.1	17.0	11.5	14.1	21.8	20.8	20.7	19.3	22.4	23.1	24.2	22.7	23.8	28.5	28.5	6.9	28.5	18.2	24
9	29.2	35.1	28.9	25.1	21.9	23.7	24.5	20.0	21.8	22.4	19.7	17.8	18.7	15.9	13.2	14.3	14.1	15.7	15.6	8.8	11.1	12.6	14.3	15.9	8.8	35.1	19.2	24
10	14.6	17.2	15.7	11.7	10.2	11.8	14.8	12.3	15.2	12.5	10.5	11.1	16.9	17.2	21.3	18.1	19.1	13.4	12.7	9.0	4.9	3.3	4.2	6.3	3.3	21.3	12.7	24
11	8.0	4.4	5.5	9.0	6.0	5.9	5.2	7.0	9.7	9.6	9.6	8.5	8.9	8.2	14.7	22.4	44.2	42.4	35.7	33.4	33.3	29.0	31.8	24.8	4.4	44.2	17.4	24
12	27.4	19.8	22.8	24.3	19.6	25.0	13.3	17.6	19.6	21.0	20.6	22.6	22.3	23.5	18.7	15.0	14.1	14.6	8.3	8.9	8.1	7.6	7.7	6.1	6.1	27.4	17.0	24
13	7.2	6.4	6.9	5.2	4.4	6.0	6.8	9.0	6.2	6.6	8.2	6.0	10.7	8.7	11.2	14.4	12.9	10.4	12.6	13.9	10.0	9.2	6.0	4.9	4.4	14.4	8.5	24
14	3.9	6.9	5.8	5.3	5.4	6.6	6.9	6.8	8.7	8.9	9.5	13.5	11.4	12.5	17.9	11.8	10.5	10.0	8.5	10.7	11.6	8.7	9.9	6.3	3.9	17.9	9.1	24
15	7.4	8.5	6.9	5.9	9.4	7.6	7.5	8.5	17.6	24.4	27.0	23.5	26.4	24.6	17.3	20.2	19.9	16.9	13.6	8.9	8.7	9.3	11.8	12.2	5.9	27.0	14.3	24
16	13.9	14.3	11.5	18.2	16.8	19.1	22.9	24.9	25.1	23.6	23.9	25.7	26.0	21.6	24.7	23.8	21.8	16.4	8.6	3.9	7.8	9.5	7.3	5.6	3.9	26.0	17.4	24
17	8.7	7.8	5.8	10.3	14.7	10.5	8.0	6.9	9.3	8.9	13.6	13.3	13.8	11.2	12.6	9.3	13.6	12.2	8.7	5.3	5.5	6.3	7.9	6.7	5.3	14.7	9.6	24
18	6.5	7.0	10.8	13.1	13.0	12.6	10.9	12.1	9.9	9.2	8.5	Y	Y	Y	Y	Y	Y	Y	16.4	7.6	9.6	5.0	11.0	7.0	5.0	16.4	10.0	17
19	8.0	8.6	6.8	9.0	13.0	10.6	4.8	5.4	13.4	12.4	10.0	Y	8.8	14.0	18.4	17.2	15.2	11.0	12.4	9.6	11.6	12.2	7.6	16.0	4.8	18.4	11.1	23
20	16.2	21.8	25.4	20.2	18.0	18.6	17.2	16.4	17.4	18.0	19.8	21.0	22.0	17.2	16.0	9.4	9.6	10.0	6.2	5.8	2.0	4.2	3.0	3.0	2.0	25.4	14.1	24
21	3.2	5.2	4.4	4.0	5.8	6.2	7.2	8.4	8.4	7.4	12.8	13.6	14.2	15.4	16.6	17.2	15.2	13.2	9.8	11.2	13.6	10.6	7.2	7.0	3.2	17.2	9.9	24
22	6.8	9.8	10.8	10.4	7.6	11.2	12.6	21.0	21.2	26.0	33.6	38.0	31.2	30.4	27.2	24.8	24.4	26.8	24.8	20.4	16.6	17.2	14.0	13.6	6.8	38.0	20.0	24
23	13.2	15.2	10.2	13.0	9.0	11.2	10.6	13.2	13.8	21.8	20.8	25.6	32.8	24.8	23.0	31.2	27.6	24.8	16.8	11.8	14.0	14.4	12.4	12.8	9.0	32.8	17.7	24
24	13.4	15.2	13.4	16.4	18.2	27.4	15.8	11.6	14.4	17.2	16.8	24.8	28.0	28.4	36.2	39.4	26.0	20.8	13.0	5.0	3.6	5.2	6.2	4.8	3.6	39.4	17.6	24
25	6.4	6.4	5.4	7.2	7.0	5.8	4.8	7.2	12.2	13.6	22.2	27.4	32.6	34.4	28.6	38.0	31.8	24.0	19.8	24.2	22.2	19.4	21.2	19.0	4.8	38.0	18.4	24
26	18.6	19.0	12.4	13.6	12.0	12.8	9.4	14.8	15.6	19.2	19.8	12.4	11.2	13.6	15.0	17.8	14.8	10.6	9.8	10.8	14.0	12.0	11.4	11.0	9.4	19.8	13.8	24
27	13.6	11.4	6.0	3.8	7.2	7.2	6.6	5.0	4.2	5.0	10.6	9.6	12.6	17.8	21.6	19.2	19.6	21.8	16.8	14.0	10.8	3.6	2.6	5.4	2.6	21.8	10.7	24
28	4.2	0.0	4.6	5.6	6.8	6.4	3.8	6.8	6.6	9.4	12.4	18.2	18.8	18.0	13.8	21.6	20.0	18.4	14.6	7.4	5.4	6.6	7.8	10.0	0.0	21.6	10.3	24
29	8.8	21.0	12.0	11.6	11.4	11.8	16.6	21.4	22.6	28.4	27.6	31.2	26.6	25.2	24.0	21.6	19.0	14.6	8.0	6.6	4.2	4.0	3.4	3.8	3.4	31.2	16.1	24
30	3.0	2.0	3.4	2.0	3.8	5.8	6.4	9.8	11.0	8.2	15.8	16.4	15.4	13.0	6.8	12.2	18.2	9.0	7.8	9.6	5.0	3.6	6.2	6.4	2.0	18.2	8.4	24
HOURLY MAX	29.2	35.1	28.9	25.1	21.9	27.4	24.5	28.0	33.5	30.5	40.2	38.0	32.8	34.4	36.2	39.4	44.2	42.4	35.7	33.4	33.3	29.0	31.8	28.5				

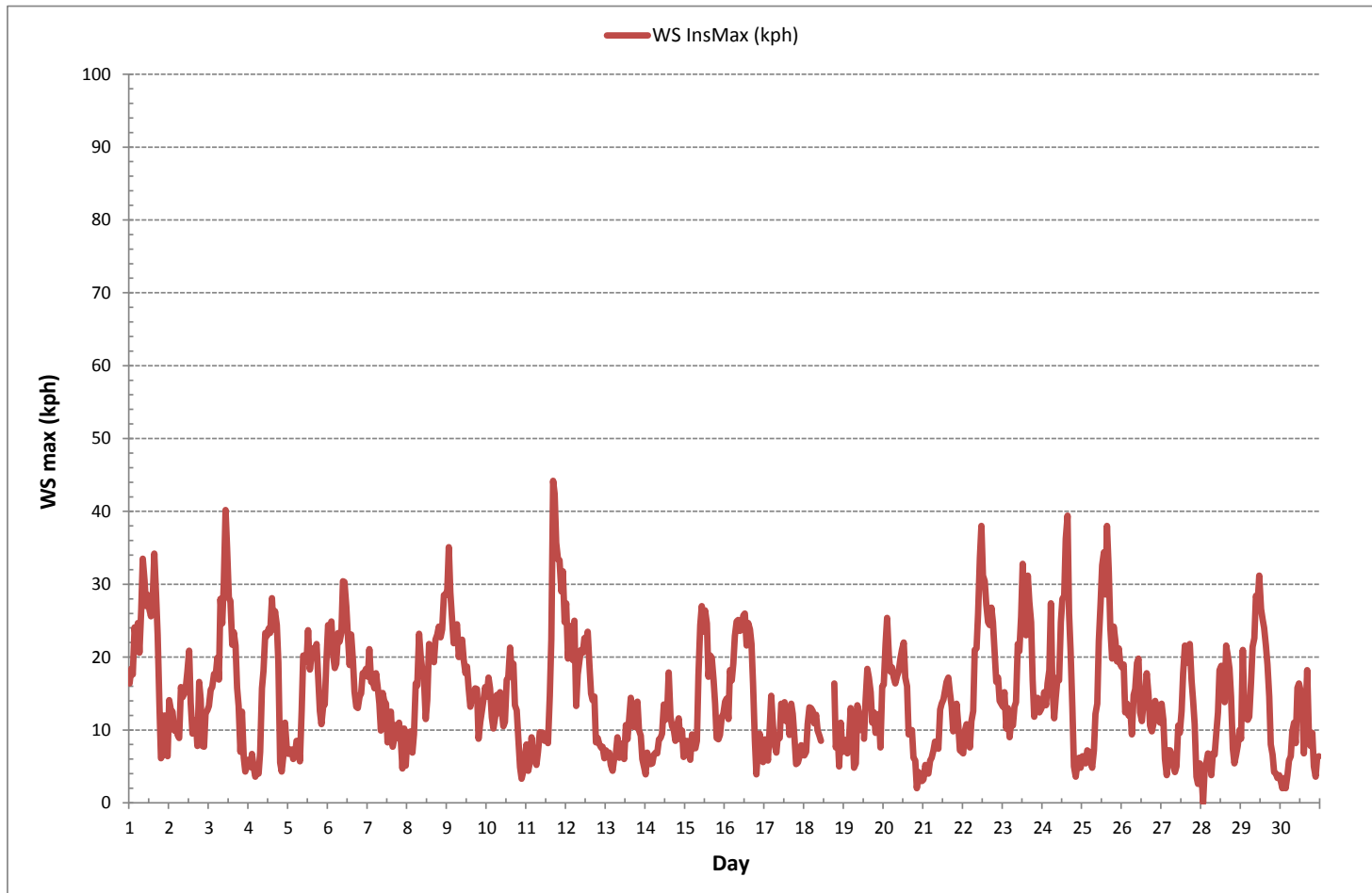
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	44.2	kph	@ HOUR	16	ON DAY	11
OPERATIONAL TIME:	712 hrs					

WIND SPEED Instantaneous Maximum (WS kph)



APPENDIX IV
REPORT CERTIFICATION FORM

Report Certification Form

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

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



Signature of the External Person Certifying the Report

16 - Oct - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 196-2018-09-93-C

Site: Reno Station

Contact: Karla Reesor

Level 0 Preliminary Verification

CSA/lnbha

Date 03 - Oct - 2018

Level 1 Primary Validation

CSA/lnbha

Date 06 - Oct - 2018

Level 2 Final Validation

CSA/lnbha

Date 16 - Oct - 2018

Level 3 Independent Data Review

Cheri Smclair

Date 16 - Oct - 2018

Post-Final Validation

NA

Date NA

Notes

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