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AMBIENT AIR MONITORING MONTHLY DATA REPORT

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

RENO STATION

JOB #: 196-2017-12-93-C

December 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **January 23, 2018**

Prepared by:

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

Reviewed by:

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

SUMMARY

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

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

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

Power Failure: Due to a power failure that occurred on December 20, two hours of downtime were recorded on all parameters. Gas parameters incurred an additional hour of downtime as the analyzers were recovering from the power failure.

TRS: Due to a biased low drift in span response, two additional zero-span checks and a repeat calibration were performed between December 29 and December 30. Eight hours of downtime were recorded due to this event.

THC/CH_4/NMHC: On December 30, the fuel and carrier gas cylinders were changed out. A zero-span verification was completed afterwards as a quality check, incurring two hours of downtime.

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 Reno Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO_2 (ppb)	172	48	0	0	0	1	1	7	4.4	S	1	31	99.6
TRS (ppb)	-	-	-	-	0.38	0.69	31	17	4.8	S	0.45	2	98.5
THC (ppm)	-	-	-	-	2.05	5.11	29	6	0.1	SSE	2.53	29	99.3
CH_4 (ppm)	-	-	-	-	2.05	5.11	29	6	0.1	SSE	2.53	29	99.3
NMHC (ppm)	-	-	-	-	0.00	0.03	31	16	3.2	SSW	0.00	4	99.3
RELATIVE HUMIDITY (%)	-	-	-	-	66	90	1	13	4.5	SSW	78	2	99.7
BAROMETRIC PRESSURE (millibar)	-	-	-	-	944	963	29	9	2.3	SSW	960	29	99.7
AMBIENT TEMPERATURE (°C)	-	-	-	-	-9.5	7.7	9	13	10.8	WSW	4.5	9	99.7
STATION TEMPERATURE (°C)	-	-	-	-	21.7	22.1	2	18	4.0	SW	22.0	16	99.7
VECTOR WS (kph)	-	-	-	-	4.4	18.1	10	8	-	WSW	11.3	15	99.7
VECTOR WD (sec)	-	-	-	-	239 (WSW)	-	-	-	-	-	-	-	99.7

SOUR GAS PROCESSING INDUSTRY

MONTHLY REPORT SUMMARY

Reno Station	Peace River Area Monitoring Program Committee
Plant Name / Location	Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	December

CONTINUOUS AMBIENT MONITORING

		ONE - HOUR AVERAGE		24 - HOUR AVERAGE	
PARAMETER	% TIME OPERATIONAL	MAXIMUM VALUES	NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO_2	99.6	0.001 ppm	0	0.001 ppm	0
TRS	98.5	0.001 ppm	-	0.0005 ppm	-
THC	99.3	5.11 ppm	-	2.53 ppm	-
CH_4	99.3	5.11 ppm	-	2.53 ppm	-
NMHC	99.3	0.03 ppm	-	0.00 ppm	-
RH	99.7	90 %	-	78 %	-
BP	99.7	963 mb	-	960 mb	-
Ambient TPX	99.7	7.7 °C	-	4.5 °C	-
Station TPX	99.7	22.1 °C	-	22.0 °C	-
Wind Speed	99.7	18.1 kph	-	11.3 kph	-
Wind Direction	99.7	-	-	-	-

SIGNATURE OF COMPANY REPRESENTATIVE

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Exceedance Summary Report

SO_2 1-Hour Exceedances

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

SO_2 24-Hour Exceedances

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

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

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1.0 Discussion

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

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 (SO_2)

• Operational time, for the monitoring period was 99.6%, equivalent to three hours of downtime. These were incurred on December 20 due to a power failure and the subsequent analyzer recovery period.
• The routine monthly calibration was performed on December 14.

TOTAL REDUCED SULPHUR (TRS)

• Operational time, for the monitoring period was 98.5%, equivalent to eleven hours of downtime.
• The routine monthly calibration was performed on December 14.
• Three hours of downtime were incurred on December 20 due to a power failure and the subsequent analyzer recovery period.
• The analyzer spanned towards the lower acceptance limit on December 28. Two additional span verification and the scheduled zero-span check, completed on December 29, revealed that span response was within acceptance limits and was not trending, though it was drifting low. As a precaution, a repeat calibration was completed on December 30. The calibration met AMD requirements. Seven hours of downtime were recorded due to these additional quality checks.
• One hour of data collected on December 29 at hour 14:00, immediately after a span check, was invalidated as the concentration was elevated, likely because it was representative of span concentration.

TOTAL HYDROCARBONS (THC), METHANE (CH_4) and NON-METHANE HYDROCARBONS (NMHC)

• Operational time, for the monitoring period was 99.3%, equivalent to five hours of downtime.
• The routine monthly calibration was performed on December 14.
• Three hours of downtime were incurred on December 20 due to a power failure and the subsequent analyzer recovery period.
• On December 30, the fuel and carrier gas cylinders were changed out. A zero-span verification was completed afterwards as a quality check, incurring two hours of downtime.
• The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month.

WIND SPEED (WS) and WIND DIRECTION (WD)

• Operational time, for the monitoring period was 99.7%, equivalent to two hours of downtime. These were incurred due to a power failure that occurred on December 20.
• Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

• Operational time, for the monitoring period was 99.7%, equivalent to two hours of downtime. These were incurred due to a power failure that occurred on December 20.

BAROMETRIC PRESSURE (BP)

• Operational time, for the monitoring period was 99.7%, equivalent to two hours of downtime. These were incurred due to a power failure that occurred on December 20.

AMBIENT TEMPERATURE (AmbTPX)

• Operational time, for the monitoring period was 99.7%, equivalent to two hours of downtime. These were incurred due to a power failure that occurred on December 20.

STATION TEMPERATURE (StnTPX)

• Operational time, for the monitoring period was 99.7%, equivalent to two hours of downtime. These were incurred due to a power failure that occurred on December 20.

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

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

4.0 Calculations and Results

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

5.0 Methods and Procedures

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

Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring
Maxxam AIR SOP-00208: RM Young Wind Monitor Calibration
Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - API 100A UV 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

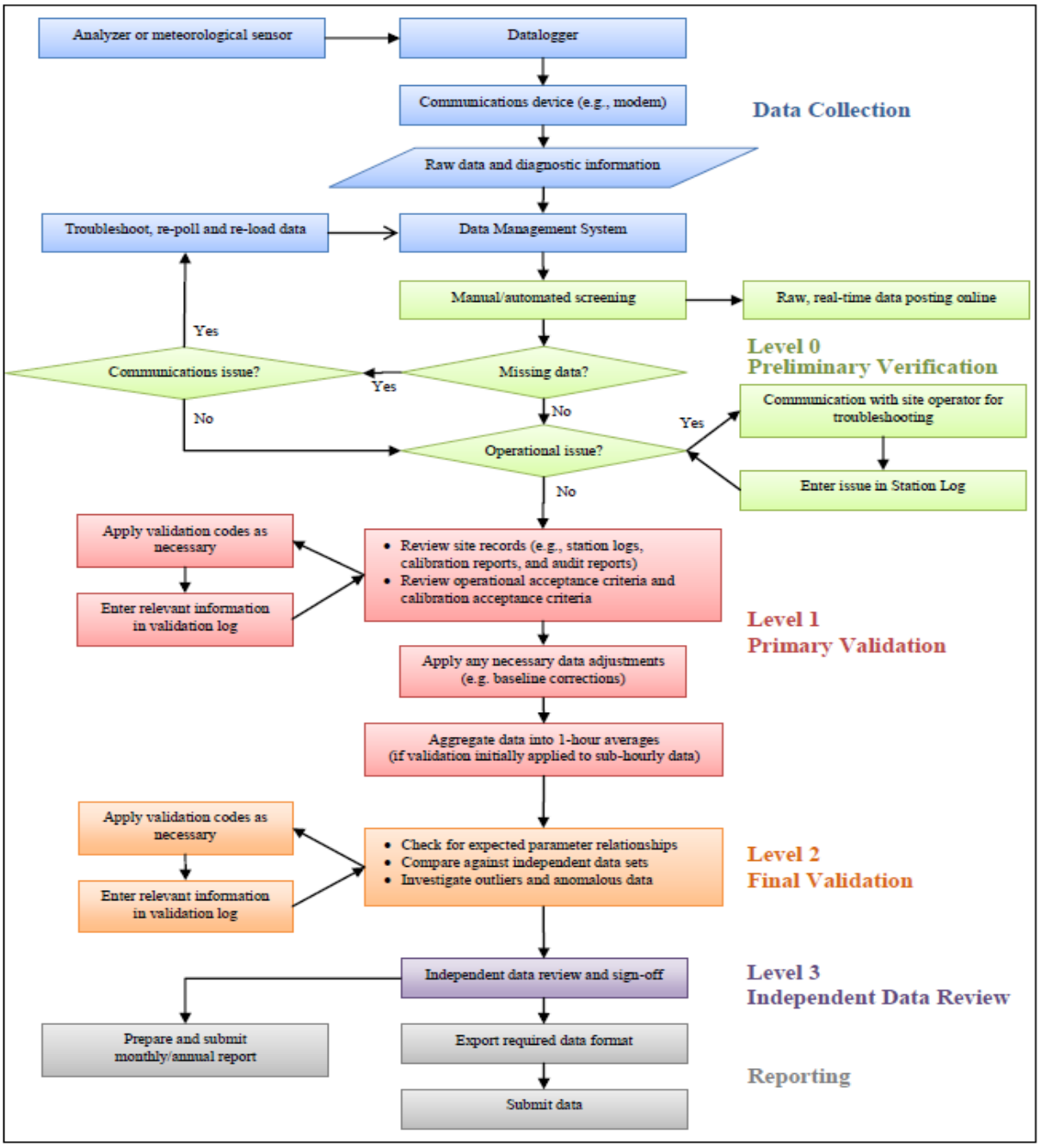
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

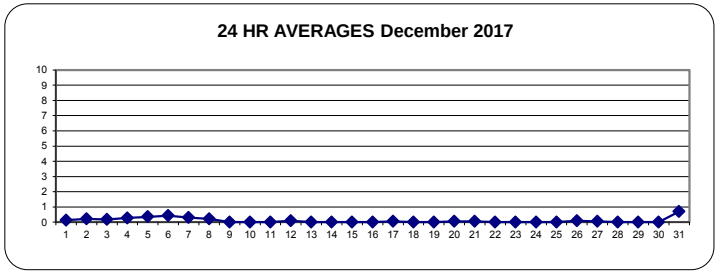
SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)

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

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

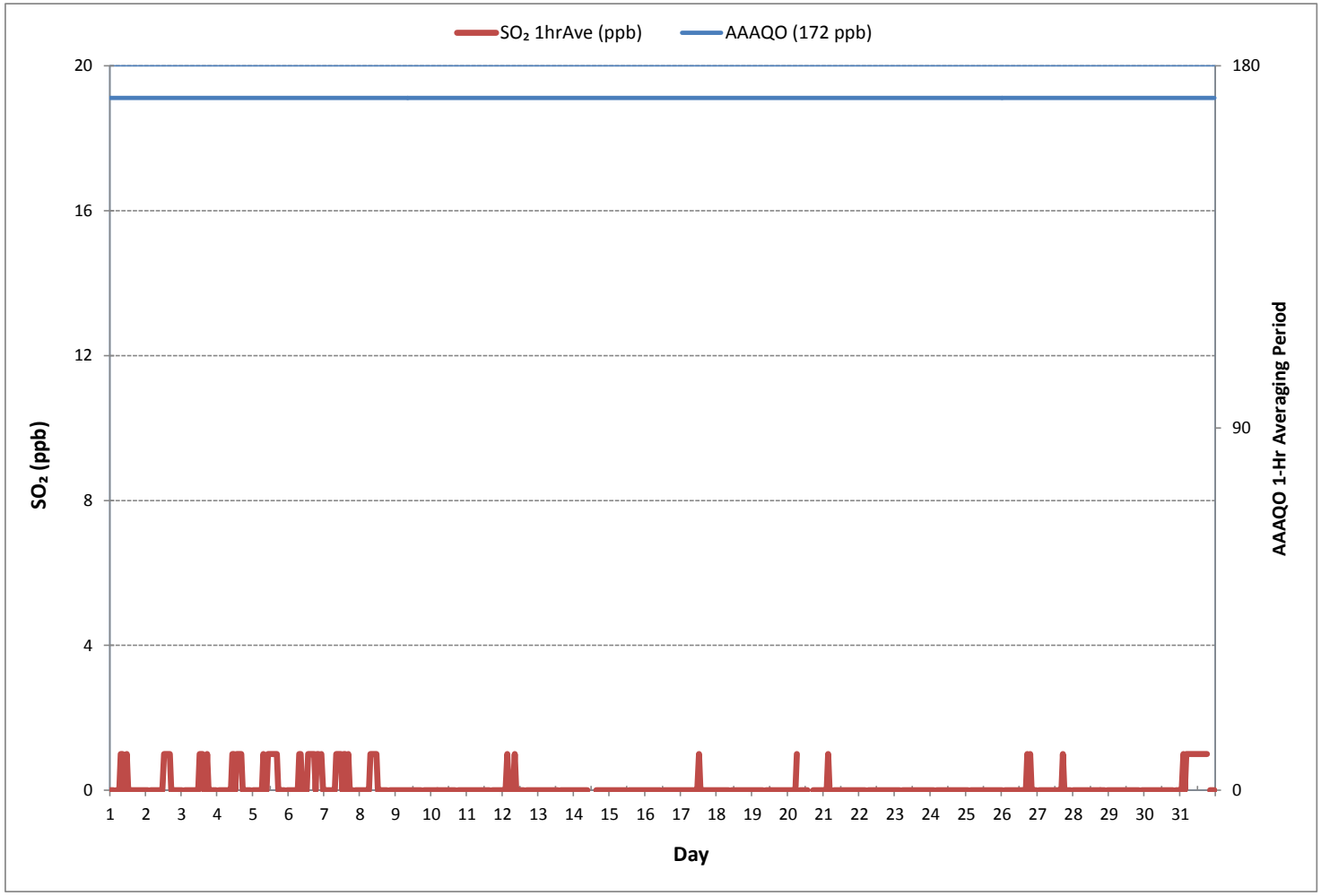


OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:			0				
NUMBER OF 24-HR EXCEEDANCES:			0				
NUMBER OF NON-ZERO READINGS:			72				
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	1	ppb	@ HOUR	7	ON DAY	1	
MAXIMUM 24-HR AVERAGE:	1	ppb			ON DAY	31	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			741	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			99.6	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:			0	ppb

SULPHUR DIOXIDE Hourly Averages (SO_2 ppb)



SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)

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

MONTHLY SUMMARY

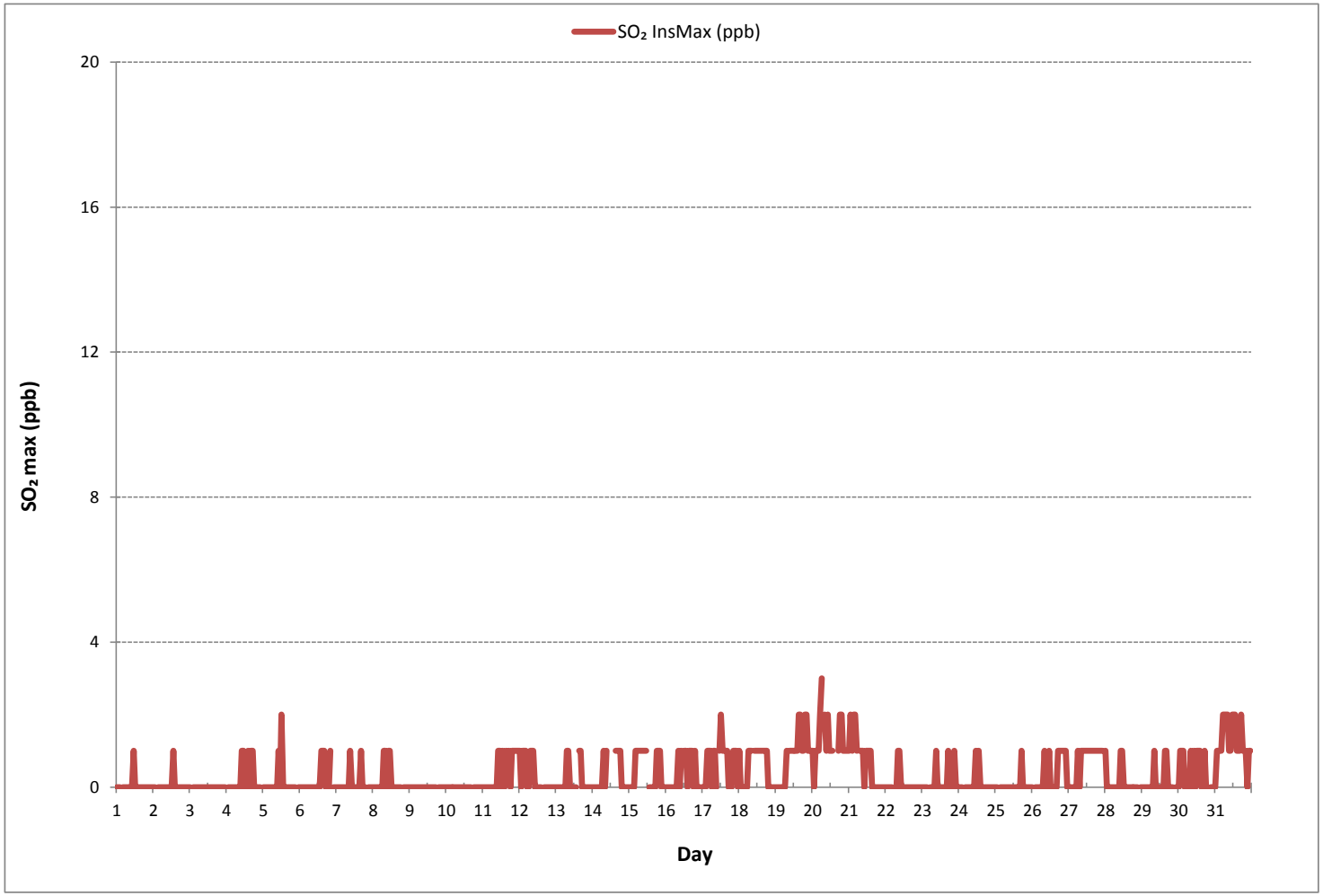
NUMBER OF NON-ZERO READINGS: 208

MAXIMUM INSTANTANEOUS VALUE: 3 ppb @ HOUR 6 ON DAY 20

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 741 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-SO_2[ppb]
Monthly: 17/12
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

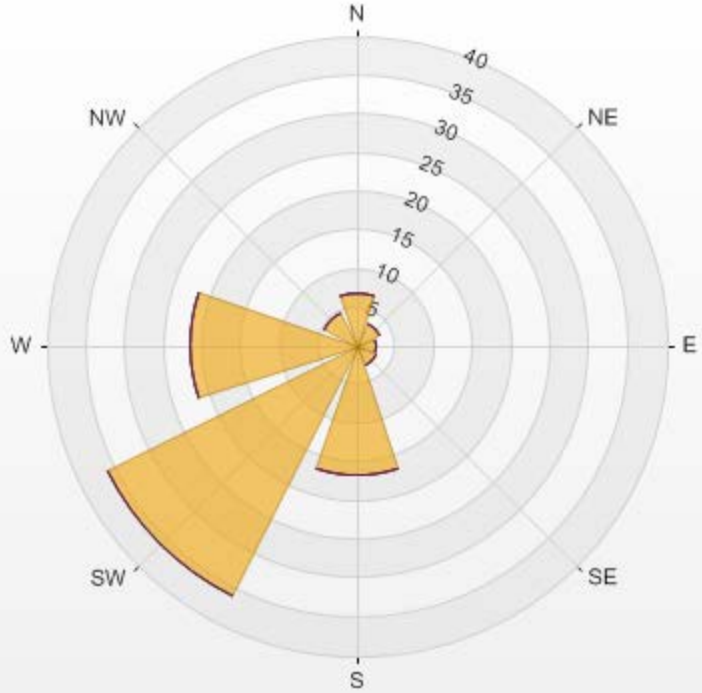
Calm: 5.26%

Calm Avg: 0.03 [ppb]

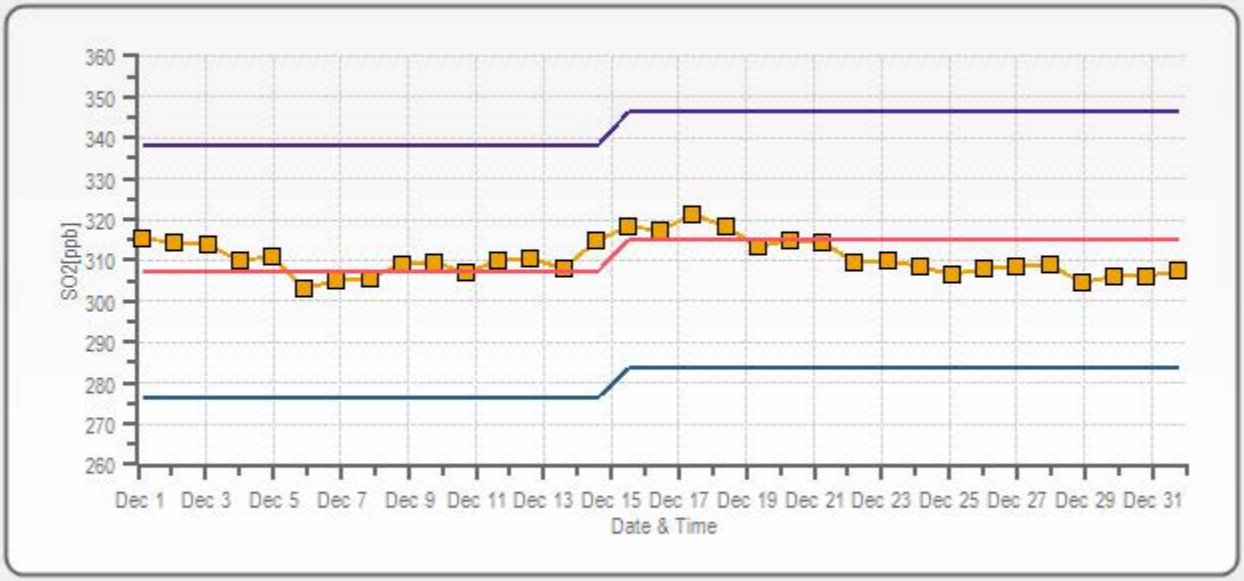
Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	7.0	0.0	0.0	0.0	0.0	7.0
NE	3.3	0.0	0.0	0.0	0.0	3.3
E	2.6	0.0	0.0	0.0	0.0	2.6
SE	2.8	0.0	0.0	0.0	0.0	2.8
S	16.8	0.0	0.0	0.0	0.0	16.8
SW	36.1	0.0	0.0	0.0	0.0	36.1
W	21.5	0.0	0.0	0.0	0.0	21.5
NW	4.8	0.0	0.0	0.0	0.0	4.8
Summary	94.8	0.0	0.0	0.0	0.0	94.8

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

PRAMP_RENO Poll.: PRAMP_RENO-SO2[ppb] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.26% Calm Poll Avg: 0.03[ppb]



SO2[ppb] Calibration: PRAMP_RENO Monthly: 17/12 Type: Span



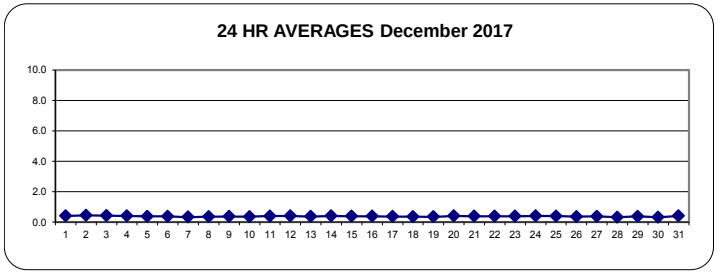
TOTAL REDUCED SULPHUR

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	0.36	0.36	0.37	S	0.38	0.35	0.42	0.49	0.49	0.50	0.53	0.49	0.38	0.38	0.38	0.38	0.39	0.41	0.37	0.39	0.42	0.40	0.40	0.43	0.35	0.53	0.41	24
2	0.40	0.40	S	0.42	0.43	0.41	0.40	0.42	0.42	0.42	0.45	0.45	0.43	0.41	0.41	0.43	0.42	0.45	0.46	0.48	0.54	0.63	0.58	0.54	0.40	0.63	**0.45**	24
3	0.45	S	0.50	0.46	0.45	0.45	0.44	0.43	0.43	0.43	0.42	0.42	0.44	0.45	0.45	0.42	0.41	0.43	0.47	0.43	0.41	0.39	0.42	0.40	0.39	0.50	0.43	24
4	S	0.43	0.43	0.46	0.52	0.53	0.44	0.44	0.40	0.43	0.50	0.41	0.38	0.37	0.36	0.37	0.35	0.34	0.35	0.34	0.35	0.34	0.34	S	0.34	0.53	0.40	24
5	0.38	0.34	0.34	0.33	0.35	0.33	0.35	0.33	0.36	0.36	0.42	0.44	0.51	0.44	0.40	0.39	0.37	0.37	0.40	0.38	0.35	0.34	S	0.40	0.33	0.51	0.38	24
6	0.39	0.41	0.39	0.51	0.49	0.35	0.46	0.41	0.37	0.42	0.35	0.34	0.36	0.35	0.38	0.37	0.34	0.33	0.33	0.33	0.34	S	0.36	0.35	0.33	0.51	0.38	24
7	0.32	0.33	0.32	0.32	0.31	0.36	0.33	0.31	0.33	0.40	0.33	0.34	0.31	0.34	0.33	0.33	0.33	0.33	0.33	0.33	S	0.35	0.33	0.31	0.31	0.40	0.33	24
8	0.33	0.33	0.34	0.35	0.33	0.33	0.32	0.36	0.34	0.34	0.33	0.35	0.40	0.38	0.35	0.36	0.39	0.47	0.33	S	0.46	0.40	0.35	0.36	0.32	0.47	0.36	24
9	0.36	0.37	0.38	0.34	0.34	0.36	0.36	0.35	0.36	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.37	S	0.40	0.37	0.39	0.38	0.38	0.34	0.40	0.37	24
10	0.37	0.36	0.36	0.39	0.38	0.38	0.38	0.36	0.35	0.33	0.36	0.36	0.35	0.36	0.35	0.38	0.35	S	0.36	0.34	0.33	0.34	0.36	0.47	0.33	0.47	0.36	24
11	0.43	0.39	0.38	0.34	0.38	0.36	0.39	0.34	0.34	0.36	0.42	0.42	0.39	0.41	0.36	0.39	S	0.55	0.43	0.39	0.44	0.43	0.41	0.44	0.34	0.55	0.40	24
12	0.59	0.47	0.43	0.45	0.39	0.41	0.44	0.44	0.42	0.39	0.34	0.36	0.35	0.35	0.36	S	0.41	0.39	0.35	0.36	0.35	0.34	0.36	0.46	0.34	0.59	0.40	24
13	0.35	0.35	0.35	0.34	0.35	0.34	0.34	0.35	0.35	0.35	0.33	0.32	0.34	0.36	S	0.38	0.35	0.35	0.35	0.38	0.45	0.44	0.44	0.43	0.32	0.45	0.36	24
14	0.45	0.46	0.42	0.39	0.45	0.48	0.43	0.45	0.42	0.41	0.39	0.36	0.36	C	C	C	C	C	0.39	0.41	0.37	0.37	0.37	0.36	0.36	0.48	0.41	24
15	0.36	0.37	0.34	0.38	0.38	0.38	0.37	0.38	0.39	0.41	0.41	0.40	S	0.42	0.40	0.41	0.38	0.40	0.40	0.38	0.39	0.38	0.38	0.39	0.34	0.42	0.39	24
16	0.38	0.38	0.36	0.38	0.39	0.38	0.38	0.38	0.39	0.38	0.36	S	0.47	0.39	0.41	0.39	0.36	0.43	0.41	0.40	0.41	0.40	0.35	0.35	0.35	0.47	0.39	24
17	0.35	0.36	0.36	0.35	0.36	0.35	0.36	0.36	0.38	0.37	S	0.39	0.37	0.38	0.36	0.37	0.36	0.37	0.37	0.36	0.39	0.38	0.37	0.38	0.35	0.39	0.37	24
18	0.37	0.35	0.35	0.34	0.35	0.35	0.36	0.35	0.36	S	0.40	0.37	0.38	0.38	0.40	0.39	0.38	0.37	0.36	0.32	0.32	0.32	0.30	0.29	0.29	0.40	0.35	24
19	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.30	S	0.40	0.37	0.35	0.34	0.32	0.31	0.30	0.34	0.37	0.37	0.46	0.54	0.40	0.35	0.35	0.30	0.54	0.35	24
20	0.35	0.38	0.40	0.39	0.37	0.39	0.38	S	0.45	0.41	0.40	0.43	0.40	0.43	P	P	R	0.43	0.44	0.42	0.41	0.42	0.40	0.40	0.35	0.45	0.41	21
21	0.42	0.42	0.42	0.43	0.43	0.41	S	0.40	0.39	0.38	0.39	0.36	0.38	0.37	0.35	0.37	0.39	0.38	0.36	0.38	0.37	0.40	0.39	0.36	0.35	0.43	0.39	24
22	0.37	0.37	0.38	0.35	0.35	S	0.41	0.40	0.39	0.42	0.42	0.39	0.39	0.38	0.40	0.39	0.39	0.38	0.41	0.41	0.41	0.40	0.40	0.39	0.35	0.42	0.39	24
23	0.39	0.40	0.40	0.41	S	0.42	0.41	0.40	0.40	0.39	0.38	0.39	0.38	0.37	0.37	0.38	0.38	0.37	0.37	0.37	0.39	0.39	0.41	0.41	0.37	0.42	0.39	24
24	0.39	0.41	0.41	S	0.45	0.41	0.41	0.41	0.40	0.39	0.39	0.39	0.43	0.42	0.40	0.39	0.38	0.38	0.39	0.39	0.39	0.40	0.41	0.40	0.38	0.45	0.40	24
25	0.39	0.39	S	0.46	0.39	0.39	0.38	0.37	0.36	0.35	0.37	0.38	0.37	0.38	0.39	0.38	0.39	0.50	0.55	0.44	0.44	0.39	0.37	0.36	0.35	0.55	0.40	24
26	0.37	S	0.46	0.42	0.41	0.39	0.35	0.34	0.33	0.33	0.33	0.34	0.33	0.33	0.33	0.33	0.34	0.37	0.37	0.36	0.37	0.37	0.39	0.39	0.33	0.46	0.36	24
27	S	0.47	0.38	0.36	0.36	0.36	0.38	0.40	0.42	0.38	0.36	0.38	0.38	0.41	0.41	0.39	0.39	0.35	0.36	0.37	0.36	0.34	0.35	S	0.34	0.47	0.38	24
28	0.44	0.39	0.37	0.33	0.31	0.31	0.31	0.29	0.30	0.30	0.32	0.32	0.30	0.29	0.29	0.28	0.29	0.29	0.32	0.29	0.29	0.30	S	0.39	0.28	0.44	0.32	24
29	0.35	0.30	0.32	0.31	0.30	0.40	0.46	S1	S1	0.47	0.45	0.40	0.48	S1	X	0.49	0.39	0.37	0.34	0.32	0.34	S	0.42	0.33	0.30	0.49	0.38	20
30	0.33	0.33	0.30	0.30	0.31	0.31	0.32	0.32	0.32	0.33	0.33	0.32	0.33	0.30	0.30	0.32	C1	C1	C1	C1	S	0.35	0.27	0.25	0.25	0.35	0.31	20
31	0.24	0.23	0.24	0.23	0.28	0.28	0.29	0.36	0.33	0.33	0.41	0.43	0.44	0.44	0.44	0.46	0.51	**0.69**	0.56	S	0.59	0.47	0.50	0.48	**0.23**	**0.69**	0.40	24
HOURLY MAX	0.59	0.47	0.50	0.51	0.52	0.53	0.46	0.49	0.49	0.50	0.53	0.49	0.51	0.45	0.45	0.49	0.51	0.69	0.56	0.48	0.59	0.63	0.58	0.54				
HOURLY AVG	0.38	0.37	0.37	0.37	0.38	0.38	0.38	0.38	0.38	0.39	0.39	0.38	0.38	0.38	0.37	0.38	0.38	0.40	0.39	0.38	0.40	0.39	0.38	0.39				

STATUS FLAG CODES

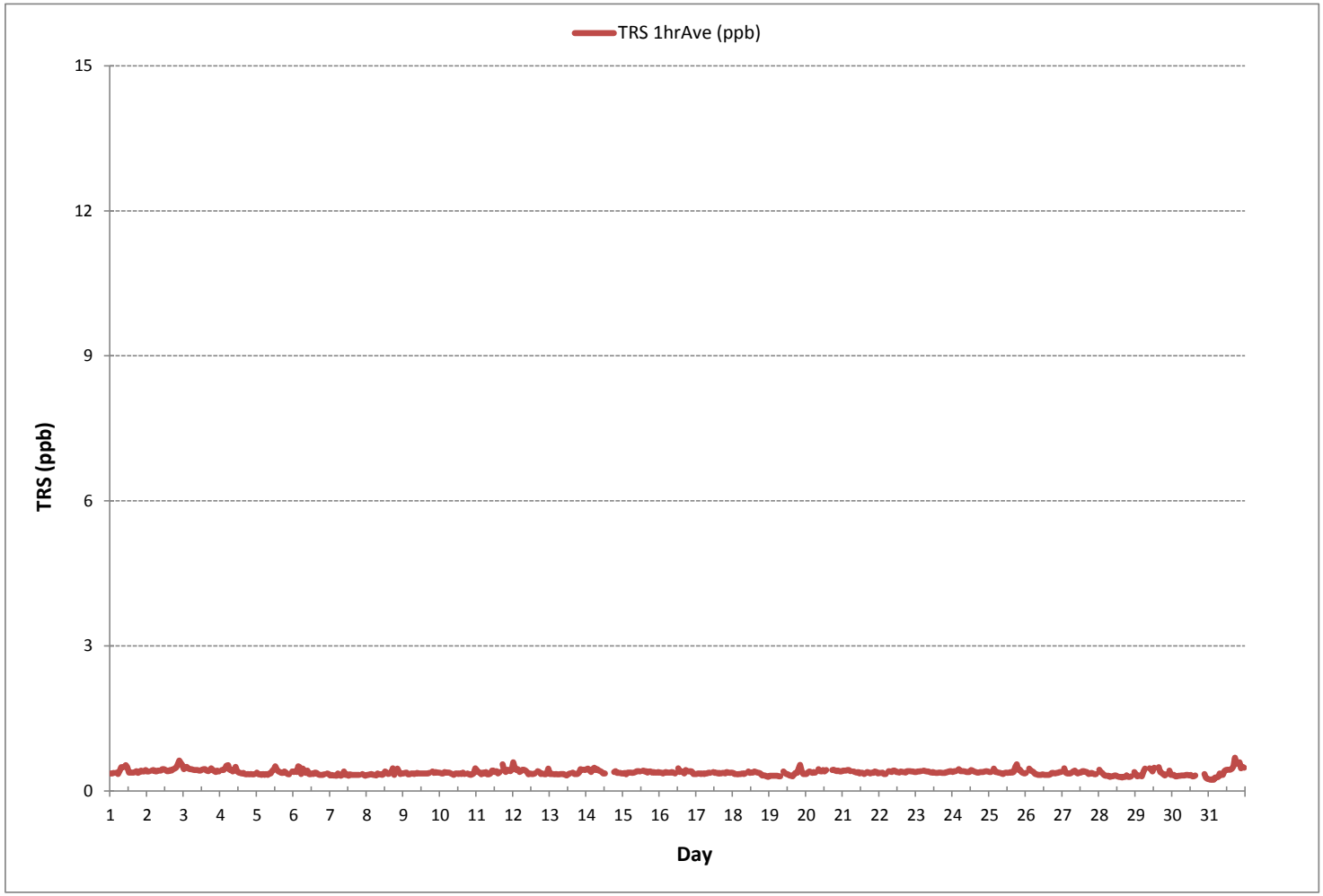
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			696				
MINIMUM 1-HR AVERAGE	0.23	ppb	@ HOUR	1	ON DAY	31	
MAXIMUM 1-HR AVERAGE:	0.69	ppb	@ HOUR	17	ON DAY	31	
MAXIMUM 24-HR AVERAGE:	0.45	ppb			ON DAY	2	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			733	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			98.5	%
STANDARD DEVIATION:	0.05		MONTHLY AVERAGE:			0.38	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.50	0.47	0.47	S	0.52	0.47	0.60	0.65	0.73	0.78	0.71	0.78	0.50	0.55	0.50	0.55	0.60	0.55	0.52	0.52	0.58	0.52	0.52	0.52	0.47	0.78	0.57	24
2	0.52	0.50	S	0.52	0.58	0.52	0.55	0.58	0.65	0.55	0.60	0.63	0.55	0.52	0.58	0.57	0.57	0.65	0.60	0.68	0.73	0.84	0.78	0.81	0.50	0.84	0.61	24
3	0.58	S	0.63	0.58	0.60	0.55	0.55	0.52	0.55	0.55	0.50	0.52	0.55	0.63	0.60	0.58	0.58	0.63	0.63	0.60	0.58	0.52	0.55	0.52	0.50	0.63	0.57	24
4	S	0.57	0.58	0.60	0.65	0.74	0.60	0.58	0.63	0.63	0.76	0.60	0.55	0.52	0.52	0.55	0.55	0.52	0.50	0.52	0.58	0.50	0.52	S	0.50	0.76	0.58	24
5	0.58	0.50	0.50	0.52	0.55	0.50	0.52	0.48	0.55	0.60	0.73	0.71	1.42	0.73	0.73	0.73	0.52	0.55	0.60	0.55	0.52	0.50	S	0.58	0.48	1.42	0.62	24
6	0.58	0.60	0.65	0.76	0.78	0.58	0.71	0.76	0.71	0.73	0.58	0.55	0.55	0.52	1.26	0.94	0.52	0.50	0.50	0.55	0.52	S	0.52	0.52	0.50	1.26	0.65	24
7	0.50	0.52	0.52	0.52	0.55	0.60	0.50	0.50	0.55	1.18	0.52	0.52	0.52	0.60	0.50	0.50	0.55	0.52	0.55	0.55	S	0.58	0.52	0.47	0.47	1.18	0.56	24
8	0.50	0.50	0.50	0.52	0.50	0.50	0.50	0.52	0.50	0.52	0.50	0.50	0.58	0.58	0.50	0.50	0.57	0.84	0.50	S	0.71	0.63	0.52	0.55	0.50	0.84	0.55	24
9	0.49	0.52	0.52	0.47	0.50	0.50	0.50	0.52	0.47	0.50	0.50	0.50	0.50	0.47	0.48	0.47	0.45	0.50	S	0.52	0.55	0.50	0.48	0.50	0.45	0.55	0.50	24
10	0.50	0.47	0.47	0.63	0.52	0.60	0.58	0.48	0.48	0.48	0.55	0.50	0.48	0.50	0.58	0.52	0.52	S	0.55	0.50	0.48	0.50	0.55	0.81	0.47	0.81	0.53	24
11	0.65	0.73	0.55	0.50	0.63	0.52	0.58	0.52	0.50	0.55	0.63	0.60	0.58	0.58	0.55	0.65	S	0.81	0.68	0.60	0.73	0.65	0.63	0.71	0.50	0.81	0.61	24
12	0.86	0.73	0.60	0.60	0.55	0.55	0.60	0.65	0.60	0.55	0.50	0.52	0.47	0.47	0.50	S	0.55	0.52	0.47	0.50	0.50	0.45	0.63	0.73	0.45	0.86	0.57	24
13	0.55	0.52	0.50	0.52	0.50	0.50	0.50	0.52	0.63	0.50	0.50	0.47	0.55	0.63	S	0.55	0.52	0.52	0.50	0.60	0.76	0.73	0.81	0.68	0.47	0.81	0.57	24
14	0.68	0.71	0.58	0.52	0.84	0.79	0.63	0.65	0.65	0.68	0.55	0.52	0.52	C	C	C	C	C	0.58	0.60	0.50	0.50	0.48	0.48	0.48	0.84	0.60	24
15	0.48	0.48	0.45	0.48	0.50	0.50	0.48	0.45	0.48	0.50	0.50	0.45	S	0.50	0.48	0.48	0.48	0.48	0.48	0.45	0.50	0.50	0.45	0.48	0.45	0.50	0.48	24
16	0.48	0.50	0.47	0.47	0.48	0.50	0.47	0.50	0.52	0.50	0.49	S	0.63	0.65	0.57	0.52	0.55	0.55	0.55	0.52	0.55	0.52	0.45	0.45	0.45	0.65	0.52	24
17	0.50	0.47	0.47	0.47	0.45	0.50	0.48	0.48	0.45	0.48	S	0.50	0.49	0.50	0.48	0.50	0.45	0.48	0.47	0.45	0.52	0.50	0.50	0.50	0.45	0.52	0.48	24
18	0.52	0.52	0.47	0.47	0.50	0.47	0.47	0.48	0.50	S	0.55	0.52	0.55	0.52	0.55	0.55	0.52	0.50	0.50	0.47	0.47	0.45	0.50	0.45	0.45	0.55	0.50	24
19	0.48	0.48	0.50	0.50	0.48	0.48	0.50	0.49	S	0.73	0.60	0.52	0.52	0.50	0.48	0.45	0.65	0.58	0.71	0.91	**1.55**	0.84	0.58	0.52	0.45	**1.55**	0.61	24
20	0.50	0.52	0.55	0.55	0.55	0.58	0.52	S	0.60	0.60	0.55	0.65	0.60	0.60	P	P	R	0.65	0.63	0.60	0.60	0.58	0.58	0.58	0.50	0.65	0.58	21
21	0.60	0.60	0.58	0.60	0.58	0.63	S	0.60	0.58	0.58	0.63	0.55	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.60	0.58	0.60	0.60	0.58	0.55	0.63	0.59	24
22	0.55	0.58	0.58	0.55	0.58	S	0.65	0.63	0.63	0.60	0.63	0.63	0.60	0.58	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.58	0.58	0.60	0.55	0.65	0.60	24
23	0.60	0.58	0.58	0.58	S	0.63	0.60	0.63	0.55	0.58	0.55	0.58	0.58	0.55	0.55	0.55	0.52	0.55	0.52	0.52	0.55	0.52	0.55	0.60	0.52	0.63	0.57	24
24	0.52	0.60	0.58	S	0.60	0.57	0.58	0.55	0.55	0.55	0.55	0.55	0.78	0.58	0.55	0.55	0.55	0.52	0.55	0.52	0.55	0.58	0.58	0.58	0.52	0.78	0.57	24
25	0.55	0.52	S	0.68	0.55	0.55	0.58	0.58	0.55	0.52	0.55	0.55	0.55	0.58	0.60	0.55	0.63	0.97	0.94	0.65	0.71	0.63	0.58	0.60	0.52	0.97	0.62	24
26	0.60	S	0.81	0.71	0.65	0.68	0.58	0.58	0.55	0.58	0.55	0.58	0.55	0.55	0.55	0.52	0.58	0.68	0.60	0.58	0.58	0.63	0.60	0.65	0.52	0.81	0.61	24
27	S	0.81	0.63	0.60	0.65	0.65	0.65	0.63	0.68	0.60	0.58	0.65	0.65	0.65	0.65	0.63	0.63	0.63	0.60	0.63	0.60	0.63	0.63	S	0.58	0.81	0.64	24
28	0.84	0.65	0.63	0.60	0.58	0.58	0.63	0.58	0.58	0.60	0.63	0.63	0.58	0.57	0.58	0.55	0.60	0.58	0.63	0.60	0.58	0.60	S	0.78	0.55	0.84	0.62	24
29	0.71	0.58	0.63	0.60	0.63	0.91	1.08	S1	S1	0.84	0.76	0.73	0.76	S1	X	0.81	0.65	0.65	0.63	0.60	0.63	S	0.84	0.63	0.58	1.08	0.72	20
30	0.63	0.65	0.63	0.60	0.60	0.60	0.63	0.60	0.63	0.60	0.63	0.63	0.63	0.60	0.60	C1	C1	C1	C1	C1	S	1.00	0.73	0.71	0.60	1.00	0.65	19
31	0.68	0.68	0.68	0.68	0.71	0.73	0.68	0.78	0.76	0.73	0.84	0.84	0.76	0.81	0.76	0.79	0.89	1.10	0.94	S	1.13	0.78	0.84	0.78	0.68	1.13	0.80	24
HOURLY MAX	0.86	0.81	0.81	0.76	0.84	0.91	1.08	0.78	0.76	1.18	0.84	0.84	1.42	0.81	1.26	0.94	0.89	1.10	0.94	0.91	1.55	1.00	0.84	0.81				
HOURLY AVG	0.58	0.57	0.56	0.57	0.58	0.58	0.58	0.57	0.58	0.61	0.59	0.58	0.60	0.57	0.59	0.58	0.57	0.61	0.59	0.57	0.64	0.60	0.59	0.60				

STATUS FLAG CODES

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

MONTHLY SUMMARY

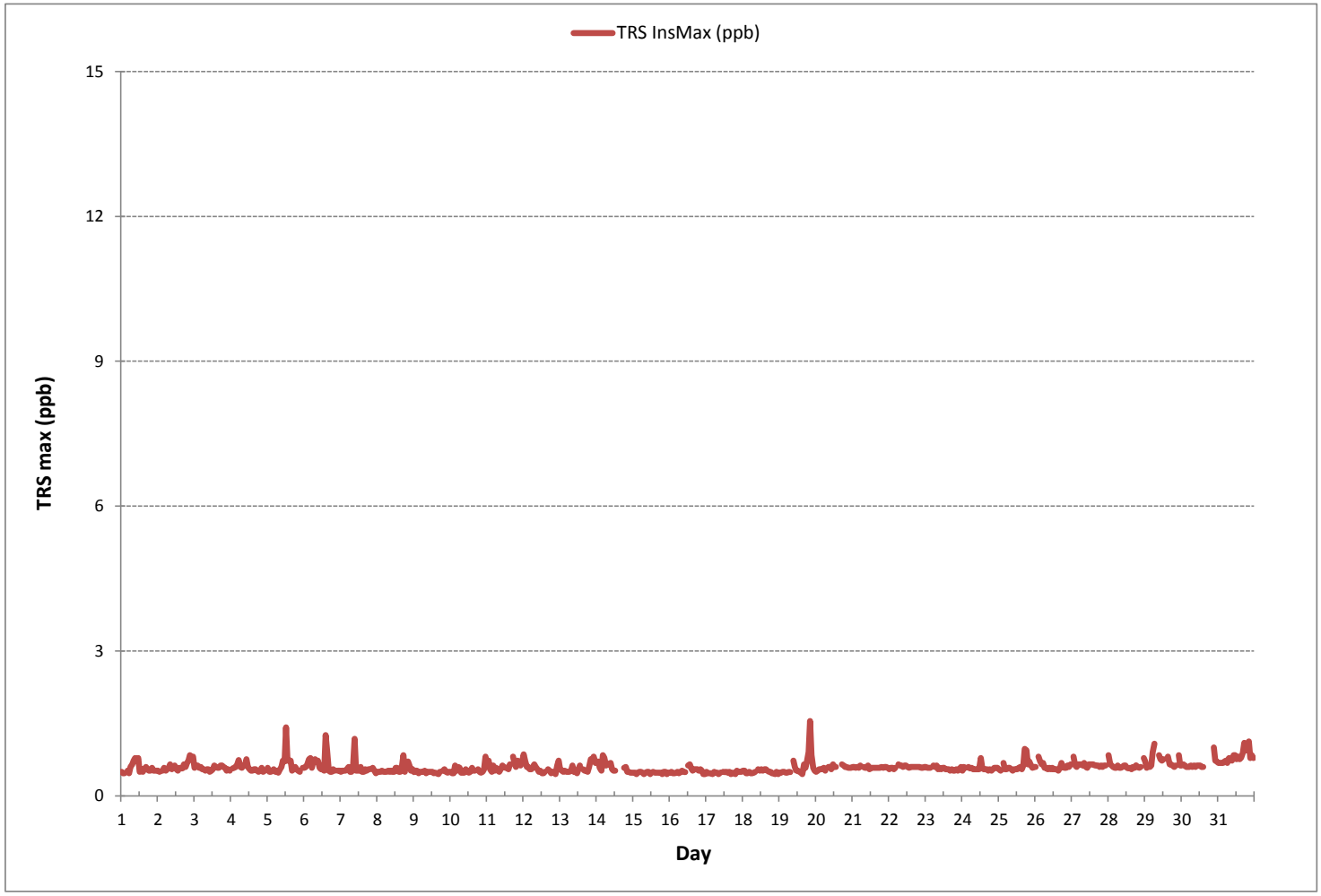
NUMBER OF NON-ZERO READINGS: 695

MAXIMUM INSTANTANEOUS VALUE: 1.55 ppb @ HOUR 20 ON DAY 19

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.12

OPERATIONAL TIME: 732 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



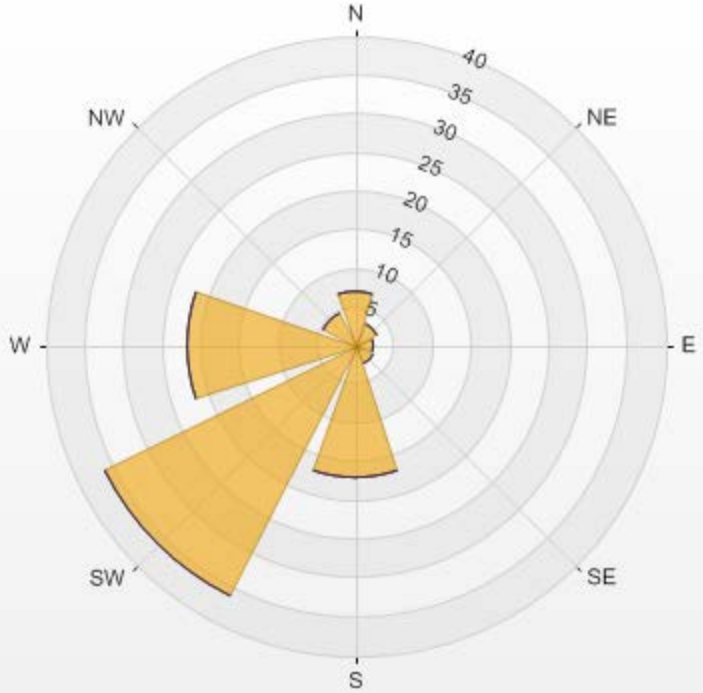
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-TRS[ppb]
Monthly: 17/12
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.89% Calm Avg: 0.37 [ppb]

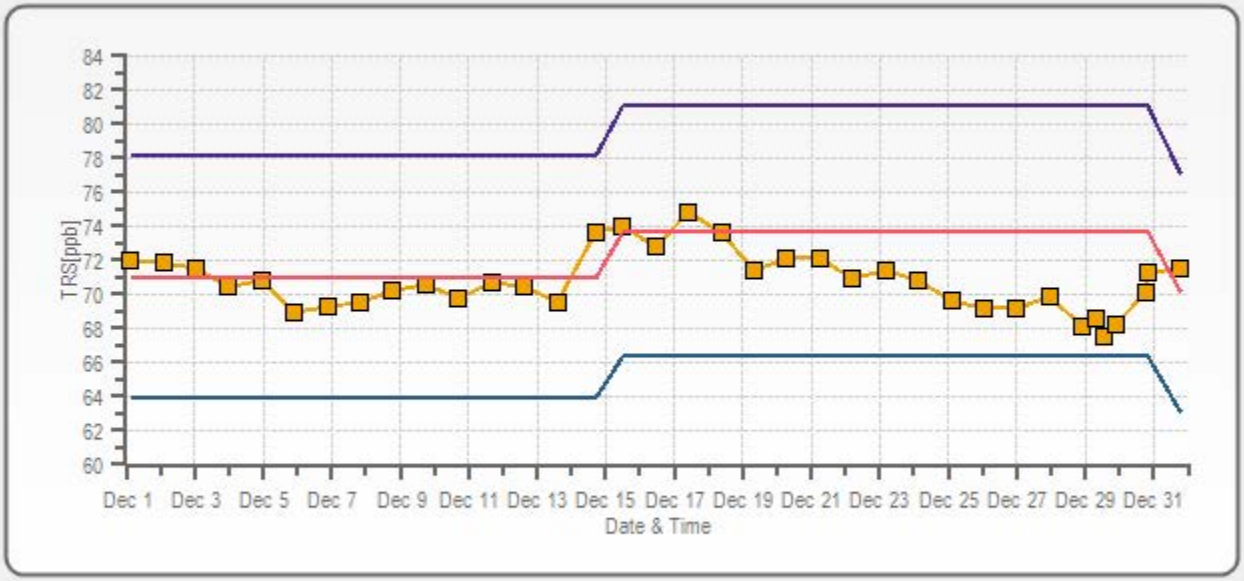
Direction	0-1	1-3	3-10	>10.0	Total
N	7.0	0.0	0.0	0.0	7.0
NE	3.2	0.0	0.0	0.0	3.2
E	2.4	0.0	0.0	0.0	2.4
SE	2.6	0.0	0.0	0.0	2.6
S	17.1	0.0	0.0	0.0	17.1
SW	36.2	0.0	0.0	0.0	36.2
W	21.7	0.0	0.0	0.0	21.7
NW	4.9	0.0	0.0	0.0	4.9
Summary	95.1	0.0	0.0	0.0	95.1

% Icon Classes (ppb)	95 0-1	0 1-3	0 3-10	0 >10.0

PRAMP_RENO Poll.: PRAMP_RENO-TRS[ppb] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 4.89% Calm Poll Avg: 0.37[ppb]



TRS[ppb] Calibration: PRAMP_RENO Monthly: 17/12 Type: Span



TOTAL HYDROCARBON

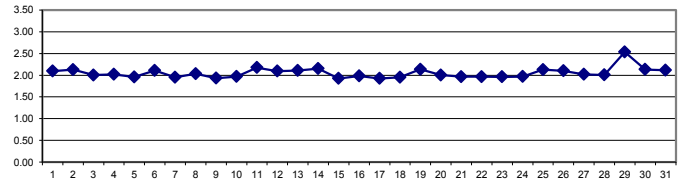
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	1.94	1.95	1.94	S	1.95	1.95	2.16	2.09	2.20	2.66	3.15	2.34	1.95	1.94	1.95	1.96	1.98	2.04	2.03	1.98	1.99	1.99	1.99	2.00	1.94	3.15	2.09	24
2	2.00	1.99	S	1.97	1.98	1.99	1.99	2.01	1.99	2.12	2.05	2.02	2.11	1.99	1.99	1.99	1.99	2.00	2.00	2.16	2.64	3.08	2.39	2.44	1.97	3.08	2.13	24
3	2.01	S	2.02	2.02	2.00	2.00	2.00	2.01	2.01	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	1.99	2.01	2.05	2.12	1.98	2.12	2.00	24
4	S	2.01	2.10	2.06	2.05	2.06	2.14	2.02	2.05	2.12	2.32	2.06	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.95	S	1.94	2.32	2.02	24
5	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.98	1.98	1.97	1.97	S	1.99	1.94	1.99	1.96	24
6	1.99	2.19	2.07	2.48	2.83	2.01	2.58	2.47	2.02	2.19	1.98	1.97	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.96	S	1.96	1.96	1.96	2.83	2.11	24
7	1.95	1.96	1.95	1.95	1.94	2.00	1.97	1.94	2.01	2.03	1.94	1.93	1.94	1.92	1.92	1.93	1.93	1.93	1.94	2.02	S	1.94	1.94	1.94	1.92	2.03	1.95	24
8	1.94	1.95	1.96	1.96	1.96	1.96	1.96	2.05	1.97	1.98	1.97	1.97	2.07	2.03	1.97	1.99	2.11	2.48	1.96	S	2.41	2.17	1.94	1.96	1.94	2.48	2.03	24
9	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.94	1.97	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.93	1.93	1.93	1.92	1.97	1.93	24
10	1.93	1.93	1.94	2.17	1.95	1.95	1.95	1.93	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	S	1.94	1.95	1.95	1.95	2.04	2.37	1.92	2.37	1.97	24
11	2.45	2.15	1.96	2.00	2.12	2.11	2.26	1.97	1.97	2.08	2.15	2.19	2.13	2.15	2.02	2.18	S	2.47	2.28	2.18	2.30	2.32	2.30	2.27	1.96	2.47	2.17	24
12	3.00	2.57	2.27	2.07	2.03	2.04	2.08	2.14	2.05	2.00	1.94	1.92	1.92	1.92	1.92	S	1.93	1.94	1.94	1.94	1.94	2.01	2.66	1.92	3.00	2.09	24
13	2.28	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	S	1.95	1.95	1.96	1.96	2.17	2.73	3.02	2.69	2.46	1.94	3.02	2.11	24
14	2.28	2.35	2.31	2.23	2.46	2.67	2.27	2.35	2.26	2.14	C	C	C	C	C	1.96	1.97	1.95	1.96	2.01	1.93	1.92	1.92	1.92	1.92	2.67	2.15	24
15	1.92	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	S	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.91	1.94	1.93	24
16	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.95	S	2.08	1.97	2.16	1.96	1.96	2.07	2.18	2.03	1.95	1.98	1.93	1.92	1.92	2.18	1.99	24
17	1.94	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.92	1.92	S	1.92	1.91	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.91	1.94	1.92	24
18	1.94	1.94	1.95	1.95	1.95	1.95	1.94	1.94	1.94	S	1.95	1.95	1.96	1.97	1.96	1.99	1.99	1.98	1.95	1.93	1.94	1.94	1.94	1.94	1.93	1.99	1.95	24
19	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	S	2.65	2.37	2.10	2.05	2.02	2.01	1.99	2.06	2.15	2.18	2.34	3.28	2.43	2.03	1.95	1.93	3.28	2.13	24
20	1.95	1.96	1.96	1.96	1.96	1.96	1.97	S	1.95	1.96	1.99	2.07	2.10	2.15	P	P	R	2.01	2.01	2.01	2.01	2.02	2.02	2.02	1.95	2.15	2.00	21
21	2.02	2.01	2.01	2.01	2.01	2.00	S	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.98	1.95	1.95	1.95	1.95	1.94	2.02	1.97	24
22	1.95	1.96	1.96	1.97	1.96	S	1.96	1.96	1.97	1.98	1.99	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.99	1.97	24
23	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.95	1.96	1.99	1.97	1.97	1.97	1.97	1.95	1.99	1.96	24
24	1.97	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.96	2.08	1.96	1.97	1.98	1.97	1.97	1.97	1.96	2.08	1.97	24
25	1.97	1.97	S	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.07	2.02	2.04	2.03	2.18	3.01	2.97	2.27	2.23	2.13	2.06	2.07	1.97	3.01	2.13	24
26	2.12	S	2.13	2.26	2.46	2.21	2.09	1.99	2.24	2.31	2.21	1.97	1.97	1.97	1.98	2.04	2.08	2.02	2.00	2.00	2.07	2.05	2.10	2.06	1.97	2.46	2.10	24
27	S	2.20	2.05	2.04	2.05	2.02	2.03	2.02	2.00	1.99	1.99	2.00	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	S	1.99	2.20	2.02	24
28	2.00	1.99	1.98	1.96	1.97	1.97	1.97	1.97	1.97	2.17	2.34	2.00	1.99	1.97	1.97	1.97	1.97	1.98	2.05	1.99	1.98	1.98	S	1.98	1.96	2.34	2.01	24
29	2.41	2.06	2.04	2.03	2.02	3.53	5.11	4.79	3.69	2.57	2.29	2.02	2.10	2.11	2.57	2.07	2.03	2.01	1.99	2.07	2.12	S	2.42	2.24	1.99	5.11	2.53	24
30	2.43	2.36	1.98	1.98	1.98	1.98	2.03	2.24	2.17	2.10	2.20	2.16	2.20	2.01	2.00	S1	S1	2.16	2.80	1.99	S	1.98	2.01	1.98	1.98	2.80	2.13	22
31	1.98	1.98	1.98	1.98	2.01	2.00	2.05	2.16	2.07	2.07	2.11	2.12	2.12	2.13	2.11	2.13	2.17	2.38	2.46	S	2.17	2.10	2.19	2.13	1.98	2.46	2.11	24
HOURLY MAX	3.00	2.57	2.31	2.48	2.83	3.53	5.11	4.79	3.69	2.66	3.15	2.34	2.20	2.15	2.57	2.18	2.18	3.01	2.97	2.34	3.28	3.08	2.69	2.66				
HOURLY AVG	2.07	2.03	2.00	2.02	2.04	2.06	2.13	2.12	2.07	2.09	2.08	2.01	2.01	1.99	2.00	1.98	1.99	2.07	2.07	2.02	2.11	2.09	2.05	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

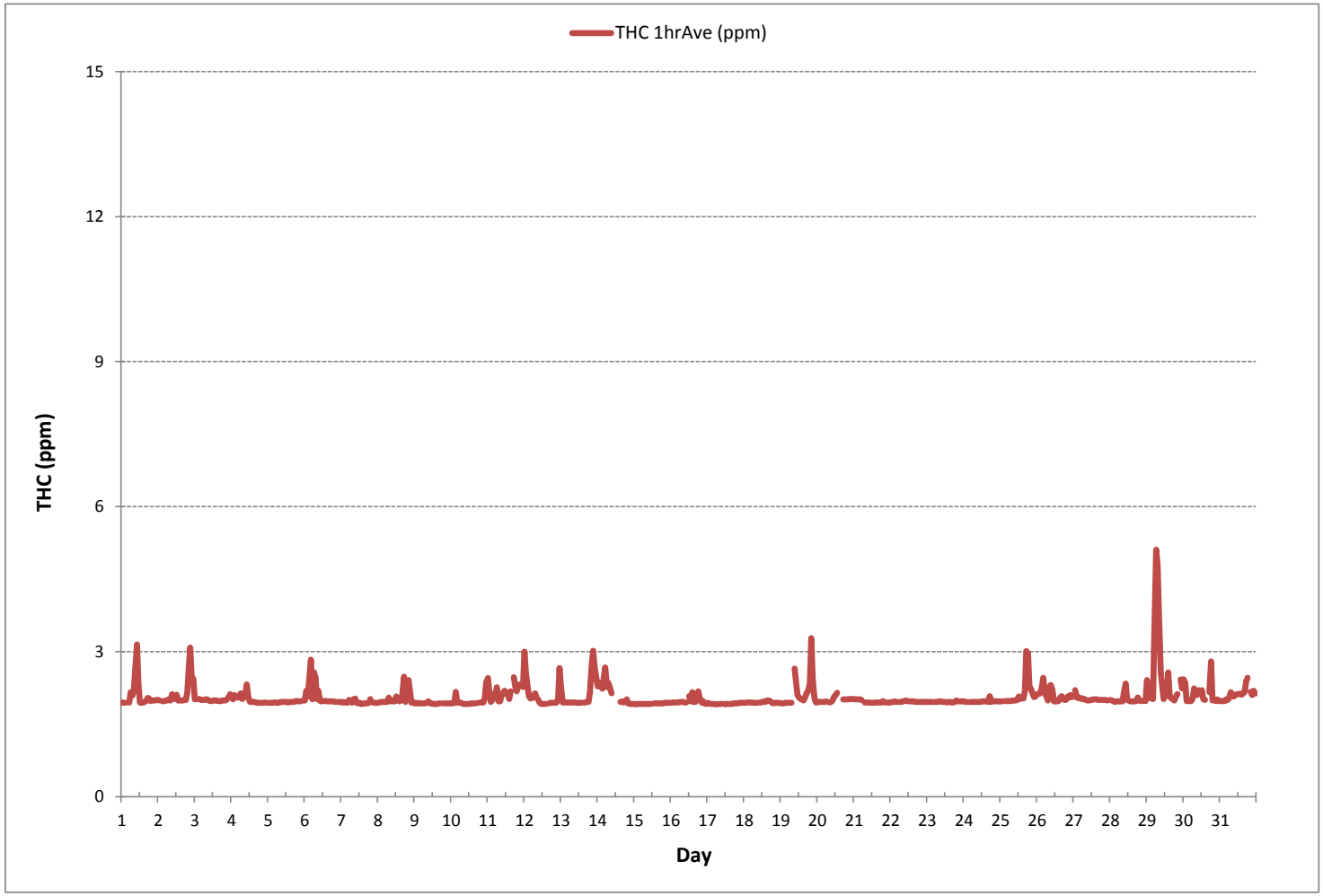
24 HR AVERAGES December 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			702				
MINIMUM 1-HR AVERAGE		1.91	ppm	@ HOUR	1	ON DAY	15
MAXIMUM 1-HR AVERAGE:		5.11	ppm	@ HOUR	6	ON DAY	29
MAXIMUM 24-HR AVERAGE:		2.53	ppm			ON DAY	29
IZS CALIBRATION TIME:	32	hrs		OPERATIONAL TIME:		739	hrs
MONTHLY CALIBRATION TIME:	5	hrs		AMD OPERATION UPTIME:		99.3	%
STANDARD DEVIATION:	0.25			MONTHLY AVERAGE:		2.05	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.97	1.97	1.97	S	1.97	2.16	2.56	2.35	2.52	4.44	7.74	3.77	1.98	1.96	1.98	1.98	2.12	2.24	2.42	2.02	2.02	2.02	2.02	2.03	1.96	7.74	2.53	24
2	2.03	2.04	S	1.99	2.01	2.02	2.02	2.24	2.05	2.38	2.29	2.24	2.34	2.04	2.02	2.02	2.02	2.03	2.03	2.64	3.57	5.37	2.90	3.09	1.99	5.37	2.41	24
3	2.05	S	2.05	2.05	2.03	2.03	2.03	2.03	2.03	2.03	2.01	2.00	2.01	2.06	2.02	2.01	1.99	2.01	2.01	2.01	2.01	2.05	2.20	2.46	1.99	2.46	2.05	24
4	S	2.04	2.34	2.23	2.26	2.35	2.41	2.24	2.54	2.42	2.84	2.38	1.98	1.98	1.98	1.97	1.97	1.96	1.96	1.96	1.96	1.97	1.96	S	1.96	2.84	2.17	24
5	1.97	1.96	1.96	1.96	1.97	1.96	1.97	1.96	1.98	1.98	1.99	1.98	1.97	1.98	1.98	1.99	1.98	1.98	2.03	2.03	1.99	1.99	S	2.02	1.96	2.03	1.98	24
6	2.02	2.61	2.68	3.35	3.94	2.40	5.45	3.91	2.37	2.79	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.02	1.98	S	1.98	1.98	1.98	5.45	2.50	24
7	1.98	1.98	1.97	1.97	1.97	2.19	2.16	1.96	2.46	2.50	1.96	1.95	2.11	1.96	1.95	1.95	1.96	1.96	1.96	2.25	S	1.96	1.96	1.96	1.95	2.50	2.04	24
8	1.97	1.97	1.98	1.98	1.98	1.98	1.98	3.00	1.99	2.00	1.99	2.00	2.24	2.17	2.02	2.18	2.43	3.56	2.02	S	2.77	3.14	1.96	2.41	1.96	3.56	2.25	24
9	1.95	1.95	1.96	1.95	1.95	1.95	1.96	1.96	1.96	2.46	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.96	S	1.96	1.95	1.96	1.95	1.95	1.94	2.46	1.97	24
10	1.95	1.96	2.22	2.72	1.97	2.07	2.02	1.97	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	S	1.97	1.96	1.97	1.97	2.78	3.15	1.94	3.15	2.10	24
11	3.47	2.98	1.98	2.31	2.44	2.72	2.80	2.00	1.99	2.33	2.54	2.49	2.31	2.47	2.36	2.69	S	2.74	2.56	2.79	2.95	2.81	2.59	2.69	1.98	3.47	2.57	24
12	3.75	3.16	2.77	2.18	2.07	2.17	2.41	2.92	2.07	2.04	1.99	1.95	1.95	1.95	1.94	S	1.95	1.97	1.96	1.96	1.96	1.96	2.44	3.13	1.94	3.75	2.29	24
13	5.07	1.97	1.97	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.96	1.97	2.00	S	1.98	1.98	1.99	1.99	2.87	3.88	**8.02**	5.02	4.09	1.96	**8.02**	2.72	24
14	2.91	2.97	2.62	2.47	2.98	3.80	2.69	2.68	2.54	2.77	C	C	C	C	C	1.99	2.00	1.99	2.14	2.12	1.96	1.95	1.94	1.94	1.94	3.80	2.45	24
15	1.94	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.95	1.95	S	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.93	1.97	1.95	24
16	1.96	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	S	2.30	2.16	2.53	2.14	2.12	2.37	2.54	2.54	1.99	2.10	1.96	1.95	1.95	2.54	2.10	24
17	2.09	1.95	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.94	S	1.94	1.94	1.95	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.97	1.93	2.09	1.95	24
18	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	S	1.98	1.98	2.00	2.02	1.99	2.03	2.04	2.03	1.99	1.96	1.96	1.96	1.97	1.97	1.96	2.04	1.98	24
19	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.97	S	5.46	2.58	2.25	2.23	2.08	2.07	2.07	2.96	2.74	3.21	3.04	5.75	4.17	2.28	1.99	1.96	5.75	2.64	24
20	1.99	1.99	1.99	1.98	1.99	2.00	2.00	S	2.05	2.05	2.15	2.22	2.30	2.33	P	P	R	2.05	2.04	2.04	2.03	2.05	2.04	2.05	1.98	2.33	2.07	21
21	2.05	2.05	2.04	2.05	2.05	2.04	S	1.98	1.98	1.97	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.99	1.99	2.05	1.98	1.98	1.99	1.98	1.97	2.05	2.00	24
22	1.98	1.99	1.98	2.00	2.00	S	1.99	1.99	1.99	2.02	2.03	2.02	2.02	2.01	2.00	1.99	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.98	1.98	2.03	2.00	24
23	1.98	1.99	1.99	1.99	S	1.99	1.99	1.99	1.99	2.00	1.99	1.98	1.99	1.98	1.97	1.97	1.97	1.97	1.99	2.05	1.99	2.00	2.00	2.00	1.97	2.05	1.99	24
24	2.00	1.98	1.99	S	1.98	1.99	1.99	1.99	1.98	1.98	1.99	1.99	1.99	1.99	1.99	1.99	1.98	2.23	2.02	2.00	2.00	2.00	2.00	1.99	1.98	2.23	2.00	24
25	1.99	1.99	S	2.00	2.00	2.02	2.00	2.00	2.01	2.01	2.02	2.09	2.18	2.10	2.27	2.17	3.38	4.46	4.73	2.49	2.70	2.52	2.24	2.20	1.99	4.73	2.42	24
26	2.35	S	2.37	2.80	3.18	2.60	2.68	2.03	2.72	3.50	3.10	1.99	1.99	1.99	2.00	2.11	2.11	2.09	2.03	2.03	2.16	2.12	2.16	2.13	1.99	3.50	2.36	24
27	S	2.25	2.23	2.42	2.31	2.16	2.05	2.05	2.03	2.03	2.02	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	S	2.02	2.42	2.09	24
28	2.03	2.03	2.03	1.99	1.99	1.99	1.99	1.99	2.00	4.27	5.84	2.10	2.03	1.99	2.00	1.99	1.99	2.03	2.15	2.03	2.02	2.02	S	2.02	1.99	5.84	2.28	24
29	3.91	2.22	2.06	2.06	2.05	7.19	6.87	6.20	4.88	3.42	2.47	2.15	2.23	2.34	4.29	2.17	2.06	2.04	2.03	2.62	2.94	S	3.08	2.85	2.03	7.19	3.22	24
30	3.22	3.08	2.00	2.01	2.01	2.01	2.26	2.65	3.06	2.26	2.88	2.51	2.53	2.13	2.03	S1	S1	2.88	3.26	2.21	S	2.02	2.24	2.03	2.00	3.26	2.44	22
31	2.03	2.02	2.03	2.04	2.14	2.15	2.29	2.37	2.32	2.19	2.35	2.25	2.17	2.24	2.18	2.24	2.49	2.68	2.95	S	2.37	2.15	2.36	2.29	2.02	2.95	2.27	24
HOURLY MAX	5.07	3.16	2.77	3.35	3.94	7.19	6.87	6.20	4.88	5.46	7.74	3.77	2.53	2.47	4.29	2.69	3.38	4.46	4.73	3.04	5.75	8.02	5.02	4.09				
HOURLY AVG	2.36	2.17	2.10	2.15	2.17	2.32	2.41	2.34	2.24	2.50	2.50	2.14	2.09	2.06	2.12	2.05	2.12	2.26	2.26	2.19	2.37	2.49	2.27	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

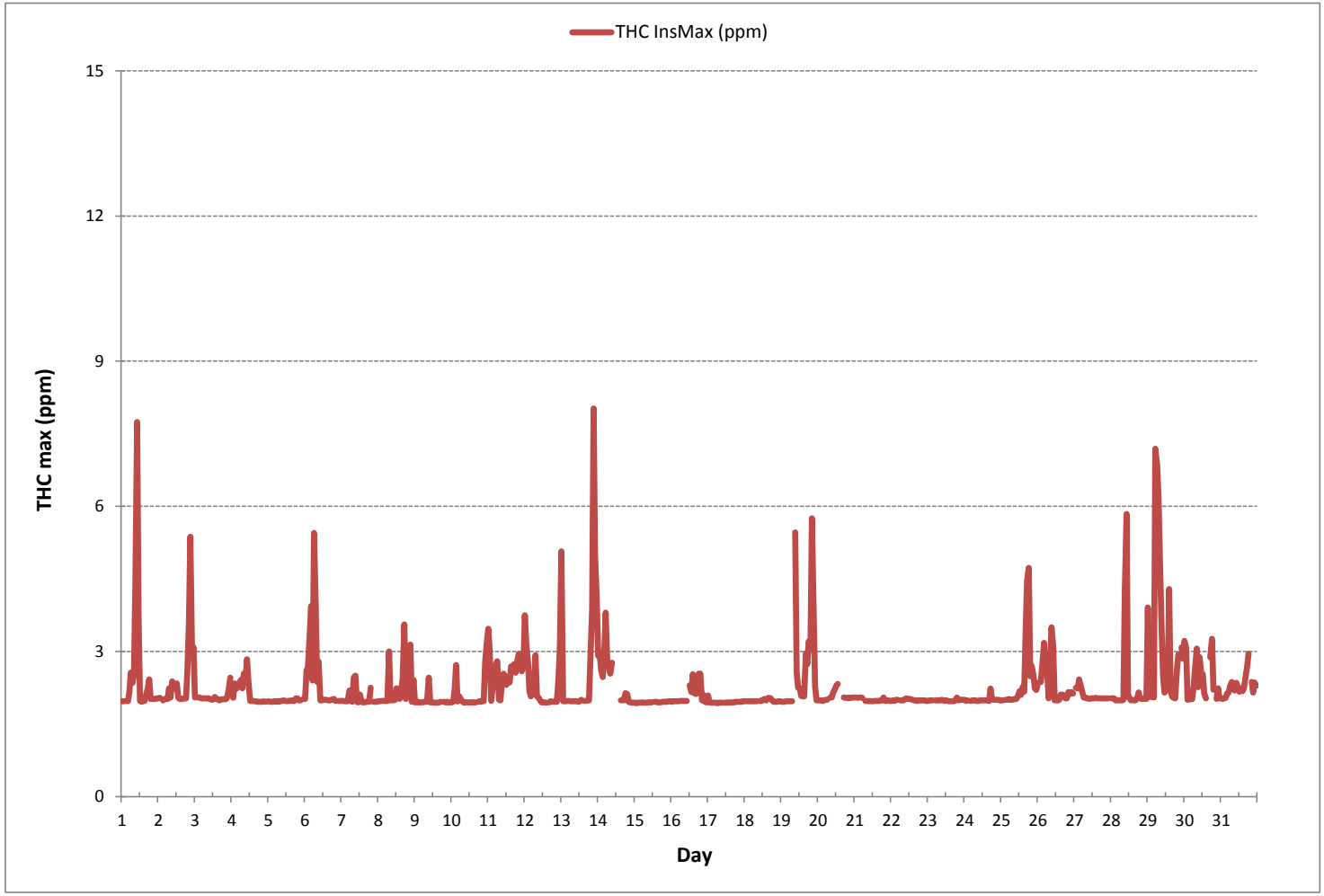
NUMBER OF NON-ZERO READINGS: 702

MAXIMUM INSTANTANEOUS VALUE: 8.02 ppm @ HOUR 21 ON DAY 13

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.68

OPERATIONAL TIME: 739 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



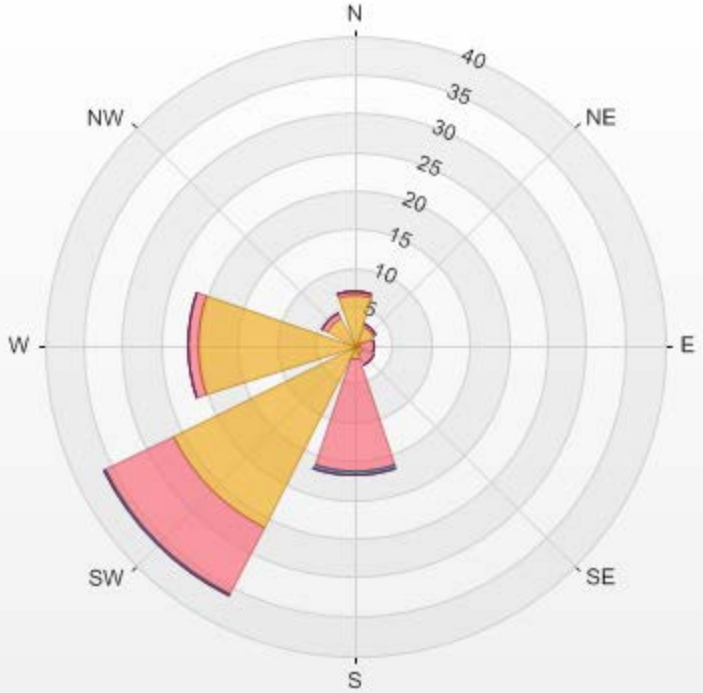
Wind: PRAMP_RENO
Poll.: PRAMP_RENO-THC55[ppm]
Monthly: 17/12
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.13% Calm Avg: 2.34 [ppm]

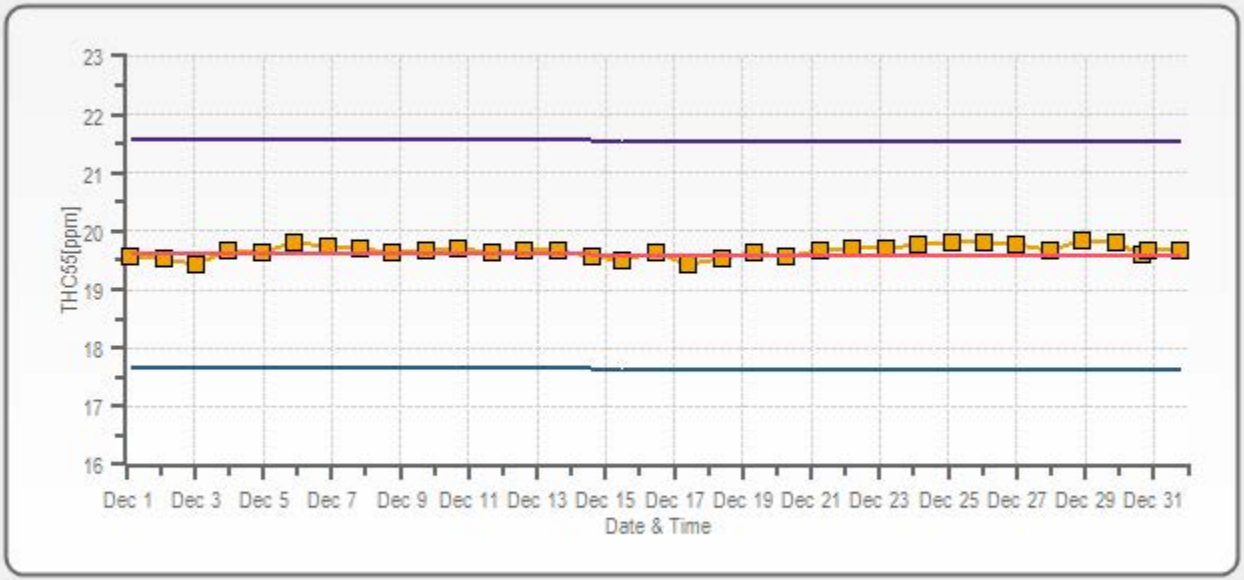
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	6.7	0.3	0.0	0.0	0.0	7.0
NE	2.7	0.4	0.0	0.0	0.0	3.1
E	0.9	1.7	0.0	0.0	0.0	2.6
SE	1.3	1.6	0.0	0.0	0.0	2.9
S	1.7	14.5	0.6	0.0	0.0	16.8
SW	26.2	9.7	0.3	0.0	0.0	36.2
W	20.2	1.3	0.0	0.0	0.0	21.5
NW	4.0	0.9	0.0	0.0	0.0	4.8
Summary	63.7	30.3	0.9	0.0	0.0	94.9

% Icon Classes (ppm)	64 0-2	30 2-3	1 3-5	0 5-10	0 >10.0

PRAMP_RENO Poll.: PRAMP_RENO-THC55[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.13% Calm Poll Avg: 2.34[ppm]



THC55[ppm] Calibration: PRAMP_RENO Monthly: 17/12 Type: Span



METHANE

Maxxam
A Bureau Veritas Group Company

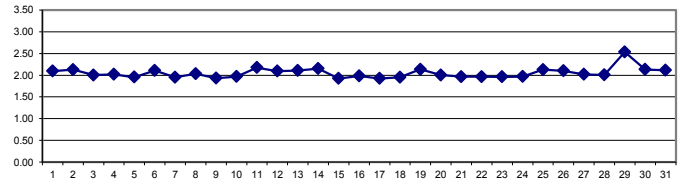
METHANE Hourly Averages (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.94	1.95	1.94	S	1.95	1.95	2.15	2.09	2.20	2.66	3.15	2.34	1.95	1.94	1.95	1.96	1.98	2.04	2.03	1.98	1.99	1.99	1.99	2.00	1.94	3.15	2.09	24
2	2.00	1.99	S	1.97	1.98	1.99	1.99	2.01	1.99	2.12	2.05	2.02	2.11	1.99	1.99	1.99	1.99	2.00	2.00	2.16	2.64	3.08	2.39	2.44	1.97	3.08	2.13	24
3	2.01	S	2.02	2.02	2.00	2.00	2.00	2.01	2.01	1.99	1.98	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.98	1.99	2.01	2.05	2.12	1.98	2.12	2.00	24
4	S	2.01	2.09	2.05	2.05	2.06	2.14	2.02	2.05	2.12	2.32	2.06	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.95	S	1.94	2.32	2.02	24
5	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.94	1.96	1.96	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.98	1.98	1.96	1.97	S	1.99	1.94	1.99	1.96	24
6	1.99	2.19	2.07	2.48	2.83	2.01	2.58	2.47	2.02	2.19	1.97	1.97	1.98	1.98	1.98	1.97	1.97	1.97	1.97	1.97	1.96	S	1.96	1.96	1.96	2.83	2.11	24
7	1.95	1.95	1.95	1.95	1.94	2.00	1.97	1.94	2.01	2.03	1.94	1.93	1.94	1.92	1.92	1.93	1.93	1.93	1.94	2.02	S	1.94	1.94	1.94	1.92	2.03	1.95	24
8	1.94	1.95	1.96	1.96	1.96	1.96	1.96	2.05	1.97	1.98	1.97	1.97	2.07	2.03	1.97	1.99	2.11	2.48	1.95	S	2.41	2.17	1.94	1.96	1.94	2.48	2.03	24
9	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.94	1.97	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.93	S	1.93	1.93	1.93	1.93	1.93	1.92	1.97	1.93	24
10	1.93	1.93	1.94	2.17	1.95	1.95	1.95	1.93	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	S	1.94	1.95	1.95	1.95	2.04	2.37	1.92	2.37	1.97	24
11	2.45	2.15	1.96	2.00	2.12	2.11	2.26	1.97	1.97	2.08	2.15	2.19	2.13	2.15	2.02	2.18	S	2.47	2.28	2.18	2.30	2.32	2.30	2.27	1.96	2.47	2.17	24
12	3.00	2.56	2.25	2.07	2.03	2.04	2.07	2.14	2.05	2.00	1.94	1.92	1.92	1.92	1.92	S	1.93	1.94	1.94	1.94	1.94	2.01	2.66	1.92	3.00	2.09	24
13	2.28	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	S	1.95	1.95	1.96	1.96	2.17	2.73	3.02	2.69	2.46	1.94	3.02	2.11	24
14	2.28	2.35	2.31	2.23	2.46	2.67	2.27	2.35	2.26	2.14	C	C	C	C	C	1.96	1.97	1.95	1.96	2.01	1.93	1.92	1.92	**1.91**	**1.91**	2.67	2.15	24
15	1.92	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	S	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.91	1.94	1.93	24
16	1.94	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.95	S	2.08	1.97	2.16	1.96	1.96	2.07	2.18	2.03	1.95	1.97	1.93	1.92	1.92	2.18	1.98	24
17	1.94	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.92	S	1.92	1.91	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.91	1.94	1.92	24
18	1.94	1.94	1.95	1.95	1.95	1.95	1.94	1.94	1.94	S	1.95	1.95	1.96	1.97	1.96	1.99	1.99	1.98	1.95	1.93	1.94	1.94	1.94	1.94	1.93	1.99	1.95	24
19	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	S	2.65	2.37	2.10	2.05	2.02	2.01	1.99	2.06	2.15	2.18	2.34	3.28	2.43	2.03	1.95	1.93	3.28	2.13	24
20	1.95	1.96	1.96	1.96	1.96	1.96	1.97	S	1.95	1.96	1.99	2.07	2.10	2.15	P	P	R	2.01	2.01	2.01	2.01	2.02	2.02	2.02	1.95	2.15	2.00	21
21	2.02	2.01	2.01	2.01	2.01	2.00	S	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.98	1.95	1.95	1.95	1.95	1.94	2.02	1.97	24
22	1.95	1.96	1.96	1.97	1.96	S	1.96	1.96	1.97	1.98	1.99	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.99	1.97	24
23	1.96	1.96	1.96	1.96	S	1.96	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.95	1.95	1.96	1.99	1.97	1.97	1.97	1.97	1.95	1.99	1.96	24
24	1.97	1.96	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.96	2.08	1.96	1.97	1.98	1.97	1.97	1.97	1.96	2.08	1.97	24
25	1.97	1.97	S	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.07	2.02	2.04	2.03	2.18	3.01	2.97	2.27	2.23	2.13	2.06	2.07	1.97	3.01	2.13	24
26	2.12	S	2.13	2.26	2.46	2.21	2.09	1.99	2.24	2.31	2.21	1.97	1.97	1.97	1.98	2.04	2.08	2.02	2.00	2.00	2.07	2.05	2.10	2.06	1.97	2.46	2.10	24
27	S	2.20	2.05	2.04	2.05	2.02	2.03	2.02	2.00	1.99	1.99	2.00	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	S	1.99	2.20	2.02	24
28	2.00	1.99	1.98	1.96	1.97	1.97	1.97	1.97	1.97	2.17	2.34	2.00	1.99	1.97	1.97	1.97	1.97	1.98	2.05	1.99	1.98	1.98	S	1.98	1.96	2.34	2.01	24
29	2.41	2.06	2.04	2.03	2.02	3.53	**5.11**	4.79	3.69	2.57	2.29	2.02	2.10	2.11	2.57	2.07	2.03	2.01	1.99	2.07	2.12	S	2.42	2.24	1.99	**5.11**	**2.53**	24
30	2.43	2.36	1.98	1.98	1.98	1.98	2.03	2.24	2.17	2.10	2.20	2.16	2.20	2.01	2.00	**S1**	**S1**	2.16	2.80	1.99	S	1.98	2.01	1.98	1.98	2.80	2.13	22
31	1.98	1.98	1.98	1.98	2.01	2.00	2.05	2.16	2.07	2.07	2.11	2.12	2.12	2.13	2.11	2.13	2.15	2.37	2.46	S	2.17	2.10	2.19	2.13	1.98	2.46	2.11	24
HOURLY MAX	3.00	2.56	2.31	2.48	2.83	3.53	5.11	4.79	3.69	2.66	3.15	2.34	2.20	2.15	2.57	2.18	2.18	3.01	2.97	2.34	3.28	3.08	2.69	2.66				
HOURLY AVG	2.07	2.03	2.00	2.02	2.04	2.06	2.13	2.12	2.07	2.09	2.08	2.01	2.01	1.99	2.00	1.98	1.99	2.07	2.07	2.02	2.11	2.09	2.05	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

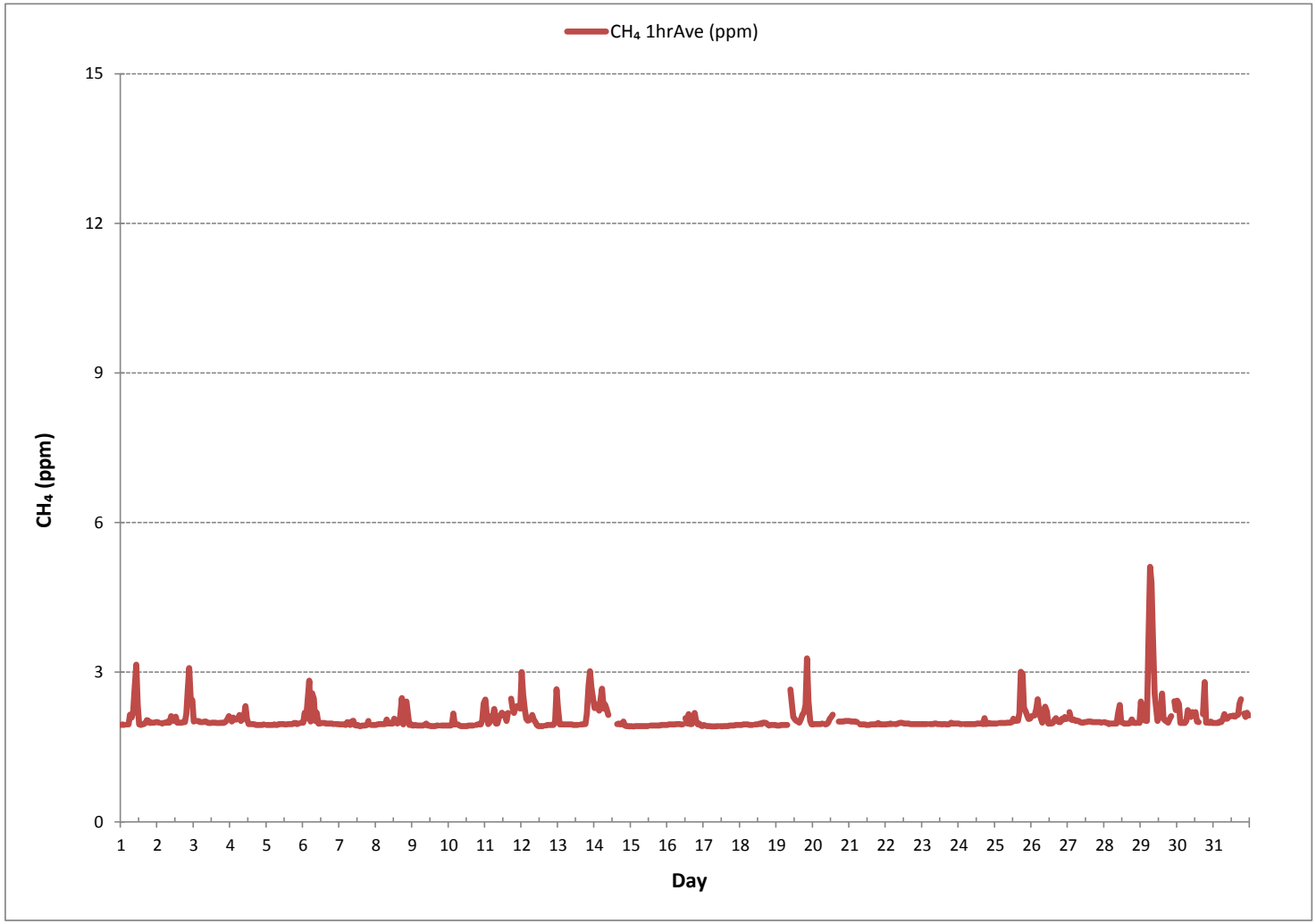
24 HR AVERAGES December 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			702				
MINIMUM 1-HR AVERAGE	1.91	ppm	@ HOUR	23	ON DAY	14	
MAXIMUM 1-HR AVERAGE:	5.11	ppm	@ HOUR	6	ON DAY	29	
MAXIMUM 24-HR AVERAGE:	2.53	ppm			ON DAY	29	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			739	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			99.3	%
STANDARD DEVIATION:	0.25		MONTHLY AVERAGE:			2.05	ppm

METHANE Hourly Averages (CH_4 ppm)



METHANE MAX Instantaneous Maximum (CH_4 ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.96	1.97	1.96	S	1.97	2.16	2.55	2.34	2.52	4.39	7.71	3.76	1.98	1.96	1.97	1.98	2.11	2.23	2.41	2.01	2.01	2.01	2.01	2.02	1.96	7.71	2.52	24
2	2.02	2.03	S	1.99	2.00	2.00	2.00	2.24	2.05	2.38	2.28	2.24	2.33	2.03	2.00	2.00	2.00	2.02	2.02	2.64	3.58	5.37	2.89	3.08	1.99	5.37	2.40	24
3	2.05	S	2.03	2.04	2.02	2.01	2.02	2.03	2.02	2.01	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.05	2.18	2.46	1.99	2.46	2.04	24
4	S	2.04	2.33	2.22	2.26	2.34	2.41	2.24	2.54	2.42	2.83	2.38	1.98	1.98	1.97	1.97	1.96	1.96	1.95	1.96	1.96	1.96	1.96	S	1.95	2.83	2.16	24
5	1.97	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.98	1.98	1.98	1.98	1.97	1.97	1.97	1.98	1.98	1.98	2.02	2.01	1.98	1.99	S	2.00	1.95	2.02	1.98	24
6	2.00	2.60	2.68	3.35	3.95	2.40	5.44	3.91	2.37	2.77	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.98	S	1.97	1.97	1.97	5.44	2.49	24
7	1.97	1.97	1.97	1.96	1.96	2.18	2.16	1.96	2.45	2.50	1.95	1.95	2.10	1.96	1.95	1.95	1.95	1.95	1.95	2.25	S	1.95	1.96	1.96	1.95	2.50	2.04	24
8	1.96	1.97	1.97	1.98	1.98	1.97	1.98	2.99	1.99	1.99	1.99	1.99	2.24	2.17	1.99	2.18	2.43	3.56	2.02	S	2.75	3.13	1.96	2.40	1.96	3.56	2.24	24
9	1.94	1.95	1.96	1.94	1.95	1.95	1.95	1.95	1.96	2.46	1.95	1.95	1.94	1.93	1.93	1.93	1.94	1.95	S	1.95	1.94	1.95	1.95	1.94	1.93	2.46	1.97	24
10	1.94	1.95	2.21	2.71	1.97	2.07	2.01	1.96	1.93	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	S	1.96	1.96	1.96	1.96	2.77	3.15	1.93	3.15	2.09	24
11	3.47	2.98	1.97	2.30	2.43	2.71	2.73	2.00	1.99	2.32	2.54	2.49	2.30	2.47	2.35	2.68	S	2.73	2.56	2.77	2.95	2.80	2.58	2.68	1.97	3.47	2.56	24
12	3.75	3.16	2.76	2.09	2.07	2.17	2.40	2.91	2.07	2.04	1.98	1.94	1.94	1.94	1.93	S	1.94	1.96	1.96	1.95	1.95	1.95	2.44	3.12	1.93	3.75	2.28	24
13	5.06	1.96	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.99	S	1.97	1.97	1.98	1.98	2.86	3.87	**8.01**	5.00	4.09	1.96	**8.01**	2.71	24
14	2.90	2.97	2.61	2.46	2.98	3.80	2.68	2.67	2.54	2.75	C	C	C	C	C	1.98	1.99	1.98	2.13	2.11	1.95	1.94	1.94	1.93	1.93	3.80	2.44	24
15	1.93	1.92	1.93	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.94	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.92	1.96	1.94	24
16	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.98	1.98	1.97	1.97	S	2.29	2.15	2.53	2.13	2.11	2.36	2.54	2.54	1.98	2.09	1.95	1.95	1.95	2.54	2.10	24
17	2.08	1.95	1.93	1.93	1.93	1.93	1.92	1.93	1.93	1.93	S	1.93	1.93	1.94	1.93	1.94	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.92	2.08	1.95	24
18	1.96	1.96	1.97	1.97	1.96	1.96	1.96	1.96	1.96	S	1.97	1.97	1.99	2.01	1.99	2.03	2.04	2.01	1.98	1.95	1.96	1.96	1.96	1.96	1.95	2.04	1.98	24
19	1.95	1.95	1.96	1.96	1.96	1.96	1.97	1.96	S	5.45	2.57	2.25	2.22	2.08	2.07	2.07	2.95	2.73	3.20	3.04	5.76	4.17	2.27	1.98	1.95	5.76	2.63	24
20	1.98	1.99	1.98	1.98	1.98	1.99	1.99	S	2.05	2.05	2.14	2.21	2.29	2.32	P	P	R	2.05	2.03	2.03	2.03	2.03	2.04	2.05	1.98	2.32	2.06	21
21	2.04	2.04	2.03	2.03	2.04	2.04	S	1.97	1.97	1.97	1.98	1.96	1.96	1.97	1.97	1.97	1.98	1.98	1.98	2.05	1.98	1.98	1.98	1.97	1.96	2.05	1.99	24
22	1.98	1.99	1.98	1.99	1.99	S	1.98	1.99	1.99	2.01	2.01	2.00	2.00	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.98	1.98	1.98	1.98	1.98	2.01	1.99	24
23	1.98	1.98	1.98	1.98	S	1.98	1.98	1.98	1.99	1.99	1.99	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.98	2.05	1.98	1.99	1.99	1.99	1.97	2.05	1.98	24
24	1.99	1.98	1.98	S	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.98	2.22	2.00	1.99	2.00	1.99	1.99	1.99	1.98	2.22	1.99	24
25	1.99	1.99	S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.08	2.17	2.09	2.27	2.16	3.37	4.45	4.72	2.49	2.69	2.52	2.23	2.19	1.99	4.72	2.41	24
26	2.34	S	2.36	2.78	3.18	2.59	2.67	2.01	2.72	3.50	3.09	1.98	1.99	1.99	2.00	2.10	2.10	2.08	2.03	2.01	2.15	2.11	2.15	2.12	1.98	3.50	2.35	24
27	S	2.24	2.23	2.41	2.30	2.16	2.05	2.05	2.02	2.01	2.01	2.01	2.02	2.03	2.03	2.02	2.02	2.01	2.02	2.02	2.01	2.02	2.01	S	2.01	2.41	2.08	24
28	2.01	2.01	2.03	1.98	1.99	1.99	1.99	1.99	1.99	4.26	5.85	2.09	2.03	1.99	2.00	1.99	1.98	2.01	2.14	2.02	2.00	2.00	S	2.00	1.98	5.85	2.28	24
29	3.90	2.22	2.06	2.06	2.05	7.17	6.88	6.19	4.87	3.42	2.47	2.14	2.23	2.33	4.29	2.17	2.06	2.04	2.02	2.61	2.93	S	3.07	2.84	2.02	7.17	**3.22**	24
30	3.22	3.07	1.99	2.00	2.00	1.99	2.26	2.64	3.06	2.26	2.87	2.51	2.53	2.12	2.01	S1	S1	2.87	3.26	2.20	S	2.01	2.23	2.01	1.99	3.26	2.43	22
31	2.02	2.01	2.02	2.04	2.13	2.14	2.28	2.36	2.31	2.18	2.34	2.25	2.17	2.23	2.17	2.24	2.42	2.67	2.95	S	2.36	2.14	2.36	2.28	2.01	2.95	2.26	24
HOURLY MAX	5.06	3.16	2.76	3.35	3.95	7.17	6.88	6.19	4.87	5.45	7.71	3.76	2.53	2.47	4.29	2.68	3.37	4.45	4.72	3.04	5.76	8.01	5.00	4.09				
HOURLY AVG	2.36	2.16	2.10	2.14	2.16	2.32	2.40	2.34	2.24	2.49	2.49	2.13	2.08	2.05	2.11	2.05	2.11	2.25	2.26	2.18	2.37	2.48	2.27	2.28				

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

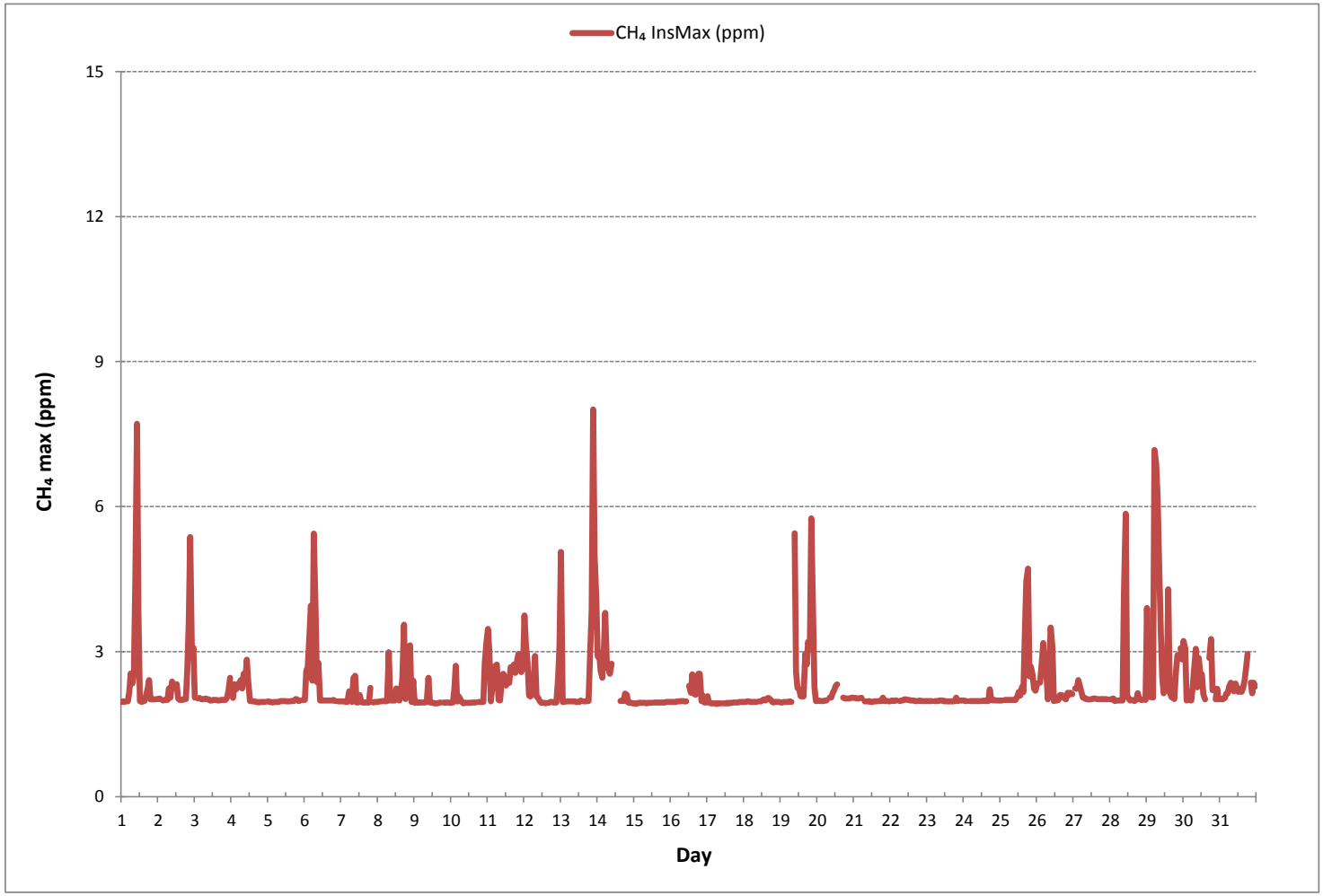
NUMBER OF NON-ZERO READINGS: 702

MAXIMUM INSTANTANEOUS VALUE: 8.01 ppm @ HOUR 21 ON DAY 13

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.68

OPERATIONAL TIME: 739 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-CH_4[ppm]
Monthly: 17/12
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

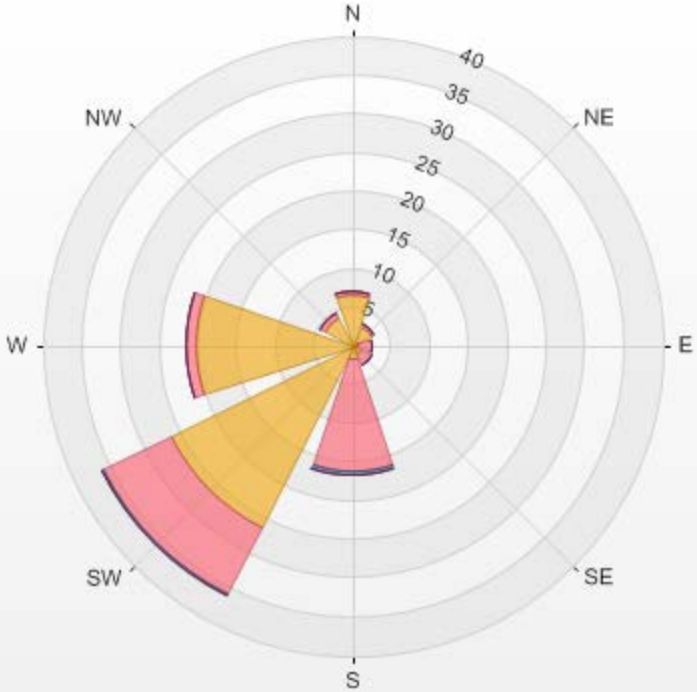
Calm: 5.13%

Calm Avg: 2.34 [ppm]

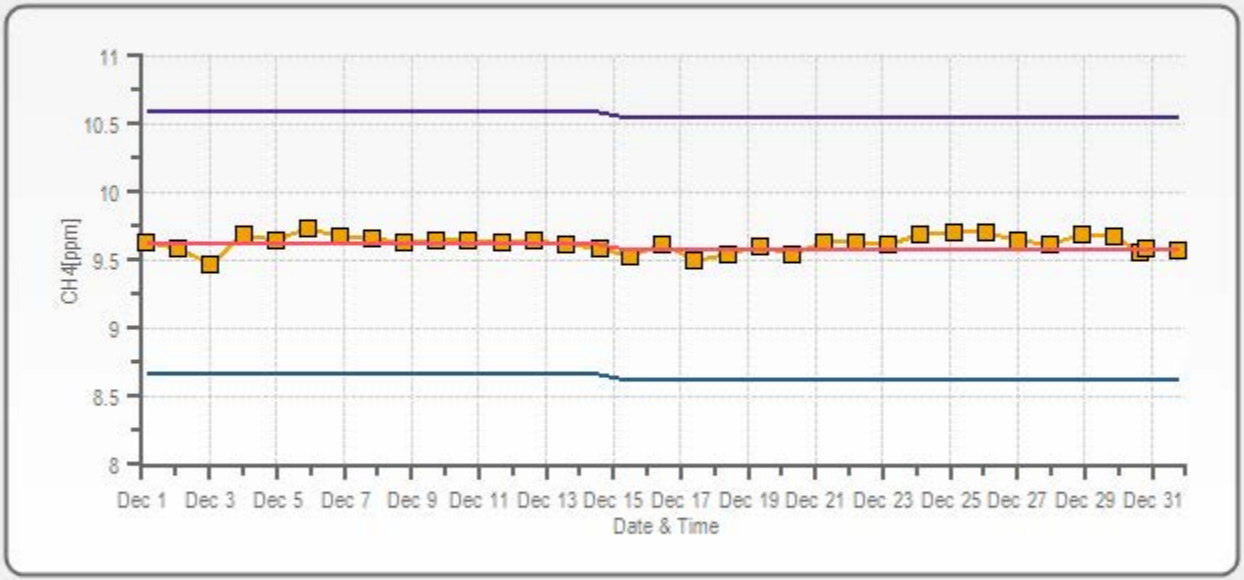
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	6.7	0.3	0.0	0.0	0.0	7.0
NE	2.7	0.4	0.0	0.0	0.0	3.1
E	0.9	1.7	0.0	0.0	0.0	2.6
SE	1.3	1.6	0.0	0.0	0.0	2.9
S	1.7	14.5	0.6	0.0	0.0	16.8
SW	26.2	9.7	0.3	0.0	0.0	36.2
W	20.2	1.3	0.0	0.0	0.0	21.5
NW	4.0	0.9	0.0	0.0	0.0	4.8
Summary	63.7	30.3	0.9	0.0	0.0	94.9

% Icon Classes (ppm)	64 0-2	30 2-3	1 3-5	0 5-10	0 >10.0

PRAMP_RENO Poll.: PRAMP_RENO-CH4[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.13% Calm Poll Avg: 2.34[ppm]



CH4[ppm] Calibration: PRAMP_RENO Monthly: 17/12 Type: Span



NON-METHANE HYDROCARBON

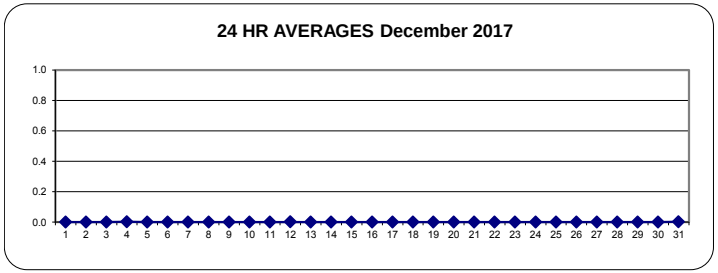
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	**0.00**	0.00	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
2	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
3	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
4	**S**	0.00	0.02	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	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.02	**0.00**	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
12	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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	**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
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**C**	**C**	**C**	**C**	**C**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
17	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
18	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
19	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
20	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	**P**	**P**	**R**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21
21	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	0.00	**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
24	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
25	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	**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
27	**S**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**S1**	**S1**	0.00	0.00	0.00	**S**	0.00	0.00	0.00	0.00	0.00	0.00	22
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.03**	0.01	0.00	**S**	0.00	0.00	0.00	0.00	0.00	**0.03**	0.00	24
HOURLY MAX	0.00	0.00	0.02	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	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

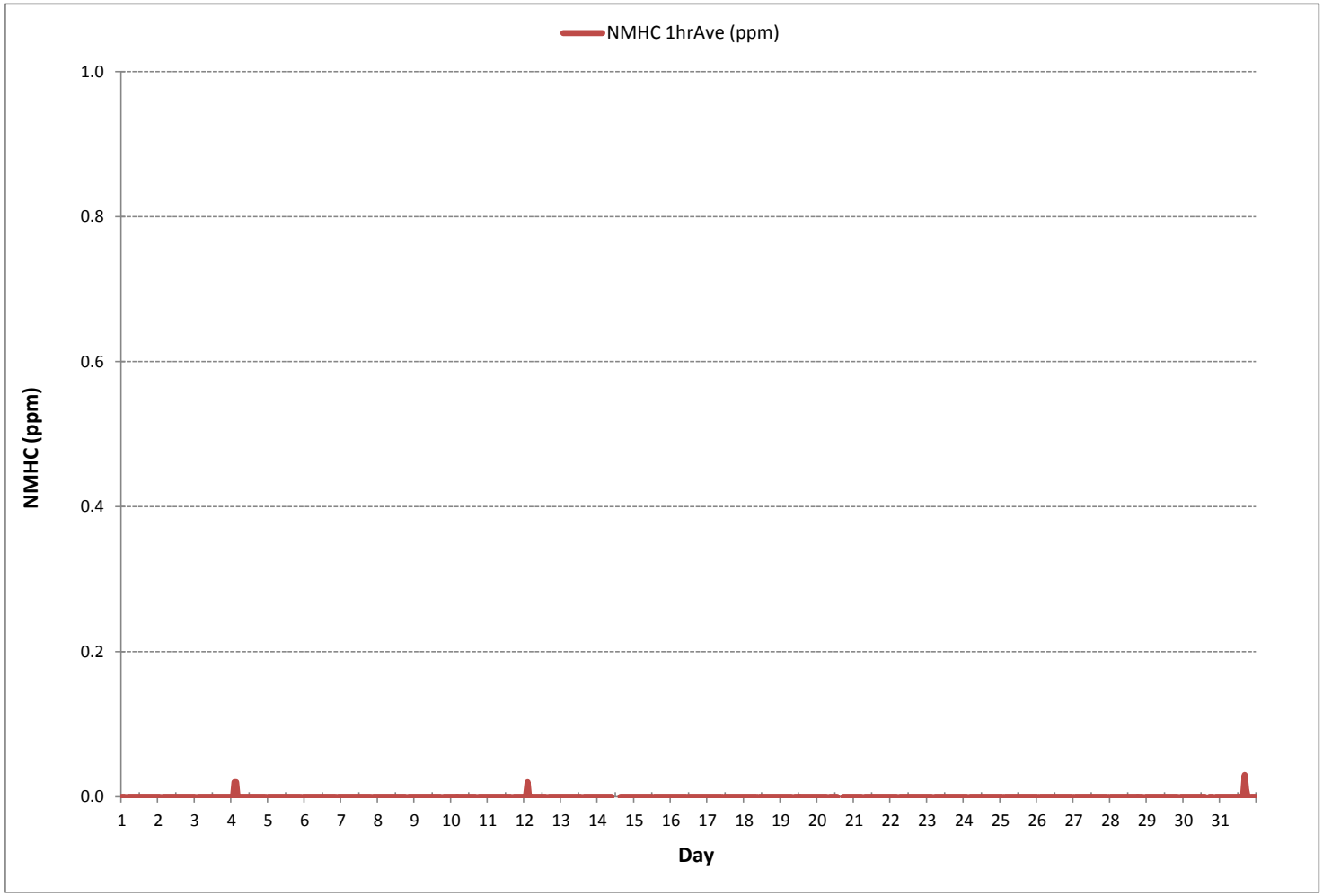
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			5				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	0	ON DAY	1	
MAXIMUM 1-HR AVERAGE:	0.03	ppm	@ HOUR	16	ON DAY	31	
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY	4	
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:			739	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:			99.3	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:			0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	0.00	0.00	0.00	S	0.00	0.00	0.10	0.00	0.01	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	24
2	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.11	0.01	24
3	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	24
4	S	0.00	0.17	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.17	0.01	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.04	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.07	0.01	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	S	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	24
12	0.08	0.12	0.13	0.10	0.00	0.02	0.04	0.06	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	0.13	0.02	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	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
14	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	24
17	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
18	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
19	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	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	24
20	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	P	P	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21
21	0.00	0.00	0.00	0.00	0.01	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	0.01	0.00	24
22	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	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	0.01	0.00	24
23	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
24	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
25	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	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
27	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	24
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	S1	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	22
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.02	0.00	0.14	0.12	0.07	S	0.00	0.00	0.00	0.00	0.00	0.14	0.02	24
HOURLY MAX	0.08	0.12	0.17	0.12	0.01	0.02	0.10	0.06	0.01	0.04	0.07	0.01	0.04	0.06	0.07	0.07	0.14	0.12	0.07	0.00	0.00	0.11	0.01	0.00				
HOURLY AVG	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00				

STATUS FLAG CODES

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

MONTHLY SUMMARY

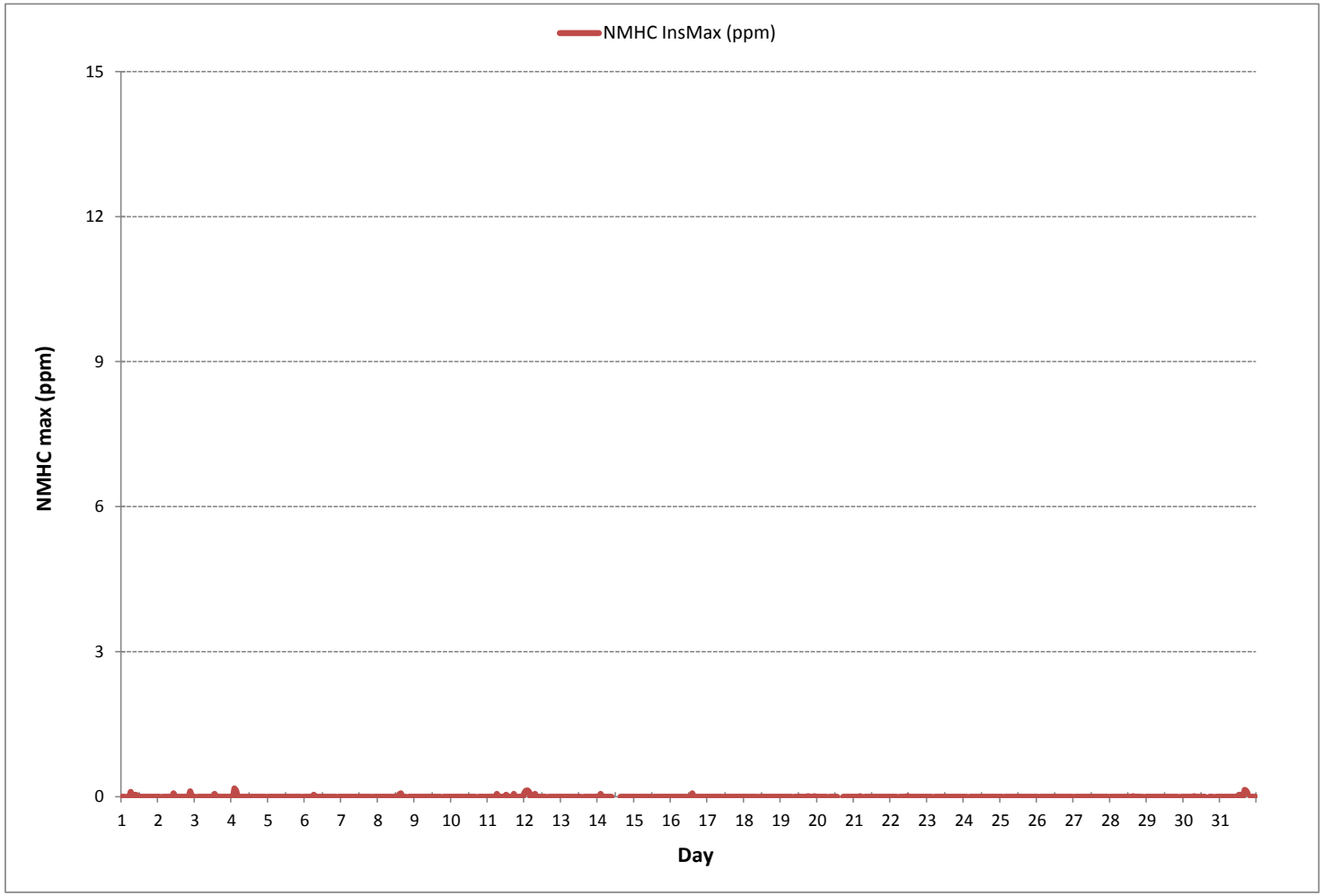
NUMBER OF NON-ZERO READINGS: 37

MAXIMUM INSTANTANEOUS VALUE: 0.17 ppm @ HOUR 2 ON DAY 4

IZS CALIBRATION TIME: 32 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.02

OPERATIONAL TIME: 739 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



Wind: PRAMP_RENO
Poll.: PRAMP_RENO-NMHC[ppm]
Monthly: 17/12
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

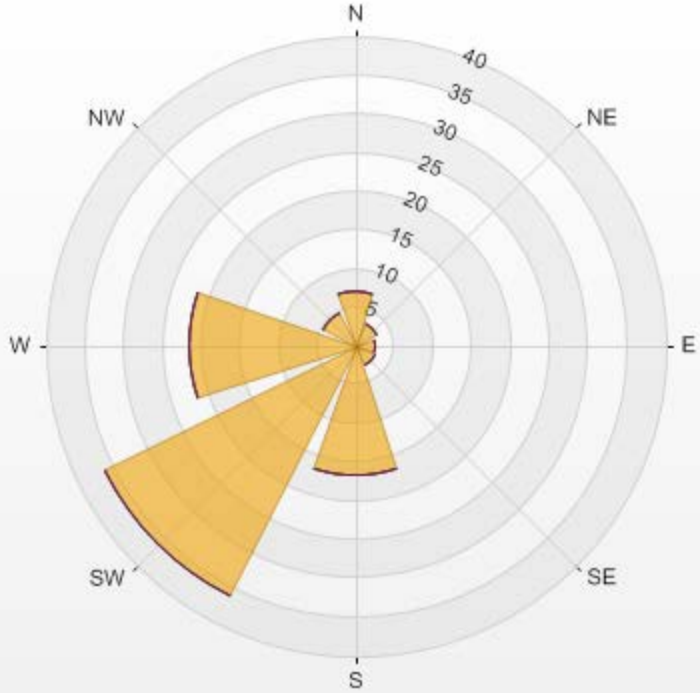
Calm: 5.13%

Calm Avg: 0.00 [ppm]

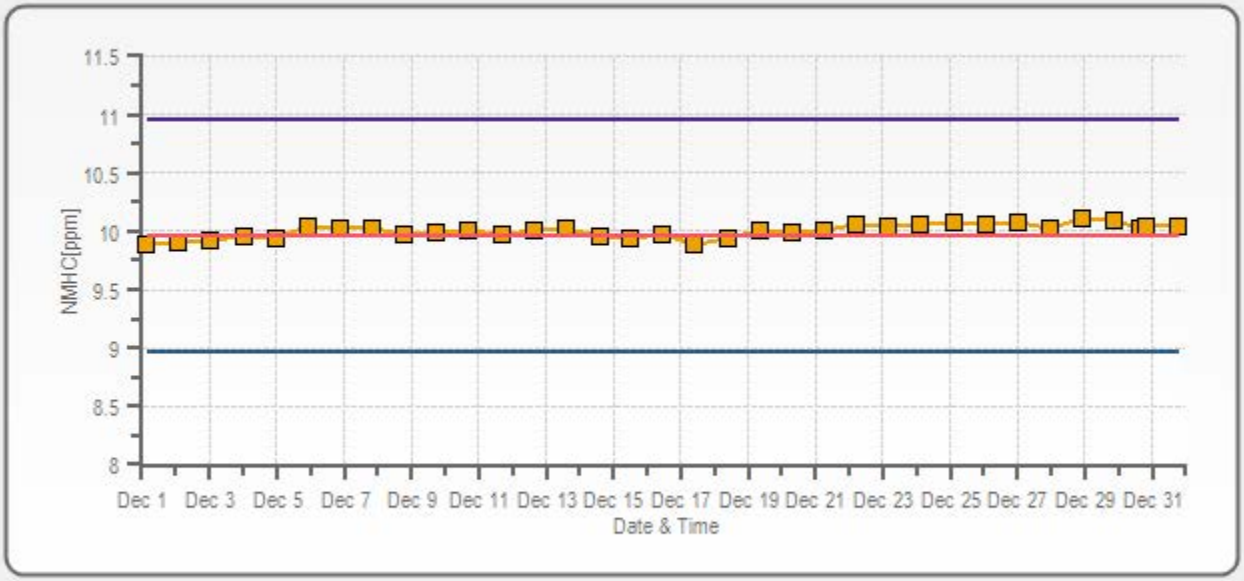
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	7.0	0.0	0.0	0.0	0.0	7.0
NE	3.1	0.0	0.0	0.0	0.0	3.1
E	2.6	0.0	0.0	0.0	0.0	2.6
SE	2.9	0.0	0.0	0.0	0.0	2.9
S	16.8	0.0	0.0	0.0	0.0	16.8
SW	36.2	0.0	0.0	0.0	0.0	36.2
W	21.5	0.0	0.0	0.0	0.0	21.5
NW	4.8	0.0	0.0	0.0	0.0	4.8
Summary	94.9	0.0	0.0	0.0	0.0	94.9

% Icon Classes (ppm)	95 0-0.1	0 0.1-0.3	0 0.3-1	0 1-2	0 >2.0

PRAMP_RENO Poll.: PRAMP_RENO-NMHC[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.13% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_RENO Monthly: 17/12 Type: Span



WIND SPEED

Maxxam
A Bureau Veritas Group Company

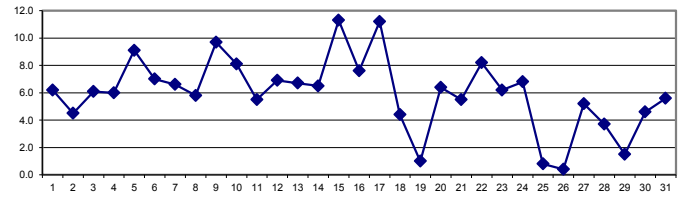
WIND SPEED Hourly Averages (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	11.1	9.3	8.0	7.7	7.6	6.6	6.0	4.4	4.3	4.1	4.2	6.8	7.1	4.5	4.8	7.4	5.7	5.2	4.5	5.6	8.4	6.6	5.3	5.9	4.1	11.1	6.2	24
2	3.8	5.2	7.4	6.0	6.2	5.2	5.1	2.9	3.2	3.1	4.9	5.5	4.3	5.9	5.6	6.8	6.1	5.3	4.0	3.4	3.1	4.1	3.6	3.6	2.9	7.4	4.5	24
3	5.1	7.1	7.8	7.2	7.8	6.1	6.0	6.5	5.8	7.1	7.9	8.8	13.1	8.2	6.3	8.4	6.6	6.9	5.9	4.8	3.4	1.0	1.0	0.3	0.3	13.1	6.1	24
4	2.3	1.1	1.2	1.6	2.6	4.3	4.8	4.4	6.0	4.7	5.2	8.0	9.7	9.4	8.5	8.9	9.2	9.1	8.6	10.8	9.7	11.7	10.1	10.4	1.1	11.7	6.0	24
5	11.4	12.9	12.7	12.4	13.0	10.5	12.1	11.5	9.9	8.5	7.9	8.4	7.4	6.6	9.0	8.6	8.9	7.1	5.8	6.7	6.9	6.9	7.2	7.8	5.8	13.0	9.1	24
6	7.0	5.6	5.3	4.2	5.1	6.0	4.6	6.5	7.5	7.5	9.0	9.8	9.8	7.8	7.8	11.2	8.1	6.2	6.6	5.4	6.6	8.4	9.1	9.0	4.2	11.2	7.0	24
7	7.7	8.7	9.3	8.2	7.6	4.7	6.5	6.6	3.9	7.3	7.6	8.8	5.9	5.4	7.4	7.8	6.9	8.0	5.8	3.8	6.6	6.2	5.5	5.3	3.8	9.3	6.6	24
8	6.7	5.6	5.5	7.8	9.1	8.3	6.4	5.4	4.9	7.2	8.7	7.4	4.7	6.1	6.3	4.5	2.4	3.2	6.6	2.6	1.5	5.2	8.6	8.3	1.5	9.1	5.8	24
9	12.3	11.4	7.7	10.1	11.9	11.6	11.6	9.4	7.7	6.4	9.7	10.8	10.0	10.8	14.0	12.1	9.4	9.2	9.1	7.9	9.1	10.4	8.1	4.6	4.6	14.0	9.7	24
10	5.7	5.4	3.1	3.8	6.7	8.1	8.9	16.3	**18.1**	13.7	11.5	9.9	9.4	11.0	10.5	11.3	10.2	7.2	8.6	8.2	7.3	6.2	3.1	3.0	3.0	**18.1**	8.1	24
11	4.7	7.0	7.4	4.9	4.1	4.9	4.8	6.2	5.1	5.8	6.0	6.5	6.4	6.7	5.7	5.8	3.9	5.0	5.7	6.5	5.1	5.9	6.2	3.3	3.3	7.4	5.5	24
12	3.9	3.2	6.4	8.4	7.2	3.9	2.9	4.4	7.1	10.1	9.2	10.5	10.7	10.1	10.6	8.8	8.5	9.9	8.3	8.5	8.6	8.5	5.5	2.5	2.5	10.7	6.9	24
13	4.3	6.0	8.9	10.1	10.2	7.9	7.8	9.5	10.3	11.2	9.1	8.0	8.5	8.8	6.4	6.2	6.2	4.9	4.8	3.5	3.2	4.1	5.0	3.9	3.2	11.2	6.7	24
14	5.5	4.8	4.7	4.8	5.1	5.7	5.2	4.2	4.9	7.5	8.5	8.3	10.2	12.2	13.3	11.4	9.9	9.3	4.5	1.0	4.1	5.5	8.5	7.9	1.0	13.3	6.5	24
15	6.5	9.7	10.5	13.9	13.6	10.0	11.3	14.4	11.7	12.0	12.4	11.7	10.5	12.3	12.3	12.3	12.5	12.1	12.2	11.9	11.2	10.5	10.3	8.6	6.5	14.4	**11.3**	24
16	9.6	9.7	10.1	8.1	8.1	7.7	7.5	6.4	5.9	5.9	6.9	7.7	5.3	8.0	6.3	7.8	9.6	8.6	6.2	8.9	10.9	9.3	13.3	12.3	5.3	13.3	7.6	24
17	8.9	9.8	14.3	14.3	13.9	15.2	16.4	13.9	8.7	10.8	10.5	10.7	16.1	12.3	12.4	11.3	11.4	12.9	9.5	9.1	7.5	7.4	10.5	9.0	7.4	16.4	11.2	24
18	8.2	8.7	8.2	7.9	7.8	8.3	8.3	8.3	10.4	7.0	7.1	6.0	5.0	4.5	3.0	1.8	1.4	2.8	7.1	9.3	10.3	8.9	10.5	11.2	1.4	11.2	4.4	24
19	9.0	6.0	5.7	7.4	4.4	3.0	2.1	1.4	0.5	2.3	0.8	1.8	2.6	3.5	2.0	1.6	0.7	0.9	0.5	1.5	3.0	1.9	3.1	5.0	0.5	9.0	1.0	24
20	4.3	4.2	7.6	7.2	7.6	8.7	7.6	6.8	6.6	6.9	4.4	3.7	5.3	5.5	**P**	**P**	5.3	7.1	5.8	9.5	8.7	7.1	6.6	9.5	3.7	9.5	6.4	22
21	11.2	12.1	11.2	9.5	6.1	5.1	4.8	4.6	4.6	6.1	6.6	7.8	8.1	7.9	8.1	7.5	7.2	7.7	5.1	3.8	4.8	5.6	5.9	5.4	3.8	12.1	5.5	24
22	6.8	5.9	6.7	8.3	7.9	8.3	9.0	7.8	8.6	8.3	8.6	8.9	9.4	9.1	8.8	9.3	8.9	8.5	10.7	10.2	7.7	6.9	7.4	6.6	5.9	10.7	8.2	24
23	8.3	9.1	7.8	8.7	7.7	6.4	7.1	7.3	7.4	6.7	6.1	5.9	7.1	9.3	10.5	7.6	6.5	4.8	2.3	3.6	5.9	6.3	8.1	8.9	2.3	10.5	6.2	24
24	9.6	9.9	12.0	14.0	12.7	10.9	11.3	10.2	12.9	12.0	8.6	3.9	4.5	4.3	3.2	4.0	2.9	0.8	1.9	3.8	4.4	4.5	6.5	7.4	0.8	14.0	6.8	24
25	10.2	7.6	5.1	4.8	5.4	4.2	6.4	5.9	3.4	1.1	1.7	1.5	1.6	2.1	2.4	1.8	1.2	2.5	3.2	3.8	3.8	5.0	4.9	4.7	1.1	10.2	0.8	24
26	4.7	3.1	3.2	2.3	2.1	2.8	5.1	5.5	3.6	2.3	2.2	2.3	3.9	3.2	3.9	3.2	2.3	4.1	4.2	4.3	2.4	1.8	2.3	0.8	0.8	5.5	0.4	24
27	0.4	1.4	3.0	2.8	2.7	3.8	4.1	4.7	5.5	5.8	6.7	6.4	7.0	7.1	6.8	6.9	6.3	6.1	6.6	8.0	6.7	5.6	6.8	5.9	0.4	8.0	5.2	24
28	6.0	4.3	8.8	11.5	11.8	7.9	6.1	5.9	3.1	1.3	1.2	3.5	4.0	4.6	4.4	2.7	0.8	1.2	4.0	5.7	4.2	3.6	1.2	0.6	0.6	11.8	3.7	24
29	0.5	0.5	0.5	**0.0**	0.1	0.1	0.1	1.1	0.6	2.3	2.1	3.3	1.4	1.5	2.2	1.2	3.2	1.7	3.5	3.5	5.5	6.8	4.4	5.5	**0.0**	6.8	1.5	24
30	6.7	4.9	3.1	4.4	3.1	4.8	7.6	6.3	4.8	1.6	4.5	5.6	5.6	2.7	0.9	1.4	2.9	3.6	7.2	8.7	7.8	7.8	7.4	8.8	0.9	8.8	4.6	24
31	8.3	7.4	6.8	7.6	5.7	6.6	3.9	2.3	3.9	4.3	4.9	6.5	7.7	6.6	5.4	4.1	3.2	4.8	2.8	3.9	6.6	8.2	9.2	9.4	2.3	9.4	5.6	24
HOURLY MAX	12.3	12.9	14.3	14.3	13.9	15.2	16.4	16.3	18.1	13.7	12.4	11.7	16.1	12.3	14.0	12.3	12.5	12.9	12.2	11.9	11.2	11.7	13.3	12.3				
HOURLY AVG	4.4	4.4	4.7	4.5	4.6	4.1	3.9	4.3	4.3	4.5	4.4	5.0	5.0	4.8	4.8	5.0	4.5	4.7	4.0	3.9	4.1	4.1	4.3	3.8				

STATUS FLAG CODES

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

24 HR AVERAGES December 2017

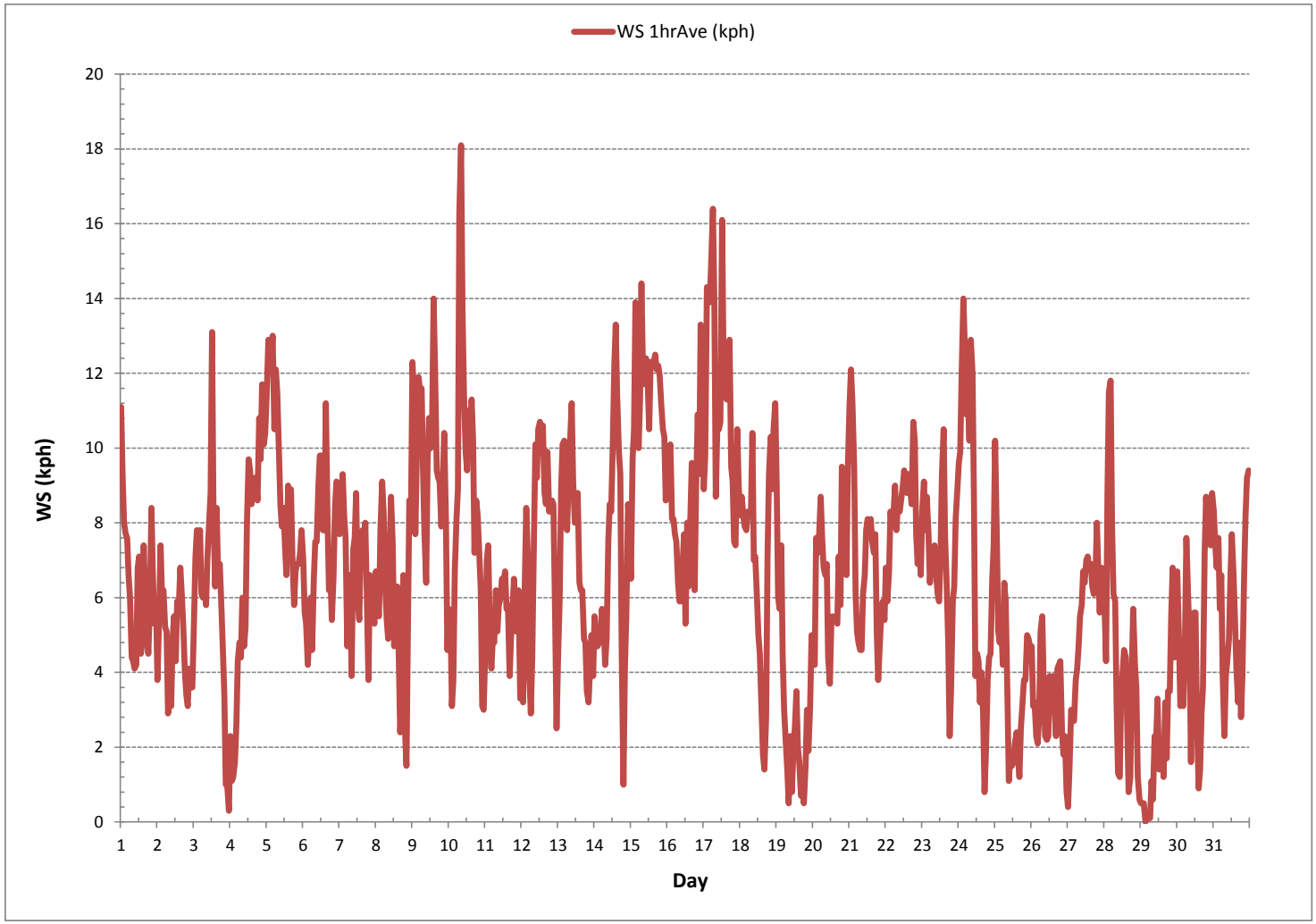


LAST CALIBRATION:	April 6, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			741				
MINIMUM 1-HR AVERAGE	0.0	kph	@ HOUR	3	ON DAY	29	
MAXIMUM 1-HR AVERAGE:	18.1	kph	@ HOUR	8	ON DAY	10	
MAXIMUM 24-HR AVERAGE:	11.3	kph			ON DAY	15	
			OPERATIONAL TIME:			742	hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	3.2		MONTHLY AVERAGE:			4.4	kph

WIND SPEED Hourly Averages (WS kph)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST) / HR END (MST) / DAY	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
1	24.0	18.9	16.9	16.3	17.6	15.9	16.0	7.8	6.6	6.4	7.3	19.3	16.4	11.3	13.5	22.1	15.3	10.6	10.3	13.8	19.5	17.4	11.9	15.5	6.4	24.0	14.6	24
2	8.9	14.2	17.3	16.2	15.2	13.8	14.1	7.9	7.3	7.2	13.0	14.3	10.4	16.1	14.8	14.4	14.5	18.6	11.4	7.9	6.1	7.3	5.6	7.7	5.6	18.6	11.8	24
3	16.1	23.7	17.5	14.3	14.8	13.5	13.7	13.9	11.5	16.0	19.8	24.0	31.1	20.9	20.7	20.3	16.4	20.7	13.8	13.1	9.6	5.9	4.1	4.1	4.1	31.1	15.8	24
4	6.1	3.7	4.4	5.4	9.4	12.3	9.2	7.2	15.5	11.9	10.6	24.7	22.4	21.8	17.9	21.2	22.5	24.9	22.4	30.1	24.5	29.7	23.7	35.8	3.7	35.8	17.4	24
5	27.5	32.4	36.3	36.6	37.0	35.5	38.1	37.2	27.8	29.1	28.4	23.1	26.2	22.0	21.4	20.5	23.6	16.6	18.7	15.6	16.8	19.6	18.9	17.6	15.6	38.1	26.1	24
6	15.1	11.4	15.4	6.8	13.0	14.9	10.1	15.2	16.9	21.6	21.0	25.0	26.7	23.1	21.5	28.5	20.7	20.0	18.7	13.0	20.4	24.6	24.8	23.7	6.8	28.5	18.8	24
7	20.0	24.6	28.2	24.7	23.2	15.8	16.8	15.5	12.8	17.6	17.1	21.1	17.4	13.5	18.7	19.1	22.2	21.5	14.9	10.8	17.2	15.8	12.5	14.9	10.8	28.2	18.2	24
8	14.8	15.1	20.7	23.6	26.7	20.9	21.7	13.3	17.8	18.1	26.4	24.3	17.2	16.7	21.3	13.6	6.9	9.9	21.3	11.9	5.7	15.0	31.7	26.2	5.7	31.7	18.4	24
9	31.5	26.7	27.3	26.9	31.1	31.3	29.9	25.7	21.1	23.7	25.1	32.3	28.1	26.2	35.6	32.1	25.6	22.8	21.5	21.0	24.7	25.9	18.2	15.6	15.6	35.6	26.2	24
10	14.7	12.7	9.8	13.0	17.3	20.6	23.7	45.3	**49.8**	39.2	42.8	30.3	30.9	31.9	30.5	30.1	27.3	18.7	19.1	18.3	16.0	15.5	13.0	7.4	7.4	**49.8**	24.1	24
11	9.9	18.7	16.6	11.2	12.2	10.0	12.1	14.8	12.1	13.3	12.3	11.1	9.3	10.7	12.3	9.1	7.9	9.2	13.3	15.8	16.1	14.1	14.0	6.5	6.5	18.7	12.2	24
12	11.8	7.8	23.8	19.0	17.1	16.2	10.0	18.4	20.0	27.5	27.2	27.0	28.0	26.5	30.0	24.6	22.1	23.6	21.8	20.6	23.4	22.2	18.9	5.9	5.9	30.0	20.6	24
13	10.8	15.8	23.5	25.7	24.2	19.1	18.6	22.9	25.0	25.1	22.6	20.4	20.7	21.1	19.3	13.9	16.8	12.7	12.0	7.9	5.5	7.3	9.4	9.8	5.5	25.7	17.1	24
14	14.8	9.6	12.4	7.1	9.8	13.1	12.6	7.3	9.5	19.1	21.8	21.0	26.4	30.8	30.1	25.8	26.8	25.2	21.8	9.1	11.6	16.8	24.1	27.0	7.1	30.8	18.1	24
15	16.5	27.8	28.6	37.9	30.8	26.6	31.3	34.6	31.9	28.3	36.9	31.4	27.7	36.6	34.4	29.1	28.2	29.2	28.7	27.5	27.3	26.8	26.3	21.4	16.5	37.9	29.4	24
16	25.2	23.6	22.3	20.8	20.5	18.1	17.9	14.7	16.0	16.6	14.8	16.7	14.4	22.8	15.6	17.4	22.5	23.4	12.4	27.9	26.8	28.3	30.1	35.8	12.4	35.8	21.0	24
17	23.3	23.4	40.3	41.4	43.8	37.1	39.6	32.2	23.7	26.7	26.8	29.0	39.2	31.1	42.7	32.6	28.8	29.9	25.9	29.4	21.5	19.4	27.4	19.4	19.4	43.8	**30.6**	24
18	20.7	21.7	21.5	22.0	18.5	21.9	24.7	22.5	24.6	20.7	19.6	19.8	13.9	13.3	12.6	8.9	5.5	8.8	20.1	20.5	24.5	22.6	24.1	24.9	5.5	24.9	19.1	24
19	20.4	15.0	15.4	14.3	12.0	7.7	6.1	3.9	2.6	4.9	5.8	6.2	7.3	7.8	5.0	8.7	4.6	2.6	2.6	6.0	7.3	9.2	8.3	14.7	2.6	20.4	8.3	24
20	13.5	10.9	18.6	17.8	19.1	22.8	20.4	17.2	18.4	18.6	12.7	10.8	13.6	14.1	**P**	**P**	14.2	18.7	19.0	22.1	22.8	22.7	19.5	23.3	10.8	23.3	17.8	22
21	26.8	25.3	26.4	23.2	17.7	16.8	10.8	12.5	12.9	15.5	19.9	19.8	23.3	20.6	21.9	20.0	20.2	27.6	18.2	13.2	14.4	20.4	17.9	18.8	10.8	27.6	19.3	24
22	17.4	16.0	20.0	21.2	17.2	20.4	20.5	19.4	20.4	20.8	20.6	20.9	23.5	24.5	23.4	27.4	23.7	22.8	27.2	28.0	22.7	21.8	27.4	19.6	16.0	28.0	22.0	24
23	27.3	28.0	20.5	20.3	26.9	25.9	25.7	28.0	25.7	23.1	21.2	22.5	23.2	24.2	27.3	24.4	20.8	15.1	8.5	10.3	14.1	27.9	29.8	24.8	8.5	29.8	22.7	24
24	26.2	25.1	32.0	36.4	31.1	27.8	28.1	24.7	27.4	26.7	26.1	10.7	9.3	8.8	8.5	8.2	7.4	3.9	5.8	9.3	10.7	11.0	16.3	18.4	3.9	36.4	18.3	24
25	23.2	19.0	12.5	11.7	14.1	11.1	13.6	13.6	9.0	4.9	5.4	4.3	5.2	4.5	5.6	5.1	3.2	7.0	5.1	8.3	7.2	13.0	11.7	17.5	3.2	23.2	9.8	24
26	14.3	12.9	14.1	8.1	9.5	9.1	13.6	13.6	14.0	9.5	7.2	5.2	9.3	8.6	9.7	8.1	6.8	11.4	12.5	13.2	9.0	7.1	8.7	4.4	4.4	14.3	10.0	24
27	3.1	5.2	7.2	6.4	6.6	10.3	10.6	13.5	14.0	16.3	17.2	16.7	17.5	19.2	17.9	16.9	14.4	16.6	18.5	20.9	16.8	14.1	17.8	16.2	3.1	20.9	13.9	24
28	16.9	16.7	32.8	29.0	27.3	22.4	15.1	11.9	10.1	5.1	6.0	9.1	10.3	10.4	9.5	7.4	3.8	4.3	7.5	14.9	12.7	9.2	5.7	4.3	3.8	32.8	12.6	24
29	2.2	2.8	2.9	1.5	1.5	1.5	2.2	3.8	2.8	4.7	4.9	7.4	5.6	4.9	6.4	7.1	5.5	5.3	8.6	11.5	13.6	16.3	10.5	14.6	1.5	16.3	6.2	24
30	16.2	14.7	8.0	9.9	8.7	12.4	19.3	15.3	14.8	8.3	13.4	14.1	13.4	5.6	3.1	4.6	4.8	12.4	16.9	21.0	17.9	20.1	20.3	24.4	3.1	24.4	13.3	24
31	21.6	18.2	17.1	22.5	16.6	18.8	14.5	8.4	10.3	15.4	14.8	19.7	19.2	17.3	13.3	10.8	7.1	9.0	5.3	9.7	15.4	19.5	22.4	20.1	5.3	22.5	15.3	24
HOURLY MAX	31.5	32.4	40.3	41.4	43.8	37.1	39.6	45.3	49.8	39.2	42.8	32.3	39.2	36.6	42.7	32.6	28.8	29.9	28.7	30.1	27.3	29.7	31.7	35.8				
HOURLY AVG	17.4	17.5	19.7	19.1	19.0	18.2	18.1	17.5	17.2	17.5	18.3	18.8	18.9	18.3	18.8	17.7	15.8	16.2	15.6	16.2	16.2	17.6	17.9	17.4				

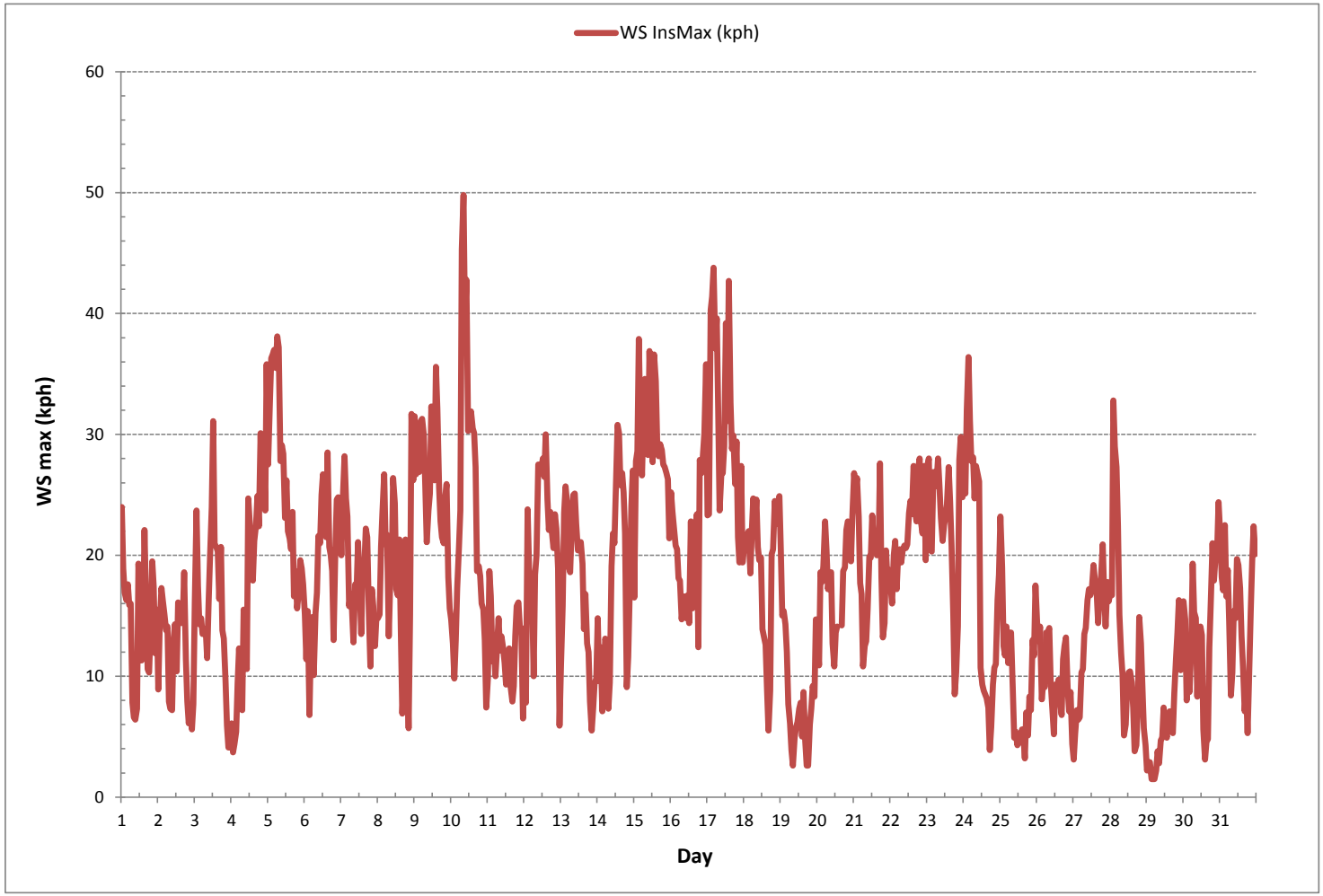
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	49.8	kph	@ HOUR	8	ON DAY	10
OPERATIONAL TIME:					742	hrs

WIND SPEED Instantaneous Maximum (WS kph)



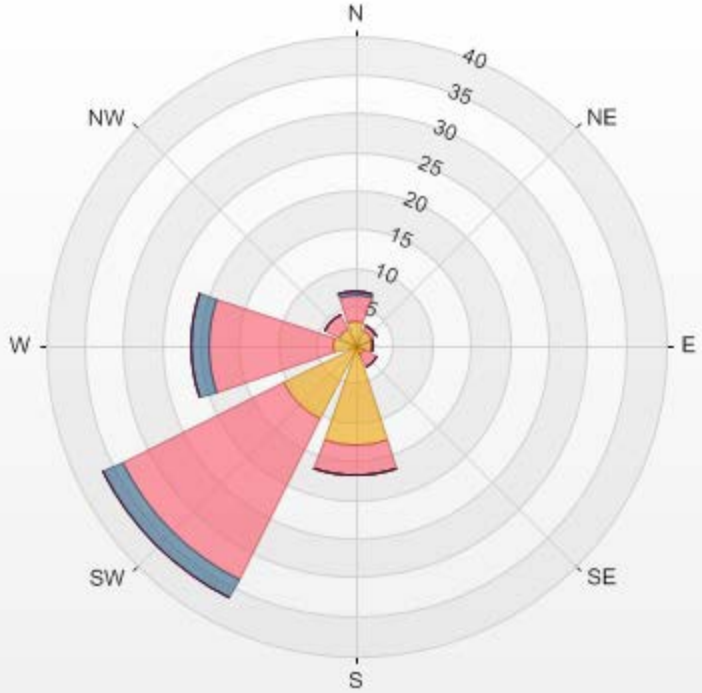
Wind: PRAMP_RENO
Monitor: WSP [kph]
Monthly: 17/12
Type: WindRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.39%

Direction	1.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	3.1	3.5	0.4	0.0	0.0	0.0	7.0
NE	2.3	0.7	0.1	0.0	0.0	0.0	3.1
E	2.0	0.4	0.0	0.0	0.0	0.0	2.4
SE	1.4	1.6	0.0	0.0	0.0	0.0	3.0
S	12.8	4.0	0.0	0.0	0.0	0.0	16.8
SW	10.5	23.2	2.7	0.0	0.0	0.0	36.4
W	3.0	16.0	2.3	0.0	0.0	0.0	21.3
NW	2.6	2.0	0.0	0.0	0.0	0.0	4.6
Summary	37.6	51.5	5.5	0.0	0.0	0.0	94.6

% Icon Classes (kph)	38 1.5-6.0	51 6.0-12.0	6 12.0-20.0	0 20.0-29.0	0 29.0-39.0	0 >39.0

PRAMP_RENO 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.39% Calm Wind Avg Speed: 0.88(kph)



WIND DIRECTION

WIND DIRECTION Hourly Averages (WD)

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

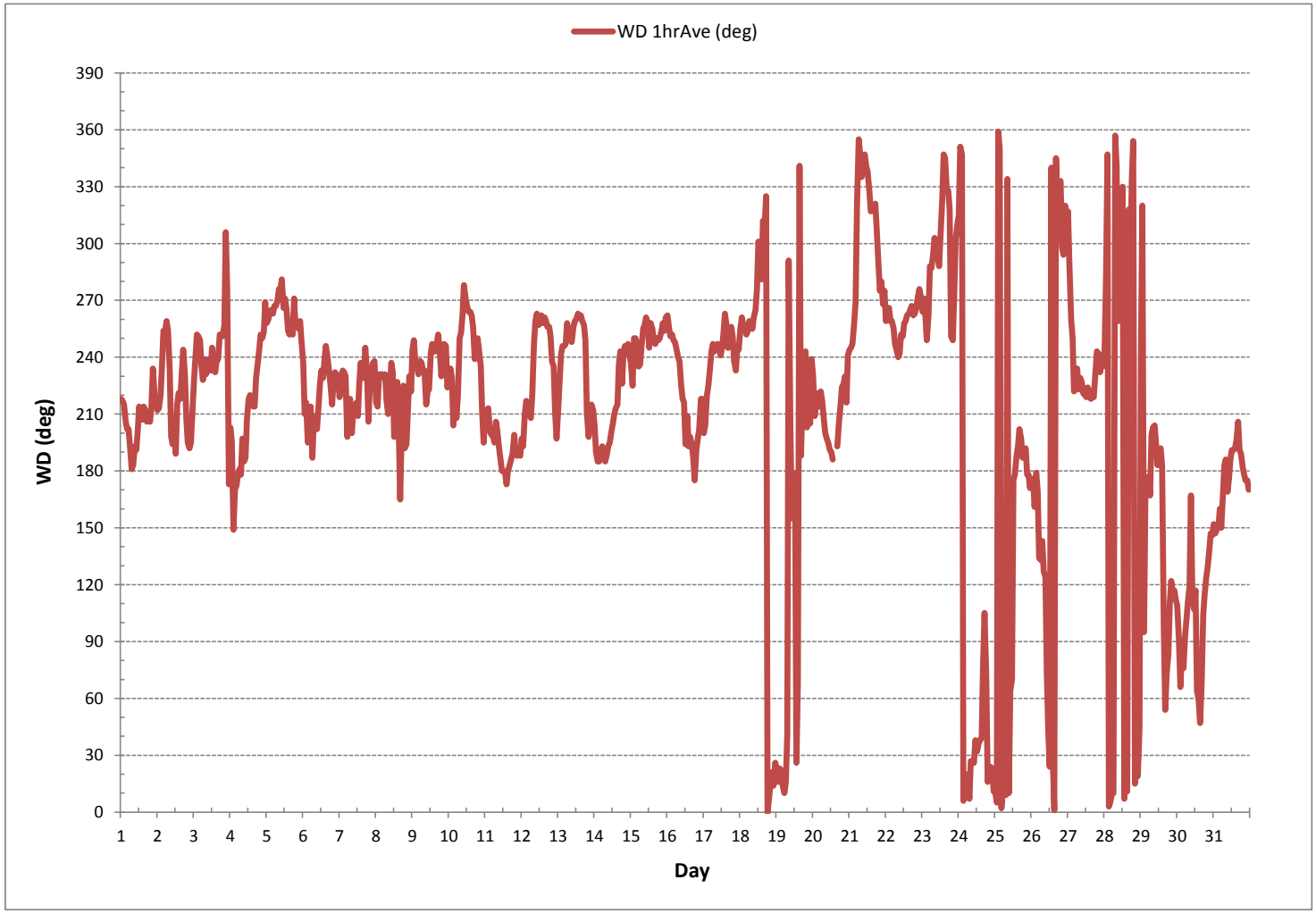
STATUS FLAG CODES

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:	742	hrs
STANDARD DEVIATION:	74		AMD OPERATION UPTIME:	99.7	%
			MONTHLY AVERAGE:	239 (WSW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

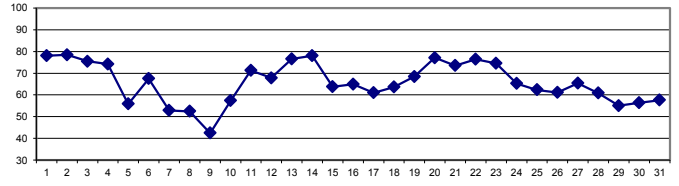
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	70	71	70	69	69	66	65	72	72	73	72	69	85	**90**	89	90	89	89	89	87	85	80	83	78	65	**90**	78	24
2	77	79	74	74	78	81	85	87	87	86	81	74	73	70	69	70	72	77	82	84	83	80	80	80	69	87	**78**	24
3	81	79	79	81	81	80	80	80	80	79	77	76	73	72	71	70	69	67	68	69	71	73	76	79	67	81	75	24
4	80	82	83	83	84	84	84	84	78	74	74	68	67	67	69	71	72	69	69	68	68	68	68	67	67	84	74	24
5	70	69	66	65	64	64	63	62	59	56	51	49	48	43	44	53	53	50	46	47	52	54	55	58	43	70	56	24
6	61	68	65	72	73	68	74	77	75	77	74	69	66	66	66	64	64	66	64	67	62	61	61	60	60	77	68	24
7	58	58	57	55	54	61	58	54	59	59	52	49	48	41	44	47	48	48	52	56	53	52	52	54	41	61	53	24
8	57	59	55	54	48	48	47	55	54	53	48	47	49	47	46	51	62	62	53	55	62	56	47	44	44	62	52	24
9	41	44	46	42	43	41	42	46	46	49	43	40	36	**35**	35	40	43	43	44	47	46	40	41	46	**35**	49	42	24
10	44	43	49	54	50	48	51	53	55	57	55	58	57	54	54	57	61	65	66	65	64	67	71	78	43	78	57	24
11	78	72	68	71	73	74	74	72	73	72	72	73	67	64	62	65	69	70	72	68	73	78	73	78	62	78	71	24
12	79	79	77	69	69	75	78	77	66	63	63	60	62	58	59	58	61	63	64	63	64	67	73	81	58	81	68	24
13	81	76	73	72	74	77	76	76	77	77	74	70	68	66	67	69	75	78	77	83	86	87	89	88	66	89	77	24
14	87	85	86	86	86	87	86	86	86	86	83	78	73	69	68	68	64	68	75	81	72	73	71	70	64	87	78	24
15	74	73	68	67	69	71	70	68	66	65	64	61	58	55	54	55	57	58	59	61	63	64	64	66	54	74	64	24
16	65	66	68	69	69	69	70	71	71	71	68	63	61	57	62	61	61	60	64	61	58	61	65	68	57	71	65	24
17	68	71	63	64	62	62	62	66	69	69	66	62	57	57	53	55	56	55	57	57	57	59	58	59	53	71	61	24
18	59	59	60	61	62	62	59	61	62	64	64	63	60	61	62	64	68	70	70	67	66	67	68	67	59	70	64	24
19	63	64	64	64	64	66	72	75	74	74	72	66	57	59	62	63	68	72	72	72	71	72	76	80	57	80	68	24
20	80	80	80	81	81	81	81	81	81	80	80	80	80	80	**P**	**P**	79	79	77	71	69	66	65	64	64	81	77	22
21	64	64	64	66	69	70	73	74	76	81	82	81	79	80	76	75	74	72	72	73	75	75	74	75	64	82	74	24
22	78	80	80	81	80	80	80	79	78	78	76	73	68	64	69	78	78	79	80	79	76	74	73	73	64	81	76	24
23	74	73	74	79	80	79	79	77	74	79	80	79	78	78	79	72	70	59	68	75	77	74	68	64	59	80	75	24
24	64	77	73	71	68	66	66	64	58	61	61	58	60	61	59	61	60	66	68	69	69	70	69	68	58	77	65	24
25	64	66	67	67	66	64	65	64	62	59	61	63	63	62	62	63	61	60	60	60	59	60	59	59	59	67	62	24
26	59	59	59	58	58	58	61	61	61	61	61	61	61	61	61	61	62	63	63	64	64	63	63	63	58	64	61	24
27	62	60	60	59	61	62	62	62	63	63	63	64	64	65	67	68	68	69	70	71	72	72	71	71	59	72	65	24
28	71	71	70	65	63	63	61	61	61	58	59	61	59	58	60	60	59	58	59	60	57	57	55	55	55	71	61	24
29	54	53	53	53	53	52	51	51	51	52	54	55	56	57	59	59	57	56	57	57	58	58	57	57	51	59	55	24
30	56	56	56	56	55	57	56	56	55	56	55	56	56	53	54	56	57	59	59	58	58	58	58	58	53	59	56	24
31	58	58	58	58	58	59	59	59	59	59	57	55	52	50	51	54	58	59	59	60	60	60	61	61	50	61	58	24
HOURLY MAX	87	85	86	86	86	87	86	87	87	86	83	81	85	90	89	90	89	89	89	87	86	87	89	88				
HOURLY AVG	67	68	67	67	67	67	67	68	67	67	66	64	63	61	61	63	64	65	66	66	66	66	66	67				

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

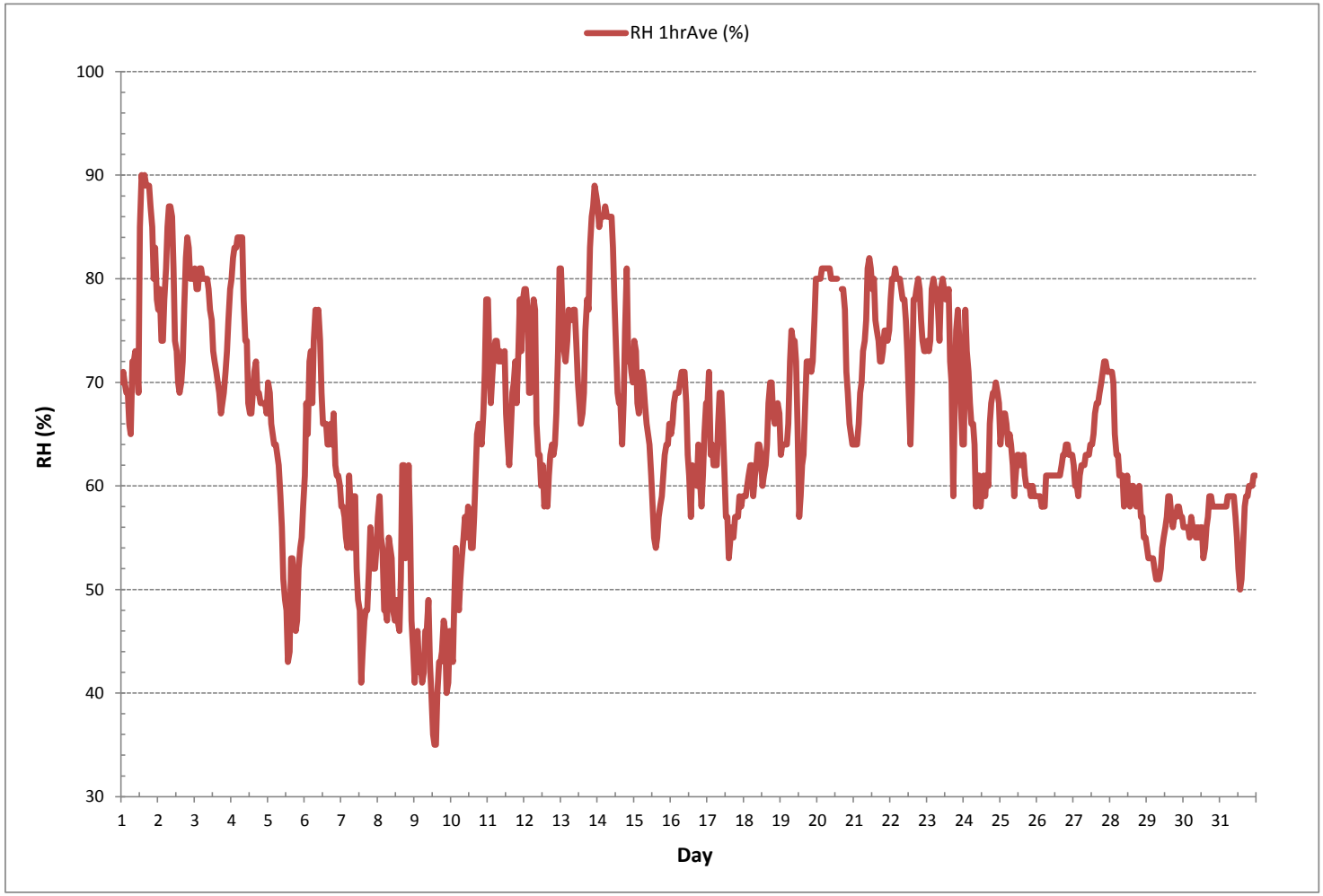
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	35	%	@ HOUR	13	ON DAY	9	
MAXIMUM 1-HR AVERAGE:	90	%	@ HOUR	13	ON DAY	1	
MAXIMUM 24-HR AVERAGE:	78	%			ON DAY	2	
			OPERATIONAL TIME:			742	hrs
			AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	11		MONTHLY AVERAGE:			66	%

RELATIVE HUMIDITY Hourly Averages (RH %)



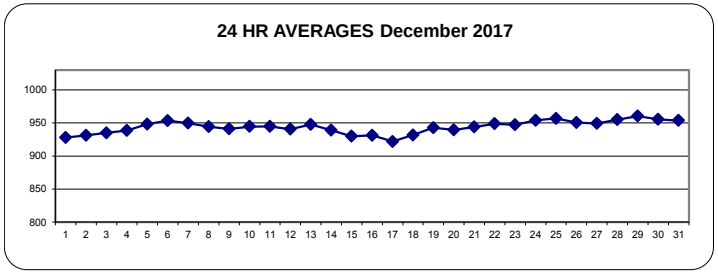
BAROMETRIC PRESSURE

BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	929	929	929	928	928	928	928	928	928	927	927	927	927	927	927	927	927	927	927	928	928	928	928	929	927	929	928	24
2	929	929	929	929	930	930	931	931	931	931	932	932	932	932	931	932	932	932	932	932	932	932	931	931	929	932	931	24
3	931	931	932	932	932	933	933	934	934	934	934	934	935	935	935	936	936	937	937	938	938	939	939	940	931	940	935	24
4	940	941	941	941	941	941	940	940	940	939	939	939	939	938	938	937	937	936	936	936	936	936	937	938	936	941	939	24
5	938	939	939	940	941	942	943	944	945	946	948	949	950	950	951	952	952	953	954	954	955	955	955	955	938	955	948	24
6	956	956	956	955	955	955	955	954	954	954	954	953	953	953	953	953	953	952	952	952	952	951	951	951	951	956	953	24
7	951	950	950	950	950	950	950	949	950	949	950	950	950	950	950	949	949	949	949	949	949	949	949	948	948	951	950	24
8	948	947	947	947	946	946	946	945	945	945	944	944	944	944	943	943	943	943	942	942	942	942	942	942	942	948	944	24
9	942	942	942	942	942	941	941	941	940	940	940	941	941	941	941	941	941	941	942	941	941	941	941	941	940	942	941	24
10	941	942	941	941	941	940	940	940	941	942	944	945	945	946	947	947	948	948	948	948	948	948	948	949	940	949	945	24
11	949	949	949	948	949	949	948	948	947	947	946	946	945	944	943	943	943	942	941	941	940	939	939	938	938	949	945	24
12	938	938	937	937	936	936	936	937	937	938	940	941	942	943	943	943	943	944	944	944	943	943	943	943	936	944	940	24
13	943	944	944	944	945	945	945	946	946	947	948	948	949	949	949	950	950	950	951	950	950	950	949	949	943	951	948	24
14	948	947	947	946	946	945	944	943	942	941	940	939	938	937	936	935	935	934	933	933	932	931	931	930	930	948	939	24
15	930	929	929	929	929	929	929	928	929	929	930	930	930	930	930	930	930	930	930	930	931	931	932	933	928	933	930	24
16	933	933	934	934	934	935	935	935	934	935	934	934	933	933	932	931	930	928	927	926	925	925	924	923	923	935	931	24
17	922	921	920	920	**919**	920	920	920	920	921	921	922	922	922	923	923	923	923	924	924	924	923	923	924	**919**	924	922	24
18	924	924	925	925	926	926	927	928	928	929	930	931	932	933	933	934	935	935	936	937	938	939	940	940	924	940	931	24
19	941	942	942	943	943	943	943	944	944	944	944	944	943	942	942	942	942	942	942	942	942	942	942	942	941	944	943	24
20	941	941	941	941	941	941	941	941	941	940	940	940	939	938	**P**	**P**	939	938	938	938	938	937	938	937	937	941	940	22
21	937	937	937	938	938	939	940	941	942	943	944	945	945	946	946	947	947	948	948	949	949	949	949	949	937	949	944	24
22	950	950	949	950	950	950	950	950	949	949	949	949	949	948	948	948	948	948	948	948	948	948	948	948	948	950	949	24
23	948	948	947	947	946	945	945	945	944	945	945	945	945	946	946	948	949	950	950	950	949	949	949	949	944	950	947	24
24	950	951	951	952	953	953	954	955	955	955	955	955	955	955	954	954	954	954	954	954	954	954	954	955	950	955	954	24
25	955	956	956	957	957	957	957	957	958	958	958	958	958	958	958	957	957	957	957	956	956	955	954	954	954	958	957	24
26	953	953	952	952	951	951	950	950	950	949	949	949	949	949	949	949	950	950	950	950	950	951	951	951	949	953	950	24
27	951	951	951	951	951	950	950	950	950	950	950	949	949	948	948	948	948	948	948	948	948	948	948	948	948	951	949	24
28	948	949	950	951	952	953	954	954	955	956	956	956	956	956	955	955	956	956	957	957	957	958	958	959	948	959	955	24
29	959	960	960	961	961	962	962	962	962	**963**	962	962	962	961	961	960	960	960	959	958	957	957	956	956	956	**963**	**960**	24
30	955	955	954	954	954	954	954	954	955	956	956	956	956	956	956	957	957	956	956	956	956	956	955	955	954	957	955	24
31	955	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	954	953	953	953	952	951	951	951	955	954	24
HOURLY MAX	959	960	960	961	961	962	962	962	962	963	962	962	962	961	961	960	960	960	959	958	957	958	958	959				
HOURLY AVG	943	943	943	943	943	943	943	943	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944				

STATUS FLAG CODES

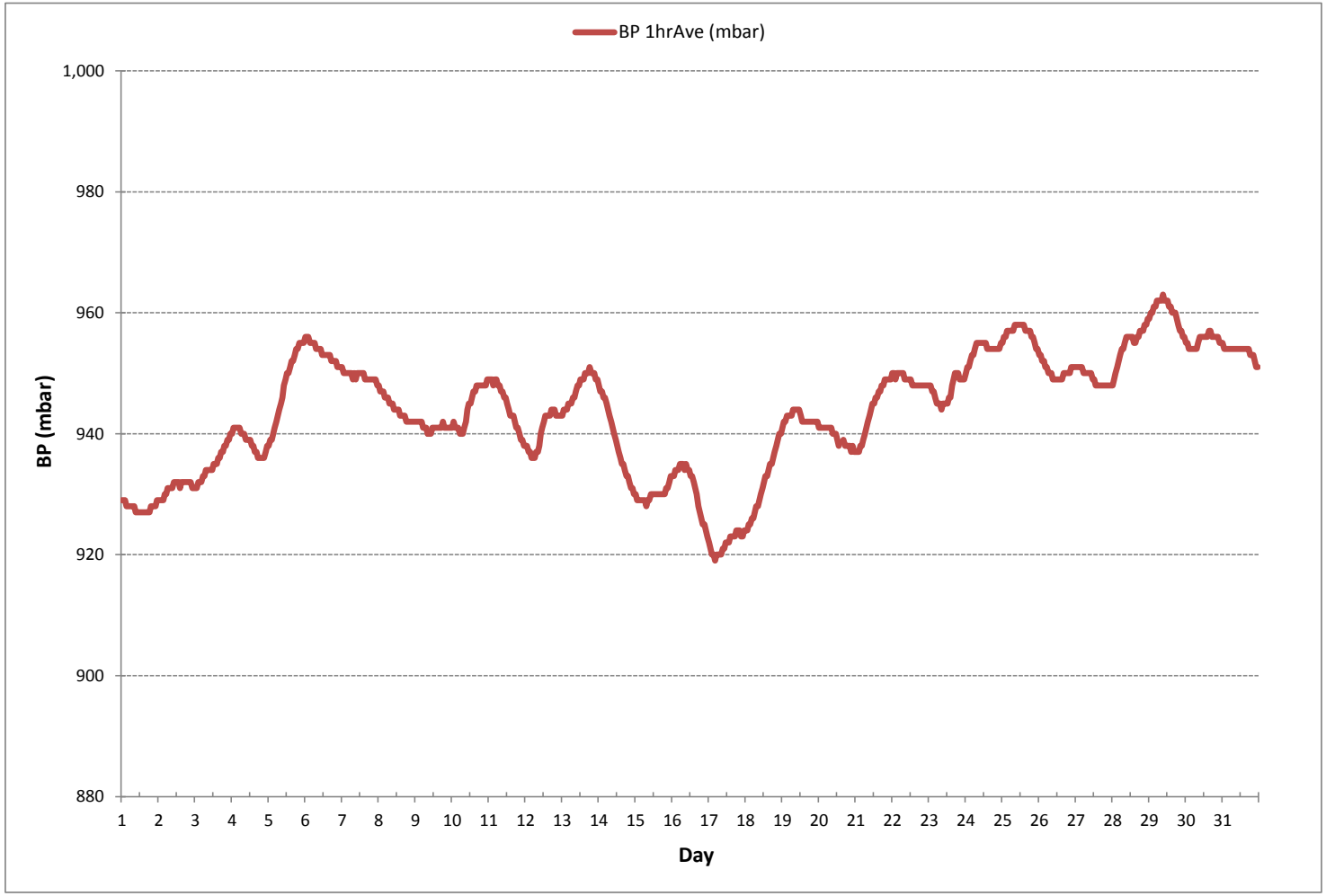
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	919	mbar	@ HOUR	4	ON DAY	17	
MAXIMUM 1-HR AVERAGE:	963	mbar	@ HOUR	9	ON DAY	29	
MAXIMUM 24-HR AVERAGE:	960	mbar			ON DAY	29	
			OPERATIONAL TIME:			742	hrs
			AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	10		MONTHLY AVERAGE:			944	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE

Maxxam
A Bureau Veritas Group Company

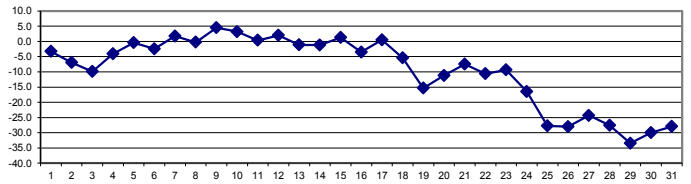
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	-3.2	-3.1	-2.7	-2.3	-2.5	-2.2	-3.0	-4.2	-5.7	-6.0	-5.6	-3.3	-0.8	0.1	-0.1	-1.3	-3.0	-4.8	-4.6	-4.2	-4.1	-3.9	-3.8	-3.6	-6.0	0.1	-3.2	24
2	-3.8	-5.1	-4.3	-4.5	-4.9	-5.1	-4.9	-5.3	-5.5	-5.8	-5.4	-4.8	-5.0	-4.9	-4.6	-4.9	-6.0	-7.5	-9.3	-10.7	-12.9	-14.5	-14.0	-13.2	-14.5	-3.8	-7.0	24
3	-10.5	-9.5	-10.7	-12.0	-11.7	-11.8	-12.1	-11.9	-12.3	-11.6	-10.7	-9.8	-9.6	-9.6	-9.4	-8.7	-8.4	-8.0	-8.4	-8.1	-8.2	-8.3	-8.5	-8.6	-12.3	-8.0	-9.9	24
4	-9.0	-8.9	-8.5	-8.2	-8.3	-8.2	-8.3	-8.7	-7.0	-6.8	-6.2	-3.9	-3.1	-2.9	-2.7	-1.9	-1.3	0.1	0.8	1.5	0.4	0.5	0.9	1.8	-9.0	1.8	-4.1	24
5	0.9	0.5	0.7	0.7	0.3	0.2	0.2	-0.1	-0.2	-0.4	0.3	0.5	0.9	1.6	1.3	-0.7	-1.3	-1.5	-1.0	-1.3	-2.6	-3.0	-3.1	-3.6	-3.6	1.6	-0.4	24
6	-3.9	-6.4	-5.3	-8.0	-7.8	-5.0	-7.1	-6.0	-4.3	-4.5	-2.3	-0.9	0.0	0.0	0.0	0.7	0.7	-0.2	0.1	-0.9	0.8	0.8	0.7	0.5	-8.0	0.8	-2.4	24
7	0.4	0.3	0.5	1.0	1.4	-1.2	-0.5	1.3	-0.5	-0.5	1.8	3.0	3.8	5.8	4.8	3.9	3.2	3.4	2.2	0.7	1.8	2.1	1.7	1.1	-1.2	5.8	1.7	24
8	0.0	-0.7	-0.4	-0.5	0.7	0.4	0.4	-2.1	-2.3	-1.5	0.2	0.8	0.2	1.5	1.9	0.3	-3.2	-3.4	0.4	-0.3	-2.9	-1.4	2.1	3.1	-3.4	3.1	-0.3	24
9	4.3	3.9	3.1	3.6	3.3	3.7	3.0	2.0	2.0	1.5	3.3	5.0	6.9	**7.7**	7.7	6.7	5.7	5.8	5.4	4.3	4.2	5.5	5.2	3.5	1.5	**7.7**	**4.5**	24
10	4.0	4.4	2.6	2.6	3.7	4.3	4.1	5.1	5.4	4.8	5.4	4.7	5.0	5.3	5.1	4.4	3.4	2.0	1.6	1.5	1.2	0.6	-1.0	-3.5	-3.5	5.4	3.2	24
11	-3.3	-1.1	-0.1	-0.3	-0.4	-0.2	-0.2	1.5	1.5	1.5	0.8	0.1	1.1	1.7	2.2	1.2	-0.1	-0.3	-0.3	1.9	1.0	-1.0	1.7	-0.6	-3.3	2.2	0.3	24
12	-1.3	-1.2	-0.6	2.4	3.0	1.3	0.5	0.9	2.9	3.5	3.4	3.9	3.7	4.4	4.1	4.1	3.2	2.4	2.4	2.7	2.3	1.9	0.1	-2.6	-2.6	4.4	2.0	24
13	-2.2	0.0	0.8	1.2	0.6	-0.4	-0.5	-0.3	-0.3	-0.6	-0.2	0.5	0.7	1.0	0.9	-0.1	-1.1	-1.3	-1.3	-3.1	-4.9	-6.2	-5.7	-5.5	-6.2	1.2	-1.2	24
14	-4.8	-7.5	-7.7	-7.5	-7.8	-6.1	-6.3	-6.7	-7.2	-4.4	-2.2	-0.2	1.4	2.0	2.4	2.4	3.4	3.9	3.7	2.5	3.9	4.3	4.8	4.6	-7.8	4.8	-1.2	24
15	4.1	3.9	4.4	4.2	3.4	2.6	2.7	2.7	2.6	1.8	2.0	1.9	1.6	1.7	1.5	0.9	0.0	-0.5	-0.8	-1.3	-1.6	-1.8	-2.1	-2.8	-2.8	4.4	1.3	24
16	-2.6	-2.8	-3.4	-4.0	-4.3	-4.7	-5.0	-5.6	-5.7	-5.9	-5.4	-4.4	-3.9	-2.4	-3.9	-3.4	-3.3	-3.3	-4.4	-3.8	-2.1	-1.4	0.5	0.9	-5.9	0.9	-3.5	24
17	0.9	0.5	1.8	1.8	1.8	1.9	2.1	1.3	0.8	0.8	1.3	1.3	2.5	2.3	2.2	1.3	0.0	-0.6	-1.2	-0.8	-1.7	-2.3	-2.8	-3.4	-3.4	2.5	0.5	24
18	-3.5	-3.9	-4.5	-4.8	-5.2	-5.3	-4.8	-5.3	-4.9	-4.8	-4.5	-3.9	-3.7	-3.9	-4.0	-4.4	-5.5	-5.9	-6.0	-6.4	-7.2	-8.4	-9.4	-10.4	-10.4	-3.5	-5.4	24
19	-11.4	-12.0	-12.3	-12.8	-13.1	-13.6	-15.4	-16.4	-17.5	-18.4	-16.6	-14.2	-12.2	-14.1	-14.5	-14.4	-16.4	-17.7	-18.2	-19.0	-19.5	-18.8	-16.0	-13.6	-19.5	-11.4	-15.3	24
20	-13.1	-12.8	-12.2	-11.6	-11.2	-11.6	-11.7	-11.3	-11.6	-12.0	-11.7	-11.3	-10.8	-10.1	**P**	**P**	-12.7	-11.4	-11.4	-10.7	-10.2	-9.3	-9.0	-8.5	-13.1	-8.5	-11.2	22
21	-8.2	-8.0	-7.5	-7.3	-7.6	-7.2	-8.0	-8.4	-8.0	-8.0	-7.9	-7.8	-7.3	-7.2	-6.9	-6.8	-6.7	-6.5	-6.5	-6.6	-7.0	-7.3	-7.6	-8.2	-8.4	-6.5	-7.4	24
22	-9.5	-10.6	-10.9	-11.6	-12.2	-11.5	-11.8	-12.1	-12.5	-12.5	-11.7	-11.1	-11.0	-10.2	-10.2	-10.3	-10.0	-9.7	-9.4	-9.5	-9.5	-9.5	-9.1	-9.1	-12.5	-9.1	-10.6	24
23	-9.5	-9.5	-9.4	-9.4	-9.1	-8.5	-7.8	-7.6	-7.7	-7.8	-7.7	-7.5	-7.4	-7.2	-8.0	-10.3	-11.0	-12.4	-14.2	-13.8	-11.5	-10.1	-8.8	-8.7	-14.2	-7.2	-9.4	24
24	-8.9	-10.4	-10.9	-12.3	-13.5	-14.1	-15.1	-16.0	-17.2	-17.9	-18.3	-18.6	-18.5	-18.6	-18.1	-18.2	-18.0	-18.0	-18.3	-18.8	-19.2	-19.2	-19.3	-19.6	-19.6	-8.9	-16.5	24
25	-20.8	-23.0	-24.7	-25.5	-26.4	-27.9	-27.9	-28.4	-29.5	-30.4	-29.2	-27.4	-26.0	-25.1	-25.3	-26.2	-28.5	-30.2	-30.5	-30.9	-31.0	-30.5	-30.9	-30.8	-31.0	-20.8	-27.8	24
26	-30.5	-30.7	-30.0	-31.5	-31.3	-31.3	-28.4	-27.6	-28.2	-28.1	-27.6	-26.4	-27.0	-26.7	-27.6	-27.5	-27.2	-26.6	-26.2	-26.2	-26.0	-26.7	-26.5	-26.5	-31.5	-26.0	-28.0	24
27	-27.6	-29.4	-29.6	-30.3	-28.4	-27.9	-27.7	-28.0	-27.4	-26.9	-26.0	-25.2	-24.6	-23.6	-22.6	-22.0	-21.6	-21.0	-20.2	-19.4	-18.8	-18.5	-18.9	-18.7	-30.3	-18.5	-24.3	24
28	-18.6	-18.2	-19.3	-21.7	-23.7	-25.8	-27.0	-27.9	-28.9	-31.1	-30.0	-27.2	-26.5	-26.9	-27.4	-28.0	-29.7	-31.2	-30.7	-29.8	-32.6	-32.8	-33.7	-34.1	-34.1	-18.2	-27.6	24
29	-34.9	-35.4	-35.6	-36.0	-36.2	-36.7	-37.2	**-37.4**	-37.3	-36.5	-34.3	-33.6	-31.6	-29.9	-28.6	-29.4	-32.7	-33.0	-32.2	-31.5	-30.8	-30.3	-31.1	-31.5	**-37.4**	-28.6	-33.5	24
30	-31.3	-31.9	-33.1	-31.5	-33.2	-31.9	-30.7	-30.0	-29.9	-31.8	-30.5	-31.0	-27.0	-29.8	-30.5	-30.8	-31.6	-29.7	-26.3	-26.2	-27.0	-27.6	-28.0	-28.3	-33.2	-26.2	-30.0	24
31	-28.3	-28.4	-28.0	-28.2	-28.2	-27.9	-28.4	-29.3	-29.2	-29.2	-28.3	-26.5	-25.5	-25.2	-25.7	-26.4	-27.7	-29.0	-29.2	-29.4	-28.9	-28.2	-27.6	-27.9	-29.4	-25.2	-27.9	24
HOURLY MAX	4.3	4.4	4.4	4.2	3.7	4.3	4.1	5.1	5.4	4.8	5.4	5.0	6.9	7.7	7.7	6.7	5.7	5.8	5.4	4.3	4.2	5.5	5.2	4.6				
HOURLY AVG	-9.2	-9.6	-9.6	-9.8	-10.0	-10.1	-10.2	-10.4	-10.5	-10.6	-9.8	-8.9	-8.2	-7.8	-7.9	-8.3	-9.3	-9.6	-9.5	-9.6	-9.8	-9.8	-9.7	-9.9				

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

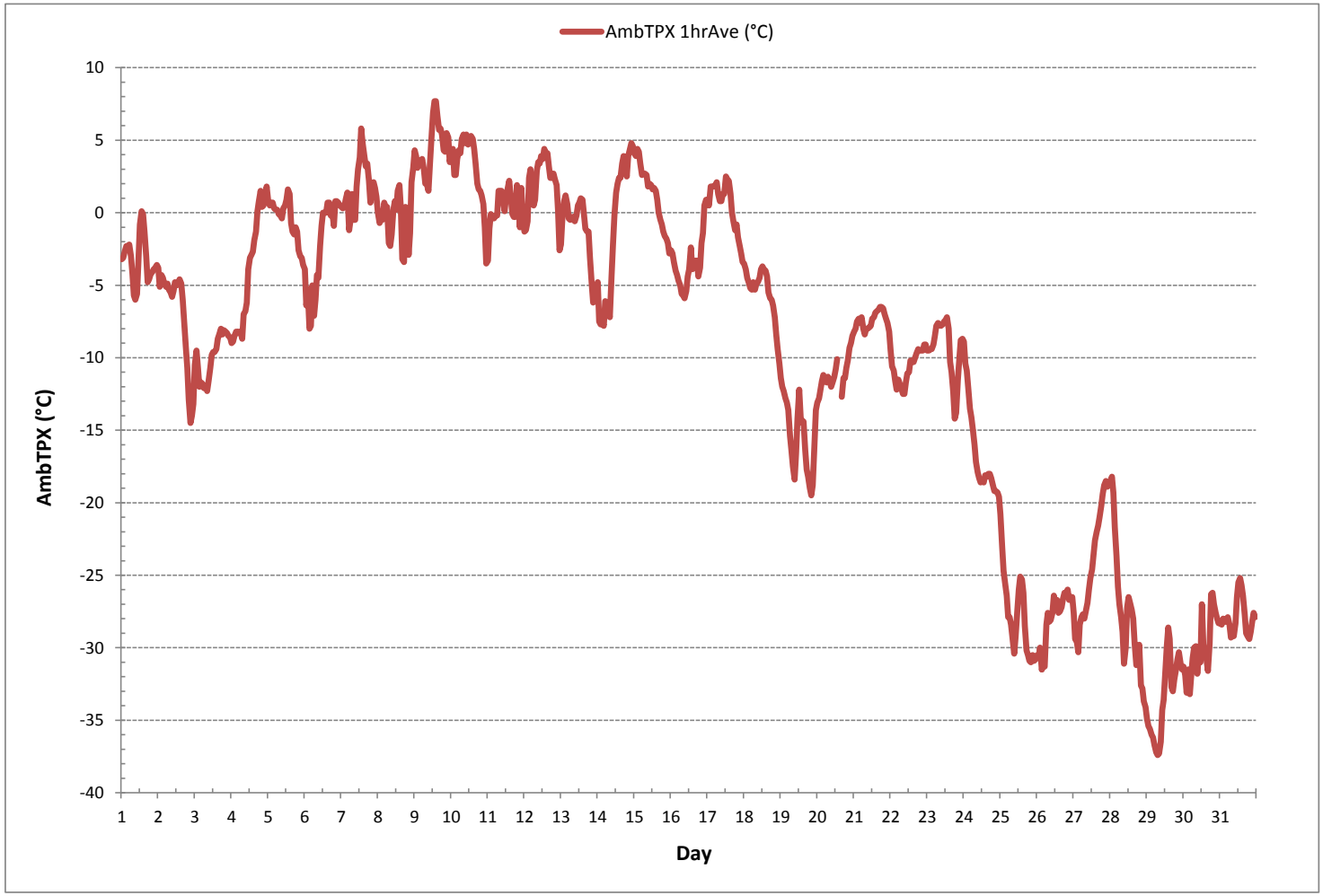
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-37.4	°C	@ HOUR	7	ON DAY	29	
MAXIMUM 1-HR AVERAGE:	7.7	°C	@ HOUR	13	ON DAY	9	
MAXIMUM 24-HR AVERAGE:	4.5	°C			ON DAY	9	
			OPERATIONAL TIME:			742	hrs
			AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	11.7		MONTHLY AVERAGE:			-9.5	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

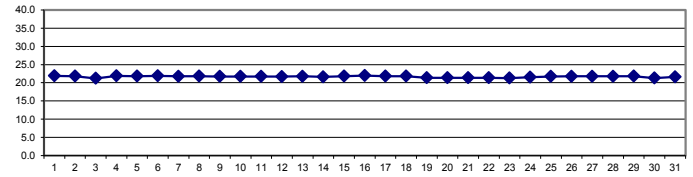
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	22.0	22.0	21.9	22.0	21.9	21.9	21.9	21.9	21.9	22.0	21.9	21.9	21.8	21.7	21.8	21.7	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.7	22.0	21.9	24
2	21.8	21.9	21.9	22.0	21.9	21.9	21.9	21.9	22.0	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.9	22.0	**22.1**	22.0	21.7	21.4	21.0	21.3	21.0	**22.1**	21.8	24
3	21.2	21.1	21.2	21.2	21.2	21.3	21.2	21.1	21.1	21.3	21.2	21.2	21.2	21.2	21.2	21.1	21.1	21.0	21.0	21.1	21.2	21.4	21.6	21.8	21.0	21.8	21.2	24
4	22.0	22.0	22.0	22.0	22.0	21.9	22.1	22.0	22.0	22.0	22.0	21.9	21.9	21.8	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.8	21.8	21.8	21.8	22.1	21.9	24
5	21.8	21.9	21.8	21.9	21.9	21.8	21.9	21.9	21.9	21.8	21.9	21.7	21.6	21.6	21.6	21.7	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.6	21.9	21.8	24
6	21.9	22.0	22.0	22.0	22.1	22.0	22.1	22.0	22.0	22.1	21.9	21.9	21.8	21.8	21.7	21.8	21.8	21.9	21.8	21.9	21.9	21.8	21.9	21.8	21.7	22.1	21.9	24
7	21.9	21.8	21.9	21.8	21.9	21.8	21.9	21.9	21.9	21.9	21.7	21.7	21.7	21.4	21.5	21.7	21.7	21.8	21.7	21.9	21.8	21.8	21.9	21.8	21.4	21.9	21.8	24
8	21.9	21.8	21.9	21.9	21.9	21.8	21.9	21.9	22.0	22.0	21.8	21.7	21.7	21.5	21.5	21.6	21.8	21.8	21.8	21.9	21.8	21.9	21.9	21.8	21.5	22.0	21.8	24
9	21.8	21.8	21.7	21.8	21.8	21.9	21.7	21.8	21.8	21.7	21.8	21.7	21.6	21.5	21.7	21.6	21.6	21.6	21.7	21.8	21.7	21.7	21.7	21.8	21.5	21.9	21.7	24
10	21.7	21.8	21.7	21.8	21.8	21.7	21.8	21.8	21.8	21.7	21.8	21.6	21.6	21.6	21.6	21.6	21.7	21.7	21.8	21.8	21.9	21.8	21.8	21.9	21.6	21.9	21.7	24
11	22.0	21.9	21.9	21.8	21.9	21.8	21.9	21.8	21.8	21.8	21.8	21.8	21.6	21.5	21.5	21.6	21.8	21.4	21.3	21.8	21.8	21.8	21.7	21.7	21.3	22.0	21.7	24
12	21.8	21.8	21.8	21.8	21.7	21.7	21.8	21.7	21.7	21.7	21.7	21.7	21.6	21.6	21.5	21.6	21.7	21.7	21.7	21.7	21.8	21.8	21.7	21.8	21.5	21.8	21.7	24
13	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.9	21.9	21.9	21.8	21.7	21.6	21.6	21.6	21.6	21.7	21.7	21.8	21.8	21.9	21.9	21.9	22.0	21.6	22.0	21.8	24
14	21.9	22.0	22.0	21.9	21.9	21.9	21.9	21.9	21.7	21.6	21.5	21.2	21.3	21.3	21.1	21.2	21.3	21.1	21.7	21.7	21.7	21.7	21.7	21.7	21.1	22.0	21.6	24
15	21.7	21.7	21.7	21.7	21.8	21.7	21.8	21.9	21.8	21.8	21.8	21.8	21.7	21.7	21.7	21.8	21.8	21.9	22.0	21.9	22.0	21.9	22.0	21.9	21.7	22.0	21.8	24
16	22.0	22.0	22.0	22.0	21.9	22.1	22.1	22.1	22.1	22.1	22.1	21.9	21.8	21.7	21.8	21.8	22.0	21.9	22.0	22.0	22.0	22.0	22.0	21.9	21.7	22.1	**22.0**	24
17	21.8	21.9	21.9	21.9	21.9	21.8	21.9	21.8	21.8	21.9	21.8	21.8	21.8	21.6	21.7	21.8	21.8	21.9	21.8	21.9	21.8	21.9	21.9	22.0	21.6	22.0	21.8	24
18	21.9	22.0	22.1	22.1	22.1	22.1	21.9	21.7	21.3	21.4	21.5	21.6	21.9	21.9	21.9	21.8	21.9	22.0	22.1	22.1	22.0	21.9	21.6	21.3	21.3	22.1	21.8	24
19	21.2	21.1	21.4	21.3	21.3	21.2	21.4	21.3	21.5	21.5	21.5	21.4	21.2	21.1	21.1	21.2	21.2	21.5	21.5	21.4	21.6	21.5	21.5	21.5	21.1	21.6	21.4	24
20	21.2	21.5	21.4	21.3	21.3	21.3	21.3	21.4	21.3	21.4	21.4	21.4	21.1	21.0	**P**	**P**	21.4	21.3	21.5	21.5	21.4	21.4	21.3	21.4	21.0	21.5	21.3	22
21	21.3	21.3	21.3	21.4	21.2	21.2	21.4	21.4	21.3	21.3	21.2	21.2	21.2	21.3	21.3	21.4	21.4	21.4	21.5	21.6	21.6	21.5	21.4	21.2	21.2	21.6	21.3	24
22	21.0	21.5	21.3	21.4	21.4	21.4	21.5	21.4	21.5	21.5	21.4	21.4	21.3	21.2	21.4	21.3	21.3	21.3	21.3	21.5	21.3	21.2	21.4	21.4	21.0	21.5	21.4	24
23	21.3	21.3	21.4	21.4	21.3	21.3	21.2	21.3	21.0	21.2	21.3	21.2	21.2	21.2	21.3	21.1	21.3	21.3	21.5	21.5	21.4	21.4	21.4	21.4	21.0	21.5	21.3	24
24	21.3	21.4	21.4	21.6	21.4	21.6	21.6	21.6	21.7	21.7	21.6	21.6	21.4	21.5	21.5	21.5	21.5	21.4	21.6	21.6	21.5	21.5	21.7	21.6	21.3	21.7	21.5	24
25	21.8	21.7	21.7	21.7	21.7	21.8	21.8	21.8	21.8	21.8	21.8	21.6	21.7	21.5	21.5	21.6	21.6	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.5	21.8	21.7	24
26	21.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.8	21.8	21.6	21.6	21.7	21.6	21.8	21.7	21.8	21.7	21.7	21.8	21.7	21.7	21.6	21.9	21.8	24
27	21.8	21.9	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.8	21.9	21.9	21.6	21.8	21.7	21.7	21.7	21.7	21.7	21.7	21.6	21.7	21.7	21.6	21.6	21.9	21.8	24
28	21.7	21.5	21.7	21.8	21.8	21.9	21.8	21.8	21.8	21.8	21.9	21.8	21.6	21.7	21.5	21.7	21.6	21.8	21.9	21.8	21.8	21.9	21.9	21.9	21.5	21.9	21.8	24
29	21.9	21.9	22.0	21.8	21.9	21.9	21.8	22.0	21.8	21.9	21.9	21.7	21.7	21.7	21.7	21.6	21.7	21.8	21.8	21.8	21.8	21.9	21.9	21.9	21.6	22.0	21.8	24
30	21.8	21.8	21.9	21.9	21.8	21.8	21.9	21.9	21.8	21.8	21.8	21.8	21.7	21.6	19.1	20.0	20.8	20.7	20.6	**17.7**	21.8	21.7	21.6	21.7	**17.7**	21.9	21.3	24
31	21.7	21.7	21.7	21.6	21.7	21.7	21.6	21.6	21.6	21.6	21.6	21.5	21.5	21.4	21.4	21.4	21.4	21.6	21.6	21.7	21.6	21.7	21.8	21.8	21.4	21.8	21.6	24
HOURLY MAX	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.9	21.9	21.9	21.9	21.8	22.0	22.0	22.1	22.1	22.0	22.0	22.0	22.0				
HOURLY AVG	21.7	21.7	21.7	21.8	21.7	21.7	21.8	21.7	21.7	21.7	21.7	21.6	21.6	21.5	21.5	21.5	21.6	21.6	21.7	21.6	21.7	21.7	21.7	21.7				

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

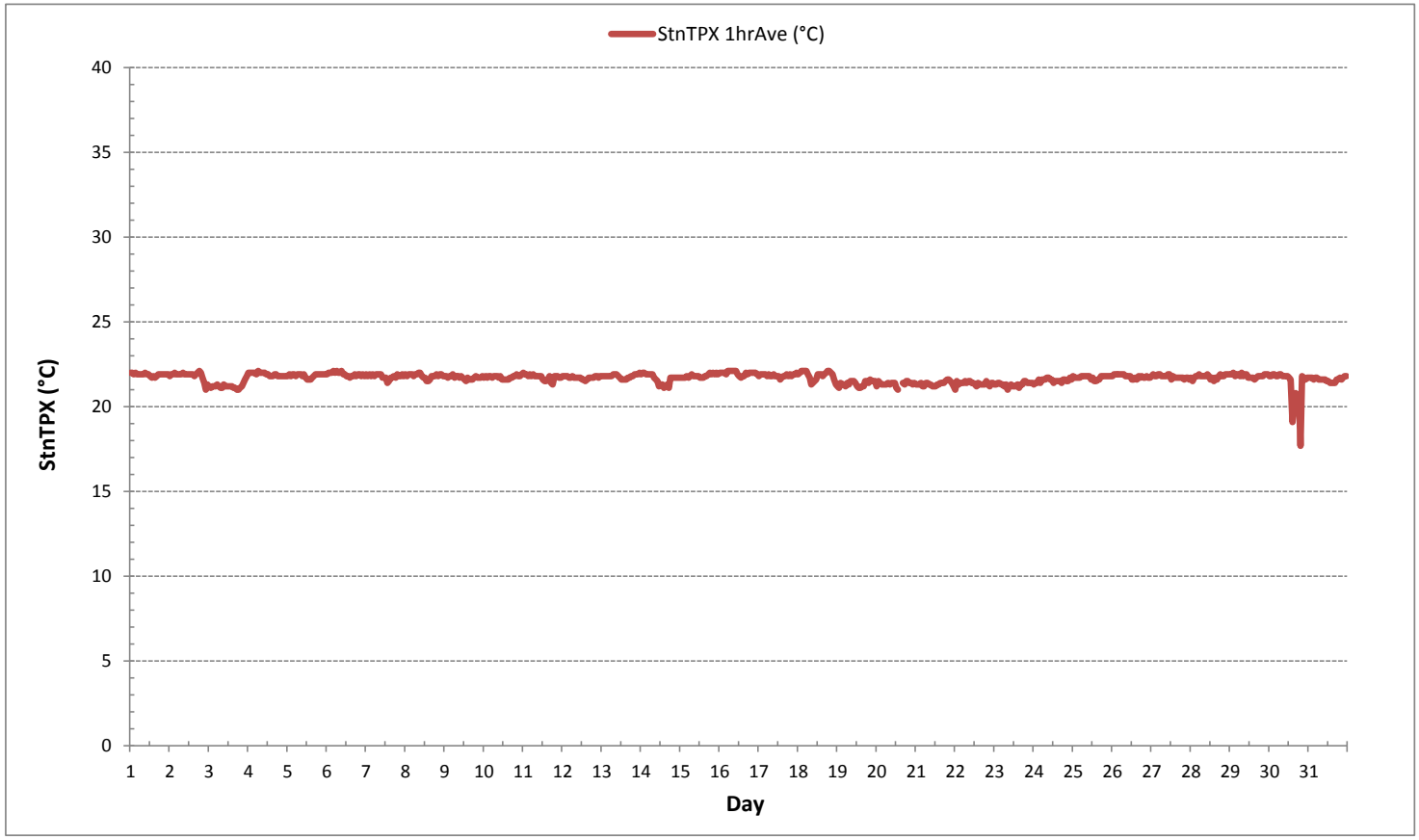
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	17.7	°C	@ HOUR	19	ON DAY	30	
MAXIMUM 1-HR AVERAGE:	22.1	°C	@ HOUR	18	ON DAY	2	
MAXIMUM 24-HR AVERAGE:	22.0	°C			ON DAY	16	
			OPERATIONAL TIME:			742	hrs
			AMD OPERATION UPTIME:			99.7	%
STANDARD DEVIATION:	0.3		MONTHLY AVERAGE:			21.7	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE

API 100A Sulphur Dioxide Analyzer Calibration

Date:	December 14, 2017	**Barometer/B.P./units:**	Environment Canada Website	27.95	inHg
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Data Acquisition Unit	21.75	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mix of sun and clouds		
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	10:35	**Performed By/Reviewer:**	Raja Abid	Rob Fisher	
End Time 24 hr. (mst):	14:29	**Cal Gas Expiry Date:**	May 23, 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:	November 6, 2017	**As Found C.F.:**	1.011
Previous C.F.:	1.001	**New C.F.:**	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	Defender 530 Low # 162020 expires November 22, 2018
High Flow Meter ID/Expiry Date:	Defender 530 High #148943 expires November21, 2018
Calibrator ID/Expiry Date:	Environics id# 5212 expires February 14, 2018
Cal Gas Cylinder I.D. # :	LL 119513
Cal Gas Conc. (ppm):	50.6

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

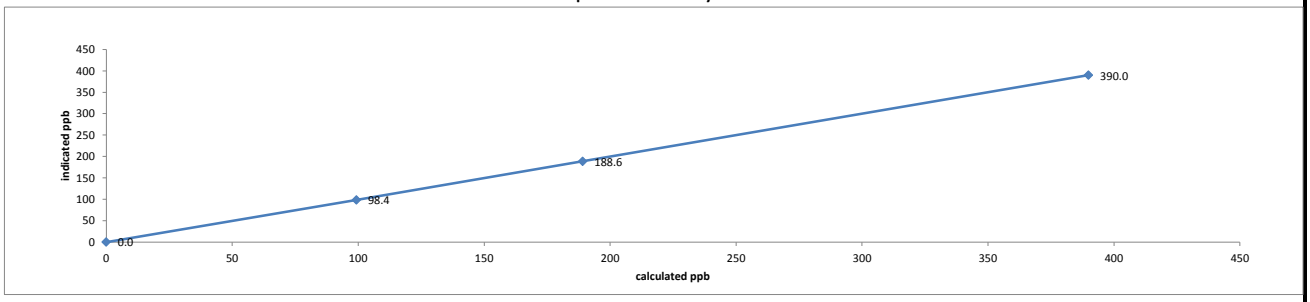
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	6434	0.00	6434	0.0	-0.7	n/a
as found high	6389	49.61	6438	389.9	385.0	1.011
adjusted zero	6434	0.00	6434	0.0	0.0	n/a
adjusted high	6389	49.61	6438	389.9	390.0	1.000
mid	6419	24.09	6443	189.2	188.6	1.003
low	6435	12.66	6447	99.3	98.4	1.009
calibrator zero	6434	0.00	6434	0.0	0.0	n/a
					Average C.F.=	1.004

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)=	**0.10%**	**± 3% F.S.**
% change in C.F. from last cal=	**-0.99%**	**± 10%**

API 100A Sulphur Dioxide Analyzer Calibration



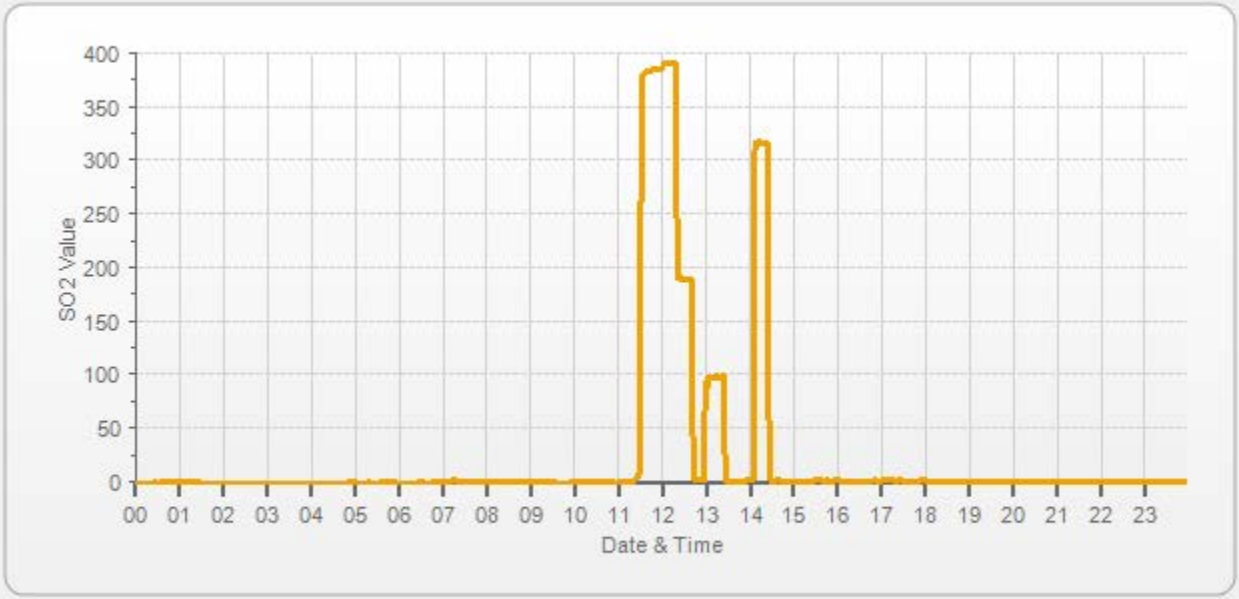
	As found:	As left:
Slope:	1.167	1.180
Offset:	42.0 MV	41.1 MV
Hvps:	763 V	763 V
Dcps:	2560 MV	2559 MV
Rcell Temp:	50.9 C	50.2 C
Box Temp:	33.0 C	32.9 C
Pmt Temp:	7.0 C	7.0 C
Izs Temp:	45.1 C	45.0 C
Converter Temp:	n/a	n/a
Pres:	25.0 IN HG-A	24.9 IN HG-A
Samp Fl:	680 CC/M	677 CC/M
Pmt:	66.3 MV	66.4 MV
Uv Lamp:	2085.8 MV	2119.6 MV
Lamp Ratio:	111.7%	113.1%
Expected Value:	307.0	315.0

Comments:

The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: PRAMP_RENO Daily: 17/12/14 Type: AVG 1 Min. [1 Min.]



TOTAL REDUCED SULPHUR

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	December 14, 2017	**Barometer/B.P./units:**	Environment Canada Website	27.95	inHg
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Data Acquisition Unit	21.75	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mix of sun and clouds		
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	routine monthly		
Start Time 24 hr. (mst):	13:52	**Performed By/Reviewer:**	Raja Abid	Rob Fisher	
End Time 24 hr. (mst):	17:42	**Cal Gas Expiry Date:**	December 1, 2018		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD NOVA-CDN 101#534		

Analyzer:

ID# or Serial Number:	1162460022	**Range ppb:**	100
Last Calibration Date:	November 6, 2017	**As Found C.F.:**	1.021
Previous C.F.:	1.001	**New C.F.:**	1.002

Calibration Standards:

Low Flow Meter ID/Expiry Date:	Defender 530 Low # 152020 expires November 22, 2018
High Flow Meter ID/Expiry Date:	Defender 530 High #148943.expires November 21, 2018
Calibrator ID/Expiry Date:	Environics id# 5212 expires February 14, 2018
Cal Gas Cylinder I.D. # :	BLM 001927
Cal Gas Conc. (ppm):	10.3

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 minutes):

Start/End Time 24 hr.:	14:36/14:46
SO2 Analyzer Range:	500
Target Concentration (ppb):	380
As Found Zero:	0.0
Analyzer Response: (ppb):	0.0
Zero Corrected Result (ppb):	0.0

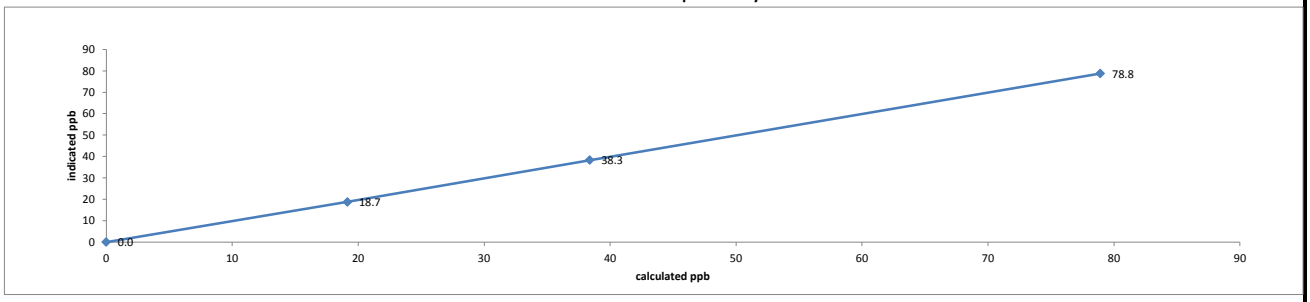
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated		
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**	**Indicated Concentration (ppb):**	**Correction Factors (C.F.):**
as found zero	7984	0.00	7984	0.0	0.1	n/a
as found high	7933	61.18	7994	78.8	77.3	1.021
adjusted zero	7984	0.00	7984	0.0	0.0	n/a
adjusted high	7923	61.18	7984	78.9	78.8	1.002
mid	7971	29.82	8001	38.4	38.3	1.002
low	7995	14.89	8010	19.1	18.7	1.022
calibrator zero	7984	0.00	7984	0.0	0.1	n/a
					Average C.F.=	1.009

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)=	**0.16%**	**± 3% F.S.**
% change in C.F. from last cal=	**-2.00%**	**± 10%**

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



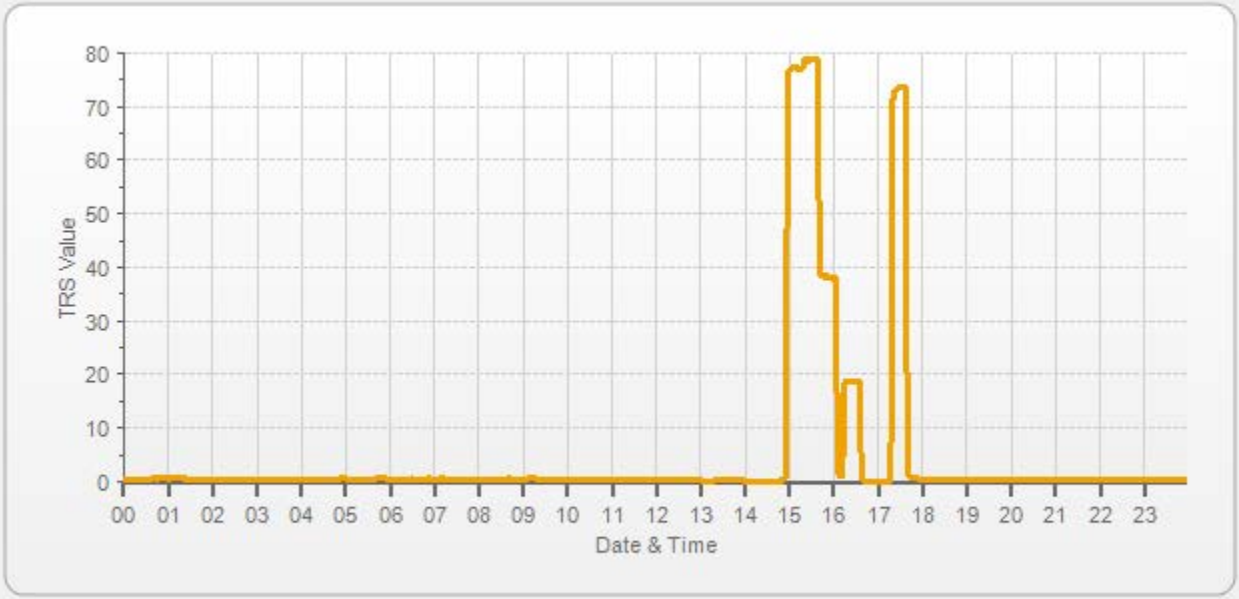
As found:		**As left:**	
Bkg:	2.09	Bkg:	2.15
Coef:	0.947	Coef:	0.971
Pmt:	-706.3V	Pmt:	-706.3V
Flash:	1001 V	Flash:	1000 V
Internal:	32.9 C	Internal:	33.1 C
Chamber:	45.2 C	Chamber:	45.0 C
Perm Oven Gas:	35.00 C	Perm Oven Gas:	35.00 C
Perm Oven Heater:	34.15 C	Perm Oven Heater:	34.16 C
Pressure:	638.6 mmHg	Pressure:	637.4 mmHg
Sample Flow:	0.411 L/min	Sample Flow:	0.411 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	Averaging Time:	120
Expected Value:	71.0	Expected Value:	73.7

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.

TRS[ppb] Station: PRAMP_RENO Daily: 17/12/14 Type: AVG 1 Min. [1 Min.]



Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	December 30, 2017	**Barometer/B.P./units:**	Environment Canada Website	28.64	inHg
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Data Acquisition Unit	21	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mainly sunny		
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	repeat		
Start Time 24 hr. (mst):	15:48	**Performed By/Reviewer:**	Raja Abid	Tom Bourque	
End Time 24 hr. (mst):	19:33	**Cal Gas Expiry Date:**	December 1, 2018		
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD NOVA-CDN 101#534		

Analyzer:

ID# or Serial Number:	1162460022	**Range ppb:**	100
Last Calibration Date:	December 14, 2017	**As Found C.F.:**	1.052
Previous C.F.:	1.002	**New C.F.:**	1.003

Calibration Standards:

Low Flow Meter ID/Expiry Date:	Defender 530 Low # 152020 expires November 22, 2018
High Flow Meter ID/Expiry Date:	Defender 530 High #148943 expires November 21, 2018
Calibrator ID/Expiry Date:	Environics id# 4760 expires February 15, 2018
Cal Gas Cylinder I.D. # :	BLM 001927
Cal Gas Conc. (ppm):	10.3

Standard Calibration Points for Ranges

Point	ppb
High	**78**
Mid	**38**
Low	**19**

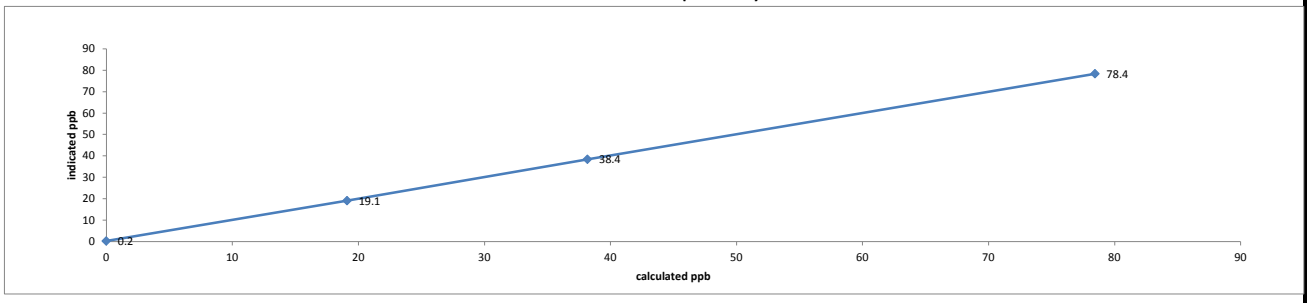
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**Concentration (ppb):**		
as found zero	7658	0.00	7658	0.0	0.2	n/a
as found high	7609	58.40	7668	78.4	74.7	1.052
adjusted zero	7658	0.00	7658	0.0	0.2	n/a
adjusted high	7609	58.40	7668	78.4	78.4	1.003
mid	7757	28.86	7785	38.2	38.4	1.000
low	7777	14.46	7792	19.1	19.1	1.011
calibrator zero	7658	0.00	7658	0.0	0.4	n/a
					Average C.F.=	1.005

Linear Regression/Calibration Results:

		LIMITS
Correlation Coefficient =	**1.000**	**> or = 0.995**
Slope =	**1.002**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.17%**	**± 3% F.S.**
% change in C.F. from last cal=	**-5.02%**	**± 10%**

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



	As found:	As left:
Bkg:	2.13	2.22
Coef:	0.971	1.012
Pmt:	-706.3 V	-706.3 V
Flash:	1011 V	1009 V
Internal:	32.1 C	31.6 C
Chamber:	45.0 C	45.1 C
Perm Oven Gas:	35.01 C	35.00 C
Perm Oven Heater:	34.15 C	34.14 C
Pressure:	653.2 mmHg	652.2 mmHg
Sample Flow:	0.418 L/min	0.419 L/min
Lamp Intensity:	83%	83%
Converter:	825 C	825 C
Converter Set:	825 C	825 C
Averaging Time:	120	120
Expected Value:	73.7	70.1

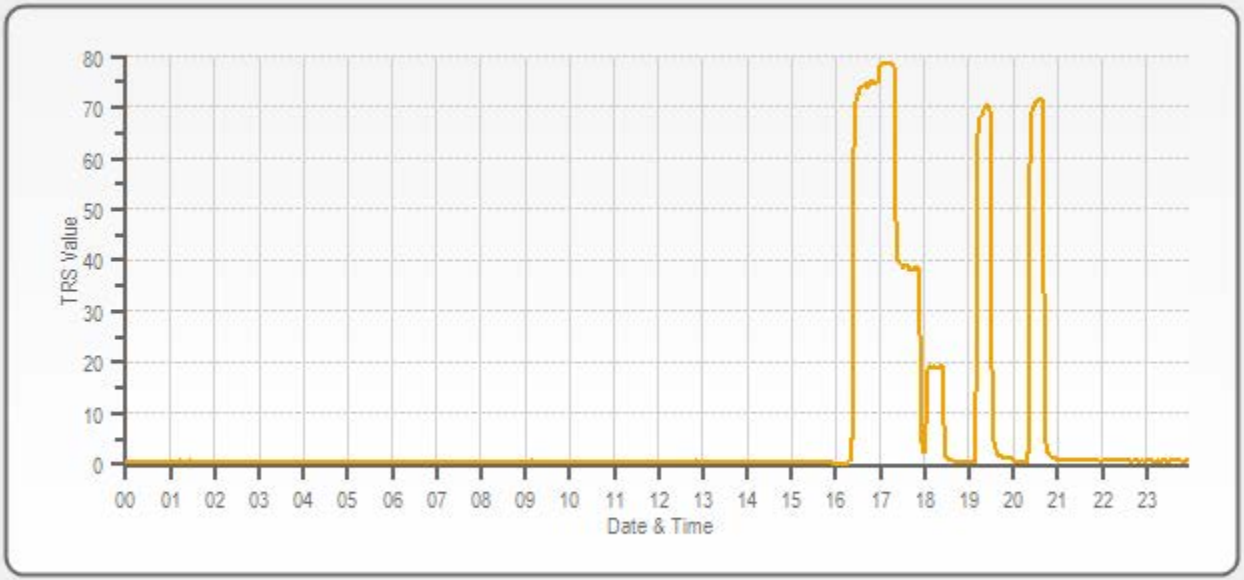
Comments:

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.

Repeat calibration was performed due to drift in Daily IZS.

TRS[ppb] Station: PRAMP_RENO Daily: 17/12/30 Type: AVG 1 Min. [1 Min.]



TOTAL HYDROCARBON

Maxxam
A Bureau Veritas Group Company

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	December 14, 2017	**Barometer/B.P./units:**	Environment Canada Website	27.95	inHg
Company/Airshed:	PRAMP	**Thermometer/Station Temp:**	Data Acquisition Unit	21.75	°C
Location/Station Name:	Reno	**Weather Conditions:**	Mix of sun and clouds		
Parameter:	CH4 / NMHC / THC	**Calibration Purpose:**	routine monthly		
Start/End Time 24 hr. (mst):	10:35/14:34	**Performed By/Reviewer:**	Raja Abid	Rob Fisher	
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	November 25, 2023		

Analyzer:

ID# or Serial Number:	1314057759
Measured Flow:	1392.9 cc/min
Last Calibration Date:	November 6, 2017
Range ppm:	20 CH4/20 NMHC/40 THC

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	1.003	0.998	1.000
NMHC =	1.002	1.002	1.000
THC =	1.003	1.001	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	Defender 530 Low # 152020 expires November 22, 2018		
High Flow Meter ID/Expiry Date:	Defender 530 High #148943.expires November 21, 2018		
Calibrator ID/Expiry Date:	Environics id# 4760 expires February 15, 2018		
Cal Gas Cylinder I.D. # :	LL 86139		
CH4 Cylinder Conc.=	599.0	211.0	**=C_3H_8 Cylinder Conc.**
CH_4 expressed as C_3H_8=	580.3	1179.3	**=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)										Correction Factors:		
Point	**Diluent**	**Cal Gas**	**Total Flow**	**Calculated CH_4 (ppm)**	**Calculated NMHC (ppm)**	**Calculated THC (ppm)**	**Indicated CH_4 (ppm)**	**Indicated NMHC (ppm)**	**Indicated THC (ppm)**	**CH_4**	**NMHC**	**THC**
as found zero	2665	0.00	2665	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2602	65.49	2667	14.71	14.25	28.95	14.73	14.22	28.93	0.998	1.002	1.001
adjusted zero	2665	0.00	2665	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2602	65.49	2667	14.71	14.25	28.95	14.71	14.24	28.95	1.000	1.000	1.000
mid	2639	33.29	2672	7.46	7.23	14.69	7.45	7.23	14.69	1.002	1.000	1.000
low	2653	17.14	2671	3.85	3.73	7.57	3.82	3.73	7.57	1.007	0.999	1.000
calibrator zero	2665	0.00	2665	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	1.003	1.000	1.000

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coefficient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.001**	**0.999**	**1.000**	**0.95-1.05**
b (Intercept as % of full scale)=	**-0.07%**	**0.02%**	**0.00%**	**± 3% F.S.**
% change in C.F. from last cal=	**0.45%**	**0.01%**	**0.22%**	**± 10%**

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply:	-289.8		Calibration History cnt'd:	NM Peak Area:	88712
Temperatures:	Detector Oven:	175.0		Crucial Settings:	Methane Start:	n/a
	Filter:	175.1			Methane End:	n/a
	Column Oven:	75.0			Backflush:	n/a
	Internal:	33.6			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	600	45		NMHC End:	n/a
	Fuel:	650	50	Run History>1:	Date:	14Dec17
	Span Gas:	1050	22		Time:	10:42
	Zero Air Generator:	47			CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.3			CH_4 RT:	8.0
	Fuel:	41.6			CH_4 Baseline:	2071
	Air:	25.9			CH_4 LOD:	75
FID Status:	Status:	LIT			CH_4 SD:	25
	Counts:	23875			CH_4 CONC:	0.00
	Flame:	405.0			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	5Oct2017@14:16			NM CONC:	0.00
	Flameouts:	3			NM Base Start:	2046
	Det Oven at Start:	133.5			NM Base End:	2042
	Col Oven at Start:	74.5			NM LOD:	11
Calibration History:	Time:	06Nov17@16:55			NM Start IDX:	44
	Type:	SPAN			NM End IDX:	64
	Status:	GOOD			NM Max Slope:	4.9e-01
	Check/Adjust:	ADJUST			NM Min Slope:	-7.0e-01
	CH_4 Span Conc:	14.49			NM PT Count:	0
	CH_4 SP Ratio:	0.000769		Expected Values:	Previous CH4:	9.62
	CH_4 RT:	11.6			Previous NMHC	9.95
	CH_4 PK IDX:	18			Previous THC:	19.6
	CH_4 PK HT:	18844			New CH4:	9.58
	NM Span Conc:	14.04			New NMHC	9.95
	NM SP Ratio:	0.000158			New THC:	19.57

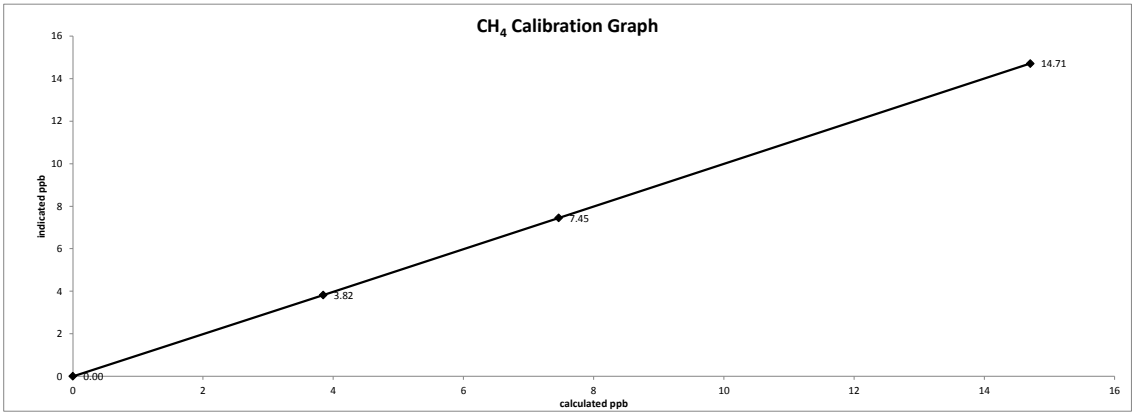
Comments:

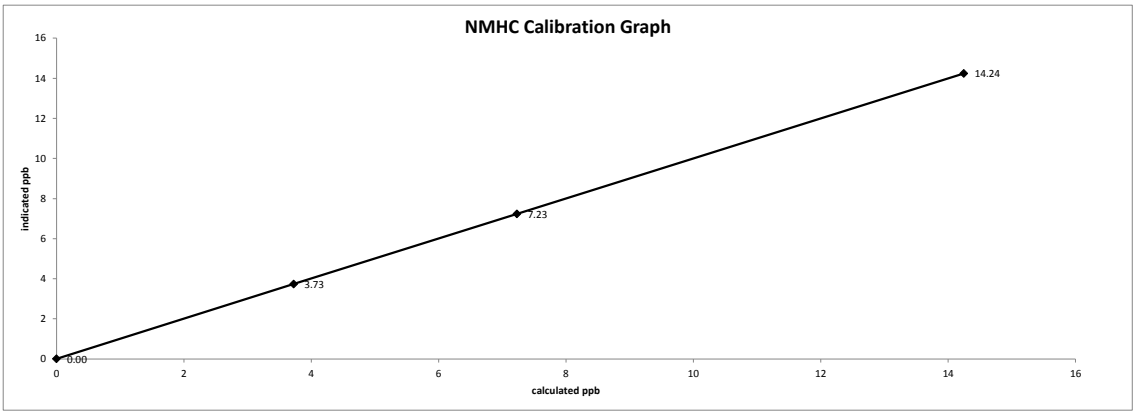
The analyzer sample inlet filter was changed.

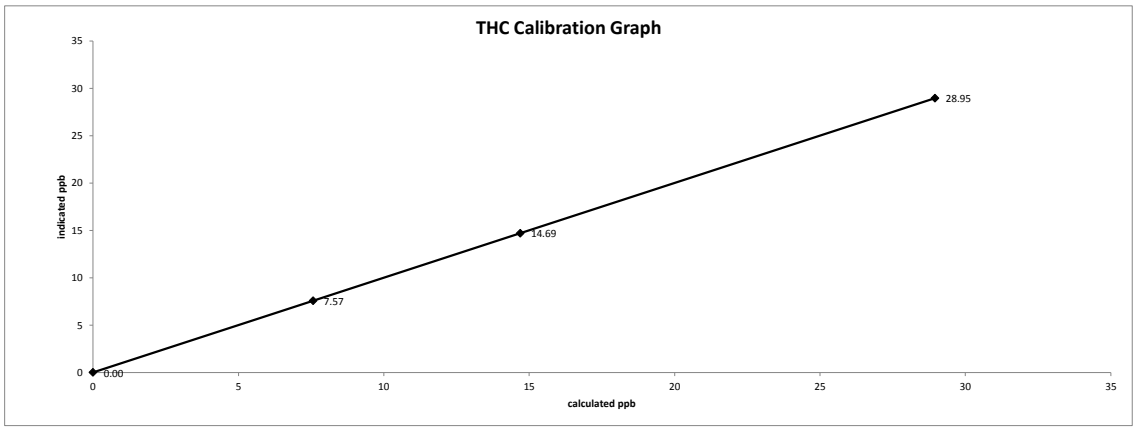
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

The manifold blower was found to be working normally.

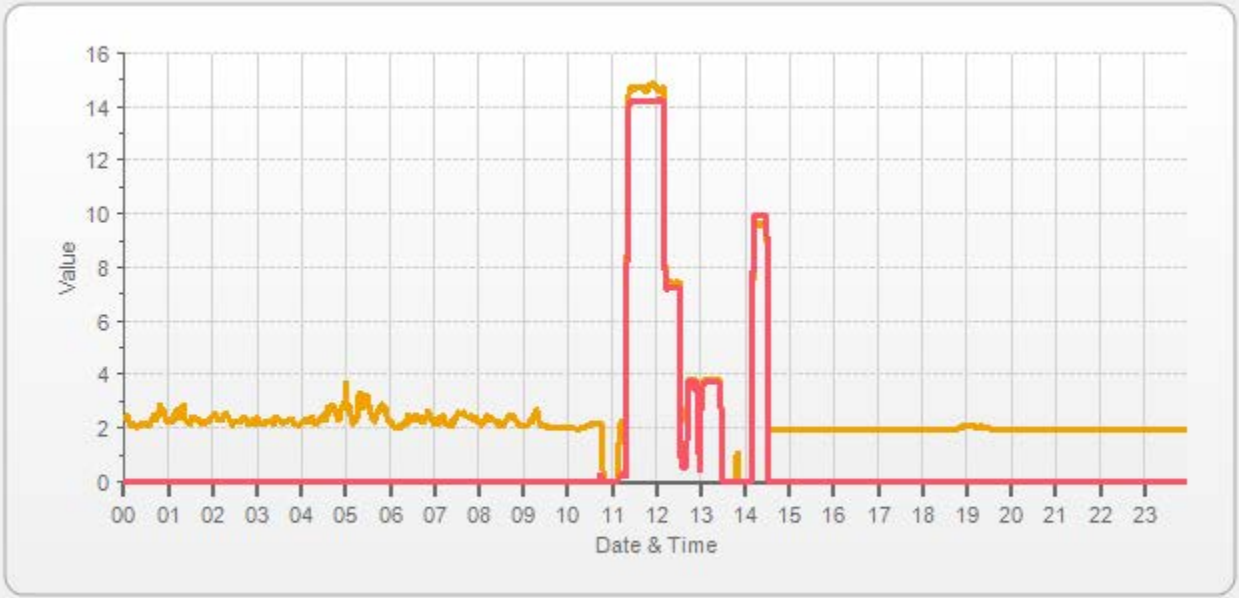
Date:	December 14, 2017	Start/End Time 24 hr. (mst):	10:35/14:34
Company/Airshed:	PRAMP	Calibration Purpose:	routine monthly
Location/Station Name:	Reno	Calibration Method:	Gas Dilution







Station: PRAMP_RENO Daily: 17/12/14 Type: AVG 1 Min. [1 Min.]



WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Limin Li
Audit Location:	Reno	**Reviewed By:**	Trina Whitsitt
Audit Date:	April 6, 2017	**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	**Serial #:**	CA 0309
Maxxam Unit ID #:	13-3357	**Certification Date:**	October 6, 2016

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	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

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2016-510A

Company Maxxam **Operator:** Mike

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

Dilution Flow (sccm)

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

Gas Flow (sccm)

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

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

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

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

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

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

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

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

COMMENTS: Gas has ~50ppm SO2

Auditor: Shea Beaton Date: February 14, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2016-512AA

Company Maxxam **Operator:** Mike

Calibrator:				**Flow Measurement Device:**	
Make/Model	Environics 6100			Make/Model	Bios Defender 530
Serial Number	4760			Serial Number	Hi148944 Lo 152019
Last Verification Date	February 1, 2016			Temperature (°C)	24.6
NO Cylinder S/N	EY0000597			Barometric Pressure	687.5mmHg
NO [PPM]	49.0	NOx [PPM]	49.0		
Expiry Date	December 8, 2019				

Dilution Flow (sccm)

Pt. #1 4890 Pt. #2 4936 Pt. #3 4958

Gas Flow (sccm)

Pt. #1 79.6 Pt. #2 38.9 Pt. #3 19.4

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
4951	0.0	0.0000	0.0000	-0.0001	0.0001	0.0000	Limit ± 10%	
4970	79.6	0.7848	0.7848	0.7925	-0.0006	0.7920	1%	1%
4975	38.9	0.3831	0.3831	0.3858	0.0000	0.3857	1%	1%
4977	19.4	0.1910	0.1910	0.1924	0.0001	0.1925	1%	1%
					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)=	1.0100	**0.90-1.10**	m (Slope)=	1.0092
b (Intercept % of FS)=	-0.0467	**± 3% F.S.**	b (Intercept % of FS)=	-0.0290

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4970	0.000	0.0000	0.7922	-0.0001	0.7922	NO_2	% Diff. Limit
4970	0.500	0.5272	0.2650	0.5241	0.7890	-1%	± 10%
4970	0.275	0.2916	0.5006	0.2901	0.7907	0%	± 10%
4970	0.100	0.1056	0.6866	0.1048	0.7913	-1%	± 10%
				Absolute Average Percent Difference		1%	± 10%

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9945	**0.90-1.10**
b (Intercept % of FS)=	-0.0100	**± 3% F.S.**

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

COMMENTS: Gas has >50ppm SO2

Auditor: Shea Beaton Date: February 15, 2017

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

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Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-086CGA

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

Cylinder #: LL119513 Concentration PPM: 50.6 Tolerance(%) 1 Certified By: Praxair

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 50.6

Percent variance from Stated: **1.1**

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

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

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

Auditor: Al Clark Date: June 17, 2016

Operator Signature: Location: McIntyre Center Edmonton

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Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-109CGA

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

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: **0.1**

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

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

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

Auditor: Shea Beaton Date: February 2, 2016

Operator Signature: Location: McIntyre Center Edmonton

aemera.org

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-091CGA

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

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

Instrument Settings Zero: NA Span: NA Range: 20.0

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

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

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

Cylinder gas tolerances based on CH4 only

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

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

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

Auditor: Shea Beaton Date: January 19, 2016

Operator Signature: Location: McIntyre Center Edmonton

APPENDIX III
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	**EPA Approval or Code of Practice Registration #** (if applicable)
YES	**NA**
Company Name (if applicable)	**Industrial Operation Name** (if applicable)
Peace River Area Monitoring Program Committee	**Reno Station**
Name of the Representative of the Person Responsible (Last, First, Middle)	**Position / Title of the Representative of the Person Responsible**
Wunmi Adekanmbi	**Project Manager, Customer Service, Air Services**
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.	
☐ **Yes** ■ **No**	
Name of External Person Certifying the Report (Last, First, Middle)	**Position / Title of External Person Certifying the Report**
NA	**NA**
Company Name for the External Person Certifying the Report	**Identification of Qualifications / Professional Designations of the External Person Certifying the Report**
NA	**NA**

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

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

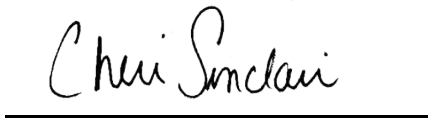
Jan 23, 2018

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee **Project #:** 196-2017-12-93-C
Site: Reno Station **Contact:** Karla Reesor

Level 0 Preliminary Verification		**Date**	Jan 17, 2018
Level 1 Primary Validation		**Date**	Jan 17, 2018
Level 2 Final Validation		**Date**	Jan 23, 2018
Level 3 Independent Data Review		**Date**	Jan 23, 2018
Post-Final Validation	**NA**	**Date**	**NA**

Notes

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