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

JOB #: 196-2018-02-93-C

February 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: March 20, 2018

Prepared by:

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

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

Reviewed by:

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

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

SUMMARY

In February 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.

Canister System: A canister event was recorded on February 25 at 23:50, at an initial concentration of 0.40 ppm. However, the sample was not analyzable due to a collection error. This might have resulted from a loose electrical connection, causing the sample valve not to open for the duration of sample collection.

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

- The fuel gas (H₂) cylinder was replaced on February 9. An additional zero-span check was completed afterwards as a quality check, incurring one hour of downtime.
- One hour of downtime was incurred on February 22 at hour 12:00, due to sample manifold cleaning.

The summary of results is presented on the following pages.

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

Should you have any questions concerning the results or if we can be of further assistance, please contact us at 403-219-3661 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	4	10	6.4	SSW	1	5	100.0
TRS (ppb)	-	-	-	-	0.40	0.75	25	23	2.7	S	0.49	5	100.0
THC (ppm)	-	-	-	-	2.02	3.83	25	23	2.7	S	2.24	5	99.7
CH ₄ (ppm)	-	-	-	-	2.02	3.76	25	23	2.7	S	2.24	5	99.7
NMHC (ppm)	-	-	-	-	0.00	0.07	25	23	2.7	S	0.00	1	99.7
RELATIVE HUMIDITY (%)	-	-	-	-	65	91	13	22	8.5	NNW	81	25	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	939	958	8	17	3.1	SW	956	8	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-14.7	2.2	13	13	13.1	WSW	-0.4	13	100.0
STATION TEMPERATURE (°C)	-	-	-	-	22.3	24.0	28	16	3.3	S	22.6	28	100.0
VECTOR WS (kph)	-	-	-	-	3.2	20.2	14	1	-	N	10.0	19	100.0
VECTOR WD (sec)	-	-	-	-	252 (WSW)	-	-	-	-	-	-	-	100.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Reno Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2018	February

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES	NO. READINGS > REGULATION		MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	100.0	0.001 ppm	0		0.001 ppm	0
TRS	100.0	0.001 ppm	-		0.000 ppm	-
THC	99.7	3.83 ppm	-		2.24 ppm	-
CH ₄	99.7	3.76 ppm	-		2.24 ppm	-
NMHC	99.7	0.07 ppm	-		0.00 ppm	-
RH	100.0	91 %	-		81 %	-
BP	100.0	958 mb	-		956 mb	-
Ambient TPX	100.0	2.2 °C	-		-0.4 °C	-
Station TPX	100.0	24.0 °C	-		22.6 °C	-
Wind Speed	100.0	20.2 kph	-		10.0 kph	-
Wind Direction	100.0	-	-		-	-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
SUMMARY	2
MONTHLY CONTINUOUS DATA SUMMARY REPORT	3
SOUR GAS SUMMARY REPORT	4
EXCEEDANCE SUMMARY REPORT	5
TABLE OF CONTENTS	6
 1.0 Discussion	 8
 2.0 Project Personnel	 10
 3.0 Plant Monthly Required AMD Summary	 10
 4.0 Calculations and Results	 10
 5.0 Methods and Procedures	 11
 Appendix I	 Continuous Monitoring Data Results 14
	Sulphur Dioxide 15
	Total Reduced Sulphur 21
	Total Hydrocarbon 27
	Methane 33
	Non-Methane Hydrocarbon 39
	Wind Speed 45
	Wind Direction 50
	Relative Humidity 53
	Barometric Pressure 56
	Ambient Temperature 59
	Station Temperature 62
 Appendix II	 Equipment Calibration Results 65
	Sulphur Dioxide 66
	Total Reduced Sulphur 69
	Total Hydrocarbon 72
	Wind System 76
	Calibrators 78
	Calibration Gases 81

Appendix III	Maximum Instantaneous Data	85
Appendix IV	Report Certification Form	98
Appendix V	Data Validation Certification Form	100

1.0 Discussion

This monthly report consists of continuous monitoring results for the following parameters: Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH₄), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX), Wind Speed (WS) and Wind Direction (WD).

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

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

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

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

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

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

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

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on February 22.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on February 22.

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

- Operational time for the monitoring period was 99.7%, equivalent to two hours of downtime.
- The fuel gas (H₂) cylinder was replaced on February 9. An additional zero-span check was completed afterwards as a quality check, incurring one hour of downtime.
- The routine monthly calibration was performed on February 22. The fuel gas (H₂) cylinder was replaced before the calibration. One hour of downtime was incurred at hour 12:00 due to sample manifold cleaning.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. A canister event was recorded on February 25 at 23:50, at an initial concentration of 0.40 ppm. However, the sample was not analyzable due to a collection error. This might have resulted from a loose electrical connection, causing the sample valve not to open for the duration of sample collection.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time, for the monitoring period, was 100%.
- One instance of maximum instantaneous data was discarded on February 9, at hour 14:00, as it was considered an anomalous spike not supported by minute data.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

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

BAROMETRIC PRESSURE (BP)

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

AMBIENT TEMPERATURE (AmbTPX)

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

STATION TEMPERATURE (StnTPX)

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

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

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

4.0 Calculations and Results

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

5.0 Methods and Procedures

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

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

Maxxam AIR SOP-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

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

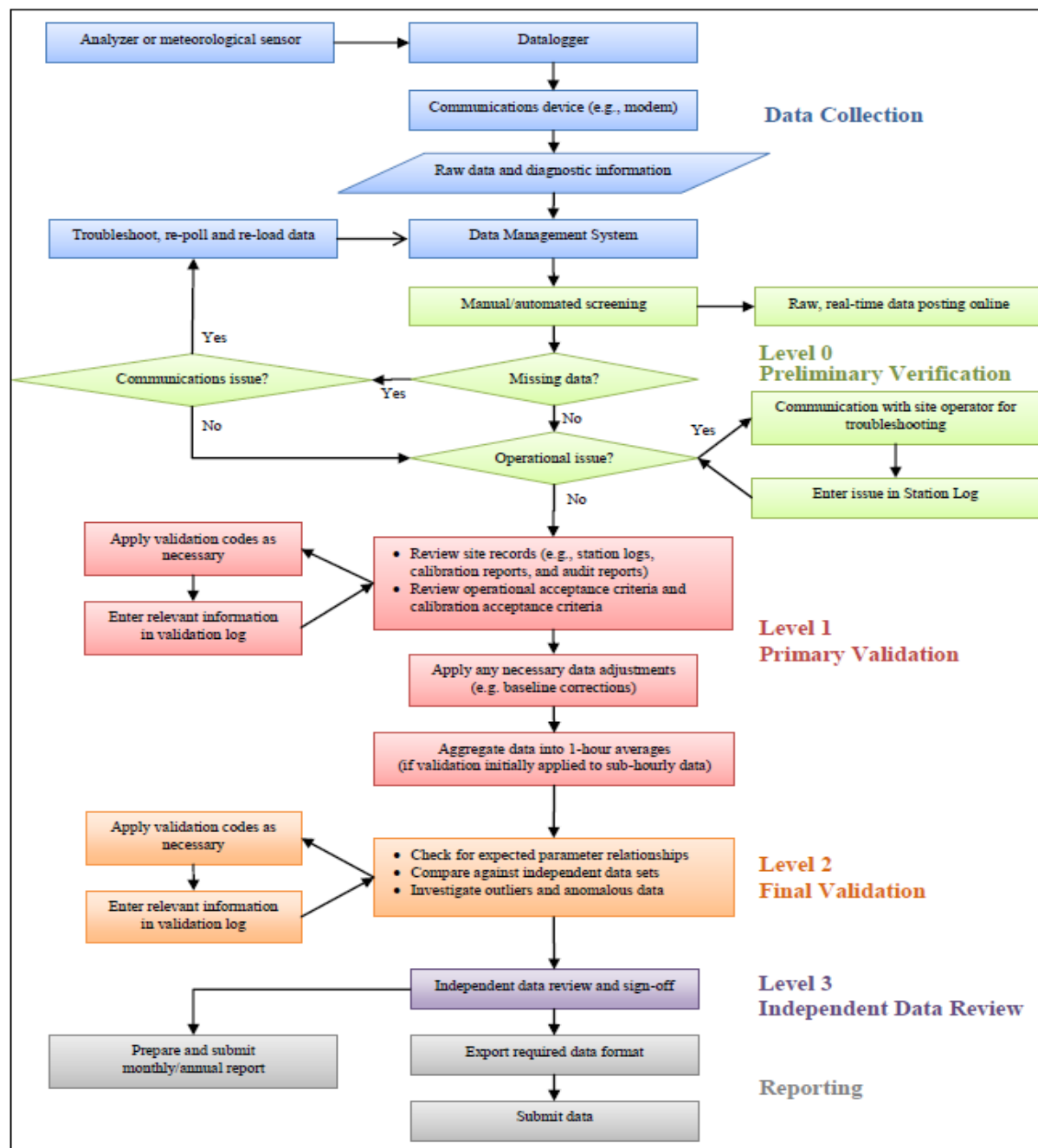
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

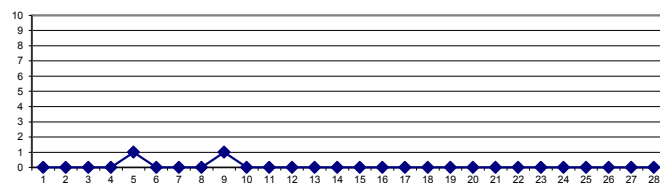
OBJECTIVE LIMIT:

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

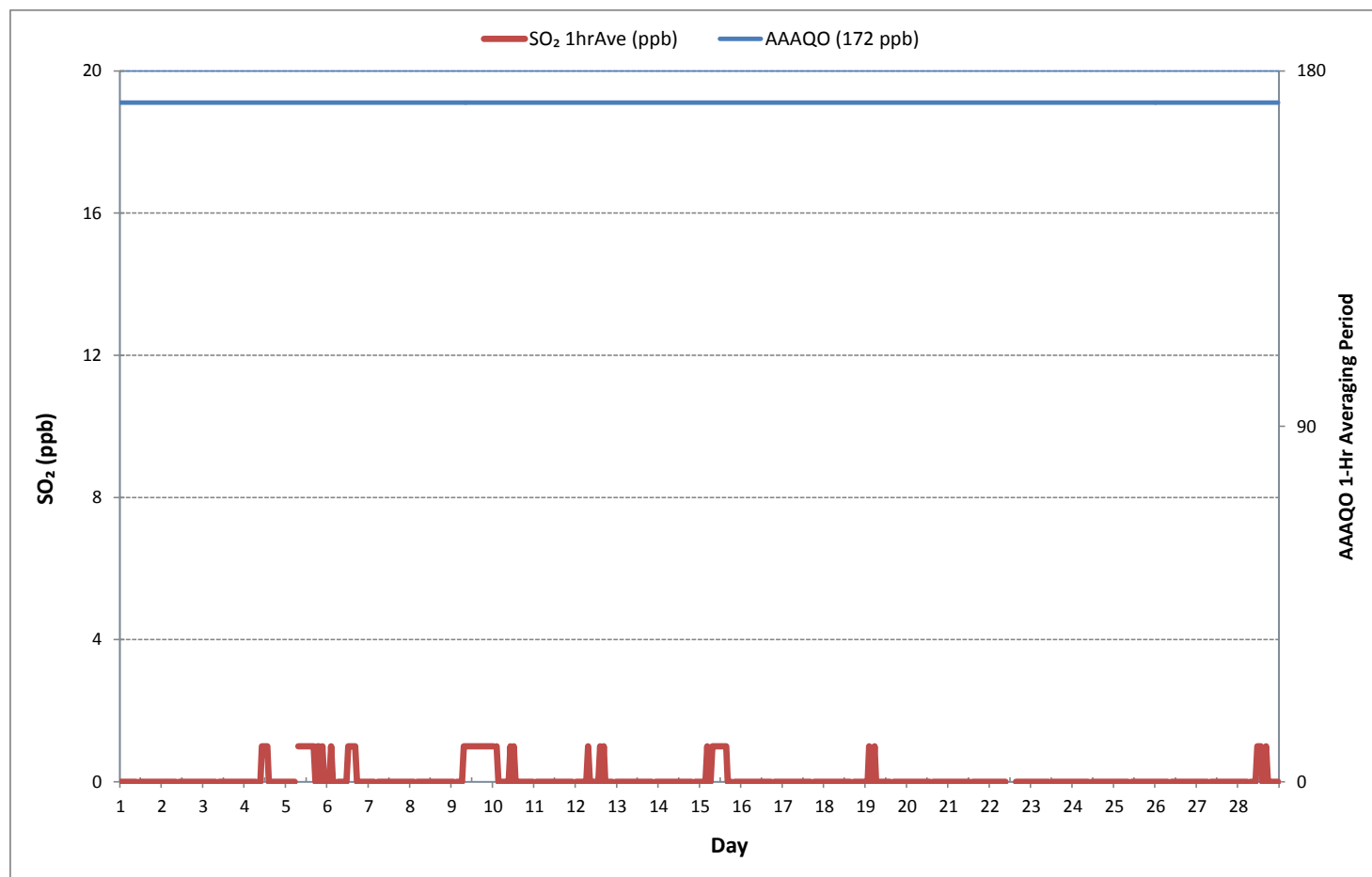
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	63
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	1 ppb @ HOUR 10 ON DAY 4
MAXIMUM 24-HR AVERAGE:	1 ppb ON DAY 5
IZS CALIBRATION TIME:	28 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	672 hrs
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES February 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



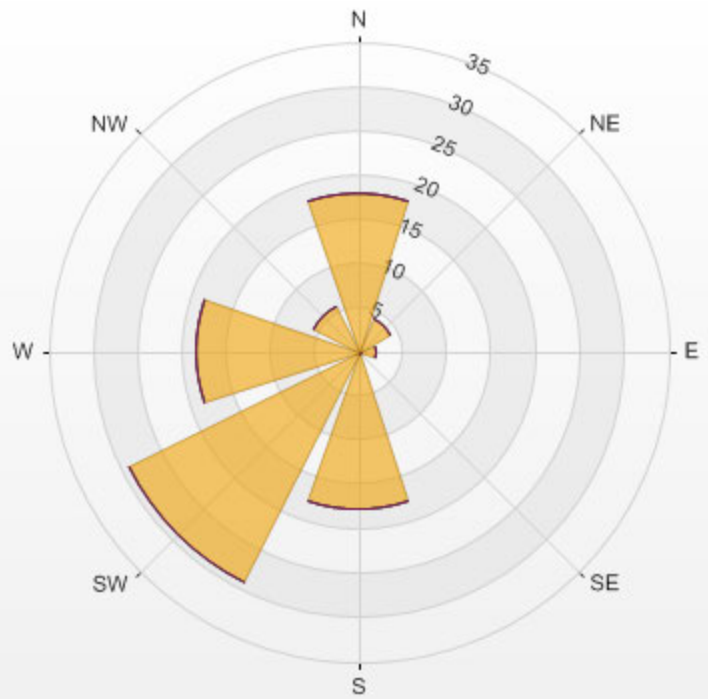
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-SO₂[ppb]
Monthly: 18/02
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.54%

Calm Avg: 0.05 [ppb]

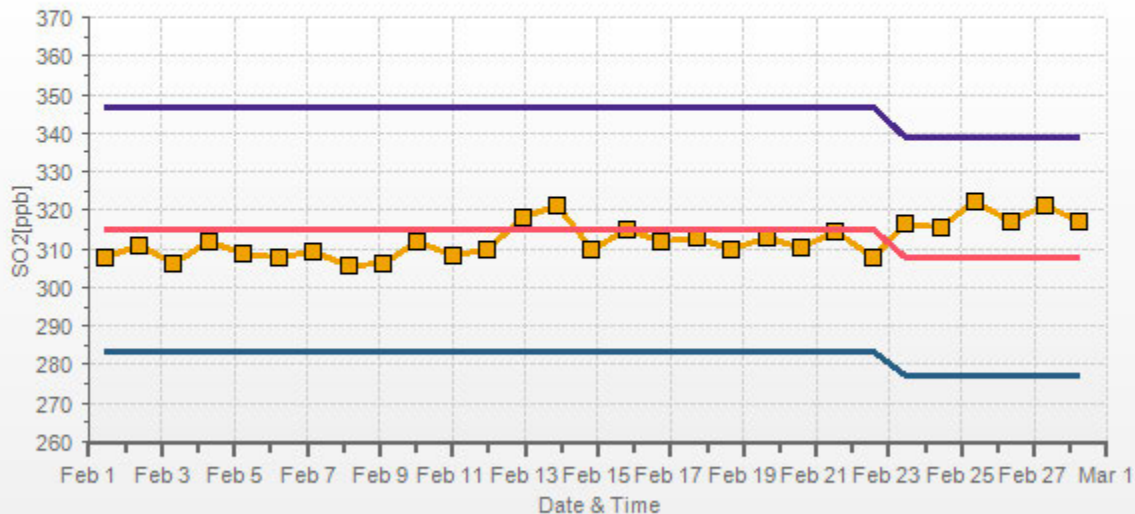
Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	17.8	0.0	0.0	0.0	0.0	17.8
NE	4.1	0.0	0.0	0.0	0.0	4.1
E	2.0	0.0	0.0	0.0	0.0	2.0
SE	0.5	0.0	0.0	0.0	0.0	0.5
S	17.8	0.0	0.0	0.0	0.0	17.8
SW	29.1	0.0	0.0	0.0	0.0	29.1
W	18.3	0.0	0.0	0.0	0.0	18.3
NW	5.8	0.0	0.0	0.0	0.0	5.8
Summary	95.5	0.0	0.0	0.0	0.0	95.5

PRAMP_RENO Poll.: PRAMP_RENO-SO2[ppb] 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.54% Calm Poll Avg: 0.05[ppb]



SO2[ppb] Calibration: PRAMP_RENO Monthly: 18/02 Type: Span

Span Meas Span Ref Span Low Span High



TOTAL REDUCED SULPHUR

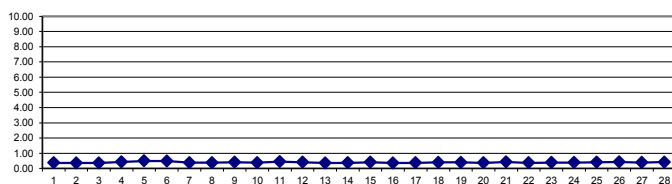
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.38	0.36	0.37	0.39	0.41	0.38	0.39	0.35	0.34	0.35	S	0.42	0.37	0.36	0.35	0.35	0.35	0.34	0.35	0.37	0.36	0.35	0.36	0.36	0.34	0.42	0.37	24	
2	0.37	0.37	0.36	0.37	0.37	0.37	0.37	0.37	0.36	S	0.44	0.38	0.38	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.33	0.34	0.34	0.33	0.33	0.44	0.36	24	
3	0.33	0.32	0.33	0.36	0.34	0.35	0.34	0.32	S	0.38	0.39	0.36	0.35	0.37	0.38	0.38	0.35	0.35	0.35	0.40	0.39	0.38	0.37	0.44	0.32	0.44	0.36	24	
4	0.43	0.45	0.38	0.43	0.38	0.40	0.38	S	0.47	0.42	0.43	0.41	0.41	0.41	0.44	0.45	0.42	0.42	0.42	0.40	0.44	0.45	0.45	0.49	0.38	0.49	0.43	24	
5	0.56	0.64	0.58	0.51	0.51	0.64	S	0.68	0.62	0.51	0.46	0.41	0.39	0.46	0.41	0.41	0.42	0.41	0.39	0.41	0.47	0.48	0.47	0.43	0.39	0.68	0.49	24	
6	0.42	0.43	0.43	0.42	0.41	S	0.52	0.43	0.50	0.59	0.59	0.57	0.62	0.54	0.62	0.60	0.52	0.48	0.50	0.47	0.39	0.39	0.39	0.37	0.37	0.62	0.49	24	
7	0.38	0.38	0.38	0.36	S	0.42	0.39	0.38	0.36	0.35	0.36	0.35	0.36	0.36	0.35	0.35	0.38	0.41	0.42	0.40	0.40	0.40	0.41	0.35	0.35	0.42	0.38	24	
8	0.36	0.35	0.34	S	0.41	0.37	0.38	0.37	0.38	0.36	0.37	0.37	0.36	0.34	0.35	0.40	0.38	0.39	0.37	0.36	0.39	0.39	0.41	0.47	0.34	0.47	0.38	24	
9	0.37	0.43	S	0.46	0.42	0.41	0.40	0.40	0.39	0.38	0.40	0.40	0.41	0.40	0.41	0.40	0.40	0.40	0.41	0.42	0.39	0.40	0.42	0.39	0.37	0.46	0.40	24	
10	0.41	S	0.44	0.41	0.40	0.38	0.38	0.38	0.40	0.40	0.40	0.39	0.39	0.39	0.38	0.39	0.35	0.34	0.35	0.36	0.34	0.36	0.36	0.36	0.34	0.44	0.38	24	
11	S	0.40	0.38	0.37	0.37	0.37	0.37	0.36	0.37	0.48	0.71	0.45	0.43	0.46	0.45	0.40	0.44	0.54	0.54	0.56	0.50	0.52	0.49	S	0.36	0.71	0.45	24	
12	0.47	0.41	0.42	0.40	0.44	0.47	0.49	0.47	0.38	0.43	0.37	0.37	0.37	0.35	0.36	0.37	0.39	0.52	0.42	0.50	0.39	0.35	S	0.38	0.35	0.52	0.41	24	
13	0.34	0.33	0.34	0.33	0.35	0.34	0.34	0.35	0.35	0.36	0.35	0.35	0.36	0.37	0.34	0.36	0.36	0.35	0.36	0.37	0.39	S	0.42	0.37	0.33	0.42	0.36	24	
14	0.35	0.35	0.38	0.40	0.38	0.36	0.36	0.35	0.35	0.36	0.35	0.37	0.37	0.38	0.37	0.38	0.36	0.38	0.36	0.37	S	0.44	0.39	0.38	0.35	0.44	0.37	24	
15	0.37	0.38	0.39	0.38	0.39	0.37	0.40	0.41	0.39	0.39	0.43	0.47	0.44	0.42	0.41	0.38	0.44	0.40	0.36	S	0.42	0.38	0.42	0.42	0.36	0.47	0.40	24	
16	0.42	0.38	0.39	0.37	0.38	0.38	0.39	0.38	0.36	0.35	0.35	0.34	0.35	0.34	0.34	0.34	0.34	0.35	S	0.38	0.36	0.36	0.34	0.36	0.34	0.42	0.36	24	
17	0.35	0.38	0.38	0.39	0.42	0.37	0.39	0.38	0.40	0.38	0.35	0.35	0.36	0.35	0.36	0.37	0.36	S	0.39	0.37	0.37	0.36	0.35	0.38	0.35	0.42	0.37	24	
18	0.40	0.38	0.38	0.40	0.41	0.39	0.39	0.38	0.38	0.40	0.39	0.40	0.40	0.39	0.39	0.39	S	0.43	0.40	0.40	0.40	0.39	0.39	0.39	0.38	0.43	0.39	24	
19	0.40	0.40	0.40	0.39	0.40	0.40	0.41	0.41	0.40	0.43	0.40	0.39	0.38	0.40	0.40	S	0.43	0.38	0.37	0.40	0.39	0.40	0.39	0.39	0.37	0.43	0.40	24	
20	0.39	0.37	0.37	0.34	0.35	0.36	0.35	0.35	0.34	0.35	0.35	0.34	0.35	0.34	S	0.42	0.38	0.38	0.42	0.40	0.43	0.38	0.37	0.38	0.34	0.43	0.37	24	
21	0.40	0.39	0.40	0.39	0.41	0.44	0.52	0.47	0.45	0.42	0.44	0.42	0.44	S	0.48	0.45	0.42	0.42	0.41	0.39	0.39	0.39	0.37	0.36	0.36	0.52	0.42	24	
22	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.39	0.39	C	C	C	C	C	C	0.43	0.35	0.41	0.41	0.33	0.33	0.33	0.35	0.33	0.43	0.37	24	
23	0.37	0.36	0.35	0.45	0.38	0.45	0.44	0.38	0.39	0.40	0.39	S	0.43	0.40	0.39	0.39	0.40	0.39	0.38	0.39	0.37	0.37	0.38	0.37	0.35	0.45	0.39	24	
24	0.37	0.40	0.38	0.37	0.39	0.40	0.45	0.39	0.38	0.37	S	0.41	0.39	0.38	0.38	0.37	0.39	0.40	0.40	0.41	0.40	0.40	0.39	0.41	0.37	0.45	0.39	24	
25	0.41	0.39	0.37	0.38	0.36	0.37	0.36	0.37	0.37	S	0.40	0.43	0.39	0.41	0.38	0.39	0.38	0.40	0.39	0.39	0.37	0.37	0.69	0.75	0.36	0.75	0.41	24	
26	0.50	0.46	0.42	0.41	0.40	0.41	0.43	0.49	S	0.53	0.42	0.43	0.43	0.43	0.40	0.42	0.38	0.39	0.39	0.38	0.38	0.38	0.38	0.39	0.38	0.53	0.42	24	
27	0.38	0.39	0.38	0.38	0.37	0.37	0.36	S	0.39	0.37	0.37	0.39	0.38	0.39	0.38	0.38	0.38	0.39	0.39	0.39	0.39	0.39	0.44	0.42	0.40	0.36	0.44	0.39	24
28	0.54	0.41	0.41	0.60	0.49	0.43	S	0.44	0.43	0.41	0.40	0.40	0.39	0.39	0.40	0.37	0.38	0.38	0.40	0.46	0.38	0.36	0.35	0.35	0.35	0.60	0.42	24	
HOURLY MAX	0.56	0.64	0.58	0.60	0.51	0.64	0.52	0.68	0.62	0.59	0.71	0.57	0.62	0.54	0.62	0.60	0.52	0.54	0.54	0.56	0.50	0.52	0.69	0.75					
HOURLY AVG	0.40	0.40	0.39	0.40	0.40	0.40	0.40	0.40	0.40	0.41	0.41	0.40	0.40	0.39	0.40	0.39	0.39	0.40	0.40	0.40	0.39	0.39	0.40	0.40					

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

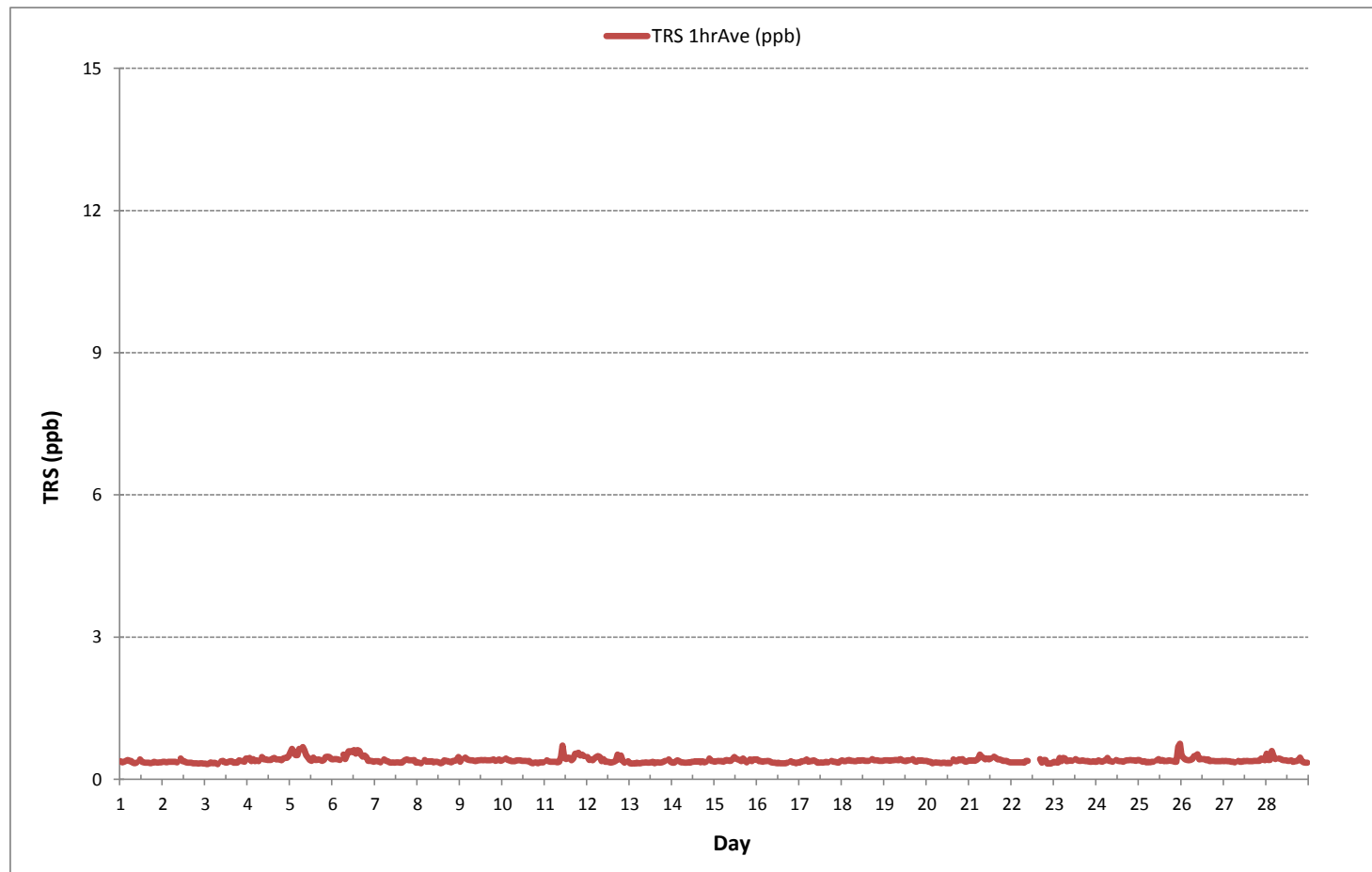
24 HR AVERAGES February 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	638			
MINIMUM 1-HR AVERAGE:	0.32	ppb @ HOUR	1	ON DAY 3
MAXIMUM 1-HR AVERAGE:	0.75	ppb @ HOUR	23	ON DAY 25
MAXIMUM 24-HR AVERAGE:	0.49	ppb		ON DAY 5
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	672 hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.05		MONTHLY AVERAGE:	0.40 ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



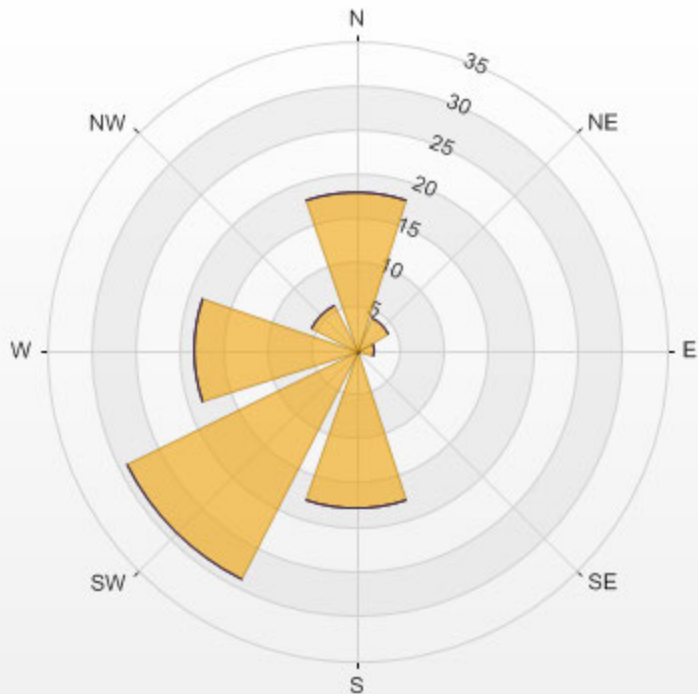
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-TRS[ppb]
Monthly: 18/02
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.55%

Calm Avg: 0.41 [ppb]

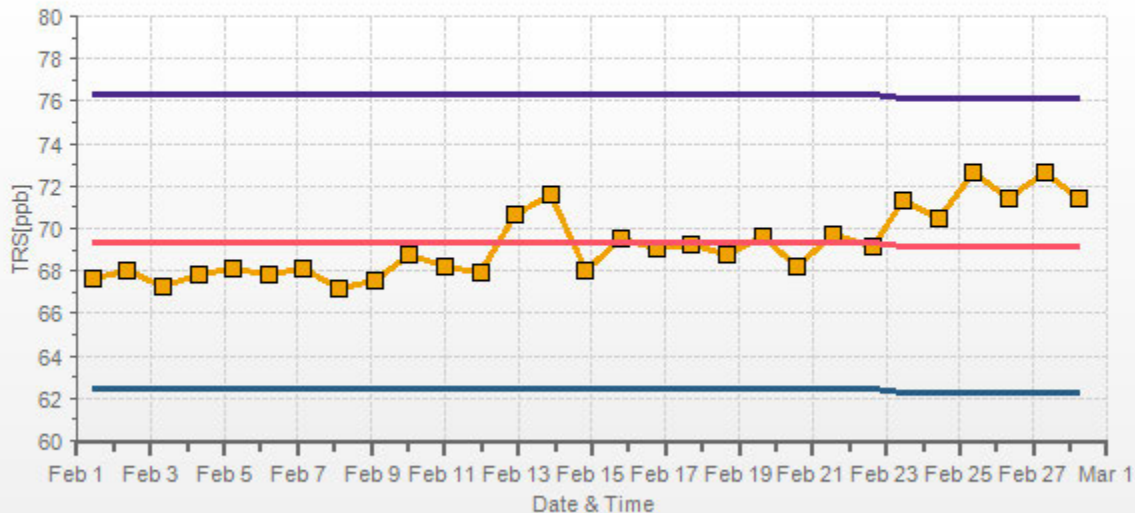
Direction	0-1	1-3	3-10	>10.0	Total
N	17.9	0.0	0.0	0.0	17.9
NE	4.1	0.0	0.0	0.0	4.1
E	2.0	0.0	0.0	0.0	2.0
SE	0.5	0.0	0.0	0.0	0.5
S	17.9	0.0	0.0	0.0	17.9
SW	29.0	0.0	0.0	0.0	29.0
W	18.3	0.0	0.0	0.0	18.3
NW	5.8	0.0	0.0	0.0	5.8
Summary	95.5	0.0	0.0	0.0	95.5

PRAMP_RENO Poll.: PRAMP_RENO-TRS[ppb] 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.55% Calm Poll Avg: 0.41[ppb]



TRS[ppb] Calibration: PRAMP_RENO Monthly: 18/02 Type: Span

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



TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

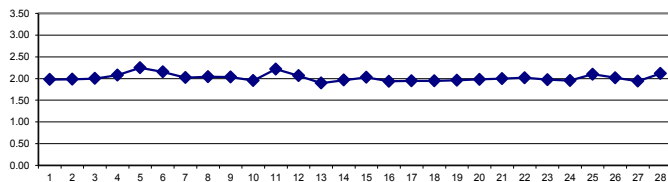
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.98	1.98	2.01	2.00	1.97	1.98	1.99	1.97	1.97	1.99	S	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.96	1.97	1.97	1.96	2.01	1.97	24	
2	1.96	1.96	1.96	1.97	1.98	2.03	2.21	2.17	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.96	2.21	1.99	24	
3	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.98	S	2.04	1.98	1.98	1.98	2.00	1.99	1.98	1.97	1.98	2.00	2.00	2.00	2.00	2.01	2.36	1.96	2.36	2.00	24	
4	2.22	2.16	2.02	2.16	2.03	2.04	2.01	S	2.01	2.02	2.04	2.07	2.07	2.04	2.13	2.14	2.05	2.06	2.03	2.03	2.04	2.05	2.27	2.12	2.01	2.27	2.08	24	
5	2.40	2.54	2.55	2.33	2.53	2.58	S	2.79	2.34	2.30	2.18	2.08	2.06	2.10	2.07	2.11	2.06	2.16	2.07	2.07	2.08	2.08	2.09	2.06	2.06	2.79	2.24	24	
6	2.01	2.04	2.02	2.00	1.98	S	2.05	2.10	2.05	2.66	2.32	2.09	2.24	2.11	2.18	2.20	2.19	2.12	2.23	2.86	2.15	1.99	1.97	1.97	1.97	2.86	2.15	24	
7	1.98	1.98	1.97	1.98	S	2.03	2.27	2.21	2.11	2.03	2.00	1.98	1.97	1.97	1.97	1.98	2.00	2.02	2.01	2.01	2.01	2.02	1.98	1.98	1.97	2.27	2.02	24	
8	1.99	2.00	1.99	S	1.98	1.99	2.00	2.00	2.02	2.01	2.00	1.98	1.96	1.95	1.95	1.98	1.98	2.00	2.04	2.04	2.40	2.02	2.19	2.40	1.95	2.40	2.04	24	
9	1.99	2.19	S	2.00	2.00	2.01	2.00	2.00	2.01	2.01	2.02	S1	2.02	2.01	2.02	2.02	2.03	2.05	2.06	2.06	2.06	2.06	2.05	2.03	1.99	2.19	2.03	23	
10	2.03	S	1.99	1.99	1.99	1.98	1.98	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.92	2.03	1.95	24	
11	S	1.93	1.93	1.93	1.93	1.93	1.94	1.94	2.05	2.62	3.01	2.09	2.06	2.11	2.09	1.96	2.07	2.72	2.89	2.56	2.33	2.37	2.27	S	1.93	3.01	2.22	24	
12	1.98	1.96	2.00	2.02	2.13	2.19	2.18	2.17	2.00	2.13	2.01	2.03	2.01	1.96	1.96	1.97	1.98	2.28	2.24	2.44	2.00	1.93	S	1.91	1.91	2.44	2.06	24	
13	1.91	1.91	1.91	1.90	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	S	1.91	1.90	1.89	1.91	1.90	24	
14	1.91	1.91	1.92	1.92	1.93	1.93	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	2.00	2.18	S	1.98	1.97	1.97	1.91	2.18	1.96	24	
15	1.98	1.98	1.99	1.98	1.98	1.99	2.01	2.01	2.01	2.03	2.09	2.13	2.12	2.01	2.06	2.04	2.15	2.21	1.98	S	1.98	1.97	1.95	1.94	1.94	2.21	2.03	24	
16	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.92	1.93	1.94	1.94	1.93	1.93	1.92	1.94	1.94	1.94	S	1.93	1.93	1.94	1.93	1.94	1.92	1.94	1.93	24	
17	1.94	1.96	1.96	1.94	1.94	1.96	1.97	1.95	1.95	1.94	1.92	1.93	1.92	1.92	1.92	1.93	S	1.93	1.97	1.98	1.95	1.94	1.94	1.92	1.98	1.94	24		
18	1.94	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.95	1.97	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.94	1.95	1.94	1.95	1.94	1.97	24	
19	1.96	1.96	1.96	1.95	1.96	1.97	1.97	1.97	1.99	1.97	1.96	1.96	1.96	1.95	1.95	S	1.94	1.94	1.95	1.95	1.96	1.98	1.95	1.95	1.94	1.99	1.96	24	
20	1.95	1.95	1.94	1.94	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.94	1.94	S	1.96	1.99	2.03	2.14	2.17	2.11	1.99	1.96	1.96	1.93	2.17	1.98	24	
21	2.00	1.97	1.97	1.96	2.00	2.07	2.24	2.22	2.03	1.98	1.98	1.96	1.96	S	1.95	1.95	1.96	1.95	1.96	1.96	1.95	1.94	1.94	1.94	1.94	2.24	1.99	24	
22	1.93	1.93	1.95	1.95	1.95	1.95	1.95	1.95	1.97	1.98	2.09	1.95	Y	2.04	C	C	C	C	C	2.47	2.28	1.98	1.96	2.00	2.04	1.93	2.47	2.02	23
23	2.05	2.02	2.04	2.06	2.00	2.10	2.06	1.97	1.95	1.94	1.93	S	1.93	1.93	1.93	1.94	1.93	1.93	1.95	1.95	1.93	1.93	1.93	1.93	1.93	2.10	1.97	24	
24	1.93	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	S	1.95	1.94	1.93	1.94	1.94	1.96	1.98	1.96	1.99	1.96	1.95	1.96	2.00	1.93	2.00	1.95	24	
25	1.95	1.93	1.93	1.98	1.94	1.93	1.93	1.96	1.95	S	1.95	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.97	3.53	3.83	1.93	3.83	2.10	24	
26	2.32	2.28	2.05	2.03	2.00	1.97	1.97	2.26	S	2.16	1.97	1.97	1.97	1.98	1.96	2.00	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	2.32	2.01	24	
27	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.93	1.97	24	
28	2.46	1.97	2.00	3.10	2.93	1.97	S	1.96	1.96	1.95	1.95	1.94	1.94	1.94	1.99	1.99	2.04	1.97	2.03	2.40	2.15	2.07	1.99	1.96	1.94	3.10	2.12	24	
HOURLY MAX	2.46	2.54	2.55	3.10	2.93	2.58	2.27	2.79	2.34	2.66	3.01	2.13	2.24	2.11	2.18	2.20	2.19	2.72	2.89	2.86	2.40	2.37	3.53	3.83					
HOURLY AVG	2.02	2.01	1.99	2.03	2.03	2.01	2.01	2.04	1.99	2.05	2.04	1.98	1.98	1.98	1.98	1.98	1.99	2.03	2.05	2.09	2.02	1.99	2.06	2.07					

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

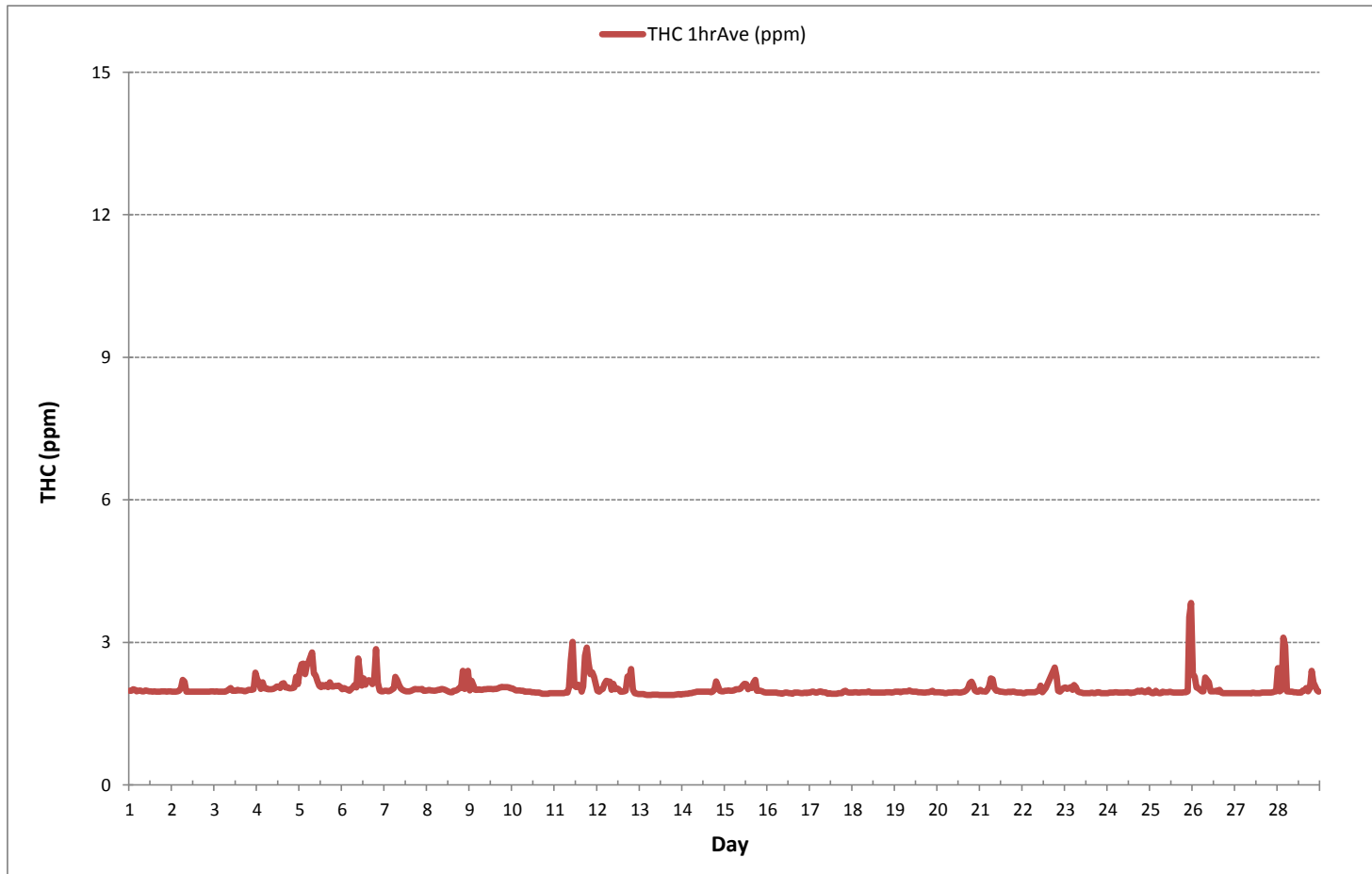
24 HR AVERAGES February 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	638			
MINIMUM 1-HR AVERAGE:	1.89	ppm @ HOUR	4	ON DAY 13
MAXIMUM 1-HR AVERAGE:	3.83	ppm @ HOUR	23	ON DAY 25
MAXIMUM 24-HR AVERAGE:	2.24	ppm		ON DAY 5
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.17		MONTHLY AVERAGE:	2.02 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



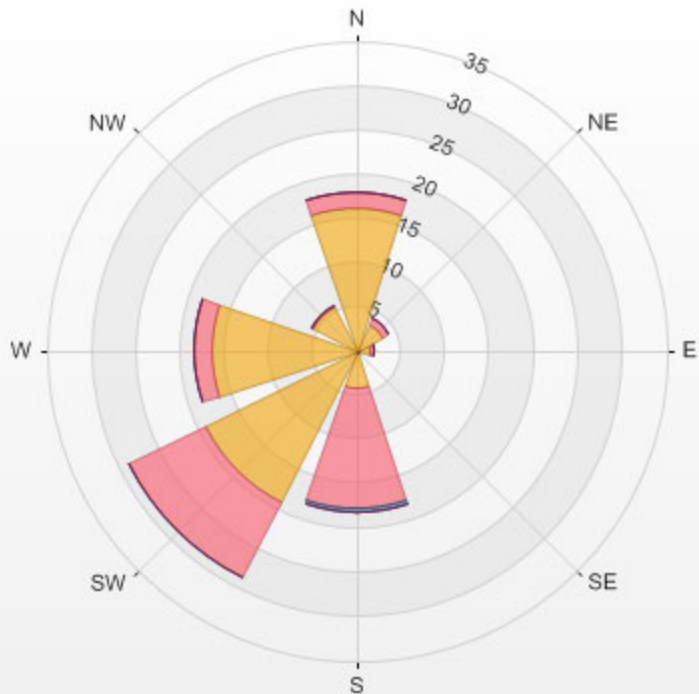
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-THC55[ppm]
Monthly: 18/02
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.55%

Calm Avg: 2.14 [ppm]

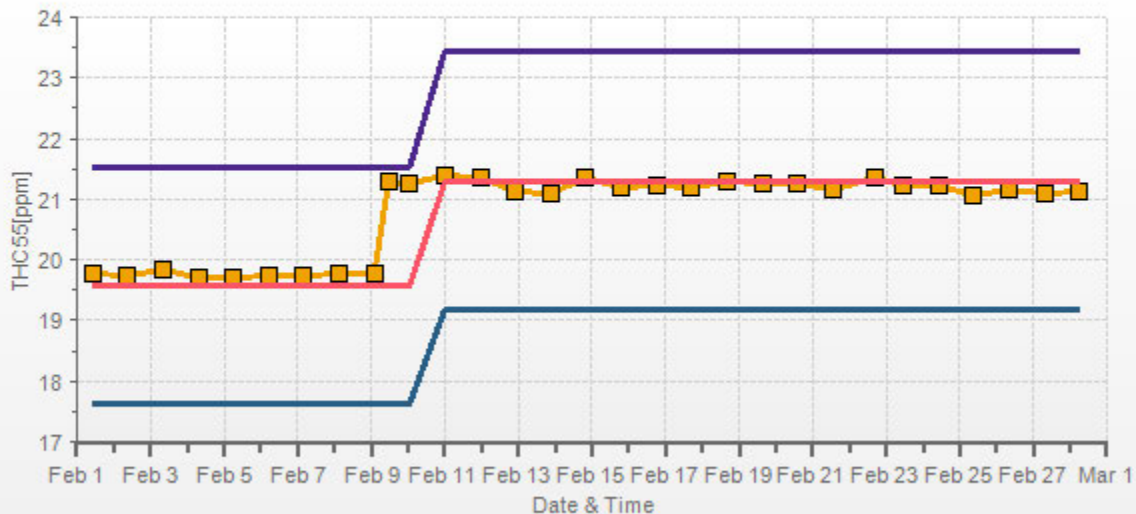
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.1	1.7	0.0	0.0	0.0	17.9
NE	3.3	0.8	0.0	0.0	0.0	4.1
E	1.6	0.5	0.0	0.0	0.0	2.0
SE	0.2	0.3	0.0	0.0	0.0	0.5
S	4.2	13.6	0.3	0.0	0.0	18.2
SW	19.1	9.6	0.0	0.0	0.0	28.7
W	16.5	1.9	0.0	0.0	0.0	18.3
NW	5.5	0.3	0.0	0.0	0.0	5.8
Summary	66.5	28.7	0.3	0.0	0.0	95.4

PRAMP_RENO Poll.: PRAMP_RENO-THC55[ppm] 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.55% Calm Poll Avg: 2.14[ppm]



THC55[ppm] Calibration: PRAMP_RENO Monthly: 18/02 Type: Span

Span Meas Span Ref Span Low Span High



METHANE

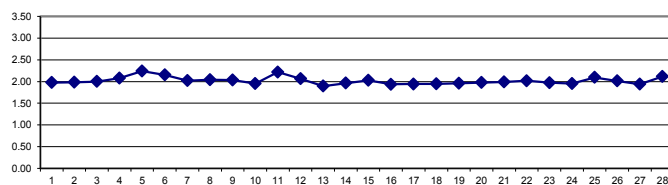
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.98	1.98	2.01	2.00	1.97	1.98	1.99	1.97	1.97	1.99	S	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.96	1.97	1.97	1.96	2.01	1.97	24	
2	1.96	1.96	1.96	1.97	1.98	2.03	2.21	2.17	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.96	2.21	1.99	24	
3	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.98	S	2.04	1.98	1.98	1.98	2.00	1.99	1.99	1.98	1.97	1.98	2.00	2.00	2.00	2.01	2.36	1.96	2.36	2.00	24	
4	2.22	2.16	2.02	2.16	2.03	2.04	2.01	S	2.01	2.02	2.04	2.07	2.07	2.04	2.13	2.14	2.05	2.06	2.03	2.03	2.04	2.05	2.27	2.12	2.01	2.27	2.08	24	
5	2.40	2.54	2.55	2.31	2.49	2.58	S	2.78	2.34	2.30	2.18	2.08	2.06	2.10	2.07	2.11	2.06	2.16	2.07	2.07	2.08	2.08	2.09	2.06	2.06	2.78	2.24	24	
6	2.01	2.04	2.02	2.00	1.98	S	2.05	2.10	2.05	2.66	2.32	2.09	2.24	2.11	2.18	2.20	2.19	2.12	2.23	2.86	2.15	1.99	1.97	1.97	1.97	2.86	2.15	24	
7	1.98	1.98	1.97	1.98	S	2.03	2.27	2.21	2.11	2.03	2.00	1.98	1.97	1.97	1.97	1.98	2.00	2.02	2.01	2.01	2.01	2.02	1.98	1.98	1.97	2.27	2.02	24	
8	1.99	2.00	1.99	S	1.98	1.99	2.00	2.00	2.02	2.01	2.00	1.98	1.96	1.95	1.95	1.98	1.98	2.00	2.04	2.04	2.40	2.02	2.19	2.40	1.95	2.40	2.04	24	
9	1.99	2.19	S	2.00	2.00	2.01	2.00	2.00	2.01	2.01	2.02	S1	2.02	2.01	2.02	2.02	2.03	2.05	2.06	2.06	2.06	2.06	2.05	2.03	1.99	2.19	2.03	23	
10	2.03	S	1.99	1.99	1.99	1.98	1.98	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.92	2.03	1.95	24	
11	S	1.93	1.93	1.93	1.93	1.93	1.94	1.94	2.05	2.62	3.01	2.09	2.06	2.11	2.09	1.96	2.07	2.72	2.89	2.56	2.33	2.37	2.27	S	1.93	3.01	2.22	24	
12	1.98	1.96	2.00	2.02	2.13	2.19	2.18	2.17	2.00	2.13	2.01	2.03	2.01	1.96	1.96	1.97	1.98	2.28	2.24	2.44	2.00	1.93	S	1.91	1.91	2.44	2.06	24	
13	1.91	1.91	1.91	1.90	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	S	1.91	1.90	1.89	1.91	1.90	24
14	1.91	1.91	1.92	1.92	1.93	1.93	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	2.00	2.18	S	1.98	1.97	1.97	1.91	2.18	1.96	24	
15	1.98	1.98	1.99	1.98	1.98	1.99	2.01	2.01	2.01	2.03	2.09	2.13	2.12	2.01	2.06	2.04	2.15	2.21	1.98	S	1.98	1.97	1.95	1.94	1.94	2.21	2.03	24	
16	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	1.94	1.94	1.93	1.93	1.92	1.94	1.94	1.94	S	1.93	1.93	1.94	1.93	1.94	1.92	1.94	1.93	24
17	1.94	1.96	1.95	1.94	1.94	1.96	1.97	1.95	1.95	1.95	1.94	1.92	1.93	1.92	1.92	1.92	1.93	S	1.93	1.97	1.98	1.94	1.94	1.94	1.92	1.98	1.94	24	
18	1.94	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.95	1.97	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.95	1.95	1.95	1.94	1.95	1.94	1.97	1.95	24	
19	1.96	1.96	1.96	1.95	1.96	1.97	1.97	1.97	1.99	1.97	1.96	1.96	1.96	1.95	1.95	S	1.94	1.94	1.95	1.95	1.96	1.98	1.95	1.95	1.94	1.99	1.96	24	
20	1.95	1.95	1.94	1.94	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.94	1.94	S	1.95	1.99	2.03	2.14	2.17	2.11	1.99	1.96	1.96	1.93	2.17	1.98	24	
21	2.00	1.97	1.97	1.96	2.00	2.06	2.24	2.22	2.03	1.98	1.97	1.96	1.96	S	1.94	1.95	1.96	1.95	1.95	1.96	1.95	1.94	1.94	1.94	1.94	2.24	1.99	24	
22	1.93	1.93	1.95	1.95	1.94	1.95	1.95	1.95	1.97	1.98	2.09	1.95	Y	2.04	C	C	C	C	C	2.47	2.28	1.98	1.96	2.00	2.04	1.93	2.47	2.02	23
23	2.05	2.02	2.04	2.06	2.00	2.10	2.06	1.97	1.95	1.94	1.93	S	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.95	1.95	1.93	1.93	1.93	1.93	2.10	1.97	24	
24	1.93	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	S	1.95	1.94	1.93	1.93	1.94	1.96	1.98	1.96	1.99	1.96	1.95	1.96	2.00	1.93	2.00	1.95	24
25	1.95	1.93	1.93	1.98	1.94	1.93	1.93	1.96	1.95	S	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.97	3.53	3.76	1.93	3.76	2.09	24	
26	2.31	2.28	2.05	2.03	2.00	1.97	1.97	2.26	S	2.16	1.97	1.97	1.97	1.98	1.96	2.00	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	2.31	2.01	24	
27	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.93	1.97	1.94	24
28	2.46	1.97	2.00	3.10	2.93	1.97	S	1.96	1.96	1.95	1.95	1.94	1.94	1.94	1.99	1.99	2.04	1.97	2.03	2.40	2.15	2.07	1.99	1.96	1.94	3.10	2.12	24	
HOURLY MAX	2.46	2.54	2.55	3.10	2.93	2.58	2.27	2.78	2.34	2.66	3.01	2.13	2.24	2.11	2.18	2.20	2.19	2.72	2.89	2.86	2.40	2.37	3.53	3.76					
HOURLY AVG	2.02	2.01	1.99	2.03	2.02	2.01	2.01	2.04	1.99	2.05	2.04	1.98	1.98	1.98	1.98	1.98	1.99	2.03	2.05	2.09	2.02	1.99	2.06	2.07					

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

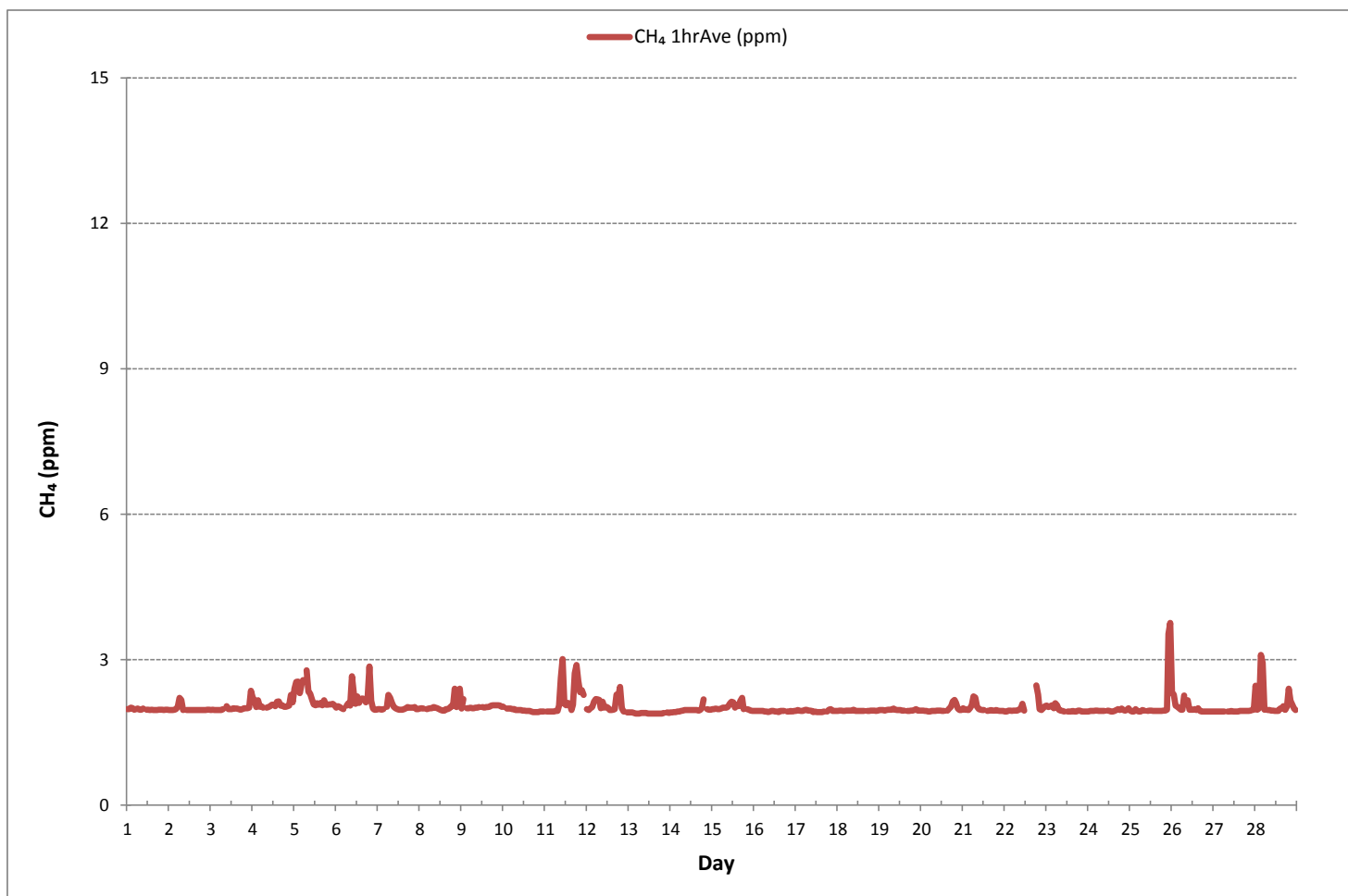
24 HR AVERAGES February 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	638			
MINIMUM 1-HR AVERAGE:	1.89	ppm @ HOUR	4	ON DAY 13
MAXIMUM 1-HR AVERAGE:	3.76	ppm @ HOUR	23	ON DAY 25
MAXIMUM 24-HR AVERAGE:	2.24	ppm		ON DAY 5
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.7 %
STANDARD DEVIATION:	0.17		MONTHLY AVERAGE:	2.02 ppm

METHANE Hourly Averages (CH₄ ppm)



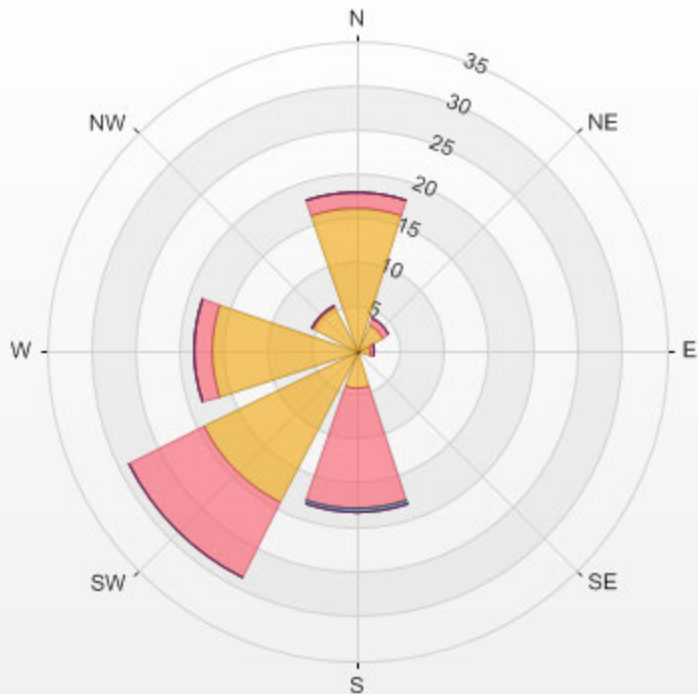
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-CH₄[ppm]
Monthly: 18/02
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.55%

Calm Avg: 2.14 [ppm]

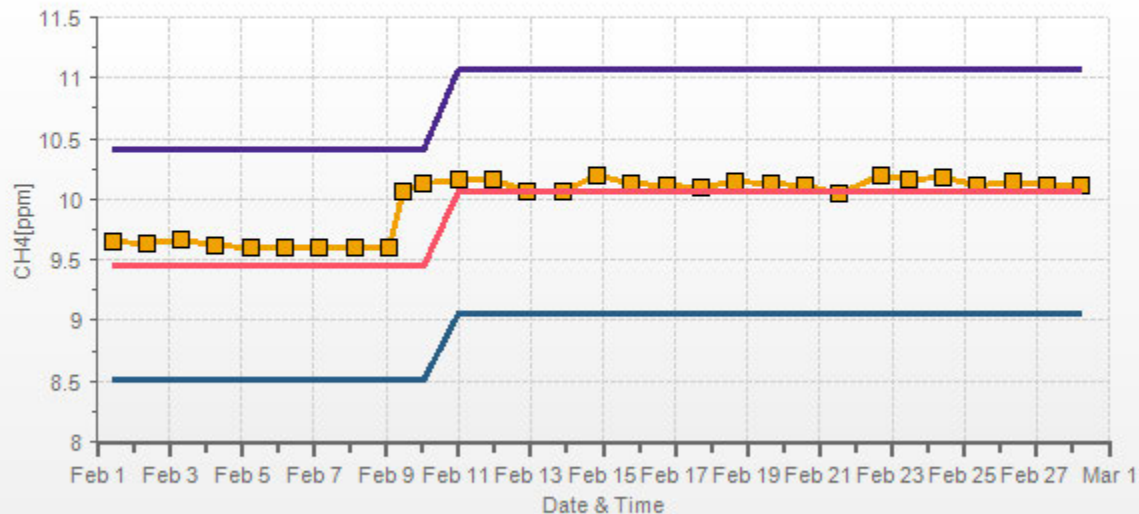
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.1	1.7	0.0	0.0	0.0	17.9
NE	3.3	0.8	0.0	0.0	0.0	4.1
E	1.6	0.5	0.0	0.0	0.0	2.0
SE	0.2	0.3	0.0	0.0	0.0	0.5
S	4.2	13.6	0.3	0.0	0.0	18.2
SW	19.3	9.4	0.0	0.0	0.0	28.7
W	16.5	1.9	0.0	0.0	0.0	18.3
NW	5.5	0.3	0.0	0.0	0.0	5.8
Summary	66.6	28.5	0.3	0.0	0.0	95.4

PRAMP_RENO Poll.: PRAMP_RENO-CH4[ppm] 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.55% Calm Poll Avg: 2.14[ppm]



CH₄[ppm] Calibration: PRAMP_RENO Monthly: 18/02 Type: Span

Span Meas Span Ref Span Low Span High



NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

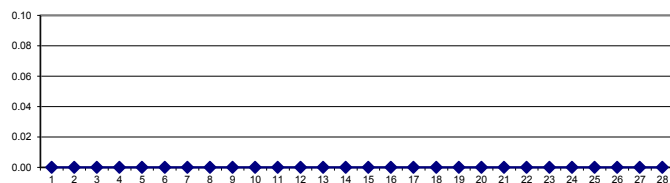
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	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
4	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
5	0.00	0.00	0.00	0.02	0.04	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	0.04	0.00	24
6	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
8	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
9	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
10	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
11	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
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	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
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	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
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	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
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	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
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Y	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	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	0.07	0.00	0.07	0.00	24
26	0.01	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	0.01	0.00	0.00	24
27	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
28	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
HOURLY MAX	0.01	0.00	0.00	0.02	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07					
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

STATUS FLAG CODES

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

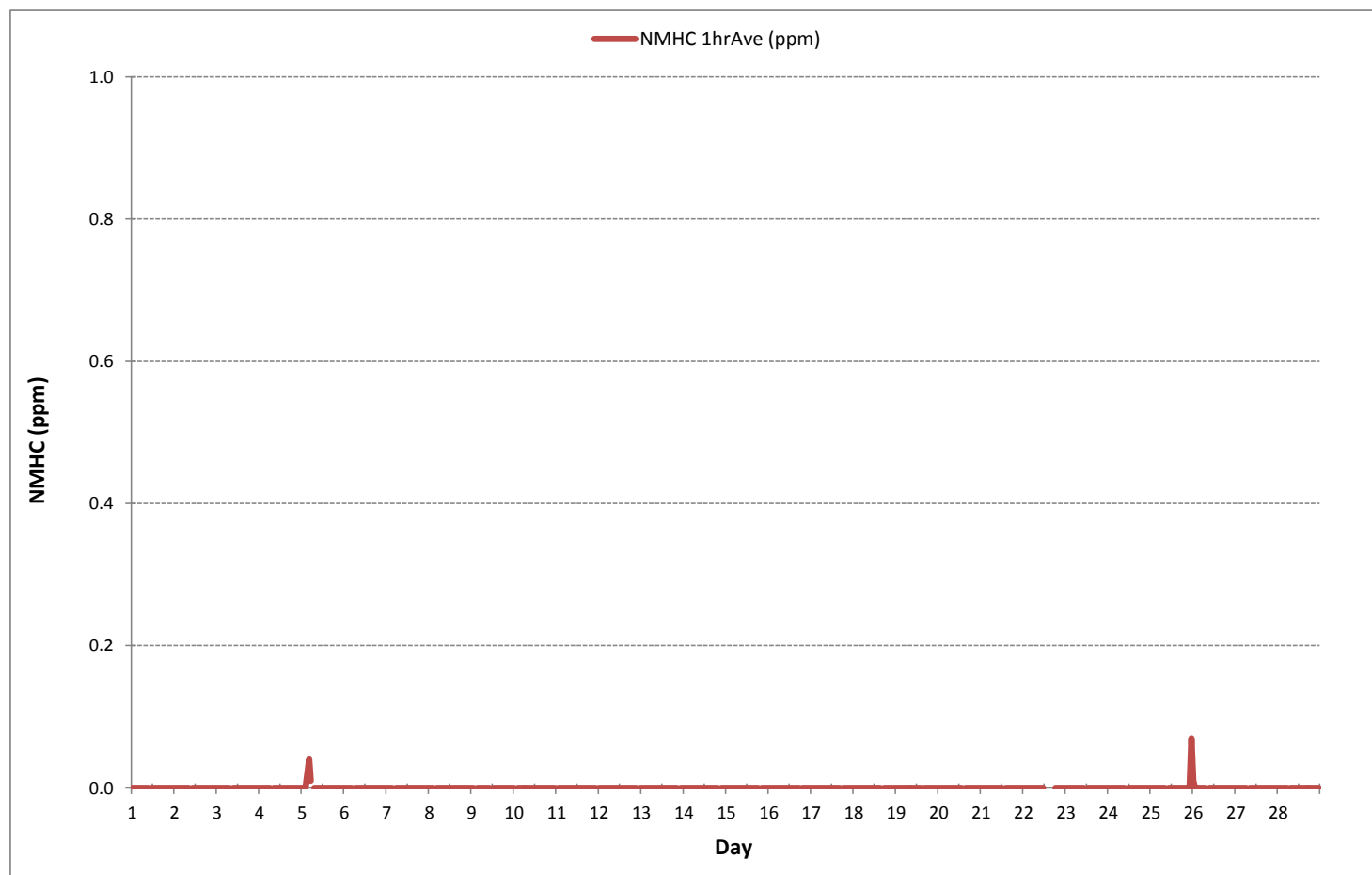
24 HR AVERAGES February 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	5				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.07	ppm	@ HOUR	23	ON DAY 25
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	99.7	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



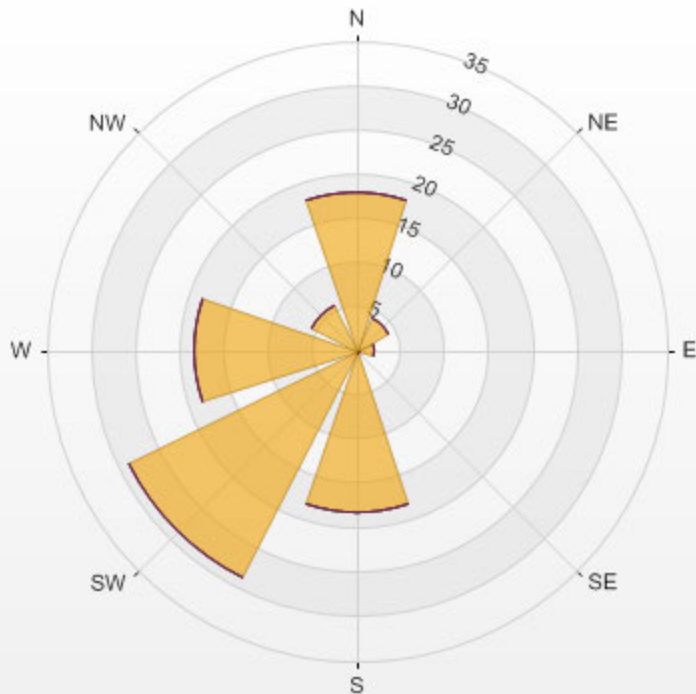
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-NMHC[ppm]
Monthly: 18/02
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.55%

Calm Avg: 0.00 [ppm]

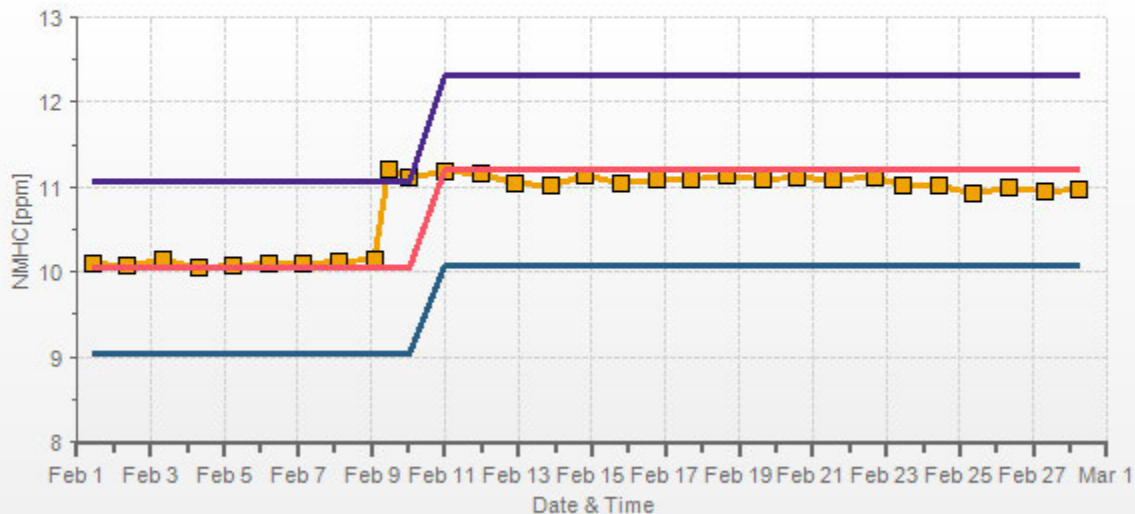
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	17.9	0.0	0.0	0.0	0.0	17.9
NE	4.1	0.0	0.0	0.0	0.0	4.1
E	2.0	0.0	0.0	0.0	0.0	2.0
SE	0.5	0.0	0.0	0.0	0.0	0.5
S	18.2	0.0	0.0	0.0	0.0	18.2
SW	28.7	0.0	0.0	0.0	0.0	28.7
W	18.3	0.0	0.0	0.0	0.0	18.3
NW	5.8	0.0	0.0	0.0	0.0	5.8
Summary	95.5	0.0	0.0	0.0	0.0	95.5

PRAMP_RENO Poll.: PRAMP_RENO-NMHC[ppm] 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.55% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_RENO Monthly: 18/02 Type: Span

Span Meas Span Ref Span Low Span High



WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Reno Station - February 2018

WIND SPEED Hourly Averages (WS kph)

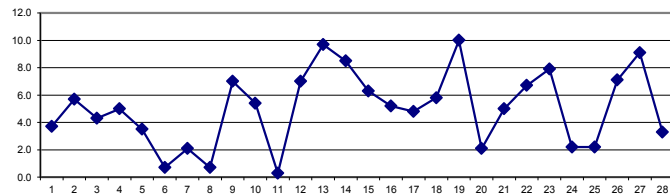
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	3.0	3.2	3.2	2.9	4.4	3.4	2.8	1.4	1.5	2.9	4.5	5.8	6.3	5.6	6.7	5.1	4.6	3.6	2.9	3.6	3.8	4.4	4.4	3.9	1.4	6.7	3.7	24
2	3.2	3.3	3.1	3.4	3.8	3.7	3.4	4.2	7.3	7.6	8.3	10.4	10.1	9.4	8.8	9.5	10.7	7.8	6.8	6.8	8.6	8.8	8.5	8.3	3.1	10.7	5.7	24
3	8.3	8.0	7.8	6.8	7.4	7.2	6.2	3.9	2.4	3.6	4.1	4.2	6.9	9.6	10.1	11.5	9.2	9.8	7.9	9.4	8.8	7.1	5.1	4.2	2.4	11.5	4.3	24
4	5.5	5.0	5.4	3.8	5.3	7.1	4.8	6.0	4.9	5.6	6.4	7.8	6.5	3.0	3.5	3.6	2.5	4.0	10.2	11.3	10.1	1.6	3.2	2.4	1.6	11.3	5.0	24
5	3.4	4.4	5.1	5.3	5.2	3.2	3.2	2.6	3.5	3.9	4.2	4.9	5.0	4.7	4.8	3.2	3.3	3.0	4.8	6.4	8.2	6.2	2.9	5.7	2.6	8.2	3.5	24
6	7.5	3.0	5.0	5.0	4.5	2.5	2.0	3.9	3.8	3.5	3.7	3.1	4.1	4.1	3.3	2.5	3.2	1.7	0.1	2.3	4.3	4.0	3.0	1.6	0.1	7.5	0.7	24
7	2.5	2.8	2.4	1.6	3.8	0.6	0.8	2.2	4.2	1.9	2.6	3.8	5.1	3.3	3.6	4.1	3.7	2.8	3.9	3.5	2.1	0.0	0.1	1.8	0.0	5.1	2.1	24
8	1.1	0.6	1.0	1.5	2.8	3.5	3.0	3.7	3.9	2.6	1.5	1.7	3.1	2.7	2.6	4.2	5.7	3.1	1.6	2.2	2.3	2.0	2.4	2.8	0.6	5.7	0.7	24
9	3.3	3.0	2.8	4.5	5.6	3.9	6.0	6.7	6.2	8.0	8.5	9.1	8.1	9.4	10.4	10.6	7.9	6.7	7.5	7.8	7.6	7.9	8.6	11.0	2.8	11.0	7.0	24
10	11.4	10.5	11.8	10.7	10.6	11.3	11.7	10.7	10.6	9.6	9.6	8.8	6.1	4.2	5.1	4.7	8.1	6.3	7.2	10.8	13.6	14.9	14.2	15.3	4.2	15.3	5.4	24
11	14.0	8.6	6.3	6.6	6.8	6.7	3.8	2.1	1.3	0.2	1.7	3.5	5.1	4.7	4.1	5.1	3.6	3.2	4.2	4.5	4.4	5.4	5.1	5.3	0.2	14.0	0.3	24
12	5.9	6.5	6.3	5.8	5.2	5.9	6.8	6.7	8.8	8.4	10.7	9.4	8.7	7.5	8.5	9.6	8.3	4.1	4.1	4.2	7.2	8.6	8.4	9.3	4.1	10.7	7.0	24
13	12.6	9.9	11.8	12.5	13.8	11.9	9.9	7.9	6.3	6.4	7.2	12.6	12.2	13.1	15.4	14.2	12.0	13.8	14.5	12.2	6.4	5.8	8.5	17.0	5.8	17.0	9.7	24
14	18.0	20.2	19.2	18.5	17.7	17.7	14.8	12.6	13.5	12.2	11.4	11.2	12.0	12.4	8.5	6.1	3.0	1.4	3.6	5.5	6.2	5.6	5.7	6.8	1.4	20.2	8.5	24
15	5.2	5.8	6.0	7.4	8.3	7.9	6.9	7.3	6.9	6.0	6.4	6.5	7.2	6.1	8.0	8.2	6.7	6.4	5.6	6.6	7.9	8.1	8.0	5.9	5.2	8.3	6.3	24
16	5.9	7.0	7.0	7.0	4.9	5.7	6.7	8.9	10.8	9.4	10.3	9.4	8.1	10.2	9.5	6.7	5.4	5.3	4.2	5.7	6.9	6.8	6.3	6.9	4.2	10.8	5.2	24
17	6.6	5.0	5.0	6.7	7.9	9.1	8.0	7.2	5.4	5.2	9.4	10.2	10.9	8.9	8.2	5.8	5.3	4.1	2.2	3.6	3.7	4.9	4.7	4.6	2.2	10.9	4.8	24
18	5.4	6.6	4.4	5.4	7.8	6.3	5.9	6.7	4.9	3.9	6.9	5.9	8.0	9.2	7.4	7.6	8.4	9.5	7.7	6.5	5.2	5.9	5.9	5.9	3.9	9.5	5.8	24
19	7.1	7.4	8.0	8.0	9.4	13.0	11.9	12.2	13.1	13.4	12.6	12.5	13.3	14.7	14.1	14.3	12.0	9.5	8.7	7.1	6.1	4.1	6.7	5.9	4.1	14.7	10.0	24
20	5.5	4.4	6.8	9.7	7.4	6.8	7.9	5.7	7.0	7.6	7.7	9.8	8.2	7.2	3.2	3.2	2.9	3.1	4.3	4.9	5.5	5.8	6.5	6.5	2.9	9.8	2.1	24
21	6.5	6.1	5.8	5.3	5.0	4.8	5.0	5.8	6.4	7.1	6.3	9.6	10.9	9.6	5.8	5.2	4.6	4.7	6.1	5.6	5.9	6.0	5.9	6.0	4.6	10.9	5.0	24
22	5.7	6.2	8.3	6.5	7.2	7.3	7.8	7.9	9.6	5.4	4.8	8.0	7.4	7.6	8.4	9.1	7.7	6.4	4.3	5.8	8.3	9.0	9.7	9.1	4.3	9.7	6.7	24
23	8.0	8.4	8.2	8.5	5.4	7.8	8.7	8.3	10.2	10.2	12.2	14.6	12.0	11.5	10.3	7.4	7.6	5.2	2.6	6.4	9.1	8.3	7.5	10.3	2.6	14.6	7.9	24
24	9.8	8.1	12.0	9.7	10.8	9.2	10.4	10.0	7.7	5.9	4.4	4.1	4.4	5.1	4.4	2.9	5.2	4.8	4.2	4.5	4.4	5.2	5.0	4.9	2.9	12.0	2.2	24
25	8.2	8.4	7.6	4.1	6.1	7.5	2.0	1.6	3.9	5.6	8.2	7.2	8.2	9.1	7.3	7.3	5.9	4.2	0.9	1.8	2.2	0.1	1.3	2.7	0.1	9.1	2.2	24
26	3.3	2.4	3.2	3.2	3.8	4.1	3.7	3.6	3.7	4.4	6.4	8.4	7.3	7.4	7.8	7.1	8.8	10.3	12.4	13.9	12.5	11.9	16.1	13.3	2.4	16.1	7.1	24
27	13.8	11.5	7.5	13.3	15.0	10.9	8.2	10.3	13.6	13.5	10.4	8.7	7.9	7.4	7.6	10.8	13.4	8.8	5.8	6.0	6.5	8.8	3.5	3.5	3.5	15.0	9.1	24
28	3.8	5.4	4.5	3.6	3.7	5.2	7.0	6.8	6.3	6.0	7.8	8.3	6.7	4.5	2.6	4.6	3.3	0.7	2.0	1.4	1.3	2.1	4.5	7.3	0.7	8.3	3.3	24
HOURLY MAX	18.0	20.2	19.2	18.5	17.7	17.7	14.8	12.6	13.6	13.5	12.6	14.6	13.3	14.7	15.4	14.3	13.4	13.8	14.5	13.9	13.6	14.9	16.1	17.0				
HOURLY AVG	3.3	3.0	2.9	2.9	3.4	3.1	3.0	3.0	3.0	2.9	2.9	3.3	3.3	3.2	3.2	3.8	3.6	3.4	3.4	3.7	3.6	3.3	3.1	2.6				

STATUS FLAG CODES

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

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

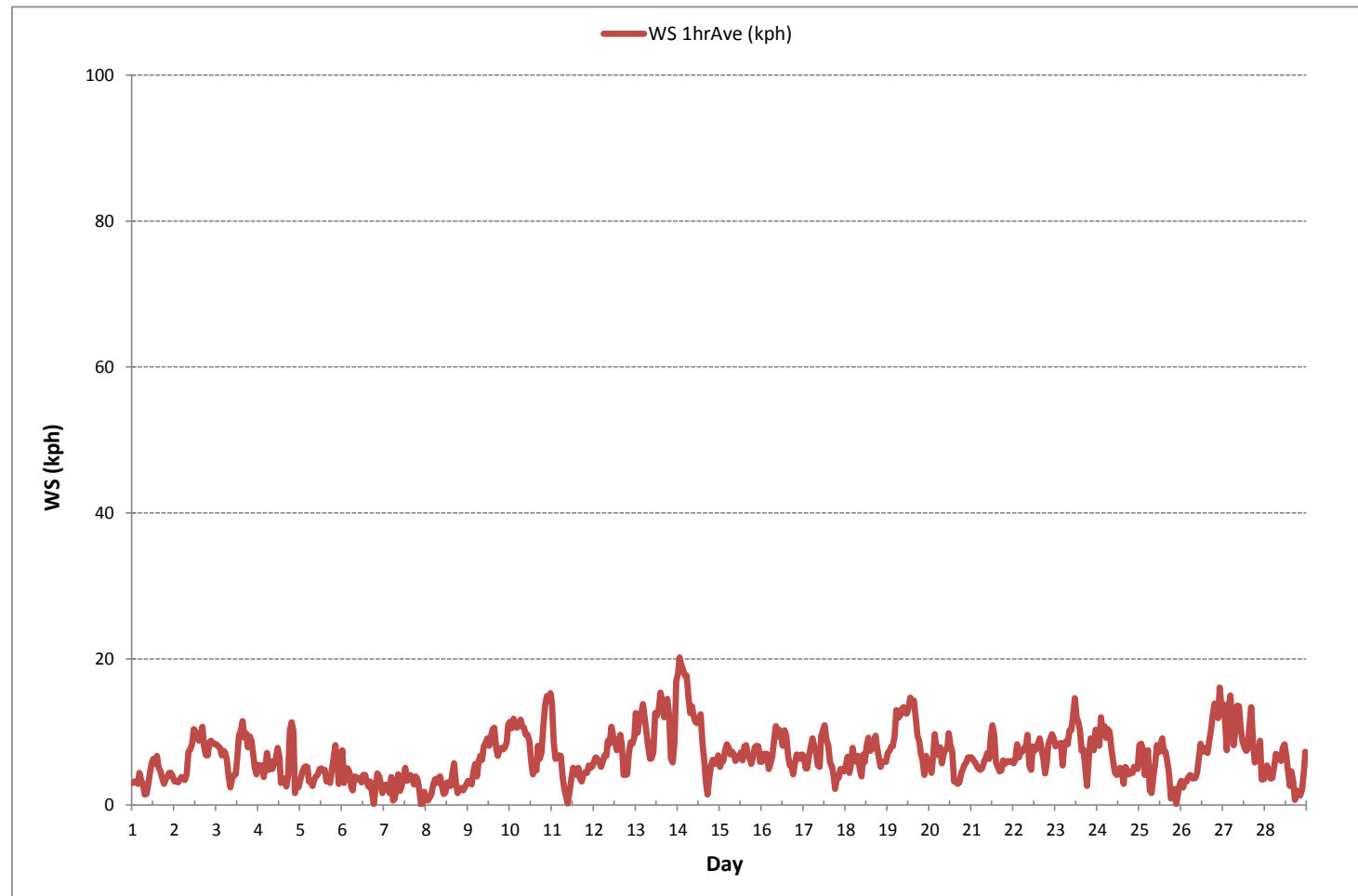
24 HR AVERAGES February 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	671				
MINIMUM 1-HR AVERAGE	0.0	kph	@ HOUR	21	ON DAY 7
MAXIMUM 1-HR AVERAGE:	20.2	kph	@ HOUR	1	ON DAY 14
MAXIMUM 24-HR AVERAGE:	10.0	kph			ON DAY 19
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	672	hrs
			AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	3.4		MONTHLY AVERAGE:	3.2	kph

WIND SPEED Hourly Averages (WS kph)



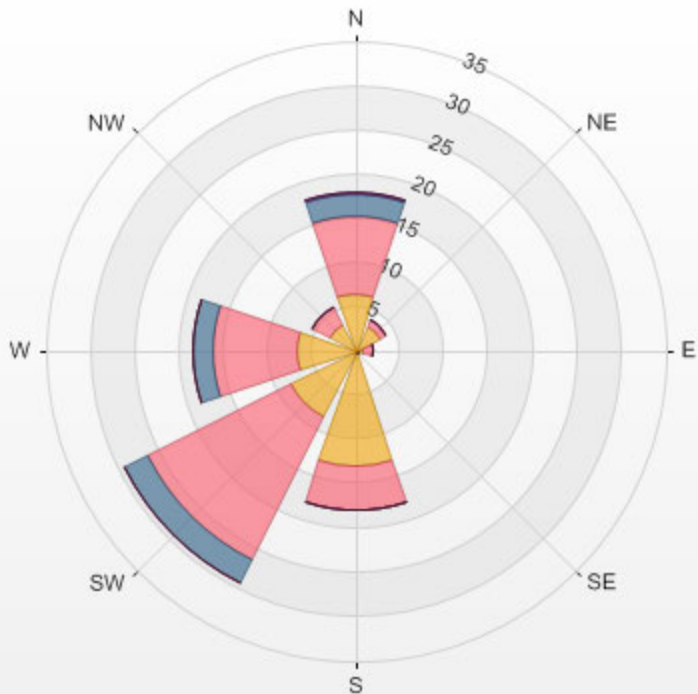
Wind: PRAMP_RENO
 Monitor: WSP [kph]
 Monthly: 18/02
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 4.46%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	6.4	8.8	2.5	0.2	0.0	0.0	17.9
NE	3.1	0.7	0.0	0.0	0.0	0.0	3.9
E	0.9	1.2	0.0	0.0	0.0	0.0	2.1
SE	0.5	0.0	0.0	0.0	0.0	0.0	0.5
S	13.1	4.9	0.0	0.0	0.0	0.0	18.0
SW	8.3	18.0	3.0	0.0	0.0	0.0	29.3
W	6.7	9.5	2.2	0.0	0.0	0.0	18.5
NW	3.3	2.2	0.0	0.0	0.0	0.0	5.5
Summary	42.3	45.4	7.7	0.2	0.0	0.0	95.5

% Icon	Classes (kph)	42	45	8	0	0	0
	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	

PRAMP_RENO 2018/02/01 00:00 - 2018/02/28 23:00 Calm: 4.46% Calm Wind Avg Speed: 1.12(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

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

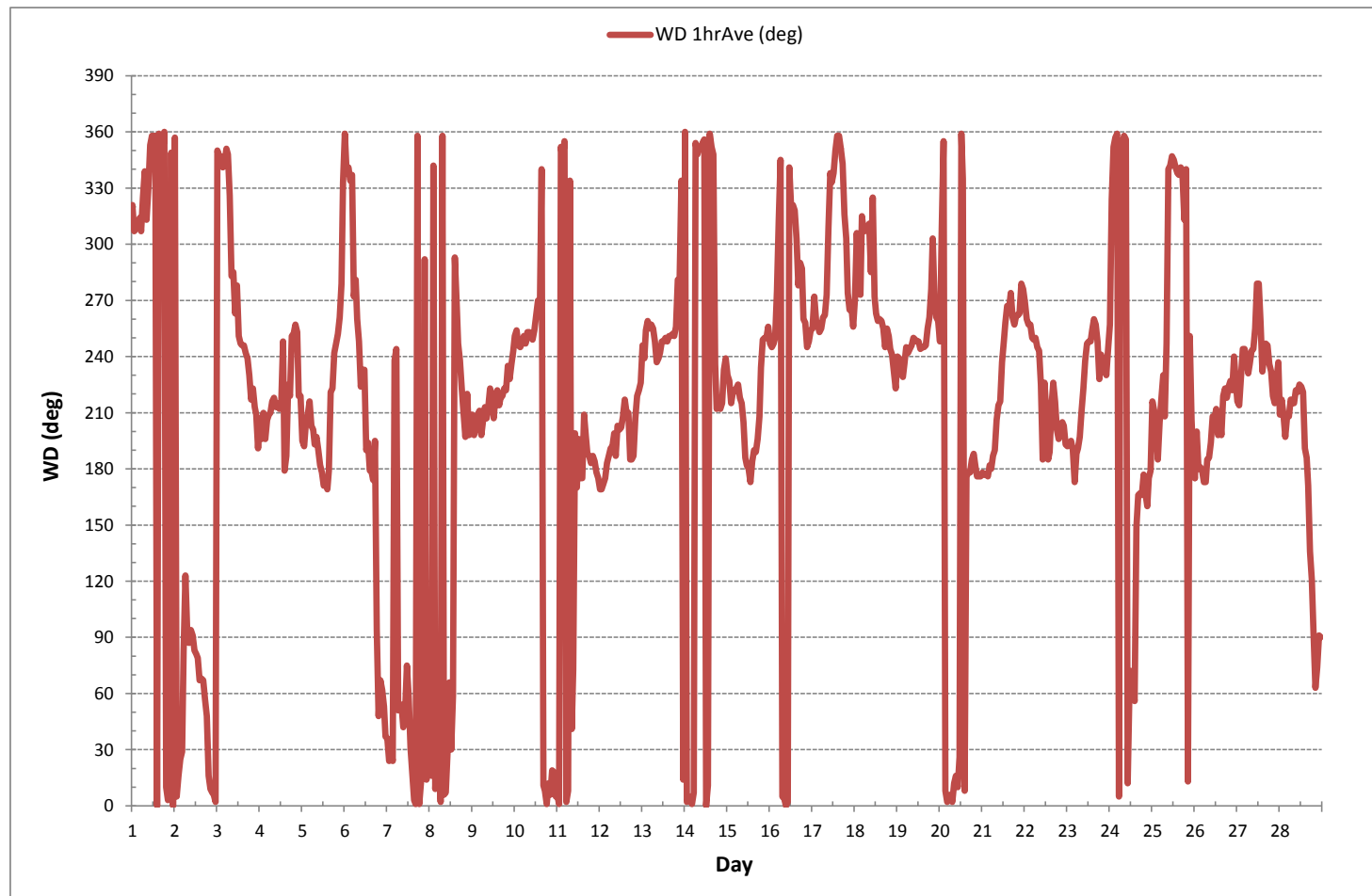
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	672	hrs
STANDARD DEVIATION:	94		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	252 (WSW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

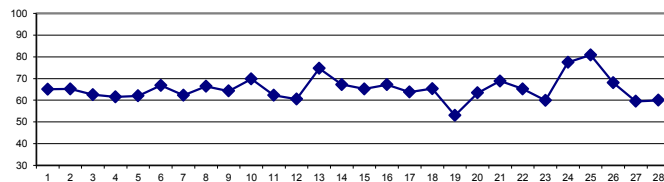
RELATIVE HUMIDITY Hourly Averages (RH %)

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

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

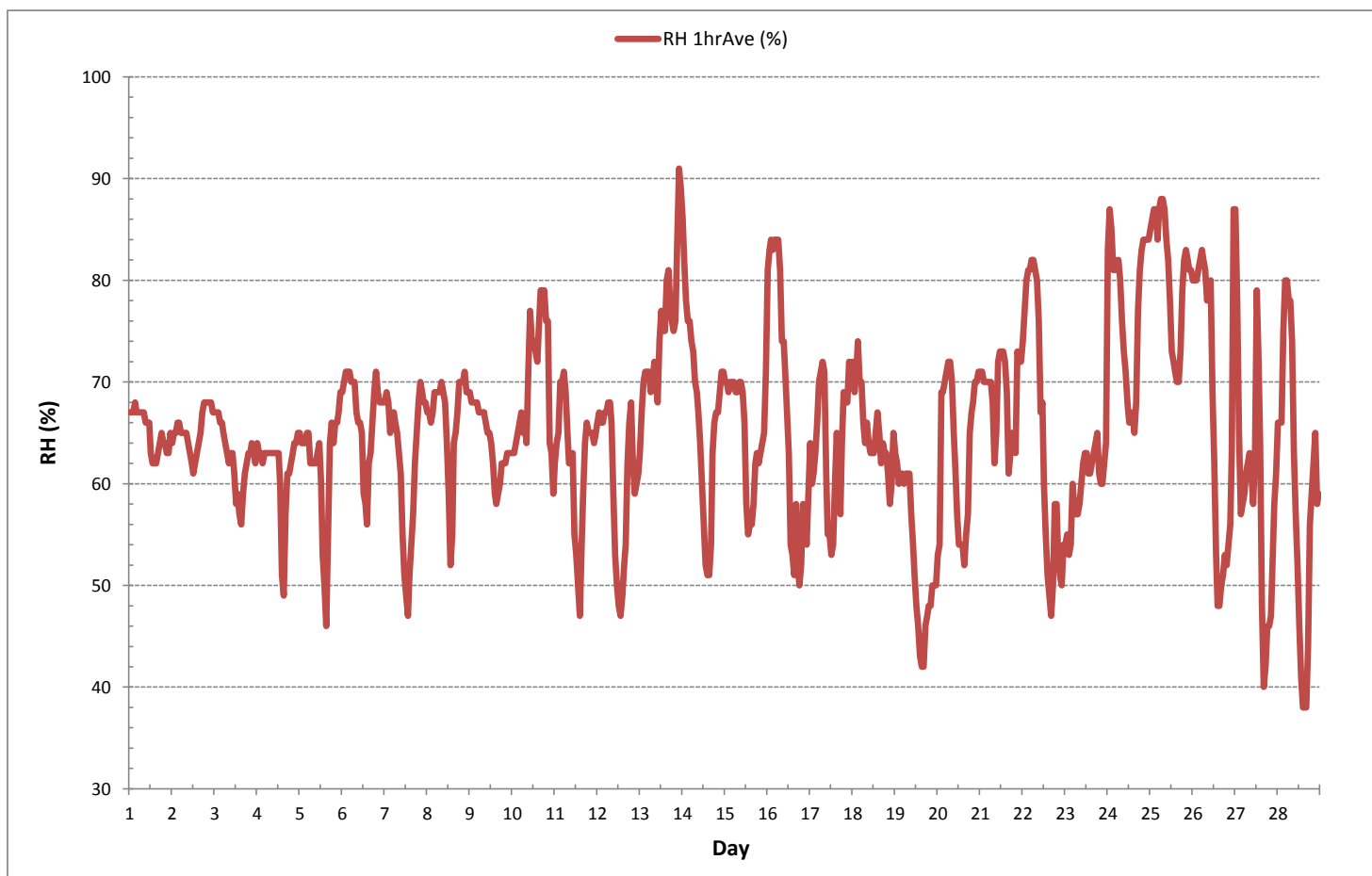
24 HR AVERAGES February 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	38	%	@ HOUR	14	ON DAY	28
MAXIMUM 1-HR AVERAGE:	91	%	@ HOUR	22	ON DAY	13
MAXIMUM 24-HR AVERAGE:	81	%			ON DAY	25
OPERATIONAL TIME:					672	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	9				MONTHLY AVERAGE:	65 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Reno Station - February 2018

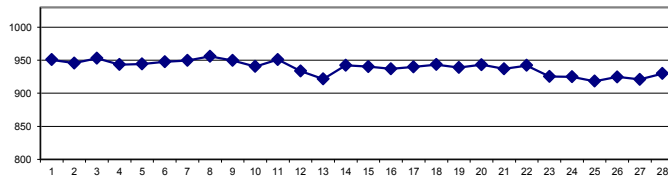
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	950	950	950	951	950	950	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	951	950	950	951	951	24	
2	950	949	949	949	948	947	946	946	945	945	944	944	944	943	943	943	943	944	944	944	945	946	947	948	943	950	946	24	
3	949	950	950	952	952	953	954	954	955	956	956	956	956	956	955	955	954	953	952	951	950	950	949	948	948	956	953	24	
4	947	946	945	944	944	943	943	942	942	942	941	941	942	941	941	941	942	942	943	944	945	946	947	947	941	947	943	24	
5	948	948	948	948	948	947	947	947	946	945	944	943	942	941	940	940	940	940	941	941	942	943	944	945	940	948	944	24	
6	946	947	947	948	949	949	950	950	950	950	950	949	949	949	948	947	946	946	946	945	945	944	944	944	944	944	950	947	24
7	945	945	946	946	947	948	948	949	949	950	950	950	950	950	950	951	951	951	951	951	952	952	952	952	945	952	949	24	
8	953	953	953	954	954	955	955	955	956	956	957	957	957	957	957	957	957	958	957	957	957	957	956	956	956	953	958	956	24
9	955	955	955	954	954	953	953	952	952	952	951	951	950	950	949	948	948	947	946	945	944	943	942	942	942	942	955	950	24
10	941	941	941	940	940	940	940	940	940	940	939	939	939	938	938	938	939	939	940	941	942	943	945	947	938	947	940	24	
11	948	949	950	951	952	952	953	953	953	953	953	953	953	952	952	952	952	952	952	951	950	949	948	947	946	946	953	951	24
12	945	943	942	941	940	939	937	937	936	935	934	934	933	932	932	931	930	930	929	927	926	925	924	923	923	945	934	24	
13	923	924	924	924	923	923	923	923	923	922	922	921	921	921	920	920	920	920	920	920	920	921	921	923	920	924	922	24	
14	925	928	931	933	936	938	940	942	943	945	945	946	946	946	946	946	947	947	947	947	947	948	948	948	925	948	942	24	
15	948	947	947	947	946	946	946	945	944	943	942	941	940	938	937	936	935	935	934	934	934	934	934	934	934	948	940	24	
16	933	933	933	932	932	932	933	933	935	936	937	938	938	939	939	939	940	940	941	941	941	941	941	941	932	941	937	24	
17	941	941	941	941	941	940	940	940	940	940	940	940	940	939	939	939	939	939	939	939	940	940	940	940	939	941	940	24	
18	941	941	942	942	942	943	944	944	945	945	945	945	945	945	944	944	944	943	943	943	943	943	943	942	941	945	943	24	
19	942	942	941	941	940	939	939	939	939	939	939	938	938	937	937	937	937	937	937	938	938	939	939	940	937	942	939	24	
20	940	940	941	942	942	943	943	944	945	945	945	945	945	945	945	945	945	944	944	943	942	941	940	939	939	945	943	24	
21	939	938	937	936	936	935	934	934	934	934	934	934	934	935	936	937	937	938	939	940	940	941	941	942	934	942	937	24	
22	942	943	944	944	944	945	945	945	945	945	945	945	945	944	943	942	941	940	939	939	938	936	935	935	935	945	942	24	
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25	917	916	915	915	914	914	914	914	914	915	915	916	917	918	919	920	920	921	922	923	924	924	925	926	914	926	918	24	
26	926	926	927	926	926	926	927	927	927	927	927	927	926	926	925	925	924	923	922	922	921	920	920	920	920	927	925	24	
27	919	919	918	918	918	918	918	918	918	919	920	921	922	922	923	923	923	923	923	923	923	924	924	924	918	924	921	24	
28	925	925	925	926	926	927	927	927	928	929	929	930	931	931	931	932	932	932	933	933	934	934	934	935	925	935	930	24	
HOURLY MAX	955	955	955	954	954	955	955	955	956	956	957	957	957	957	957	957	957	958	957	957	957	956	956	956					
HOURLY AVG	939	939	939	939	939	939	939	939	940	940	940	940	940	939	939	939	939	939	939	938	938	938	938	938					

STATUS FLAG CODES

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

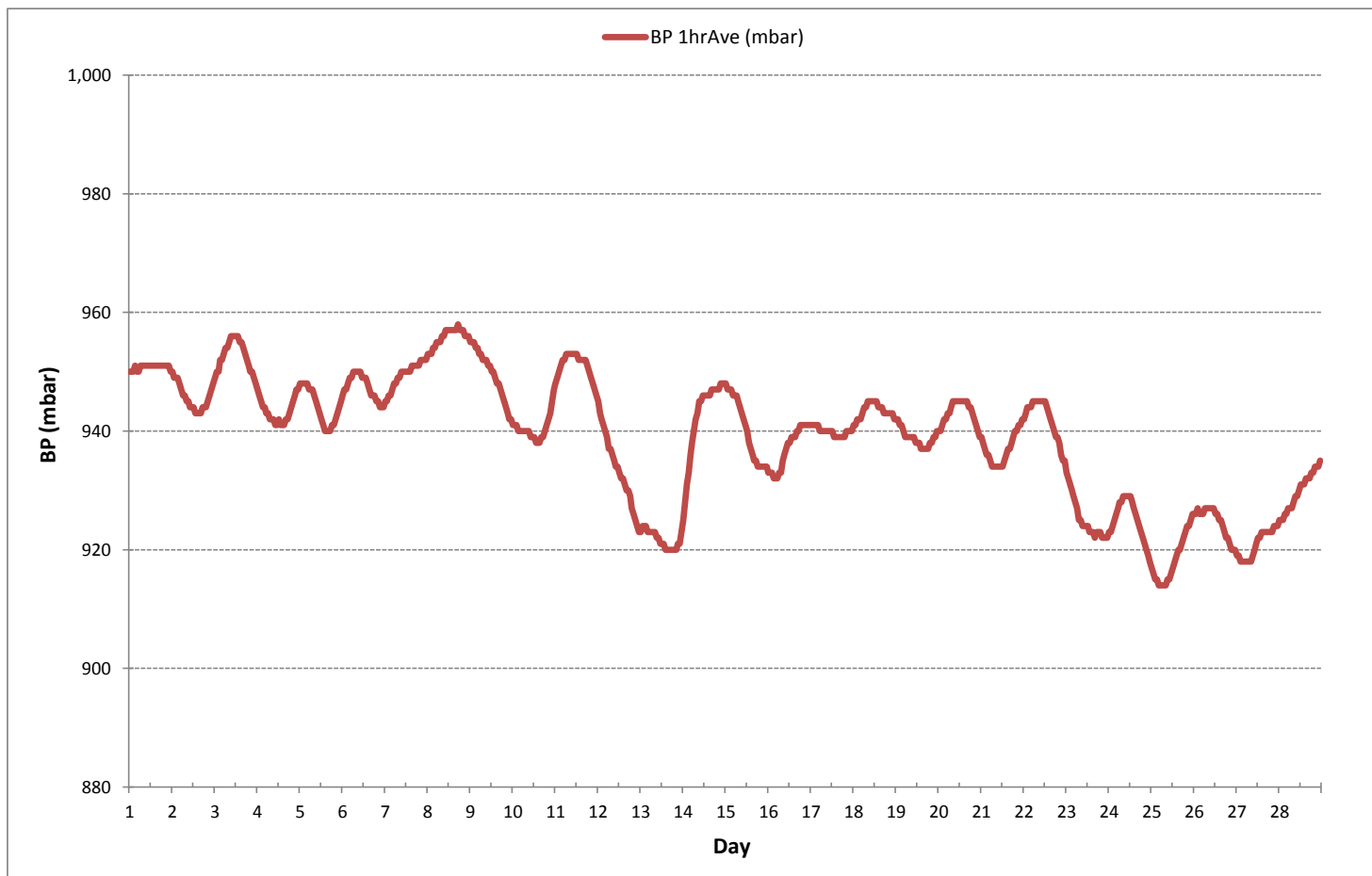
24 HR AVERAGES February 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	914	mbar	@ HOUR	4	ON DAY	25
MAXIMUM 1-HR AVERAGE:	958	mbar	@ HOUR	17	ON DAY	8
MAXIMUM 24-HR AVERAGE:	956	mbar			ON DAY	8
OPERATIONAL TIME:						672 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	11				MONTHLY AVERAGE:	939 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

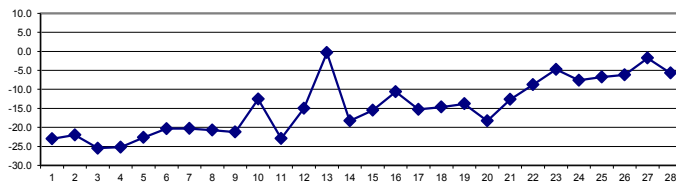
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	-22.6	-22.5	-22.6	-22.6	-22.6	-22.9	-23.4	-23.8	-23.7	-23.2	-22.8	-22.9	-22.8	-22.7	-22.6	-22.5	-22.6	-23.0	-23.1	-23.1	-23.1	-23.2	-23.4	-23.9	-23.9	-22.5	-23.0	24
2	-24.4	-24.4	-24.5	-24.4	-24.2	-23.6	-23.1	-22.8	-22.7	-22.3	-21.6	-20.8	-20.1	-19.9	-19.9	-20.0	-20.2	-20.4	-20.7	-21.0	-21.5	-21.8	-21.9	-22.2	-24.5	-19.9	-22.0	24
3	-22.8	-22.9	-23.4	-24.3	-25.0	-25.6	-26.2	-27.2	-28.3	-26.4	-25.1	-24.1	-24.0	-24.6	-24.4	-24.4	-25.1	-25.5	-26.0	-26.2	-26.5	-27.1	-27.4	-28.9	-28.9	-22.8	-25.5	24
4	-27.7	-27.7	-27.4	-28.6	-27.6	-27.6	-27.3	-27.2	-27.1	-26.6	-25.8	-25.0	-24.0	-22.2	-20.7	-20.5	-22.3	-24.1	-23.6	-23.5	-23.4	-24.6	-25.8	-25.2	-28.6	-20.5	-25.2	24
5	-25.1	-26.3	-27.0	-26.7	-26.0	-26.2	-28.3	-28.9	-28.6	-27.1	-24.6	-22.5	-19.4	-17.1	-15.3	-13.9	-16.3	-19.3	-20.7	-21.2	-21.9	-22.2	-21.2	-18.4	-28.9	-13.9	-22.7	24
6	-17.8	-19.1	-19.3	-19.7	-19.6	-20.8	-22.8	-22.3	-24.1	-24.3	-21.6	-19.2	-18.9	-17.9	-18.0	-19.3	-19.8	-20.0	-20.7	-20.9	-20.1	-20.2	-20.3	-21.0	-24.3	-17.8	-20.3	24
7	-21.4	-22.4	-21.6	-23.1	-22.6	-21.4	-21.8	-21.4	-20.8	-19.7	-18.3	-16.7	-16.0	-15.3	-17.0	-18.0	-18.1	-18.9	-19.5	-21.0	-22.5	-23.2	-23.2	-23.6	-23.6	-15.3	-20.3	24
8	-23.9	-24.0	-24.3	-24.0	-23.2	-23.0	-22.6	-21.1	-20.1	-19.5	-18.4	-16.8	-15.8	-15.4	-15.5	-16.3	-17.4	-18.5	-20.4	-22.4	-23.4	-22.8	-23.6	-24.2	-24.3	-15.4	-20.7	24
9	-23.3	-24.2	-24.8	-23.5	-23.4	-24.4	-24.1	-23.6	-24.1	-23.4	-22.2	-21.7	-20.7	-19.0	-18.7	-18.5	-18.5	-18.8	-19.2	-19.0	-18.8	-19.3	-18.6	-18.2	-24.8	-18.2	-21.3	24
10	-18.3	-17.5	-16.9	-16.3	-15.5	-14.0	-13.6	-13.3	-12.8	-12.2	-11.3	-10.8	-10.2	-9.0	-8.8	-8.8	-9.2	-9.5	-10.0	-10.4	-11.1	-12.6	-13.7	-15.1	-18.3	-8.8	-12.5	24
11	-17.7	-19.9	-21.2	-21.9	-22.5	-23.5	-25.9	-27.3	-28.3	-26.0	-20.7	-18.5	-18.4	-17.3	-16.7	-18.6	-20.1	-24.1	-26.3	-27.1	-27.0	-27.7	-27.4	-26.4	-28.3	-16.7	-22.9	24
12	-24.8	-23.7	-24.5	-24.2	-23.5	-23.3	-21.8	-21.4	-18.8	-18.4	-15.6	-13.6	-11.4	-9.6	-9.0	-8.9	-8.2	-10.6	-11.9	-11.6	-8.1	-6.6	-5.3	-4.5	-24.8	-4.5	-15.0	24
13	-3.8	-4.2	-3.5	-2.4	-1.8	-1.3	-0.7	-0.7	-1.0	-0.5	0.5	1.7	1.9	2.2	2.1	1.5	1.2	1.3	1.2	1.0	0.6	0.1	-1.2	-2.7	-4.2	2.2	-0.4	24
14	-5.1	-8.4	-10.5	-12.5	-14.6	-16.0	-17.2	-19.0	-20.0	-20.4	-20.6	-20.1	-19.9	-19.8	-19.3	-19.0	-19.2	-20.8	-23.3	-23.9	-23.0	-22.8	-21.7	-21.2	-23.9	-5.1	-18.3	24
15	-21.8	-21.4	-22.2	-21.0	-21.0	-21.6	-22.1	-21.9	-21.3	-19.2	-19.1	-16.9	-14.7	-12.9	-11.5	-10.2	-9.8	-10.2	-9.7	-8.3	-8.4	-9.0	-8.9	-8.8	-22.2	-8.3	-15.5	24
16	-8.8	-8.6	-8.1	-7.9	-7.8	-7.6	-8.3	-9.5	-11.0	-12.5	-12.7	-11.7	-10.8	-9.9	-9.4	-8.6	-9.8	-10.7	-11.8	-13.0	-13.5	-14.3	-14.7	-14.6	-14.7	-7.6	-10.7	24
17	-15.3	-14.5	-14.9	-16.1	-16.9	-17.8	-17.7	-17.9	-17.2	-14.9	-13.4	-13.2	-13.0	-12.9	-13.0	-13.2	-13.1	-13.7	-16.2	-17.8	-17.7	-16.0	-15.0	-15.5	-17.9	-12.9	-15.3	24
18	-14.9	-14.2	-14.5	-14.9	-13.9	-15.1	-16.3	-16.7	-16.6	-16.0	-14.6	-14.5	-14.2	-13.4	-13.1	-12.6	-12.3	-12.7	-13.2	-14.7	-14.6	-14.4	-15.9	-18.0	-18.0	-12.3	-14.6	24
19	-16.8	-16.7	-16.3	-16.5	-16.7	-15.9	-16.4	-16.2	-15.9	-14.9	-13.8	-12.7	-11.6	-10.9	-10.2	-10.1	-10.2	-11.4	-12.4	-13.0	-12.3	-13.2	-13.5	-13.5	-16.8	-10.1	-13.8	24
20	-13.8	-12.8	-13.4	-14.5	-15.7	-16.4	-17.7	-18.3	-18.6	-18.7	-18.8	-18.7	-18.3	-18.2	-17.8	-16.8	-17.7	-19.1	-22.1	-22.5	-23.0	-22.4	-21.8	-21.6	-23.0	-12.8	-18.3	24
21	-20.9	-20.1	-21.1	-21.1	-20.3	-19.4	-19.4	-17.0	-14.6	-13.0	-11.8	-10.3	-9.2	-8.2	-7.6	-7.1	-6.8	-8.0	-8.6	-9.2	-8.4	-7.9	-7.0	-6.8	-21.1	-6.8	-12.7	24
22	-7.9	-9.6	-10.7	-10.9	-11.6	-12.2	-12.0	-11.7	-11.2	-10.7	-9.4	-8.4	-6.4	-5.1	-3.6	-3.5	-4.2	-5.4	-9.3	-10.1	-8.6	-8.5	-9.5	-10.7	-12.2	-3.5	-8.8	24
23	-10.8	-11.2	-10.8	-10.7	-12.6	-10.4	-8.2	-6.9	-5.7	-4.2	-2.5	-2.0	-1.4	-0.9	-0.4	-0.2	-0.5	-0.9	-1.7	-1.9	-2.2	-2.3	-3.0	-2.9	-12.6	-0.2	-4.8	24
24	-3.6	-4.0	-5.2	-6.1	-7.3	-8.3	-8.9	-8.9	-9.9	-9.7	-9.0	-8.7	-8.2	-7.8	-8.0	-7.0	-7.1	-7.6	-8.0	-7.6	-7.8	-8.4	-8.7	-7.3	-9.9	-3.6	-7.6	24
25	-5.4	-4.7	-4.6	-4.5	-4.4	-4.1	-4.1	-5.1	-4.1	-4.6	-5.5	-6.8	-7.1	-6.3	-5.5	-5.1	-5.6	-6.6	-8.6	-10.3	-11.2	-12.3	-12.9	-13.4	-13.4	-4.1	-6.8	24
26	-14.8	-13.5	-13.3	-11.8	-11.2	-9.9	-10.1	-11.9	-13.0	-10.8	-6.6	-4.5	-3.3	-1.2	0.1	0.5	-0.6	-1.8	-2.6	-1.7	-1.2	-1.4	-1.3	-2.3	-14.8	0.5	-6.2	24
27	-2.4	-2.1	-1.5	-1.1	-1.4	-1.9	-2.8	-2.3	-1.8	-1.6	-1.0	-0.3	-1.3	-0.6	0.3	1.2	1.4	0.0	-1.8	-2.0	-2.9	-4.0	-5.7	-7.1	-7.1	1.4	-1.8	24
28	-9.1	-7.6	-7.6	-11.0	-11.5	-10.4	-8.5	-8.0	-7.3	-4.7	-3.6	-2.7	-1.4	-0.2	1.0	1.0	0.5	-2.0	-6.0	-6.9	-7.8	-8.5	-7.4	-7.4	-11.5	1.0	-5.7	24
HOURLY MAX	-2.4	-2.1	-1.5	-1.1	-1.4	-1.3	-0.7	-0.7	-1.0	-0.5	0.5	1.7	1.9	2.2	2.1	1.5	1.4	1.3	1.2	1.0	0.6	0.1	-1.2	-2.3				
HOURLY AVG	-15.9	-16.0	-16.3	-16.5	-16.6	-16.6	-16.8	-16.9	-16.7	-15.9	-14.6	-13.7	-12.9	-12.0	-11.5	-11.4	-11.8	-12.9	-14.2	-14.6	-14.6	-14.9	-15.0	-15.2				

STATUS FLAG CODES

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

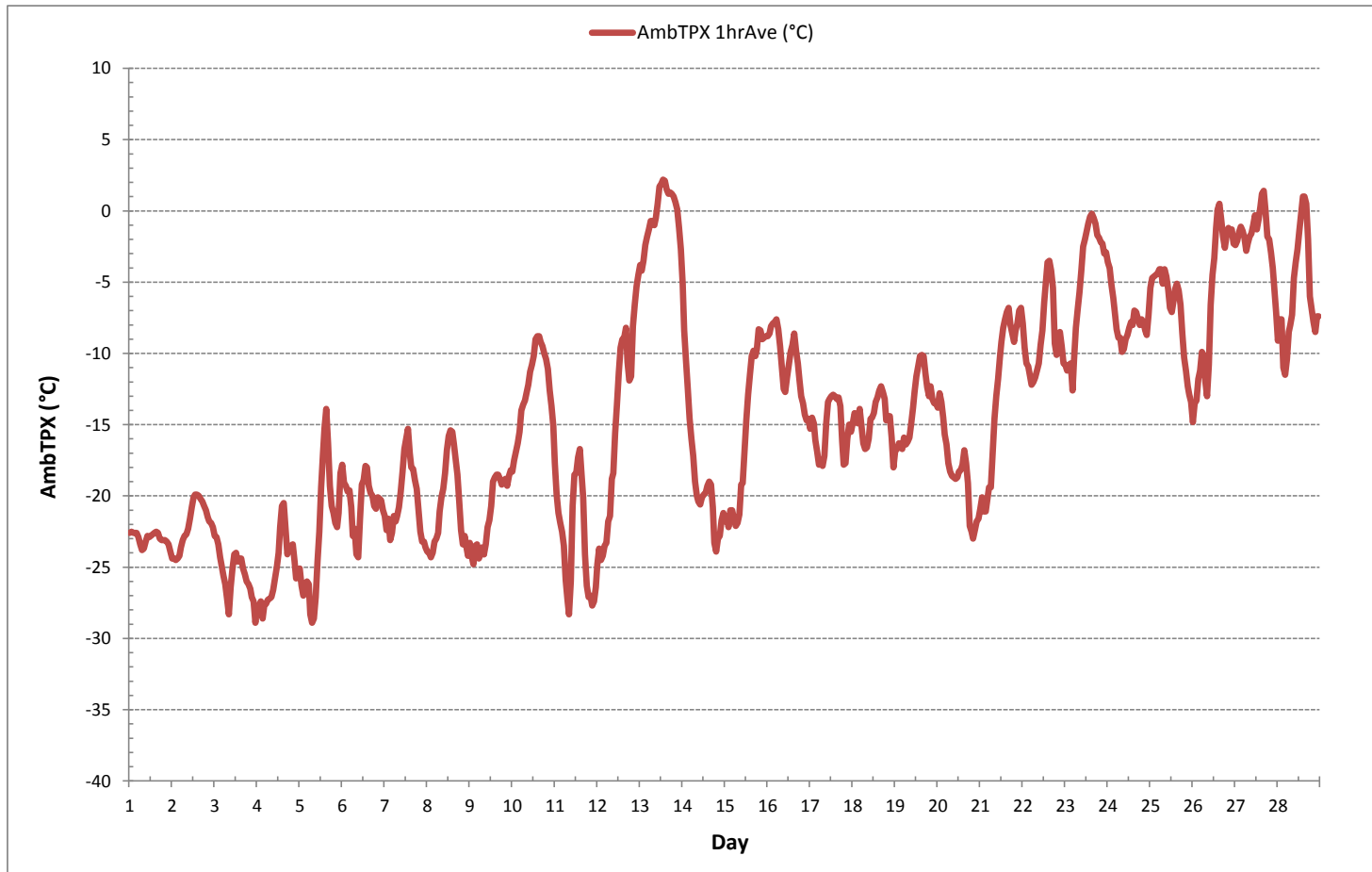
24 HR AVERAGES February 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-28.9	°C	@ HOUR	23	ON DAY	3
MAXIMUM 1-HR AVERAGE:	2.2	°C	@ HOUR	13	ON DAY	13
MAXIMUM 24-HR AVERAGE:	-0.4	°C			ON DAY	13
OPERATIONAL TIME:						672 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	7.9					
MONTHLY AVERAGE:	-14.7	°C				

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

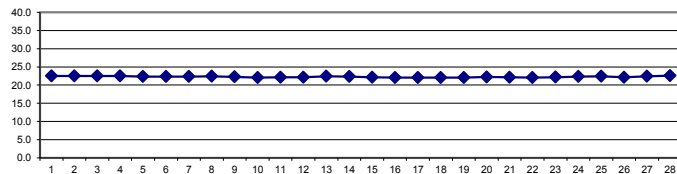
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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 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	22.6	22.3	22.6	22.4	22.6	22.4	22.6	22.5	22.4	22.6	22.4	22.4	22.5	22.3	22.4	22.4	22.5	22.3	22.5	22.5	22.4	22.6	22.4	22.6	22.3	22.6	22.5	24	
2	22.5	22.5	22.6	22.4	22.6	22.6	22.4	22.6	22.6	22.4	22.6	22.5	22.5	22.4	22.3	22.3	22.4	22.4	22.5	22.5	22.6	22.5	22.6	22.7	22.3	22.7	22.5	24	
3	22.5	22.5	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.5	22.3	22.0	22.1	22.1	22.0	22.3	22.5	22.5	22.8	22.5	22.8	22.7	22.6	22.0	22.8	22.5	24	
4	22.8	22.7	22.7	22.8	22.6	22.8	22.7	22.8	22.8	22.7	22.5	22.4	22.2	22.1	21.9	21.6	22.1	22.3	22.3	22.4	22.4	22.5	22.6	22.6	21.6	22.8	22.5	24	
5	22.6	22.6	22.6	22.6	22.7	22.6	22.6	22.7	22.7	22.6	22.4	22.1	22.0	21.7	21.4	21.6	21.7	22.2	22.3	22.4	22.4	22.5	22.5	22.5	21.4	22.7	22.3	24	
6	22.4	22.4	22.5	22.5	22.4	22.4	22.6	22.6	22.6	22.6	22.4	22.1	21.9	21.8	21.8	21.9	22.1	22.3	22.2	22.4	22.5	22.5	22.5	22.4	21.8	22.6	22.3	24	
7	22.5	22.5	22.4	22.5	22.6	22.5	22.4	22.5	22.5	22.4	22.3	22.2	21.9	21.9	21.8	22.0	22.1	22.1	22.4	22.4	22.4	22.6	22.4	22.6	21.8	22.6	22.3	24	
8	22.6	22.6	22.5	22.7	22.5	22.6	22.6	22.4	22.6	22.4	22.4	22.2	22.2	22.1	22.1	22.1	22.0	22.4	22.3	22.5	22.5	22.5	22.5	22.7	22.0	22.7	22.4	24	
9	22.6	22.6	22.7	22.7	22.7	22.6	22.6	22.6	22.7	22.7	22.2	20.5	21.9	21.9	21.9	22.0	22.1	22.2	22.1	22.3	22.3	22.3	22.3	22.2	20.5	22.7	22.3	24	
10	22.1	22.1	22.2	22.1	22.2	22.1	22.1	22.1	22.1	22.0	22.1	22.1	21.7	21.7	21.9	22.1	22.1	22.1	22.0	21.8	22.1	22.3	22.3	22.4	22.3	21.7	22.4	22.1	24
11	22.6	22.3	22.4	22.3	22.4	22.4	22.4	22.3	22.4	22.3	22.1	21.9	21.6	21.4	21.3	21.5	21.7	22.0	22.3	22.3	22.4	22.4	22.4	22.3	21.3	22.6	22.1	24	
12	22.4	22.5	22.4	22.4	22.5	22.4	22.4	22.4	22.5	22.4	22.2	21.9	21.6	21.6	21.8	21.9	22.1	22.2	22.1	21.9	21.7	22.3	22.1	22.0	21.6	22.5	22.2	24	
13	21.8	22.1	22.0	21.7	21.5	21.6	22.0	22.5	22.8	22.7	22.7	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.6	22.6	22.7	21.5	22.8	22.4	24	
14	22.7	22.0	22.3	22.3	22.4	22.4	22.5	22.4	22.5	22.6	22.5	22.5	22.3	22.3	22.1	21.8	21.8	22.1	22.1	22.3	22.4	22.4	22.3	22.5	21.8	22.7	22.3	24	
15	22.3	22.4	22.3	22.5	22.3	22.3	22.4	22.3	22.5	22.3	22.1	22.1	21.7	21.9	21.9	22.0	22.2	22.1	22.0	21.9	22.0	22.0	22.0	21.7	21.7	22.5	22.1	24	
16	22.1	21.8	22.1	21.8	22.0	22.1	21.9	22.1	22.1	22.1	22.1	21.6	21.6	21.5	21.8	22.2	22.6	22.5	22.2	22.0	22.0	22.2	22.1	22.2	21.5	22.6	22.0	24	
17	22.2	22.2	22.2	22.1	22.3	22.2	22.2	22.2	22.2	22.1	22.1	21.8	21.8	22.0	21.6	22.0	22.0	21.8	22.0	22.2	22.2	22.3	22.2	22.2	21.6	22.3	22.1	24	
18	22.1	22.1	22.2	22.1	22.1	22.1	22.2	22.2	22.2	22.1	22.1	21.8	21.9	21.8	21.9	21.9	21.9	22.0	21.9	22.1	22.2	22.0	22.2	22.2	21.8	22.2	22.1	24	
19	22.4	22.2	22.3	22.1	22.2	22.1	22.1	22.1	22.1	22.1	22.1	21.9	21.8	21.8	21.7	21.8	21.7	21.9	21.9	22.1	22.1	22.0	22.1	22.1	21.7	22.4	22.0	24	
20	22.2	22.0	22.3	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.4	22.3	21.9	22.0	21.9	21.7	22.0	22.0	22.2	22.3	22.3	22.4	22.4	22.3	21.7	22.4	22.2	24	
21	22.3	22.4	22.3	22.3	22.3	22.4	22.3	22.2	22.3	22.2	22.2	21.9	21.9	21.7	21.9	22.4	21.9	22.6	22.6	22.3	21.9	21.7	22.1	21.7	21.7	22.6	22.2	24	
22	22.0	21.9	22.0	22.0	22.0	22.1	22.1	22.2	22.1	20.4	21.3	21.9	22.4	22.1	22.6	22.2	22.1	22.1	22.6	22.5	22.2	21.8	22.0	21.9	20.4	22.6	22.0	24	
23	22.0	22.0	22.0	21.9	21.9	21.9	22.0	21.6	22.0	21.9	21.7	21.8	22.1	22.5	22.4	22.4	22.3	22.5	22.5	22.5	22.6	22.6	22.5	22.6	21.6	22.6	22.2	24	
24	22.6	22.6	22.6	22.6	22.6	22.4	22.1	21.9	21.6	21.6	22.0	22.3	22.2	22.1	22.2	22.3	22.4	22.4	22.6	22.6	22.7	22.7	22.7	22.7	21.6	22.7	22.4	24	
25	22.8	22.7	22.7	22.5	22.6	22.6	22.6	22.5	22.6	22.6	22.4	22.4	22.4	22.1	22.1	22.2	22.3	22.3	22.5	22.7	22.6	22.3	21.9	21.9	21.9	22.8	22.4	24	
26	21.9	22.0	22.1	22.0	21.9	21.8	21.7	21.9	22.1	21.6	21.9	22.0	21.9	21.9	22.1	22.7	23.0	22.3	22.4	22.4	22.4	22.4	22.4	22.4	21.6	23.0	22.1	24	
27	22.5	22.4	22.5	22.4	22.4	22.5	22.5	22.4	22.5	22.4	22.3	22.2	22.3	22.2	22.2	22.6	22.8	22.7	22.3	22.4	22.4	22.4	22.5	22.4	22.5	22.2	22.8	22.4	24
28	22.5	22.5	22.6	22.5	22.6	22.6	22.6	22.6	22.5	22.3	22.0	21.8	21.8	21.9	22.5	23.3	24.0	23.9	22.6	22.4	22.5	22.5	22.5	22.5	21.8	24.0	22.6	24	
HOURLY MAX	22.8	22.7	22.7	22.8	22.7	22.8	22.7	22.8	22.8	22.7	22.7	22.6	22.6	22.6	22.6	23.3	24.0	23.9	22.6	22.8	22.7	22.8	22.7	22.7					
HOURLY AVG	22.4	22.3	22.4	22.3	22.4	22.3	22.3	22.3	22.4	22.3	22.2	22.1	22.0	22.0	22.0	22.1	22.2	22.3	22.3	22.4	22.3	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

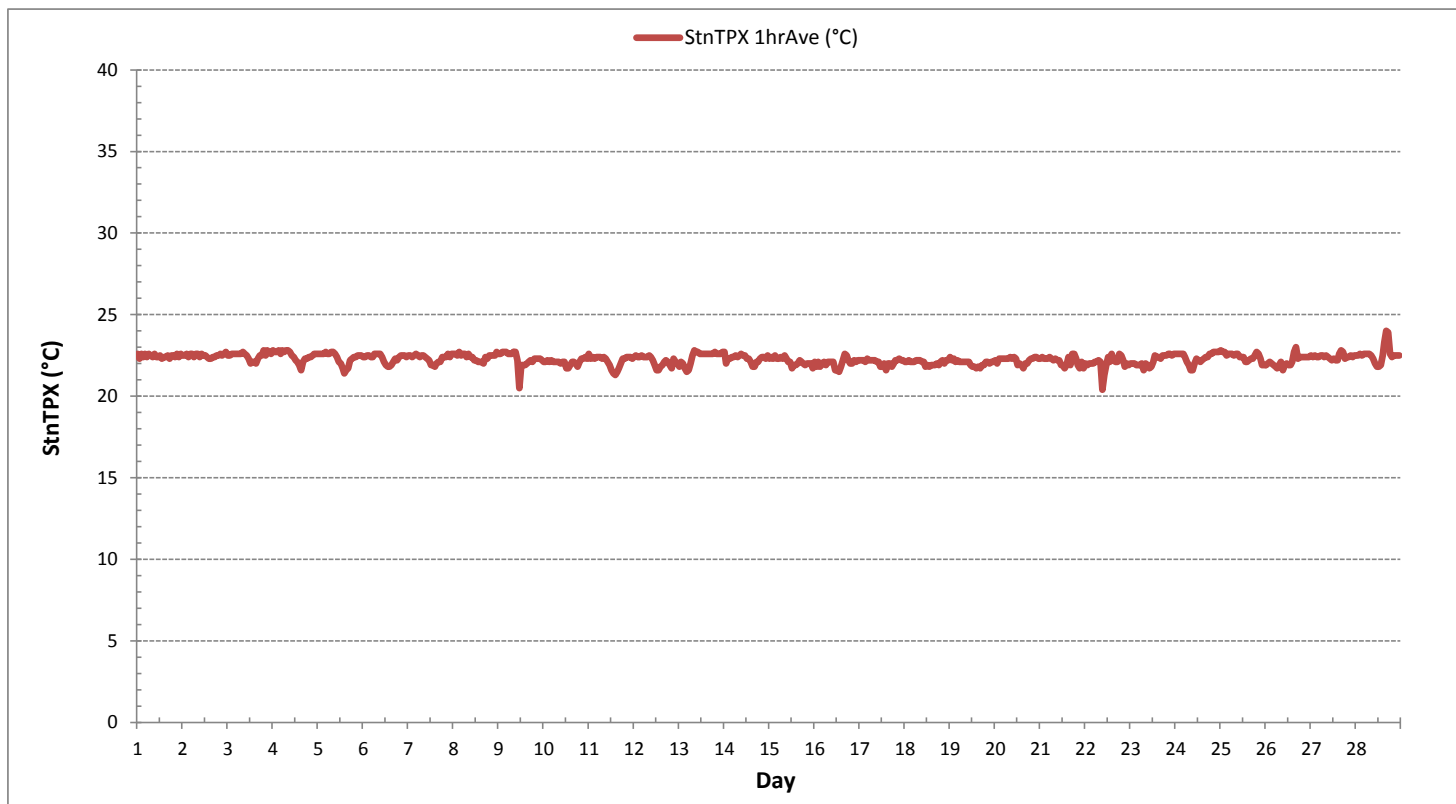
24 HR AVERAGES February 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	20.4	°C	@ HOUR	9	ON DAY	22
MAXIMUM 1-HR AVERAGE:	24.0	°C	@ HOUR	16	ON DAY	28
MAXIMUM 24-HR AVERAGE:	22.6	°C			ON DAY	28
OPERATIONAL TIME:						672 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	0.3		MONTHLY AVERAGE:		22.3	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A Sulphur Dioxide Analyzer Calibration

Date:	February 22, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.91	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	20.64	°C
Location/Station Name:	RENO	Weather Conditions:	Mainly sunny		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	10:00	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	14:40	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		

Analyzer:	ID# or Serial Number:	841	Range ppb:	500
	Last Calibration Date:	January 9, 2018	As Found C.F.:	0.987
	Previous C.F.:	0.999	New C.F.:	1.000

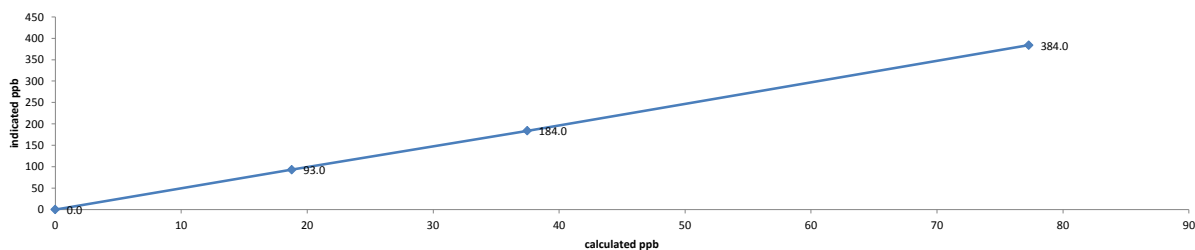
Calibration Standards:	Standard Calibration Points for Ranges		
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018	Point	ppb
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018	High	380
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires May 16, 2018	Mid	180
Cal Gas Cylinder I.D. #:	EY0000769	Low	90
Cal Gas Conc. (ppm):	50.5		

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015						
Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	4919	0.00	4919	0.0	-1.2	n/a
as found high	4865	37.28	4902	384.1	388.0	0.987
adjusted zero	4919	0.00	4919	0.0	0.0	n/a
adjusted high	4865	37.28	4902	384.1	384.0	1.000
mid	4881	17.78	4899	183.3	184.0	0.996
low	4908	9.08	4917	93.3	93.0	1.003
calibrator zero	4919	0.00	4919	0.0	1.0	n/a
Average C.F.=						1.000

Linear Regression/Calibration Results:

LIMITS	
Correlation Coefficient =	1.000 > or = 0.995
Slope =	1.000 0.95-1.05
b (Intercept as % of full scale)=	-0.01% ± 3% F.S.
% change in C.F. from last cal=	1.22% ± 10%

API 100A Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Slope:	1.183	Slope:	1.166
Offset:	42.9 MV	Offset:	40.5 MV
Hvps:	763 V	Hvps:	763 V
Dcps:	2560 MV	Dcps:	2560 MV
Rcell Temp:	50.8 °C	Rcell Temp:	50.0 °C
Box Temp:	33.4 °C	Box Temp:	31.6 °C
Pmt Temp:	7.0 °C	Pmt Temp:	7.1 °C
Izs Temp:	45.0 °C	Izs Temp:	45.2 °C
Pres:	25.1 IN-HG-A	Pres:	25.0 IN-HG-A
Samp Fl:	680 CC/M	Samp Fl:	681 CC/M
Pmt:	63.0 MV	Pmt:	65.6 MV
Uv Lamp:	2025.0 MV	Uv Lamp:	1995 MV
Lamp Ratio:	108.0 %	Lamp Ratio:	106.2 %
Str Lgt:	25.4 PPB	Str Lgt:	26.3 PPB
Drk Pmt:	25.7 MV	Drk Pmt:	25.5 MV
Drk Lmp:	-17.1 MV	Drk Lmp:	-17.3 MV
Expected Value:	315.0	Expected Value:	307.9

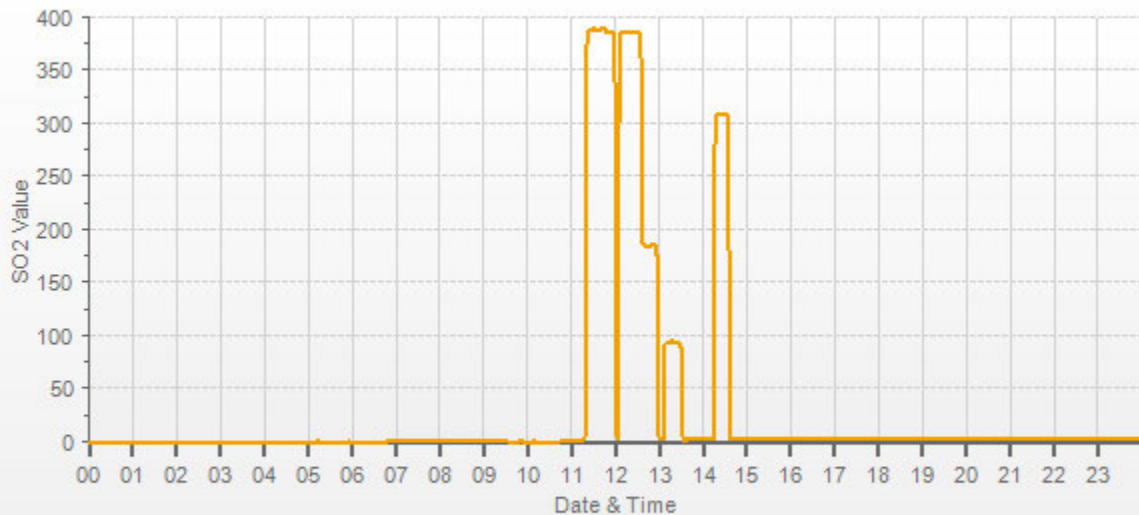
Comments:

The analyzer sample inlet filter was changed.

The manifold blower was found to be working normally.

The daily Z/S triggered during the "Adjusted High" point. The "Adjusted High" point was repeated after the daily Z/S.

SO2[ppb] Station: PRAMP_RENO Daily: 18/02/22 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	February 22, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.91	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	20.64	°C
Location/Station Name:	RENO	Weather Conditions:	Mainly sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	10:00	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	15:50	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD NOVA-CDN 101#534		

Analyzer:	ID# or Serial Number:	1162460022	Range ppb:	100
	Last Calibration Date:	January 9, 2018	As Found C.F.:	1.008
	Previous C.F.:	1.000	New C.F.:	1.000

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018	Start/End Time 24 hr.:	10:45/10:55
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	EnviroNics id# 1991 expires March 16, 2018	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

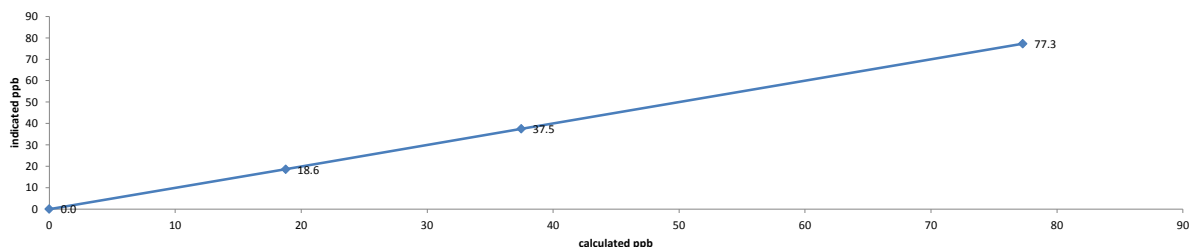
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7575	0.00	7575	0.0	0.0	n/a
as found high	7507	59.68	7567	77.3	76.7	1.008
adjusted zero	7575	0.00	7575	0.0	0.0	n/a
adjusted high	7507	59.68	7567	77.3	77.3	1.000
mid	7545	28.96	7574	37.5	37.5	0.999
low	7566	14.53	7581	18.8	18.6	1.010
calibrator zero	7575	0.00	7575	0.0	0.1	n/a
Average C.F. =						1.003

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	1.000	> or = 0.995
Slope =	0.999	0.95-1.05
b (Intercept as % of full scale) =	0.07%	± 3% F.S.
% change in C.F. from last cal =	-0.77%	± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
Bkg:	2.26	Bkg:	2.27
Coef:	0.949	Coef:	0.951
Pmt:	-706.3 V	Pmt:	-706.3 V
Flash:	1006 V	Flash:	1013 V
Internal:	33.2 °C	Internal:	33.0 °C
Chamber:	44.9 °C	Chamber:	44.9 °C
Perm Oven Gas:	35.0 °C	Perm Oven Gas:	35.0 °C
Perm Oven Heater:	34.14 °C	Perm Oven Heater:	34.14 °C
Pressure:	643.7 mmHg	Pressure:	643.7 mmHg
Sample Flow:	0.412 L/Min	Sample Flow:	0.412 L/Min
Lamp Intensity:	83 %	Lamp Intensity:	83 %
Converter:	825 °C	Converter:	825 °C
Converter Set:	825 °C	Converter Set:	825 °C
Averaging Time:	120 Sec	Averaging Time:	120 Sec
Expected Value:	69.4	Expected Value:	69.2

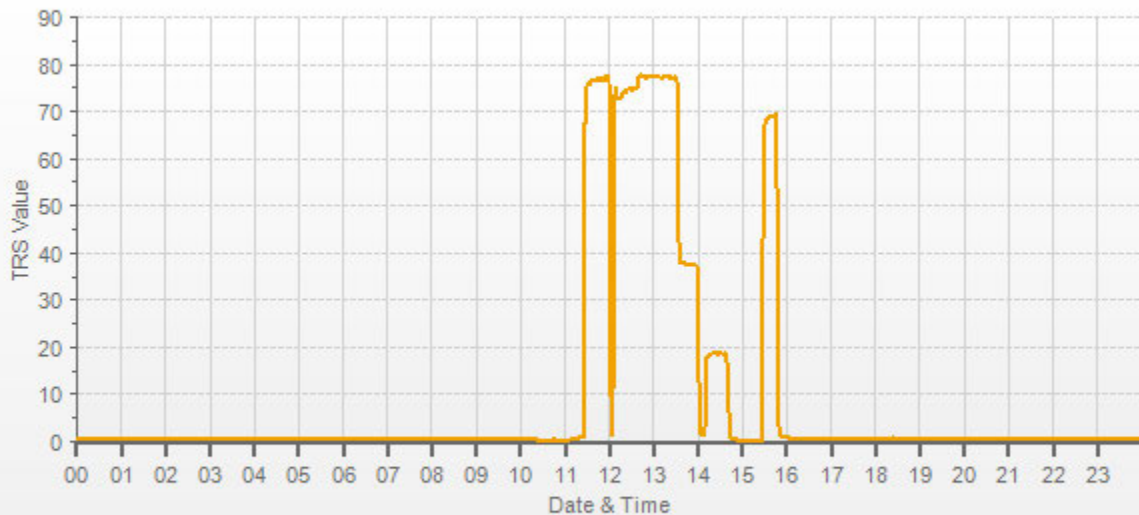
Comments:

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

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

The daily Z/S triggered during the "Adjusted High" point. The "Adjusted High" point was repeated after the daily Z/S.

TRS[ppb] Station: PRAMP_RENO Daily: 18/02/22 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	February 22, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.91	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	20.64	°C
Location/Station Name:	RENO	Weather Conditions:	Mainly sunny		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	routine monthly		
Start/End Time 24 hr. (mst):	14:00/17:25	Performed By/Reviewer:	Limin Li	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:		Correction Factors:			
ID# or Serial Number:	1314057759	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow:	1298 sccm	CH ₄ =	1.000	1.018	1.003
Last Calibration Date:	January 10, 2018	NMHC =	1.000	1.003	1.004
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.000	1.010	1.003

Calibration Standards:				
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018			
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018			
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires May 16, 2018			
Cal Gas Cylinder I.D. # :	LL168404			
CH4 Cylinder Conc.=	597.0	206.0	=C3H8 Cylinder Conc.	
CH4 expressed as C3H8=	566.5	1163.5	=total CH4 equivalent	

Standard Calibration Points for Analyzer Range of 20/20/40 ppm				
Point	CH4	NMHC	THC	
High	13.00	13.00	26.00	
Mid	7.00	7.00	14.00	
Low	3.00	3.00	6.00	

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015												
Calibrator Flow Rates (cc/min)				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	2454	0.00	2454	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2386	60.63	2447	14.79	14.04	28.83	14.53	14.00	28.53	1.018	1.003	1.010
adjusted zero	2454	0.00	2454	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2386	60.63	2447	14.79	14.04	28.83	14.75	13.98	28.73	1.003	1.004	1.003
mid	2424	30.51	2455	7.42	7.04	14.46	7.40	7.05	14.45	1.003	0.999	1.001
low	2447	15.51	2463	3.76	3.57	7.33	3.77	3.57	7.34	0.997	0.999	0.998
calibrator zero	2454	0.00	2454	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F.=										1.001	1.001	1.001

Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995	
Slope =	0.997	0.996	0.996	0.95-1.05	
b (Intercept as % of full scale) =	0.04%	0.07%	0.06%	± 3% F.S.	
% change in C.F. from last cal =	-1.80%	-0.26%	-1.05%	± 10%	

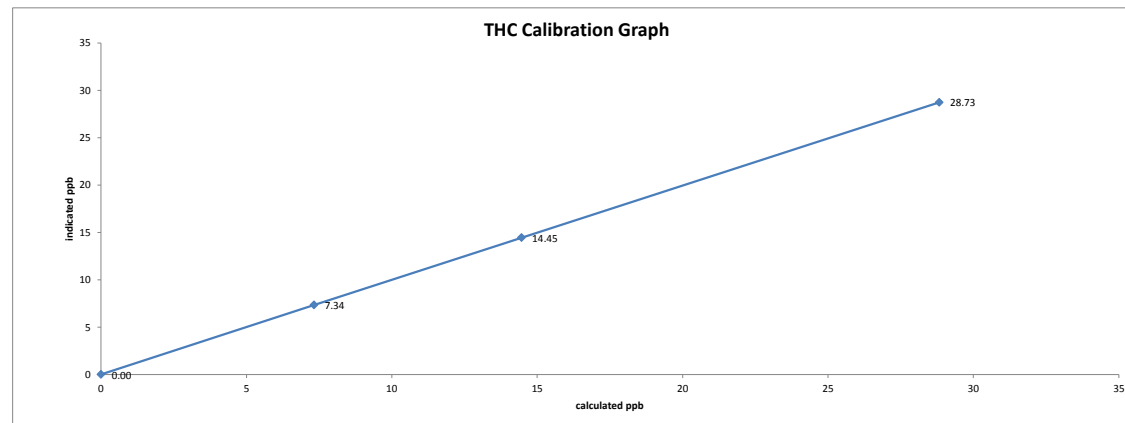
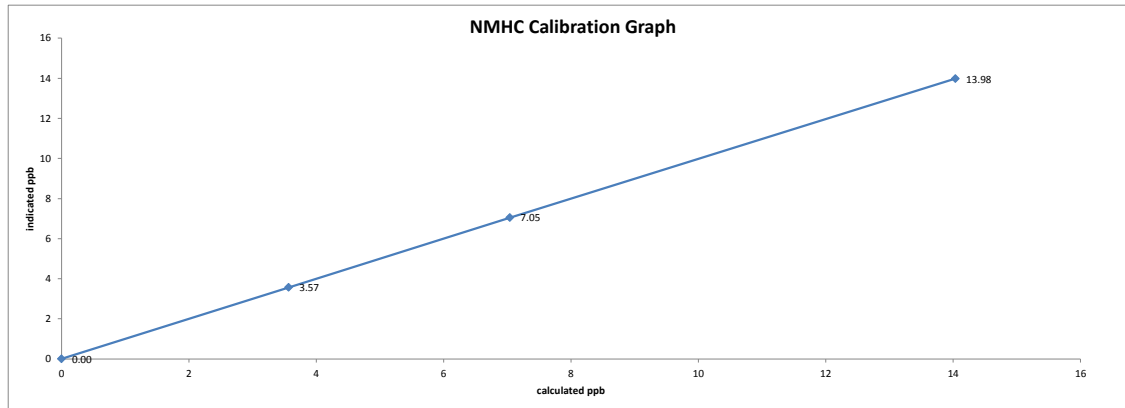
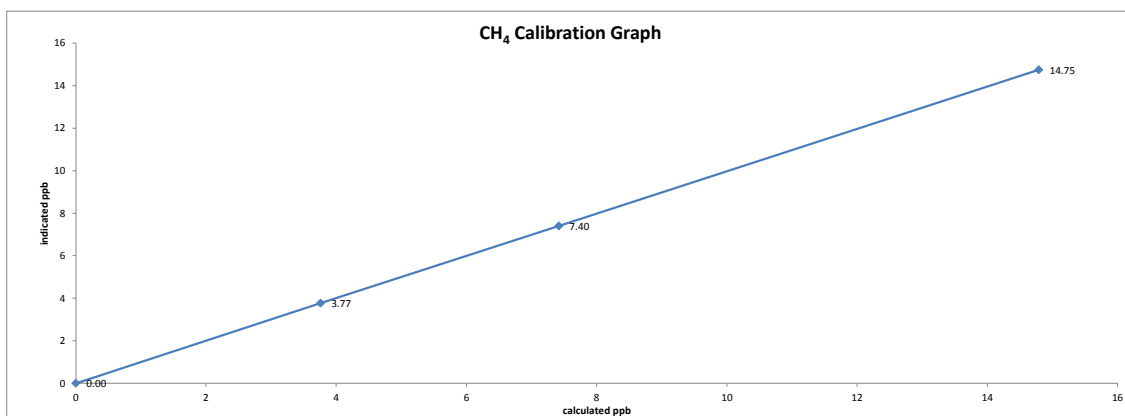
As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-289.9	Calibration History cnt'd:	NM Peak Area:	87913						
Temperatures:	Detector Oven:	175.0 °C	Crucial Settings:	Methane Start:	8						
	Filter:	175.0 °C		Methane End:	16						
	Column Oven:	75.0 °C		Backflush:	18						
	Internal:	34.0 °C		NMHV Start:	26						
Cylinder Pressures/reg.:	Carrier:	1250	50	NMHC End:	56						
	Fuel:	1900	50	Date:	22FEB18						
	Span Gas:	1800	16	Time:	10:36						
	Zero Air Generator:	47		CH ₄ PK HT:	2672						
Internal Pressures:	Carrier:	31.3		CH ₄ RT:	11.6						
	Fuel:	41.6		CH ₄ Baseline:	2155						
	Air:	25.9		CH ₄ LOD:	72						
FID Status:	Status:	LIT		CH ₄ SD:	24						
	Counts:	25456		CH ₄ CONC:	2.03						
	Flame:	405.0 °C		NM PK HT:	0						
	Det Base:	175.0 °C		NM Peak Area:	0						
Flame and Power Stats:	Last Power On:	20DEC2017		NM CONC:	0						
	Flameouts:	1		NM Base Start:	2122						
	Det Oven at Start:	106.8		NM Base End:	2124						
	Col Oven at Start:	59.7		NM LOD:	20						
Calibration History:	Time:	10JAN18 10:09		NM Start IDX:	6						
	Type:	SPAN		NM End IDX:	55						
	Status:	GOOD		NM Max Slope:	9.2E-01						
	Check/Adjust:	ADJUST		NM Min Slope:	-6.5E-01						
	CH ₄ Span Conc:	14.72		NM PT Count:	0						
	CH ₄ SP Ratio:	0.00076		Expected Values:	Previous CH ₄ :	10.06					
	CH ₄ RT:	11.6			Previous NMHC:	11.2					
	CH ₄ PK IDX:	18			Previous THC:	21.3					
	CH ₄ PK HT:	19376			New CH ₄ :	10.06					
	NM Span Conc:	13.98			New NMHC:	11.20					
	NM SP Ratio:	0.000159			New THC:	21.30					

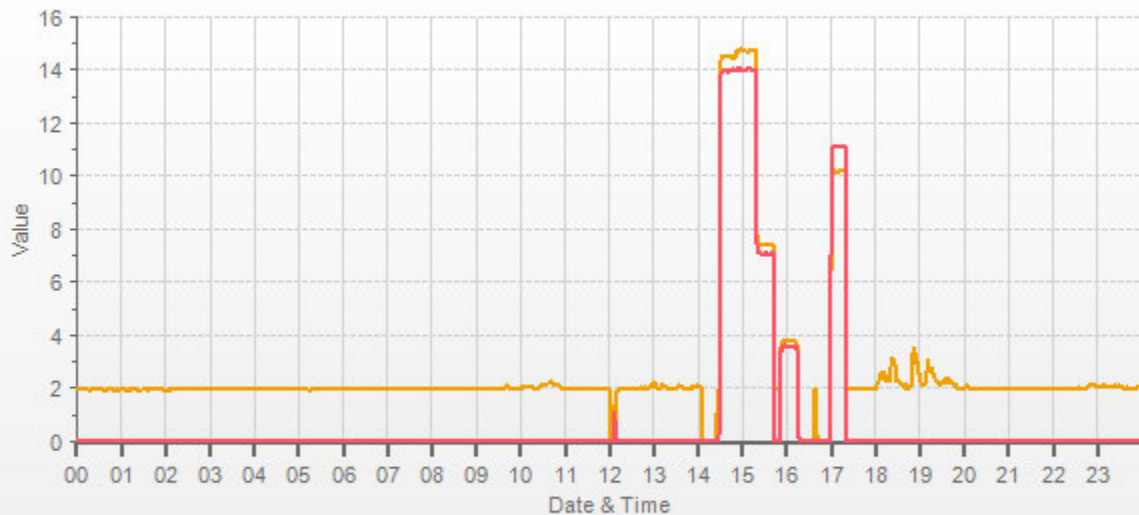
Comments:	
The analyzer sample inlet filter was changed.	
A new hydrogen cylinder was installed.	
The analyzer cooling fan filter(s) were cleaned.	
The manifold blower was found to be working normally.	
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.	

H2 gas was changed at 12:10 pm, before starting the calibration.

Date: February 22, 2018
Company/Airshed: PRAMP
Location/Station Name: RENO

Start/End Time 24 hr. (mst): 14:00/17:25
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution





CH4[ppm] NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

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

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

Wind Sensor Information

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

Wind Calibrator Information

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

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.4	0.999
2000	36.9	36.8	36.8	1.003
3000	55.3	55.1	55.1	1.003
4000	73.7	73.5	73.5	1.002
5000	92.2	92.0	92.0	1.003
6000	110.6	110.4	110.4	1.002
7000	129.0	128.9	128.9	1.001
8000	147.4	147.3	147.3	1.001
9000	165.9	165.9	165.9	1.000
10000	184.3	184.4	184.4	0.999
The audit meets AMD requirements.			Average Correction Factor=	1.001

Wind Direction Audit Data ****+/- 5° of the absolute average degrees difference for all points is the limit****

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.2	1.7	0.9
30	330	30	328	0.4	2.1	1.3
60	300	61	299	-0.8	1.2	1.0
90	270	91	269	-1.1	0.9	1.0
120	240	121	240	-1.3	0.2	0.7
150	210	151	211	-1.2	-0.7	0.9
180	180	181	181	-1.3	-1.2	1.3
210	150	211	151	-0.7	-1.4	1.1
240	120	240	121	0.0	-1.4	0.7
270	90	270	91	0.5	-1.1	0.8
300	60	299	61	1.3	-0.9	1.1
330	30	328	30	2.2	0.3	1.3
355	0	353	0	1.7	0.2	0.9
The audit meets AMD requirements.			Average Absolute Degrees Difference=			1.0

Comments: Wind speed gain adjusted before calibration.

CALIBRATORS

Company <u>Maxxam</u>		Operator: <u>Mike</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>EnviroNics 2000</u>	Make/Model	<u>Bios Defender 530</u>
Serial Number	<u>1991</u>	Serial Number	<u>HI148944 Lo 152019</u>
Last Verification Date	<u>March 31, 2016</u>	Temperature (°C)	<u>24.5</u>
NO Cylinder S/N	<u>EY0000597</u>	Barometric Pressure	<u>699</u>
NO [PPM]	<u>49.0</u> NOx [PPM] <u>49.0</u>		
Expiry Date	<u>December 8, 2019</u>		

Dilution Flow (sccm)			
Pt. #1 <u>4902</u>	Pt. #2 <u>4935</u>	Pt. #3 <u>4957</u>	
Gas Flow (sccm)			
Pt. #1 <u>79.3</u>	Pt. #2 <u>38.7</u>	Pt. #3 <u>19.4</u>	

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4976	0.0	0.0000	0.0000	0.0001	0.0000	0.0001	Limit ± 10%	
4981	79.3	0.7801	0.7801	0.7898	0.0000	0.7898	1%	1%
4972	38.7	0.3814	0.3814	0.3841	0.0002	0.3843	1%	1%
4976	19.4	0.1910	0.1910	0.1913	0.0003	0.1916	0%	0%
Absolute Average Percent Difference							1%	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)= 1.0130	0.90-1.10	m (Slope)= 1.0129
b (Intercept % of FS)= -0.1190	± 3% F.S.	b (Intercept % of FS)= -0.1029

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4981	0.000	0.0000	0.7925	-0.0001	0.7924	NO ₂	% Diff. Limit
4981	0.400	0.5347	0.2578	0.5279	0.7857	-1%	± 10%
4981	0.200	0.2490	0.5435	0.2478	0.7913	0%	± 10%
4981	0.090	0.1090	0.6835	0.1095	0.7927	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)= 0.9864	0.90-1.10	
b (Intercept % of FS)= 0.1136	± 3% F.S.	

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

COMMENTS: Gas has ~50ppm SO2

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: March 16, 2017
Location: McIntyre Center Edmonton

Company <u>Maxxam</u>		Operator: <u>Micheal Espiritu</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>Mesa Defender 530</u>
Serial Number	<u>17200415</u>	Serial Number	<u>L-152019 H-148944</u>
Last Verification Date	<u>May 2016</u>	Temperature (°C)	<u>25.0 C</u>
NO Cylinder S/N	<u>EY0000597</u>	Barometric Pressure	<u>697 mmhg</u>
NO [PPM]	<u>49.0</u>	NOx [PPM]	<u>49.0</u>
Expiry Date	<u>December 2019</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
5028	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4930	78.7	0.783	0.783	0.809	-0.012	0.797	3%	2%
4936	38.6	0.383	0.383	0.396	-0.006	0.390	3%	2%
4935	19.4	0.193	0.193	0.199	-0.003	0.196	3%	2%
Absolute Average Percent Difference							3%	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)= 1.0334	0.90-1.10	m (Slope)= 1.0181
b (Intercept % of FS)= -0.0105	± 3% F.S.	b (Intercept % of FS)= -0.0148

Flow	O ₂ Conc (LC)	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4930	0.000	0.000	0.806	-0.013	0.795	NO ₂	% Diff. Limit
4930	1.425	0.523	0.283	0.511	0.794	0%	± 10%
4930	0.825	0.278	0.528	0.266	0.795	0%	± 10%
4930	0.386	0.095	0.711	0.085	0.796	3%	± 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)= 0.9998	0.90-1.10
b (Intercept % of FS)= -1.1702	± 3% F.S.

AENV Standards		NO_x Analyzer	
Audit Calibrator			
Make/Model	<u>Teco 146i</u>	Make/Model	<u>Teco 42i</u>
Serial/AMU Number	<u>AMU 1809</u>	Serial/AMU Number	<u>AMU 1868</u>
SRM Gas Cylinder No.	<u>CAL018101</u>	Last Calibration Date	<u>May 16, 2017</u>
Cylinder Conc. (ppm)	<u>48.79</u>	Full Scale (ppm)	<u>1.0</u>
		Cylinder Gas Expiry Date	<u>March 2019</u>

COMMENTS: Contains 50.4 ppm SO₂.

Auditor: Al Clark
Operator Signature: [Signature]

Date: May 16, 2017
Location: McIntyre Center Edmonton

CALIBRATION GASES



Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel:(323)585-2154 Fax:(714)542-6689
PGVP ID: F22017

DocNumber: 000113684

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR PKG EDMONTON PLT 80206
9501 34TH ST
EDMONTON AB T6B 2X6

Praxair Order Number: 41300919
Customer PO Number: 582-112
Customer Reference Number:

Fill Date: 8/11/2017
Part Number: NI HS10ME-AO
Lot Number: 70086722303
Cylinder Style and Outlet: AO CGA 330
Cylinder Pressure and Volume: 2200 psig 84 cu. ft.

Certified Concentration:

Expiration Date:	08/23/2020	NIST Traceable
Cylinder Number:	LL119500	Expanded Uncertainty:
9.8 ppm	HYDROGEN SULFIDE	± 1.3 %
Balance	NITROGEN	

Certification Information: Certification Date : 8/23/2017 Term : 36 Months Expiration Date : 08/23/2020

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1.
Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component:

HYDROGEN SULFIDE

Requested Concentration: 10 ppm
Certified Concentration: 9.8 ppm
Instrument Used: INTERSCAN RM-17 S/N 715726
Analytical Method: ELECTROLYTIC CELL
Last Multipoint Calibration: 08/21/2017

Reference Standard Type: GMIS
Ref. Std. Cylinder #: ND04683
Ref. Std. Conc: 20.19 PPM
Ref. Std. traceable to SRM #: 2730
SRM Sample #: 66-E-70
SRM Cylinder #: CAL015447

First Analysis Data:				Date:	08/15/2017
Z:	0	R:	44.43	C:	21.65
Conc:	9.83				
R:	44.45	Z:	0	C:	21.64
Conc:	9.83				
Z:	0	C:	21.64	R:	44.45
Conc:	9.83				
UOM:	ppm	Mean Test Assay:			
		9.83 ppm			

Second Analysis Data:				Date:	08/23/2017
Z:	0	R:	44.02	C:	21.3
Conc:	9.77				
R:	44.01	Z:	0	C:	21.32
Conc:	9.78				
Z:	0	C:	21.32	R:	44.01
Conc:	9.78				
UOM:	ppm	Mean Test Assay:			
		9.78 ppm			

Analyzed by:

Pupongmontre Pete

Certified by:

Ying Yu



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-436CGA

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

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

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

Make/Model: Thermo 146i
Serial Number: AMU 1809
Last Verification Date: January 26, 2017
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625
Expiry Date: January 5, 2019

Flow Measurement Device:

Make/Model: Bios Befiner 220
Serial Number: AMU1941
Temp. °C: 24.4
B.P. 704.7

Reference Analyzer:

Make/Model: Themro 43C Serial/AMU Number: AMU 1623
Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0
Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

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

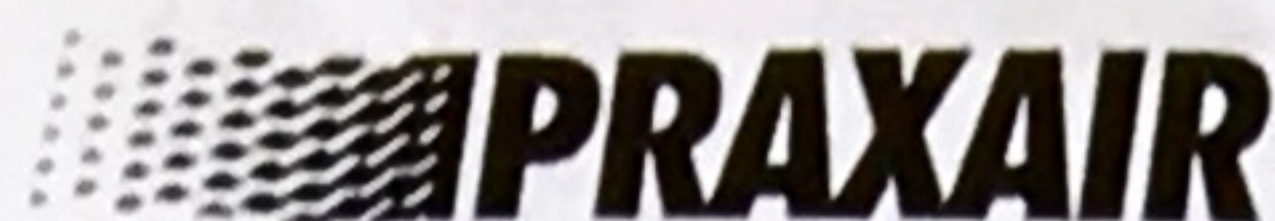
Previous Stated Concentration PPM: 50.5

Percent variance from Stated: 0.2

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

Auditor: Shea Beaton
Operator Signature: _____

Date: January 26, 2017
Location: McIntyre Center Edmonton



Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax: (714) 542-6689
PGVPID: F22017

DocNumber: 000116092

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

MAXXAM ANALYTICS INC
500 1919 MINNESOTA CRT
MISSISSAUGA ON L5N 0C

Praxair Order Number: 44723832
Customer P. O. Number: PO0000001677
Customer Reference Number:

Fill Date: 10/13/2017
Part Number: NI ME600P2E-AQ
Lot Number: 70086728604
Cylinder Style & Outlet: AQ CGA 350
Cylinder Pressure & Volume: 2200 psig 82 cu. ft.

Certified Concentration:

Expiration Date:	10/18/2025	NIST Traceable
Cylinder Number:	LL168404	Analytical Uncertainty:
206 ppm	PROPANE	± 0.6 %
597 ppm	METHANE	± 0.3 %
Balance	NITROGEN	

Certification Information: Certification Date: 10/18/2017 Term: 96 Months Expiration Date: 10/18/2025

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: PROPANE

Requested Concentration: 200 ppm
Certified Concentration: 206 ppm
Instrument Used: MKS Multigas 2031 FTIR
Analytical Method: Fourier Transform Infrared
Last Multipoint Calibration: 10/15/2017

First Analysis Data:	Date:	10/17/2017
Z: 0 R: 246.85 C: 198.95 Conc: 205.96		
R: 246.89 Z: 0 C: 198.95 Conc: 205.96		
Z: 0 C: 198.76 R: 246.96 Conc: 205.77		
UOM: ppm	Mean Test Assay:	205.9 ppm

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC113142
Ref. Std. Conc: 255.6 ppm
Ref. Std. Traceable to SRM #: 2644a
SRM Sample #: 101-C-45
SRM Cylinder #: XF003829B

Second Analysis Data:	Date:	
Z: 0 R: 0 C: 0 Conc: 0		
R: 0 Z: 0 C: 0 Conc: 0		
Z: 0 C: 0 R: 0 Conc: 0		
UOM: ppm	Mean Test Assay:	0 ppm

2. Component: METHANE

Requested Concentration: 600 ppm
Certified Concentration: 597 ppm
Instrument Used: MKS Multigas 2031 FTIR
Analytical Method: Fourier Transform Infrared
Last Multipoint Calibration: 9/27/2017

First Analysis Data:	Date:	10/17/2017
Z: 0 R: 934.60 C: 561.46 Conc: 595.43		
R: 934.66 Z: 0 C: 564.32 Conc: 598.46		
Z: 0 C: 562.42 R: 931.33 Conc: 596.44		
UOM: ppm	Mean Test Assay:	596.78 ppm

Reference Standard Type: GMIS
Ref. Std. Cylinder #: DT0010335
Ref. Std. Conc: 990 ppm
Ref. Std. Traceable to SRM #: RGM#DT00
SRM Sample #: N/A
SRM Cylinder #: DT0007710

Second Analysis Data:	Date:	
Z: 0 R: 0 C: 0 Conc: 0		
R: 0 Z: 0 C: 0 Conc: 0		
Z: 0 C: 0 R: 0 Conc: 0		
UOM: ppm	Mean Test Assay:	0 ppm

Analyzed by:

Jenna Lockman

Certified by:

Jose Vasquez

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

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

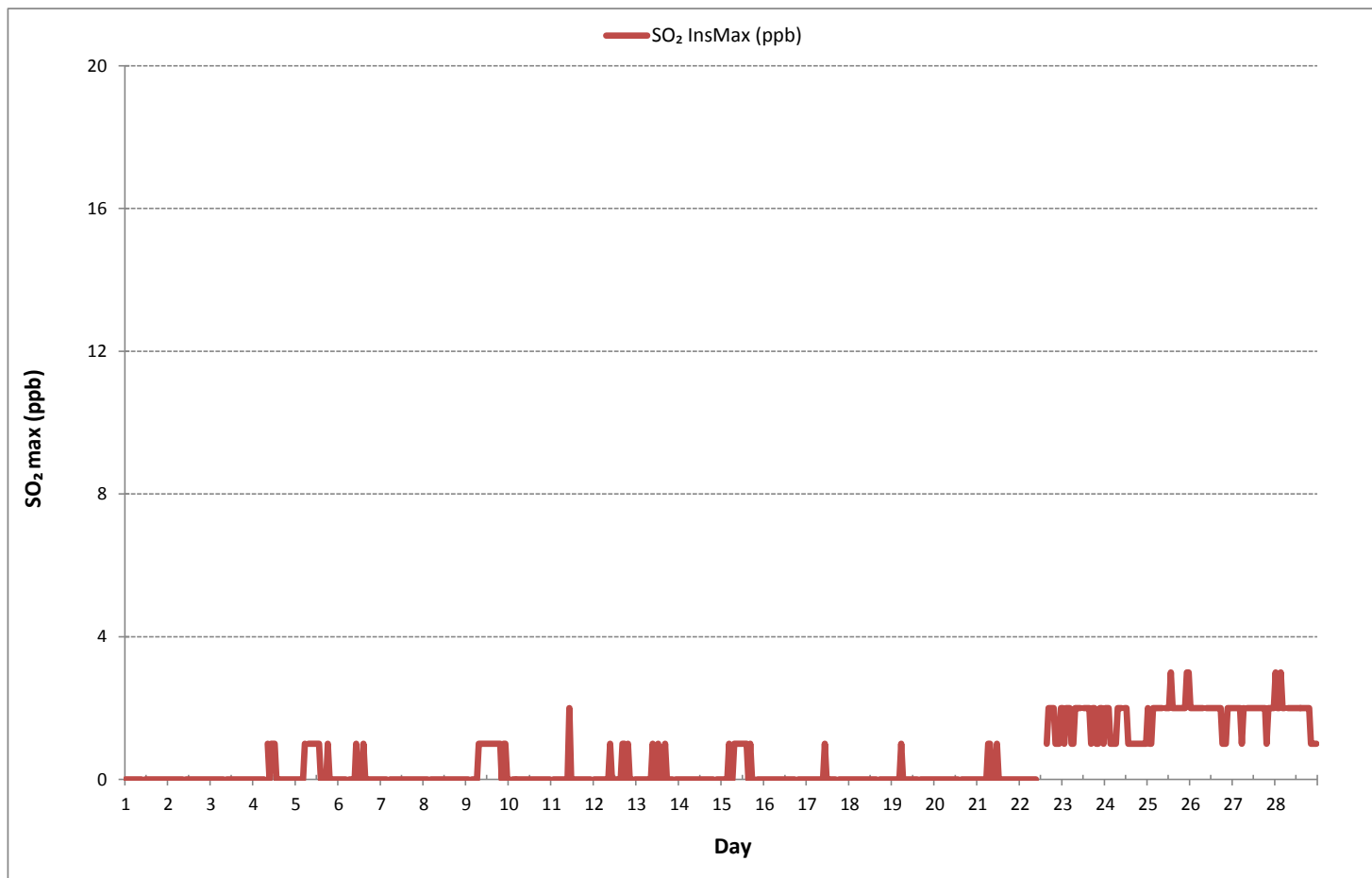
STATUS FLAG CODES

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:	200				
MAXIMUM INSTANTANEOUS VALUE:	3	ppb	@ HOUR	13	ON DAY 25
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	672	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	1				

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY																												
1	0.55	0.47	0.47	0.52	0.55	0.50	0.52	0.47	0.45	0.47	S	0.58	0.49	0.47	0.50	0.47	0.50	0.45	0.45	0.50	0.45	0.45	0.47	0.45	0.45	0.58	0.49	24
2	0.47	0.52	0.47	0.45	0.44	0.45	0.47	0.49	0.44	S	0.58	0.49	0.47	0.47	0.47	0.47	0.47	0.44	0.44	0.47	0.45	0.47	0.47	0.45	0.44	0.58	0.47	24
3	0.47	0.42	0.44	0.50	0.45	0.47	0.47	0.50	S	0.55	0.55	0.52	0.49	0.50	0.52	0.60	0.45	0.50	0.47	0.60	0.52	0.52	0.50	0.58	0.42	0.60	0.50	24
4	0.71	0.71	0.50	0.58	0.50	0.52	0.50	S	0.60	0.52	0.52	0.55	0.52	0.52	0.65	0.60	0.58	0.55	0.52	0.52	0.55	0.60	0.58	0.63	0.50	0.71	0.57	24
5	0.89	0.91	0.81	0.65	0.65	0.89	S	1.05	0.86	0.84	0.63	0.58	0.55	0.70	0.60	0.54	0.60	0.60	0.55	0.52	0.60	0.63	0.63	0.60	0.52	1.05	0.69	24
6	0.57	0.58	0.58	0.58	0.52	S	0.86	0.58	0.63	0.86	1.31	1.08	1.02	0.71	0.78	0.81	0.78	0.65	0.65	0.65	0.52	0.52	0.52	0.50	0.50	1.31	0.71	24
7	0.52	0.52	0.52	0.52	S	0.65	0.52	0.55	0.50	0.47	0.50	0.47	0.50	0.52	0.50	0.49	0.55	0.55	0.52	0.52	0.52	0.57	0.60	0.50	0.47	0.65	0.53	24
8	0.50	0.50	0.50	S	0.63	0.55	0.55	0.52	0.55	0.52	0.55	0.52	0.50	0.50	0.55	0.58	0.52	0.55	0.55	0.52	0.58	0.57	0.60	0.68	0.50	0.68	0.55	24
9	0.52	0.63	S	0.68	0.58	0.63	0.55	0.58	0.58	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.58	0.58	0.58	0.52	0.55	0.55	0.52	0.52	0.68	0.57	24
10	0.52	S	0.71	0.55	0.52	0.55	0.50	0.55	0.52	0.52	0.52	0.52	0.52	0.55	0.50	0.52	0.47	0.52	0.47	0.50	0.47	0.47	0.50	0.45	0.45	0.71	0.52	24
11	S	0.52	0.49	0.49	0.47	0.47	0.47	0.47	0.47	0.86	2.09	0.58	0.55	0.58	0.58	0.52	0.58	0.76	0.73	1.10	0.71	0.65	0.68	S	0.47	2.09	0.67	24
12	0.68	0.50	0.50	0.49	0.58	0.63	0.63	0.60	0.50	0.58	0.47	0.54	0.50	0.44	0.47	0.49	0.52	0.81	0.71	0.73	0.60	0.50	S	0.55	0.44	0.81	0.57	24
13	0.47	0.43	0.44	0.43	0.45	0.45	0.45	0.44	0.45	0.44	0.42	0.44	0.42	0.42	0.42	0.44	0.44	0.42	0.42	0.42	0.44	S	0.52	0.42	0.42	0.52	0.44	24
14	0.44	0.43	0.44	0.47	0.50	0.43	0.40	0.44	0.44	0.44	0.47	0.47	0.47	0.50	0.47	0.47	0.47	0.52	0.47	0.58	S	0.63	0.50	0.50	0.40	0.63	0.48	24
15	0.47	0.50	0.50	0.50	0.50	0.47	0.50	0.52	0.52	0.52	0.58	0.63	0.60	0.52	0.58	0.47	0.60	0.57	0.45	S	0.55	0.47	0.55	0.52	0.45	0.63	0.53	24
16	0.55	0.50	0.47	0.47	0.52	0.45	0.52	0.45	0.47	0.47	0.43	0.45	0.45	0.43	0.43	0.43	0.45	0.42	S	0.55	0.44	0.44	0.44	0.45	0.42	0.55	0.46	24
17	0.44	0.47	0.52	0.47	0.55	0.47	0.47	0.52	0.50	0.47	0.45	0.44	0.44	0.44	0.45	0.47	0.47	S	0.52	0.47	0.47	0.47	0.45	0.47	0.44	0.55	0.47	24
18	0.47	0.47	0.44	0.49	0.50	0.47	0.47	0.45	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.44	S	0.52	0.47	0.49	0.47	0.47	0.47	0.47	0.44	0.52	0.47	24
19	0.50	0.50	0.50	0.47	0.50	0.52	0.50	0.50	0.50	0.52	0.50	0.50	0.47	0.47	0.52	S	0.60	0.50	0.50	0.50	0.55	0.52	0.47	0.52	0.47	0.60	0.51	24
20	0.49	0.50	0.50	0.47	0.47	0.47	0.44	0.44	0.47	0.44	0.44	0.43	0.44	0.44	S	0.60	0.49	0.49	0.50	0.50	0.52	0.47	0.47	0.52	0.43	0.60	0.48	24
21	0.52	0.52	0.49	0.47	0.52	0.55	0.65	0.60	0.58	0.52	0.52	0.50	0.52	S	0.63	0.55	0.52	0.52	0.52	0.52	0.49	0.52	0.47	0.47	0.47	0.65	0.53	24
22	0.47	0.50	0.52	0.49	0.52	0.52	0.58	0.50	0.60	0.60	C	C	C	C	C	C	0.81	0.55	0.84	0.84	0.47	0.50	0.47	0.52	0.47	0.84	0.57	24
23	0.50	0.50	0.50	0.94	0.47	0.54	0.55	0.47	0.45	0.47	0.44	S	0.55	0.44	0.45	0.45	0.43	0.42	0.45	0.45	0.42	0.40	0.42	0.44	0.40	0.94	0.48	24
24	0.44	0.45	0.47	0.47	0.47	0.47	0.52	0.47	0.43	0.45	S	0.49	0.45	0.44	0.43	0.45	0.47	0.50	0.44	0.45	0.47	0.49	0.47	0.47	0.43	0.52	0.46	24
25	0.45	0.42	0.42	0.47	0.42	0.40	0.40	0.47	0.58	S	0.47	0.50	0.44	0.47	0.47	0.44	0.43	0.47	0.47	0.44	0.42	0.40	1.28	1.25	0.40	1.28	0.52	24
26	0.84	0.54	0.47	0.44	0.43	0.47	0.45	0.65	S	0.84	0.47	0.47	0.45	0.50	0.45	0.47	0.42	0.42	0.44	0.44	0.47	0.44	0.44	0.44	0.42	0.84	0.50	24
27	0.43	0.43	0.43	0.40	0.43	0.42	0.40	S	0.43	0.40	0.44	0.40	0.40	0.43	0.40	0.44	0.42	0.42	0.43	0.44	0.45	0.47	0.47	0.45	0.40	0.47	0.43	24
28	0.97	0.47	0.47	0.86	0.65	0.47	S	0.49	0.47	0.43	0.45	0.43	0.47	0.43	0.44	0.41	0.47	0.42	0.60	0.57	0.43	0.43	0.43	0.40	0.40	0.97	0.51	24
HOURLY MAX	0.97	0.91	0.81	0.94	0.65	0.89	0.86	1.05	0.86	0.86	2.09	1.08	1.02	0.71	0.78	0.81	0.81	0.81	0.84	1.10	0.71	0.65	1.28	1.25				
HOURLY AVG	0.55	0.52	0.50	0.53	0.51	0.51	0.51	0.53	0.52	0.55	0.59	0.52	0.51	0.50	0.51	0.51	0.52	0.52	0.52	0.55	0.50	0.50	0.53	0.53				

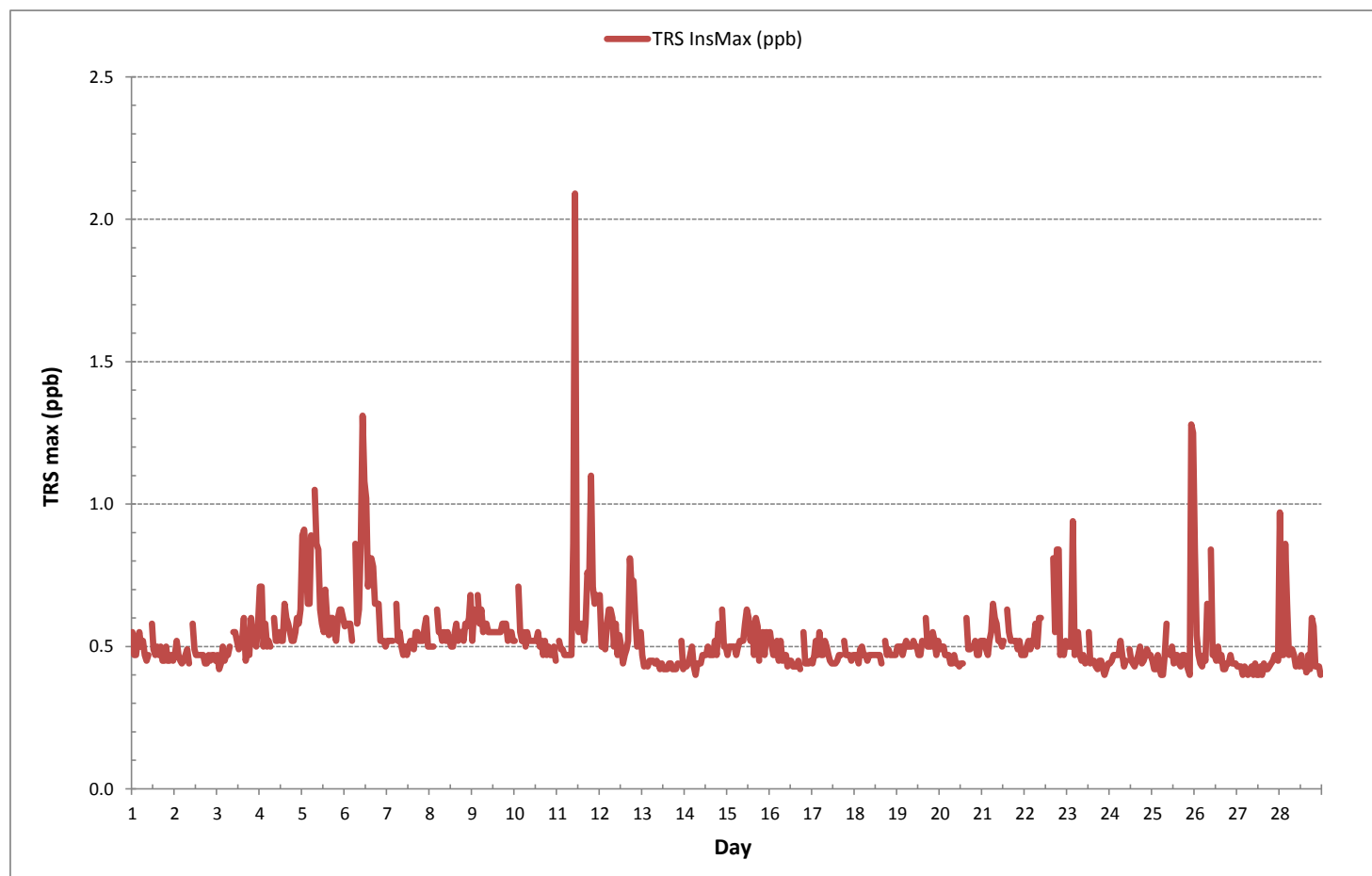
STATUS FLAG CODES

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:	638				
MAXIMUM INSTANTANEOUS VALUE:	2.09	ppb	@ HOUR	10	ON DAY 11
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	672	hrs
MONTHLY CALIBRATION TIME:	6	hrs			
STANDARD DEVIATION:	0.13				

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	2.02	2.02	2.05	2.02	2.00	2.02	2.03	1.99	1.99	2.04	\$	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.99	1.99	1.98	1.98	2.05	2.00	24
2	1.98	1.98	1.98	2.00	2.00	2.81	2.96	3.09	1.98	\$	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	1.99	2.00	1.99	1.98	3.09	2.11	24	
3	1.98	1.99	1.98	1.99	1.98	1.97	1.98	2.19	\$	2.15	2.06	2.02	2.02	2.03	2.02	2.02	2.01	1.99	2.00	2.02	2.04	2.02	2.14	3.21	1.97	3.21	2.08	24	
4	2.81	2.37	2.23	2.37	2.17	2.20	2.03	\$	2.06	2.03	2.07	2.09	2.10	2.19	2.41	2.37	2.17	2.11	2.04	2.05	2.05	2.10	3.21	2.58	2.03	3.21	2.25	24	
5	2.99	3.50	3.03	2.60	3.34	3.01	\$	3.42	2.53	2.60	2.47	2.24	2.21	2.31	2.27	2.36	2.30	2.68	2.29	2.15	2.11	2.11	2.13	2.20	2.11	3.50	2.56	24	
6	2.02	2.14	2.06	2.02	2.01	\$	2.12	2.32	2.08	4.12	2.87	2.70	2.66	2.30	2.46	2.38	2.67	2.37	2.38	4.30	2.55	2.05	1.99	1.99	1.99	4.30	2.46	24	
7	2.03	2.00	1.99	2.00	\$	2.07	2.42	2.35	2.20	2.08	2.04	2.01	1.98	1.99	1.99	2.01	2.03	2.04	2.03	2.03	2.02	2.16	2.02	2.04	1.98	2.42	2.07	24	
8	2.02	2.03	2.02	\$	2.01	2.02	2.02	2.02	2.05	2.02	2.02	2.02	1.99	1.97	1.98	2.00	2.02	2.02	2.33	2.61	3.70	2.11	2.51	2.97	1.97	3.70	2.19	24	
9	2.02	2.51	\$	2.02	2.02	2.03	2.02	2.02	2.02	2.04	2.03	\$1	2.14	2.03	2.04	2.04	2.05	2.07	2.09	2.09	2.09	2.09	2.08	2.05	2.02	2.51	2.07	23	
10	2.04	\$	2.02	2.01	2.01	2.01	1.99	1.99	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.98	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.94	2.04	1.97	24	
11	\$	1.95	1.95	1.97	1.95	1.95	1.96	1.96	2.72	3.92	6.08	2.37	2.25	2.29	2.24	2.14	2.26	4.32	4.03	3.11	2.96	2.76	3.17	\$	1.95	6.08	2.74	24	
12	2.19	1.99	2.27	2.19	2.46	2.49	2.36	2.33	2.09	2.29	2.20	2.18	2.17	2.02	1.98	1.99	2.02	3.27	2.76	3.03	2.29	1.96	\$	1.93	1.93	3.27	2.28	24	
13	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.94	\$	1.94	1.92	1.91	1.94	1.92	24	
14	1.93	1.93	1.94	1.94	1.95	1.95	1.96	1.97	1.98	1.98	1.98	1.97	1.98	1.97	1.97	1.97	1.98	1.98	2.55	3.04	\$	2.28	1.99	1.99	1.93	3.04	2.05	24	
15	2.00	2.01	2.03	2.00	2.02	2.02	2.03	2.03	2.03	2.24	2.46	2.26	2.26	2.21	2.21	2.15	2.34	2.50	2.20	\$	1.99	1.99	1.97	1.96	1.96	2.50	2.13	24	
16	1.96	1.96	1.95	1.95	1.97	1.97	1.95	1.95	1.94	1.96	1.96	1.96	1.96	1.95	1.95	1.97	1.97	1.97	\$	1.96	1.96	1.96	1.95	1.96	1.94	1.97	1.96	24	
17	1.96	2.00	1.99	1.96	1.97	1.99	1.99	1.97	1.97	1.97	1.94	1.95	1.94	1.94	1.95	1.94	1.95	1.95	\$	1.95	2.03	2.04	1.98	1.98	1.96	1.94	2.04	1.97	24
18	1.97	1.98	1.98	1.98	1.97	1.98	1.97	1.99	1.99	2.02	1.99	1.97	1.97	1.97	1.96	1.96	\$	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.96	2.02	1.97	24	
19	1.98	1.98	1.97	1.97	1.98	1.99	1.99	1.99	2.03	1.99	1.98	1.98	1.97	1.97	1.97	\$	1.96	1.97	1.97	1.98	1.99	2.03	1.98	1.97	1.96	2.03	1.98	24	
20	1.97	1.97	1.96	1.96	1.95	1.96	1.96	1.97	1.96	1.97	1.97	1.97	1.97	1.96	\$	2.03	2.11	2.20	2.27	2.32	2.35	2.17	1.98	1.99	1.95	2.35	2.04	24	
21	2.22	2.18	2.04	1.98	2.28	2.29	2.65	2.47	2.23	1.99	2.00	1.98	1.98	\$	1.96	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.96	1.96	2.65	2.09	24	
22	1.96	1.96	1.97	1.97	1.97	1.98	1.97	1.97	2.02	2.11	2.29	1.98	Y	2.31	C	C	C	C	3.54	3.13	2.14	2.00	2.19	2.16	1.96	3.54	2.19	23	
23	2.22	2.21	2.28	2.40	2.20	2.23	2.23	2.17	1.97	1.96	1.95	\$	1.95	1.95	1.95	1.97	1.95	1.95	2.08	2.04	1.95	1.95	1.95	1.96	1.95	2.40	2.06	24	
24	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.96	1.96	1.96	\$	1.97	1.97	1.96	1.96	1.99	2.06	2.11	2.09	2.07	2.05	2.00	2.05	2.26	1.96	2.26	2.01	24	
25	2.11	1.95	1.96	2.26	2.09	1.95	1.95	2.12	2.08	\$	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.97	1.98	1.98	2.17	6.49	6.96	1.95	6.96	2.43	24	
26	2.86	2.45	2.34	2.17	2.20	2.04	2.03	3.53	\$	2.54	1.99	2.11	2.05	2.05	2.00	2.14	1.98	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	3.53	2.18	24	
27	1.95	1.95	1.95	1.95	1.95	1.95	1.95	\$	1.95	1.95	1.96	1.95	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	2.00	2.05	1.95	2.05	1.96	24
28	3.57	2.03	2.45	4.85	3.65	2.02	\$	1.98	2.00	1.97	1.97	1.96	1.97	1.97	2.23	2.16	2.43	2.02	2.54	2.79	2.62	2.64	2.06	1.99	1.96	4.85	2.43	24	
HOURLY MAX	3.57	3.50	3.03	4.85	3.65	3.01	2.96	3.53	2.72	4.12	6.08	2.70	2.66	2.31	2.46	2.38	2.67	4.32	4.03	4.30	3.70	2.76	6.49	6.96					
HOURLY AVG	2.17	2.11	2.08	2.16	2.15	2.10	2.09	2.22	2.07	2.22	2.24	2.06	2.05	2.04	2.05	2.05	2.08	2.20	2.25	2.31	2.17	2.09	2.28	2.29					

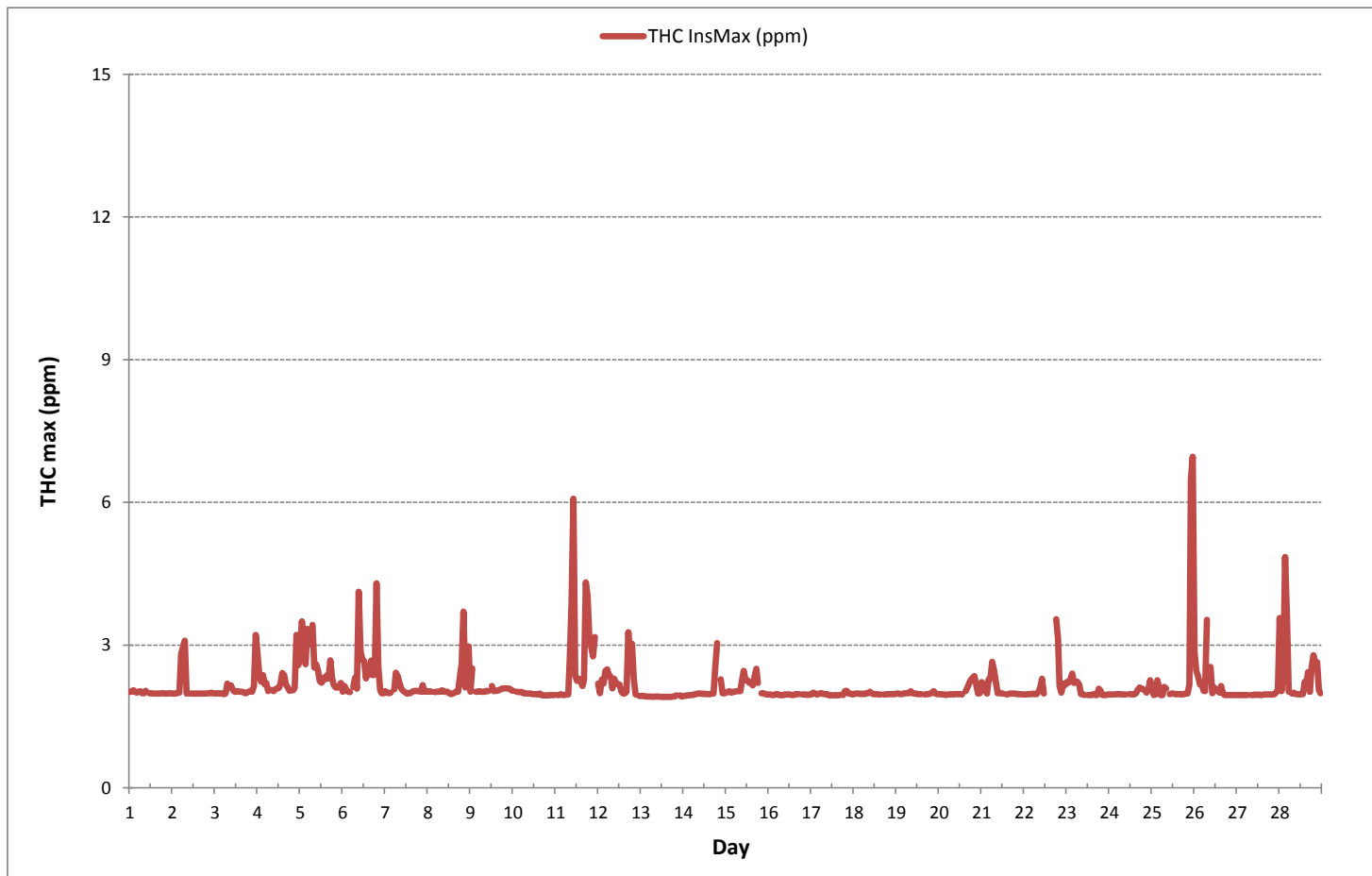
STATUS FLAG CODES

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
\$1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	638				
MAXIMUM INSTANTANEOUS VALUE:	6.96	ppm	@ HOUR	23	ON DAY 25
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.46				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 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	2.00	2.00	2.05	2.01	1.99	2.02	2.02	1.98	1.99	2.03	S	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.05	1.99	24
2	1.97	1.98	1.98	1.99	1.99	2.79	2.96	3.08	1.98	S	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.99	1.99	1.97	3.08	2.10	24
3	1.97	1.98	1.97	1.98	1.97	1.97	1.97	2.18	S	2.14	2.06	2.00	2.00	2.01	2.01	2.01	1.99	1.98	1.99	2.01	2.02	2.01	2.12	3.20	1.97	3.20	2.07	24	
4	2.80	2.36	2.22	2.36	2.16	2.19	2.03	S	2.05	2.03	2.07	2.08	2.09	2.18	2.40	2.36	2.08	2.10	2.04	2.04	2.05	2.09	3.21	2.57	2.03	3.21	2.24	24	
5	2.98	3.50	3.02	2.52	3.23	2.94	S	3.42	2.53	2.59	2.46	2.24	2.20	2.28	2.27	2.35	2.29	2.67	2.28	2.12	2.10	2.10	2.12	2.19	2.10	3.50	2.54	24	
6	2.02	2.13	2.06	2.01	2.00	S	2.11	2.31	2.07	4.11	2.86	2.69	2.65	2.29	2.45	2.37	2.66	2.36	2.37	4.29	2.54	2.05	1.99	1.99	1.99	4.29	2.45	24	
7	1.99	1.99	1.99	1.99	S	2.07	2.41	2.34	2.19	2.07	2.03	2.00	1.98	1.99	1.99	1.99	2.02	2.03	2.03	2.02	2.02	2.15	2.00	1.99	1.98	2.41	2.06	24	
8	2.00	2.02	2.01	S	2.00	2.00	2.01	2.02	2.04	2.02	2.01	2.01	1.98	1.96	1.97	2.00	2.00	2.01	2.32	2.60	3.70	2.10	2.51	2.96	1.96	3.70	2.18	24	
9	2.02	2.51	S	2.01	2.02	2.02	2.02	2.01	2.02	2.03	2.03	S1	2.13	2.03	2.03	2.04	2.05	2.07	2.08	2.08	2.08	2.08	2.07	2.05	2.01	2.51	2.07	23	
10	2.04	S	2.00	2.00	2.00	1.99	1.99	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.97	1.94	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.93	2.04	1.97	24	
11	S	1.94	1.94	1.94	1.94	1.94	1.95	1.96	2.72	3.93	6.08	2.36	2.25	2.27	2.24	2.13	2.26	4.32	4.02	3.10	2.96	2.74	3.17	S	1.94	6.08	2.73	24	
12	2.18	1.98	2.25	2.18	2.45	2.49	2.35	2.32	2.08	2.28	2.19	2.17	2.16	2.00	1.98	1.98	2.00	3.27	2.75	3.03	2.28	1.95	S	1.92	1.92	3.27	2.27	24	
13	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.92	S	1.93	1.90	1.90	1.93	1.91	24	
14	1.92	1.92	1.93	1.93	1.94	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	2.55	3.04	S	2.26	1.98	1.98	1.92	3.04	2.05	24	
15	1.99	1.99	2.01	2.00	2.00	2.00	2.02	2.01	2.02	2.23	2.45	2.25	2.25	2.20	2.20	2.14	2.33	2.50	2.19	S	1.99	1.98	1.97	1.96	1.96	2.50	2.12	24	
16	1.95	1.96	1.95	1.95	1.96	1.96	1.94	1.94	1.93	1.95	1.95	1.96	1.95	1.93	1.94	1.96	1.96	1.96	S	1.95	1.96	1.95	1.95	1.95	1.93	1.96	1.95	24	
17	1.96	1.99	1.98	1.95	1.96	1.98	1.98	1.97	1.96	1.96	1.93	1.94	1.93	1.93	1.93	1.93	1.94	S	1.94	2.03	2.03	1.97	1.98	1.95	1.93	2.03	1.96	24	
18	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.98	1.99	2.00	1.98	1.96	1.97	1.96	1.96	1.96	S	1.95	1.96	1.97	1.97	1.96	1.96	1.97	1.95	2.00	1.97	24	
19	1.97	1.98	1.97	1.97	1.98	1.98	1.98	1.98	2.02	1.99	1.97	1.97	1.97	1.96	1.96	S	1.96	1.97	1.97	1.98	1.98	2.02	1.97	1.97	1.96	2.02	1.98	24	
20	1.96	1.97	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	S	2.01	2.10	2.19	2.26	2.31	2.34	2.17	1.97	1.98	1.95	2.34	2.03	24	
21	2.22	2.17	2.04	1.97	2.26	2.28	2.64	2.47	2.22	1.99	1.99	1.98	1.97	S	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	2.64	2.08	24
22	1.96	1.95	1.97	1.97	1.97	1.97	1.96	1.97	2.00	2.10	2.27	1.97	Y	2.30	C	C	C	C	C	3.54	3.12	2.12	1.99	2.18	2.15	1.95	3.54	2.18	23
23	2.21	2.20	2.27	2.40	2.19	2.22	2.22	2.17	1.96	1.96	1.94	S	1.94	1.94	1.94	1.96	1.94	1.95	2.07	2.03	1.94	1.94	1.94	1.95	1.94	2.40	2.06	24	
24	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	1.95	1.98	2.06	2.10	2.08	2.07	2.05	2.00	2.05	2.26	1.95	2.26	2.00	24	
25	2.10	1.95	1.95	2.24	2.08	1.94	1.94	2.11	2.07	S	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	2.16	6.49	6.96	1.94	6.96	2.42	24	
26	2.73	2.44	2.33	2.17	2.19	2.04	2.02	3.53	S	2.54	1.98	2.10	2.05	2.05	1.99	2.13	1.97	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	3.53	2.17	24	
27	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.96	1.96	1.96	1.95	1.96	1.96	1.97	2.00	2.05	1.94	2.05	1.96	24	
28	3.56	2.02	2.45	4.84	3.66	2.01	S	1.97	2.00	1.97	1.97	1.96	1.96	1.97	2.23	2.15	2.43	2.02	2.54	2.77	2.61	2.63	2.06	1.99	1.96	4.84	2.42	24	
HOURLY MAX	3.56	3.50	3.02	4.84	3.66	2.94	2.96	3.53	2.72	4.11	6.08	2.69	2.65	2.30	2.45	2.37	2.66	4.32	4.02	4.29	3.70	2.74	6.49	6.96					
HOURLY AVG	2.16	2.10	2.08	2.15	2.14	2.09	2.09	2.21	2.06	2.22	2.23	2.05	2.04	2.03	2.04	2.04	2.07	2.19	2.24	2.30	2.16	2.08	2.28	2.29					

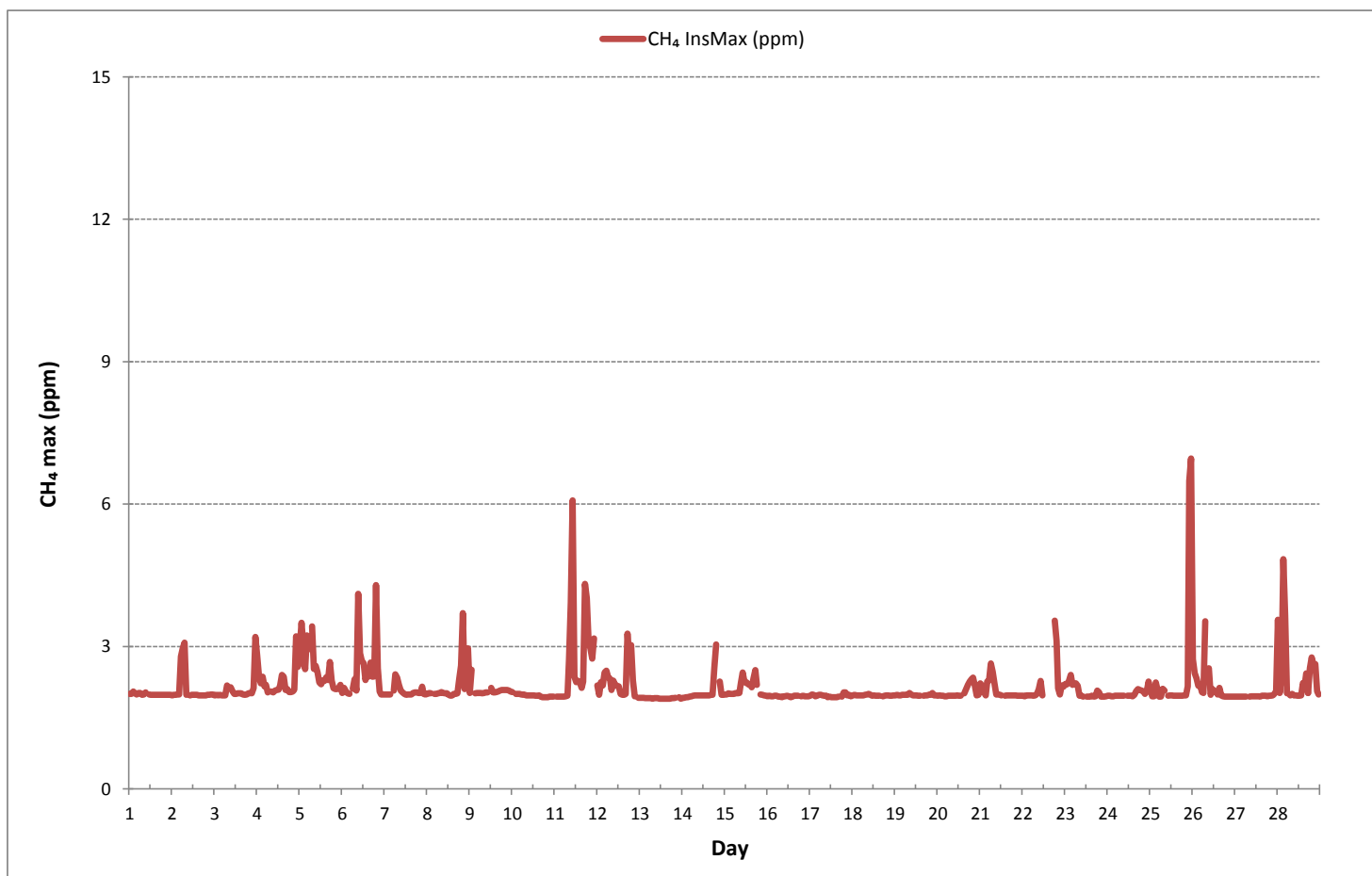
STATUS FLAG CODES

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:	638				
MAXIMUM INSTANTANEOUS VALUE:	6.96	ppm	@ HOUR	23	ON DAY 25
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.46				

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
2	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
3	0.00	0.00	0.00	0.02	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	0.04	0.00	0.00	0.00	0.00	0.00	0.04	24
4	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	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.00	24
5	0.00	0.00	0.00	0.15	0.15	0.12	S	0.12	0.06	0.07	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.06	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.15	0.04	24
6	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	24
7	0.04	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	0.05	0.00	0.05	0.00	24
8	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
9	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
10	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
11	S	0.00	0.00	0.03	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	0.07	0.00	0.00	0.00	0.00	S	0.00	0.07	0.01	24
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	S	0.00	0.00	0.03	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.02	0.00	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	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	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	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
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	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
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Y	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	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	0.45	0.00	0.45	0.02	24
26	0.14	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	0.14	0.01	24
27	0.00	0.01	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	0.01	0.00	24
28	0.00	0.00	0.00	0.00	0.10	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	0.10	0.00	24
HOURLY MAX	0.14	0.01	0.00	0.15	0.15	0.12	0.02	0.12	0.06	0.07	0.08	0.00	0.00	0.04	0.06	0.00	0.09	0.06	0.07	0.05	0.04	0.00	0.00	0.45				
HOURLY AVG	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02				

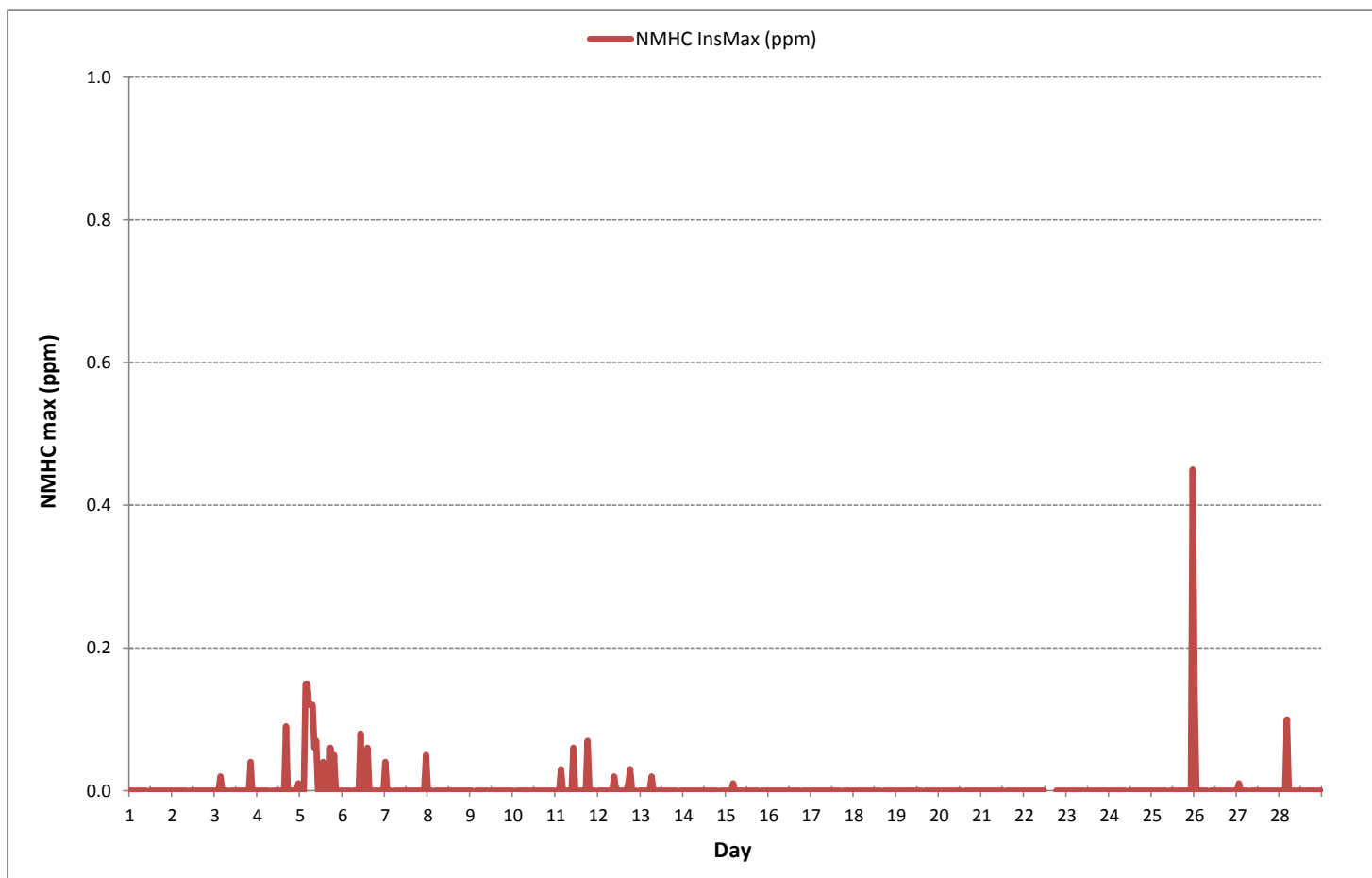
STATUS FLAG CODES

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:	29				
MAXIMUM INSTANTANEOUS VALUE:	0.45	ppm	@ HOUR	23	ON DAY 25
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	670	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.02				

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Reno Station - February 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	7.5	8.2	8.7	8.4	11.3	11.6	8.1	6.1	5.3	10.9	10.2	11.7	13.2	11.4	12.4	12.0	10.7	9.9	7.6	8.8	11.9	11.0	10.6	8.6	5.3	13.2	9.8	24
2	9.3	8.2	7.7	7.8	9.0	7.4	7.7	9.2	15.0	18.7	17.1	17.7	20.7	18.3	16.4	19.1	21.8	17.7	15.5	16.1	19.5	19.3	19.3	18.2	7.4	21.8	14.9	24
3	19.5	20.1	19.7	16.2	20.8	16.7	14.9	10.9	9.7	14.0	11.6	15.0	16.5	21.3	24.8	27.6	21.8	24.1	21.3	20.2	20.2	17.4	16.9	11.9	9.7	27.6	18.0	24
4	12.3	13.5	13.7	13.2	19.8	17.7	14.9	15.8	12.1	13.1	13.4	19.3	19.3	12.7	8.3	7.9	7.1	10.5	20.3	19.4	20.6	14.5	9.1	9.2	7.1	20.6	14.1	24
5	7.1	8.7	9.3	9.1	10.1	6.1	5.2	4.1	5.3	6.0	6.1	14.6	13.6	12.2	12.5	8.9	11.1	10.5	13.1	13.7	20.2	15.5	10.0	20.7	4.1	20.7	10.6	24
6	22.8	13.0	13.1	12.5	11.9	9.3	9.9	11.0	10.0	6.8	9.5	12.2	9.7	10.5	5.6	6.6	10.7	4.3	3.6	4.6	7.4	7.4	5.9	7.0	3.6	22.8	9.4	24
7	7.1	5.6	7.1	4.7	8.0	4.2	3.7	4.7	6.8	6.3	4.6	7.8	9.4	7.1	10.9	9.7	9.9	6.4	10.8	8.5	4.9	2.5	2.0	5.7	2.0	10.9	6.6	24
8	4.0	3.5	6.3	5.3	6.9	7.7	7.8	9.3	9.0	7.5	6.8	9.6	9.9	9.8	12.8	11.1	10.7	8.3	4.4	5.9	5.3	6.5	5.3	7.1	3.5	12.8	7.5	24
9	10.3	7.9	9.1	13.7	15.9	10.3	19.3	18.8	14.6	20.2	21.1	22.5	22.1	23.8	X	22.0	16.5	14.8	15.1	18.3	18.5	18.4	20.4	24.3	7.9	24.3	17.3	23
10	26.1	24.4	23.4	21.3	23.0	24.2	25.3	23.6	25.3	19.2	19.6	22.0	15.6	14.5	14.5	15.6	18.5	14.8	18.1	26.5	35.7	36.8	35.6	36.1	14.5	36.8	23.3	24
11	34.7	19.2	16.6	16.1	15.2	14.8	10.5	8.4	6.0	1.9	5.5	7.0	15.4	9.4	9.0	13.3	11.6	4.9	5.9	6.0	8.0	7.4	7.5	10.6	1.9	34.7	11.0	24
12	13.2	17.6	11.6	10.5	11.2	14.2	16.5	18.9	23.6	20.6	25.1	23.7	25.0	21.1	22.3	24.7	18.8	14.9	7.4	8.4	15.3	23.6	20.5	32.8	7.4	32.8	18.4	24
13	34.8	28.8	30.1	31.9	32.4	32.4	29.2	21.2	16.8	17.8	21.7	34.0	35.6	33.5	36.8	37.5	28.3	37.2	35.8	35.1	22.3	23.7	36.2	43.2	16.8	43.2	30.7	24
14	43.6	49.2	47.7	47.5	46.6	41.7	37.1	38.4	33.2	28.4	28.4	26.3	29.9	28.7	22.4	16.5	8.9	3.7	8.4	10.8	11.9	12.2	13.6	13.5	3.7	49.2	27.0	24
15	12.0	13.9	13.7	18.9	19.9	17.7	15.4	17.3	14.3	16.4	22.8	16.6	15.9	12.1	19.3	18.2	14.4	13.0	15.5	18.8	18.8	21.1	17.5	14.6	12.0	22.8	16.6	24
16	14.3	16.7	17.7	17.4	17.8	19.0	18.3	25.0	26.3	23.5	24.8	23.1	24.1	26.1	25.0	25.9	18.3	16.7	16.9	15.1	18.4	14.0	12.7	16.5	12.7	26.3	19.7	24
17	15.1	15.8	13.1	13.9	16.5	19.1	18.7	17.9	15.0	19.8	21.8	32.4	28.8	22.9	17.6	13.6	14.8	9.7	7.9	9.8	10.1	14.6	16.3	12.4	7.9	32.4	16.6	24
18	16.9	17.5	14.1	20.1	27.6	20.0	21.0	20.2	17.3	13.5	20.2	19.1	21.6	23.7	23.2	20.2	20.0	20.9	21.6	14.4	10.5	16.2	14.9	12.4	10.5	27.6	18.6	24
19	16.2	20.2	23.4	20.8	25.7	29.7	25.4	27.0	25.8	29.9	30.3	28.9	30.5	32.9	30.0	33.8	28.1	22.1	20.5	23.6	20.1	14.2	15.4	14.0	14.0	33.8	24.5	24
20	12.2	18.1	25.3	23.4	20.8	15.9	18.4	14.0	17.8	18.0	18.0	20.8	19.4	18.6	11.6	10.5	7.0	6.9	7.1	7.1	11.9	14.6	11.5	9.8	6.9	25.3	14.9	24
21	11.1	8.3	8.0	7.5	7.5	7.1	9.9	13.0	18.3	17.7	16.4	23.3	29.4	24.9	18.7	15.5	14.1	13.2	15.3	14.4	15.2	16.3	20.9	19.3	7.1	29.4	15.2	24
22	15.7	16.1	20.1	17.3	14.2	16.2	17.6	16.8	21.2	18.1	14.4	21.8	17.3	17.1	21.2	26.4	20.2	15.2	11.1	12.1	19.7	22.1	29.0	21.8	11.1	29.0	18.4	24
23	18.7	17.9	17.9	23.8	15.3	22.1	18.8	20.3	28.1	26.2	34.1	33.4	27.9	26.1	28.3	22.0	21.1	18.0	9.0	19.1	24.3	20.3	19.7	27.0	9.0	34.1	22.5	24
24	26.9	28.2	30.6	23.5	26.1	25.3	27.0	27.7	19.1	15.5	10.9	10.2	7.1	8.8	8.3	13.5	13.4	11.7	11.7	12.2	12.6	17.4	11.6	9.5	7.1	30.6	17.0	24
25	18.6	24.0	19.0	10.6	22.6	19.6	11.8	4.9	12.6	17.0	17.8	20.8	21.4	21.1	17.5	19.3	17.4	13.6	5.6	4.1	5.9	2.4	3.3	6.9	2.4	24.0	14.1	24
26	9.7	8.0	10.9	8.5	10.7	12.6	10.8	7.3	6.3	15.8	18.6	23.1	24.0	19.8	25.7	19.5	22.6	25.7	32.4	37.8	35.1	34.7	50.5	38.0	6.3	50.5	21.2	24
27	39.7	29.7	26.0	34.9	34.2	26.4	23.6	28.1	33.7	33.2	28.4	31.6	25.4	21.5	21.1	24.8	31.2	22.3	14.8	15.3	13.4	16.2	14.5	8.5	8.5	39.7	24.9	24
28	11.6	13.4	14.0	6.0	9.5	12.7	14.1	12.2	12.4	17.8	19.0	21.8	19.0	13.7	9.1	10.9	8.7	5.9	6.5	5.7	5.1	6.7	10.0	21.8	5.1	21.8	12.0	24
HOURLY MAX	43.6	49.2	47.7	47.5	46.6	41.7	37.1	38.4	33.7	33.2	34.1	34.0	35.6	33.5	36.8	37.5	31.2	37.2	35.8	37.8	35.7	36.8	50.5	43.2				
HOURLY AVG	17.5	17.0	17.1	16.6	18.2	17.2	16.5	16.1	16.5	16.9	17.8	20.4	20.3	18.7	18.0	18.1	16.3	14.2	13.7	14.7	15.8	16.0	16.5	17.2				

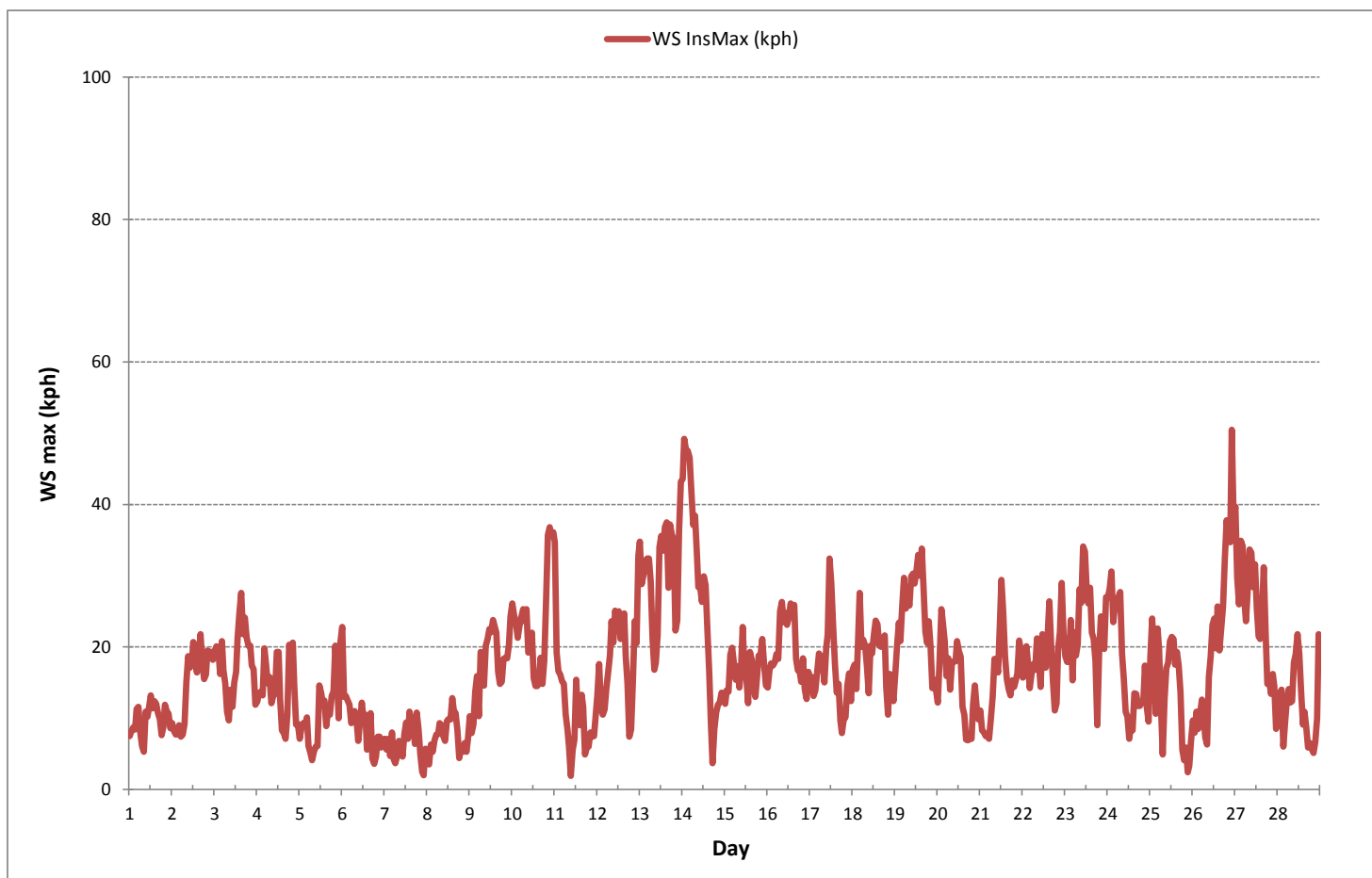
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	50.5	kph	@ HOUR	22	ON DAY	26
OPERATIONAL TIME:						671 hrs

WIND SPEED Instantaneous Maximum (WS kph)

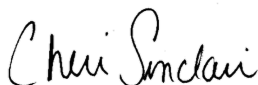


APPENDIX IV
REPORT CERTIFICATION FORM

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	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?	
☒ 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

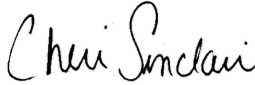
21-03-2018

Report Issued Date (dd-mm-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: <u>Peace River Area Monitoring Program Committee</u>	Project #: <u>196-2018-02-93-C</u>
Site: <u>Reno Station</u>	Contact: <u>Karla Reesor</u>

Level 0 Preliminary Verification	 	Date <u>March 12, 2018</u>
Level 1 Primary Validation	 	Date <u>March 12, 2018</u>
Level 2 Final Validation	 	Date <u>March 20, 2018</u>
Level 3 Independent Data Review	 	Date <u>March 21, 2018</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

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.