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AMBIENT AIR MONITORING MONTHLY DATA REPORT

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

THREE CREEKS 986B STATION

JOB #: 8449-2017-03-67-C

March 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: Lily Lin

DATE: **May 17, 2017**

Prepared by:

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SUMMARY

In March 2017, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 986b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for 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.

TRS: The analyzer was upgraded to a trace level model on March 7. One hour of downtime was recorded due to this event.

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, Three Creeks 986b Station.

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee Three Creeks 986b 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	0.2	2.3	21	12	13.8	SE	0.9	13, 21	100.0
TRS (ppb)	-	-	-	-	0.3	1.7	2	5	2.8	ESE	0.5	2, 9	99.9
THC (ppm)	-	-	-	-	1.92	2.12	28	2	2.5	ESE	1.96	12, 28	100.0
CH_4 (ppm)	-	-	-	-	1.92	2.12	28	2	2.5	ESE	1.96	12, 28	100.0
NMHC (ppm)	-	-	-	-	0.00	0.02	16	3	2	ESE	0.00	ALL	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	65	93	VAR	VAR	VAR	VAR	77	25	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	942	965	9	VAR	VAR	VAR	963	9	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-6.8	11.4	30	15	9.6	WNW	5.5	31	100.0
STATION TEMPERATURE (°C)	-	-	-	-	21.4	22.8	29	5	4.1	SSE	21.8	2	100.0
VECTOR WS (kph)	-	-	-	-	1.2	16.1	2	23	-	SSE	10.0	12	100.0
VECTOR WD (sec)	-	-	-	-	96 (E)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

SOUR GAS PROCESSING INDUSTRY

MONTHLY REPORT SUMMARY

Three Creeks 986b Station	Peace River Area Monitoring Program Committee
Plant Name / Location	Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	March

CONTINUOUS AMBIENT MONITORING

			ONE - HOUR AVERAGE			24 - HOUR AVERAGE		
PARAMETER	STN No.	% TIME OPERATIONAL	MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES		NO. READINGS > REGULATION
SO_2	1	100.0	0.0023	ppm	0	0.0009	ppm	0
TRS	1	99.9	0.0017	ppm	-	0.0005	ppm	-
THC	1	100.0	2.12	ppm	-	1.96	ppm	-
CH_4	1	100.0	2.12	ppm	-	1.96	ppm	-
NMHC	1	100.0	0.02	ppm	-	0.00	ppm	-
RH	1	100.0	93	%	-	77	%	-
BP	1	100.0	965	mb	-	963	mb	-
Ambient TPX	1	100.0	11.4	°C	-	5.5	°C	-
Station TPX	1	100.0	22.8	°C	-	21.8	°C	-
Wind Speed	1	100.0	16.1	kph	-	10.0	kph	-
Wind Direction	1	100.0	-		-	-		-

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SIGNATURE OF COMPANY REPRESENTATIVE	

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).

Sample filters for all continuous air monitors are changed before the calibration begins. The sample manifold is cleaned during the site visit each month.

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

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

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

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

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

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

Data contained in this monthly report has undergone the verification and validation based on the requirements of the AMD Chapter 6: Ambient Data Quality (December, 2016). The descriptions of the data verification and validation process can be found in Section 5 of this report. Instantaneous data, where applicable, is provided for reference purposes and has not undergone zero correction.

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

SULPHUR DIOXIDE (SO_2)
• There were no issues that impacted operational time this month. The routine monthly calibration was performed on March 7.
TOTAL REDUCED SULPHUR (TRS)
• The operational time was 99.9%, equivalent to one hour of downtime. • An analyzer upgrade was implemented on March 7. The Thermo 43i analyzer (s/n: 1314057760) was removed following a successful shut-down calibration. The replacement analyzer was a trace level model, Thermo 43i TL (s/n: 1152940011). A successful installation calibration was subsequently completed. One hour of downtime was recorded due to this event. • The zero/span oven temperature was adjusted during the March 7 site visit. The analyzer was allowed time to stabilize and the expected span value was updated on March 8. • Maximum instantaneous data collected after the calibration on March 7 appear to be lower than data collected before the calibration. This is because for instantaneous data, negative readings were corrected to zero but baseline zero correction was not applied.
TOTAL HYDROCARBONS (THC), METHANE (CH_4) and NON-METHANE HYDROCARBONS (NMHC)
• There were no issues that impacted operational time this month. The routine monthly calibration was performed on March 7. • 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)
• There were no issues that impacted operational time this month. • Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.
RELATIVE HUMIDITY (RH)
• There were no issues that impacted operational time this month.
BAROMETRIC PRESSURE (BP)
• There were no issues that impacted operational time this month.
AMBIENT TEMPERATURE (AmbTPX)
• There were no issues that impacted operational time this month.
STATION TEMPERATURE (StnTPX)
• There were no issues that impacted operational time this month.

2.0 Project Personnel

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field 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 - Thermo 45C UV Flourescent Analyzer
Total Reduced Sulphur - Thermo 43i UV Flourescent Analyzer
Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
Wind System - RM Young Unit
Relative Humidity - Campbell Scientific Unit
Barometric Pressure - Met One Unit
Ambient Temperature - Campbell Scientific 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

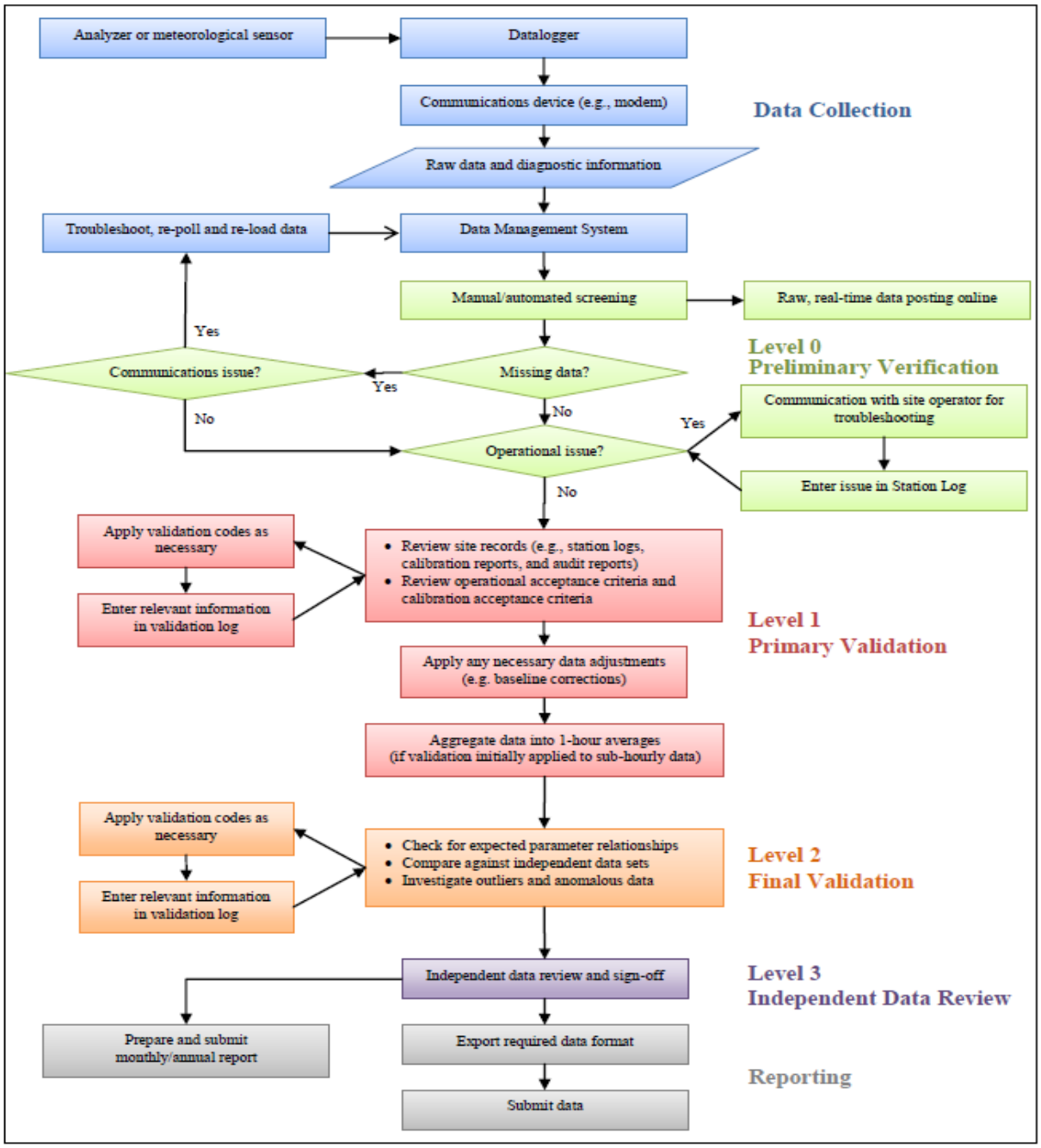
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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)

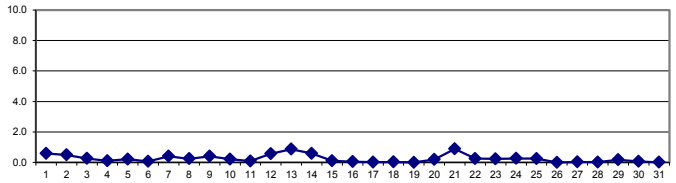
HR START (MST) / HR END (MST)	0:00 0:59	1:00 1:59	2:00 2:59	3:00 3:59	4:00 4:59	5:00 5:59	6:00 6:59	7:00 7:59	8:00 8:59	9:00 9:59	10:00 10:59	11:00 11:59	12:00 12:59	13:00 13:59	14:00 14:59	15:00 15:59	16:00 16:59	17:00 17:59	18:00 18:59	19:00 19:59	20:00 20:59	21:00 21:59	22:00 22:59	23:00 23:59	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
DAY																												
1	0.0	0.0	S	0.3	0.7	1.5	1.6	1.2	1.1	1.0	1.0	0.9	0.5	0.5	0.2	0.3	0.6	0.5	0.4	0.4	0.3	0.2	0.0	0.2	0.0	1.6	0.6	24
2	0.1	S	0.7	0.1	0.4	0.8	0.4	0.5	0.6	0.4	0.4	0.8	0.5	0.4	0.4	0.4	0.3	0.5	0.6	0.8	0.6	0.6	0.6	0.4	0.1	0.8	0.5	24
3	S	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.5	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.0	S	0.0	0.5	0.3	24
4	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.0	0.0	0.1	0.2	0.1	0.1	0.1	S	0.2	0.0	0.3	0.1	24
5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.1	0.1	0.6	0.7	0.5	0.8	0.5	0.4	0.1	0.0	0.0	S	0.0	0.0	0.0	0.8	0.2	24
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	S	0.0	0.1	0.1	0.0	0.2	0.1	24
7	0.2	0.1	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.6	0.8	0.8	0.9	C	C	C	C	0.2	0.4	S	0.1	0.3	0.4	0.4	0.1	0.9	0.4	24
8	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.1	0.2	0.3	0.3	0.2	0.3	S	0.1	0.0	0.1	0.2	0.1	0.0	0.4	0.2	24
9	0.1	0.2	0.6	0.3	0.1	0.2	0.1	0.2	0.2	0.7	1.0	0.7	0.6	0.3	0.5	0.5	0.6	S	0.5	0.3	0.5	0.4	0.4	0.2	0.1	1.0	0.4	24
10	0.0	0.4	0.0	0.3	0.2	0.0	0.2	0.3	0.4	0.6	0.2	0.3	0.4	0.5	0.5	0.4	S	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.6	0.2	24
11	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.3	0.0	0.0	S	0.3	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.1	24
12	0.0	0.0	0.4	0.4	0.0	0.1	0.1	0.3	0.1	0.4	0.9	1.1	0.8	0.7	S	0.6	0.6	0.7	0.8	0.9	1.0	1.3	1.0	1.1	0.0	1.3	0.6	24
13	1.4	1.1	1.0	0.9	1.0	0.9	1.1	0.9	0.8	1.0	0.9	1.1	0.9	S	0.8	0.9	0.8	0.9	0.7	0.6	0.7	0.5	0.6	0.5	0.5	1.4	0.9	24
14	0.3	0.7	0.4	0.6	0.4	0.4	0.3	0.6	0.5	0.5	0.3	0.4	S	0.2	0.2	0.3	0.2	0.0	0.4	1.5	1.8	1.6	1.1	1.0	0.0	1.8	0.6	24
15	0.5	0.7	0.5	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	S	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	24
16	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0	S	0.1	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0	24
18	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
20	0.0	0.1	0.0	0.0	0.2	0.2	S	0.0	0.0	0.3	0.1	0.2	0.1	0.1	0.3	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.0	0.4	0.2	24
21	0.7	0.7	0.7	0.9	0.4	S	1.0	0.9	1.2	1.5	1.7	2.2	2.3	1.1	0.6	0.6	0.7	0.5	0.6	0.3	0.5	0.4	0.6	0.4	0.3	2.3	0.9	24
22	0.0	0.0	0.0	0.0	S	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.5	0.6	0.0	0.6	0.3	24
23	0.5	0.6	0.3	S	0.6	0.2	0.3	0.5	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	24
24	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.2	0.4	0.3	0.1	0.6	0.5	0.6	0.3	0.5	0.5	0.5	0.5	0.5	0.0	0.6	0.3	24
25	0.6	S	0.5	0.6	0.5	0.2	0.0	0.2	0.5	0.3	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.4	0.2	0.0	0.0	0.6	0.2	24
26	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.1	0.0	24
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	S	0.0	0.0	0.2	0.0	24
28	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.2	0.0	24
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.0	0.2	0.2	0.3	0.3	0.3	0.3	0.3	S	0.5	0.4	0.3	0.0	0.5	0.2	24
30	0.1	0.4	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.2	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	0.4	0.1	24
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24
HOURLY MAX	1.4	1.1	1.0	0.9	1.0	1.5	1.6	1.2	1.2	1.5	1.7	2.2	2.3	1.1	0.8	0.9	0.8	0.9	0.8	1.5	1.8	1.6	1.1	1.1				
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2				

STATUS FLAG CODES

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

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

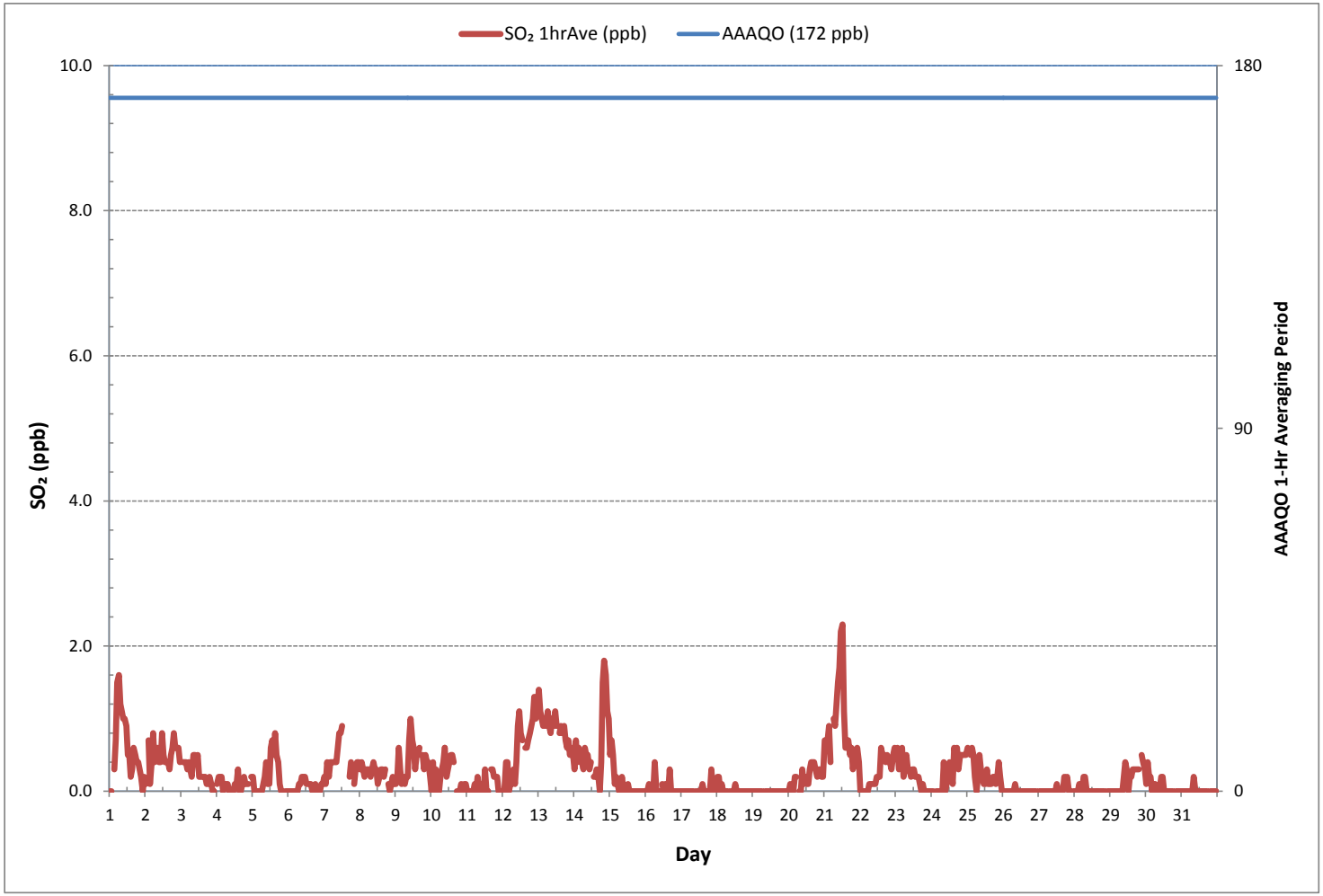
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		0				
NUMBER OF 24-HR EXCEEDANCES:		0				
NUMBER OF NON-ZERO READINGS:		419				
MINIMUM 1-HR AVERAGE	0.0	ppb	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:	2.3	ppb	@ HOUR(S)	12	ON DAY(S)	21
MAXIMUM 24-HR AVERAGE:	0.9	ppb			ON DAY(S)	13, 21
					VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:			744 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			100.0 %
STANDARD DEVIATION:	0.3		MONTHLY AVERAGE:			0.2 ppb

SULPHUR DIOXIDE Hourly Averages (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	2.1	2.1	S	2.6	3.6	4.1	3.6	3.1	3.1	3.1	3.6	2.6	2.6	2.6	2.1	2.6	2.6	2.1	2.6	2.1	2.1	1.6	1.6	1.6	1.6	4.1	2.6	24
2	2.1	S	2.6	1.6	2.1	2.6	2.1	2.1	2.1	2.1	2.1	2.6	2.1	2.6	2.1	2.1	2.1	2.1	2.6	2.6	2.1	2.1	2.1	2.1	1.6	2.6	2.2	24
3	S	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.6	2.0	2.6	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	S	2.0	2.6	2.2	24
4	2.0	2.6	2.1	2.1	2.0	2.0	2.6	2.0	2.1	2.0	2.1	2.0	2.1	2.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	S	2.1	2.0	2.6	2.2	24
5	2.1	2.1	1.6	1.6	1.6	1.6	2.1	1.6	1.6	2.1	2.1	2.1	2.6	2.1	2.6	2.6	2.1	2.1	2.1	1.6	1.6	S	1.6	1.6	1.6	2.6	1.9	24
6	1.6	2.6	1.6	1.6	1.6	1.6	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.6	2.0	1.6	2.5	2.6	S	1.6	2.0	2.1	1.6	2.6	2.0	24
7	2.0	1.6	2.1	2.0	1.6	2.1	2.1	1.6	2.6	2.1	2.0	2.0	C	C	C	C	C	1.6	1.0	S	0.6	1.0	1.6	1.0	0.6	2.6	1.7	24
8	1.0	1.0	0.6	0.6	0.6	1.6	1.0	0.6	1.0	1.5	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.6	S	0.6	1.0	0.6	1.0	1.1	0.6	1.6	1.0	24
9	1.0	1.0	1.1	1.1	0.6	1.1	1.0	1.1	1.0	1.6	2.1	2.1	1.6	1.1	1.6	1.1	1.6	S	1.0	1.0	1.6	1.1	1.0	1.6	0.6	2.1	1.3	24
10	1.0	1.6	1.1	1.1	1.0	1.0	1.0	1.6	1.6	1.6	1.0	1.6	1.5	1.6	2.1	1.0	S	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	2.1	1.2	24
11	1.0	1.0	1.1	1.0	1.6	1.0	1.0	1.6	1.0	1.6	1.0	1.0	1.6	1.0	1.1	S	1.6	1.0	1.0	1.0	1.6	1.0	1.5	1.0	1.0	1.6	1.2	24
12	0.6	0.6	1.6	1.6	1.0	1.0	1.0	1.6	1.0	1.6	2.1	1.6	2.1	1.6	S	1.6	1.6	1.6	1.6	1.6	2.6	2.1	2.6	2.1	0.6	2.6	1.6	24
13	2.1	2.1	2.1	1.6	1.6	2.0	2.1	1.6	1.6	2.1	1.6	1.6	1.1	S	1.6	1.6	2.1	1.6	1.6	1.1	1.6	1.1	1.6	1.1	1.1	2.1	1.7	24
14	1.1	1.6	1.1	1.1	1.6	1.1	1.1	1.6	1.6	1.6	1.6	1.0	S	1.6	1.6	1.6	1.6	1.6	2.0	2.6	3.1	3.1	2.6	2.1	1.0	3.1	1.7	24
15	2.1	2.1	1.6	1.6	1.6	2.0	1.6	1.5	1.6	2.1	1.1	S	2.1	1.1	1.6	1.1	1.6	1.1	1.6	1.1	1.6	1.6	1.6	1.6	1.1	2.1	1.6	24
16	1.1	1.6	1.6	1.6	1.1	1.6	2.1	2.1	1.6	1.6	S	2.1	1.6	2.1	1.6	2.1	2.1	1.6	1.6	2.0	1.6	1.6	1.1	1.6	1.1	2.1	1.7	24
17	2.1	1.1	1.6	1.6	1.6	1.1	2.1	1.1	1.5	S	1.6	1.6	2.1	1.6	2.6	1.6	2.1	1.6	2.1	1.6	1.6	2.1	1.6	1.6	1.1	2.6	1.7	24
18	1.6	2.1	2.1	1.6	1.6	2.1	1.6	1.6	S	1.6	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.6	1.6	1.6	2.1	1.1	2.1	1.6	24
19	1.6	1.6	1.6	2.1	1.6	1.6	1.1	S	1.6	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	2.1	1.1	1.6	1.1	1.1	1.1	2.1	1.5	24
20	1.6	1.6	1.6	1.0	1.6	2.1	S	1.6	1.6	1.6	1.6	1.6	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.6	1.6	1.6	1.6	1.0	2.1	1.6	24
21	1.6	1.6	1.6	2.1	1.6	S	2.1	1.6	2.1	2.6	3.6	3.1	3.6	2.1	1.6	1.6	2.1	2.0	2.0	2.1	2.1	1.6	2.1	1.6	1.6	3.6	2.1	24
22	1.1	1.6	1.6	1.1	S	1.6	2.1	1.6	1.6	1.6	1.1	1.6	1.6	2.1	2.0	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	2.1	1.6	24
23	1.6	2.1	1.6	S	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.0	1.6	1.6	1.6	1.6	2.0	2.0	1.6	1.6	2.1	1.6	2.1	1.6	1.6	2.1	1.7	24
24	1.6	2.1	S	2.1	2.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	2.6	2.1	2.6	1.6	2.1	2.6	2.1	2.1	1.6	1.1	2.6	1.9	24
25	2.1	S	1.6	1.6	2.1	1.6	1.6	2.1	2.1	1.6	2.1	1.6	1.6	2.1	2.1	2.1	2.1	1.6	2.1	1.6	1.6	2.0	2.6	1.6	1.6	2.6	1.9	24
26	S	1.6	1.6	2.1	1.6	2.1	2.1	2.1	1.6	2.1	2.1	1.6	1.6	1.6	2.1	2.1	2.6	2.1	2.1	2.1	2.0	1.6	1.6	S	1.6	2.6	1.9	24
27	2.1	1.1	1.6	1.6	1.1	1.6	2.1	2.1	1.6	2.1	1.6	1.6	2.1	1.6	2.1	2.0	2.1	2.6	2.1	2.1	2.6	2.1	S	2.1	1.1	2.6	1.9	24
28	2.1	2.0	1.6	2.0	2.1	2.1	2.1	2.6	2.0	2.1	2.1	2.1	2.1	2.6	2.1	2.1	2.1	1.6	1.6	2.1	2.6	S	2.1	2.1	1.6	2.6	2.1	24
29	2.1	2.6	2.1	2.1	2.1	2.1	1.6	1.6	2.1	2.6	2.6	2.6	1.6	1.6	2.0	2.6	2.1	2.1	2.1	1.6	S	2.0	2.0	1.6	1.6	2.6	2.1	24
30	2.1	2.1	2.6	2.6	1.6	2.1	2.1	1.6	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	S	2.6	2.5	2.6	3.1	1.6	3.1	2.2	24
31	2.6	2.1	2.1	2.1	2.6	2.1	2.6	2.6	2.6	2.1	2.6	2.1	2.6	2.6	2.1	2.6	2.1	3.1	S	2.1	2.1	2.5	2.1	2.1	2.1	3.1	2.4	24
HOURLY MAX	2.6	2.6	2.6	2.6	3.6	4.1	3.6	3.1	3.1	3.1	3.6	3.1	3.6	2.6	2.6	2.6	2.6	3.1	2.6	2.6	3.1	3.1	2.6	3.1				
HOURLY AVG	1.7	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.8	1.8	1.7	1.9	1.7	1.8	1.7				

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS: 706

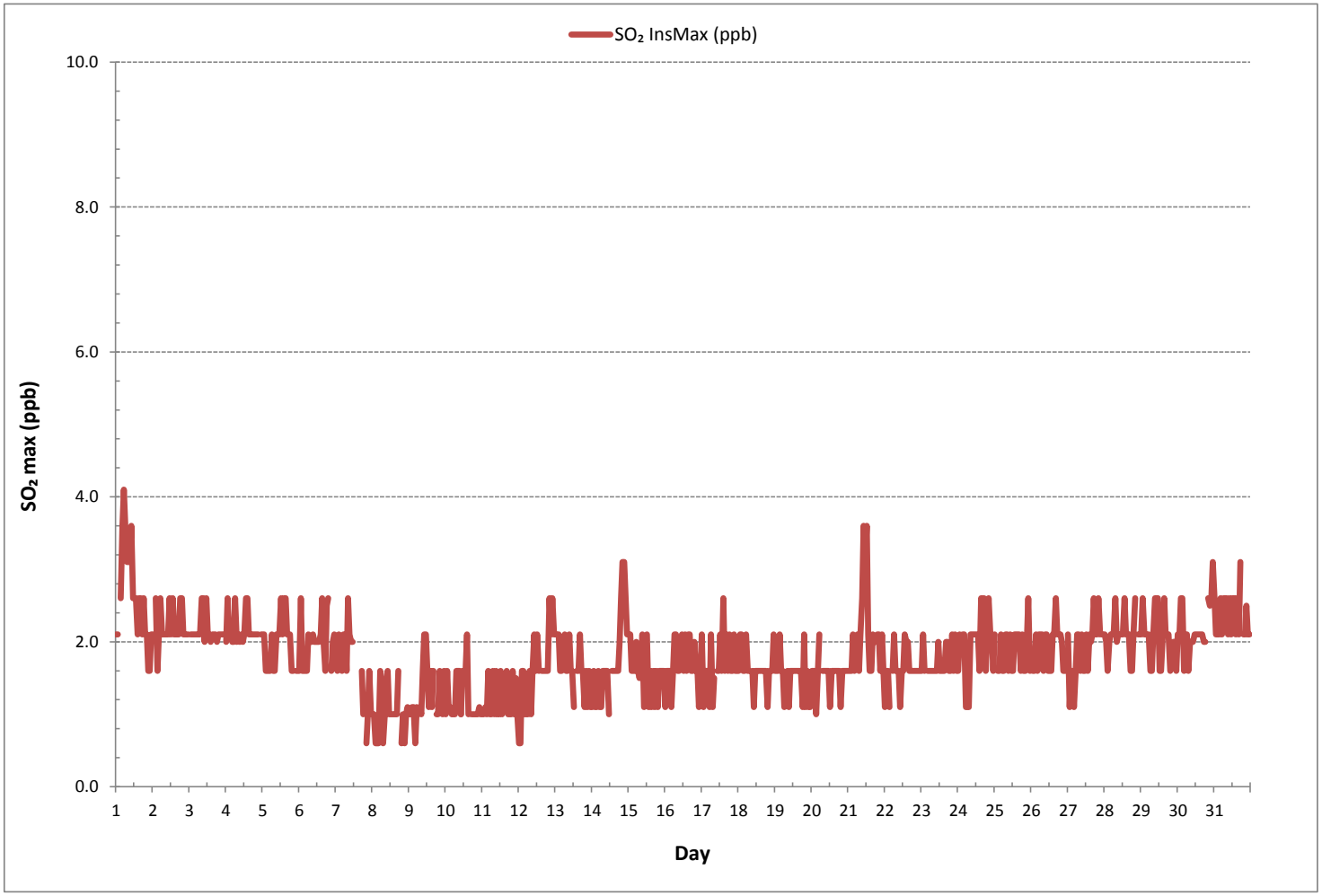
MAXIMUM INSTANTANEOUS VALUE: 4.1 ppb @ HOUR(S) 5 ON DAY(S) 1

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.5

OPERATIONAL TIME: 744 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



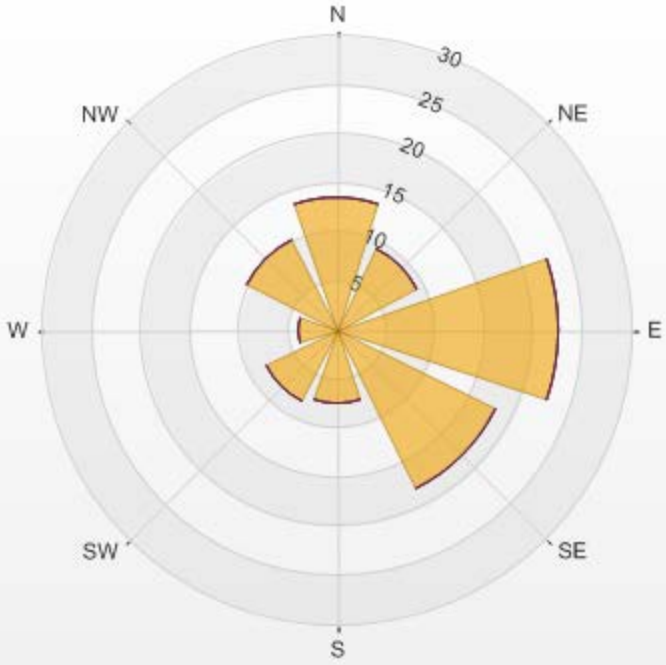
Wind: PRAMP_986 Poll.: PRAMP_986-SO2[ppb]
Monthly: 03/2017
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.80% Calm Avg: 0.11 [ppb]

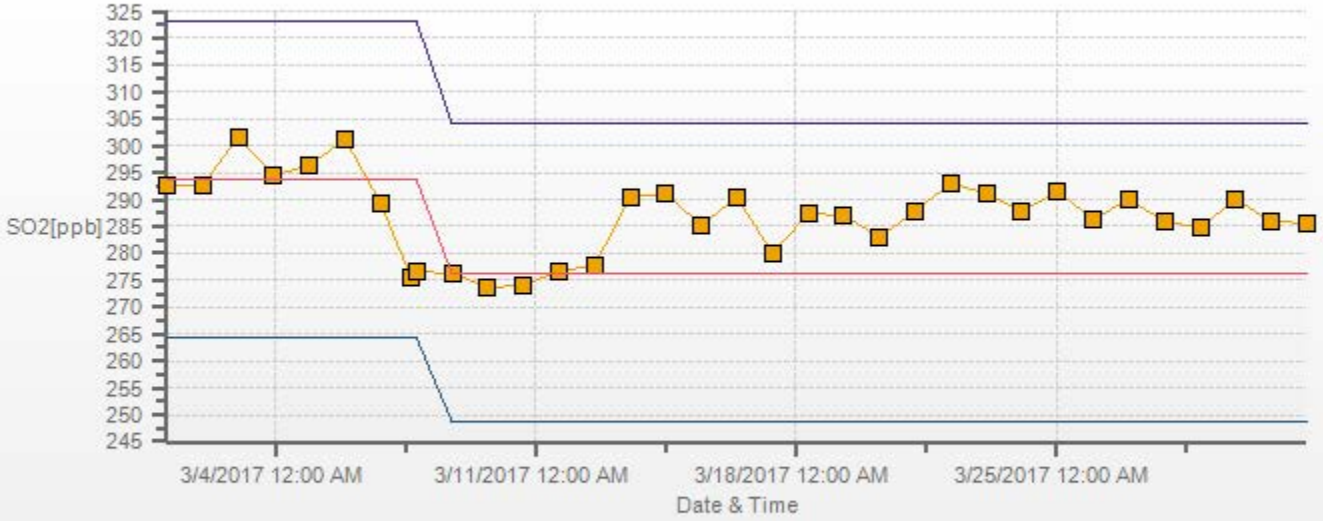
Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	13.5	0.0	0.0	0.0	0.0	13.5
NE	9.2	0.0	0.0	0.0	0.0	9.2
E	22.7	0.0	0.0	0.0	0.0	22.7
SE	18.1	0.0	0.0	0.0	0.0	18.1
S	7.5	0.0	0.0	0.0	0.0	7.5
SW	8.1	0.0	0.0	0.0	0.0	8.1
W	4.0	0.0	0.0	0.0	0.0	4.0
NW	10.2	0.0	0.0	0.0	0.0	10.2
Summary	93.2	0.0	0.0	0.0	0.0	93.2

% Icon Classes (ppb)	93 0-3	0 3-10	0 10-85	0 85-170	0 >170.0

PRAMP_986 Poll.: PRAMP_986-SO2[ppb] 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 6.80% Calm Poll Avg: 0.11[ppb]



SO2[ppb] Calibration: PRAMP_986 Monthly: 2017/03 Type: Span



TOTAL REDUCED SULPHUR

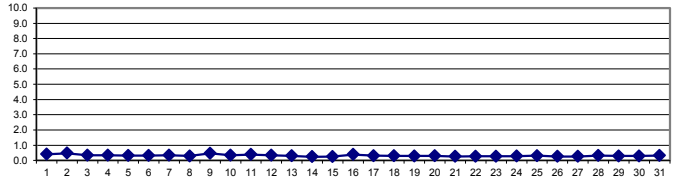
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.4	0.4	S	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.3	0.5	0.4	24
2	0.6	S	1.6	0.7	0.5	1.7	0.6	0.5	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.7	0.5	24
3	S	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.5	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	S	0.2	0.5	0.3	24
4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	S	0.5	0.3	0.5	0.3	24
5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	S	0.3	0.3	0.2	0.5	0.3	24
6	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	S	0.3	0.3	0.5	0.2	0.5	0.3	24
7	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	C	C	Y	C	C	C	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.4	0.3	23
8	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	24
9	0.3	0.4	1.4	1.1	0.6	0.7	0.7	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.4	0.3	1.4	0.5	24
10	0.3	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	S	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.3	24
11	0.3	0.3	0.3	0.3	0.3	0.4	0.5	1.0	1.0	0.7	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.0	0.4	24
12	0.3	0.3	0.6	0.8	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.8	0.3	24
13	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	24
14	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	24
15	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	S	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.2	0.4	0.3	24
16	0.5	0.6	0.7	0.7	0.6	0.5	0.6	0.4	0.2	0.2	S	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.7	0.4	24
17	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3	24
18	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	24
19	0.3	0.3	0.2	0.3	0.3	0.2	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	24
20	0.3	0.3	0.3	0.3	0.3	0.3	S	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.4	0.3	24
21	0.2	0.2	0.2	0.2	0.2	S	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	24
22	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	24
23	0.3	0.4	0.2	S	0.5	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	24
24	0.2	0.2	S	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.6	0.4	0.2	0.6	0.3	24
25	0.7	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.7	0.3	24
26	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	S	0.2	0.5	0.3	24
27	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.6	S	0.5	0.2	0.6	0.3	24
28	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.5	0.5	S	0.4	0.4	0.2	0.5	0.3	24
29	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	S	0.5	0.4	0.4	0.2	0.5	0.3	24
30	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	S	0.4	0.3	0.3	0.3	0.2	0.4	0.3	24
31	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	24
HOURLY MAX	0.7	0.6	1.6	1.1	0.6	1.7	0.7	1.0	1.0	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.5				
HOURLY AVG	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3				

STATUS FLAG CODES

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

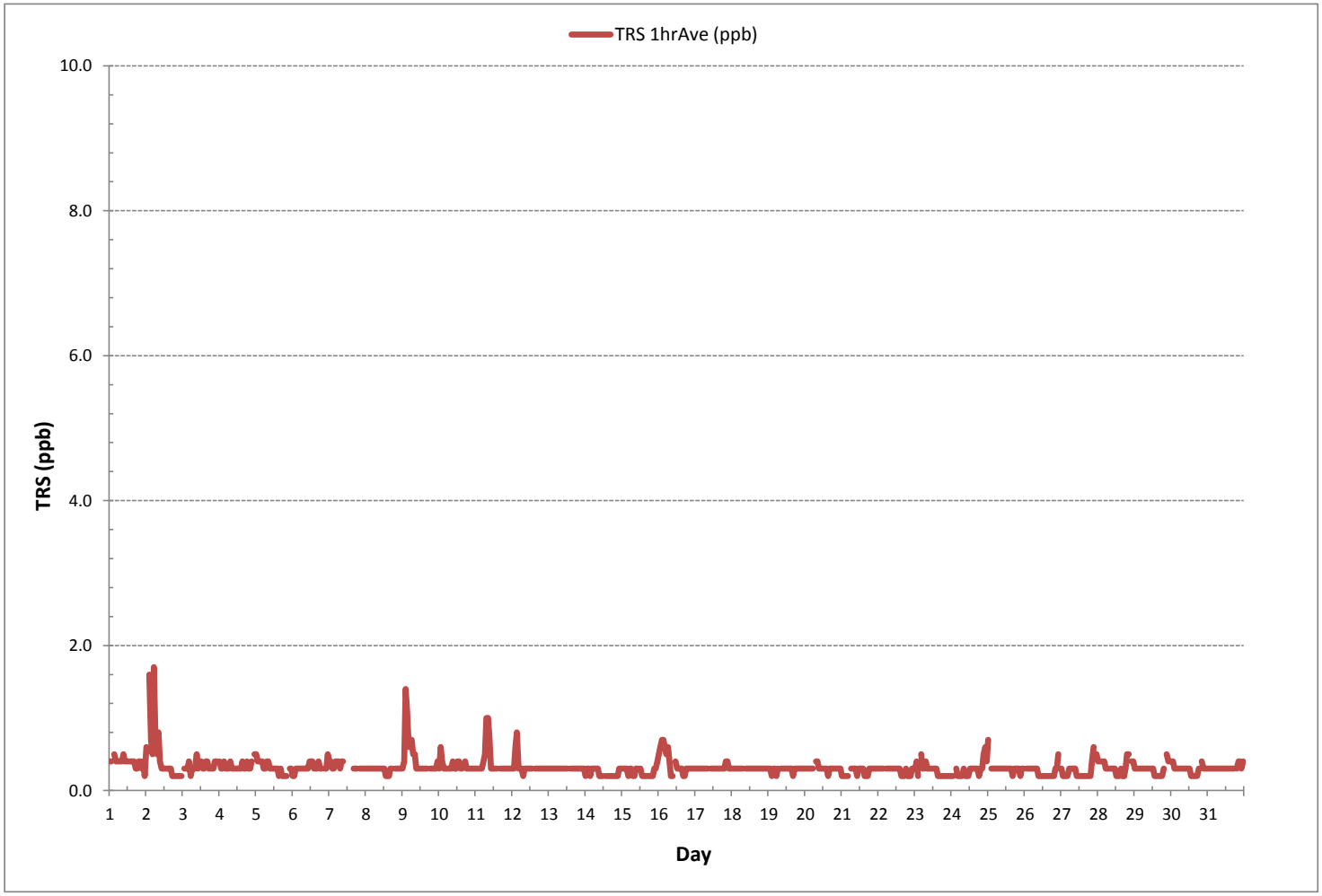
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			705				
MINIMUM 1-HR AVERAGE		0.2	ppb	@ HOUR(S)	VAR	ON DAY(S)	VAR
MAXIMUM 1-HR AVERAGE:		1.7	ppb	@ HOUR(S)	5	ON DAY(S)	2
MAXIMUM 24-HR AVERAGE:		0.5	ppb			ON DAY(S)	2, 9
						VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs		OPERATIONAL TIME:		743	hrs
MONTHLY CALIBRATION TIME:	5	hrs		AMD OPERATION UPTIME:		99.9	%
STANDARD DEVIATION:	0.1			MONTHLY AVERAGE:		0.3	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	0.8	0.8	S	0.9	0.9	0.9	0.8	1.1	0.9	0.9	0.8	0.9	0.9	0.8	0.8	0.9	1.0	0.9	0.8	0.8	0.9	0.8	1.0	1.0	0.8	1.1	0.9	24.0
2	1.1	S	2.9	1.4	1.0	3.1	2.0	1.2	1.3	1.0	0.8	0.9	0.8	0.8	0.8	0.8	0.9	1.0	0.8	0.6	0.7	0.6	0.6	0.7	0.6	3.1	1.1	24.0
3	S	0.8	0.8	0.8	1.4	1.0	1.1	1.0	0.7	1.0	0.8	0.9	0.9	0.9	0.9	0.9	1.1	0.8	0.8	0.8	0.8	0.9	0.9	S	0.7	1.4	0.9	24.0
4	0.9	0.8	0.8	0.8	0.7	0.8	0.8	1.1	0.9	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.8	1.0	0.9	0.7	0.7	0.8	S	0.9	0.7	1.1	0.8	24.0
5	1.0	0.9	0.8	0.9	0.9	0.8	0.9	0.9	1.2	0.8	0.7	0.7	0.9	0.9	1.0	0.8	1.1	1.1	1.1	0.7	0.8	S	0.8	0.8	0.7	1.2	0.9	24.0
6	0.7	0.8	0.8	0.9	0.9	1.1	0.9	0.9	0.8	0.8	0.7	0.9	0.8	0.7	0.8	0.8	0.7	0.8	1.2	0.8	S	0.7	0.7	0.8	0.7	1.2	0.8	24.0
7	0.7	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.7	C	C	C	Y	C	C	C	C	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.8	0.6	23.0
8	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	S	0.5	0.4	0.4	0.4	0.4	0.3	0.5	0.3	24.0
9	0.4	0.8	2.3	2.2	0.9	1.1	1.0	0.8	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.5	0.4	0.5	0.4	0.5	0.9	0.4	2.3	0.7	24.0
10	0.4	1.3	1.3	0.5	0.4	0.4	0.4	0.5	0.5	0.7	0.5	0.4	0.5	0.5	0.5	0.5	S	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	1.3	0.5	24.0
11	0.4	0.4	0.4	0.4	0.4	0.6	0.9	1.3	1.5	1.5	0.4	0.4	0.4	0.4	0.4	S	0.5	0.4	0.4	0.5	0.6	0.4	0.4	0.4	0.4	1.5	0.6	24.0
12	0.4	0.5	1.2	1.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	1.3	0.5	24.0
13	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	24.0
14	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	S	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	24.0
15	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.3	0.6	0.3	24.0
16	0.7	0.9	0.9	0.8	0.8	0.8	1.1	1.1	0.3	0.3	S	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	1.1	0.5	24.0
17	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.3	S	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.5	0.5	0.5	0.3	0.4	0.3	0.5	0.4	24.0
18	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	S	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	24.0
19	0.3	0.3	0.3	0.3	0.3	0.3	0.4	S	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.3	24.0
20	0.3	0.3	0.3	0.4	0.4	0.4	S	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.4	24.0
21	0.4	0.3	0.4	0.3	0.3	S	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	24.0
22	0.4	0.3	0.4	0.4	S	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	24.0
23	0.5	0.7	0.3	S	0.7	0.5	0.4	0.6	0.4	0.3	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.4	24.0
24	0.3	0.3	S	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.7	1.1	1.1	0.3	1.1	0.4	24.0
25	1.5	S	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.5	0.4	24.0
26	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.5	0.4	0.7	S	0.2	0.7	0.3	24.0
27	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.8	1.0	S	0.8	0.3	1.0	0.4	24.0
28	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.6	S	0.5	0.5	0.3	0.6	0.4	24.0
29	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.4	S	0.7	0.4	0.4	0.2	0.7	0.3	24.0
30	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	S	0.5	0.3	0.3	0.4	0.2	0.5	0.3	24.0
31	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	S	0.3	0.4	0.5	0.3	0.4	0.2	0.5	0.3	24.0
HOURLY MAX	1.5	1.3	2.9	2.2	1.4	3.1	2.0	1.3	1.5	1.5	0.8	0.9	0.9	0.9	1.0	0.9	1.1	1.1	1.2	0.8	0.9	1.0	1.1	1.1				
HOURLY AVG	0.5	0.5	0.7	0.6	0.5	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5				

STATUS FLAG CODES

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

MONTHLY SUMMARY

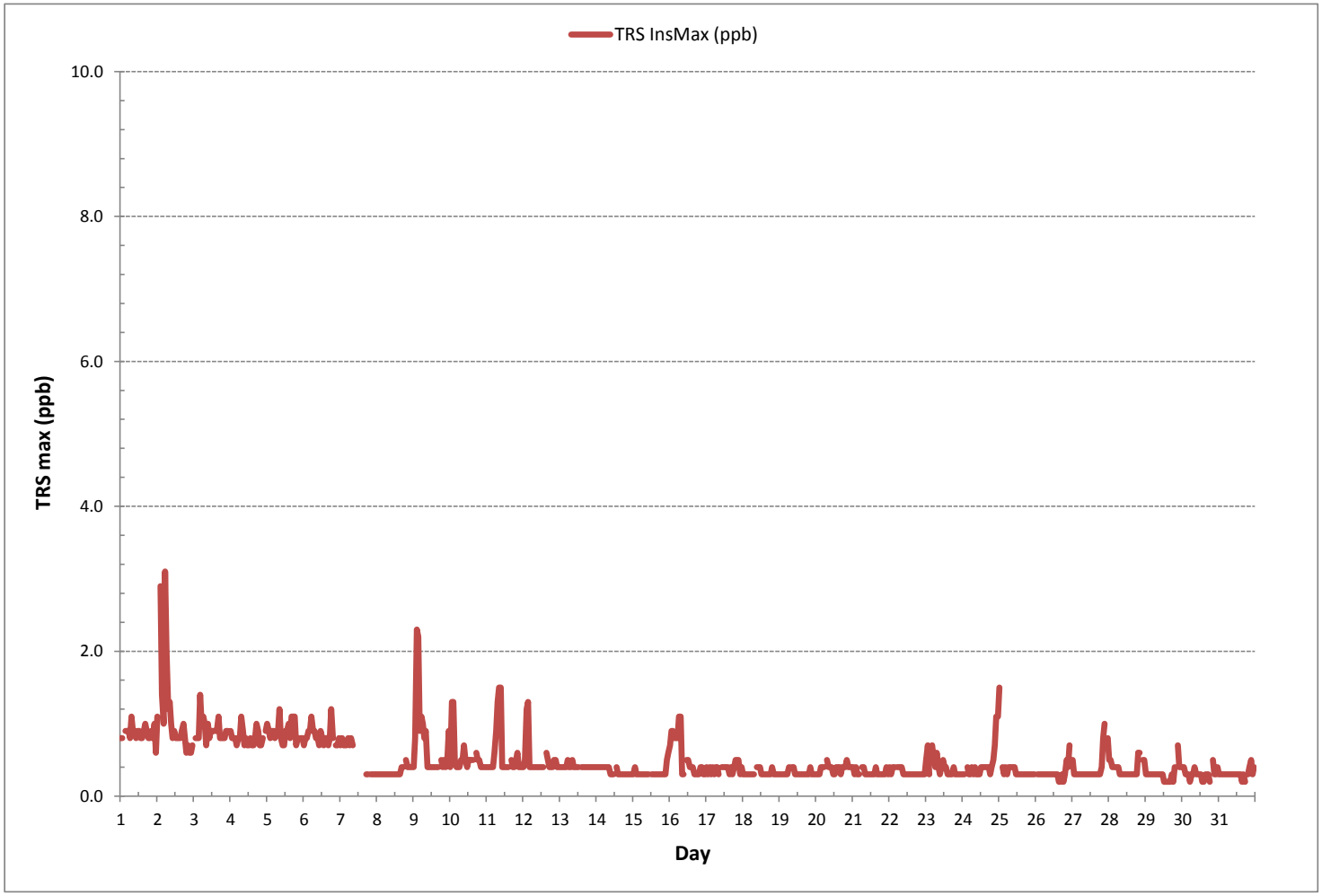
NUMBER OF NON-ZERO READINGS: 703

MAXIMUM INSTANTANEOUS VALUE: 3.1 ppb @ HOUR(S) 5 ON DAY(S) 2

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 743 hrs
MONTHLY CALIBRATION TIME: 7 hrs
STANDARD DEVIATION: 0.3

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



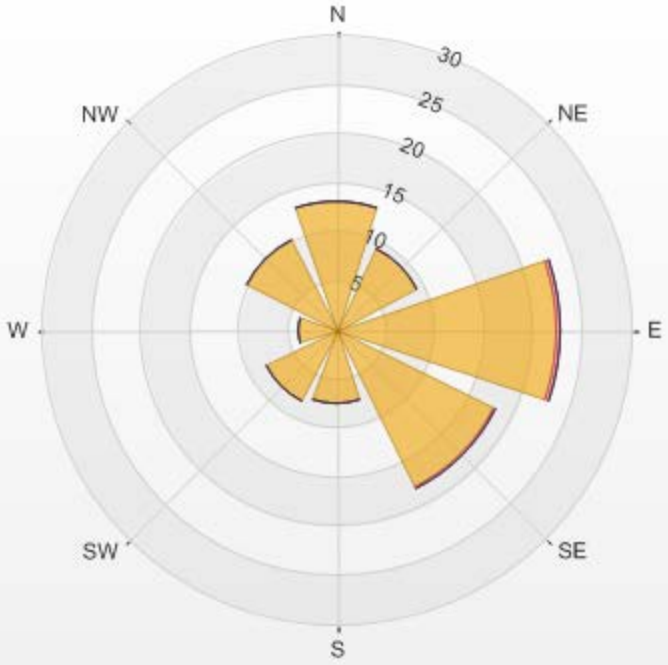
Wind: PRAMP_986 Poll.: PRAMP_986-TRS[ppb]
Monthly: 03/2017
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.83% Calm Avg: 0.36 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	13.1	0.0	0.0	0.0	13.1
NE	9.3	0.0	0.0	0.0	9.3
E	22.3	0.4	0.0	0.0	22.8
SE	17.9	0.3	0.0	0.0	18.2
S	7.5	0.0	0.0	0.0	7.5
SW	8.1	0.0	0.0	0.0	8.1
W	4.0	0.0	0.0	0.0	4.0
NW	10.2	0.0	0.0	0.0	10.2
Summary	92.5	0.7	0.0	0.0	93.2

% Icon Classes (ppb)	92 0-1	1 1-3	0 3-10	0 >10.0

PRAMP_986 Poll.: PRAMP_986-TRS[ppb] 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 6.83% Calm Poll Avg: 0.36[ppb]



TRS[ppb] Calibration: PRAMP_986 Monthly: 2017/03 Type: Span

TOTAL HYDROCARBON

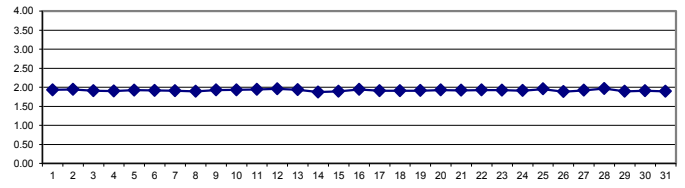
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.91	1.91	S	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.96	1.91	1.96	1.93	24
2	1.96	S	1.98	1.96	1.96	1.98	1.96	1.96	1.96	1.95	1.94	1.95	1.94	1.93	1.93	1.93	1.92	1.90	1.93	1.93	1.94	1.93	1.92	1.92	1.90	1.98	1.94	24
3	S	1.91	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.95	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.89	1.89	S	1.89	1.95	1.91	24
4	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.90	S	1.90	1.89	1.90	1.90	24
5	1.90	1.90	1.91	1.94	1.97	1.93	1.93	1.98	2.00	1.97	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.91	S	1.92	1.91	1.90	2.00	1.92	24
6	1.91	1.92	1.92	1.94	1.93	1.92	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.89	1.90	S	1.91	1.91	1.91	1.89	1.94	1.91	24
7	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	C	C	C	1.89	1.90	1.97	1.90	1.89	1.89	S	1.89	1.89	1.89	1.89	1.89	1.97	1.91	24
8	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.91	1.92	1.88	1.89	1.89	1.89	1.89	1.89	1.90	1.90	S	1.90	1.91	1.91	1.91	1.92	1.88	1.92	1.90	24
9	1.92	1.93	1.96	1.94	1.93	1.94	1.96	1.95	1.95	1.93	1.93	1.93	1.92	1.92	1.92	1.91	1.91	S	1.91	1.92	1.92	1.92	1.92	1.93	1.91	1.96	1.93	24
10	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.94	1.94	1.93	1.92	S	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.94	1.93	24
11	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.96	1.95	1.95	S	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.96	1.94	24
12	1.93	1.94	1.95	1.95	1.95	1.95	1.96	1.98	1.99	1.99	1.98	1.97	1.96	1.95	S	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.93	1.99	**1.96**	24
13	1.97	1.96	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.95	1.94	S	1.95	1.94	1.94	1.93	1.92	1.92	1.90	1.90	1.87	1.86	1.86	1.97	1.93	24
14	1.86	1.86	1.86	1.88	1.87	1.88	1.89	1.90	1.88	1.86	1.86	1.86	S	1.86	**1.85**	**1.85**	1.86	**1.85**	1.86	1.87	1.88	1.90	1.92	1.93	**1.85**	1.93	1.87	24
15	1.95	1.97	1.93	1.91	1.88	**1.85**	**1.85**	1.86	1.86	1.86	1.87	S	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.91	1.95	2.00	**1.85**	2.00	1.89	24
16	2.05	2.07	2.08	2.03	1.98	1.97	1.97	1.91	1.89	1.90	S	1.90	1.89	1.90	1.90	1.91	1.92	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.89	2.08	1.94	24
17	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	S	1.91	1.92	1.91	1.91	1.90	1.89	1.90	1.90	1.89	1.91	1.91	1.91	1.90	1.91	1.89	1.92	1.91	24
18	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.91	S	1.91	1.92	1.92	1.92	1.90	1.89	1.90	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.89	1.92	1.91	24
19	1.91	1.91	1.91	1.92	1.92	1.92	1.92	S	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.91	24
20	1.92	1.92	1.92	1.93	1.93	1.93	S	1.96	1.97	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.96	1.94	1.92	1.97	1.93	24
21	1.94	1.93	1.93	1.94	1.93	S	1.92	1.92	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.94	1.93	1.90	1.94	1.92	24
22	1.93	1.93	1.94	1.93	S	1.93	1.93	1.94	1.94	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.91	1.94	1.93	24
23	1.93	1.93	1.92	S	1.93	1.92	1.92	1.93	1.92	1.92	1.92	1.93	1.94	1.94	1.93	1.92	1.92	1.91	1.90	1.90	1.90	1.91	1.92	1.95	1.90	1.95	1.92	24
24	1.94	1.93	S	1.92	1.93	1.95	1.94	1.94	1.92	1.89	1.89	1.90	1.90	1.91	1.91	1.91	1.91	1.90	1.89	1.88	1.88	1.88	1.89	1.91	1.88	1.95	1.91	24
25	1.92	S	1.96	2.00	2.01	2.01	2.02	2.03	2.05	2.03	1.99	1.95	1.95	1.95	1.94	1.91	1.91	1.91	1.92	1.93	1.90	1.87	1.88	1.88	1.87	2.05	1.95	24
26	S	1.87	1.88	1.88	1.90	1.91	1.89	1.88	1.89	1.88	1.88	1.88	1.87	1.88	1.88	1.87	1.87	1.87	1.87	1.87	1.88	1.91	1.92	S	1.87	1.92	1.88	24
27	1.90	1.88	1.88	1.89	1.91	1.91	1.92	1.92	1.92	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.96	1.97	S	1.96	1.88	1.97	1.92	24
28	2.03	2.10	**2.12**	2.10	2.07	2.06	2.03	2.03	2.01	1.96	1.93	1.92	1.90	1.88	1.88	1.87	1.87	1.87	1.89	1.88	1.89	S	1.95	1.92	1.87	**2.12**	**1.96**	24
29	1.90	1.92	1.90	1.90	1.91	1.91	1.92	1.93	1.89	1.89	1.89	1.88	1.88	1.89	1.87	1.87	1.87	1.86	1.86	1.89	S	1.89	1.92	1.90	1.86	1.93	1.89	24
30	1.89	1.90	1.89	1.89	1.90	1.91	1.92	1.91	1.91	1.92	1.92	1.91	1.90	1.90	1.89	1.88	1.88	1.88	1.89	S	1.91	1.93	1.94	1.96	1.88	1.96	1.91	24
31	1.92	1.91	1.92	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.90	1.89	1.89	1.88	1.88	1.87	1.87	S	1.86	1.86	1.86	1.87	1.87	1.86	1.92	1.89	24
HOURLY MAX	2.05	2.10	2.12	2.10	2.07	2.06	2.03	2.03	2.05	2.03	1.99	1.97	1.96	1.95	1.95	1.97	1.95	1.95	1.95	1.95	1.96	1.97	1.96	2.00				
HOURLY AVG	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.92	1.92				

STATUS FLAG CODES

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

24 HR AVERAGES March 2017

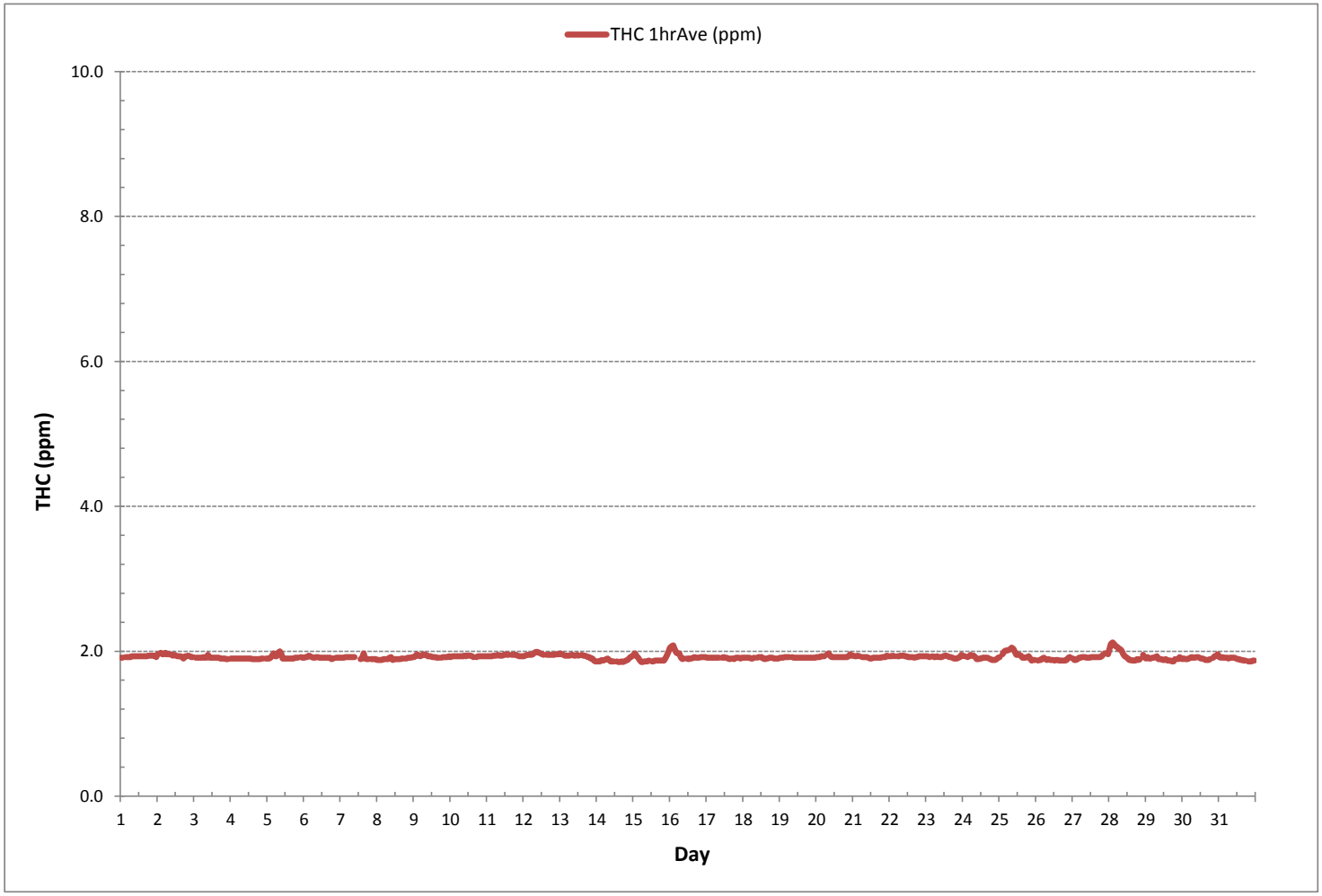


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708			
MINIMUM 1-HR AVERAGE	1.85	ppm	@ HOUR(S)	VAR , VAR	ON DAY(S)	14 , 15
MAXIMUM 1-HR AVERAGE:	2.12	ppm	@ HOUR(S)	2	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:	1.96	ppm			ON DAY(S)	12, 28
					VAR-VARIOUS	

IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	744	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.03		MONTHLY AVERAGE:	1.92	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	1.91	1.91	S	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.92	1.93	1.93	1.92	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.95	1.96	1.91	1.96	1.93	24
2	1.96	S	1.99	1.97	1.96	1.99	1.97	1.96	1.96	1.95	1.94	1.95	1.95	1.93	1.93	1.93	1.93	1.92	1.94	1.93	1.93	1.93	1.93	1.92	1.92	1.99	1.95	24
3	S	1.92	1.92	1.92	1.92	1.91	1.92	1.91	1.92	1.99	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.90	1.90	1.89	S	1.89	1.99	1.91	24
4	1.90	1.89	1.89	1.90	1.90	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.90	S	1.90	1.89	1.90	1.90	24
5	1.92	1.91	1.92	2.00	1.99	1.96	1.94	2.03	2.01	2.00	1.91	1.90	1.90	1.90	1.90	1.91	1.91	1.90	1.91	1.91	1.91	S	1.92	1.93	1.90	2.03	1.93	24
6	1.93	1.92	1.92	1.95	1.94	1.94	1.92	1.91	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	S	1.91	1.92	1.91	1.91	1.95	1.92	24
7	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	C	C	C	C	C	2.04	2.05	1.96	1.89	1.89	S	1.89	1.89	1.89	1.88	1.88	2.05	1.92	24
8	1.89	1.89	1.88	1.88	1.89	1.89	1.89	1.89	1.96	2.09	1.89	1.90	1.90	1.89	1.89	1.90	1.90	1.90	S	1.91	1.91	1.91	1.91	1.93	1.88	2.09	1.91	24
9	1.92	1.99	1.96	1.96	1.94	1.96	1.96	1.96	1.96	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.91	S	1.91	1.94	1.92	1.92	1.93	1.93	1.91	1.99	1.94	24
10	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.94	1.94	1.93	1.92	S	1.92	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.94	1.93	24
11	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	S	1.95	1.95	1.95	1.94	1.94	1.93	1.93	1.93	1.93	1.95	1.94	24
12	1.94	1.94	1.95	1.95	1.94	1.95	1.97	1.98	1.99	1.99	1.98	1.97	1.96	1.95	S	1.95	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.97	1.94	1.99	1.96	24
13	1.97	1.96	1.95	1.94	1.94	1.94	1.94	1.94	1.96	1.95	1.95	1.95	1.95	S	1.95	1.96	1.93	1.93	1.93	1.92	1.90	1.95	1.87	1.86	1.86	1.97	1.94	24
14	1.86	1.86	1.87	1.87	1.88	1.88	1.89	1.91	1.89	1.86	1.86	1.86	S	1.86	1.85	1.87	1.86	1.85	1.86	1.87	1.89	1.91	1.93	1.94	1.85	1.94	1.88	24
15	1.99	1.99	1.98	1.91	2.04	1.86	1.85	1.86	1.86	1.86	1.87	S	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.89	1.93	2.01	2.03	1.85	2.04	1.91	24
16	2.10	**2.17**	2.11	2.10	2.08	2.07	1.99	1.94	1.89	1.91	S	1.91	1.90	1.91	1.90	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.89	**2.17**	1.97	24
17	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	S	1.91	1.97	1.92	1.92	1.91	1.90	1.90	1.90	1.90	1.92	1.92	1.92	1.91	1.91	1.90	1.97	1.91	24
18	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.90	S	1.92	1.91	1.92	1.92	1.91	1.89	1.90	1.90	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.89	1.92	1.91	24
19	1.91	1.91	1.91	1.91	1.92	1.92	1.92	S	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.91	24
20	1.91	1.92	1.92	1.93	1.92	1.94	S	1.99	1.99	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.92	1.93	1.92	1.92	1.92	1.95	1.96	1.94	1.91	1.99	1.93	24
21	1.94	1.94	1.94	1.95	1.93	S	1.93	1.92	1.93	1.92	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.96	1.99	1.92	1.93	1.94	1.93	1.91	1.99	1.93	24
22	1.93	1.93	1.93	1.93	S	1.94	1.93	1.95	1.94	1.94	1.94	1.96	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.94	1.94	1.93	1.92	1.96	1.93	24
23	1.96	1.96	1.93	S	1.94	1.93	1.92	1.93	1.92	1.92	1.92	1.92	1.94	1.96	1.93	1.92	2.07	1.91	1.90	1.90	1.91	1.92	1.94	1.95	1.90	2.07	1.93	24
24	1.94	1.93	S	1.93	1.95	1.95	1.96	1.94	1.93	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.91	1.90	1.89	1.89	1.89	1.89	1.92	1.93	1.89	1.96	1.92	24
25	1.95	S	1.99	2.01	2.02	2.03	2.03	2.05	2.05	2.04	2.01	1.99	1.95	1.96	1.94	1.92	1.91	1.92	1.93	1.94	1.92	1.87	1.90	1.88	1.87	2.05	1.97	24
26	S	1.87	1.88	1.88	1.91	1.92	1.88	1.89	1.89	1.88	1.88	1.88	1.87	1.88	1.87	1.87	1.87	1.87	1.87	1.89	1.91	1.99	1.97	S	1.87	1.99	1.89	24
27	1.94	1.89	1.88	1.90	1.92	1.92	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.99	2.02	S	2.00	1.88	2.02	1.93	24
28	2.06	2.14	2.14	2.10	2.09	2.08	2.05	2.06	2.08	1.99	1.93	1.92	1.90	1.89	1.88	1.87	1.87	1.88	1.92	1.90	1.90	S	2.00	1.96	1.87	2.14	1.98	24
29	1.91	1.99	1.91	1.93	1.93	1.93	1.95	1.97	1.89	1.89	1.89	1.88	1.88	1.89	1.87	1.87	1.87	1.86	1.87	1.98	S	1.92	1.93	1.93	1.86	1.99	1.91	24
30	1.89	1.91	1.90	1.91	1.92	1.92	1.95	1.91	1.92	1.93	1.93	1.91	1.91	1.90	1.89	1.88	1.88	1.88	1.89	S	1.92	1.94	1.96	1.97	1.88	1.97	1.91	24
31	1.94	1.92	1.93	1.91	1.91	1.92	1.91	1.91	1.92	1.91	1.91	1.90	1.89	1.89	1.89	1.88	1.88	1.87	S	1.86	1.86	1.86	1.86	1.87	1.86	1.94	1.90	24
HOURLY MAX	2.10	2.17	2.14	2.10	2.09	2.08	2.05	2.06	2.08	2.09	2.01	1.99	1.96	1.96	2.04	2.05	2.07	1.95	1.96	1.99	1.99	2.02	2.01	2.03				
HOURLY AVG	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.94	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.93	1.93				

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: 706

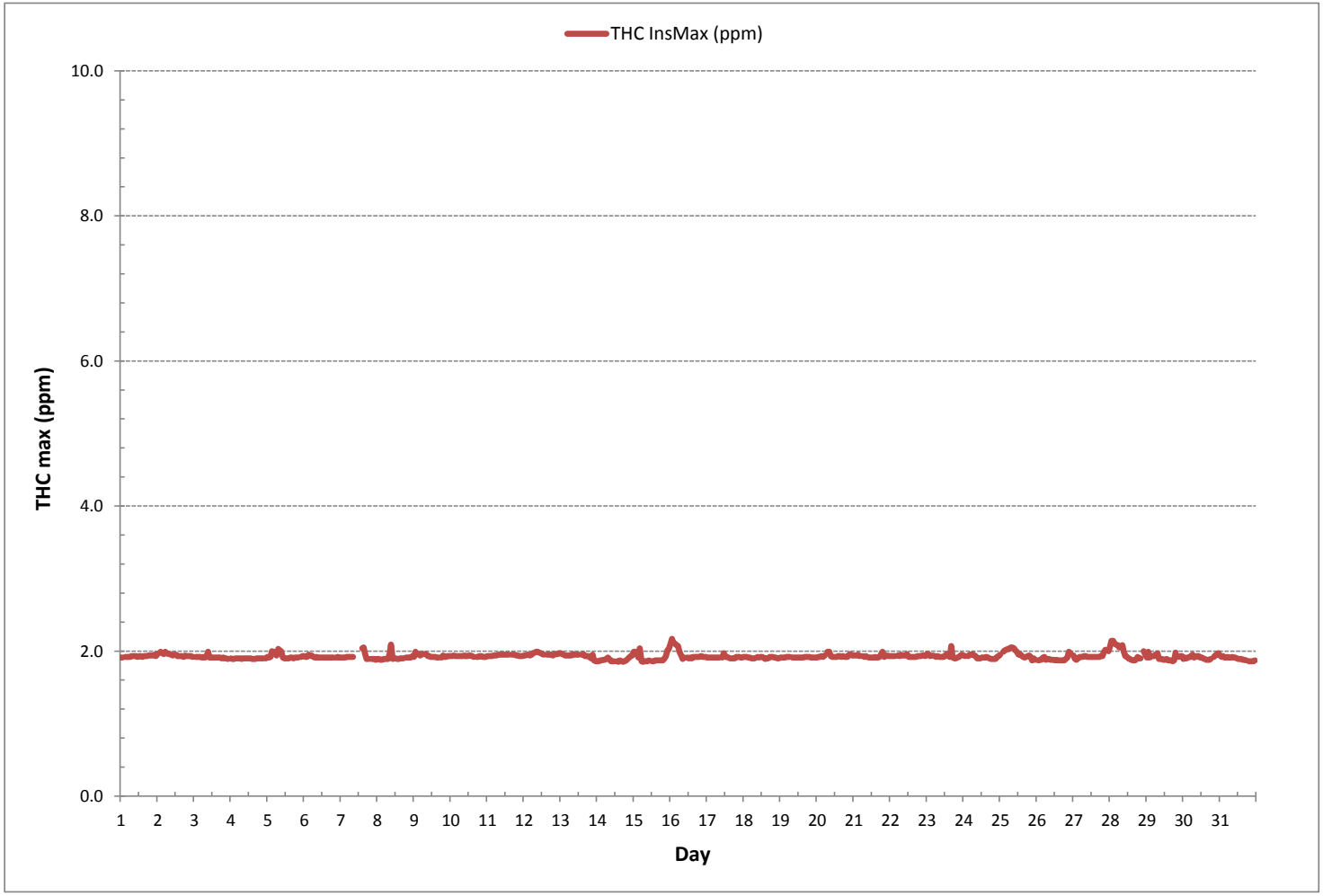
MAXIMUM INSTANTANEOUS VALUE: 2.17 ppm @ HOUR(S) 1 ON DAY(S) 16

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.04

OPERATIONAL TIME: 744 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



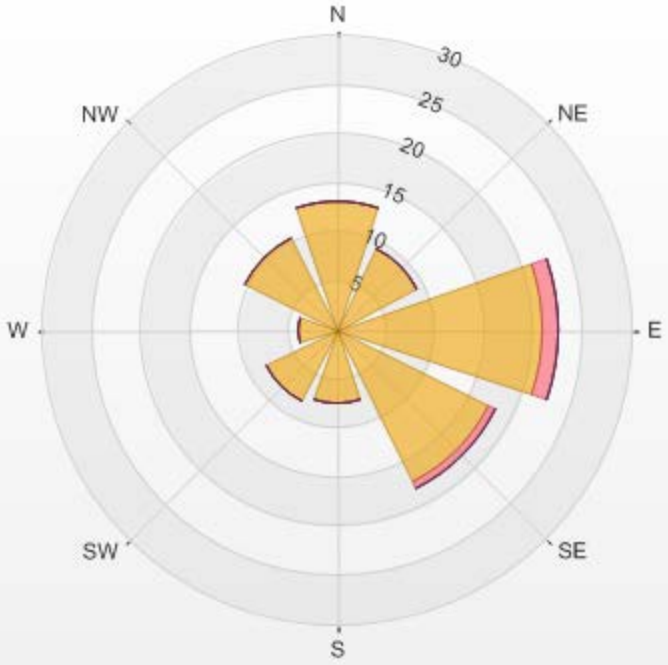
Wind: PRAMP_986 Poll.: PRAMP_986-THC55[ppm]
Monthly: 03/2017
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.80% Calm Avg: 1.93 [ppm]

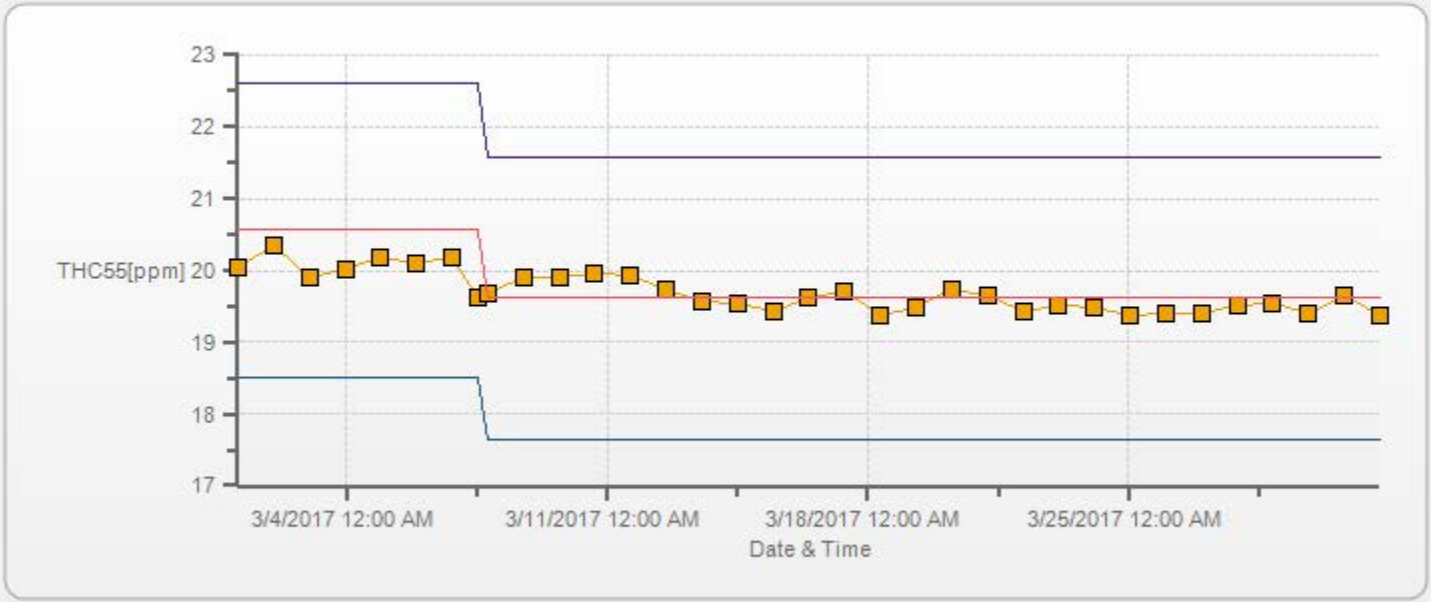
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	13.2	0.0	0.0	0.0	0.0	13.2
NE	9.2	0.0	0.0	0.0	0.0	9.2
E	21.0	1.7	0.0	0.0	0.0	22.7
SE	17.3	0.9	0.0	0.0	0.0	18.1
S	7.5	0.0	0.0	0.0	0.0	7.5
SW	8.1	0.0	0.0	0.0	0.0	8.1
W	4.0	0.0	0.0	0.0	0.0	4.0
NW	10.5	0.0	0.0	0.0	0.0	10.5
Summary	90.7	2.6	0.0	0.0	0.0	93.2

%	Icon	Classes (ppm)									
			91	0-2	3	2-3	0	3-5	0	5-10	0 >10.0

PRAMP_986 Poll.: PRAMP_986-THC55[ppm] 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 6.80% Calm Poll Avg: 1.93[ppm]



THC55[ppm] Calibration: PRAMP_986 Monthly: 2017/03 Type: Span



METHANE

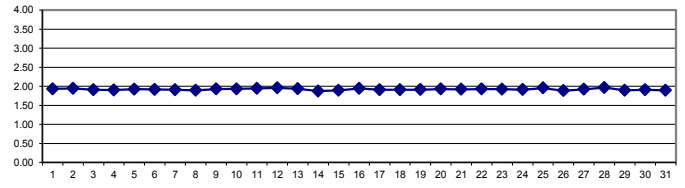
METHANE Hourly Averages (CH_4 ppm)

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	1.91	1.91	S	1.92	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.96	1.91	1.96	1.93	24
2	1.96	S	1.98	1.96	1.96	1.98	1.96	1.96	1.96	1.95	1.94	1.95	1.94	1.93	1.93	1.93	1.92	1.90	1.93	1.93	1.94	1.93	1.92	1.92	1.90	1.98	1.94	24
3	S	1.91	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.95	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.89	1.89	S	1.89	1.95	1.91	24
4	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.90	S	1.90	1.89	1.90	1.90	24
5	1.90	1.90	1.91	1.94	1.97	1.93	1.93	1.98	2.00	1.97	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.91	S	1.92	1.91	1.90	2.00	1.92	24
6	1.91	1.92	1.92	1.94	1.93	1.92	1.91	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.89	1.90	S	1.91	1.91	1.91	1.89	1.94	1.91	24
7	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	C	C	C	1.89	1.90	1.97	1.90	1.89	1.89	S	1.89	1.89	1.89	1.89	1.89	1.97	1.91	24
8	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.91	1.92	1.88	1.89	1.89	1.89	1.89	1.89	1.90	1.90	S	1.90	1.91	1.91	1.91	1.92	1.88	1.92	1.90	24
9	1.92	1.93	1.96	1.94	1.93	1.94	1.96	1.95	1.95	1.93	1.93	1.93	1.92	1.92	1.92	1.91	1.91	S	1.91	1.92	1.92	1.92	1.92	1.93	1.91	1.96	1.93	24
10	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.94	1.94	1.93	1.92	S	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.94	1.93	24
11	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.96	1.95	1.95	S	1.95	1.95	1.95	1.95	1.94	1.93	1.93	1.93	1.93	1.96	1.94	24
12	1.93	1.94	1.95	1.95	1.95	1.95	1.96	1.98	1.99	1.99	1.98	1.97	1.96	1.95	S	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.93	1.99	**1.96**	24
13	1.97	1.96	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.95	1.94	S	1.95	1.94	1.94	1.93	1.92	1.92	1.90	1.90	1.87	1.86	1.86	1.97	1.93	24
14	1.86	1.86	1.86	1.88	1.87	1.88	1.89	1.90	1.88	1.86	1.86	1.86	S	**1.85**	**1.85**	**1.85**	1.86	**1.85**	1.86	1.87	1.88	1.90	1.92	1.93	**1.85**	1.93	1.87	24
15	1.95	1.97	1.93	1.91	1.88	**1.85**	**1.85**	**1.85**	1.86	1.86	1.87	S	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.91	1.95	2.00	**1.85**	2.00	1.89	24
16	2.05	2.07	2.08	2.02	1.97	1.97	1.97	1.91	1.89	1.90	S	1.90	1.89	1.90	1.90	1.91	1.92	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.89	2.08	1.94	24
17	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	S	1.91	1.91	1.91	1.91	1.90	1.89	1.90	1.90	1.89	1.91	1.91	1.91	1.90	1.90	1.89	1.91	1.91	24
18	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.91	S	1.91	1.91	1.92	1.91	1.90	1.89	1.90	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.89	1.92	1.91	24
19	1.91	1.91	1.91	1.92	1.92	1.92	1.92	S	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.91	24
20	1.92	1.92	1.92	1.93	1.93	1.93	S	1.96	1.97	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.96	1.94	1.92	1.97	1.93	24
21	1.94	1.93	1.93	1.94	1.93	S	1.92	1.92	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.94	1.93	1.90	1.94	1.92	24
22	1.93	1.93	1.94	1.93	S	1.93	1.93	1.94	1.94	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.91	1.94	1.93	24
23	1.93	1.93	1.92	S	1.93	1.92	1.92	1.93	1.92	1.92	1.92	1.93	1.94	1.94	1.93	1.92	1.92	1.91	1.90	1.90	1.90	1.91	1.92	1.95	1.90	1.95	1.92	24
24	1.94	1.93	S	1.92	1.93	1.95	1.94	1.94	1.92	1.89	1.89	1.90	1.90	1.91	1.91	1.91	1.91	1.90	1.89	1.88	1.88	1.88	1.89	1.91	1.88	1.95	1.91	24
25	1.92	S	1.96	2.00	2.01	2.01	2.02	2.03	2.05	2.03	1.99	1.95	1.95	1.95	1.94	1.91	1.91	1.91	1.92	1.93	1.90	1.87	1.88	1.88	1.87	2.05	1.95	24
26	S	1.87	1.88	1.88	1.90	1.90	1.88	1.88	1.88	1.88	1.88	1.88	1.87	1.88	1.88	1.87	1.87	1.87	1.87	1.87	1.88	1.91	1.92	S	1.87	1.92	1.88	24
27	1.90	1.88	1.88	1.89	1.91	1.91	1.92	1.92	1.92	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.96	1.97	S	1.96	1.88	1.97	1.92	24
28	2.03	2.10	**2.12**	2.10	2.07	2.06	2.03	2.03	2.01	1.96	1.93	1.91	1.90	1.88	1.88	1.87	1.87	1.87	1.89	1.88	1.89	S	1.95	1.92	1.87	**2.12**	**1.96**	24
29	1.90	1.92	1.90	1.90	1.91	1.91	1.92	1.93	1.89	1.89	1.89	1.88	1.88	1.89	1.87	1.87	1.87	1.86	1.86	1.89	S	1.89	1.92	1.90	1.86	1.93	1.89	24
30	1.89	1.90	1.89	1.89	1.90	1.91	1.92	1.91	1.91	1.92	1.92	1.91	1.90	1.90	1.89	1.88	1.88	1.88	1.89	S	1.91	1.93	1.94	1.96	1.88	1.96	1.91	24
31	1.92	1.91	1.92	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.90	1.89	1.89	1.88	1.88	1.87	1.87	S	1.86	1.86	1.86	1.87	1.87	1.86	1.92	1.89	24
HOURLY MAX	2.05	2.10	2.12	2.10	2.07	2.06	2.03	2.03	2.05	2.03	1.99	1.97	1.96	1.95	1.95	1.97	1.95	1.95	1.95	1.95	1.96	1.97	1.96	2.00				
HOURLY AVG	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.92	1.92				

STATUS FLAG CODES

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

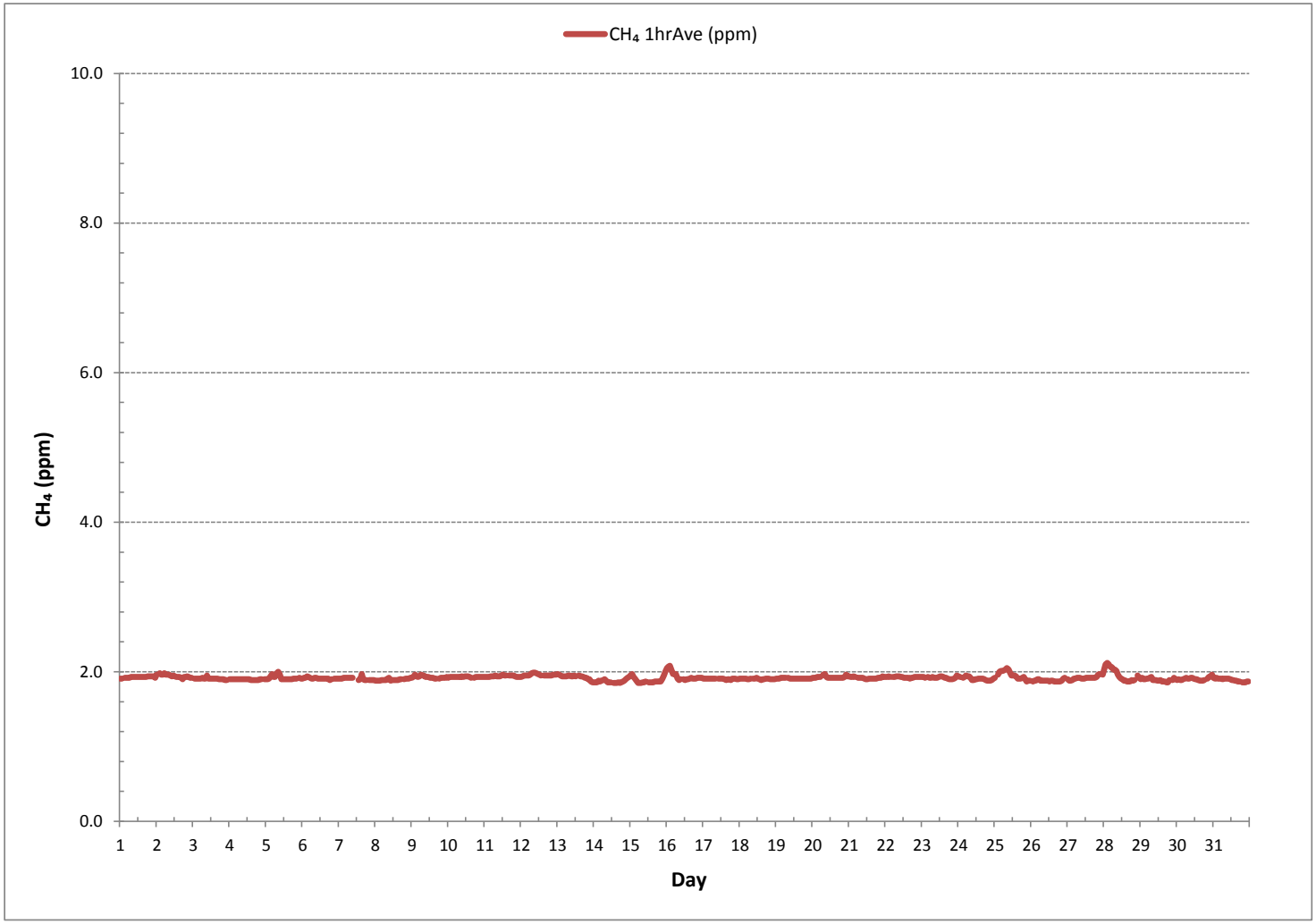
24 HR AVERAGES March 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			708				
MINIMUM 1-HR AVERAGE		1.85	ppm	@ HOUR(S)	VAR , VAR	ON DAY(S)	14 , 15
MAXIMUM 1-HR AVERAGE:		2.12	ppm	@ HOUR(S)	2	ON DAY(S)	28
MAXIMUM 24-HR AVERAGE:		1.96	ppm			ON DAY(S)	12, 28
						VAR-VARIOUS	
IZS CALIBRATION TIME:	33	hrs		OPERATIONAL TIME:		744	hrs
MONTHLY CALIBRATION TIME:	3	hrs		AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.03			MONTHLY AVERAGE:		1.92	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	1.92	1.92	S	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.97	1.97	1.92	1.97	1.94	24
2	1.97	S	2.01	1.98	1.97	1.99	1.98	1.98	1.97	1.96	1.95	1.96	1.95	1.94	1.94	1.94	1.93	1.93	1.95	1.95	1.95	1.94	1.94	1.93	1.93	2.01	1.96	24
3	S	1.92	1.92	1.93	1.92	1.92	1.93	1.92	1.93	2.00	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.91	1.90	1.90	S	1.90	2.00	1.92	24
4	1.90	1.90	1.90	1.90	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	S	1.91	1.90	1.91	1.90	24
5	1.93	1.92	1.93	2.02	2.01	1.97	1.95	2.04	2.02	2.01	1.92	1.91	1.91	1.92	1.91	1.91	1.92	1.92	1.92	1.92	1.92	S	1.93	1.94	1.91	2.04	1.95	24
6	1.95	1.94	1.93	1.96	1.96	1.95	1.93	1.92	1.93	1.93	1.93	1.92	1.93	1.92	1.93	1.93	1.92	1.91	1.91	1.91	S	1.92	1.93	1.92	1.91	1.96	1.93	24
7	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	C	C	C	C	C	2.04	2.05	1.92	1.90	1.90	S	1.90	1.90	1.90	1.90	1.90	2.05	1.93	24
8	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.98	2.01	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	S	1.91	1.92	1.91	1.92	1.94	1.90	2.01	1.91	24
9	1.93	1.95	1.97	1.97	1.95	1.97	1.97	1.97	1.97	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	S	1.93	1.96	1.93	1.93	1.94	1.94	1.92	1.97	1.95	24
10	1.94	1.95	1.95	1.94	1.94	1.95	1.94	1.94	1.94	1.95	1.94	1.95	1.95	1.95	1.94	1.94	S	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.95	1.94	24
11	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	S	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.94	1.94	1.97	1.95	24
12	1.95	1.95	1.96	1.96	1.96	1.97	1.98	1.99	2.01	2.01	1.99	1.98	1.98	1.96	S	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.98	1.95	2.01	1.97	24
13	1.98	1.97	1.96	1.95	1.95	1.95	1.95	1.96	1.97	1.95	1.96	1.96	1.96	S	1.96	1.96	1.95	1.94	1.94	1.94	1.91	1.95	1.88	1.88	1.88	1.98	1.95	24
14	1.87	1.87	1.89	1.89	1.89	1.89	1.90	1.91	1.90	1.88	1.87	1.87	S	1.86	1.86	1.88	1.87	1.86	1.87	1.87	1.90	1.92	1.93	1.95	1.86	1.95	1.89	24
15	2.01	1.99	1.98	1.92	2.04	1.86	1.86	1.87	1.86	1.88	1.88	S	1.87	1.87	1.88	1.87	1.87	1.88	1.88	1.88	1.90	1.93	2.02	2.04	1.86	2.04	1.91	24
16	2.11	2.15	2.12	2.11	2.00	1.99	2.00	1.95	1.90	1.93	S	1.92	1.91	1.91	1.92	1.93	1.93	1.93	1.92	1.93	1.94	1.93	1.93	1.93	1.90	2.15	1.97	24
17	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	S	1.92	1.98	1.92	1.92	1.92	1.90	1.90	1.90	1.90	1.92	1.92	1.92	1.91	1.91	1.90	1.98	1.92	24
18	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.92	S	1.93	1.93	1.93	1.92	1.92	1.91	1.91	1.91	1.92	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.93	1.92	24
19	1.92	1.92	1.92	1.93	1.93	1.93	1.93	S	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.92	24
20	1.93	1.93	1.93	1.94	1.94	1.95	S	1.99	1.99	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.97	1.97	1.96	1.93	1.99	1.94	24
21	1.95	1.95	1.95	1.96	1.94	S	1.93	1.93	1.94	1.93	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.94	1.97	1.99	1.93	1.95	1.95	1.94	1.91	1.99	1.94	24
22	1.94	1.95	1.94	1.94	S	1.95	1.94	1.96	1.96	1.95	1.94	1.97	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.94	1.95	1.94	1.93	1.97	1.94	24
23	1.96	1.96	1.93	S	1.95	1.94	1.93	1.94	1.94	1.93	1.93	1.94	1.95	1.96	1.94	1.93	2.08	1.92	1.92	1.91	1.91	1.94	1.95	1.96	1.91	2.08	1.94	24
24	1.96	1.94	S	1.94	1.96	1.96	1.97	1.95	1.94	1.91	1.91	1.91	1.91	1.92	1.92	1.92	1.92	1.91	1.90	1.90	1.90	1.90	1.92	1.93	1.90	1.97	1.93	24
25	1.95	S	1.99	2.02	2.03	2.03	2.04	2.05	2.06	2.05	2.02	1.99	1.97	1.97	1.95	1.93	1.92	1.93	1.94	1.95	1.93	1.88	1.90	1.89	1.88	2.06	1.97	24
26	S	1.88	1.89	1.90	1.91	1.92	1.90	1.90	1.90	1.90	1.89	1.89	1.88	1.89	1.88	1.88	1.88	1.88	1.88	1.90	1.92	1.99	1.98	S	1.88	1.99	1.90	24
27	1.94	1.90	1.89	1.91	1.92	1.92	1.93	1.93	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	2.00	2.03	S	2.01	1.89	2.03	1.94	24
28	2.06	2.16	2.15	2.12	2.11	2.09	2.06	2.07	2.09	2.00	1.94	1.93	1.91	1.90	1.88	1.88	1.88	1.88	1.93	1.91	1.91	S	2.00	1.96	1.88	2.16	1.99	24
29	1.92	1.99	1.91	1.93	1.95	1.93	1.95	1.98	1.90	1.90	1.90	1.89	1.88	1.90	1.88	1.88	1.87	1.87	1.87	1.99	S	1.93	1.94	1.94	1.87	1.99	1.92	24
30	1.91	1.91	1.90	1.93	1.92	1.92	1.96	1.92	1.92	1.94	1.94	1.92	1.92	1.91	1.90	1.89	1.89	1.90	1.90	S	1.93	1.95	1.97	1.98	1.89	1.98	1.92	24
31	1.94	1.93	1.94	1.92	1.91	1.92	1.91	1.91	1.92	1.92	1.92	1.91	1.90	1.90	1.90	1.90	1.89	1.88	S	1.87	1.87	1.87	1.87	1.87	1.87	1.94	1.90	24
HOURLY MAX	2.11	2.16	2.15	2.12	2.11	2.09	2.06	2.07	2.09	2.05	2.02	1.99	1.98	1.97	2.04	2.05	2.08	1.96	1.97	1.99	2.00	2.03	2.02	2.04				
HOURLY AVG	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.95	1.95	1.95	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.93	1.92	1.93	1.94	1.94				

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: 706

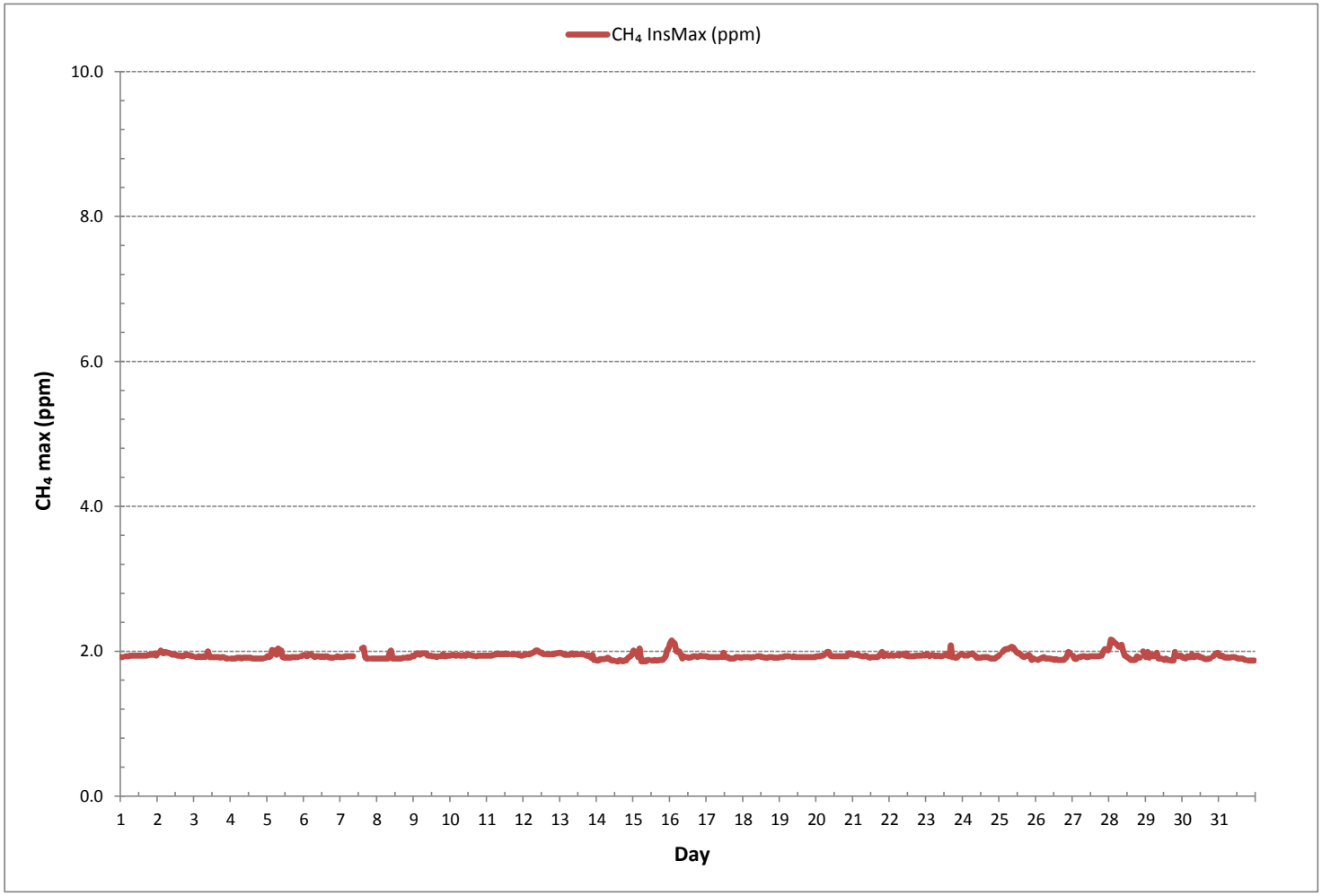
MAXIMUM INSTANTANEOUS VALUE: 2.16 ppm @ HOUR(S) 1 ON DAY(S) 28

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.04

OPERATIONAL TIME: 744 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



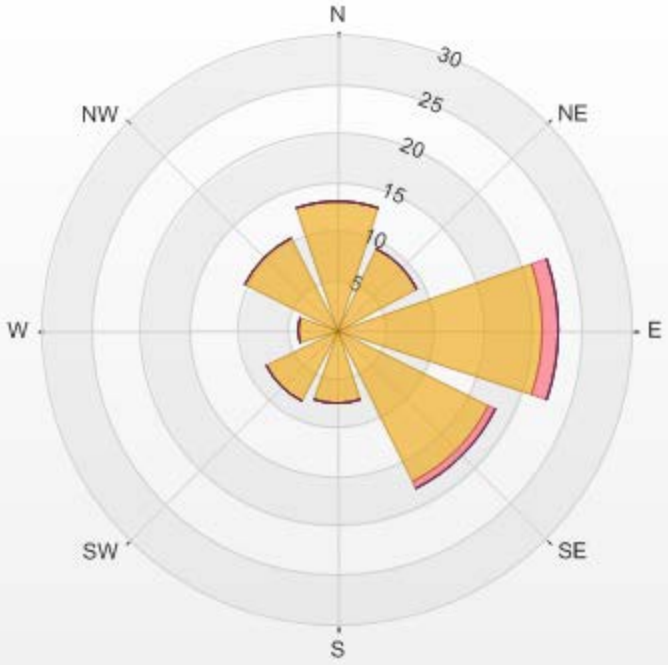
Wind: PRAMP_986 Poll.: PRAMP_986-CH4[ppm]
Monthly: 03/2017
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.80% Calm Avg: 1.93 [ppm]

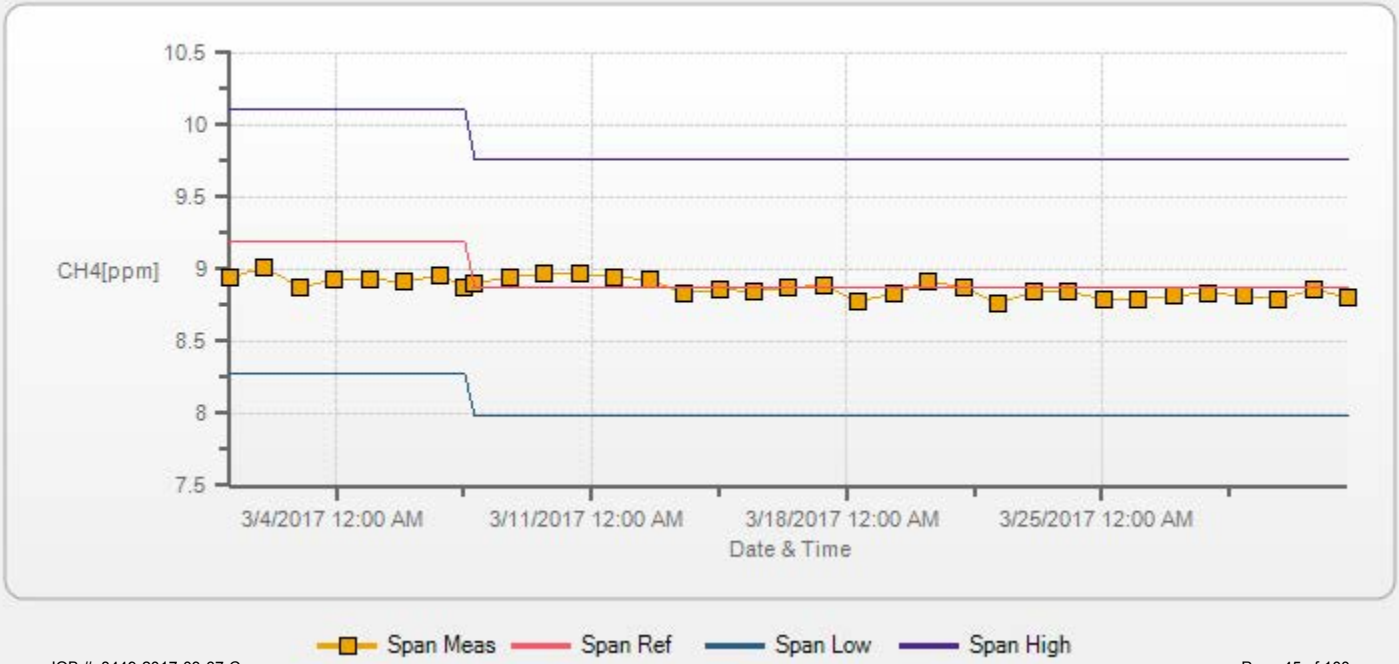
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	13.2	0.0	0.0	0.0	0.0	13.2
NE	9.2	0.0	0.0	0.0	0.0	9.2
E	21.0	1.7	0.0	0.0	0.0	22.7
SE	17.3	0.9	0.0	0.0	0.0	18.1
S	7.5	0.0	0.0	0.0	0.0	7.5
SW	8.1	0.0	0.0	0.0	0.0	8.1
W	4.0	0.0	0.0	0.0	0.0	4.0
NW	10.5	0.0	0.0	0.0	0.0	10.5
Summary	90.7	2.6	0.0	0.0	0.0	93.2

% Icon	Classes (ppm)									
	91	0-2	3	2-3	0	3-5	0	5-10	0	>10.0

PRAMP_986 Poll.: PRAMP_986-CH4[ppm] 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 6.80% Calm Poll Avg: 1.93[ppm]



CH4[ppm] Calibration: PRAMP_986 Monthly: 2017/03 Type: Span



NON-METHANE HYDROCARBON

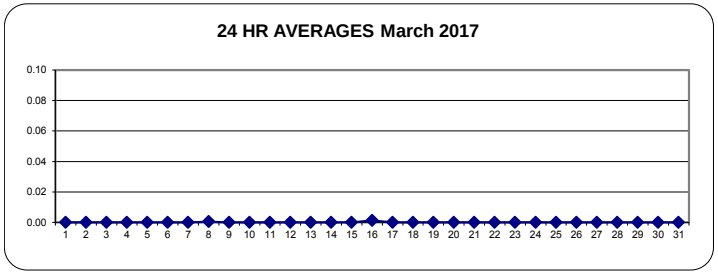
Maxxam
A Bureau Veritas Group Company

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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

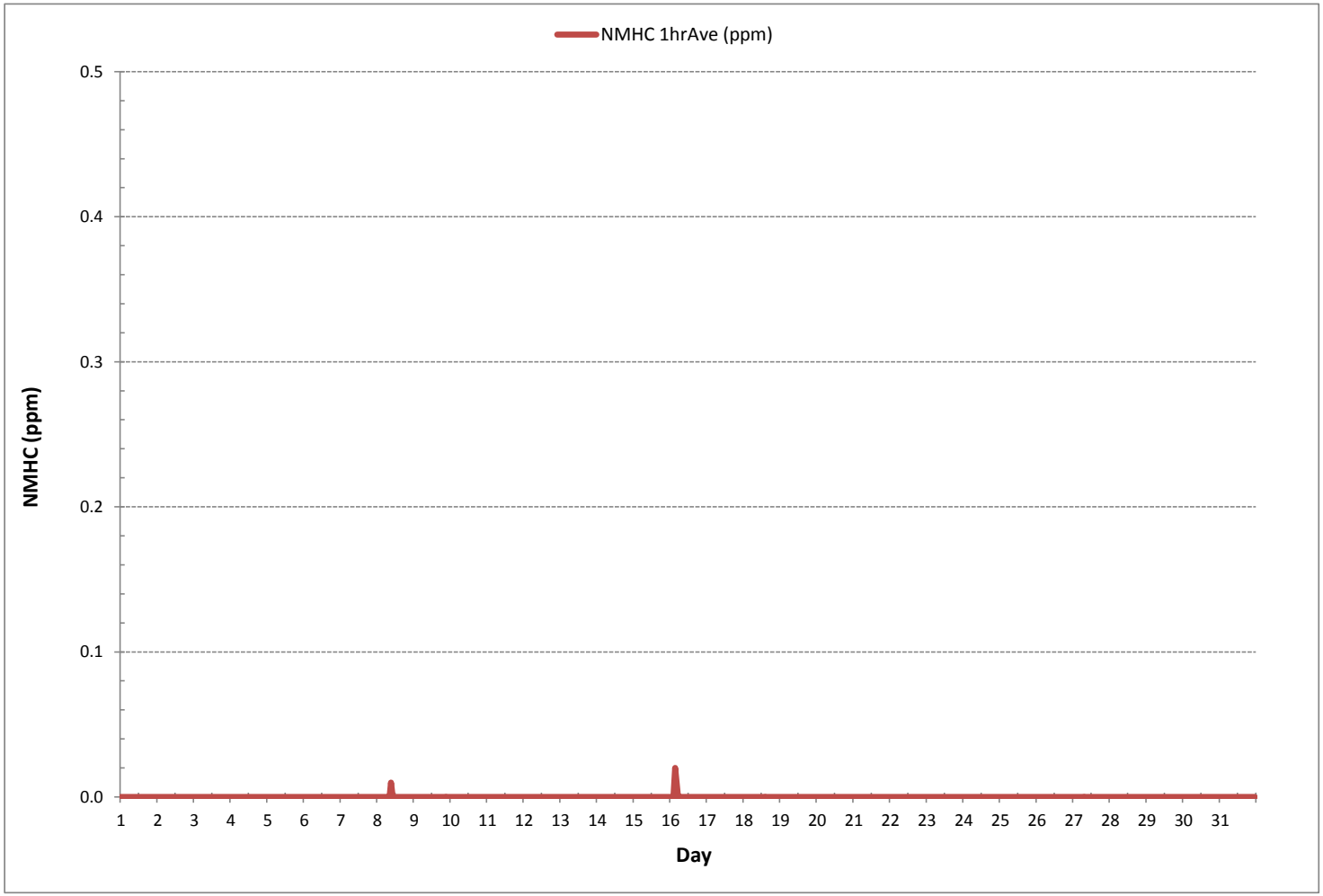
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			3				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR(S)	VAR	ON DAY(S)	ALL	
MAXIMUM 1-HR AVERAGE:	0.02	ppm	@ HOUR(S)	3	ON DAY(S)	16	
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY(S)	ALL	
					VAR-VARIOUS		
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			100.0	%
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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	24
2	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
3	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	24
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
7	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	0.10	0.06	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.10	0.01	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.14**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	**0.14**	0.01	24
9	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
15	0.00	0.01	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	0.01	0.00	24
16	0.00	0.09	0.00	0.13	0.09	0.08	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	0.13	0.02	24
17	0.00	0.00	0.01	0.00	0.00	0.00	0.01	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	0.01	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	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
24	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
28	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	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	S	0.00	0.00	0.00	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.09	0.01	0.13	0.09	0.08	0.01	0.00	0.00	0.14	0.01	0.01	0.00	0.00	0.01	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.01	0.01				
HOURLY AVG	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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

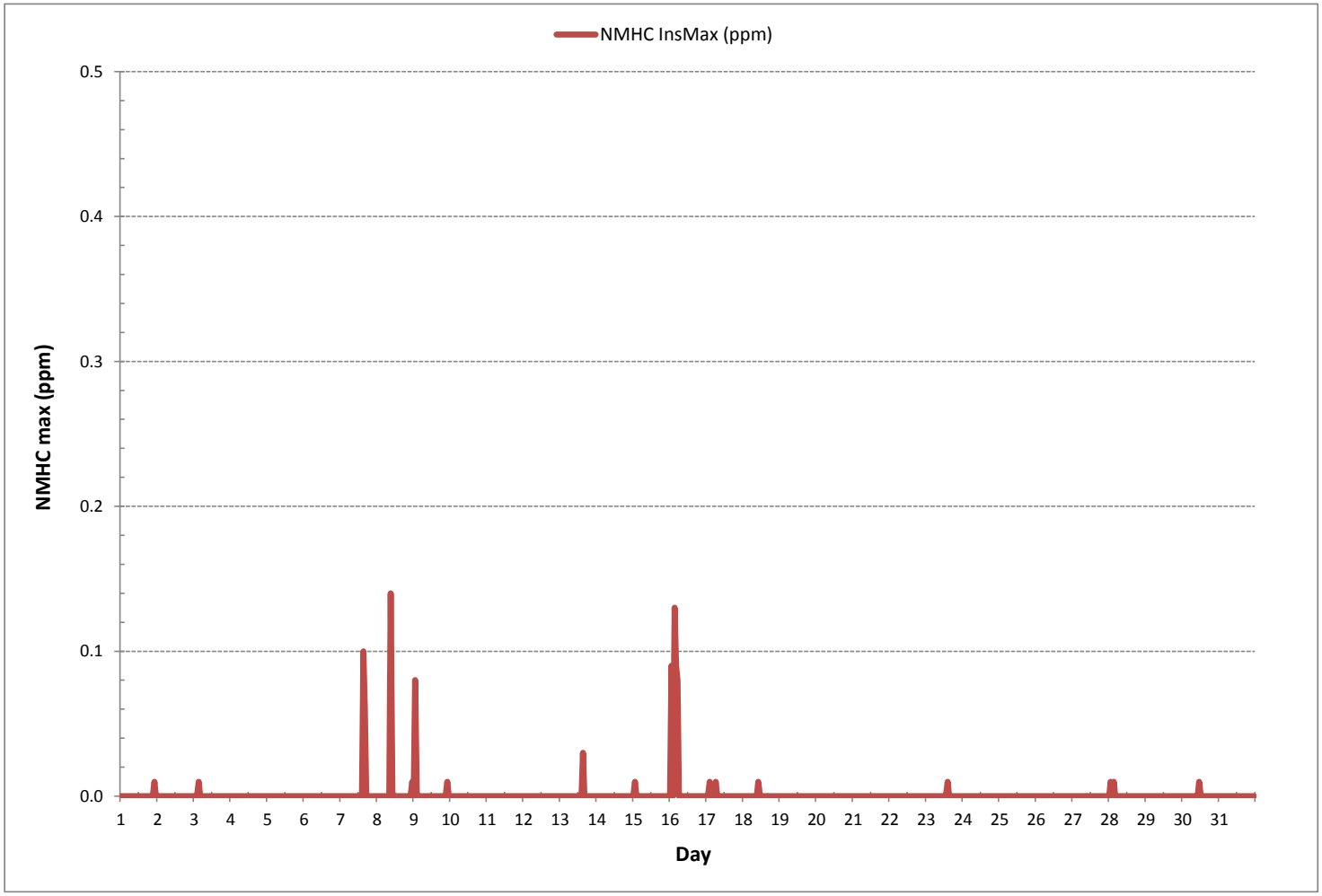
NUMBER OF NON-ZERO READINGS: 21

MAXIMUM INSTANTANEOUS VALUE: 0.14 ppm @ HOUR(S) 9 ON DAY(S) 8

VAR-VARIOUS

IZS CALIBRATION TIME: 33 hrs OPERATIONAL TIME: 744 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.01

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



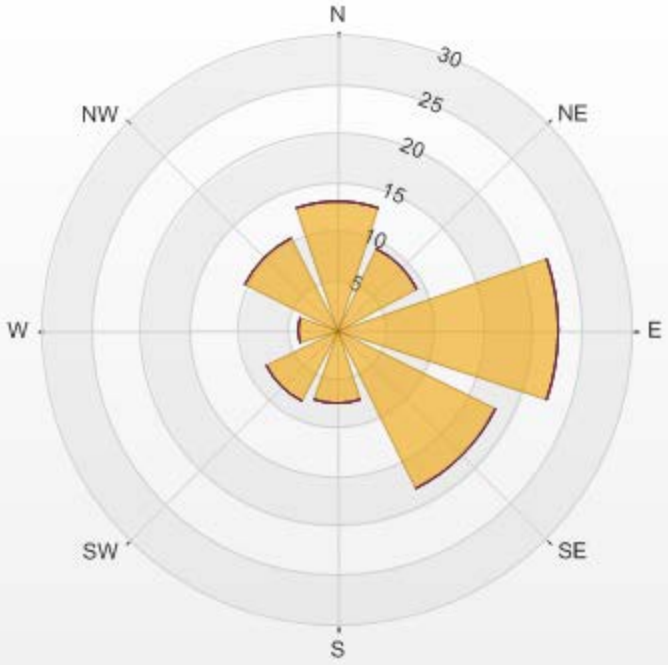
Wind: PRAMP_986 Poll.: PRAMP_986-NMHC[ppm]
Monthly: 03/2017
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.80% Calm Avg: 0.00 [ppm]

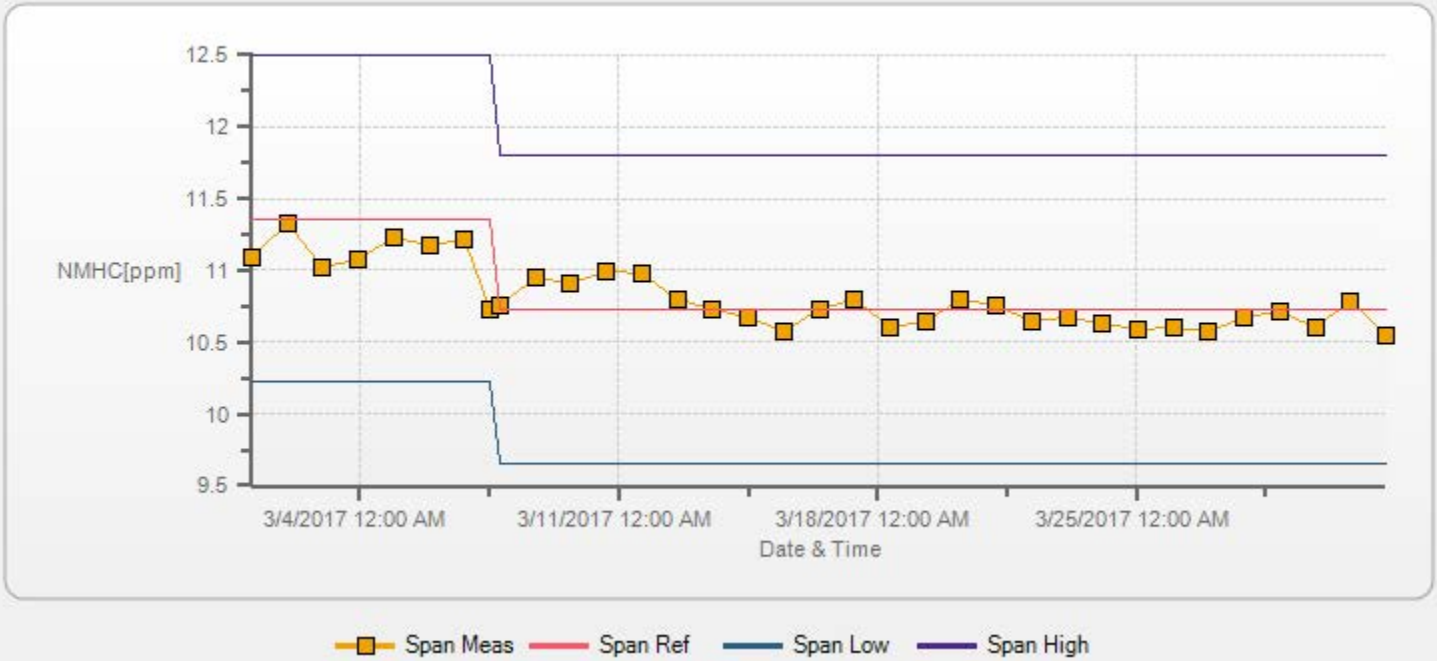
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	13.2	0.0	0.0	0.0	0.0	13.2
NE	9.2	0.0	0.0	0.0	0.0	9.2
E	22.7	0.0	0.0	0.0	0.0	22.7
SE	18.1	0.0	0.0	0.0	0.0	18.1
S	7.5	0.0	0.0	0.0	0.0	7.5
SW	8.1	0.0	0.0	0.0	0.0	8.1
W	4.0	0.0	0.0	0.0	0.0	4.0
NW	10.5	0.0	0.0	0.0	0.0	10.5
Summary	93.2	0.0	0.0	0.0	0.0	93.2

%	Icon	Classes (ppm)									
		93	0-0.1	0	0.1-0.3	0	0.3-1	0	1-2	0	>2.0

PRAMP_986 Poll.: PRAMP_986-NMHC[ppm] 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 6.80% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_986 Monthly: 2017/03 Type: Span



WIND SPEED

Maxxam
A Bureau Veritas Group Company

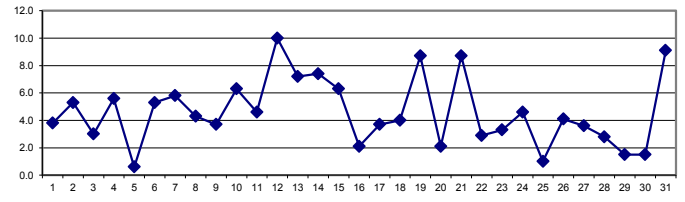
WIND SPEED Hourly Averages (WS kph)

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	9.7	9.7	10.7	9.9	8.6	8.8	7.8	6.3	6.6	5.2	5.6	6.3	7.6	6.0	8.5	9.1	7.8	4.5	1.5	0.4	1.3	1.9	2.2	1.9	0.4	10.7	3.8	24
2	2.1	2.6	3.0	3.5	2.8	2.8	3.7	3.9	5.0	4.9	7.4	8.8	8.4	5.4	5.1	4.7	4.2	11.1	8.6	7.4	8.5	12.6	12.1	**16.1**	2.1	**16.1**	5.3	24
3	13.8	13.6	12.7	13.6	7.6	3.7	5.6	5.2	4.9	13.3	10.7	13.1	12.3	9.0	11.2	10.7	9.5	6.7	4.8	4.9	6.9	9.5	9.6	11.4	3.7	13.8	3.0	24
4	10.5	10.9	9.1	7.0	4.8	7.5	8.9	8.3	9.0	7.6	7.0	7.9	7.6	8.5	8.8	7.6	6.1	4.0	4.7	3.4	2.1	0.9	1.5	1.9	0.9	10.9	5.6	24
5	2.0	2.1	3.1	2.5	2.0	3.8	1.6	2.9	2.0	**0.2**	3.8	4.5	6.7	6.0	7.3	4.1	4.2	0.8	1.5	2.2	0.7	1.3	1.8	5.5	**0.2**	7.3	0.6	24
6	2.0	1.2	2.1	2.9	2.9	4.2	4.3	4.4	4.2	5.5	6.0	7.3	9.6	9.4	10.7	10.4	10.0	8.7	6.0	6.4	4.0	4.7	4.6	5.8	1.2	10.7	5.3	24
7	5.2	5.1	5.8	5.5	5.1	6.4	6.7	5.8	6.6	7.2	7.3	7.1	6.2	6.8	8.9	7.6	7.9	8.2	6.4	5.2	3.6	4.3	6.1	7.4	3.6	8.9	5.8	24
8	6.0	5.7	5.0	6.1	5.7	5.1	4.2	4.4	5.9	6.5	7.2	6.3	7.7	6.0	4.9	4.8	7.0	8.0	6.3	1.4	0.9	1.6	2.2	1.9	0.9	8.0	4.3	24
9	1.2	1.9	2.0	2.1	0.3	0.5	1.7	1.9	2.2	2.0	5.3	5.2	5.5	6.0	7.4	6.3	6.3	6.8	6.8	3.7	5.2	3.6	3.6	4.6	0.3	7.4	3.7	24
10	5.4	4.7	5.4	5.3	6.3	5.7	5.4	7.8	8.0	6.8	7.1	7.4	7.5	8.8	8.8	8.5	8.4	8.1	6.2	6.8	6.5	5.8	4.6	1.9	1.9	8.8	6.3	24
11	3.4	4.2	5.0	3.9	2.8	2.8	2.5	1.8	1.6	2.5	3.2	4.7	4.2	5.8	6.3	6.8	6.7	8.1	7.0	5.4	6.1	7.3	6.1	5.4	1.6	8.1	4.6	24
12	4.8	4.7	4.8	5.8	6.0	5.8	7.8	10.4	10.5	12.6	13.8	13.0	14.6	14.4	13.7	13.2	15.5	13.1	10.8	11.8	10.9	9.8	9.8	9.0	4.7	15.5	**10.0**	24
13	7.5	9.5	10.5	10.6	11.1	9.8	10.3	8.5	11.5	14.1	13.3	13.8	10.6	11.1	8.4	7.5	7.4	6.0	4.1	2.1	5.5	4.2	6.1	6.1	2.1	14.1	7.2	24
14	7.5	7.2	8.7	8.7	7.8	6.3	9.0	7.5	4.2	4.4	5.1	0.9	4.7	7.0	10.9	11.8	10.0	10.7	11.2	14.0	10.4	12.4	8.5	5.3	0.9	14.0	7.4	24
15	3.9	4.3	7.1	5.9	8.4	9.1	8.0	10.5	10.8	10.5	10.4	9.7	9.1	9.8	11.0	10.9	9.9	7.4	6.6	5.8	5.4	2.6	3.1	3.7	2.6	11.0	6.3	24
16	3.7	2.0	1.2	2.0	1.7	3.6	3.5	4.3	5.6	2.6	2.0	6.0	5.5	6.2	8.3	8.0	3.9	6.6	4.6	2.8	4.8	0.5	1.3	0.5	0.5	8.3	2.1	24
17	1.0	0.6	2.7	2.8	3.1	5.8	4.8	1.4	1.4	2.1	4.5	3.8	4.4	6.3	6.9	6.8	5.6	6.2	6.0	5.2	7.7	8.5	7.3	7.8	0.6	8.5	3.7	24
18	6.9	6.3	5.9	5.2	6.7	6.2	7.0	7.2	7.3	5.0	5.7	4.2	3.2	9.3	10.0	8.7	10.4	11.9	14.8	12.5	10.7	11.9	13.3	10.9	3.2	14.8	4.0	24
19	11.0	5.3	8.0	7.6	5.6	6.0	5.8	5.4	8.2	9.3	9.5	9.2	11.1	9.2	7.8	5.2	7.4	10.1	10.2	11.2	12.1	12.3	11.2	12.5	5.2	12.5	8.7	24
20	11.3	7.7	5.8	2.2	0.9	1.8	2.0	2.1	2.1	6.5	6.4	5.9	2.2	6.4	6.6	6.8	6.5	5.3	2.6	0.8	2.6	3.6	2.7	2.8	0.8	11.3	2.1	24
21	4.5	6.7	4.9	5.7	6.1	6.8	5.1	8.5	14.6	15.6	14.7	15.5	13.8	14.3	9.3	7.8	9.0	9.7	9.7	6.3	6.3	7.8	7.5	7.0	4.5	15.6	8.7	24
22	7.1	5.7	5.5	4.9	3.2	3.9	3.9	3.1	1.3	3.0	4.6	5.5	5.3	4.5	5.8	5.4	7.3	7.0	5.4	4.4	4.2	5.1	3.6	4.9	1.3	7.3	2.9	24
23	5.0	5.2	5.8	6.3	7.0	6.9	6.4	4.0	4.8	7.3	6.4	5.1	5.7	4.2	6.9	4.6	1.3	1.1	5.1	7.5	5.2	5.0	4.7	4.5	1.1	7.5	3.3	24
24	4.6	5.2	3.6	5.0	4.9	2.3	3.2	2.5	5.2	4.4	4.3	3.7	4.7	5.9	7.0	7.5	8.5	8.9	7.1	5.4	3.7	3.8	2.6	2.4	2.3	8.9	4.6	24
25	4.0	3.7	4.1	3.2	2.1	0.3	0.7	2.3	2.5	2.9	0.6	6.3	3.6	3.0	3.9	5.9	3.6	4.0	3.5	3.2	4.8	5.4	2.1	4.4	0.3	6.3	1.0	24
26	6.0	5.9	4.1	4.8	7.3	8.6	6.3	7.7	9.4	6.3	6.6	7.4	7.7	8.0	7.6	7.5	5.5	4.7	2.7	1.2	1.0	1.9	2.0	0.8	0.8	9.4	4.1	24
27	3.5	4.6	4.3	5.2	6.3	4.7	4.2	4.6	5.6	4.8	4.9	4.9	2.6	7.2	10.3	9.9	7.9	6.5	2.8	1.9	0.4	0.6	1.1	1.7	0.4	10.3	3.6	24
28	2.8	3.9	2.5	2.9	4.1	4.0	4.4	4.6	7.3	8.3	6.7	5.9	6.9	7.0	7.9	6.5	4.0	1.6	1.8	2.0	1.4	3.3	1.8	3.3	1.4	8.3	2.8	24
29	4.7	3.0	2.8	3.2	3.5	4.1	3.4	2.4	4.2	5.9	4.7	5.9	6.2	6.1	8.2	8.6	6.9	5.5	2.9	0.4	1.3	1.3	2.0	2.2	0.4	8.6	1.5	24
30	3.2	3.0	2.8	1.2	3.5	3.4	4.9	2.8	3.3	3.9	4.2	5.3	3.7	3.3	8.2	9.6	7.1	8.6	1.6	2.5	3.1	3.8	5.5	6.0	1.2	9.6	1.5	24
31	3.3	4.4	7.1	9.5	9.6	9.8	7.5	9.7	11.2	13.5	12.1	12.2	14.2	13.0	14.6	14.5	13.4	12.8	11.4	14.1	12.1	12.1	9.5	6.6	3.3	14.6	9.1	24
HOURLY MAX	13.8	13.6	12.7	13.6	11.1	9.8	10.3	10.5	14.6	15.6	14.7	15.5	14.6	14.4	14.6	14.5	15.5	13.1	14.8	14.1	12.1	12.6	13.3	16.1				
HOURLY AVG	2.3	2.5	2.2	2.5	2.4	2.0	2.1	2.2	2.0	1.5	1.4	0.8	0.3	0.7	2.0	1.4	0.8	0.8	0.9	1.2	1.6	2.3	2.1	2.0				

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

24 HR AVERAGES March 2017

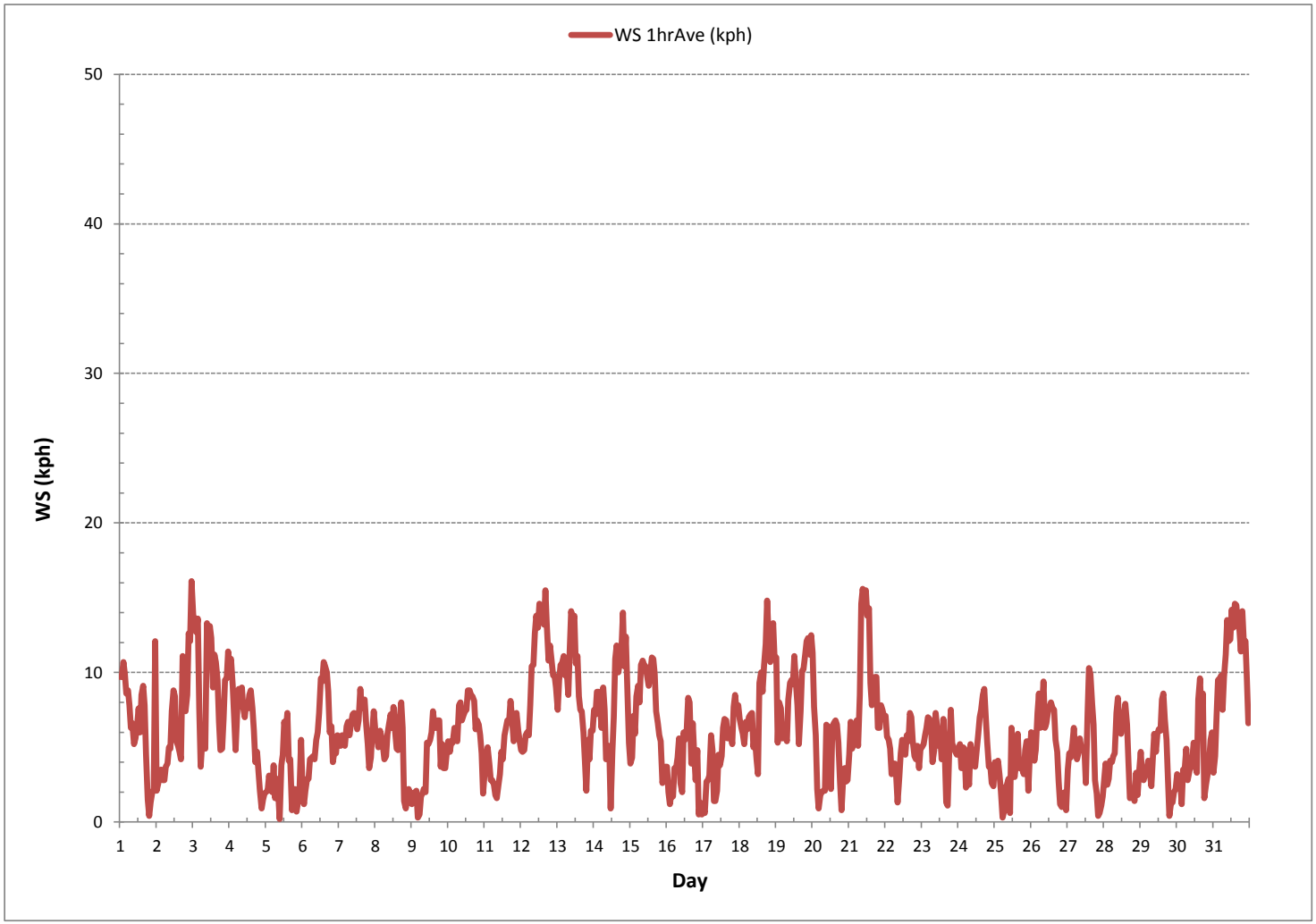


LAST CALIBRATION:	February 15, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			744				
MINIMUM 1-HR AVERAGE	0.2	kph	@ HOUR(S)	9	ON DAY(S)		5
MAXIMUM 1-HR AVERAGE:	16.1	kph	@ HOUR(S)	23	ON DAY(S)		2
MAXIMUM 24-HR AVERAGE:	10.0	kph			ON DAY(S)		12
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:	0	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.3		MONTHLY AVERAGE:			1.2	kph

WIND SPEED Hourly Averages (WS kph)



WIND SPEED Instantaneous Maximum (WS kph)

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	22.2	25.5	24.3	23.6	25.0	27.7	18.3	21.3	15.8	16.5	14.7	16.0	15.4	15.7	16.8	16.2	13.8	9.4	4.9	2.1	3.2	3.9	3.8	4.1	2.1	27.7	15.0	24
2	4.4	7.3	7.6	8.8	8.0	8.7	9.5	11.2	12.5	14.8	16.1	15.6	17.0	14.2	14.3	13.9	21.6	22.9	18.2	16.1	17.9	22.5	22.7	28.8	4.4	28.8	14.8	24
3	32.1	25.8	22.8	24.5	17.5	7.5	13.1	14.5	16.7	37.4	30.7	26.4	27.6	23.7	25.7	25.5	24.7	18.0	11.3	12.1	22.2	25.6	32.6	34.1	7.5	37.4	23.0	24
4	31.2	28.1	24.3	22.5	14.2	19.9	23.5	19.8	22.7	22.1	18.1	18.3	19.5	24.4	22.0	20.9	14.6	15.4	12.0	12.5	5.8	3.9	4.8	4.8	3.9	31.2	17.7	24
5	6.9	6.3	7.4	5.4	6.0	6.8	5.2	6.7	5.9	4.1	7.3	9.8	14.2	14.3	15.2	9.6	12.8	9.2	5.1	4.7	4.2	5.8	6.0	14.0	4.1	15.2	8.0	24
6	11.9	3.6	4.9	7.6	8.4	8.8	8.0	11.9	10.7	16.5	19.0	19.3	21.4	23.7	23.1	24.9	24.1	19.5	17.0	14.5	11.4	11.7	10.7	17.1	3.6	24.9	14.6	24
7	19.5	14.0	15.1	13.7	13.1	18.4	17.9	14.8	16.4	20.8	17.7	18.6	17.7	17.3	21.7	19.1	18.7	19.4	16.0	11.4	9.7	14.4	18.2	15.6	9.7	21.7	16.6	24
8	15.5	14.7	12.0	16.9	14.5	13.6	12.5	12.6	17.7	16.9	20.8	18.8	23.0	19.1	18.8	17.0	21.4	19.6	16.6	8.4	3.8	8.4	7.2	8.0	3.8	23.0	14.9	24
9	5.0	6.4	6.2	10.9	2.8	3.6	6.2	8.5	8.2	8.5	17.8	17.4	15.8	19.6	19.0	19.2	17.6	19.5	16.5	11.2	14.1	13.1	13.6	13.9	2.8	19.6	12.3	24
10	15.8	18.2	14.6	16.9	18.6	17.7	13.4	20.7	17.9	18.5	20.8	18.7	19.0	27.3	30.2	27.6	27.4	25.3	16.5	21.0	19.6	18.8	14.5	6.9	6.9	30.2	19.4	24
11	10.6	11.7	13.5	12.8	7.8	7.8	8.3	7.3	5.2	9.3	8.7	11.3	14.0	17.5	20.2	19.3	20.9	19.8	21.1	18.1	17.8	21.5	20.6	14.9	5.2	21.5	14.2	24
12	13.0	14.7	16.4	16.1	15.7	15.7	17.7	22.0	19.7	24.3	22.3	24.3	26.1	26.1	27.1	24.2	27.8	26.0	26.7	24.9	26.5	22.1	21.2	22.6	13.0	27.8	21.8	24
13	15.6	19.5	19.3	20.2	19.5	16.7	17.0	15.0	24.3	23.8	25.3	29.7	36.7	28.2	20.7	20.4	20.8	17.7	13.6	11.4	9.6	14.7	16.4	14.4	9.6	36.7	19.6	24
14	16.6	12.7	12.6	12.9	12.9	13.2	13.2	12.4	9.1	12.8	15.0	10.1	10.0	16.2	24.6	25.2	26.0	28.6	26.2	28.5	20.0	20.4	17.1	16.9	9.1	28.6	17.2	24
15	9.0	13.8	21.6	19.9	22.8	29.6	26.2	32.3	34.5	33.4	31.3	27.4	27.4	25.8	30.4	31.1	28.6	23.4	18.4	10.0	9.3	4.6	6.2	6.7	4.6	34.5	21.8	24
16	7.4	7.3	3.9	5.0	6.4	7.8	11.7	11.4	14.2	13.3	8.4	19.2	17.5	18.7	24.3	20.9	18.0	16.6	16.4	13.1	8.7	5.6	5.5	5.2	3.9	24.3	11.9	24
17	4.8	4.0	7.4	8.4	8.1	13.7	16.6	5.2	4.9	9.0	12.5	12.6	15.1	16.6	17.8	18.3	15.8	17.7	15.5	16.8	25.1	23.7	22.7	21.7	4.0	25.1	13.9	24
18	19.6	19.2	17.8	17.1	16.8	17.0	18.5	19.3	20.6	12.9	15.6	12.8	12.0	20.4	19.8	20.5	26.2	28.7	32.9	31.1	27.6	32.5	30.7	24.1	12.0	32.9	21.4	24
19	22.9	13.2	23.5	17.2	13.6	13.3	17.0	14.2	20.3	21.3	25.0	20.0	27.5	23.6	22.0	19.9	20.5	25.0	25.0	26.5	28.8	28.7	25.6	24.2	13.2	28.8	21.6	24
20	21.5	16.8	16.2	11.2	3.4	5.6	5.3	4.3	7.2	11.6	14.9	12.1	13.1	20.1	17.5	19.2	16.9	18.2	9.6	3.3	5.6	8.2	7.8	8.1	3.3	21.5	11.6	24
21	11.1	16.4	11.1	14.6	14.0	15.6	13.7	25.8	33.6	35.8	37.2	33.5	27.7	32.8	23.4	21.3	19.6	19.3	16.9	11.6	12.7	16.9	16.5	19.2	11.1	37.2	20.8	24
22	16.8	17.9	13.8	14.3	11.5	10.5	10.4	10.0	5.1	9.1	12.3	18.4	16.3	12.6	15.8	17.2	16.0	19.0	15.0	8.4	9.8	11.6	12.6	13.2	5.1	19.0	13.2	24
23	15.6	15.6	20.4	23.2	25.8	23.3	23.5	18.4	15.9	16.3	18.4	11.9	13.4	15.6	16.5	14.3	10.7	7.5	10.5	16.4	9.9	9.5	7.7	9.2	7.5	25.8	15.4	24
24	9.8	10.8	8.6	9.6	8.1	7.9	7.5	10.4	11.7	12.6	12.5	12.9	15.0	16.0	23.1	24.0	29.0	26.4	23.8	18.3	11.3	10.6	7.3	7.4	7.3	29.0	13.9	24
25	8.1	9.0	8.9	6.4	6.6	3.2	3.9	9.6	8.0	8.2	6.3	13.3	7.9	10.5	8.6	14.2	11.0	8.7	12.1	11.4	12.0	17.6	5.4	9.5	3.2	17.6	9.2	24
26	15.6	14.6	12.8	8.9	11.4	13.4	13.2	14.6	17.6	17.8	20.4	20.3	22.8	23.2	22.5	22.5	17.2	13.9	10.6	6.3	9.1	7.6	6.7	5.2	5.2	23.2	14.5	24
27	9.6	9.9	12.0	15.5	16.9	13.8	10.4	10.4	14.6	11.9	14.9	13.7	16.1	16.9	20.5	18.1	16.3	12.8	6.1	4.3	4.2	3.4	3.6	3.6	3.4	20.5	11.6	24
28	6.3	7.0	5.9	5.9	10.2	9.3	10.2	10.4	14.1	14.3	14.7	15.2	18.7	18.8	22.6	20.3	13.3	5.6	4.1	4.0	5.9	6.4	3.3	5.9	3.3	22.6	10.5	24
29	7.2	7.2	6.4	6.1	6.1	7.7	6.9	6.4	9.1	10.0	15.3	15.7	18.7	21.1	19.6	19.2	14.4	11.7	7.0	2.7	7.5	6.8	7.4	7.9	2.7	21.1	10.3	24
30	11.1	11.3	10.3	9.9	8.9	10.6	13.8	10.0	8.2	11.0	13.7	13.9	12.7	16.0	20.3	18.9	18.1	21.2	9.6	5.5	6.2	7.5	8.6	9.5	5.5	21.2	12.0	24
31	12.6	9.4	14.8	18.3	16.6	17.3	13.2	28.0	26.8	31.4	29.5	33.0	35.8	36.8	39.1	41.6	43.3	**44.9**	43.5	37.5	38.5	33.0	28.4	20.2	9.4	**44.9**	28.9	24
HOURLY MAX	32.1	28.1	24.3	24.5	25.8	29.6	26.2	32.3	34.5	37.4	37.2	33.5	36.7	36.8	39.1	41.6	43.3	44.9	43.5	37.5	38.5	33.0	32.6	34.1				
HOURLY AVG	13.8	13.3	13.4	13.7	12.6	13.1	13.1	14.2	15.1	17.0	18.0	18.1	19.2	20.4	21.4	20.8	20.2	19.1	16.1	13.7	13.5	14.2	13.4	13.4				

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

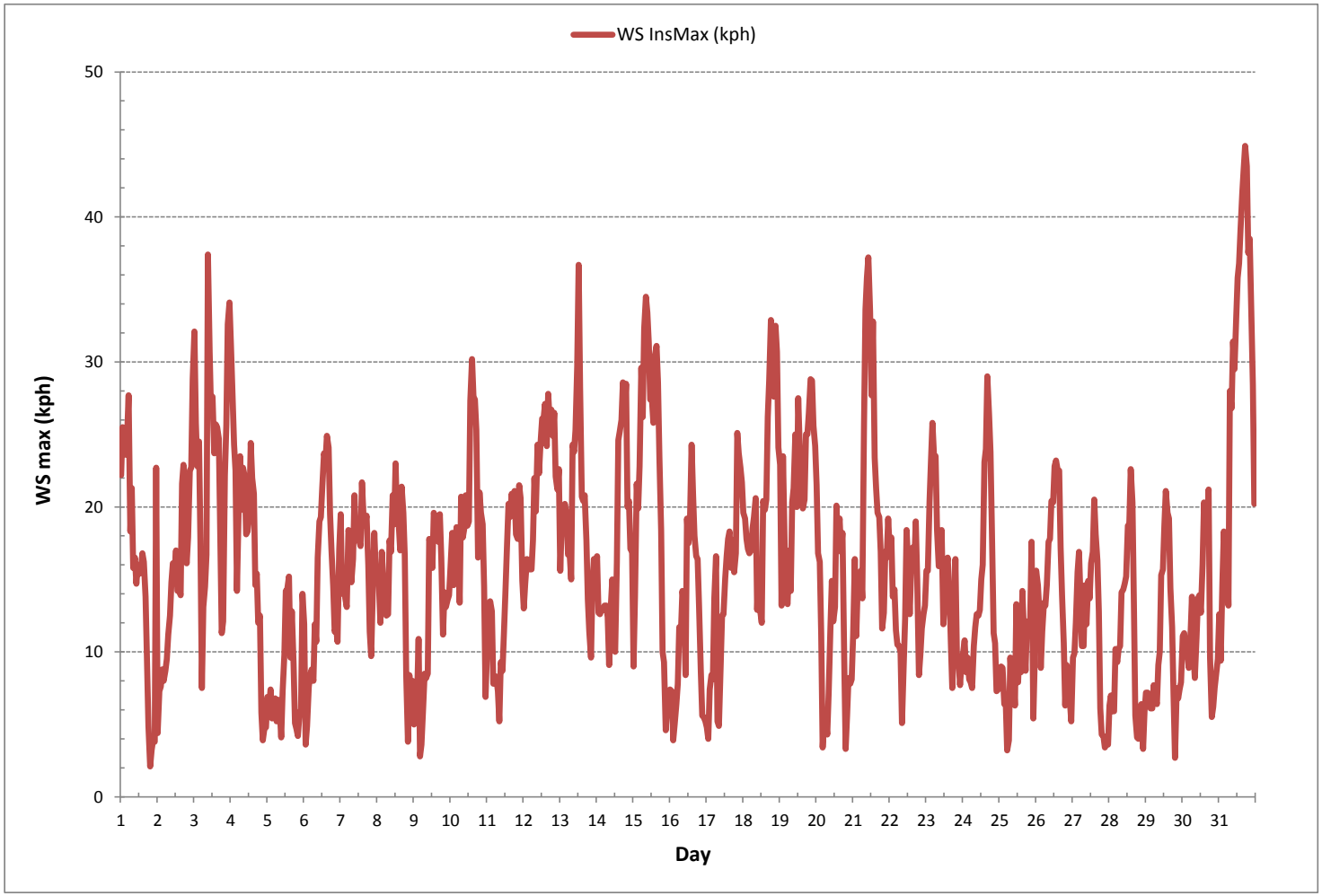
MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE: 44.9 kph @ HOUR(S) 17 ON DAY(S) 31

VAR-VARIOUS

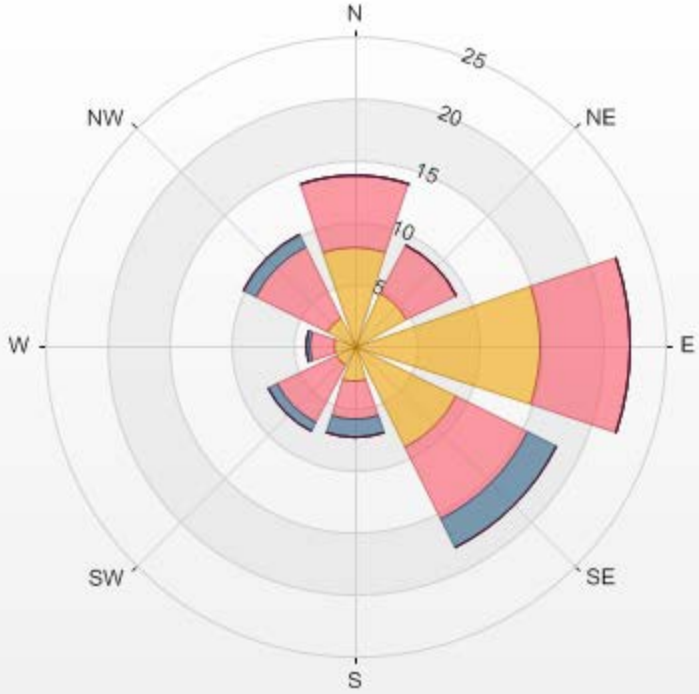
OPERATIONAL TIME: 744 hrs

WIND SPEED Instantaneous Maximum (WS kph)



% Icon Classes (kph)	46	1.8-6.0	41	6.0-12.0	6	12.0-20.0	0	20.0-29.0	0	29.0-39.0	0	>39.0

PRAMP_986 01/03/2017 00:00 - 31/03/2017 23:00 Calm: 7.12% Calm Wind Avg Speed: 1.08(kph)



Wind: PRAMP_986 Monitor: WSP [kph]
Monthly: 03/2017
Type: WindRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 7.12% Calm Avg: 0.00 [kph]

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	7.9	5.8	0.1	0.0	0.0	0.0	13.84
NE	4.7	4.4	0.0	0.0	0.0	0.0	9.14
E	15.1	7.3	0.0	0.0	0.0	0.0	22.31
SE	9.3	6.5	2.6	0.0	0.0	0.0	18.27
S	3.0	3.0	1.5	0.0	0.0	0.0	7.4
SW	1.8	5.2	0.8	0.0	0.0	0.0	7.8
W	1.8	1.9	0.4	0.0	0.0	0.0	4.03
NW	2.4	6.6	1.1	0.0	0.0	0.0	10.09
Summary	45.8	40.6	6.5	0.0	0.0	0.0	92.88

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

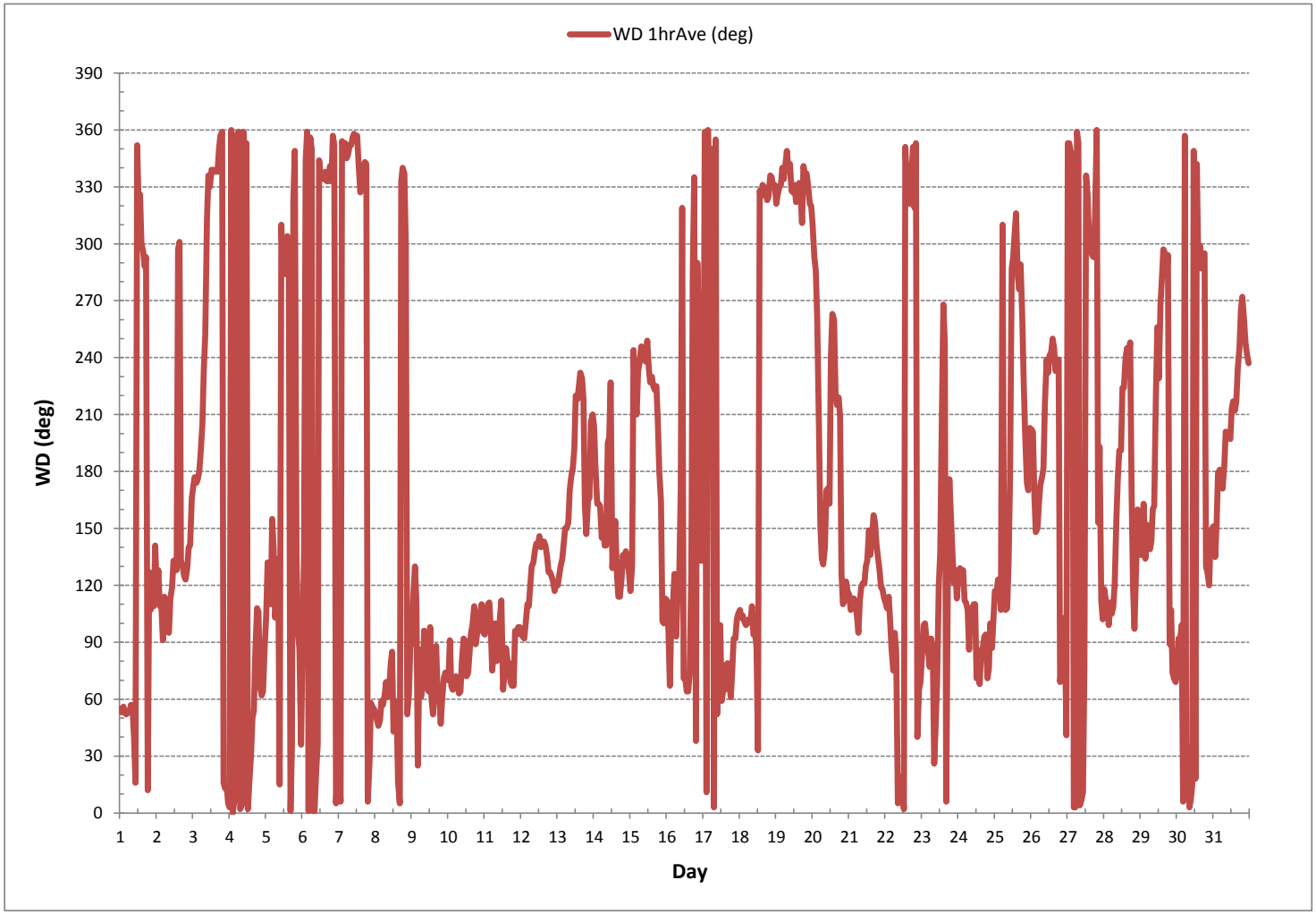
STATUS FLAG CODES

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

LAST CALIBRATION:	February 15, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	103		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	96 (E)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

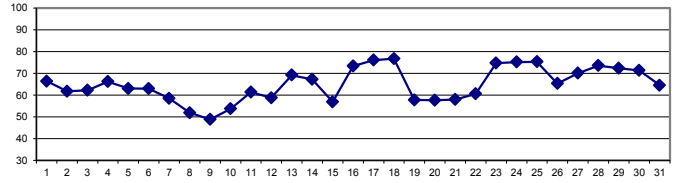
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	73	72	71	71	71	69	68	67	66	65	64	61	64	62	64	64	61	59	66	69	68	67	66	66	59	73	66	24
2	66	66	67	70	70	71	71	72	71	68	61	57	54	49	49	53	49	49	60	65	64	61	62	57	49	72	62	24
3	57	57	59	59	59	64	64	64	69	76	74	73	71	71	63	56	51	53	57	62	59	57	60	60	51	76	62	24
4	61	62	63	64	65	67	67	68	68	65	62	60	57	56	60	65	68	72	73	73	74	74	75	71	56	75	66	24
5	70	69	69	68	67	74	70	67	67	70	73	69	62	54	50	45	44	43	55	63	63	65	66	70	43	74	63	24
6	66	66	67	66	67	72	71	71	70	68	63	60	58	54	53	53	51	55	59	61	63	65	67	66	51	72	63	24
7	67	69	73	73	72	72	71	70	69	67	60	53	50	47	47	45	43	44	51	57	58	55	46	45	43	73	59	24
8	46	47	51	57	61	63	63	61	57	51	46	44	43	43	39	38	37	45	50	55	60	62	63	63	37	63	52	24
9	63	62	64	62	63	61	62	62	62	54	45	41	39	36	35	32	**30**	31	35	42	46	46	48	51	**30**	64	49	24
10	53	54	56	57	57	57	57	57	56	52	44	39	37	36	37	40	44	52	60	64	67	70	71	73	36	73	54	24
11	74	73	72	72	73	75	74	72	71	68	60	54	51	51	49	48	48	50	54	58	56	56	56	58	48	75	61	24
12	60	62	64	65	66	66	67	67	67	60	54	51	51	49	49	49	51	52	56	58	59	61	63	64	49	67	59	24
13	65	66	68	79	80	79	79	80	77	71	67	63	60	58	58	55	52	52	63	78	76	82	77	75	52	82	69	24
14	73	79	82	86	89	91	92	89	87	73	63	60	51	47	44	47	51	50	54	52	57	61	67	69	44	92	67	24
15	74	81	71	72	76	64	58	57	55	51	47	44	39	38	36	37	36	34	43	59	65	73	77	78	34	81	57	24
16	80	80	84	85	86	83	79	75	72	63	62	52	49	48	46	47	53	70	88	90	92	92	92	92	46	92	73	24
17	91	90	90	90	88	83	76	74	73	78	83	80	78	73	66	61	55	56	64	73	76	75	77	76	55	91	76	24
18	75	76	77	78	79	80	82	84	83	81	77	71	63	60	61	66	76	81	86	86	85	83	79	73	60	86	**77**	24
19	71	75	73	71	73	74	73	70	64	58	56	54	52	49	46	43	42	42	45	48	48	50	53	56	42	75	58	24
20	59	59	61	66	71	76	77	76	71	56	47	42	40	40	39	40	40	39	43	57	73	71	69	72	39	77	58	24
21	68	65	65	65	69	69	69	67	62	56	50	47	45	45	42	39	39	45	51	65	68	67	67	66	39	69	58	24
22	66	67	70	69	66	65	67	66	63	62	60	55	53	54	54	50	48	47	50	62	68	64	65	65	47	70	61	24
23	67	71	72	71	74	75	77	78	80	82	82	75	72	69	71	64	60	54	63	77	86	90	91	91	54	91	75	24
24	90	91	90	90	87	88	88	88	82	77	68	59	53	57	60	59	56	53	59	66	76	85	91	92	53	92	75	24
25	93	93	93	93	92	92	90	91	89	82	71	72	65	55	53	49	47	49	56	66	73	76	81	87	47	93	75	24
26	88	90	91	93	93	90	89	85	77	59	50	47	42	40	37	34	31	30	32	53	75	80	81	81	30	93	65	24
27	73	65	66	70	77	79	81	82	79	73	67	64	61	59	56	55	54	57	62	65	77	83	87	90	54	90	70	24
28	91	92	92	93	93	93	93	91	84	76	67	59	54	51	49	47	45	49	59	71	78	78	77	83	45	93	74	24
29	84	85	85	88	90	92	92	91	79	72	65	62	58	56	51	49	44	42	50	64	81	85	87	84	42	92	72	24
30	77	80	81	86	90	90	90	87	84	76	69	62	53	49	46	42	42	52	56	70	79	81	85	85	42	90	71	24
31	84	87	87	86	85	86	87	80	70	67	65	57	52	50	48	46	43	44	47	50	52	54	58	63	43	87	65	24
HOURLY MAX	93	93	93	93	93	93	93	91	89	82	83	80	78	73	71	66	76	81	88	90	92	92	92	92				
HOURLY AVG	72	73	73	75	76	76	76	74	72	67	62	58	54	52	50	49	48	50	56	64	68	70	71	72				

STATUS FLAG CODES

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

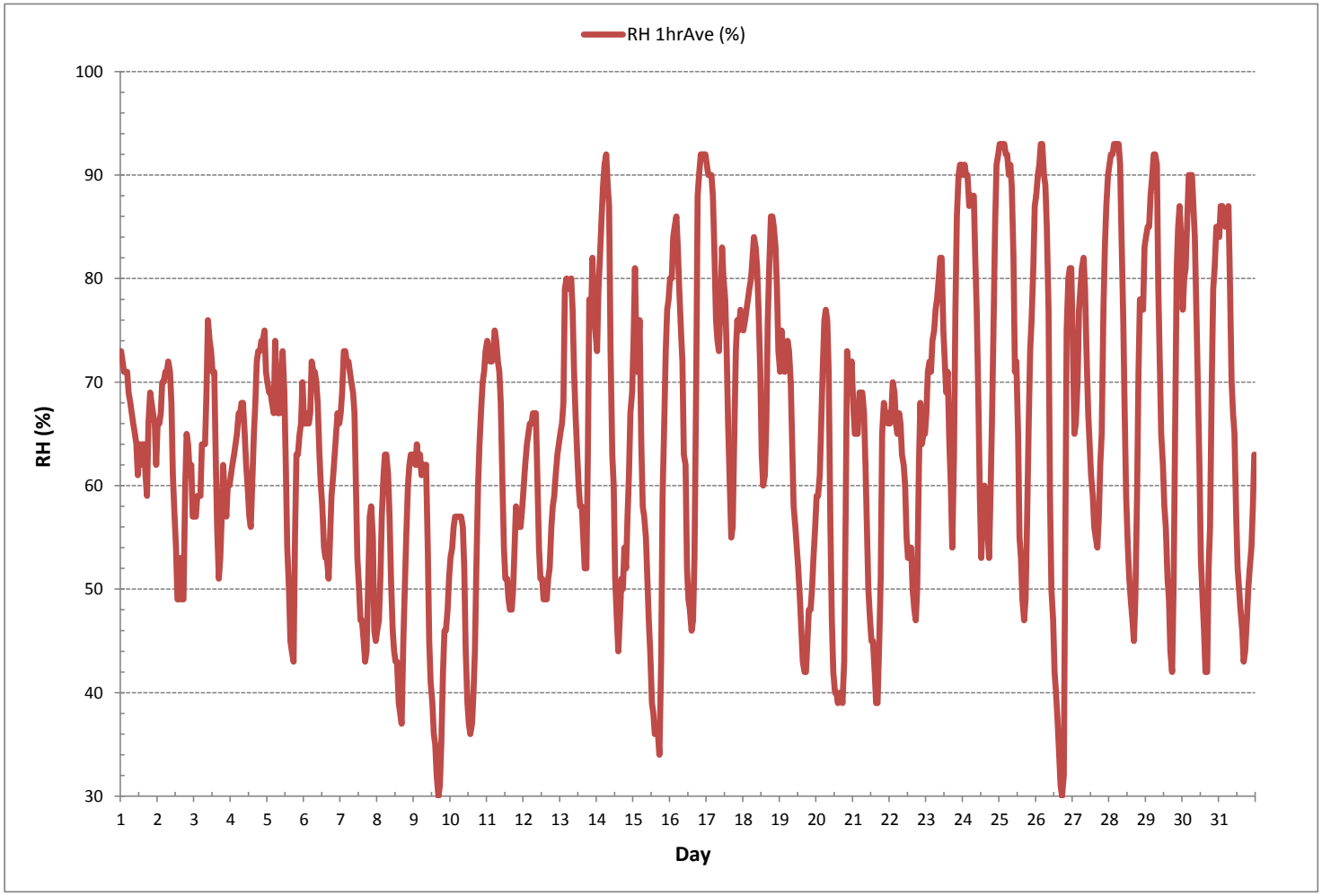
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	30	%	@ HOUR(S)	16	ON DAY(S)	9	
MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR(S)	VAR	ON DAY(S)	VAR	
MAXIMUM 24-HR AVERAGE:	77	%			ON DAY(S)	25	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	14		MONTHLY AVERAGE:			65	%

RELATIVE HUMIDITY Hourly Averages (RH %)



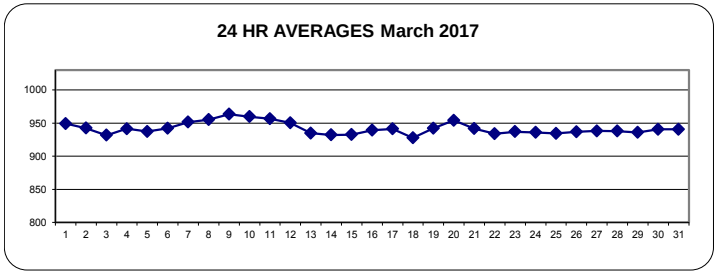
BAROMETRIC PRESSURE

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	940	940	941	942	943	944	945	947	948	949	949	950	951	952	952	953	953	953	954	954	955	955	955	955	940	955	949	24
2	955	954	954	953	952	951	950	949	947	946	944	943	941	940	939	938	936	935	934	933	932	931	930	929	929	955	942	24
3	929	928	928	927	927	927	927	927	927	929	930	931	932	933	933	934	934	935	935	936	936	937	938	940	927	940	932	24
4	940	940	941	941	942	942	942	943	943	943	944	944	943	942	941	941	941	940	941	940	940	940	940	939	939	944	941	24
5	939	939	939	939	939	938	938	938	938	937	937	937	936	936	935	935	935	935	936	936	938	938	938	938	935	939	937	24
6	938	939	940	940	941	941	941	941	942	942	941	941	941	941	942	942	942	942	943	944	945	945	946	946	938	946	942	24
7	947	948	949	949	950	951	952	953	953	953	953	953	953	953	953	952	951	951	952	952	952	952	952	952	947	953	952	24
8	952	952	953	953	953	954	954	955	955	955	955	955	955	955	955	955	955	956	957	957	958	959	960	961	952	961	955	24
9	962	962	963	963	964	**965**	**965**	**965**	**965**	964	964	964	964	964	963	963	963	962	962	962	962	962	962	962	962	**965**	**963**	24
10	961	961	961	961	961	960	961	960	960	960	960	959	959	959	959	959	959	959	959	959	959	959	959	959	959	961	960	24
11	959	959	959	959	959	959	959	959	959	958	958	957	957	956	955	955	954	954	954	954	953	953	953	953	953	959	956	24
12	953	953	953	953	953	953	953	953	953	953	953	952	952	951	951	950	950	949	948	947	946	945	944	942	942	953	950	24
13	942	941	940	938	938	937	936	935	935	934	934	933	933	933	932	932	932	932	932	932	932	933	933	933	932	942	935	24
14	934	934	935	935	935	936	936	935	935	935	935	935	934	933	932	931	930	929	928	928	927	927	926	926	926	936	932	24
15	925	926	928	929	930	931	931	932	933	934	934	934	934	934	934	935	935	935	935	935	935	935	935	935	925	935	933	24
16	935	935	936	936	937	937	937	937	937	939	939	939	939	940	940	940	941	942	942	942	943	943	944	944	935	944	939	24
17	944	944	944	944	944	944	944	944	944	944	943	943	943	942	941	940	939	938	938	937	936	936	935	934	934	944	941	24
18	933	932	932	931	930	929	928	927	927	927	926	925	924	**923**	924	924	924	925	926	928	929	930	932	932	**923**	933	928	24
19	934	935	935	936	937	938	939	939	940	940	941	942	942	943	943	944	944	945	946	947	949	950	951	952	934	952	942	24
20	953	954	954	955	955	956	956	956	956	956	956	956	955	955	954	954	954	953	953	952	952	952	951	951	951	956	954	24
21	950	949	949	948	947	946	946	945	944	943	942	941	940	940	939	938	937	937	937	936	936	936	935	935	935	950	942	24
22	935	934	934	934	933	933	933	933	934	934	934	934	933	934	934	934	934	934	934	934	934	934	934	935	933	935	934	24
23	935	935	935	935	935	935	935	935	936	936	936	937	937	938	938	938	938	939	939	939	939	939	939	940	935	940	937	24
24	940	939	939	939	939	939	938	938	937	937	936	936	935	935	934	933	933	932	933	933	933	933	933	933	932	940	936	24
25	933	933	933	933	934	934	934	934	934	934	934	934	934	934	934	934	934	935	935	935	935	935	936	936	933	936	934	24
26	936	936	936	936	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	937	936	936	936	936	936	937	937	24
27	937	937	937	937	937	937	938	938	938	938	938	938	938	938	938	938	939	939	939	939	939	939	939	939	937	939	938	24
28	939	939	939	939	939	939	938	938	938	938	938	938	938	938	937	937	937	937	937	937	937	938	938	938	937	939	938	24
29	938	938	938	938	938	938	938	937	937	937	937	936	936	936	935	935	934	934	934	934	934	934	934	934	934	938	936	24
30	934	935	935	935	936	937	937	938	939	940	940	941	942	942	943	943	943	944	945	945	945	945	945	945	934	945	941	24
31	945	945	945	945	944	944	944	943	943	942	942	941	940	940	939	938	937	937	937	936	936	936	936	936	936	945	940	24
HOURLY MAX	962	962	963	963	964	965	965	965	965	964	964	964	964	964	963	963	963	962	962	962	962	962	962	962				
HOURLY AVG	942	942	942	942	942	942	942	942	942	942	942	942	942	942	941	941	941	941	941	941	941	942	942	942				

STATUS FLAG CODES

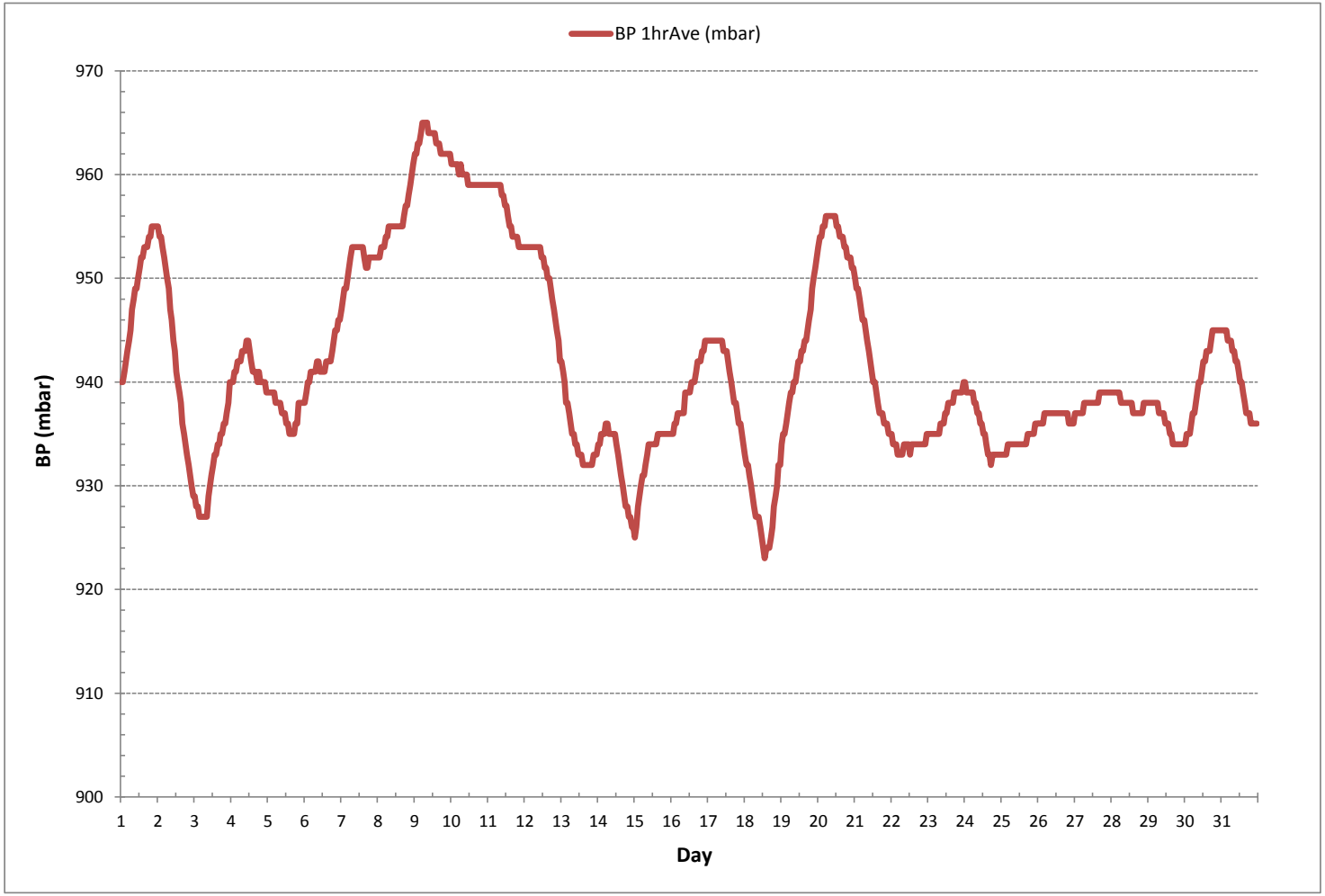
C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
S1	- REPEAT ZERO/SPAN CHECK	P	- POWER FAILURE



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	923	mbar	@ HOUR(S)	13	ON DAY(S)	18	
MAXIMUM 1-HR AVERAGE:	965	mbar	@ HOUR(S)	VAR	ON DAY(S)	9	
MAXIMUM 24-HR AVERAGE:	963	mbar			ON DAY(S)	9	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	9		MONTHLY AVERAGE:			942	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE

Maxxam
A Bureau Veritas Group Company

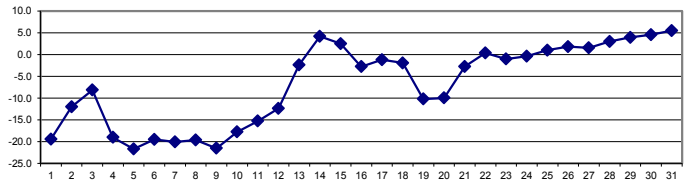
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	-15.6	-16.3	-16.7	-16.9	-17.4	-18.4	-19.0	-19.4	-19.2	-18.5	-17.9	-17.2	-17.4	-16.7	-17.2	-17.2	-16.9	-16.9	-19.6	-23.4	-25.9	-27.1	-27.9	-28.2	-28.2	-15.6	-19.5	24
2	-28.3	-27.8	-26.9	-24.6	-23.8	-23.0	-22.4	-21.0	-19.9	-15.9	-11.5	-7.9	-5.4	-2.1	-2.7	-4.5	-1.2	0.3	-3.2	-4.6	-4.1	-3.2	-2.8	-1.0	-28.3	0.3	-12.0	24
3	-0.7	-0.7	-1.1	-0.9	-1.6	-3.2	-2.4	-1.7	-1.8	-5.3	-8.8	-9.8	-10.5	-11.0	-10.7	-10.7	-10.6	-11.5	-13.0	-15.0	-14.7	-15.3	-16.4	-17.6	-17.6	-0.7	-8.1	24
4	-18.5	-19.2	-19.8	-20.1	-20.5	-20.8	-21.2	-21.6	-21.7	-21.1	-20.4	-19.6	-18.5	-17.9	-17.2	-16.8	-16.3	-15.9	-16.5	-17.0	-17.4	-17.5	-18.7	-21.8	-21.8	-15.9	-19.0	24
5	-24.9	-26.1	-25.7	-26.4	-27.6	-23.6	-24.9	-27.0	-26.4	-21.8	-19.4	-18.0	-17.2	-16.2	-15.5	-14.1	-12.9	-13.0	-16.8	-20.0	-24.7	-26.6	-27.4	-25.0	-27.6	-12.9	-21.7	24
6	-23.4	-27.1	-27.4	-28.1	-26.7	-22.8	-22.4	-22.8	-21.9	-19.1	-16.3	-15.7	-15.5	-14.7	-15.0	-14.9	-14.0	-15.2	-16.5	-17.1	-17.6	-17.7	-18.0	-17.9	-28.1	-14.0	-19.5	24
7	-18.5	-19.5	-20.6	-21.7	-22.7	-22.8	-23.4	-24.6	-24.3	-22.9	-21.0	-19.4	-17.9	-16.8	-16.3	-15.8	-15.4	-16.4	-19.2	-20.9	-22.0	-21.2	-19.5	-19.5	-24.6	-15.4	-20.1	24
8	-19.6	-19.7	-19.9	-20.0	-20.2	-20.8	-21.8	-22.1	-21.3	-20.1	-18.7	-17.1	-16.4	-15.8	-14.4	-13.5	-13.3	-14.9	-17.0	-19.2	-22.7	-26.1	-28.0	-29.1	-29.1	-13.3	-19.7	24
9	-28.5	-29.3	-28.9	-29.5	-30.2	**-32.0**	-31.3	-30.6	-26.3	-21.6	-18.6	-16.9	-15.5	-14.9	-14.2	-13.4	-12.5	-13.3	-14.9	-17.9	-18.7	-18.4	-19.1	-19.7	**-32.0**	-12.5	-21.5	24
10	-20.4	-20.9	-21.4	-21.8	-21.8	-21.7	-21.9	-22.1	-21.9	-20.1	-18.0	-16.3	-15.2	-15.0	-14.4	-13.8	-13.6	-13.9	-14.5	-15.0	-15.2	-15.3	-15.6	-16.6	-22.1	-13.6	-17.8	24
11	-16.3	-16.4	-16.5	-16.9	-17.3	-18.3	-19.5	-21.8	-21.1	-17.0	-14.8	-13.7	-13.1	-12.4	-11.7	-11.8	-12.1	-12.6	-13.1	-13.5	-13.6	-13.8	-14.1	-14.7	-21.8	-11.7	-15.3	24
12	-15.2	-15.6	-16.0	-15.9	-15.8	-16.1	-15.6	-15.3	-15.1	-14.2	-12.3	-10.9	-10.3	-9.3	-8.9	-8.8	-9.0	-9.4	-10.0	-10.2	-10.4	-10.7	-10.9	-10.7	-16.1	-8.8	-12.4	24
13	-10.3	-10.0	-9.9	-9.9	-9.2	-8.5	-8.2	-8.4	-6.8	-4.6	-2.7	0.3	1.8	2.4	2.9	5.1	6.3	6.8	3.8	-0.2	0.5	-1.7	1.4	1.9	-10.3	6.8	-2.4	24
14	2.5	1.3	1.1	-0.2	-1.5	-2.7	-2.5	-1.8	-1.4	4.4	7.2	7.9	10.0	10.5	10.4	9.7	8.7	8.4	7.1	6.7	5.3	4.1	2.7	2.0	-2.7	10.5	4.2	24
15	0.5	-0.8	2.8	3.4	3.2	3.6	3.4	3.0	2.7	3.0	3.8	4.6	5.8	6.0	6.0	6.2	6.6	6.6	3.7	0.4	-1.2	-3.2	-4.6	-5.3	-5.3	6.6	2.5	24
16	-5.9	-6.5	-7.5	-8.5	-8.6	-8.5	-7.1	-5.0	-3.0	-0.9	-0.5	1.5	2.3	3.2	3.8	3.6	2.8	0.3	-1.2	-2.4	-4.1	-5.7	-5.2	-3.9	-8.6	3.8	-2.8	24
17	-3.3	-3.3	-3.4	-3.6	-4.0	-4.7	-5.3	-4.8	-3.8	-2.6	-2.2	-1.4	-0.8	0.7	2.2	3.7	5.0	4.4	2.2	0.3	-0.3	-0.8	-1.5	-1.5	-5.3	5.0	-1.2	24
18	-1.3	-1.6	-1.9	-2.3	-2.8	-3.3	-3.6	-3.6	-2.9	-1.8	-0.1	1.8	3.9	3.0	1.7	0.3	-1.5	-1.9	-2.6	-3.1	-4.3	-5.2	-6.3	-7.1	-7.1	3.9	-1.9	24
19	-8.2	-9.7	-10.3	-11.2	-12.2	-13.1	-13.8	-14.0	-13.2	-12.1	-12.0	-11.0	-9.7	-8.7	-7.4	-6.4	-5.7	-5.7	-7.3	-8.7	-9.8	-10.7	-11.8	-12.6	-14.0	-5.7	-10.2	24
20	-13.4	-14.0	-14.7	-15.6	-16.5	-17.5	-18.3	-18.1	-14.9	-10.9	-8.6	-6.6	-5.3	-4.8	-4.3	-3.0	-2.0	-1.4	-2.6	-6.2	-9.1	-9.7	-10.3	-11.3	-18.3	-1.4	-10.0	24
21	-10.9	-10.5	-10.3	-10.3	-10.5	-9.9	-9.7	-7.5	-5.1	-3.1	-0.8	0.8	2.1	2.9	4.1	5.5	6.0	4.7	3.1	-0.5	-1.5	-1.5	-1.3	-1.4	-10.9	6.0	-2.7	24
22	-1.4	-1.7	-2.5	-2.0	-1.8	-2.1	-2.3	-2.1	-1.4	-0.6	0.0	1.9	3.3	3.6	4.1	4.9	4.8	5.0	3.7	0.5	-1.2	-0.8	-1.2	-1.4	-2.5	5.0	0.4	24
23	-1.9	-2.5	-2.6	-2.1	-2.6	-3.1	-3.5	-3.3	-3.1	-3.1	-2.4	-0.7	0.6	2.1	1.5	3.0	3.6	5.2	2.9	0.3	-2.0	-3.0	-3.5	-4.3	-4.3	5.2	-1.0	24
24	-4.7	-5.6	-5.9	-5.9	-5.9	-6.7	-7.5	-7.2	-2.9	-0.2	2.5	4.5	5.2	4.3	4.1	4.7	5.5	5.9	4.9	3.6	1.9	0.0	-1.4	-2.7	-7.5	5.9	-0.4	24
25	-3.7	-3.9	-4.5	-4.8	-5.7	-6.8	-7.6	-5.9	-3.1	0.3	3.0	2.3	4.2	6.8	7.1	8.0	8.4	8.4	6.8	4.6	4.0	3.6	2.0	0.7	-7.6	8.4	1.0	24
26	1.1	0.3	-1.2	-1.9	-1.7	-1.6	-1.6	-0.9	0.6	2.9	3.9	4.3	5.1	5.5	6.1	6.9	7.6	7.6	6.6	2.1	-1.0	-2.2	-2.5	-2.5	-2.5	7.6	1.8	24
27	-2.1	-1.9	-1.7	-1.6	-1.8	-2.0	-2.3	-2.2	-1.2	0.6	2.9	4.6	5.2	5.8	6.5	6.8	7.3	6.7	5.2	3.6	1.5	-0.1	-1.0	-1.9	-2.3	7.3	1.5	24
28	-2.6	-2.3	-2.7	-2.7	-2.9	-2.7	-2.6	-1.4	1.7	3.8	6.0	7.7	8.6	9.1	9.4	9.5	9.5	8.6	7.0	4.5	2.2	1.9	1.6	0.4	-2.9	9.5	3.0	24
29	0.3	0.3	1.0	0.1	-0.2	-0.2	-0.4	0.4	3.5	5.3	7.0	7.8	8.6	8.7	9.2	9.9	10.4	10.2	8.0	4.5	1.4	0.0	-0.8	-0.2	-0.8	10.4	4.0	24
30	1.8	1.5	1.5	0.4	-1.0	-0.8	-0.4	0.8	2.2	4.3	6.0	7.9	9.8	10.8	10.9	**11.4**	10.8	9.0	9.3	5.8	2.8	2.0	1.4	1.2	-1.0	**11.4**	4.6	24
31	1.2	0.5	0.4	1.7	1.7	1.2	1.0	2.2	4.2	4.9	5.3	7.4	8.4	8.7	9.2	10.3	10.7	11.2	9.7	8.0	7.3	6.8	5.8	4.5	0.4	11.2	**5.5**	24
HOURLY MAX	2.5	1.5	2.8	3.4	3.2	3.6	3.4	3.0	4.2	5.3	7.2	7.9	10.0	10.8	10.9	11.4	10.8	11.2	9.7	8.0	7.3	6.8	5.8	4.5				
HOURLY AVG	-9.4	-10.0	-10.1	-10.3	-10.6	-10.7	-10.9	-10.6	-9.3	-7.4	-5.8	-4.4	-3.3	-2.7	-2.3	-1.8	-1.4	-1.7	-3.4	-5.5	-6.9	-7.7	-8.2	-8.6				

STATUS FLAG CODES

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

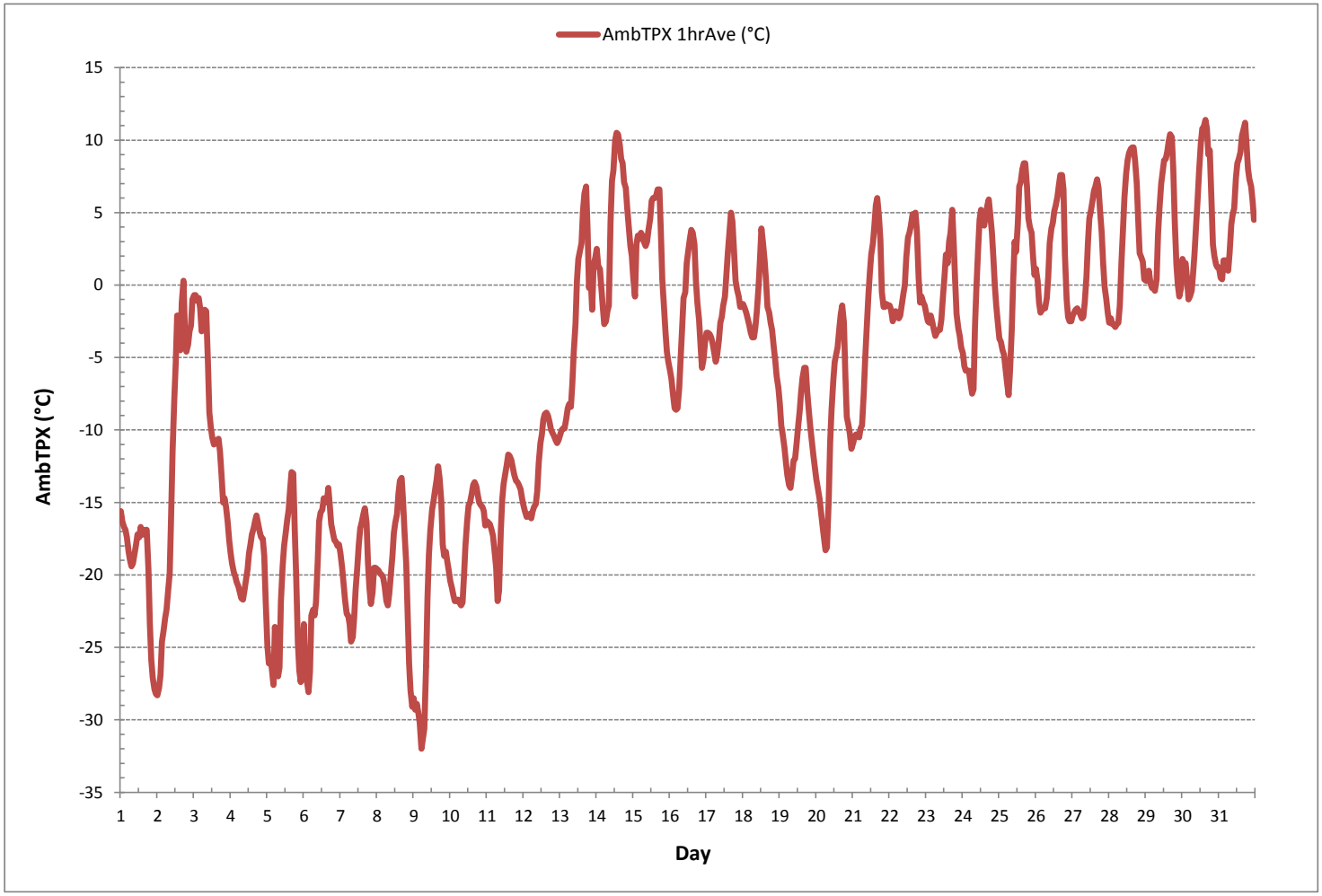
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:		-32.0	°C	@ HOUR(S)	5	ON DAY(S)	9
MAXIMUM 1-HR AVERAGE:		11.4	°C	@ HOUR(S)	15	ON DAY(S)	30
MAXIMUM 24-HR AVERAGE:		5.5	°C			ON DAY(S)	31
						VAR-VARIOUS	
				OPERATIONAL TIME:		744	hrs
				AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:		10.3		MONTHLY AVERAGE:		-6.8	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

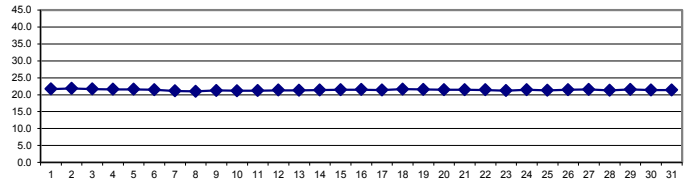
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	21.4	21.4	21.3	21.5	21.5	21.6	21.6	21.6	21.6	21.7	21.7	21.9	21.8	21.8	21.8	21.7	21.8	22.0	21.8	21.7	21.7	21.8	21.6	21.8	21.3	22.0	21.7	24
2	21.7	21.7	21.8	21.7	21.7	21.8	21.7	21.9	21.8	21.9	22.0	22.0	21.9	21.7	21.9	22.2	22.6	21.8	21.6	21.7	21.5	21.6	21.8	21.8	21.5	22.6	**21.8**	24
3	21.5	21.8	21.7	21.7	22.0	21.8	21.7	21.8	21.8	21.5	21.5	21.6	21.6	21.6	21.6	21.6	21.7	21.7	21.6	21.7	21.6	21.6	21.7	21.6	21.5	22.0	21.7	24
4	21.6	21.6	21.6	21.7	21.6	21.7	21.7	21.6	21.5	21.6	21.6	21.6	21.6	21.6	21.4	21.4	21.3	21.4	21.6	21.5	21.6	21.6	21.5	21.7	21.3	21.7	21.6	24
5	21.5	21.6	21.5	21.7	21.5	21.5	21.6	21.6	21.6	21.8	21.8	21.9	21.8	21.6	21.7	21.3	21.8	21.2	21.5	21.7	21.6	21.6	21.6	21.6	21.2	21.9	21.6	24
6	21.5	21.5	21.6	21.5	21.6	21.6	21.5	21.6	21.5	21.6	21.5	21.5	21.6	21.6	21.4	21.7	21.5	21.3	19.1	21.3	21.6	21.7	21.8	21.8	19.1	21.8	21.5	24
7	21.8	21.7	21.9	21.8	21.7	21.7	21.7	21.6	21.3	21.4	21.1	19.8	20.7	20.1	20.7	20.4	20.2	20.9	20.9	21.2	21.2	21.2	21.1	21.0	19.8	21.9	21.1	24
8	21.1	21.0	21.1	21.1	21.0	21.1	21.1	21.1	21.1	**19.0**	20.3	20.8	21.0	20.8	21.1	21.0	20.6	21.0	21.1	21.1	21.4	21.4	21.4	21.4	**19.0**	21.4	21.0	24
9	21.4	21.3	21.4	21.4	21.3	21.5	21.2	21.5	21.4	21.5	21.4	21.4	21.2	21.2	20.8	20.8	21.0	20.8	20.7	21.2	21.2	21.2	21.4	21.4	20.7	21.5	21.2	24
10	21.3	21.3	21.3	21.3	21.2	21.1	21.3	21.1	21.0	21.1	21.2	21.2	21.1	20.9	21.0	21.0	21.1	21.2	21.0	21.1	21.1	21.2	21.2	21.3	20.9	21.3	21.2	24
11	21.4	21.3	21.3	21.3	21.2	21.4	21.3	21.4	21.4	21.4	21.4	21.5	21.1	21.1	21.1	20.6	21.0	20.8	20.8	21.1	21.2	21.2	21.3	21.3	20.6	21.5	21.2	24
12	21.3	21.3	21.3	21.4	21.4	21.3	21.4	21.3	21.4	21.3	21.4	21.4	21.3	21.3	21.4	21.2	21.3	21.4	21.1	21.3	21.3	21.2	21.4	21.4	21.1	21.4	21.3	24
13	21.2	21.4	21.4	21.3	21.4	21.4	21.5	21.5	21.5	21.6	21.4	21.7	22.4	21.4	20.5	20.3	20.3	20.4	20.3	20.1	21.7	22.1	22.3	21.8	20.1	22.4	21.3	24
14	20.9	21.9	22.3	22.4	22.4	22.3	22.1	22.0	22.0	22.2	20.8	20.6	20.6	20.6	20.5	20.5	20.5	20.6	20.7	20.8	20.5	21.6	22.7	21.5	20.5	22.7	21.4	24
15	21.6	22.3	22.6	22.3	20.6	21.9	22.5	21.2	21.6	22.5	20.9	20.8	20.8	20.8	20.7	20.8	20.8	20.7	20.7	20.3	21.8	22.2	22.1	21.9	20.3	22.6	21.4	24
16	21.6	21.3	21.6	21.5	21.6	21.5	21.5	21.8	21.6	21.7	22.0	22.2	22.3	20.5	21.6	21.4	20.2	21.8	22.4	20.8	21.3	21.4	21.2	21.2	20.2	22.4	21.5	24
17	21.2	21.3	21.4	21.4	21.4	21.4	21.3	21.2	21.2	21.4	21.6	21.8	22.1	21.6	20.2	20.0	20.0	19.9	21.0	22.3	22.5	22.5	22.4	22.2	19.9	22.5	21.4	24
18	22.1	22.0	22.0	21.9	21.8	21.7	21.5	21.3	21.3	21.4	21.7	22.2	21.3	20.9	20.9	20.8	20.8	22.1	22.3	22.2	22.0	21.8	21.5	21.5	20.8	22.3	21.6	24
19	21.5	21.4	21.6	21.4	21.6	21.6	21.6	21.6	21.6	21.7	21.3	21.5	21.2	21.6	21.3	21.4	21.8	22.0	21.9	21.5	21.2	21.2	21.5	21.5	21.2	22.0	21.5	24
20	21.5	21.4	21.5	21.6	21.4	21.6	21.5	21.5	21.6	21.6	21.5	21.2	21.3	21.7	21.8	20.4	21.7	20.5	21.4	21.7	21.4	21.3	21.5	21.7	20.4	21.8	21.4	24
21	21.6	21.7	21.6	21.7	21.7	21.7	21.6	21.7	21.6	21.5	21.6	21.9	22.1	22.6	21.0	20.5	20.5	20.2	20.9	22.0	20.6	21.5	21.6	21.6	20.2	22.6	21.5	24
22	21.6	21.6	21.5	21.5	21.5	21.5	21.5	21.5	21.7	22.0	22.3	21.7	20.8	20.6	20.5	20.5	20.6	20.6	20.4	20.6	22.1	22.5	22.5	22.4	20.4	22.5	21.4	24
23	22.2	22.1	22.0	21.9	21.7	21.4	21.3	21.2	21.2	21.1	21.1	21.5	21.9	21.7	20.3	19.9	19.8	19.8	20.3	21.9	20.9	21.2	21.3	21.3	19.8	22.2	21.2	24
24	21.1	21.5	21.6	21.4	21.6	21.5	21.7	21.7	21.8	21.4	21.5	22.0	21.9	20.5	21.5	21.8	20.5	20.2	21.9	20.4	21.1	21.9	22.2	22.1	20.2	22.2	21.5	24
25	22.0	21.8	21.6	21.3	21.5	21.4	21.5	21.7	21.3	21.7	22.3	21.0	20.9	20.8	20.9	20.8	20.8	20.8	20.8	20.8	20.6	20.5	22.2	21.6	20.5	22.3	21.3	24
26	21.1	22.1	22.2	22.2	22.1	22.0	21.9	21.9	22.0	22.6	21.1	20.9	20.8	20.7	20.7	20.7	20.8	20.8	20.7	20.4	20.9	22.1	22.3	22.4	20.4	22.6	21.5	24
27	22.4	22.3	22.3	22.3	22.3	22.2	22.1	22.1	22.1	22.5	21.4	20.8	20.8	20.8	20.9	20.8	20.8	20.8	20.7	20.6	20.6	22.1	22.6	20.9	20.6	22.6	21.6	24
28	21.5	21.7	21.6	21.6	21.5	21.4	21.3	21.2	21.5	22.3	22.0	21.0	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.7	20.3	21.6	22.7	20.7	20.3	22.7	21.3	24
29	21.7	22.2	22.4	22.6	22.7	**22.8**	22.8	22.8	21.8	20.8	20.9	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.7	20.7	20.5	20.9	22.2	22.5	20.5	**22.8**	21.5	24
30	22.7	21.1	21.6	22.2	22.4	22.4	22.5	22.6	21.9	20.4	20.3	20.8	20.8	20.8	20.7	20.7	20.7	20.7	20.7	20.7	20.4	20.5	22.1	22.6	20.3	22.7	21.3	24
31	20.8	21.6	22.0	22.2	22.4	22.5	22.6	22.7	21.5	20.4	22.0	21.8	20.8	20.8	20.7	20.8	20.8	20.7	20.7	20.8	20.8	20.8	20.4	22.1	20.4	22.7	21.4	24
HOURLY MAX	22.7	22.3	22.6	22.6	22.7	22.8	22.8	22.8	22.1	22.6	22.3	22.2	22.4	22.6	21.9	22.2	22.6	22.1	22.4	22.3	22.5	22.5	22.7	22.6				
HOURLY AVG	21.5	21.6	21.7	21.7	21.7	21.7	21.7	21.7	21.6	21.5	21.4	21.4	21.3	21.1	21.0	20.9	20.9	21.0	21.0	21.2	21.2	21.5	21.8	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

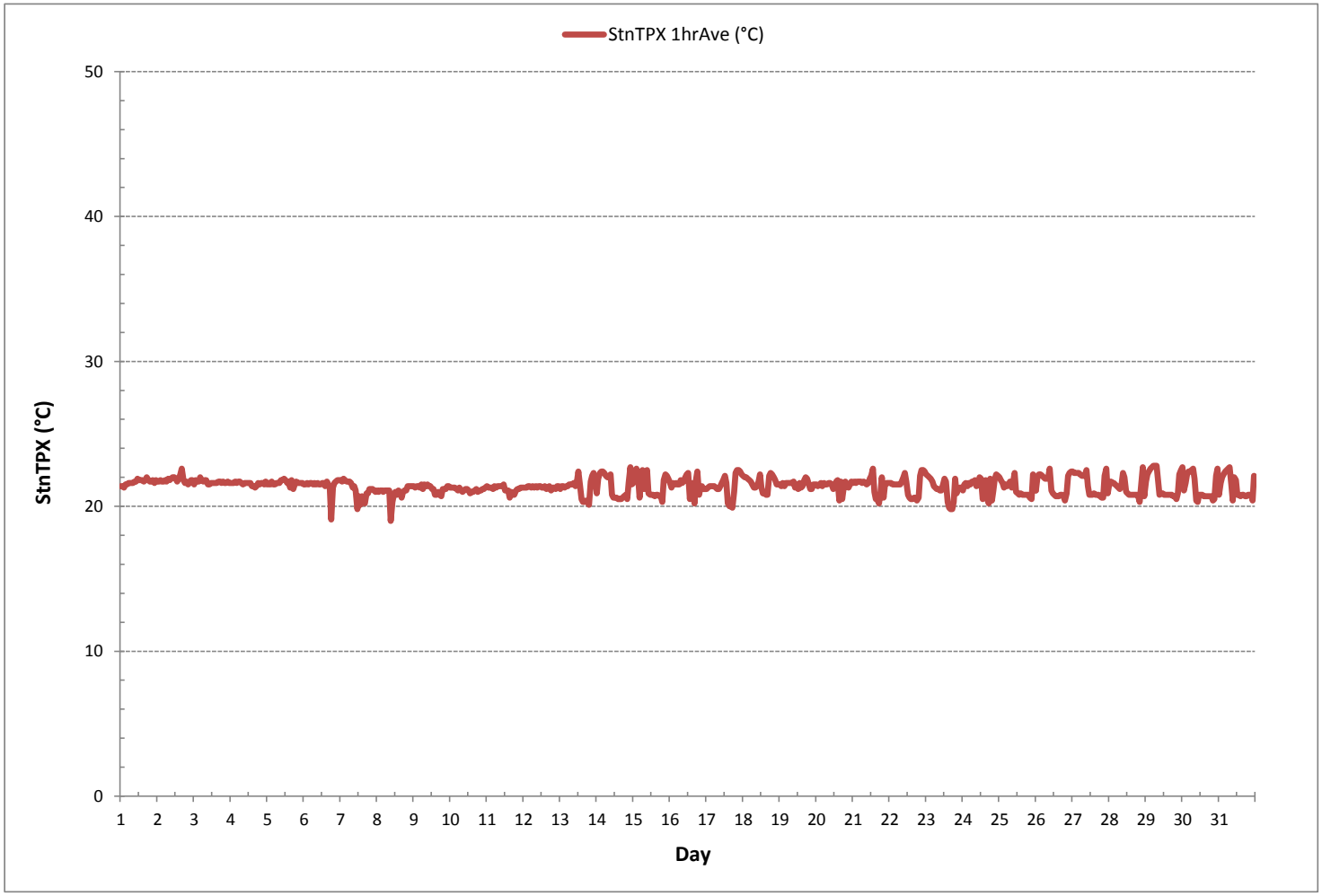
24 HR AVERAGES March 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	19.0	°C	@ HOUR(S)	9	ON DAY(S)	8	
MAXIMUM 1-HR AVERAGE:	22.8	°C	@ HOUR(S)	5	ON DAY(S)	29	
MAXIMUM 24-HR AVERAGE:	21.8	°C			ON DAY(S)	2	
					VAR-VARIOUS		
			OPERATIONAL TIME:			744	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.6		MONTHLY AVERAGE:			21.4	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE

Thermo 43C Sulphur Dioxide Analyzer Calibration

Date:	March 7, 2017	**Barometric Pressure:**	28.24 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	21
Location/Station Name:	986b	**Weather Conditions:**	Mix of sun and clouds
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly
Start Time 24 hr. (mst):	13:00	**Performed By/Reviewer:**	Raja Abid / Trina Whitsitt
End Time 24 hr. (mst):	16:15	**Cal Gas Expiry Date:**	May 23, 2019
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	n/a

Analyzer:

ID# or Serial Number:	43C-62339-335	**Range ppb:**	500
Last Calibration Date:	February 4, 2017	**As Found C.F.:**	0.968
Previous C.F.:	0.999	**New C.F.:**	0.999

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	API 700
Serial #:	829
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

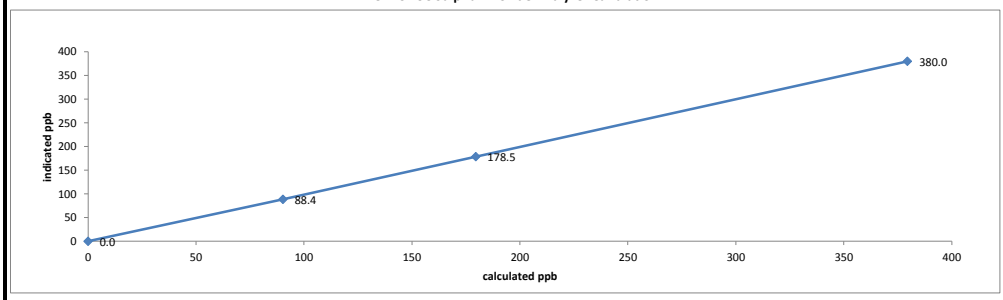
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**(ppb)**	**(ppb)**	
as found zero	5994	0.00	5994	0.0	1.0	n/a
as found high	5955	45.00	6000	379.5	393.0	0.968
adjusted zero	5994	0.00	5994	0.0	0.0	n/a
adjusted high	5955	45.00	6000	379.5	380.0	0.999
mid	5980	21.30	6001	179.6	178.5	1.006
low	5986	10.70	5997	90.3	88.4	1.021
calibrator zero	5994	0.00	5994	0.0	0.0	n/a
					Average C.F.=	1.009

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	**1.000**	**> or = 0.995**
Slope =	**0.997**	**.95-1.05**
b (Intercept as % of full scale)=	**0.22%**	**± 3% F.S.**
% change in C.F. from last cal=	**3.09%**	**± 10%**

Thermo 43C Sulphur Dioxide Analyzer Calibration



	As found:		As left:
BKG:	71.8	BKG:	70.3
COEF:	0.902	COEF:	0.872
PMT:	-654	PMT:	-654
LAMP:	838	LAMP:	839
BATTERY:	3.3	BATTERY:	3.3
INTERNAL:	27.6	INTERNAL:	27.2
CHAMBER:	45.3	CHAMBER:	45.4
PRESSURE:	454.7	PRESSURE:	454.1
FLOW:	0.816	FLOW:	0.815
INTENSITY:	38110	INTENSITY:	38540
Expected Value:	293.7	Expected Value:	276.4

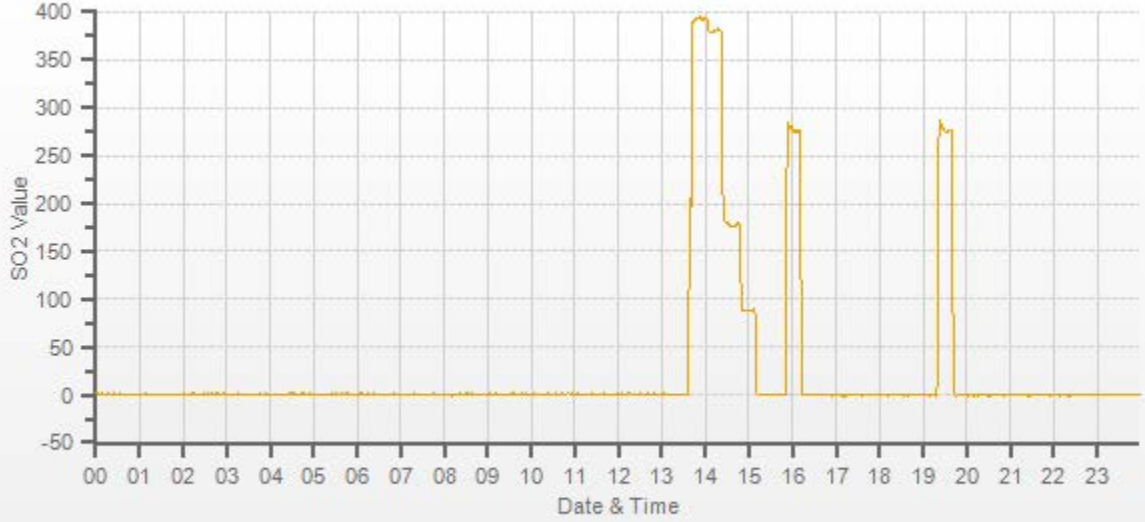
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

13:39-13:40 Low reading at the start of As Found high was due to low cal pressure. 14:36 during midpoint, drift in the reading due to re-adjustment of cal pressure.

SO2[ppb] Station: PRAMP_986 Daily: 2017/03/07 Type: AVG 1 Min. [1 Min.]



TOTAL REDUCED SULPHUR

Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	March 7, 2017	**Barometric Pressure:**	28.24 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	21
Location/Station Name:	986b	**Weather Conditions:**	Mix of sun and clouds
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	shut down
Start Time 24 hr. (mst):	9:57	**Performed By/Reviewer:**	Raja Abid / Trina Whitsitt
End Time 24 hr. (mst):	11:51	**Cal Gas Expiry Date:**	December 1, 2018
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD NOVA CDN 101 s/n 516

Analyzer:

ID# or Serial Number:	1314057760	**Range ppb:**	100
Last Calibration Date:	February 4, 2017	**As Found C.F.:**	0.965
Previous C.F.:	0.998	**New C.F.:**	n/a

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM 002197
Cal Gas Conc. (ppm):	10.3

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

SO2 Scrubber Check (10 mins.)

Start/End Time 24 hr.:	10:17-10:27
Target Concentration (ppb):	780
Result (ppb):	0.1
'Zero Corrected Result (ppb):	0

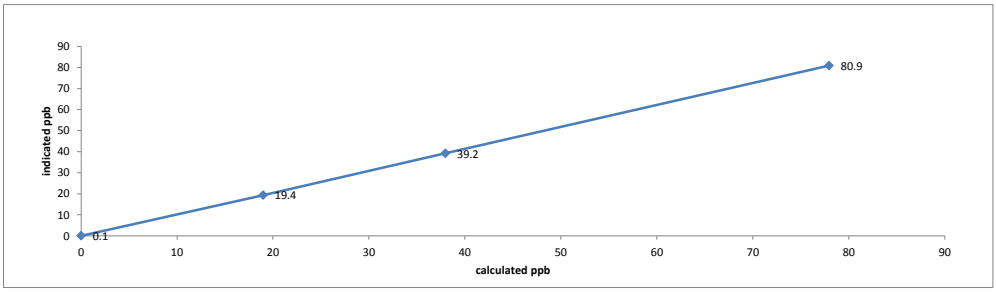
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**(ppb)**	**(ppb)**	
as found zero	7487	0.00	7487	0.0	0.1	n/a
as found high	7432	56.67	7489	77.9	80.9	0.965
mid	7460	27.60	7488	38.0	39.2	0.971
low	7476	13.80	7490	19.0	19.4	0.983
					Average C.F.=	0.973

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	**1.000**	**> or = 0.995**
Slope =	**0.963**	**0.90-1.10**
b (Intercept as % of full scale)=	**0.10%**	**± 3% F.S.**
% change in C.F. from last cal=	**3.34%**	**± 10%**

Thermo 43i Total Reduced Sulphur Analyzer Calibration



	As found:	As left:
BKG:	12.0	n/a
COEF:	1.062	n/a
PMT:	-609.8	n/a
FLASH:	931	n/a
INTERNAL:	29.1	n/a
CHAMBER:	45.0	n/a
PERM OVEN GAS:	44.99	n/a
PERM OVEN HEATER:	44.55	n/a
PRESSURE:	666.6	n/a
SAMPLE FLOW:	0.424	n/a
LAMP INTENSITY:	86	n/a
CONVERTER:	820	n/a
CONVERTER SET:	820	n/a
Expected Value:	n/a	n/a

Comments:

Shut down calibration was performed to install the Thermo 43i TRS TL analyzer.
Dip at 11:06 is due to an initial incorrect data entry for mid-point.

Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	March 7, 2017	**Barometric Pressure:**	28.24 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	21
Location/Station Name:	986b	**Weather Conditions:**	Mix of sun and clouds
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	installation
Start Time 24 hr. (mst):	12:56	**Performed By/Reviewer:**	Raja Abid / Trina Whitsitt
End Time 24 hr. (mst):	16:05	**Cal Gas Expiry Date:**	December 1, 2018
Calibration Method:	Gas Dilution	**Converter Model & s/n (if applicable):**	CD NOVA CDN 101 s/n 516

Analyzer:

ID# or Serial Number:	1152940011	**Range ppb:**	100
Last Calibration Date:	n/a	**As Found C.F.:**	n/a
Previous C.F.:	n/a	**New C.F.:**	1.000

Calibrator:

Flow Meter ID's:	n/a
Make & Model:	Environics 6100
Serial #:	4760
Cal Gas Cylinder I.D. # :	BLM 002197
Cal Gas Conc. (ppm):	10.3

Standard Calibration Points for Ranges

Point	ppb
High	78
Mid	38
Low	19

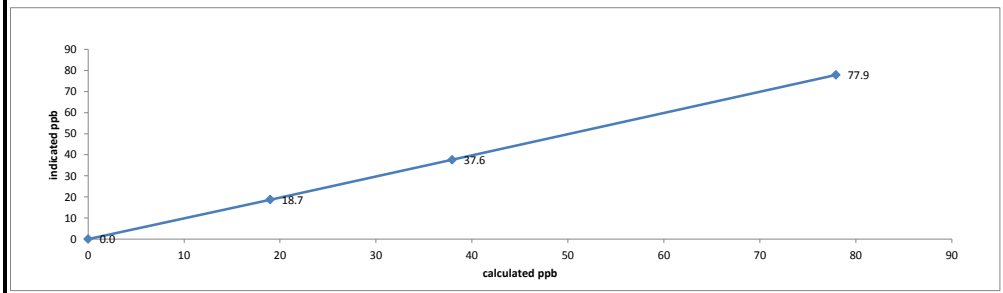
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**(ppb)**	**(ppb)**	
adjusted zero	7489	0.00	7489	0.0	0.0	n/a
adjusted high	7433	56.67	7490	77.9	77.9	1.000
mid	7460	27.58	7488	37.9	37.6	1.009
low	7476	13.80	7490	19.0	18.7	1.015
calibrator zero	7489	0.00	7489	0.0	0.2	n/a
					Average C.F.=	1.008

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	**1.000**	**> or = 0.995**
Slope =	**1.000**	**.95-1.05**
b (Intercept as % of full scale)=	**0.18%**	**± 3% F.S.**
% change in C.F. from last cal=	**n/a**	**± 10%**

Thermo 43i Total Reduced Sulphur Analyzer Calibration



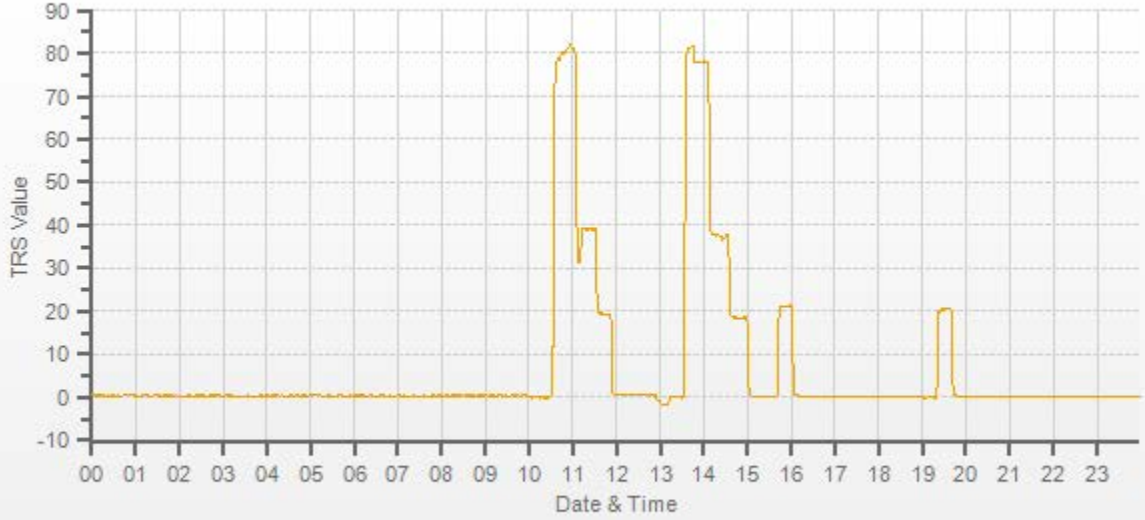
	As found:	As left:
BKG:	3.57	1.88
COEF:	0.946	0.933
PMT:	-687.5	-687.1
FLASH:	976	978
INTERNAL:	30.5	30.2
CHAMBER:	44.9	45.00
PERM OVEN GAS:	35.32	34.99
PERM OVEN HEATER:	34.41	34.21
PRESSURE:	661.7	661.7
SAMPLE FLOW:	0.473	0.473
LAMP INTENSITY:	91	91
CONVERTER:	820	820
CONVERTER SET:	820	820
Expected Value:	46.7	39.4

Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

TRS[ppb] Station: PRAMP_986 Daily: 2017/03/07 Type: AVG 1 Min. [1 Min.]



TOTAL HYDROCARBON

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 7, 2017	**Barometric Pressure:**	28.24 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	21
Location/Station Name:	986b	**Weather Conditions:**	Mix of sun and clouds
Parameter:	CH_4 / NMHC / THC	**Calibration Purpose:**	routine monthly
Start/End Time 24 hr. (mst):	10:04/13:12	**Performed By/Reviewer:**	Raja Abid / Trina Whitsitt
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	January 9, 2021

Analyzer:

ID# or Serial Number:	1022143392
Measured Flow:	n/a
Last Calibration Date:	February 5, 2017
Range ppm:	20 CH4/20 NMHC/40 THC

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	1.001	0.986	1.000
NMHC =	1.001	0.957	0.999
THC =	1.001	0.971	1.000

Calibrator:

Flow Meter ID's:	n/a		
Make & Model:	API 700		
Serial #:	829		
Cal Gas Cylinder I.D. # :	LL 19272		
CH4 Cylinder Conc.=	880.0	304.0	**=C_3H_8 Cylinder Conc.**
CH_4 as C_3H_8=	836.0	1716.0	**=total CH_4 equivilant**

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	2996	0.00	2996	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2950	50.00	3000	14.67	13.93	28.60	14.87	14.56	29.45	0.986	0.957	0.971
adjusted zero	2996	0.00	2996	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2950	50.00	3000	14.67	13.93	28.60	14.67	13.95	28.60	1.000	0.999	1.000
mid	2973	25.00	2998	7.34	6.97	14.31	7.37	6.98	14.35	0.996	0.999	0.997
low	2988	12.00	3000	3.52	3.34	6.86	3.55	3.34	6.86	0.992	1.001	1.001
calibrator zero	2996	0.00	2996	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.996	1.000	0.999

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coeffecient =	**1.000**	**1.000**	**1.000**	**> or = 0.995**
Slope =	**1.000**	**1.001**	**1.000**	**.95-1.05**
b (Intercept as % of full scale)=	**0.09%**	**-0.02%**	**0.02%**	**± 3% F.S.**
% change in C.F. from last cal=	**1.47%**	**4.40%**	**2.98%**	**± 10%**

		As found:				As left:
Interface Board Voltages:	Bias Supply:	-311.0		Calibration History cnt'd:	NM Peak Area:	n/a
Temperatures:	Detector Oven:	174.9		Crucial Settings:	Methane Start:	n/a
	Filter:	175			Methane End:	n/a
	Column Oven:	74.9			Backflush:	n/a
	Internal:	34.4			NMHV Start:	n/a
Cylinder Pressures/reg.:	Carrier:	1700	50		NMHC End:	n/a
	Fuel:	1800	50	Run History>1:	Date:	07Mar17
	Span Gas:	1100	28		Time:	10:13
	Zero Air Generator:	45			CH_4 PK HT:	0
Internal Pressures:	Carrier:	31.3			CH_4 RT:	8.0
	Fuel:	40.5			CH_4 Baseline:	1615
	Air:	32.4			CH_4 LOD:	22
FID Status:	Status:	LIT			CH_4 SD:	7
	Counts:	20120			CH_4 CONC:	0.00
	Flame:	305.9			NM PK HT:	0
	Det Base:	175.0			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	22Feb2017			NM CONC:	0.00
	Flameouts:	1			NM Base Start:	1620
	Det Oven at Start:	170.6			NM Base End:	16+12
	Col Oven at Start:	74.7			NM LOD:	12
Calibration History:	Time:	n/a			NM Start IDX:	15
	Type:	n/a			NM End IDX:	48
	Status:	n/a			NM Max Slope:	4.9e-01
	Check/Adjust:	n/a			NM Min Slope:	-4.3e-01
	CH_4 Span Conc:	n/a			NM PT Count:	0
	CH_4 SP Ratio:	n/a		Expected Values:	Previous CH4:	9.198
	CH_4 RT:	n/a			Previous NMHC	11.36
	CH_4 PK IDX:	n/a			Previous THC:	20.56
	CH_4 PK HT:	n/a			New CH4:	8.87
	NM Span Conc:	n/a			New NMHC	10.73
	NM SP Ratio:	n/a			New THC:	19.61

Comments:

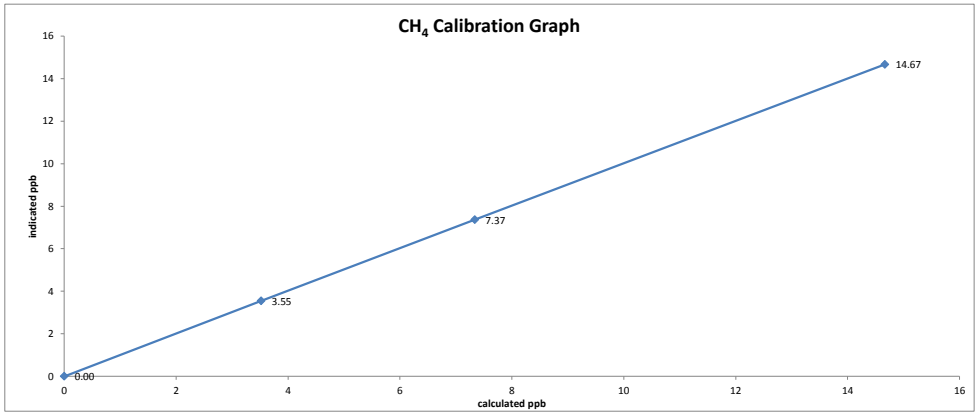
The analyzer sample inlet filter was changed.

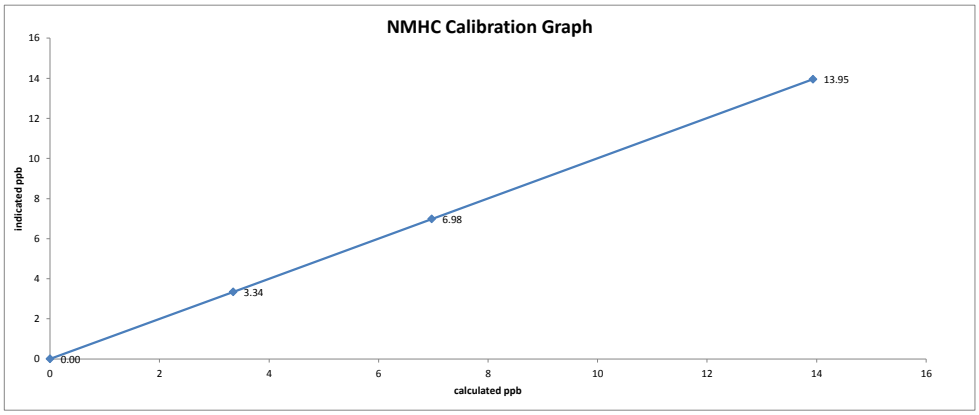
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

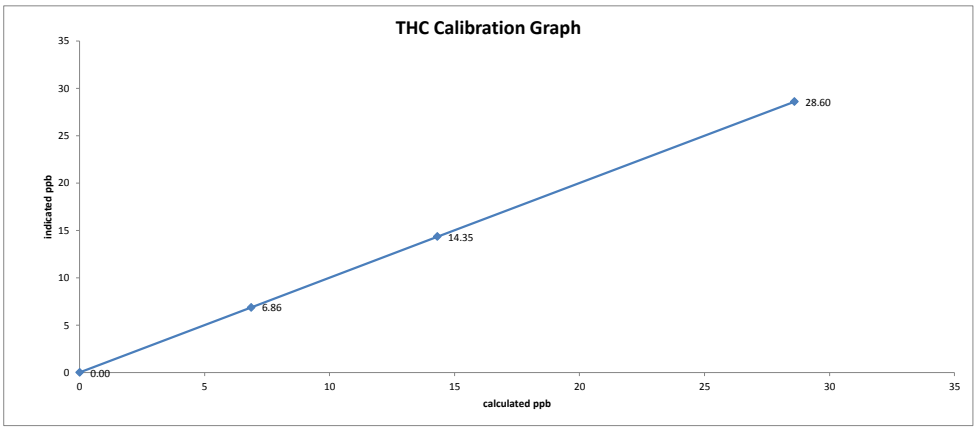
The analyzer cooling fan filter(s) were cleaned.

The drift in readings between the calibrator zero and the IZS occurred while disconnecting the calibrator and connecting the sample line.

Date:	**March 7, 2017**	**Start/End Time 24 hr. (mst):**	**10:04/13:12**
Company/Airshed:	**PRAMP**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**986b**	**Calibration Method:**	**Gas Dilution**







Station: PRAMP_986 Daily: 2017/03/07 Type: AVG 1 Min. [1 Min.]

WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Chris Wesson
Audit Location:	986b	**Reviewed By:**	Trina Whitsitt
Audit Date:	February 15, 2017	**Start /EndTime (mst):**	18:53/19:05

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200
Serial #:	129612	**Direction Voltage Output Range:**	0-1
Previous Cal/Audit Date:	January 5, 2017	**Direction Unit Output Range:**	0-360

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	17.6	17.7	17.7	0.995
2000	35.3	35.3	35.3	0.999
3000	52.9	52.9	52.9	1.000
4000	70.6	70.6	70.6	1.000
5000	88.2	88.2	88.2	1.000
6000	105.8	105.9	105.9	0.999
7000	123.5	123.6	123.6	0.999
8000	141.1	141.3	141.3	0.999
9000	158.8	159.0	159.1	0.998
10000	176.4	176.8	176.8	0.998
		The audit meets AMD requirements.	**Average Correction Factor=**	**0.999**

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	0.3	2.1	1.2
30	330	30	330	0.5	0.3	0.4
60	300	60	301	0.3	-0.9	0.6
90	270	90	272	0.1	-2.1	1.1
120	240	120	242	-0.1	-2.2	1.1
150	210	151	213	-1.0	-2.6	1.8
180	180	182	182	-2.0	-2.1	2.1
210	150	212	152	-2.0	-1.9	2.0
240	120	242	122	-2.0	-1.5	1.8
270	90	272	92	-1.5	-1.5	1.5
300	60	301	61	-1.0	-0.8	0.9
330	30	330	31	0.4	-1.4	0.9
355	0	353	0	2.1	0.4	1.3
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**1.3**

Comments:

CALIBRATORS

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2016-441A

Company Maxxam **Operator:** Chris

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

Dilution Flow (sccm)

Pt. #1 4846 Pt. #2 4888 Pt. #3 4908

Gas Flow (sccm)

Pt. #1 80.6 Pt. #2 38.9 Pt. #3 18.4

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
	0.0	0.0000	0.0000	0.0000	0.0001	0.0001	Limit ± 10%	
4927	80.6	0.8016	0.8016	0.8021	0.0015	0.8036	0.1%	0.2%
4927	38.9	0.3867	0.3867	0.3862	0.0001	0.3863	-0.1%	-0.1%
4927	18.4	0.1830	0.1830	0.1820	0.0004	0.1824	-0.5%	-0.4%
						Absolute Average Percent Difference	0.2%	0.1%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0010	**0.90-1.10**	m (Slope)=	1.0027
b (Intercept % of FS)=	-0.0604	**± 3% F.S.**	b (Intercept % of FS)=	-0.0652

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
						NO_2	% Diff. Limit
4927	0	0.0000	0.8016	0.0010	0.8020	-0.7%	± 10%
4927	500	0.5450	0.2566	0.5421	0.7987	-0.4%	± 10%
4927	250	0.2797	0.5219	0.2797	0.8016	-0.6%	± 10%
4927	80	0.0954	0.7062	0.0958	0.8026	1%	± 10%
					Absolute Average Percent Difference		

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9931	**0.90-1.10**
b (Intercept % of FS)=	0.1220	**± 3% F.S.**

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

COMMENTS:

Auditor: Shea Beaton Date: January 27, 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

aemera.org

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

aemera.org

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-112CGA

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

Cylinder #: BLM002197 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
5017	0.0	0.000			
5054	37.96	0.078	0.00751	133.140	10.4
5055	17.78	0.037	0.00352	284.308	10.4
5029	9.07	0.019	0.00180	554.465	10.3
				Average Cylinder Concentration:	**10.3**

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: **0.5**

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

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-031CGA

Company: Maxxam **Operators name:** Limin Li

Cylinder #: LL19272 Conc CH4 (PPM) 880/304 Tolerance (%) 2 Certified By: Praxair

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

Instrument Settings Zero: N/A Span: N/A Range: 20

Last Calibration: Date: May 21/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/	Concentration	Cylinder Concentration	
Dilution	Gas	CH4	C3H8	Dilution Flow	Factor	CH4	C3H8
2600	0.0	0.00	0.00				
2569	51.5	17.77	16.76	0.02005	49.883	886	304
3549	22.3	5.56	5.27	0.00628	159.148	885	305
3523	10.4	2.63	2.49	0.00295	338.750	891	307
					Average Cylinder Concentration:	**887**	**305**

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

Cylinder gas tolerances based on CH4 only

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

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

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

Auditor: Al Clark Date: May 21, 2015

Operator Signature: 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	**Three Creeks 986b 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

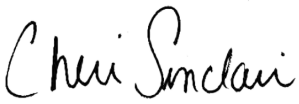
20-04-2017

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee **Project #:** 8449-2017-03-67-C
Site: Three Creeks 986b Station **Contact:** Karla Reesor

Level 0 Preliminary Verification		**Date**	10-April-17
Level 1 Primary Validation		**Date**	18-April-17
Level 2 Final Validation		**Date**	20-April-17
Level 3 Independent Data Review		**Date**	20-April-17
Post-Final Validation	**NA**	**Date**	**NA**

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