MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary, AB
T2E 6P7

maxxam.ca
Toll Free 800-386-7247
Fax 403-219-3673

AMBIENT AIR MONITORING MONTHLY DATA REPORT

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

THREE CREEKS 986B STATION

JOB #: 8449-2017-04-67-C

April 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **May 24, 2017**

Prepared by:

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

Reviewed by:

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

SUMMARY

In April 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.

Wind Speed: Following the wind system upgrade in February 2017, it was discovered that the manufacturer had made an error in units that resulted in data being under-reported by 0.45%. The wind system was calibrated on April 5, during which the wind speed gain was adjusted. This offset was corrected for data collected between April 1 and April 5.

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	13, 13	3, 4	8.7	E	1	29	100.0
TRS (ppb)	-	-	-	-	0.26	0.50	11	5	7.4	NNW	0.32	1, 2	100.0
THC (ppm)	-	-	-	-	1.92	2.52	25	0	6.6	SE	1.98	25	100.0
CH_4 (ppm)	-	-	-	-	1.92	2.52	25	0	6.6	SE	1.97	25	100.0
NMHC (ppm)	-	-	-	-	0.00	0.02	8	0	8.0	E	0.00	ALL	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	66	97	14, 29	VAR, VAR	VAR VAR	VAR VAR	94	14	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	941	956	22	VAR	VAR	VAR	955	21	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	3.0	15.3	29	16	5.0	W	7.4	29	100.0
STATION TEMPERATURE (°C)	-	-	-	-	21.3	22.9	6	4	4.7	SE	21.7	14, 20	100.0
VECTOR WS (kph)	-	-	-	-	2.4	20.0	5	8	-	SSE	11.2	13	100.0
VECTOR WD (sec)	-	-	-	-	90 (E)	-	-	-	-	-	-	-	100.0

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	April

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	0.002	ppm	0	0.001	ppm	0
TRS	1	100.0	0.001	ppm	-	0.000	ppm	-
THC	1	100.0	2.52	ppm	-	1.98	ppm	-
CH_4	1	100.0	2.52	ppm	-	1.97	ppm	-
NMHC	1	100.0	0.02	ppm	-	0.00	ppm	-
RH	1	100.0	97	%	-	94	%	-
BP	1	100.0	956	mb	-	955	mb	-
Ambient TPX	1	100.0	15.3	°C	-	7.4	°C	-
Station TPX	1	100.0	22.9	°C	-	21.7	°C	-
Wind Speed	1	100.0	20	kph	-	11	kph	-
Wind Direction	1	100.0	-		-	-		-

	FOR ALBERTA ENVIRONMENT USE ONLY
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.

TABLE OF CONTENTS

Title		Page
SUMMARY		1
MONTHLY CONTINUOUS DATA SUMMARY REPORT		2
SOUR GAS SUMMARY REPORT		3
EXCEEDANCE SUMMARY REPORT		4
TABLE OF CONTENTS		5
1.0 Discussion		7
2.0 Project Personnel		9
3.0 Plant Monthly Required AMD Summary		9
4.0 Calculations and Results		9
5.0 Methods and Procedures		10
Appendix I	Continuous Monitoring Data Results	13
	Sulphur Dioxide	14
	Total Reduced Sulphur	22
	Total Hydrocarbon	30
	Methane	38
	Non-Methane Hydrocarbon	46
	Wind Speed	54
	Wind Direction	61
	Relative Humidity	64
	Barometric Pressure	67
	Ambient Temperature	70
	Station Temperature	73
Appendix II	Equipment Calibration Results	76
	Sulphur Dioxide	77
	Total Reduced Sulphur	80
	Total Hydrocarbon	83
	Wind System	87
	Calibrators	90

	Calibration Gases	93
Appendix III	Report Certification Form	97
Appendix IV	Data Validation Certification Form	99

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)

• Operational time, for the monitoring period, was 100%.
• The routine monthly calibration was performed on April 18.
• Maximum instantaneous data collected after the April 18 calibration appear to be lower than data collected prior to the calibration. This exists because for instantaneous data, negative readings are corrected to zero, but baseline zero corrections are not applied.

TOTAL REDUCED SULPHUR (TRS)

• Operational time, for the monitoring period, was 100%.
• The routine monthly calibration was performed on April 18.

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

• Operational time, for the monitoring period, was 100%.
• The routine monthly calibration was performed on April 18.
• The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month.

WIND SPEED (WS) and WIND DIRECTION (WD)

• Operational time, for the monitoring period, was 100%.
• The wind system was calibrated on April 5.
• Following the wind system upgrade in February 2017, it was discovered that the manufacturer had made an error in units that resulted in data being under-reported by 0.45%. The wind system was calibrated on April 5, during which the wind speed gain was adjusted. This offset was corrected for data collected between April 1 and April 5.
• Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

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

BAROMETRIC PRESSURE (BP)

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

AMBIENT TEMPERATURE (AmbTPX)

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

STATION TEMPERATURE (StnTPX)

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

2.0 Project Personnel

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

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 43C UV Flourescent Analyzer
Total Reduced Sulphur - Thermo 43i UV Flourescent Analyzer
Total Hydrocarbons - Thermo 55i FID 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

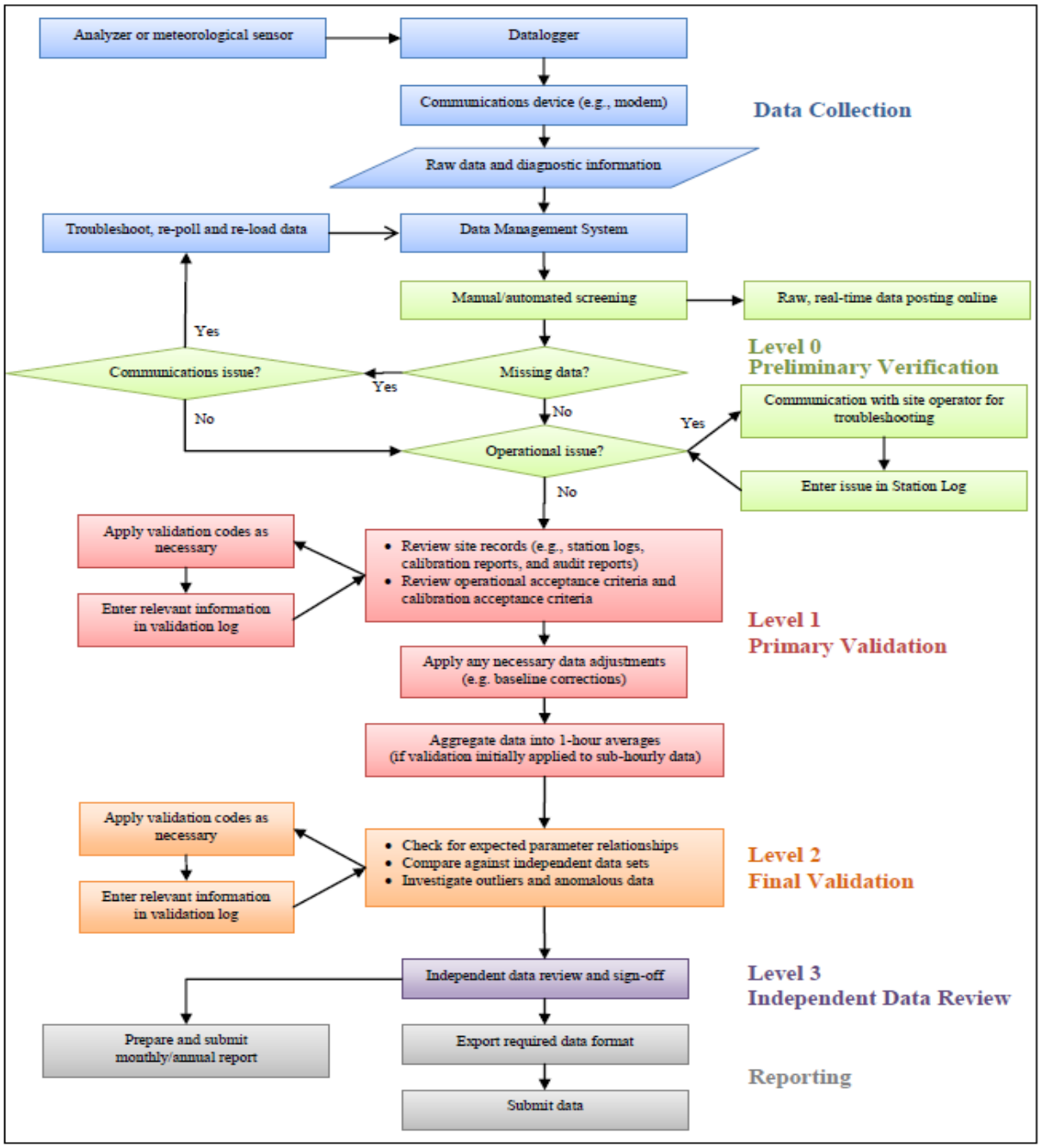
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

STATUS FLAG CODES

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

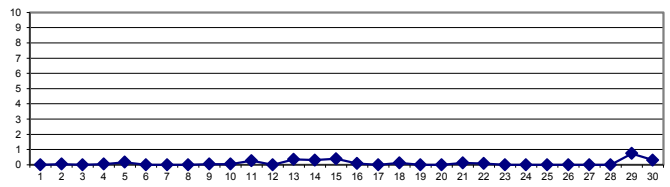
OBJECTIVE LIMIT: **ALBERTA ENVIRONMENT:** 1-HR 172 ppb | 24-HR 48 ppb

MONTHLY SUMMARY

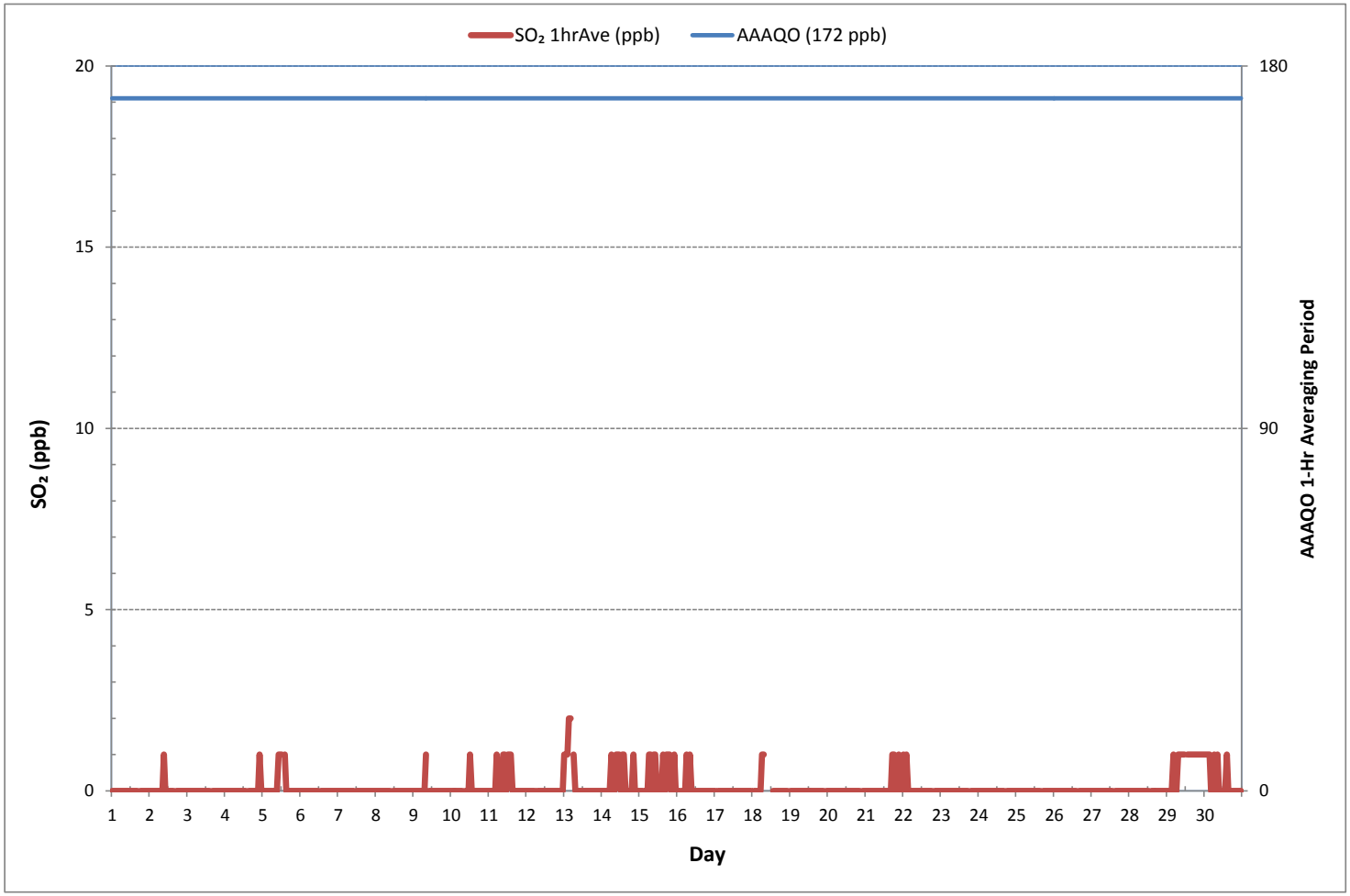
NUMBER OF 1-HR EXCEEDANCES:	0					
NUMBER OF 24-HR EXCEEDANCES:	0					
NUMBER OF NON-ZERO READINGS:	69					
MINIMUM 1-HR AVERAGE	0	ppb	@ HOUR	VAR	ON DAY	ALL
MAXIMUM 1-HR AVERAGE:	2	ppb	@ HOUR	3, 4	ON DAY	13, 13
MAXIMUM 24-HR AVERAGE:	1	ppb			ON DAY	29

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:	0	ppb

24 HR AVERAGES April 2017



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

STATUS FLAG CODES

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

MONTHLY SUMMARY

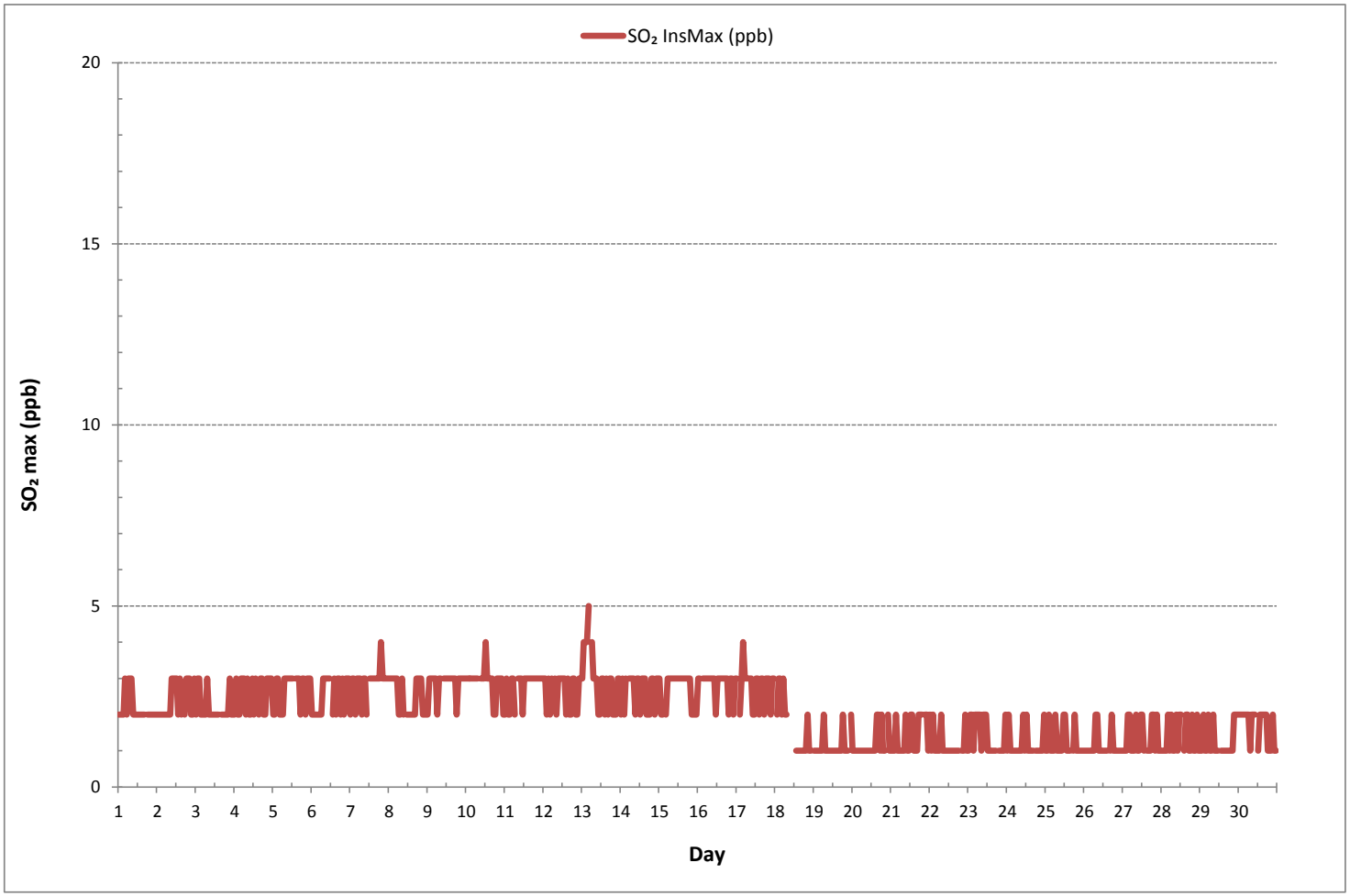
NUMBER OF NON-ZERO READINGS: 684

MAXIMUM INSTANTANEOUS VALUE: 5 ppb @ HOUR 4 ON DAY 13

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 1

OPERATIONAL TIME: 720 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO_2 ppb)



Wind: PRAMP_986
Poll.: PRAMP_986-SO2[ppb]
Monthly: 2017/04
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

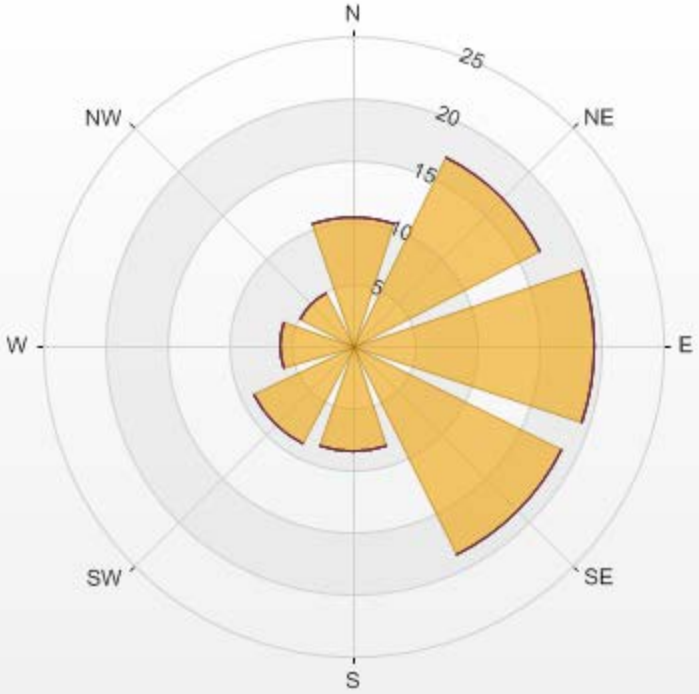
Calm: 6.16%

Calm Avg: 0.13 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	10.4	0.0	0.0	0.0	0.0	10.4
NE	17.0	0.0	0.0	0.0	0.0	17.0
E	19.5	0.0	0.0	0.0	0.0	19.5
SE	18.9	0.0	0.0	0.0	0.0	18.9
S	8.5	0.0	0.0	0.0	0.0	8.5
SW	8.9	0.0	0.0	0.0	0.0	8.9
W	5.9	0.0	0.0	0.0	0.0	5.9
NW	4.7	0.0	0.0	0.0	0.0	4.7
Summary	93.8	0.0	0.0	0.0	0.0	93.8

% Icon Classes (ppb)	94 0-3	0 3-10	0 10-85	0 85-170	0 >170.0

PRAMP_986 Poll.: PRAMP_986-SO2[ppb] 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.16% Calm Poll Avg: 0.13[ppb]



SO2[ppb] Calibration: PRAMP_986 Monthly: 04/2017 Type: Span

TOTAL REDUCED SULPHUR

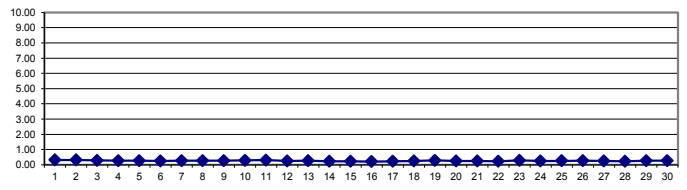
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.35	0.34	0.32	0.44	0.34	0.30	0.28	0.27	0.29	0.30	0.31	0.31	0.33	0.32	0.31	0.31	0.31	S	0.33	0.31	0.33	0.33	0.32	0.31	0.27	0.44	**0.32**	24
2	0.32	0.32	0.32	0.31	0.33	0.32	0.32	0.32	0.33	0.34	0.34	0.34	0.32	0.30	0.31	0.30	S	0.31	0.31	0.31	0.27	0.31	0.33	0.29	0.27	0.34	**0.32**	24
3	0.32	0.30	0.30	0.29	0.29	0.28	0.34	0.33	0.35	0.26	0.24	0.23	0.24	0.25	0.25	S	0.27	0.26	0.26	0.27	0.29	0.32	0.32	0.35	0.23	0.35	0.29	24
4	0.33	0.31	0.28	0.26	0.25	0.28	0.28	0.27	0.26	0.26	0.26	0.24	0.24	0.25	S	0.26	0.25	0.25	0.25	0.24	0.27	0.25	0.27	0.27	0.24	0.33	0.26	24
5	0.26	0.27	0.26	0.25	0.24	0.25	0.24	0.26	0.25	0.27	0.27	0.28	0.29	S	0.29	0.28	0.25	0.25	0.24	0.25	0.30	0.27	0.27	0.26	0.24	0.30	0.26	24
6	0.27	0.24	0.25	0.27	0.25	0.23	0.22	0.22	0.23	0.23	0.21	0.20	S	0.25	0.22	0.20	0.20	0.21	0.23	0.23	0.29	0.34	0.28	0.31	0.20	0.34	0.24	24
7	0.32	0.30	0.27	0.25	0.28	0.30	0.28	0.29	0.26	0.30	0.28	S	0.29	0.26	0.27	0.26	0.26	0.25	0.25	0.25	0.26	0.26	0.25	0.28	0.25	0.32	0.27	24
8	0.30	0.29	0.31	0.31	0.29	0.29	0.30	0.29	0.27	0.26	S	0.28	0.25	0.25	0.23	0.23	0.23	0.23	0.23	0.24	0.25	0.25	0.26	0.24	0.23	0.31	0.26	24
9	0.25	0.23	0.24	0.24	0.26	0.27	0.27	0.27	0.29	S	0.32	0.28	0.26	0.25	0.26	0.26	0.25	0.27	0.25	0.27	0.27	0.29	0.28	0.28	0.23	0.32	0.27	24
10	0.33	0.31	0.40	0.38	0.33	0.30	0.29	0.31	S	0.31	0.28	0.28	0.26	0.25	0.24	0.24	0.25	0.24	0.26	0.26	0.26	0.26	0.27	0.27	0.24	0.40	0.29	24
11	0.27	0.27	0.38	0.42	0.46	**0.50**	0.44	S	0.34	0.31	0.28	0.27	0.26	0.27	0.26	0.26	0.26	0.25	0.25	0.28	0.24	0.24	0.24	0.24	0.24	**0.50**	0.30	24
12	0.23	0.23	0.23	0.22	0.24	0.24	S	0.29	0.29	0.24	0.23	0.23	0.21	0.21	0.22	0.23	0.23	0.23	0.21	0.24	0.26	0.25	0.26	0.29	0.21	0.29	0.24	24
13	0.30	0.28	0.30	0.31	0.36	S	0.34	0.29	0.27	0.24	0.25	0.25	0.22	0.26	0.27	0.27	0.24	0.25	0.24	0.26	0.24	0.27	0.29	0.29	0.22	0.36	0.27	24
14	0.23	0.22	0.23	0.23	S	0.28	0.26	0.25	0.24	0.24	0.23	0.23	0.21	0.21	0.22	0.21	0.21	0.20	0.20	0.20	0.21	0.21	0.21	0.20	0.20	0.28	0.22	24
15	0.22	0.20	0.20	S	0.25	0.21	0.22	0.22	0.21	0.22	0.21	0.21	0.22	0.22	0.21	0.21	0.26	0.24	0.23	0.23	0.24	0.23	0.23	0.21	0.20	0.26	0.22	24
16	0.22	0.22	S	0.24	0.22	0.22	0.21	0.22	0.23	0.22	0.20	0.20	0.20	0.21	0.22	0.20	0.21	0.21	0.20	0.21	0.22	0.25	0.20	0.26	0.20	0.26	0.22	24
17	0.29	S	0.33	0.28	0.25	0.25	0.25	0.27	0.27	0.25	0.22	0.22	0.21	0.20	0.22	0.20	0.20	0.19	0.20	0.20	0.21	0.20	0.20	0.18	0.18	0.33	0.23	24
18	S	0.21	0.18	**0.17**	0.18	**0.17**	**0.17**	**0.17**	C	C	C	C	C	0.36	0.24	0.24	0.24	0.24	0.28	0.31	0.37	0.28	0.26	S	**0.17**	0.37	0.24	24
19	0.34	0.26	0.26	0.25	0.28	0.28	0.27	0.28	0.30	0.31	0.30	0.30	0.28	0.28	0.30	0.29	0.28	0.28	0.29	0.29	0.28	0.29	S	0.35	0.25	0.35	0.29	24
20	0.28	0.28	0.27	0.27	0.27	0.27	0.24	0.27	0.25	0.24	0.22	0.23	0.23	0.23	0.28	0.28	0.25	0.23	0.24	0.23	0.22	S	0.26	0.23	0.22	0.28	0.25	24
21	0.24	0.23	0.23	0.24	0.22	0.23	0.25	0.27	0.26	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.21	0.24	0.23	0.24	S	0.30	0.25	0.24	0.21	0.30	0.24	24
22	0.47	0.32	0.38	0.28	0.24	0.25	0.23	0.22	0.20	0.22	0.20	0.20	0.20	0.20	0.18	**0.17**	0.18	**0.17**	0.18	S	0.22	0.21	0.20	0.24	**0.17**	0.47	0.23	24
23	0.31	0.22	0.37	0.33	0.24	0.27	0.27	0.28	0.30	0.31	0.26	0.25	0.25	0.25	0.27	0.29	0.29	0.27	S	0.33	0.30	0.29	0.29	0.26	0.22	0.37	0.28	24
24	0.26	0.28	0.29	0.28	0.25	0.25	0.25	0.24	0.24	0.25	0.24	0.24	0.26	0.26	0.25	0.25	0.25	S	0.29	0.26	0.26	0.25	0.25	0.24	0.24	0.29	0.26	24
25	0.28	0.26	0.24	0.26	0.25	0.23	0.27	0.26	0.28	0.27	0.24	0.22	0.24	0.24	0.27	0.27	S	0.27	0.24	0.26	0.26	0.28	0.27	0.27	0.22	0.28	0.26	24
26	0.28	0.28	0.27	0.27	0.26	0.26	0.27	0.27	0.26	0.27	0.27	0.27	0.26	0.25	0.26	S	0.29	0.26	0.25	0.25	0.26	0.25	0.27	0.25	0.25	0.29	0.26	24
27	0.26	0.27	0.25	0.26	0.29	0.26	0.26	0.25	0.26	0.25	0.25	0.25	0.24	0.23	S	0.25	0.24	0.23	0.21	0.23	0.23	0.23	0.24	0.25	0.21	0.29	0.25	24
28	0.23	0.25	0.23	0.23	0.23	0.23	0.25	0.24	0.23	0.21	0.21	0.21	0.21	S	0.25	0.22	0.21	0.21	0.21	0.21	0.24	0.23	0.27	0.43	0.21	0.43	0.24	24
29	0.42	0.34	0.32	0.31	0.31	0.31	0.29	0.27	0.27	0.26	0.25	0.25	S	0.26	0.24	0.24	0.22	0.23	0.22	0.22	0.26	0.26	0.25	0.26	0.22	0.42	0.27	24
30	0.24	0.22	0.22	0.23	0.24	0.23	0.24	0.26	0.26	0.22	0.23	S	0.25	0.24	0.22	0.25	0.25	0.24	0.23	0.39	0.45	0.40	0.34	0.28	0.22	0.45	0.27	24
HOURLY MAX	0.47	0.34	0.40	0.44	0.46	0.50	0.44	0.33	0.35	0.34	0.34	0.34	0.33	0.36	0.31	0.31	0.31	0.31	0.33	0.39	0.45	0.40	0.34	0.43				
HOURLY AVG	0.29	0.27	0.28	0.28	0.27	0.27	0.27	0.26	0.27	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.24	0.24	0.26	0.27	0.27	0.26	0.27				

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

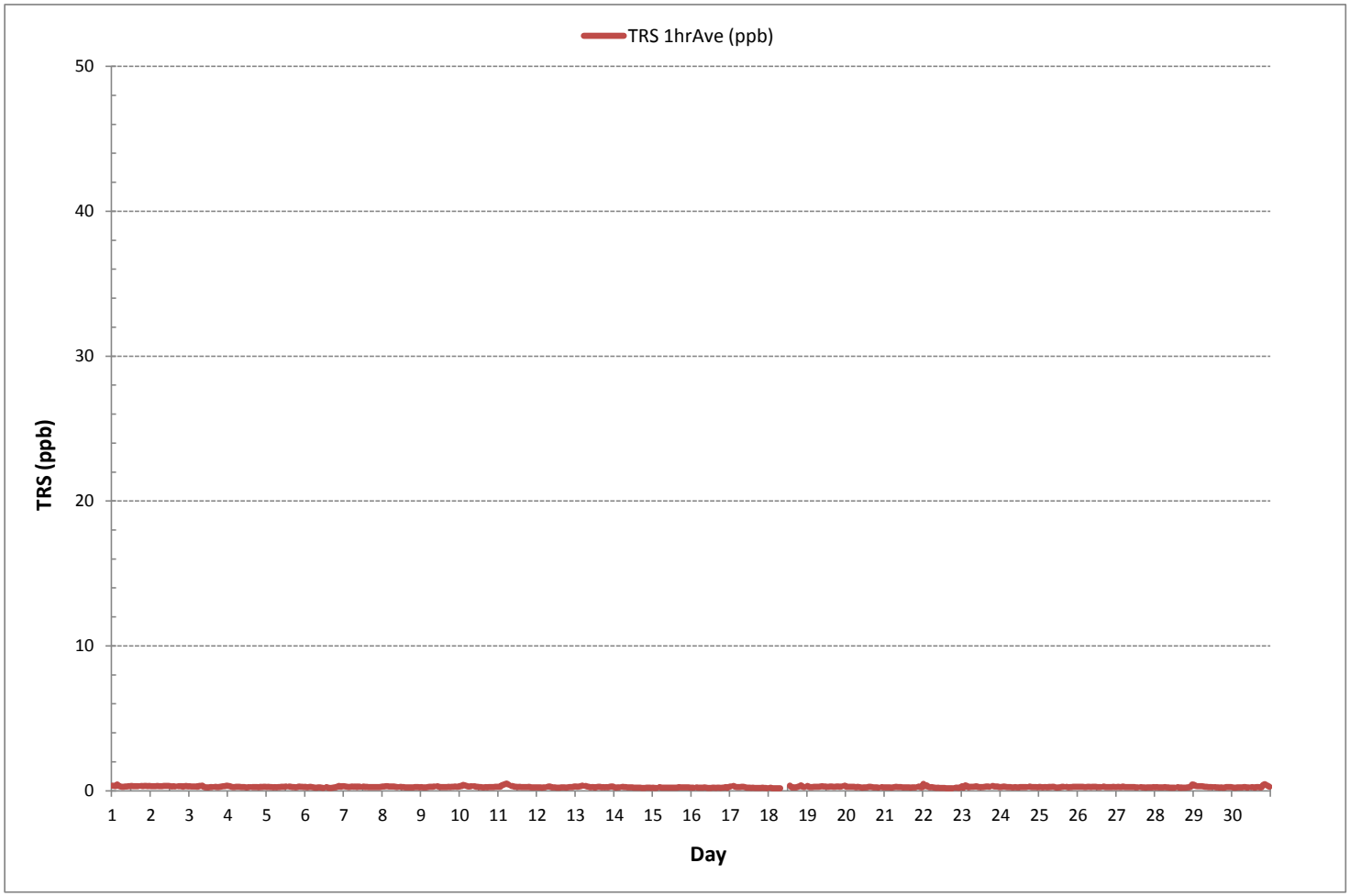
24 HR AVERAGES April 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			684				
MINIMUM 1-HR AVERAGE	0.17	ppb	@ HOUR	VAR, VAR	ON DAY	18, 22	
MAXIMUM 1-HR AVERAGE:	0.50	ppb	@ HOUR	5	ON DAY	11	
MAXIMUM 24-HR AVERAGE:	0.32	ppb			ON DAY	1, 2	
IZS CALIBRATION TIME:	31	hrs		OPERATIONAL TIME:		720	hrs
MONTHLY CALIBRATION TIME:	5	hrs		AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	0.04			MONTHLY AVERAGE:		0.26	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	0.34	0.36	0.31	0.61	0.32	0.29	0.29	0.26	0.26	0.29	0.29	0.31	0.31	0.31	0.33	0.31	0.31	S	0.33	0.31	0.31	0.31	0.36	0.31	0.26	0.61	0.32	24
2	0.31	0.33	0.28	0.29	0.32	0.31	0.31	0.32	0.32	0.36	0.34	0.31	0.34	0.31	0.33	0.28	S	0.36	0.31	0.31	0.26	0.28	0.33	0.29	0.26	0.36	0.31	24
3	0.34	0.29	0.31	0.26	0.33	0.28	0.36	0.33	0.36	0.29	0.26	0.23	0.23	0.26	0.23	S	0.26	0.26	0.26	0.31	0.31	0.44	0.31	0.37	0.23	0.44	0.30	24
4	0.34	0.32	0.27	0.27	0.26	0.28	0.28	0.26	0.26	0.26	0.26	0.23	0.26	0.26	S	0.31	0.23	0.26	0.23	0.23	0.28	0.26	0.28	0.26	0.23	0.34	0.27	24
5	0.27	0.27	0.26	0.28	0.26	0.26	0.23	0.26	0.23	0.29	0.24	0.28	0.28	S	0.31	0.26	0.28	0.23	0.26	0.26	0.36	0.26	0.28	0.28	0.23	0.36	0.27	24
6	0.27	0.26	0.26	0.34	0.27	0.28	0.21	0.23	0.23	0.23	0.21	0.26	S	0.26	0.23	0.21	0.21	0.21	0.21	0.23	0.28	0.42	0.28	0.46	0.21	0.46	0.26	24
7	0.34	0.29	0.26	0.26	0.29	0.26	0.26	0.24	0.21	0.28	0.26	S	0.26	0.23	0.23	0.23	0.26	0.23	0.23	0.23	0.26	0.21	0.23	0.23	0.21	0.34	0.25	24
8	0.28	0.26	0.31	0.26	0.28	0.26	0.28	0.26	0.23	0.23	S	0.28	0.23	0.23	0.21	0.23	0.20	0.21	0.23	0.21	0.23	0.26	0.26	0.27	0.20	0.31	0.25	24
9	0.24	0.22	0.27	0.23	0.26	0.26	0.28	0.26	0.31	S	0.34	0.28	0.26	0.26	0.26	0.23	0.26	0.28	0.25	0.28	0.26	0.28	0.26	0.27	0.22	0.34	0.27	24
10	0.42	0.31	0.44	0.39	0.34	0.36	0.28	0.28	S	0.32	0.28	0.26	0.26	0.26	0.23	0.26	0.26	0.23	0.26	0.26	0.26	0.28	0.28	0.31	0.23	0.44	0.30	24
11	0.31	0.31	0.39	0.42	0.47	0.53	0.53	S	0.34	0.32	0.28	0.26	0.28	0.26	0.26	0.28	0.26	0.26	0.26	0.28	0.23	0.23	0.23	0.26	0.23	0.53	0.32	24
12	0.27	0.24	0.23	0.22	0.22	0.24	S	0.32	0.31	0.26	0.26	0.23	0.23	0.23	0.23	0.26	0.26	0.26	0.23	0.26	0.28	0.28	0.34	0.34	0.22	0.34	0.26	24
13	0.34	0.34	0.37	0.37	0.42	S	0.40	0.31	0.31	0.28	0.28	0.31	0.26	0.28	0.31	0.31	0.26	0.28	0.28	0.26	0.26	0.31	0.31	0.31	0.26	0.42	0.31	24
14	0.26	0.26	0.23	0.23	S	0.32	0.28	0.26	0.23	0.24	0.26	0.26	0.23	0.23	0.23	0.24	0.21	0.23	0.23	0.21	0.23	0.21	0.21	0.26	0.21	0.32	0.24	24
15	0.23	0.20	0.19	S	0.29	0.22	0.23	0.26	0.26	0.24	0.23	0.23	0.23	0.21	0.21	0.23	0.26	0.26	0.23	0.26	0.28	0.22	0.24	0.23	0.19	0.29	0.24	24
16	0.21	0.26	S	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.21	0.21	0.21	0.23	0.26	0.23	0.26	0.23	0.23	0.23	0.23	0.36	0.23	0.31	0.21	0.36	0.24	24
17	0.31	S	0.37	0.31	0.28	0.26	0.28	0.33	0.31	0.28	0.26	0.26	0.28	0.25	0.28	0.28	0.26	0.26	0.28	0.26	0.26	0.26	0.26	0.23	0.23	0.37	0.28	24
18	S	0.31	0.23	0.23	0.23	0.23	0.23	0.23	C	C	C	C	C	0.76	0.28	0.31	0.26	0.31	0.31	0.33	0.47	0.31	0.26	S	0.23	0.76	0.31	24
19	0.52	0.26	0.26	0.23	0.28	0.26	0.26	0.26	0.28	0.31	0.28	0.29	0.26	0.28	0.26	0.28	0.23	0.26	0.28	0.26	0.28	0.31	S	0.44	0.23	0.52	0.29	24
20	0.29	0.27	0.26	0.28	0.28	0.29	0.26	0.26	0.24	0.23	0.25	0.28	0.23	0.24	0.28	0.31	0.26	0.23	0.26	0.23	0.23	S	0.29	0.24	0.23	0.31	0.26	24
21	0.29	0.26	0.26	0.28	0.26	0.26	0.29	0.31	0.29	0.28	0.28	0.28	0.28	0.28	0.31	0.31	0.23	0.31	0.28	0.26	S	0.39	0.31	0.31	0.23	0.39	0.29	24
22	**1.21**	0.76	0.54	0.33	0.31	0.31	0.31	0.28	0.28	0.33	0.26	0.26	0.26	0.26	0.26	0.23	0.26	0.23	0.26	S	0.31	0.26	0.28	0.31	0.23	**1.21**	0.35	24
23	0.41	0.28	0.49	0.49	0.28	0.34	0.31	0.31	0.34	0.36	0.28	0.28	0.31	0.26	0.31	0.34	0.28	0.31	S	0.36	0.33	0.34	0.34	0.28	0.26	0.49	0.33	24
24	0.31	0.31	0.34	0.29	0.28	0.28	0.26	0.23	0.26	0.23	0.23	0.23	0.23	0.26	0.26	0.26	0.28	S	0.31	0.28	0.26	0.28	0.28	0.26	0.23	0.34	0.27	24
25	0.31	0.28	0.28	0.28	0.31	0.26	0.28	0.28	0.31	0.29	0.31	0.26	0.26	0.31	0.31	0.33	S	0.31	0.26	0.28	0.28	0.28	0.28	0.31	0.26	0.33	0.29	24
26	0.31	0.28	0.26	0.28	0.23	0.26	0.28	0.26	0.26	0.26	0.27	0.28	0.26	0.26	0.28	S	0.33	0.28	0.26	0.23	0.26	0.23	0.26	0.23	0.23	0.33	0.27	24
27	0.26	0.31	0.26	0.28	0.31	0.26	0.26	0.26	0.26	0.26	0.23	0.26	0.28	0.23	S	0.26	0.23	0.23	0.26	0.23	0.23	0.28	0.28	0.31	0.23	0.31	0.26	24
28	0.29	0.27	0.29	0.27	0.29	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.26	S	0.28	0.26	0.21	0.23	0.26	0.23	0.28	0.28	0.33	0.49	0.21	0.49	0.28	24
29	0.46	0.39	0.39	0.36	0.36	0.65	0.33	0.29	0.26	0.28	0.23	0.26	S	0.28	0.26	0.23	0.23	0.23	0.23	0.23	0.60	0.26	0.26	0.26	0.23	0.65	0.32	24
30	0.28	0.23	0.26	0.23	0.24	0.23	0.23	0.32	0.28	0.21	0.23	S	0.28	0.28	0.23	0.23	0.23	0.26	0.23	0.57	0.52	0.49	0.33	0.31	0.21	0.57	0.29	24
HOURLY MAX	1.21	0.76	0.54	0.61	0.47	0.65	0.53	0.33	0.36	0.36	0.34	0.31	0.34	0.76	0.33	0.34	0.33	0.36	0.33	0.57	0.60	0.49	0.36	0.49				
HOURLY AVG	0.35	0.30	0.31	0.30	0.29	0.29	0.29	0.27	0.28	0.27	0.26	0.26	0.26	0.28	0.27	0.27	0.25	0.26	0.26	0.27	0.30	0.30	0.28	0.30				

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

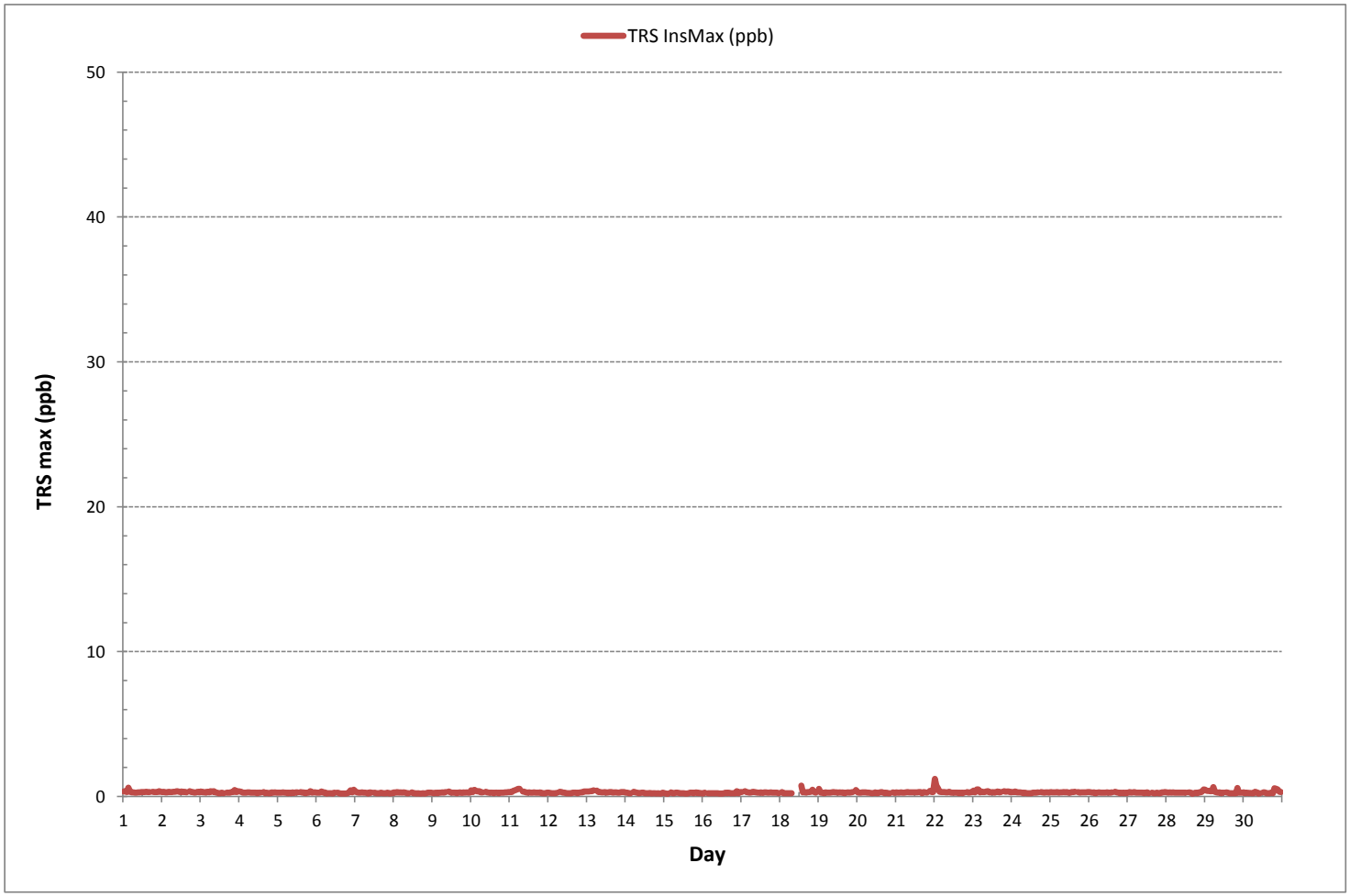
NUMBER OF NON-ZERO READINGS: 684

MAXIMUM INSTANTANEOUS VALUE: 1.21 ppb @ HOUR 0 ON DAY 22

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 5 hrs
STANDARD DEVIATION: 0.07

OPERATIONAL TIME: 720 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



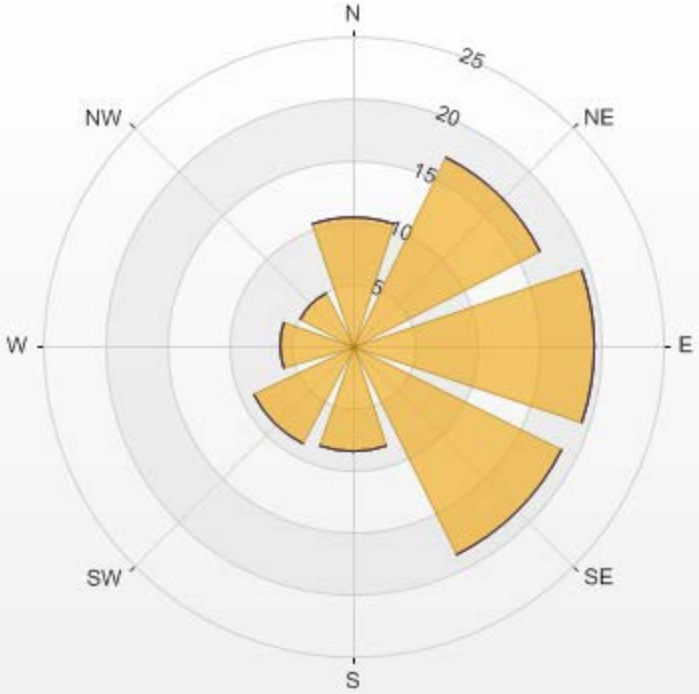
Wind: PRAMP_986
Poll.: PRAMP_986-TRS[ppb]
Monthly: 2017/04
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.16% Calm Avg: 0.29 [ppb]

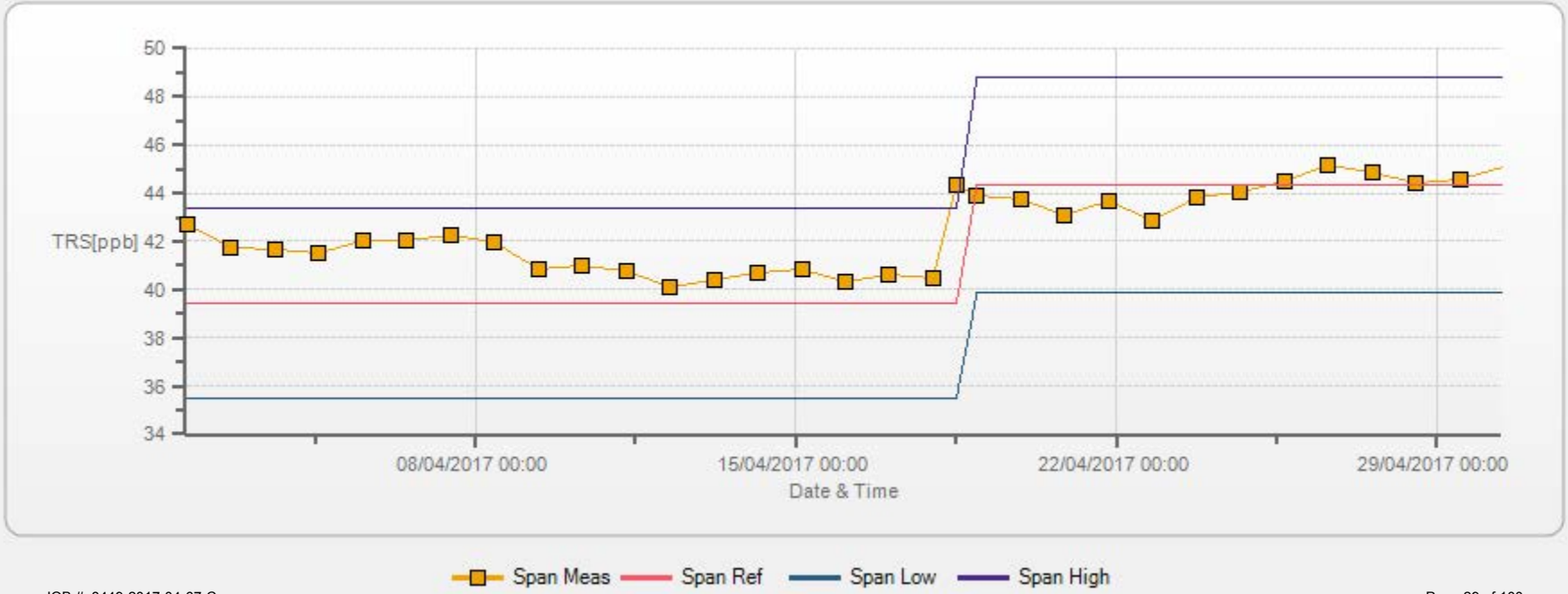
Direction	0-1	1-3	3-10	>10.0	Total
N	10.4	0.0	0.0	0.0	10.4
NE	17.0	0.0	0.0	0.0	17.0
E	19.5	0.0	0.0	0.0	19.5
SE	18.9	0.0	0.0	0.0	18.9
S	8.5	0.0	0.0	0.0	8.5
SW	8.9	0.0	0.0	0.0	8.9
W	5.9	0.0	0.0	0.0	5.9
NW	4.7	0.0	0.0	0.0	4.7
Summary	93.8	0.0	0.0	0.0	93.8

% Icon Classes (ppb)	94 0-1	0 1-3	0 3-10	0 >10.0

PRAMP_986 Poll.: PRAMP_986-TRS[ppb] 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.16% Calm Poll Avg: 0.29[ppb]



TRS[ppb] Calibration: PRAMP_986 Monthly: 04/2017 Type: Span



TOTAL HYDROCARBON

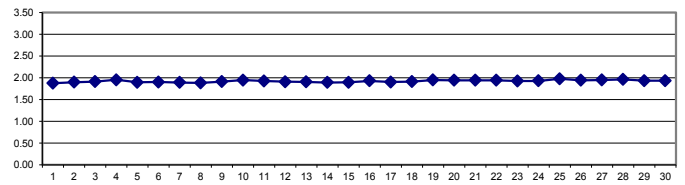
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.87	1.88	1.87	1.87	1.87	1.87	1.87	**1.86**	**1.86**	**S**	**1.86**	**1.86**	1.87	1.87	1.87	1.87	**1.86**	1.88	1.87	24
2	1.88	1.88	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.92	1.92	1.89	1.88	1.89	1.87	**S**	1.88	1.99	1.93	1.90	1.95	1.88	1.95	1.87	1.99	1.90	24
3	1.89	1.88	1.88	1.89	1.91	1.91	1.93	2.03	1.98	1.90	1.90	1.90	1.91	1.89	1.89	**S**	1.90	1.88	1.89	1.89	1.89	1.89	1.92	1.96	1.88	2.03	1.91	24
4	2.03	1.98	1.89	2.11	2.24	1.94	2.03	2.12	1.94	1.90	1.90	1.89	1.90	1.89	**S**	1.89	1.88	1.88	1.88	1.89	1.90	1.90	1.94	1.95	1.88	2.24	1.95	24
5	1.90	1.90	1.89	1.90	1.89	1.89	1.88	1.88	1.89	1.90	1.89	1.90	1.90	**S**	1.90	1.89	1.89	1.88	1.88	1.89	1.89	1.91	1.91	1.93	1.88	1.93	1.89	24
6	1.94	1.92	1.94	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.87	**S**	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.89	2.04	1.90	2.07	1.87	2.07	1.90	24
7	2.02	1.93	1.90	1.89	1.96	1.92	1.93	1.92	1.89	1.87	**1.86**	**S**	**1.86**	**1.86**	**1.86**	1.87	**1.86**	**1.86**	1.87	1.87	1.87	1.87	1.87	1.88	**1.86**	2.02	1.89	24
8	1.89	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	**S**	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.89	1.87	1.90	1.88	24
9	1.90	1.90	1.90	1.91	1.91	1.92	1.92	1.93	1.93	**S**	1.92	1.91	1.90	1.89	1.89	1.90	1.90	1.90	1.90	1.90	1.91	1.93	1.96	1.96	1.89	1.96	1.91	24
10	1.94	1.94	1.98	1.98	1.96	1.97	2.02	2.08	**S**	1.93	1.93	1.93	1.92	1.91	1.90	1.91	1.90	1.89	1.89	1.91	1.93	1.95	1.99	1.97	1.89	2.08	1.94	24
11	1.96	2.12	1.97	1.91	1.91	1.91	1.91	**S**	1.91	1.91	1.91	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	2.12	1.92	24
12	1.91	1.91	1.91	1.92	1.92	1.92	**S**	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.90	1.92	1.91	24
13	1.91	1.92	1.92	1.92	1.92	**S**	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.90	1.89	1.89	1.89	1.89	1.92	1.90	24
14	1.89	1.89	1.89	1.89	**S**	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.89	24
15	1.88	1.89	1.90	**S**	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.91	1.90	1.91	1.91	1.89	1.89	1.90	1.89	1.90	1.90	1.88	1.91	1.89	24
16	1.91	1.90	**S**	1.90	1.91	1.93	1.93	1.92	1.91	1.91	1.93	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.90	1.91	2.27	1.92	1.89	1.90	1.89	2.27	1.93	24
17	1.90	**S**	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.90	1.90	24
18	**S**	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	**C**	**C**	**C**	**C**	1.92	1.92	1.93	1.93	1.93	1.92	1.92	**S**	1.90	1.93	1.91	24
19	1.94	1.93	1.94	1.94	1.96	1.98	2.00	2.00	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	2.01	1.93	1.94	**S**	1.95	1.92	2.01	1.95	24
20	1.93	1.94	1.96	1.95	1.96	1.97	1.98	1.96	1.94	1.95	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	**S**	1.93	1.93	1.93	1.98	1.94	24
21	1.93	1.94	1.93	1.94	1.93	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.94	1.93	1.93	1.94	**S**	1.95	1.95	1.96	1.93	1.96	1.94	24
22	1.97	1.98	1.96	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	**S**	1.93	1.93	1.93	1.93	1.92	1.98	1.94	24
23	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.92	1.92	**S**	1.92	1.92	1.92	1.92	1.92	1.91	1.93	1.92	24
24	1.92	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	**S**	1.91	1.91	1.91	1.92	1.98	2.23	1.91	2.23	1.93	24
25	**2.52**	1.97	1.95	1.98	2.06	1.97	1.95	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	**S**	1.93	1.93	1.94	1.95	1.96	1.97	1.97	1.93	**2.52**	**1.98**	24
26	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.93	**S**	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.92	1.96	1.94	24
27	1.94	1.93	1.94	1.94	1.97	1.98	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.93	**S**	1.93	1.93	1.93	1.93	1.94	1.96	1.96	1.99	2.01	1.93	2.01	1.95	24
28	2.00	2.00	2.05	2.00	2.01	2.02	2.00	1.98	1.97	1.95	1.94	1.94	1.94	**S**	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.92	1.93	1.92	1.92	2.05	1.96	24
29	1.94	1.93	1.93	1.93	1.94	1.95	1.96	1.94	1.94	1.93	1.93	1.93	**S**	1.93	1.92	1.91	1.90	1.91	1.90	1.90	1.92	1.96	1.95	1.95	1.90	1.96	1.93	24
30	1.96	1.95	1.95	1.95	1.93	1.94	1.95	1.95	1.95	1.92	1.91	**S**	1.90	1.90	1.90	1.91	1.92	1.92	1.90	1.96	1.95	1.92	1.92	1.93	1.90	1.96	1.93	24
HOURLY MAX	2.52	2.12	2.05	2.11	2.24	2.02	2.03	2.12	1.98	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.94	1.93	1.99	2.01	2.27	2.04	1.99	2.23				
HOURLY AVG	1.95	1.93	1.92	1.93	1.94	1.93	1.93	1.94	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.91	1.91	1.92	1.92	1.92	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

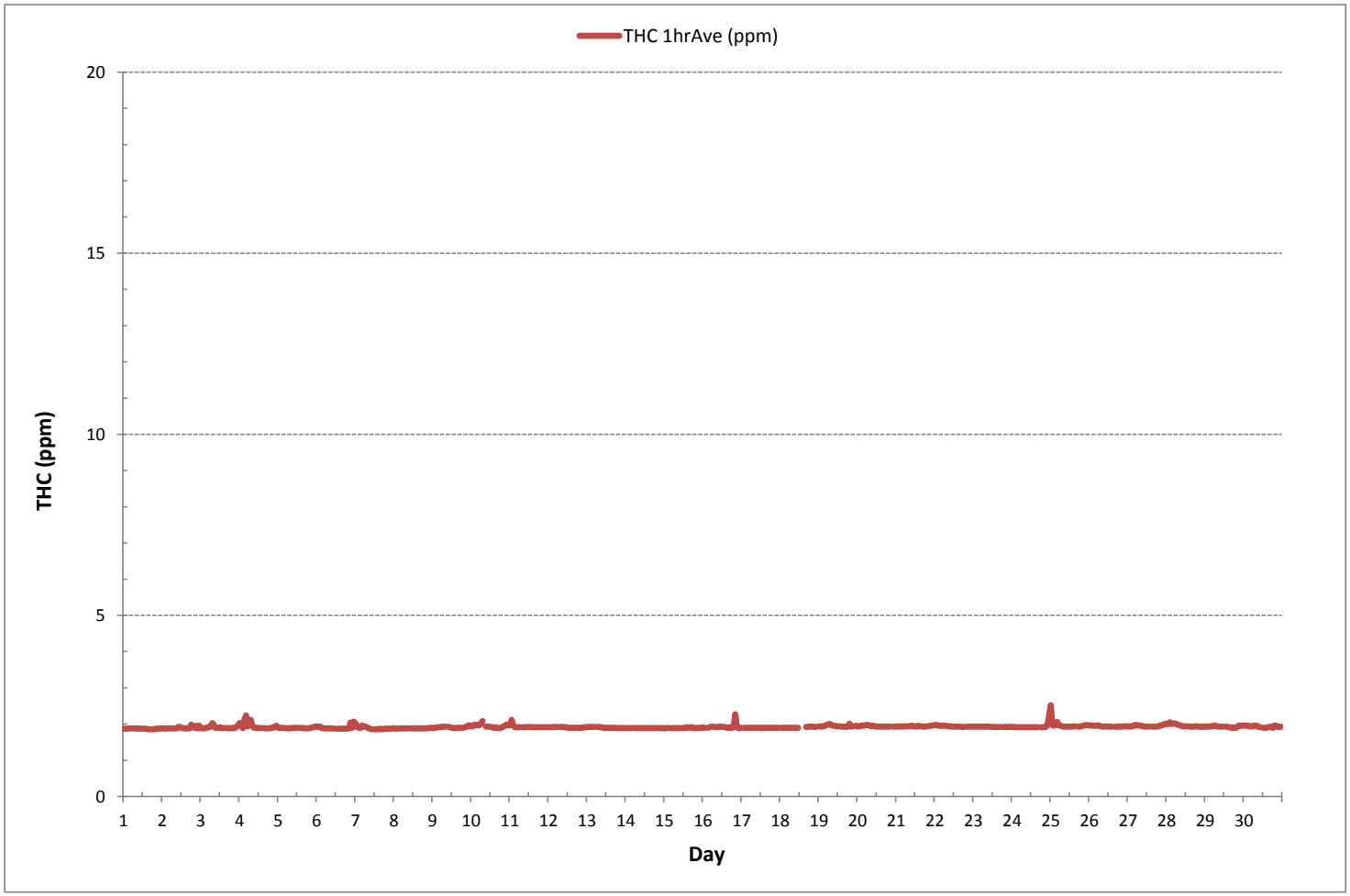
24 HR AVERAGES April 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		685					
MINIMUM 1-HR AVERAGE	1.86	ppm	@ HOUR	VAR, VAR	ON DAY	1, 7	
MAXIMUM 1-HR AVERAGE:	2.52	ppm	@ HOUR	0	ON DAY	25	
MAXIMUM 24-HR AVERAGE:	1.98	ppm			ON DAY	25	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.05		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	1.87	1.87	1.87	1.88	1.87	1.88	1.88	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	S	1.86	1.86	1.87	1.87	1.87	1.87	1.86	1.88	1.87	24
2	2.07	1.87	1.87	1.88	1.91	1.88	1.88	1.88	1.91	1.88	2.06	2.16	2.08	2.03	2.07	1.90	S	2.05	3.12	2.28	2.28	2.64	1.88	2.32	1.87	3.12	2.08	24
3	1.92	1.88	1.88	1.89	1.99	1.91	2.31	2.51	2.39	2.10	2.06	2.17	2.17	1.99	1.97	S	2.17	1.88	1.90	1.89	1.90	1.90	2.01	1.99	1.88	2.51	2.03	24
4	4.41	2.32	1.93	3.05	3.39	2.54	2.63	2.73	2.27	2.03	2.02	2.03	1.99	1.94	S	2.04	1.89	1.88	1.88	1.89	1.91	1.89	1.99	1.97	1.88	4.41	2.29	24
5	1.93	1.92	1.89	1.91	1.90	1.88	1.88	1.88	1.89	1.90	1.89	1.90	1.90	S	1.89	1.89	1.89	1.88	1.88	1.92	1.90	1.93	1.93	1.94	1.88	1.94	1.90	24
6	1.96	1.99	2.15	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.89	1.87	S	1.87	1.91	1.90	1.87	1.89	1.87	1.88	1.90	5.09	1.91	3.47	1.87	5.09	2.11	24
7	2.29	2.19	1.92	1.92	2.40	2.14	2.84	2.58	1.96	1.89	1.87	S	1.86	1.86	1.86	1.87	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.88	1.86	2.84	2.02	24
8	2.01	1.89	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.90	S	1.88	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.87	2.01	1.89	24
9	1.89	1.91	1.91	1.91	1.91	1.91	1.92	1.93	1.93	S	1.92	1.91	1.90	1.90	1.90	1.90	1.91	1.90	1.90	1.90	1.92	1.95	1.96	1.96	1.89	1.96	1.92	24
10	1.95	1.94	2.02	1.99	2.00	1.99	2.06	2.09	S	1.93	1.93	1.95	1.92	1.92	1.91	1.99	1.95	1.90	1.90	1.91	2.32	2.57	2.79	2.89	1.90	2.89	2.08	24
11	2.42	3.09	2.18	1.91	1.92	1.92	1.92	S	1.92	1.92	1.91	1.91	1.92	1.95	1.91	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	3.09	2.00	24
12	1.92	1.92	1.92	1.92	1.92	1.92	S	1.93	1.93	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.90	1.90	1.91	1.92	1.89	1.93	1.91	24
13	1.92	1.92	1.93	1.93	1.93	S	1.92	1.91	1.91	1.90	1.90	1.96	1.89	1.90	1.89	1.89	1.90	1.90	1.89	1.89	1.91	1.89	1.89	1.89	1.89	1.96	1.91	24
14	1.89	1.89	1.89	1.89	S	1.90	1.89	1.89	1.89	1.89	1.89	1.88	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.88	1.90	1.89	24
15	1.89	1.91	1.93	S	1.90	1.89	1.89	1.89	1.89	1.90	1.89	1.89	1.93	2.03	2.07	1.95	2.07	2.15	1.89	1.89	1.90	1.90	1.90	1.90	1.89	2.15	1.93	24
16	1.90	1.90	S	1.90	1.93	1.94	1.93	1.93	1.91	1.92	1.93	1.93	1.93	1.92	1.92	1.90	1.91	1.91	1.90	1.91	3.73	1.94	1.89	1.90	1.89	3.73	1.99	24
17	1.90	S	1.91	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.92	1.94	1.92	1.89	1.94	1.90	24
18	S	1.92	1.93	1.98	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	C	C	C	C	1.92	1.92	1.92	1.93	1.93	1.95	1.92	S	1.90	1.98	1.92	24
19	1.96	1.94	1.94	1.94	1.96	2.00	2.02	2.04	2.08	2.01	2.11	1.96	2.02	2.02	1.93	1.95	2.01	1.94	2.07	2.52	1.99	1.95	S	1.98	1.93	2.52	2.01	24
20	1.94	1.94	1.96	1.96	1.97	2.16	2.08	2.19	1.95	2.03	2.03	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.92	1.93	1.93	S	1.94	1.95	1.92	2.19	1.97	24
21	1.95	1.96	1.95	1.94	1.93	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.94	S	1.96	1.95	1.95	1.93	1.96	1.94	24
22	2.06	2.08	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	1.92	1.92	1.92	1.92	S	1.92	1.92	1.92	1.93	1.92	2.08	1.94	24
23	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.91	1.92	1.91	1.91	1.91	1.91	S	1.92	1.92	1.92	1.92	1.92	1.91	1.93	1.92	24
24	1.92	1.92	1.91	1.92	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.91	1.91	1.91	1.91	1.91	1.91	S	1.91	1.91	1.92	1.92	4.63	4.73	1.91	4.73	2.15	24
25	3.82	2.09	1.99	2.16	3.03	2.00	1.96	1.94	1.93	1.94	1.93	1.92	1.93	1.93	1.94	1.94	S	1.93	1.93	1.95	1.96	1.96	1.98	1.96	1.92	3.82	2.09	24
26	1.96	1.96	1.95	1.95	1.97	1.96	1.96	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.93	S	1.93	1.95	1.95	1.94	1.95	1.95	1.94	1.95	1.93	1.97	1.95	24
27	1.94	1.94	1.93	1.95	2.05	2.03	1.99	1.96	1.96	1.94	1.94	1.93	1.93	1.93	S	1.93	1.93	1.93	1.93	1.95	1.97	1.98	2.21	2.04	1.93	2.21	1.97	24
28	2.02	2.02	3.94	2.01	2.02	2.06	2.03	1.99	1.98	1.95	1.94	1.94	1.96	S	2.00	1.98	1.95	1.99	1.94	1.94	1.94	2.07	2.07	1.94	1.94	3.94	2.07	24
29	1.96	1.94	1.99	2.05	2.06	1.99	1.99	1.95	1.98	1.94	1.94	1.93	S	2.00	1.95	2.04	1.92	1.90	1.90	1.90	2.05	2.10	2.13	2.00	1.90	2.13	1.98	24
30	1.98	1.99	1.96	2.02	1.96	1.98	1.96	2.01	1.96	1.94	1.95	S	1.92	1.90	1.90	2.01	2.05	2.04	1.90	2.45	2.28	1.95	1.95	1.95	1.90	2.45	2.00	24
HOURLY MAX	4.41	3.09	3.94	3.05	3.39	2.54	2.84	2.73	2.39	2.10	2.11	2.17	2.17	2.03	2.07	2.04	2.17	2.15	3.12	2.52	3.73	5.09	4.63	4.73				
HOURLY AVG	2.12	2.00	2.01	1.98	2.04	1.97	2.01	2.01	1.96	1.93	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.95	1.96	2.02	2.09	2.07	2.13				

STATUS FLAG CODES

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

MONTHLY SUMMARY

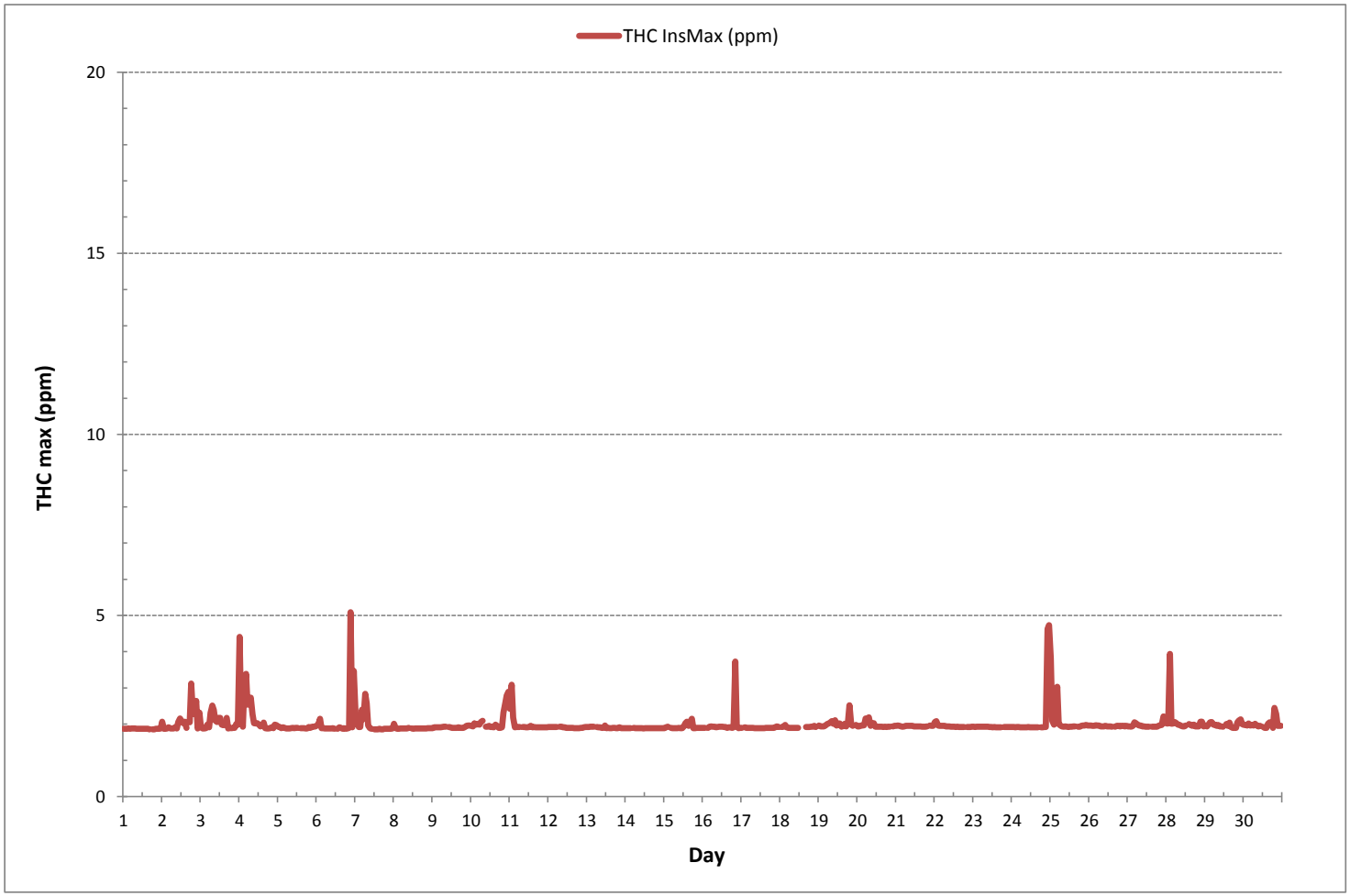
NUMBER OF NON-ZERO READINGS: 685

MAXIMUM INSTANTANEOUS VALUE: 5.09 ppm @ HOUR 21 ON DAY 6

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.30

OPERATIONAL TIME: 720 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



Wind: PRAMP_986
Poll.: PRAMP_986-THC55[ppm]
Monthly: 2017/04
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

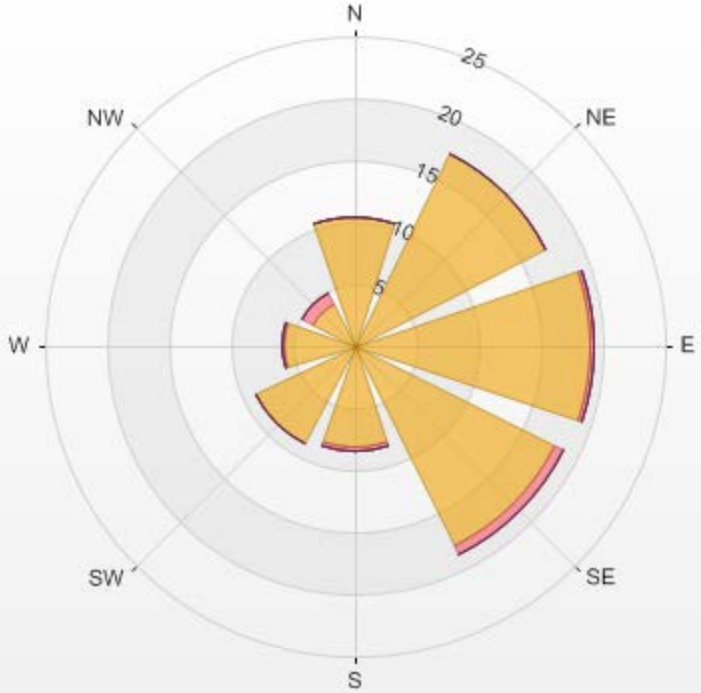
Calm: 6.15%

Calm Avg: 1.98 [ppm]

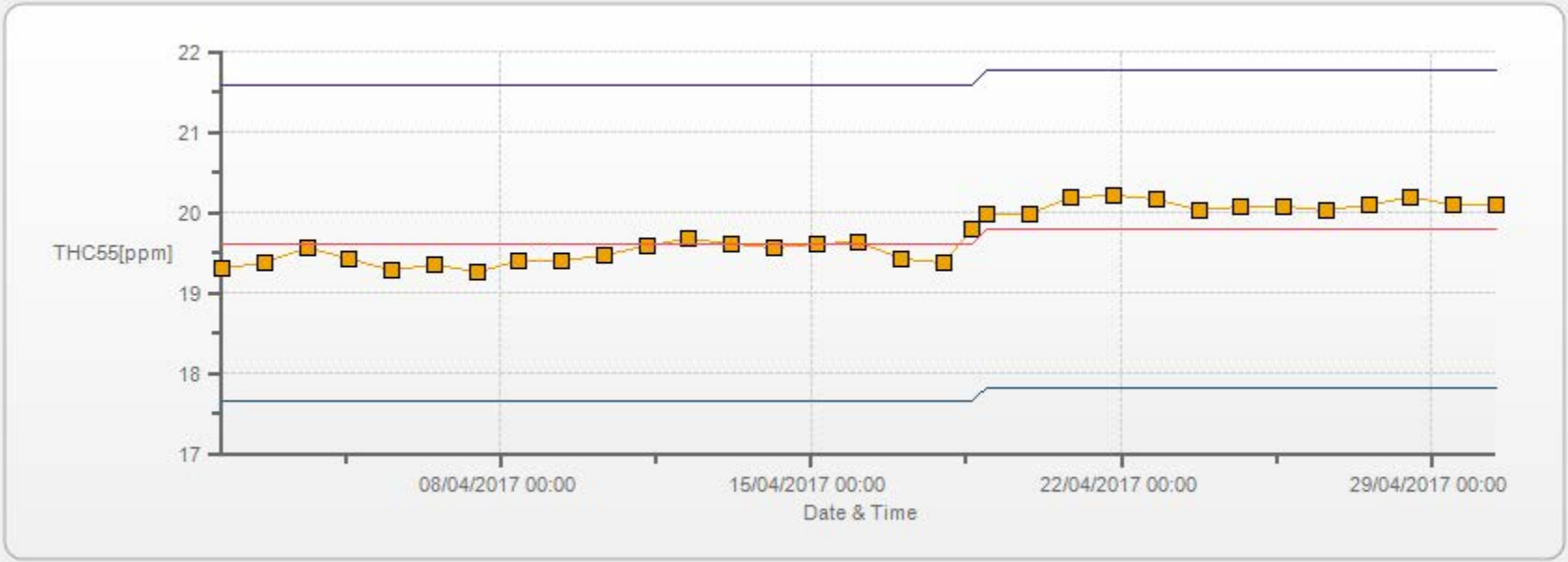
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	10.4	0.0	0.0	0.0	0.0	10.4
NE	17.3	0.0	0.0	0.0	0.0	17.3
E	19.0	0.3	0.0	0.0	0.0	19.3
SE	18.0	0.9	0.0	0.0	0.0	18.9
S	8.2	0.3	0.0	0.0	0.0	8.5
SW	8.9	0.0	0.0	0.0	0.0	8.9
W	5.7	0.2	0.0	0.0	0.0	5.9
NW	3.8	0.9	0.0	0.0	0.0	4.7
Summary	91.4	2.5	0.0	0.0	0.0	93.9

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

PRAMP_986 Poll.: PRAMP_986-THC55[ppm] 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.15% Calm Poll Avg: 1.98[ppm]



THC55[ppm] Calibration: PRAMP_986 Monthly: 04/2017 Type: Span



METHANE

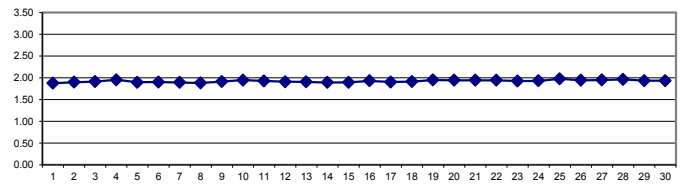
METHANE Hourly Averages (CH_4 ppm)

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	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.87	1.88	1.87	1.87	1.87	1.87	1.87	1.86	1.86	S	1.86	1.86	1.87	1.87	1.87	1.87	1.86	1.88	1.87	24
2	1.88	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.92	1.92	1.89	1.87	1.89	1.87	S	1.88	1.99	1.93	1.90	1.95	1.88	1.95	1.87	1.99	1.90	24
3	1.89	1.88	1.88	1.89	1.91	1.91	1.93	2.03	1.98	1.90	1.90	1.90	1.91	1.89	1.89	S	1.90	1.88	1.89	1.89	1.89	1.89	1.92	1.96	1.88	2.03	1.91	24
4	2.03	1.98	1.89	2.11	2.24	1.94	2.03	2.12	1.94	1.90	1.90	1.89	1.90	1.89	S	1.89	1.88	1.88	1.88	1.89	1.90	1.90	1.94	1.95	1.88	2.24	1.95	24
5	1.90	1.90	1.89	1.90	1.89	1.88	1.88	1.88	1.89	1.90	1.89	1.90	1.90	S	1.90	1.89	1.89	1.88	1.88	1.89	1.89	1.91	1.91	1.93	1.88	1.93	1.89	24
6	1.94	1.92	1.94	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.87	S	1.87	1.87	1.87	1.86	1.87	1.87	1.87	1.89	2.04	1.90	2.07	1.86	2.07	1.90	24
7	2.02	1.93	1.90	1.89	1.96	1.92	1.93	1.92	1.89	1.87	1.86	S	1.86	1.86	1.86	1.87	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.88	1.86	2.02	1.89	24
8	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	S	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.89	1.87	1.90	1.88	24
9	1.90	1.90	1.90	1.91	1.91	1.92	1.92	1.93	1.93	S	1.92	1.91	1.90	1.89	1.89	1.90	1.90	1.90	1.90	1.90	1.91	1.93	1.96	1.96	1.89	1.96	1.91	24
10	1.94	1.94	1.98	1.98	1.96	1.97	2.02	2.08	S	1.93	1.93	1.93	1.92	1.91	1.90	1.91	1.90	1.89	1.89	1.91	1.93	1.95	1.99	1.97	1.89	2.08	1.94	24
11	1.96	2.12	1.97	1.91	1.91	1.91	1.91	S	1.91	1.91	1.91	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	2.12	1.92	24
12	1.91	1.91	1.91	1.91	1.92	1.92	S	1.92	1.92	1.92	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.91	1.90	1.92	1.91	24
13	1.91	1.92	1.92	1.92	1.92	S	1.91	1.92	1.91	1.91	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	1.89	1.92	1.90	24
14	1.89	1.89	1.89	1.89	S	1.90	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.89	24
15	1.88	1.89	1.90	S	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.91	1.90	1.91	1.91	1.89	1.89	1.90	1.89	1.89	1.90	1.88	1.91	1.89	24
16	1.91	1.90	S	1.90	1.91	1.93	1.93	1.92	1.91	1.91	1.93	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.90	1.91	2.27	1.92	1.89	1.90	1.89	2.27	1.93	24
17	1.90	S	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.89	1.90	1.90	24
18	S	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	C	C	C	C	1.92	1.92	1.93	1.93	1.93	1.92	1.92	S	1.90	1.93	1.91	24
19	1.94	1.93	1.94	1.94	1.96	1.98	2.00	2.00	1.96	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.92	1.93	2.01	1.93	1.94	S	1.95	1.92	2.01	1.95	24
20	1.93	1.94	1.96	1.95	1.96	1.97	1.98	1.96	1.94	1.95	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.93	1.93	1.98	1.94	24
21	1.93	1.94	1.93	1.94	1.93	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.94	1.93	1.93	1.94	S	1.95	1.95	1.96	1.93	1.96	1.94	24
22	1.97	1.98	1.96	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	S	1.93	1.93	1.93	1.93	1.92	1.98	1.94	24
23	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.91	1.91	1.92	1.92	S	1.92	1.92	1.92	1.92	1.92	1.91	1.93	1.92	24
24	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	S	1.91	1.91	1.91	1.92	1.98	2.23	1.91	2.23	1.93	24
25	**2.52**	1.97	1.95	1.98	2.06	1.97	1.95	1.93	1.93	1.92	1.93	1.93	1.93	1.93	1.94	1.94	S	1.93	1.93	1.93	1.95	1.96	1.97	1.97	1.92	**2.52**	**1.97**	24
26	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.93	S	1.92	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.92	1.96	1.94	24
27	1.94	1.93	1.94	1.94	1.97	1.98	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.93	S	1.93	1.93	1.93	1.93	1.94	1.96	1.96	1.99	2.01	1.93	2.01	1.95	24
28	2.00	2.00	2.05	2.00	2.01	2.02	2.00	1.98	1.97	1.95	1.94	1.94	1.94	S	1.94	1.93	1.93	1.93	1.94	1.94	1.93	1.92	1.92	1.92	1.92	2.05	1.96	24
29	1.94	1.93	1.93	1.93	1.94	1.95	1.96	1.94	1.94	1.93	1.93	1.93	S	1.93	1.92	1.91	1.90	1.91	1.90	1.90	1.92	1.96	1.95	1.95	1.90	1.96	1.93	24
30	1.96	1.95	1.95	1.95	1.93	1.94	1.95	1.95	1.95	1.92	1.91	S	1.90	1.90	1.90	1.91	1.92	1.92	1.90	1.96	1.95	1.92	1.92	1.93	1.90	1.96	1.93	24
HOURLY MAX	2.52	2.12	2.05	2.11	2.24	2.02	2.03	2.12	1.98	1.95	1.95	1.94	1.94	1.94	1.95	1.94	1.94	1.93	1.99	2.01	2.27	2.04	1.99	2.23				
HOURLY AVG	1.95	1.93	1.92	1.93	1.94	1.93	1.93	1.94	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.91	1.91	1.92	1.92	1.92	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

24 HR AVERAGES April 2017

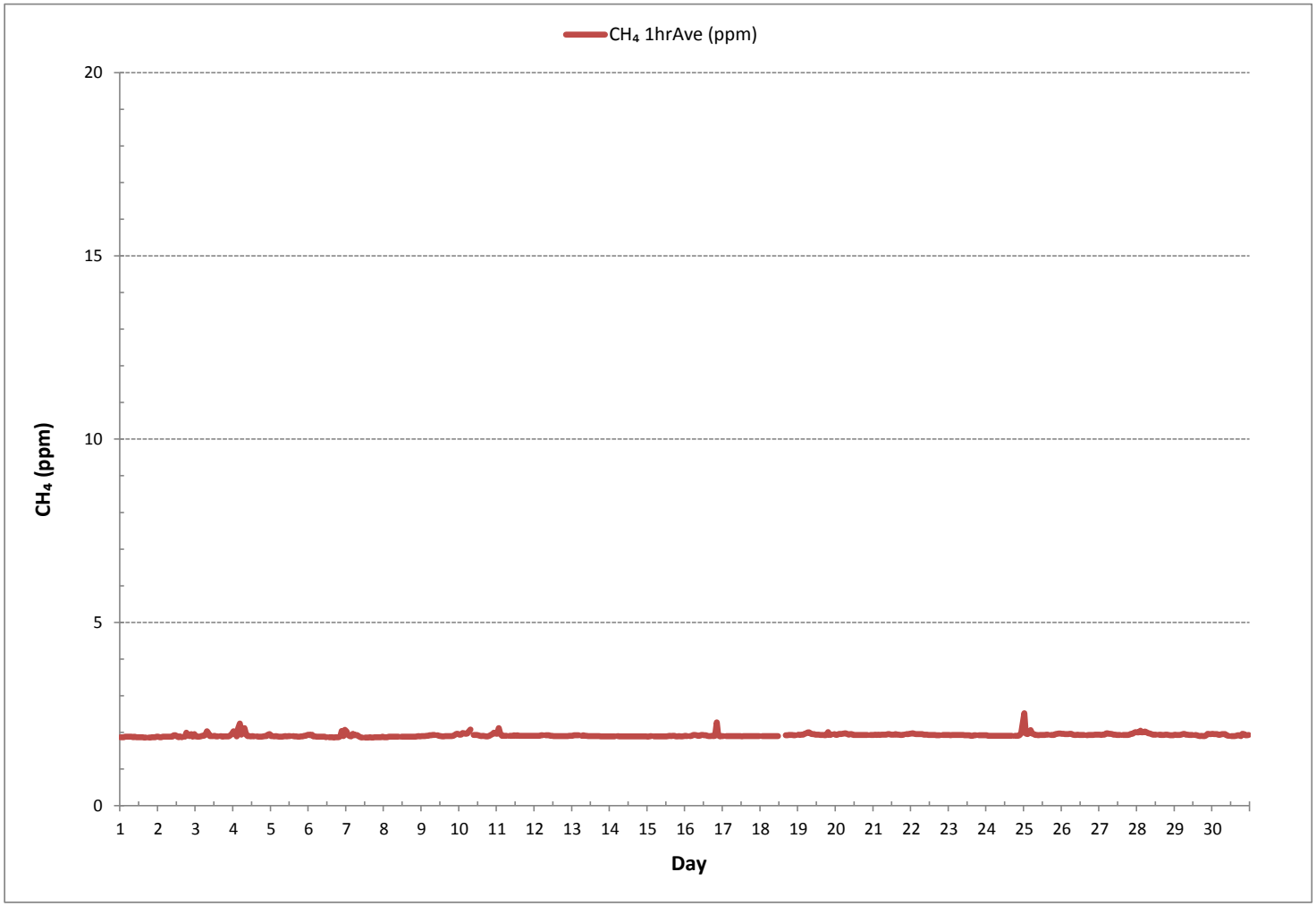


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		685				
MINIMUM 1-HR AVERAGE	1.86	ppm	@ HOUR	VAR	ON DAY	VAR
MAXIMUM 1-HR AVERAGE:	2.52	ppm	@ HOUR	0	ON DAY	25
MAXIMUM 24-HR AVERAGE:	1.97	ppm			ON DAY	25

IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.05		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	1.88	1.88	1.88	1.89	1.89	1.90	1.90	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.87	1.87	S	1.86	1.87	1.88	1.88	1.88	1.88	1.86	1.90	1.88	24
2	2.08	1.88	1.88	1.89	1.92	1.89	1.89	1.89	1.91	1.89	2.07	2.17	2.09	2.04	2.08	1.91	S	2.06	3.14	2.29	2.29	2.65	1.89	2.32	1.88	3.14	2.09	24
3	1.93	1.90	1.90	1.90	1.99	1.92	2.31	2.52	2.40	2.11	2.06	2.18	2.18	1.99	1.98	S	2.18	1.89	1.90	1.90	1.91	1.91	2.02	2.01	1.89	2.52	2.04	24
4	4.43	2.33	1.94	3.07	3.41	2.56	2.64	2.75	2.28	2.04	2.02	2.04	2.00	1.95	S	2.05	1.90	1.89	1.89	1.90	1.93	1.90	2.00	1.98	1.89	4.43	2.30	24
5	1.94	1.93	1.90	1.92	1.92	1.90	1.89	1.90	1.90	1.90	1.90	1.91	1.91	S	1.90	1.90	1.90	1.89	1.89	1.93	1.91	1.95	1.94	1.95	1.89	1.95	1.91	24
6	1.96	2.01	2.16	1.91	1.90	1.89	1.89	1.89	1.89	1.89	1.90	1.88	S	1.87	1.93	1.91	1.88	1.90	1.87	1.89	1.92	**5.10**	1.93	3.49	1.87	**5.10**	2.12	24
7	2.30	2.20	1.93	1.93	2.41	2.15	2.85	2.59	1.97	1.90	1.88	S	1.87	1.87	1.87	1.87	1.87	1.87	1.88	1.88	1.88	1.88	1.88	1.89	1.87	2.85	2.03	24
8	1.89	1.90	1.88	1.89	1.89	1.89	1.89	1.89	1.89	1.91	S	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.90	1.91	1.90	1.91	1.88	1.91	1.89	24
9	1.91	1.91	1.91	1.92	1.92	1.93	1.93	1.94	1.95	S	1.93	1.92	1.91	1.91	1.90	1.92	1.92	1.91	1.91	1.91	1.93	1.96	1.98	1.97	1.90	1.98	1.93	24
10	1.95	1.95	2.03	2.00	2.00	1.99	2.07	2.10	S	1.94	1.94	1.97	1.94	1.94	1.92	2.00	1.96	1.92	1.91	1.93	2.33	2.58	2.81	2.90	1.91	2.90	2.09	24
11	2.44	3.11	2.19	1.92	1.92	1.92	1.92	S	1.93	1.92	1.92	1.93	1.93	1.97	1.92	1.94	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.92	1.92	3.11	2.01	24
12	1.92	1.92	1.92	1.92	1.92	1.92	S	1.93	1.93	1.93	1.92	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.92	1.92	1.90	1.93	1.92	24
13	1.92	1.93	1.93	1.93	1.93	S	1.93	1.92	1.92	1.92	1.91	1.97	1.91	1.90	1.91	1.91	1.91	1.90	1.90	1.90	1.93	1.90	1.90	1.90	1.90	1.97	1.92	24
14	1.90	1.90	1.90	1.91	S	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	1.90	1.90	1.90	1.90	1.90	1.90	1.91	1.90	24
15	1.90	1.92	1.94	S	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.94	2.04	2.08	1.96	2.08	2.16	1.90	1.90	1.91	1.90	1.90	1.92	1.90	2.16	1.94	24
16	1.91	1.92	S	1.91	1.94	1.95	1.94	1.94	1.92	1.93	1.94	1.94	1.94	1.93	1.93	1.92	1.91	1.92	1.92	1.92	3.75	1.95	1.90	1.91	1.90	3.75	2.01	24
17	1.91	S	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.90	1.90	1.90	1.90	1.90	1.91	1.92	1.91	1.91	1.90	1.90	1.93	1.95	1.94	1.90	1.95	1.91	24
18	S	1.93	1.94	1.99	1.92	1.90	1.90	1.91	1.91	1.91	1.92	1.91	C	C	C	C	1.93	1.93	1.94	1.94	1.95	1.96	1.93	S	1.90	1.99	1.93	24
19	1.97	1.95	1.95	1.95	1.98	2.01	2.03	2.05	2.09	2.02	2.13	1.97	2.03	2.02	1.94	1.96	2.02	1.95	2.08	2.54	1.99	1.96	S	1.98	1.94	2.54	2.02	24
20	1.94	1.95	1.97	1.97	1.98	2.18	2.08	2.20	1.95	2.04	2.03	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.95	1.94	2.20	1.98	24
21	1.95	1.96	1.96	1.95	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.95	S	1.97	1.96	1.97	1.94	1.97	1.95	24
22	2.01	2.01	1.97	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.94	1.94	1.93	1.94	1.94	1.93	1.93	1.93	S	1.94	1.94	1.94	1.94	1.93	2.01	1.95	24
23	1.95	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.93	S	1.93	1.93	1.93	1.93	1.93	1.92	1.95	1.93	24
24	1.93	1.93	1.92	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	S	1.92	1.93	1.92	1.93	4.64	4.74	1.92	4.74	2.16	24
25	3.83	2.10	1.99	2.17	3.06	2.00	1.97	1.96	1.94	1.95	1.94	1.94	1.94	1.94	1.95	1.95	S	1.94	1.94	1.96	1.97	1.97	1.98	1.98	1.94	3.83	2.10	24
26	1.97	1.97	1.96	1.96	1.98	1.98	1.97	1.96	1.95	1.94	1.96	1.95	1.95	1.95	1.94	S	1.94	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.94	1.98	1.96	24
27	1.95	1.95	1.95	1.96	2.06	2.04	2.00	1.98	1.96	1.95	1.95	1.94	1.94	1.94	S	1.94	1.94	1.94	1.95	1.96	1.99	1.99	2.22	2.05	1.94	2.22	1.98	24
28	2.02	2.02	3.95	2.02	2.03	2.07	2.04	2.00	1.98	1.96	1.95	1.95	1.97	S	2.01	1.98	1.96	1.99	1.95	1.95	1.96	1.93	1.94	1.95	1.93	3.95	2.07	24
29	1.97	1.95	1.97	2.06	2.07	2.00	2.00	1.95	1.98	1.95	1.95	1.94	S	2.01	1.97	2.04	1.93	1.92	1.91	1.91	2.05	2.10	2.13	2.01	1.91	2.13	1.99	24
30	1.98	2.00	1.97	2.03	1.96	1.98	1.97	2.02	1.97	1.96	1.96	S	1.94	1.91	1.91	2.01	2.06	2.05	1.91	2.46	2.30	1.96	1.96	1.96	1.91	2.46	2.01	24
HOURLY MAX	4.43	3.11	3.95	3.07	3.41	2.56	2.85	2.75	2.40	2.11	2.13	2.18	2.18	2.04	2.08	2.05	2.18	2.16	3.14	2.54	3.75	5.10	4.64	4.74				
HOURLY AVG	2.13	2.01	2.02	1.99	2.05	1.98	2.02	2.02	1.96	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.96	1.97	2.03	2.09	2.07	2.14				

STATUS FLAG CODES

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

MONTHLY SUMMARY

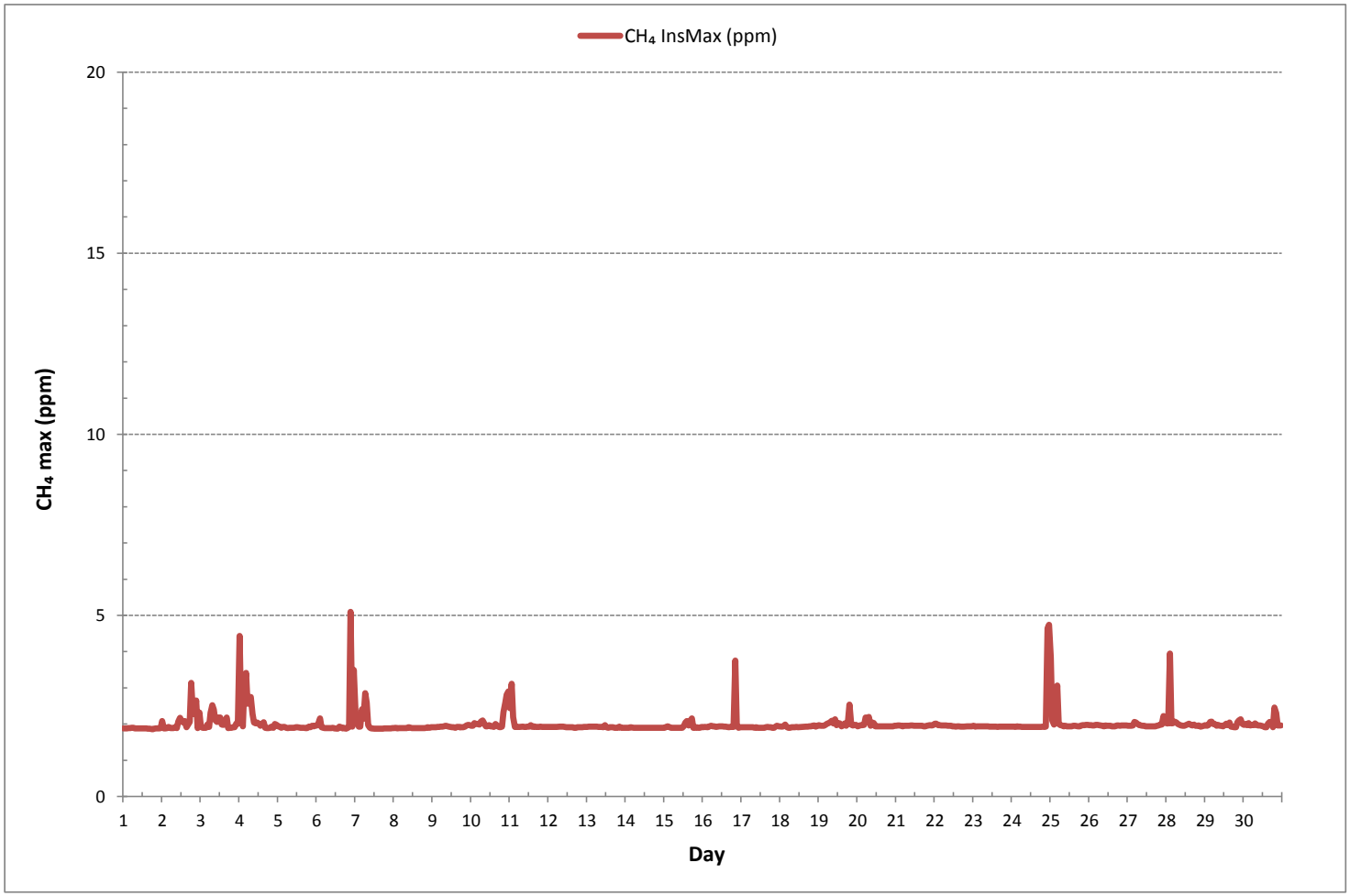
NUMBER OF NON-ZERO READINGS: 685

MAXIMUM INSTANTANEOUS VALUE: 5.10 ppm @ HOUR 21 ON DAY 6

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.30

OPERATIONAL TIME: 720 hrs

METHANE MAX Instantaneous Maximum (CH_4 ppm)



Wind: PRAMP_986
Poll.: PRAMP_986-CH4[ppm]
Monthly: 2017/04
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

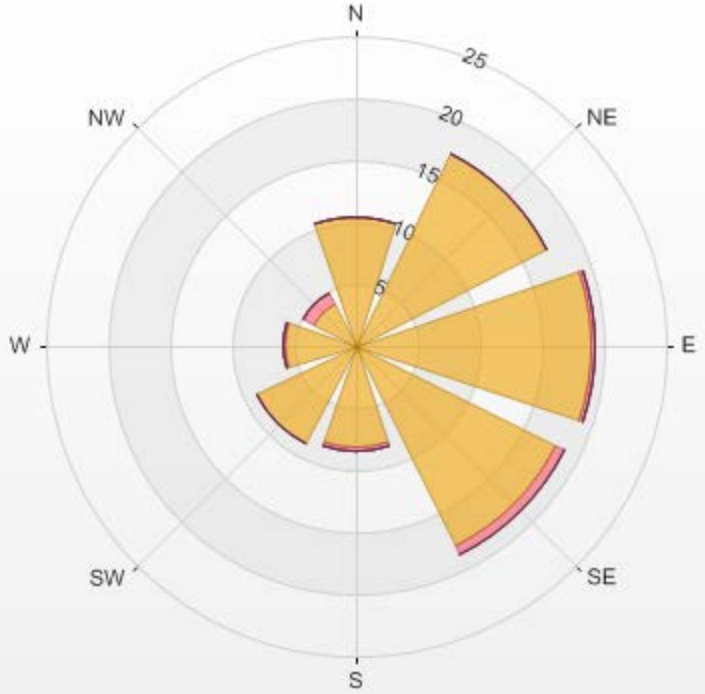
Calm: 6.15%

Calm Avg: 1.98 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	10.4	0.0	0.0	0.0	0.0	10.4
NE	17.3	0.0	0.0	0.0	0.0	17.3
E	19.0	0.3	0.0	0.0	0.0	19.3
SE	18.0	0.9	0.0	0.0	0.0	18.9
S	8.2	0.3	0.0	0.0	0.0	8.5
SW	8.9	0.0	0.0	0.0	0.0	8.9
W	5.7	0.2	0.0	0.0	0.0	5.9
NW	3.8	0.9	0.0	0.0	0.0	4.7
Summary	91.4	2.5	0.0	0.0	0.0	93.9

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

PRAMP_986 Poll.: PRAMP_986-CH4[ppm] 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.15% Calm Poll Avg: 1.98[ppm]



CH4[ppm] Calibration: PRAMP_986 Monthly: 04/2017 Type: Span

NON-METHANE HYDROCARBON

Maxxam
A Bureau Veritas Group Company

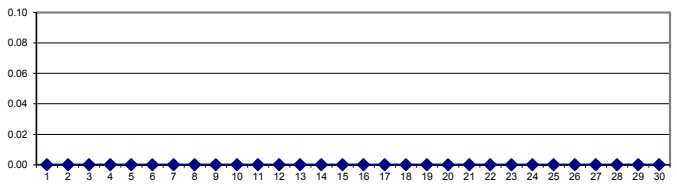
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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	0.00	0.00	0.00	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
2	0.00	0.00	0.00	0.00	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
3	0.00	0.00	0.00	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
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	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
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	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
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	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
7	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
8	**0.02**	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	**0.02**	0.00	24
9	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
10	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
11	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
12	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
13	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
14	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
15	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
16	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
17	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
18	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
22	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	0.00	0.00	0.01	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	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
24	0.00	0.00	0.00	0.00	0.00	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
25	0.00	0.00	0.00	0.00	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
26	0.00	0.00	0.00	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
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	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
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	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
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	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
30	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
HOURLY MAX	0.02	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	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

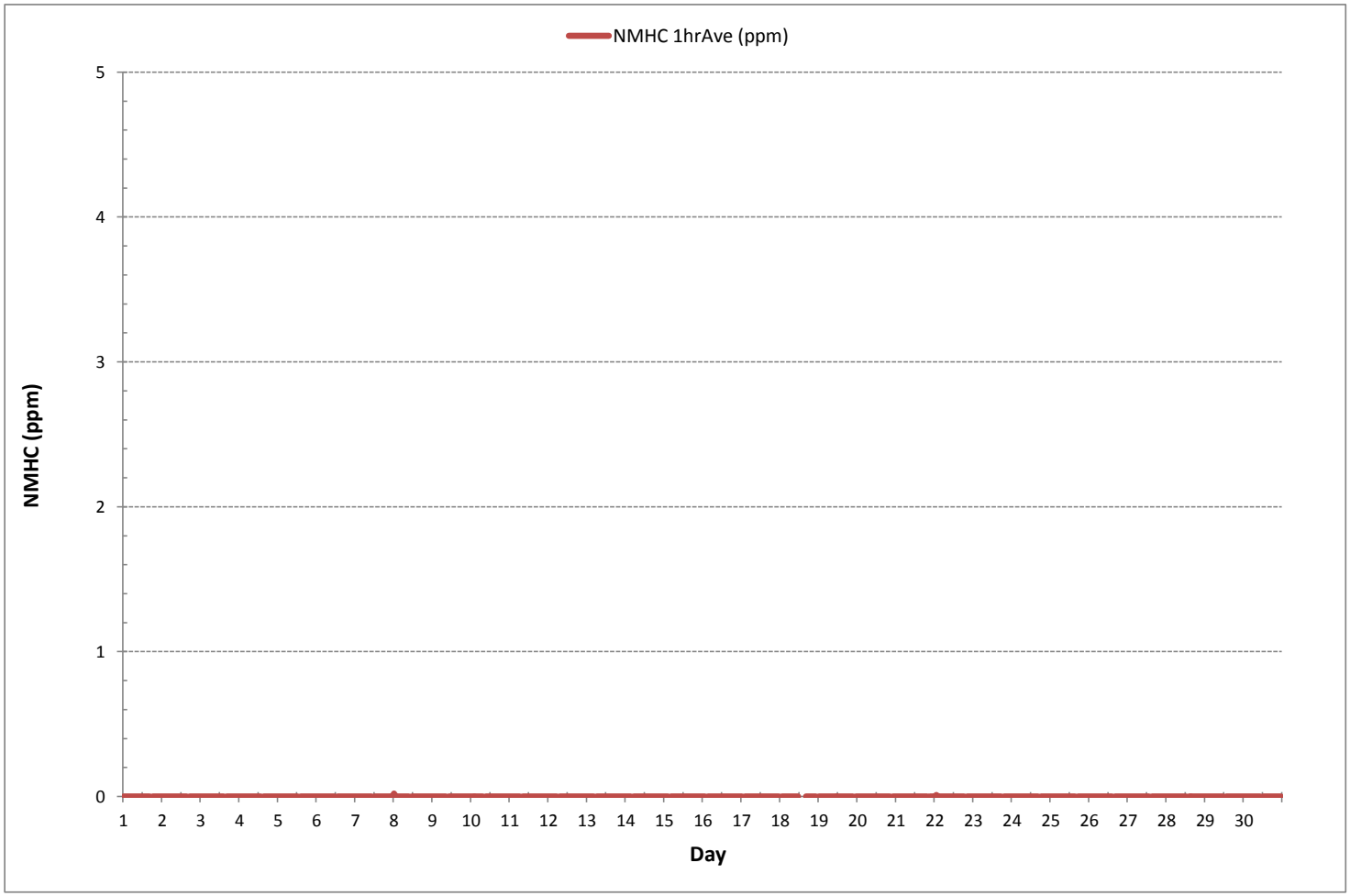
24 HR AVERAGES April 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:			2				
MINIMUM 1-HR AVERAGE	0.00	ppm	@ HOUR	VAR	ON DAY	ALL	
MAXIMUM 1-HR AVERAGE:	0.02	ppm	@ HOUR	0	ON DAY	8	
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY	ALL	
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:			720	hrs
MONTHLY CALIBRATION TIME:	4	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	0.00	0.00	0.00	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
2	0.00	0.00	0.00	0.00	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
3	0.00	0.00	0.00	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
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	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
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	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
6	0.00	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	0.07	0.00	0.07	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
8	0.14	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	0.14	0.01	24
9	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	0.01	0.00	0.00	0.01	0.00	24
10	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
11	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
12	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
13	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
14	0.00	0.00	0.00	0.00	S	0.00	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	0.01	0.00	24
15	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
16	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
17	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
18	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	S	0.00	0.00	0.01	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
22	0.06	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	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.08	0.01	24
23	0.00	0.00	0.00	0.00	0.00	0.00	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
24	0.00	0.00	0.00	0.00	0.00	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
25	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
26	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
27	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	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	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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.16**	**0.16**	0.00	0.00	**0.16**	0.01	24
29	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	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	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
HOURLY MAX	0.14	0.08	0.06	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.16	0.16	0.07				
HOURLY AVG	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	0.01	0.01	0.00				

STATUS FLAG CODES

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

MONTHLY SUMMARY

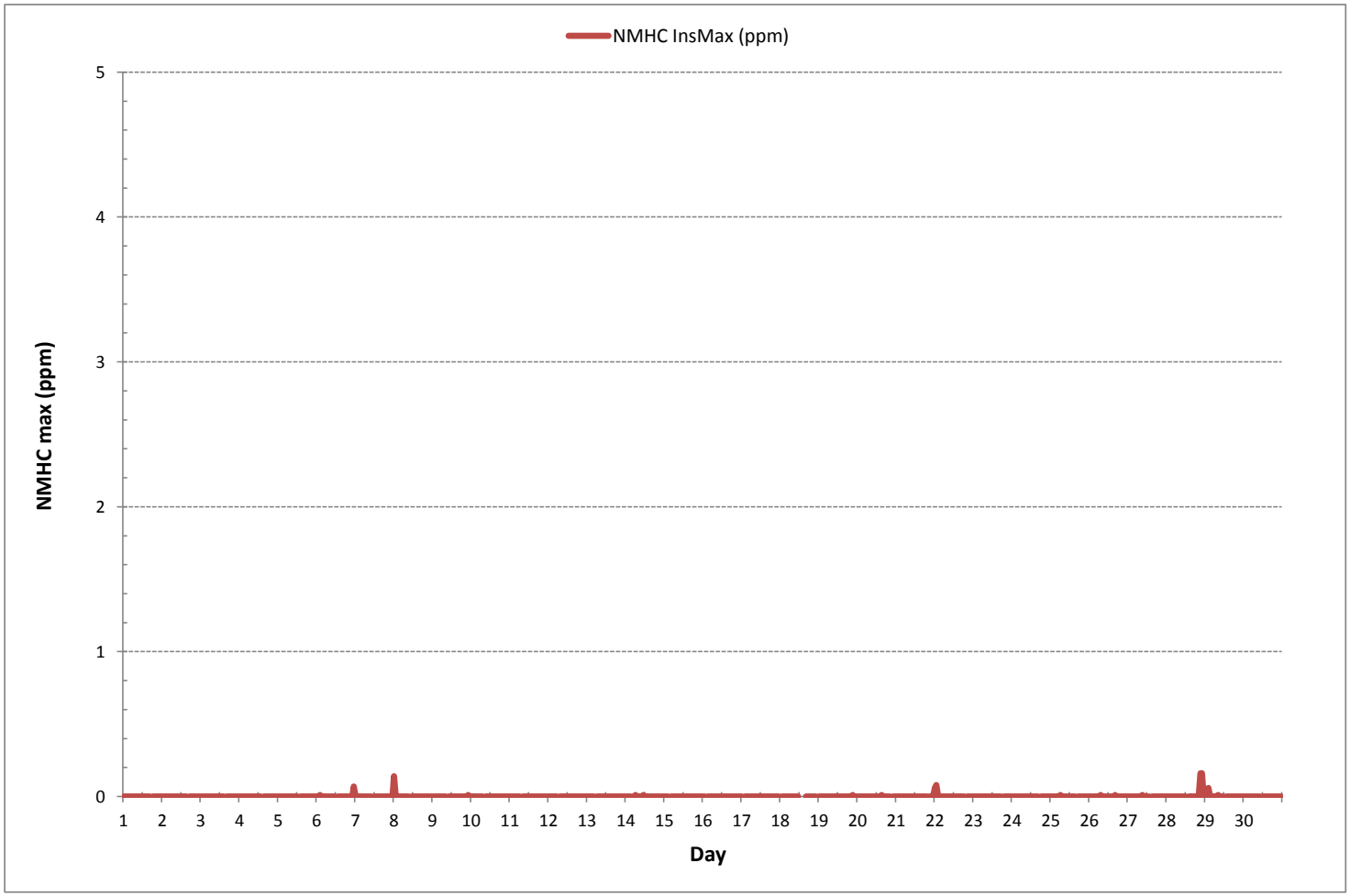
NUMBER OF NON-ZERO READINGS: 18

MAXIMUM INSTANTANEOUS VALUE: 0.16 ppm @ HOUR 21, 22 ON DAY 28

IZS CALIBRATION TIME: 31 hrs
MONTHLY CALIBRATION TIME: 4 hrs
STANDARD DEVIATION: 0.01

OPERATIONAL TIME: 720 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



Wind: PRAMP_986
Poll.: PRAMP_986-NMHC[ppm]
Monthly: 2017/04
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

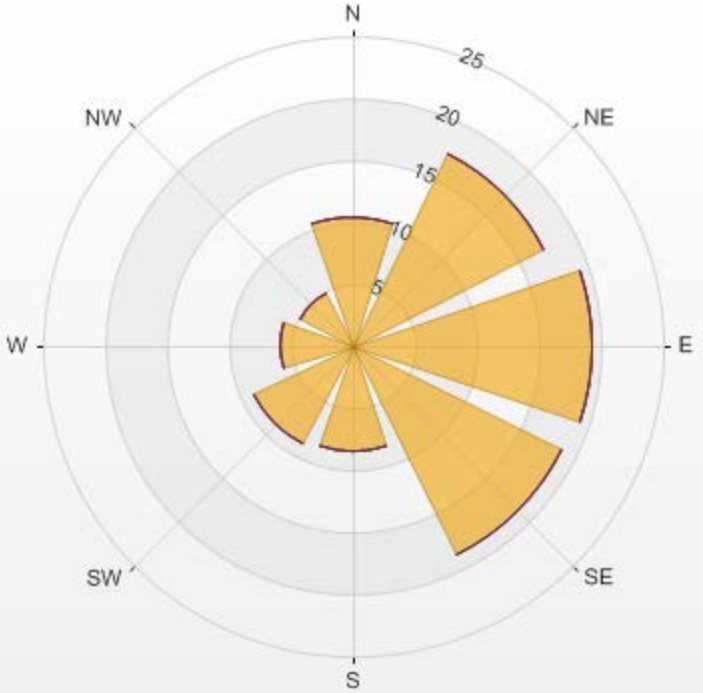
Calm: 6.15%

Calm Avg: 0.00 [ppm]

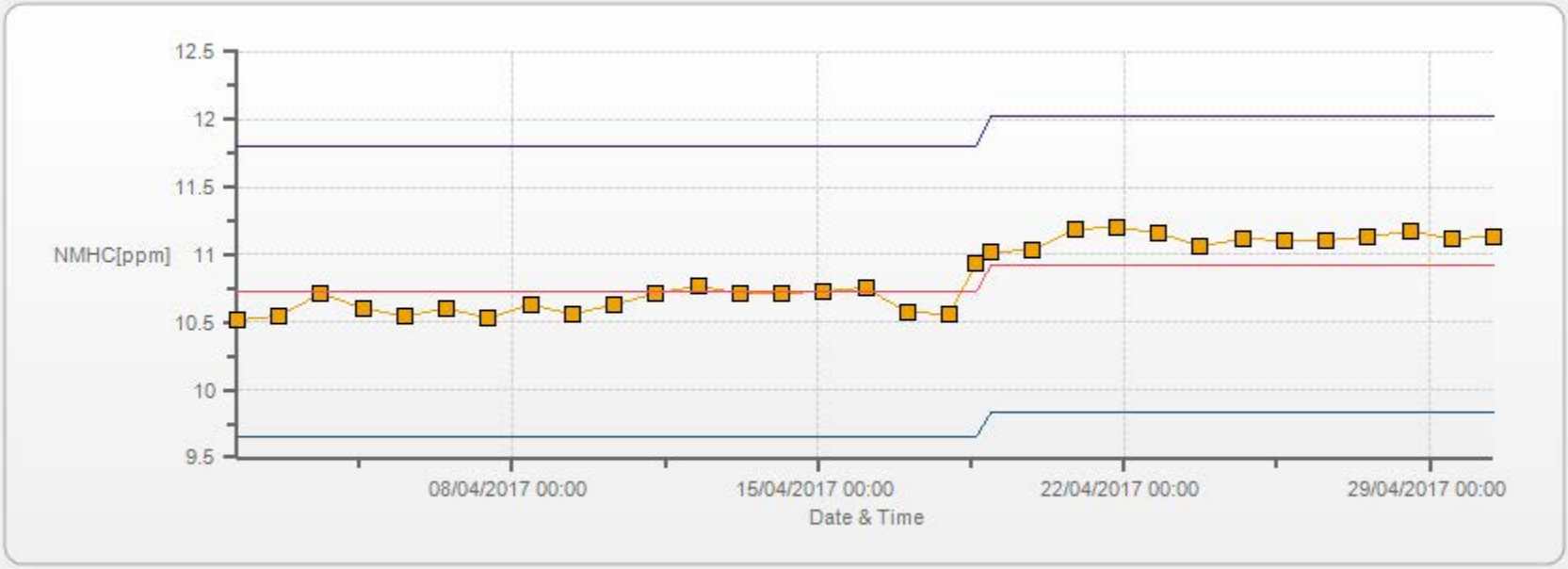
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	10.4	0.0	0.0	0.0	0.0	10.4
NE	17.3	0.0	0.0	0.0	0.0	17.3
E	19.3	0.0	0.0	0.0	0.0	19.3
SE	18.9	0.0	0.0	0.0	0.0	18.9
S	8.5	0.0	0.0	0.0	0.0	8.5
SW	8.9	0.0	0.0	0.0	0.0	8.9
W	5.9	0.0	0.0	0.0	0.0	5.9
NW	4.7	0.0	0.0	0.0	0.0	4.7
Summary	93.9	0.0	0.0	0.0	0.0	93.9

% Icon Classes (ppm)	94 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] 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.15% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_986 Monthly: 04/2017 Type: Span



WIND SPEED

Maxxam
A Bureau Veritas Group Company

WIND SPEED Hourly Averages (WS kph)

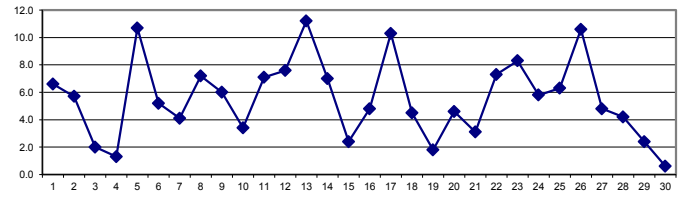
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	4.1	6.3	4.2	6.6	5.2	6.8	7.6	7.0	8.7	6.7	7.7	8.4	10.1	10.2	10.9	9.2	11.3	9.2	7.4	2.8	1.4	5.3	4.4	3.4	1.4	11.3	6.6	24
2	4.4	5.1	5.4	5.3	4.9	4.7	5.7	6.3	6.2	6.3	9.5	8.8	7.7	7.5	5.5	6.1	9.9	10.3	4.5	8.0	8.9	9.2	3.7	2.7	2.7	10.3	5.7	24
3	4.0	4.1	4.0	1.8	0.8	**0.3**	1.0	2.4	1.8	7.6	8.4	4.7	5.2	4.5	7.9	6.2	6.7	8.1	6.2	3.5	2.9	2.5	2.8	2.8	**0.3**	8.4	2.0	24
4	2.2	7.6	5.4	4.6	2.2	1.4	4.9	4.6	5.0	2.5	4.7	4.0	3.7	6.0	5.8	5.8	4.1	3.8	4.4	4.0	2.9	4.8	5.1	6.2	1.4	7.6	1.3	24
5	7.0	10.0	9.5	9.1	13.2	13.3	15.2	16.0	**20.0**	17.9	19.3	16.2	14.1	**C**	**C**	**C**	9.2	10.5	9.8	3.0	3.6	7.7	7.5	4.0	3.0	**20.0**	10.7	24
6	3.6	4.1	3.4	4.7	4.6	5.5	6.2	7.9	8.5	8.2	9.2	8.3	10.3	10.2	8.7	9.2	8.1	10.0	7.3	3.5	1.0	4.2	2.4	0.7	0.7	10.3	5.2	24
7	0.6	2.8	1.7	0.8	0.6	1.4	2.6	1.7	0.6	4.4	7.1	6.4	7.3	7.8	8.2	6.3	7.0	8.1	11.6	7.7	7.4	6.4	6.7	9.1	0.6	11.6	4.1	24
8	9.1	8.6	9.5	9.0	7.4	7.0	6.3	7.1	8.0	8.6	8.4	7.7	9.6	8.2	5.0	5.7	6.8	9.5	7.8	5.9	5.8	6.8	6.7	6.8	5.0	9.6	7.2	24
9	7.2	6.6	6.6	6.8	4.8	3.5	5.5	8.9	9.2	6.0	3.6	4.0	8.2	12.0	13.2	13.4	13.9	7.8	6.8	4.1	2.5	5.8	6.4	7.6	2.5	13.9	6.0	24
10	6.4	7.4	8.8	7.3	5.7	3.7	3.6	2.9	2.2	5.1	5.7	2.8	2.1	1.7	2.8	4.3	4.0	8.2	11.1	4.5	2.2	0.7	1.0	1.8	0.7	11.1	3.4	24
11	1.3	1.8	4.8	6.7	7.4	8.0	9.6	8.6	8.7	8.0	7.6	7.9	7.1	12.5	13.7	9.7	9.1	10.2	10.3	8.9	9.6	7.5	6.7	4.6	1.3	13.7	7.1	24
12	5.2	4.8	4.5	5.4	5.6	6.9	6.2	7.0	7.7	8.8	8.2	9.7	10.5	12.1	10.2	10.3	10.4	9.8	9.3	9.0	6.1	5.7	6.8	7.0	4.5	12.1	7.6	24
13	7.8	7.8	8.7	8.1	8.7	8.6	9.6	11.6	10.4	11.5	12.6	12.9	12.0	11.6	14.3	13.7	11.8	12.2	14.6	13.7	12.9	12.5	12.0	11.8	7.8	14.6	**11.2**	24
14	14.2	12.5	11.8	6.5	5.6	5.6	5.4	2.5	5.5	4.8	5.1	6.3	6.6	7.9	6.6	7.0	6.4	6.8	6.2	7.5	6.8	7.8	9.0	9.1	2.5	14.2	7.0	24
15	8.4	5.8	5.8	6.4	6.0	5.9	6.3	6.6	6.3	5.9	5.3	5.0	4.7	6.5	6.5	5.3	6.6	5.0	4.3	6.0	4.7	5.8	6.3	6.4	4.3	8.4	2.4	24
16	4.9	4.1	8.6	8.8	9.3	8.7	6.7	10.5	10.6	10.2	8.9	9.3	7.0	8.2	8.5	9.0	6.9	5.9	4.3	2.2	0.9	2.1	6.6	9.6	0.9	10.6	4.8	24
17	11.1	10.1	9.4	10.1	9.5	9.7	10.0	9.9	11.2	11.9	12.8	12.8	13.1	13.4	12.0	12.6	11.6	12.1	10.5	11.2	9.1	9.8	9.0	7.4	7.4	13.4	10.3	24
18	7.7	8.5	8.3	7.4	7.1	6.2	6.4	7.9	7.5	7.5	7.4	7.1	5.8	4.3	4.3	4.6	3.8	4.0	4.1	2.6	0.9	1.9	2.3	0.8	0.8	8.5	4.5	24
19	0.6	0.9	1.4	0.9	2.1	2.0	2.2	2.5	4.6	3.7	5.7	5.3	6.7	3.2	4.5	6.4	7.6	5.2	4.7	2.0	2.5	2.5	2.5	4.3	0.6	7.6	1.8	24
20	4.5	5.2	3.5	5.1	3.9	1.5	2.2	2.6	4.3	4.1	14.2	11.9	11.9	11.3	10.1	8.2	10.8	9.7	7.9	9.1	6.3	6.4	4.3	4.8	1.5	14.2	4.6	24
21	4.2	4.0	4.7	4.3	4.0	4.9	5.7	4.0	3.2	1.8	3.8	5.0	5.8	2.1	1.9	1.0	4.0	4.6	3.7	4.1	4.2	3.3	2.7	2.9	1.0	5.8	3.1	24
22	3.0	4.5	4.0	4.2	6.7	6.7	5.7	7.6	7.4	6.7	8.9	9.8	7.6	11.4	10.8	9.1	8.4	8.9	7.7	6.5	6.3	8.4	9.8	7.9	3.0	11.4	7.3	24
23	9.1	8.8	9.4	8.0	6.1	5.8	6.2	9.1	7.8	6.6	9.3	9.4	9.9	12.4	12.1	11.6	10.1	9.5	8.5	7.2	6.8	7.1	7.0	7.2	5.8	12.4	8.3	24
24	6.1	5.9	6.0	6.9	6.7	7.1	7.4	6.3	8.1	7.3	10.5	9.0	8.4	8.5	8.8	6.3	4.9	7.0	3.8	3.4	2.0	1.9	1.3	**0.3**	**0.3**	10.5	5.8	24
25	1.2	1.2	1.2	1.0	0.6	1.4	3.5	6.5	6.6	6.1	3.6	7.0	9.9	8.6	9.3	10.6	6.9	9.1	12.4	8.8	10.5	10.2	11.8	12.0	0.6	12.4	6.3	24
26	10.3	9.6	10.1	9.8	8.2	4.8	8.1	13.7	17.5	14.8	10.2	12.8	12.5	11.5	13.0	13.8	10.4	11.3	10.0	10.7	10.1	10.2	8.5	6.5	4.8	17.5	10.6	24
27	4.2	3.3	4.3	4.8	3.9	3.4	4.9	8.4	9.0	6.6	7.0	5.0	4.9	3.5	4.3	3.4	5.8	4.4	7.4	7.4	3.5	2.7	3.2	5.9	2.7	9.0	4.8	24
28	5.6	4.9	3.2	5.8	4.4	5.3	6.2	8.0	8.6	7.7	8.3	7.5	6.3	6.1	5.4	2.5	2.5	5.7	7.5	4.1	10.6	9.6	8.1	5.5	2.5	10.6	4.2	24
29	3.0	2.9	3.2	3.3	3.0	3.0	2.9	3.4	3.4	2.9	2.6	5.3	4.9	9.8	10.6	5.0	3.6	6.8	10.6	10.0	4.7	2.5	3.5	3.5	2.5	10.6	2.4	24
30	3.2	3.3	4.3	4.2	4.6	2.3	2.7	3.7	1.4	2.9	2.2	0.6	2.6	7.4	8.6	5.3	6.3	5.6	2.7	3.3	1.6	1.1	1.0	2.0	0.6	8.6	0.6	24
HOURLY MAX	14.2	12.5	11.8	10.1	13.2	13.3	15.2	16.0	20.0	17.9	19.3	16.2	14.1	13.4	14.3	13.8	13.9	12.2	14.6	13.7	12.9	12.5	12.0	12.0				
HOURLY AVG	3.2	2.9	3.0	3.1	2.7	2.5	2.6	3.0	2.8	2.0	1.8	1.7	1.4	1.2	1.2	0.8	1.1	2.2	3.4	3.4	3.0	3.3	3.6	3.7				

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

LAST CALIBRATION:	April 5, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

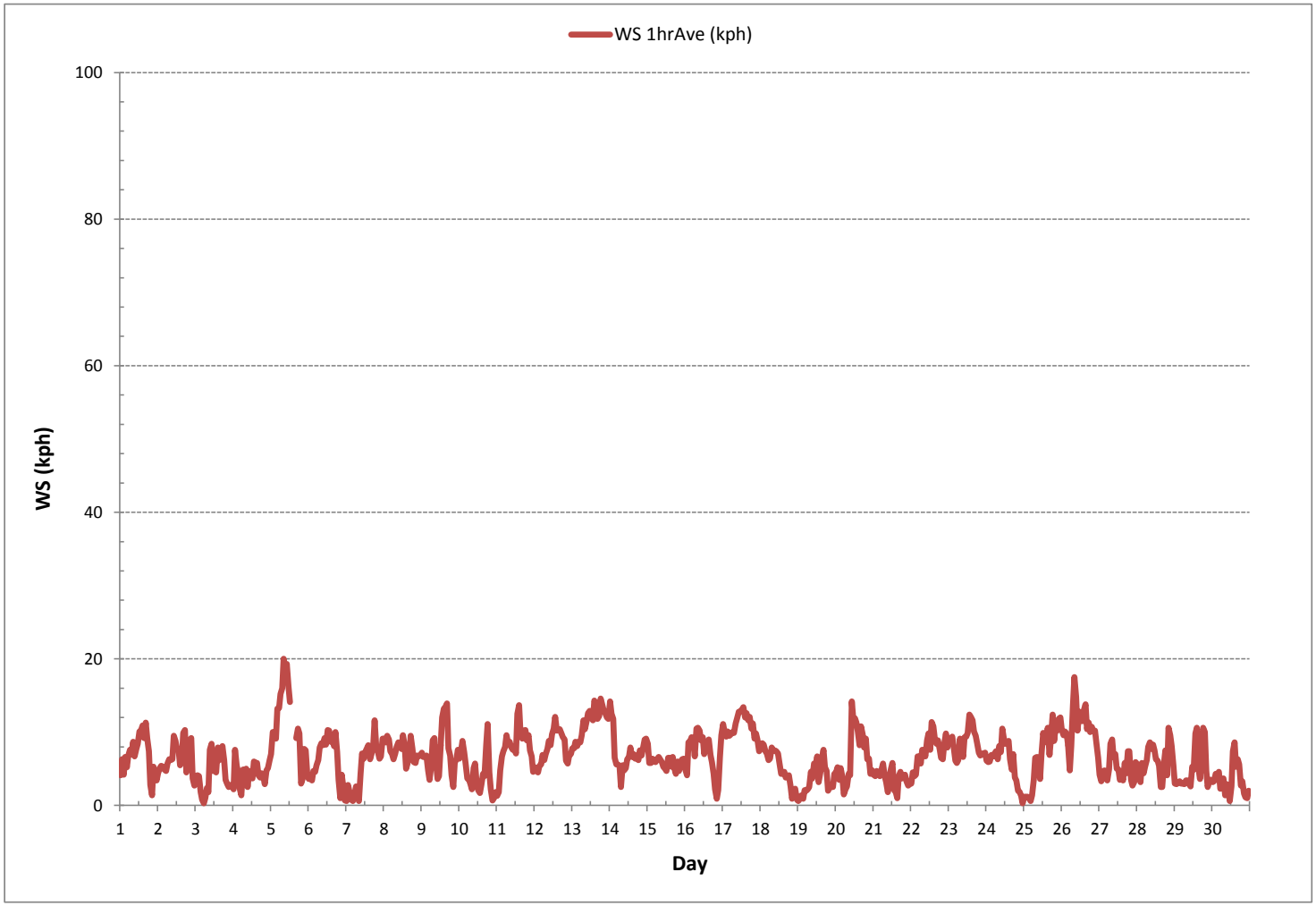
24 HR AVERAGES April 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		717					
MINIMUM 1-HR AVERAGE	0.3	kph	@ HOUR	5, 23	ON DAY	3, 24	
MAXIMUM 1-HR AVERAGE:	20.0	kph	@ HOUR	8	ON DAY	5	
MAXIMUM 24-HR AVERAGE:	11.2	kph			ON DAY	13	
			OPERATIONAL TIME:			720	hrs
MONTHLY CALIBRATION TIME:	3	hrs	AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	3.3		MONTHLY AVERAGE:			2.4	kph

WIND SPEED Hourly Averages (WS kph)



WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	14.5	22.2	15.2	12.6	12.6	17.7	21.0	20.9	28.5	18.7	19.4	25.2	28.0	30.3	30.8	25.1	32.9	29.3	23.8	11.0	12.2	13.9	14.1	10.7	10.7	32.9	20.4	24
2	14.0	13.8	18.7	19.1	21.8	14.3	16.4	17.1	17.8	17.1	18.0	22.6	28.0	25.2	32.7	28.1	34.3	30.7	14.1	28.3	29.5	18.1	13.7	12.0	12.0	34.3	21.1	24
3	9.1	9.3	10.1	8.6	4.6	3.8	7.8	6.5	7.5	20.8	24.8	19.0	19.8	17.1	16.8	20.0	20.2	23.9	17.6	11.1	5.0	4.5	5.3	5.3	3.8	24.8	12.4	24
4	29.5	22.9	14.8	13.7	7.1	6.0	12.0	12.4	12.2	11.4	11.0	17.3	15.9	24.3	19.3	19.8	18.3	15.4	12.1	11.0	7.0	10.8	13.3	12.7	6.0	29.5	14.6	24
5	15.8	23.1	21.6	19.4	30.9	27.3	34.5	31.9	35.9	36.9	36.1	27.6	29.7	C	C	C	18.1	20.9	17.2	6.9	8.3	13.9	15.4	8.9	6.9	36.9	22.9	24
6	7.7	14.6	16.0	9.9	12.5	12.9	15.5	17.0	23.8	20.9	23.4	23.7	26.2	28.9	29.5	34.4	24.9	24.1	14.2	7.7	3.5	8.5	8.4	3.0	3.0	34.4	17.1	24
7	7.5	11.6	5.5	6.4	11.5	5.0	11.3	9.7	6.1	13.3	15.9	22.1	30.6	29.4	19.7	19.9	22.1	27.9	31.0	22.0	17.5	14.0	16.6	22.4	5.0	31.0	16.6	24
8	27.5	27.0	22.9	26.8	24.4	20.4	17.1	27.7	25.8	24.5	23.2	23.9	26.5	26.1	23.2	20.1	21.4	24.0	22.7	15.7	15.4	23.7	20.5	15.3	15.3	27.7	22.7	24
9	21.8	17.4	17.8	16.4	11.1	11.0	15.7	19.1	18.9	13.6	10.6	15.3	21.4	26.6	25.1	34.4	27.3	22.8	17.6	8.2	5.3	12.4	10.2	11.3	5.3	34.4	17.1	24
10	11.1	11.3	11.9	11.2	8.9	6.2	6.7	5.6	10.8	11.3	12.4	10.9	12.2	14.5	15.5	19.8	26.7	21.9	25.2	9.3	12.1	8.0	5.8	8.5	5.6	26.7	12.4	24
11	5.1	8.1	12.3	15.4	17.1	19.0	25.7	24.4	22.3	19.1	19.8	21.0	23.0	29.0	30.1	29.6	25.6	29.4	31.4	27.3	27.2	17.9	15.9	10.9	5.1	31.4	21.1	24
12	13.6	10.5	11.4	14.9	14.7	18.2	20.2	20.4	25.3	21.8	25.5	27.0	27.8	30.4	32.1	29.0	28.0	32.0	27.0	31.0	18.7	17.1	22.7	23.0	10.5	32.1	22.6	24
13	23.0	22.7	27.1	26.1	26.8	25.2	30.6	33.8	36.0	30.6	40.2	35.8	36.6	39.2	36.3	40.9	37.2	38.2	38.0	**46.0**	43.5	40.4	38.0	32.5	22.7	**46.0**	34.4	24
14	34.9	35.2	30.0	21.5	15.8	14.5	15.6	15.1	17.7	16.5	15.0	18.1	21.8	21.9	20.7	21.9	20.7	18.5	17.4	24.0	21.2	25.1	27.9	26.5	14.5	35.2	21.6	24
15	22.6	15.1	13.3	16.6	18.6	15.9	15.8	15.1	18.5	14.5	13.0	12.3	12.1	13.7	14.3	13.0	13.9	12.4	11.0	7.9	8.2	8.9	9.0	9.8	7.9	22.6	13.6	24
16	9.0	10.6	13.7	13.4	12.9	13.1	12.6	16.5	16.2	17.1	17.8	19.4	18.9	20.8	25.0	25.6	18.4	16.5	12.1	7.6	3.7	11.8	17.6	25.8	3.7	25.8	15.7	24
17	29.4	24.6	28.6	24.8	27.5	24.5	24.4	29.0	31.4	34.3	35.7	34.8	34.4	37.5	32.3	32.8	30.7	30.7	24.4	31.1	23.6	24.8	25.2	22.8	22.8	37.5	29.1	24
18	22.3	23.3	20.6	20.8	19.8	19.9	18.5	20.7	20.2	21.7	24.5	19.7	19.8	17.0	13.6	12.8	11.1	9.4	9.5	5.9	4.6	5.0	4.5	3.3	3.3	24.5	15.4	24
19	3.3	2.6	3.9	4.8	5.7	3.9	4.8	7.3	12.3	10.8	14.8	19.8	18.8	16.6	23.8	23.5	18.8	15.2	13.4	7.7	5.4	7.0	8.9	9.2	2.6	23.8	10.9	24
20	10.5	11.2	10.5	12.2	8.2	7.7	7.0	11.9	19.0	21.0	22.8	24.7	26.0	24.8	23.2	25.6	29.8	23.9	20.1	25.8	18.0	18.3	12.5	12.4	7.0	29.8	17.8	24
21	10.4	10.4	13.4	12.0	11.8	12.3	11.5	9.9	8.0	6.6	9.8	11.1	13.0	7.9	11.0	13.7	16.7	15.7	11.1	12.1	12.7	9.3	8.1	8.8	6.6	16.7	11.1	24
22	9.6	14.4	11.5	12.9	16.9	15.3	14.8	17.7	22.9	25.2	25.3	27.7	28.3	29.9	31.2	29.2	26.8	28.1	22.4	20.5	18.4	26.3	27.4	24.0	9.6	31.2	21.9	24
23	28.4	31.0	24.8	23.7	18.8	18.1	18.8	24.9	18.9	18.9	22.9	26.5	29.3	37.3	30.6	37.3	28.4	28.8	30.9	22.5	21.3	23.5	20.6	19.8	18.1	37.3	25.3	24
24	19.3	19.5	18.1	19.0	18.6	20.3	16.2	16.0	21.2	22.4	26.8	24.6	21.3	22.6	22.0	18.5	24.0	18.9	11.7	8.7	4.9	5.1	4.7	4.2	4.2	26.8	17.0	24
25	3.1	3.1	3.8	3.6	2.6	3.3	13.0	14.6	13.6	14.9	13.1	20.3	21.0	21.4	21.2	18.8	17.6	20.5	23.4	22.5	23.2	22.1	23.5	24.4	2.6	24.4	15.4	24
26	22.1	21.6	19.8	20.2	16.6	12.0	18.1	24.2	29.3	26.2	26.6	31.5	28.5	26.6	27.8	28.3	26.6	27.4	25.6	25.7	25.8	23.2	17.6	15.8	12.0	31.5	23.6	24
27	9.6	11.2	10.6	11.1	9.2	8.2	14.2	19.3	16.8	15.4	18.2	21.0	17.1	17.7	16.0	14.3	12.8	10.7	19.2	16.6	6.7	5.9	6.2	10.1	5.9	21.0	13.3	24
28	9.8	8.2	7.0	10.6	8.5	12.7	13.1	13.0	16.5	20.0	26.3	22.2	18.7	20.4	23.0	14.7	13.5	26.5	21.0	12.0	27.3	18.4	13.8	9.1	7.0	27.3	16.1	24
29	5.2	9.0	4.9	5.1	5.0	4.5	6.1	9.1	9.7	12.1	15.6	19.0	19.0	30.1	32.9	21.3	24.3	24.9	20.4	20.0	9.1	7.9	8.2	9.5	4.5	32.9	13.9	24
30	9.0	10.2	12.7	11.5	10.2	7.5	10.0	10.1	6.9	9.1	11.7	11.4	20.8	19.2	30.8	32.6	28.7	20.7	9.2	10.6	5.4	5.1	4.6	6.9	4.6	32.6	13.1	24
HOURLY MAX	34.9	35.2	30.0	26.8	30.9	27.3	34.5	33.8	36.0	36.9	40.2	35.8	36.6	39.2	36.3	40.9	37.2	38.2	38.0	46.0	43.5	40.4	38.0	32.5				
HOURLY AVG	15.3	15.9	15.1	14.8	14.4	13.4	15.6	17.4	19.0	18.9	20.7	21.9	23.1	24.4	24.5	24.3	23.3	23.0	19.8	17.2	14.8	15.0	14.7	14.0				

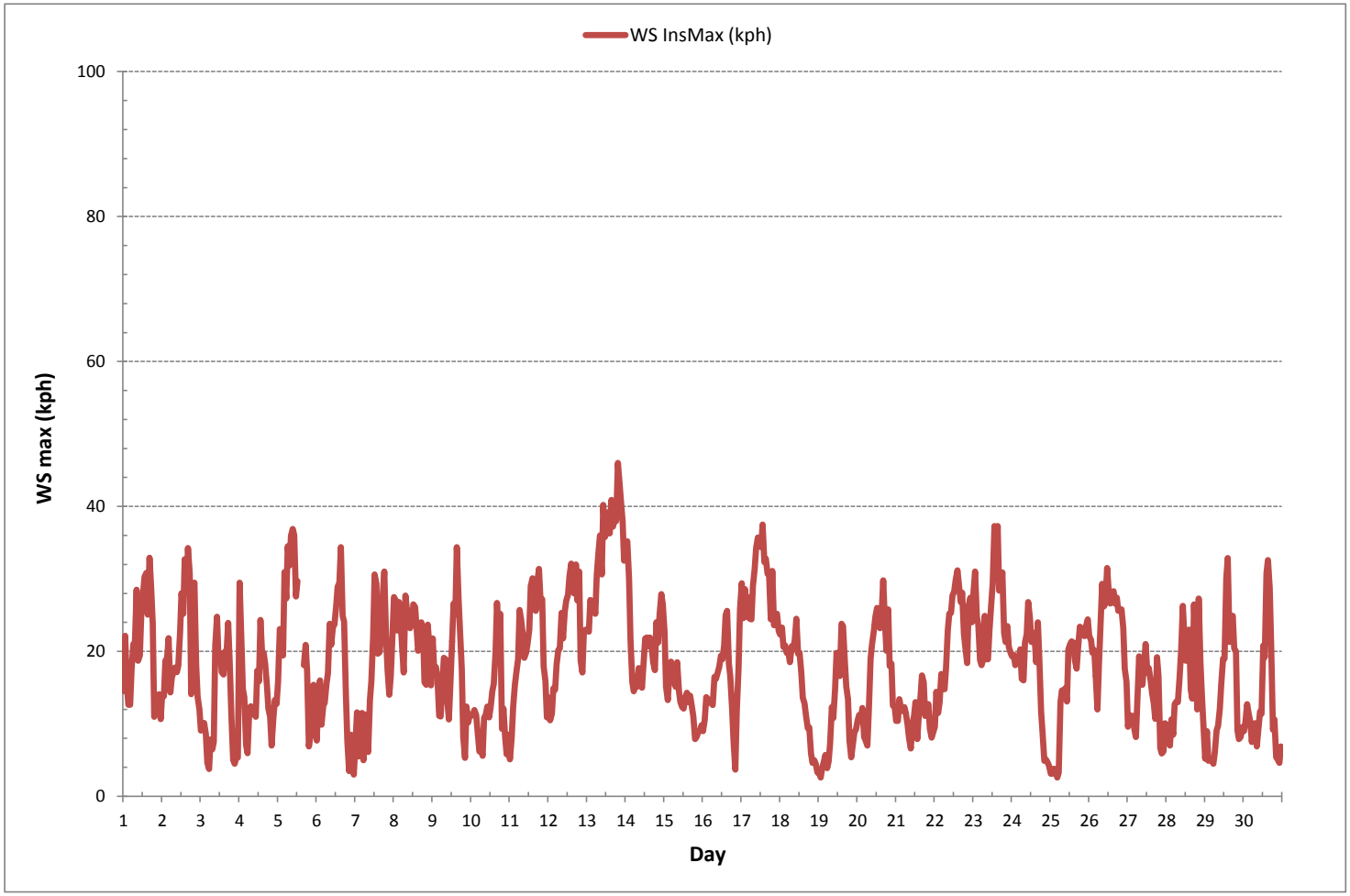
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	46.0	kph	@ HOUR	19	ON DAY	13
OPERATIONAL TIME:					720	hrs

WIND SPEED Instantaneous Maximum (WS kph)



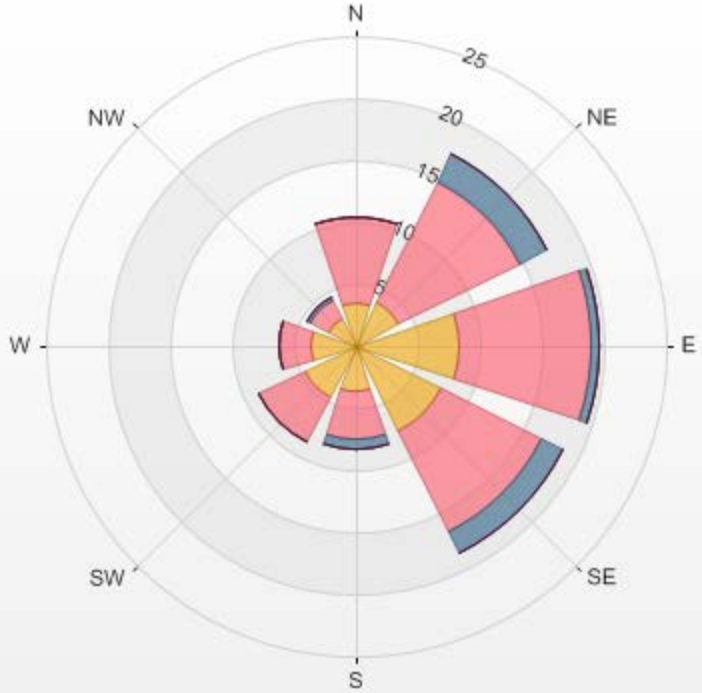
Wind: PRAMP_986
Monitor: WSP [kph]
Monthly: 2017/04
Type: WindRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.14%

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	3.5	7.0	0.0	0.0	0.0	0.0	10.5
NE	3.9	10.9	2.5	0.0	0.0	0.0	17.3
E	8.4	10.7	0.6	0.0	0.0	0.0	19.7
SE	7.8	8.9	2.0	0.0	0.0	0.0	18.7
S	3.8	3.8	0.8	0.0	0.0	0.0	8.4
SW	4.6	4.2	0.0	0.0	0.0	0.0	8.8
W	3.6	2.5	0.0	0.0	0.0	0.0	6.1
NW	2.5	1.5	0.4	0.0	0.0	0.0	4.5
Summary	38.1	49.5	6.3	0.0	0.0	0.0	93.9

% Icon Classes (kph)	38 1.8-6.0	50 6.0-12.0	6 12.0-20.0	0 20.0-29.0	0 29.0-39.0	0 >39.0

PRAMP_986 2017/04/01 00:00 - 2017/04/30 23:00 Calm: 6.14% Calm Wind Avg Speed: 1.10(kph)



WIND DIRECTION

Maxxam
A Bureau Veritas Group Company

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - April 2017

WIND DIRECTION Hourly Averages (WD)

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

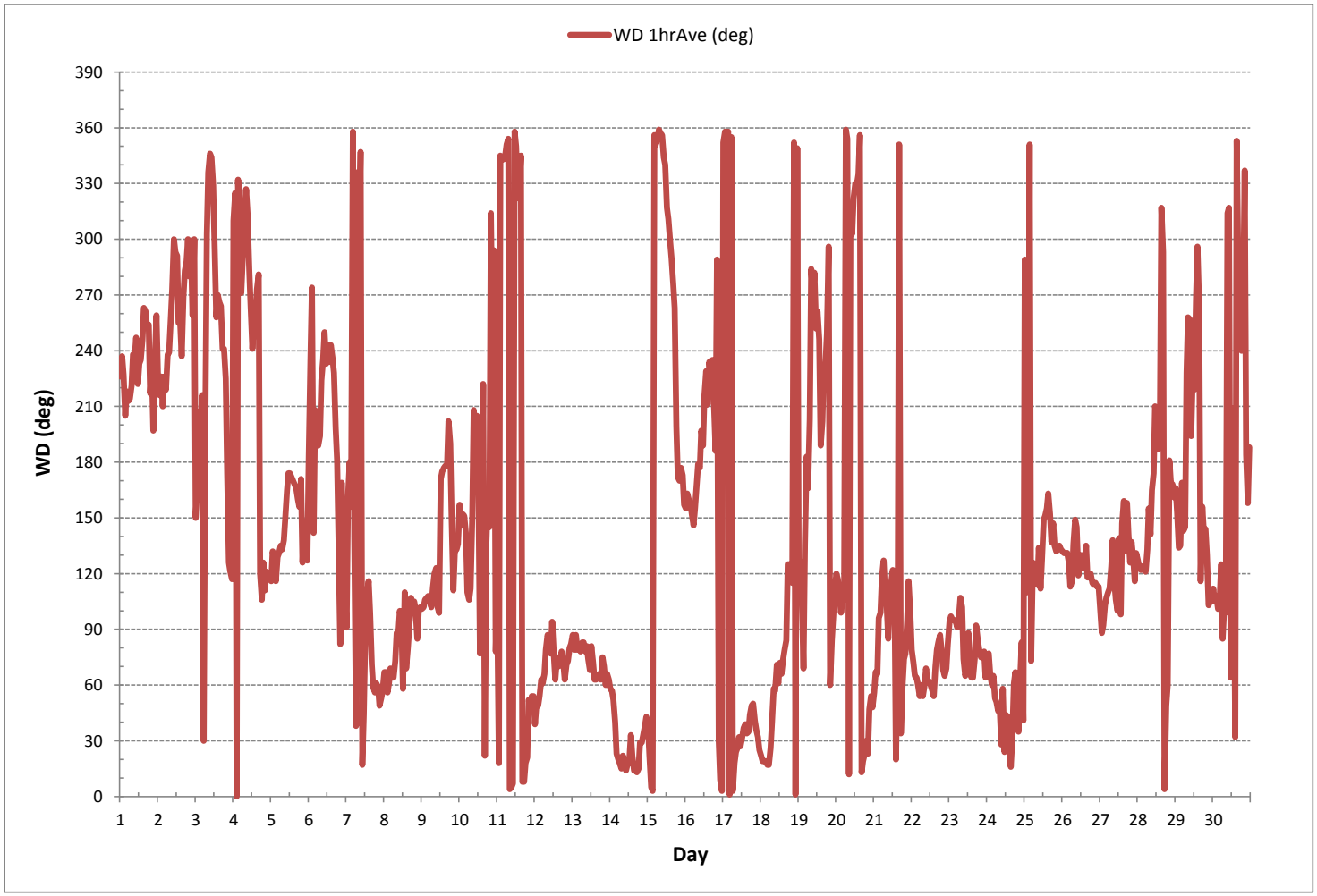
STATUS FLAG CODES

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

LAST CALIBRATION:	April 5, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	3	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	93		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	90 (E)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

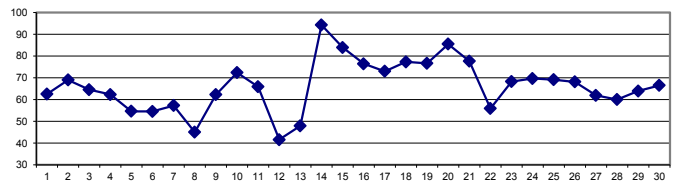
RELATIVE HUMIDITY Hourly Averages (RH %)

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	67	68	72	79	83	83	82	77	70	67	62	61	59	56	54	48	43	40	40	47	54	64	63	62	40	83	63	24
2	64	70	70	77	76	79	80	77	70	65	60	55	49	47	74	71	74	57	63	67	78	78	77	77	47	80	69	24
3	86	88	91	91	94	95	95	95	84	49	42	37	38	37	35	33	32	36	39	49	65	74	80	82	32	95	64	24
4	82	71	73	80	88	91	92	91	83	70	62	49	44	41	37	32	30	29	28	54	66	68	66	68	28	92	62	24
5	68	66	67	70	66	65	62	63	58	49	45	45	44	42	41	38	36	37	39	52	68	61	63	65	36	70	55	24
6	73	68	65	81	80	80	83	74	60	53	43	33	28	27	27	28	28	33	38	46	61	65	62	72	27	83	55	24
7	75	70	70	69	70	77	76	69	64	58	53	53	51	53	52	52	48	47	44	44	40	44	47	47	40	77	57	24
8	48	49	51	53	54	57	60	60	57	50	45	39	32	32	31	27	26	28	31	39	45	48	57	60	26	60	45	24
9	63	67	71	74	77	81	81	76	66	56	48	46	43	43	47	47	46	43	48	60	74	79	79	78	43	81	62	24
10	76	79	80	80	81	86	88	85	77	62	57	54	50	43	38	40	61	78	81	83	84	87	93	94	38	94	72	24
11	94	95	96	86	79	78	78	78	74	69	60	53	48	45	44	41	42	43	47	55	61	67	71	76	41	96	66	24
12	79	81	77	73	69	68	68	61	53	46	40	28	22	19	20	19	**17**	**17**	18	18	21	24	28	31	**17**	81	42	24
13	33	35	38	39	40	41	45	50	50	46	44	46	46	45	42	42	41	41	44	52	64	65	74	87	33	87	48	24
14	92	92	94	96	96	**97**	**97**	**97**	96	95	93	92	93	94	93	93	93	95	96	96	95	95	91	90	90	**97**	**94**	24
15	90	91	92	92	92	93	93	90	87	83	80	78	78	79	77	73	67	64	67	78	89	93	93	94	64	94	84	24
16	94	94	94	94	92	92	91	86	77	71	67	65	62	63	62	57	57	57	57	67	82	86	84	82	57	94	76	24
17	83	83	85	86	85	84	84	80	74	72	67	64	61	59	59	60	61	61	64	66	76	75	81	81	59	86	73	24
18	82	83	83	85	86	85	84	80	77	74	69	68	65	65	66	67	70	71	73	75	78	86	90	92	65	92	77	24
19	89	89	91	91	91	91	90	86	78	73	71	67	67	67	64	60	57	54	55	61	78	88	90	89	54	91	77	24
20	86	83	79	79	82	81	89	89	88	81	89	90	91	91	93	94	91	85	87	82	82	80	78	80	78	94	85	24
21	82	83	85	87	88	89	90	90	87	83	86	82	76	72	69	65	61	60	61	62	67	73	82	82	60	90	78	24
22	81	74	75	76	77	78	75	68	61	56	51	46	43	40	40	38	40	39	40	40	45	50	52	55	38	81	56	24
23	57	59	59	61	63	63	63	64	78	79	69	58	59	55	57	68	77	74	76	77	78	81	81	82	55	82	68	24
24	83	84	84	83	84	84	84	84	79	68	63	58	51	51	53	50	57	59	59	61	63	68	76	85	50	85	70	24
25	88	89	87	91	93	92	92	87	79	67	60	53	49	48	51	50	45	46	42	51	62	73	79	85	42	93	69	24
26	87	87	88	88	89	90	87	77	69	67	60	54	50	48	47	46	46	52	55	60	63	69	75	80	46	90	68	24
27	81	82	82	82	85	89	85	72	66	58	52	48	42	40	39	38	37	39	35	44	63	72	76	77	35	89	62	24
28	76	78	82	81	83	84	81	68	54	44	39	39	40	41	40	37	37	38	42	45	64	77	82	88	37	88	60	24
29	92	95	96	**97**	**97**	**97**	**97**	83	71	60	48	40	35	38	37	32	31	36	34	43	57	71	73	74	31	**97**	64	24
30	76	78	75	75	75	77	72	63	56	45	40	36	40	48	45	58	72	72	64	69	84	90	92	93	36	93	66	24
HOURLY MAX	94	95	96	97	97	97	97	97	96	95	93	92	93	94	93	94	93	95	96	96	95	95	93	94				
HOURLY AVG	78	78	78	80	81	82	81	77	71	64	59	55	52	51	51	50	51	51	52	58	67	72	75	77				

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

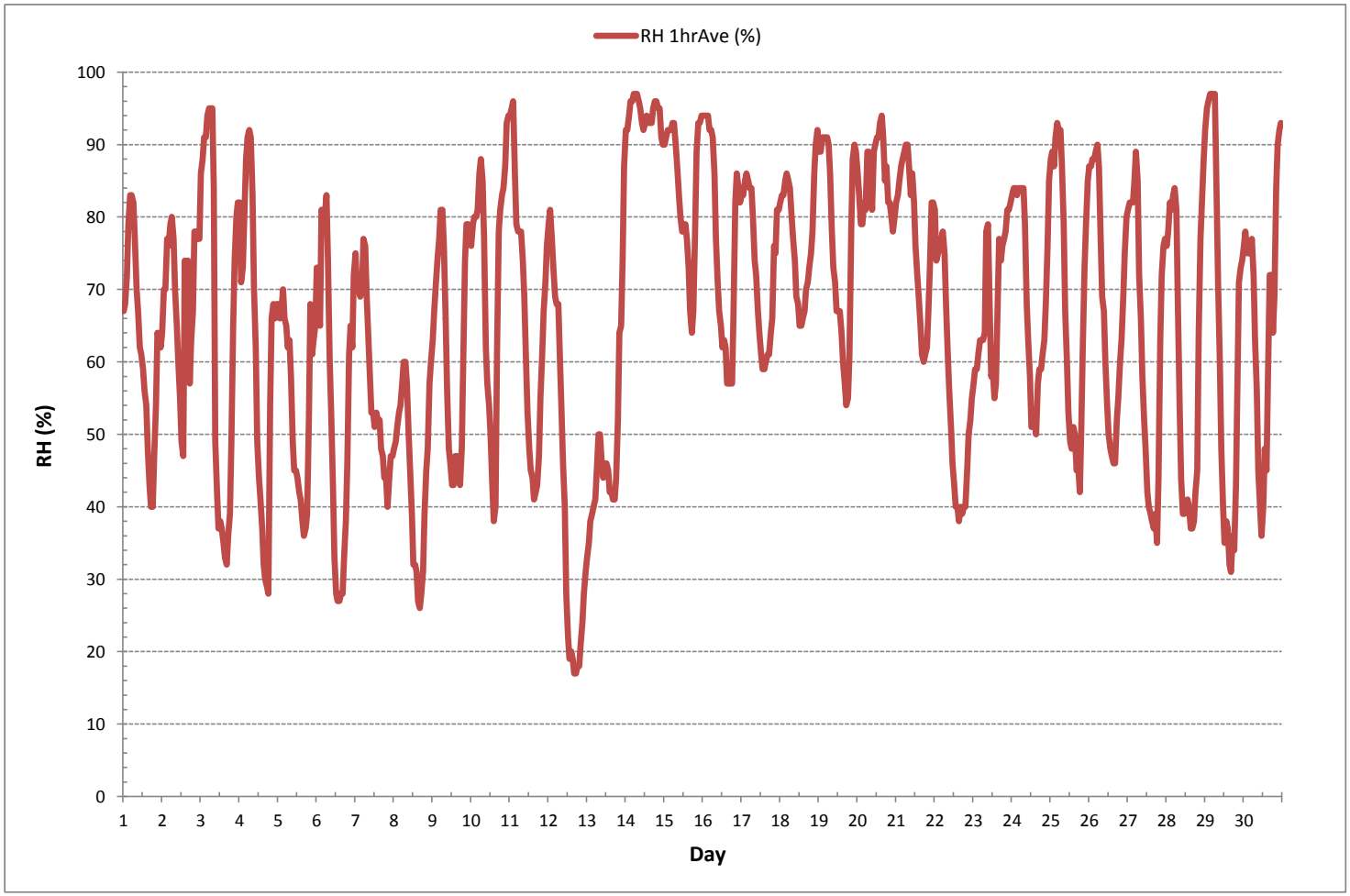
24 HR AVERAGES April 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	17	%	@ HOUR	16, 17	ON DAY	12	
MAXIMUM 1-HR AVERAGE:	97	%	@ HOUR	VAR, VAR	ON DAY	14, 29	
MAXIMUM 24-HR AVERAGE:	94	%			ON DAY	14	
			OPERATIONAL TIME:			720	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	19		MONTHLY AVERAGE:			66	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE

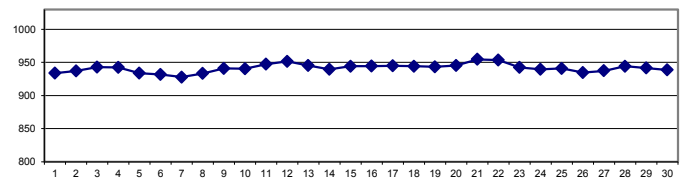
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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

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

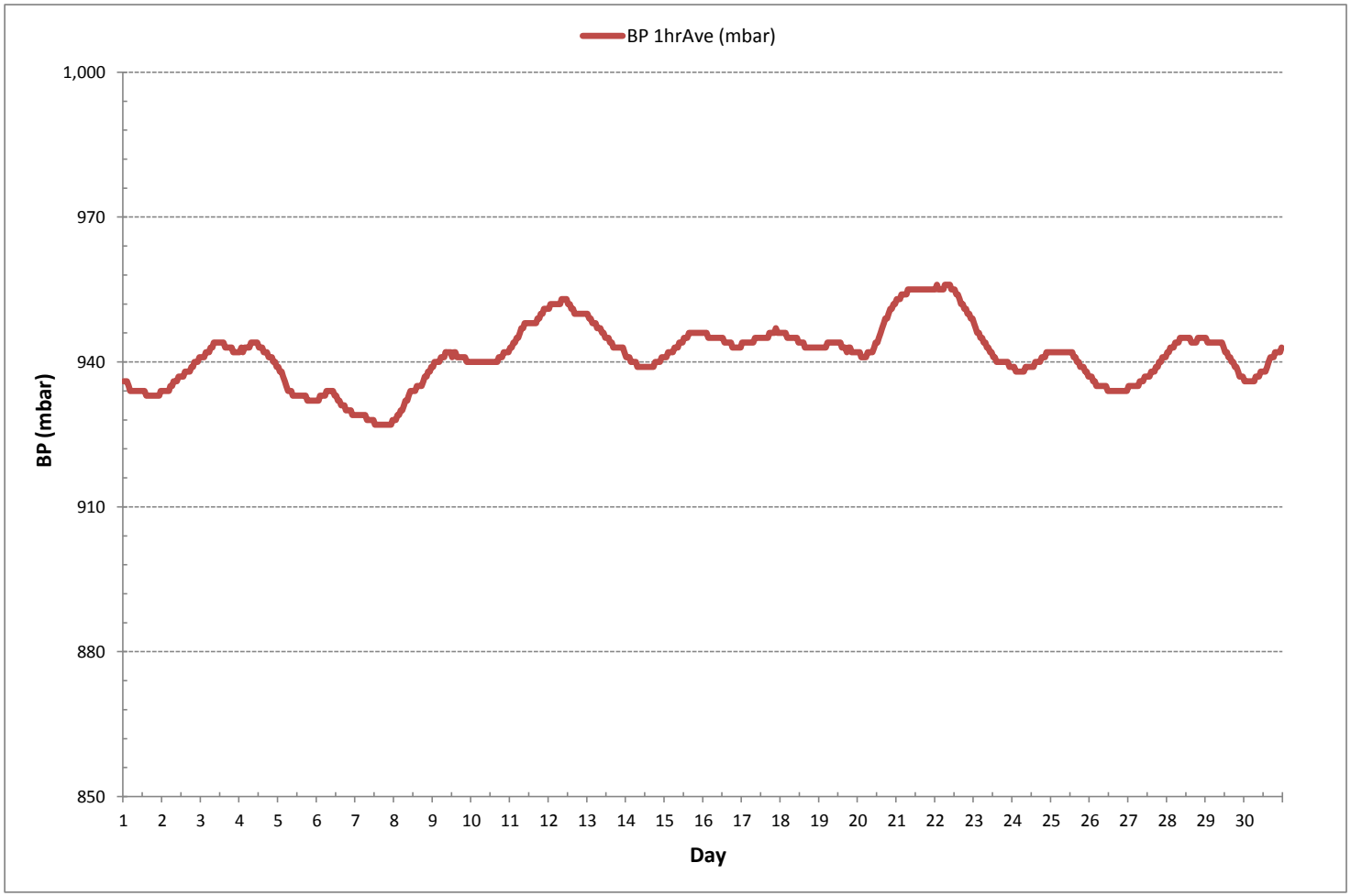
24 HR AVERAGES April 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	927	mbar	@ HOUR	VAR	ON DAY	7	
MAXIMUM 1-HR AVERAGE:	956	mbar	@ HOUR	VAR	ON DAY	22	
MAXIMUM 24-HR AVERAGE:	955	mbar			ON DAY	21	
			OPERATIONAL TIME:			720	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	6		MONTHLY AVERAGE:			941	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE

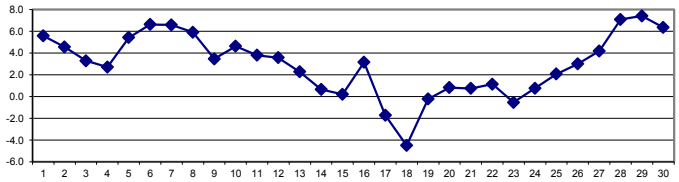
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	3.7	3.5	2.6	1.3	0.6	0.9	1.3	2.7	4.4	5.2	6.4	7.1	7.7	8.6	8.8	9.5	11.2	11.3	10.9	7.8	6.0	4.3	4.0	4.1	0.6	11.3	5.6	24
2	3.5	2.8	3.1	1.6	1.9	1.7	1.2	2.0	3.4	4.6	6.5	7.9	9.2	9.7	4.8	5.9	5.3	8.0	6.8	5.6	4.1	3.6	3.0	2.7	1.2	9.7	4.5	24
3	1.3	1.2	0.3	-0.2	-1.2	-1.8	-2.1	-1.3	1.3	4.7	6.0	7.0	6.9	8.0	8.2	8.9	9.4	9.3	8.3	5.5	2.2	-0.1	-1.4	-1.7	-2.1	9.4	3.3	24
4	-1.7	1.0	0.9	-0.2	-1.9	-3.0	-1.5	-1.2	0.8	2.8	3.8	5.3	6.0	7.2	7.9	8.8	9.3	10.4	8.8	3.8	0.7	-0.7	-1.3	-1.5	-3.0	10.4	2.7	24
5	-1.5	-0.7	-0.7	-1.3	0.3	0.7	1.5	2.3	4.4	6.6	7.2	7.4	8.3	8.9	10.0	12.5	13.6	13.4	12.2	7.9	3.8	5.2	4.7	3.3	-1.5	13.6	5.4	24
6	1.3	2.8	3.8	0.6	1.3	1.5	0.6	3.2	5.6	7.2	9.0	10.7	11.5	12.2	12.5	12.2	12.5	11.7	10.3	8.5	6.3	5.3	4.9	3.4	0.6	12.5	6.6	24
7	3.0	3.7	3.9	3.7	3.1	2.5	2.7	4.2	6.0	7.3	8.0	8.6	8.8	8.8	9.4	9.1	9.4	9.2	8.9	8.6	8.2	7.2	6.8	6.5	2.5	9.4	6.6	24
8	6.1	5.7	5.1	4.6	4.0	3.2	2.6	2.6	3.5	5.1	6.3	7.8	8.4	10.0	10.6	11.2	11.2	10.8	9.5	6.0	3.8	2.8	1.1	-0.3	-0.3	11.2	5.9	24
9	-1.2	-1.9	-2.4	-2.8	-3.4	-4.4	-4.2	-2.5	0.1	3.0	5.7	8.3	10.2	10.8	9.6	10.8	11.1	11.7	10.4	7.2	2.9	1.5	1.4	1.0	-4.4	11.7	3.5	24
10	1.7	1.7	1.5	1.1	0.4	-1.3	-1.6	0.0	2.8	5.7	7.5	8.6	10.1	11.8	12.6	11.5	8.5	6.8	6.0	5.6	4.8	3.2	1.6	0.4	-1.6	12.6	4.6	24
11	-0.6	-1.0	-0.7	0.1	0.3	-0.4	-1.1	-1.6	-0.5	1.9	4.6	7.0	8.5	9.5	10.4	11.2	10.8	10.6	9.0	6.3	4.1	2.3	0.9	-0.4	-1.6	11.2	3.8	24
12	-1.3	-1.7	-0.9	-0.3	0.0	-0.2	-0.8	0.1	2.1	3.4	4.6	5.9	6.6	7.1	8.1	8.9	9.0	9.1	8.0	6.3	4.4	3.2	2.3	1.6	-1.7	9.1	3.6	24
13	1.0	0.4	-0.1	-0.5	-0.9	-0.9	-0.9	-0.4	0.4	1.1	2.5	4.0	4.6	4.9	5.1	5.1	5.2	5.2	4.7	3.9	2.9	2.9	2.5	1.6	-0.9	5.2	2.3	24
14	1.3	1.2	0.9	0.6	0.5	0.4	0.4	0.4	0.6	0.9	1.0	1.1	1.0	0.8	1.1	1.3	1.1	0.8	0.6	0.4	0.1	-0.1	-0.3	-0.7	-0.7	1.3	0.6	24
15	-1.1	-1.4	-1.6	-1.9	-2.1	-2.2	-2.2	-1.7	-0.9	0.0	0.7	1.4	1.6	1.8	2.4	2.9	3.8	4.6	4.5	2.2	-0.7	-1.8	-2.0	-1.8	-2.2	4.6	0.2	24
16	-2.2	-2.7	-2.6	-2.4	-2.3	-2.4	-2.0	0.2	2.5	4.3	5.7	6.6	7.3	7.5	7.9	8.3	8.7	8.5	8.3	5.6	2.7	2.1	3.1	2.7	-2.7	8.7	3.1	24
17	1.0	0.0	-0.9	-1.6	-1.8	-2.0	-2.1	-1.8	-2.1	-1.7	-1.2	-0.7	-0.3	-0.3	-0.5	-0.9	-1.1	-1.5	-1.8	-2.4	-3.5	-4.0	-4.9	-5.2	-5.2	1.0	-1.7	24
18	-5.6	-6.2	-6.4	-6.6	-6.9	-7.1	-7.0	-6.4	-6.0	-5.4	-4.4	-3.9	-3.2	-2.4	-2.0	-2.0	-1.9	-1.7	-2.3	-2.6	-3.3	-3.8	-4.9	-6.2	-7.1	-1.7	-4.5	24
19	-8.2	**-8.6**	-6.2	-5.4	-4.9	-4.5	-4.1	-3.2	-2.8	-2.1	-1.4	0.4	1.3	2.0	4.5	6.4	7.3	8.2	8.0	6.5	2.2	-0.1	-0.4	-0.5	**-8.6**	8.2	-0.2	24
20	-0.1	0.7	1.2	1.4	1.5	1.7	1.5	2.2	2.4	4.0	2.1	1.0	0.6	0.4	0.5	0.7	0.7	0.6	0.1	-0.2	-0.6	-0.7	-1.0	-1.1	-1.1	4.0	0.8	24
21	-1.4	-1.6	-1.8	-1.9	-1.8	-1.7	-1.3	-1.1	-0.5	0.3	0.8	1.9	2.6	2.9	3.5	4.6	4.5	4.7	3.9	3.4	1.7	-0.1	-1.8	-2.1	-2.1	4.7	0.7	24
22	-1.7	-1.2	-1.2	-1.4	-1.6	-2.0	-1.8	-1.1	0.1	1.6	2.5	3.6	5.4	5.0	5.1	5.6	5.0	4.6	3.1	1.6	0.2	-0.9	-1.5	-1.9	-2.0	5.6	1.1	24
23	-2.2	-2.5	-2.7	-3.0	-3.2	-3.2	-3.0	-2.5	-2.6	-1.7	0.1	1.7	2.3	2.6	2.3	1.9	1.5	1.6	1.0	0.5	0.1	-0.4	-0.8	-1.0	-3.2	2.6	-0.6	24
24	-1.1	-1.2	-1.3	-1.4	-1.6	-1.6	-1.5	-1.1	-0.5	1.6	2.0	2.8	3.7	2.9	2.8	3.8	2.9	2.4	2.4	2.1	1.4	0.6	-0.4	-1.8	-1.8	3.8	0.7	24
25	-2.4	-2.4	-2.5	-4.0	-4.8	-5.5	-3.8	-1.1	1.1	3.4	4.5	6.2	6.7	6.7	6.5	6.5	8.2	7.3	7.1	6.2	3.6	1.5	0.6	-0.2	-5.5	8.2	2.1	24
26	-0.9	-1.3	-1.5	-1.8	-2.3	-2.7	-1.2	1.9	3.9	4.2	6.0	7.1	7.7	7.7	7.8	7.9	7.6	6.9	6.2	4.6	3.5	1.6	0.0	-1.1	-2.7	7.9	3.0	24
27	-1.7	-1.9	-1.5	-1.3	-2.2	-3.4	-1.5	2.3	4.1	5.6	6.8	8.0	9.7	9.9	10.4	10.5	11.0	10.2	12.0	9.0	3.5	0.9	0.1	-0.4	-3.4	12.0	4.2	24
28	-0.5	-1.0	-1.8	-1.8	-1.8	-0.9	1.2	4.9	8.4	10.8	11.9	12.0	12.4	13.1	13.6	13.4	13.7	12.9	11.8	10.9	9.1	7.4	5.9	4.0	-1.8	13.7	7.1	24
29	2.2	1.4	0.5	-0.2	-1.0	-1.6	0.3	6.0	7.3	10.1	12.2	13.0	14.5	13.9	13.6	15.0	**15.3**	13.6	14.6	11.2	7.2	4.1	2.6	1.9	-1.6	**15.3**	**7.4**	24
30	1.5	1.0	1.2	1.3	1.3	0.9	2.4	5.5	8.0	10.2	12.4	14.1	13.5	12.9	11.6	9.7	8.5	8.8	9.8	8.8	5.8	2.9	0.9	-0.7	-0.7	14.1	6.3	24
HOURLY MAX	6.1	5.7	5.1	4.6	4.0	3.2	2.7	6.0	8.4	10.8	12.4	14.1	14.5	13.9	13.6	15.0	15.3	13.6	14.6	11.2	9.1	7.4	6.8	6.5				
HOURLY AVG	-0.3	-0.3	-0.4	-0.8	-1.0	-1.3	-0.9	0.5	1.9	3.5	4.7	5.7	6.5	6.8	7.0	7.4	7.4	7.3	6.8	5.0	2.9	1.7	0.9	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

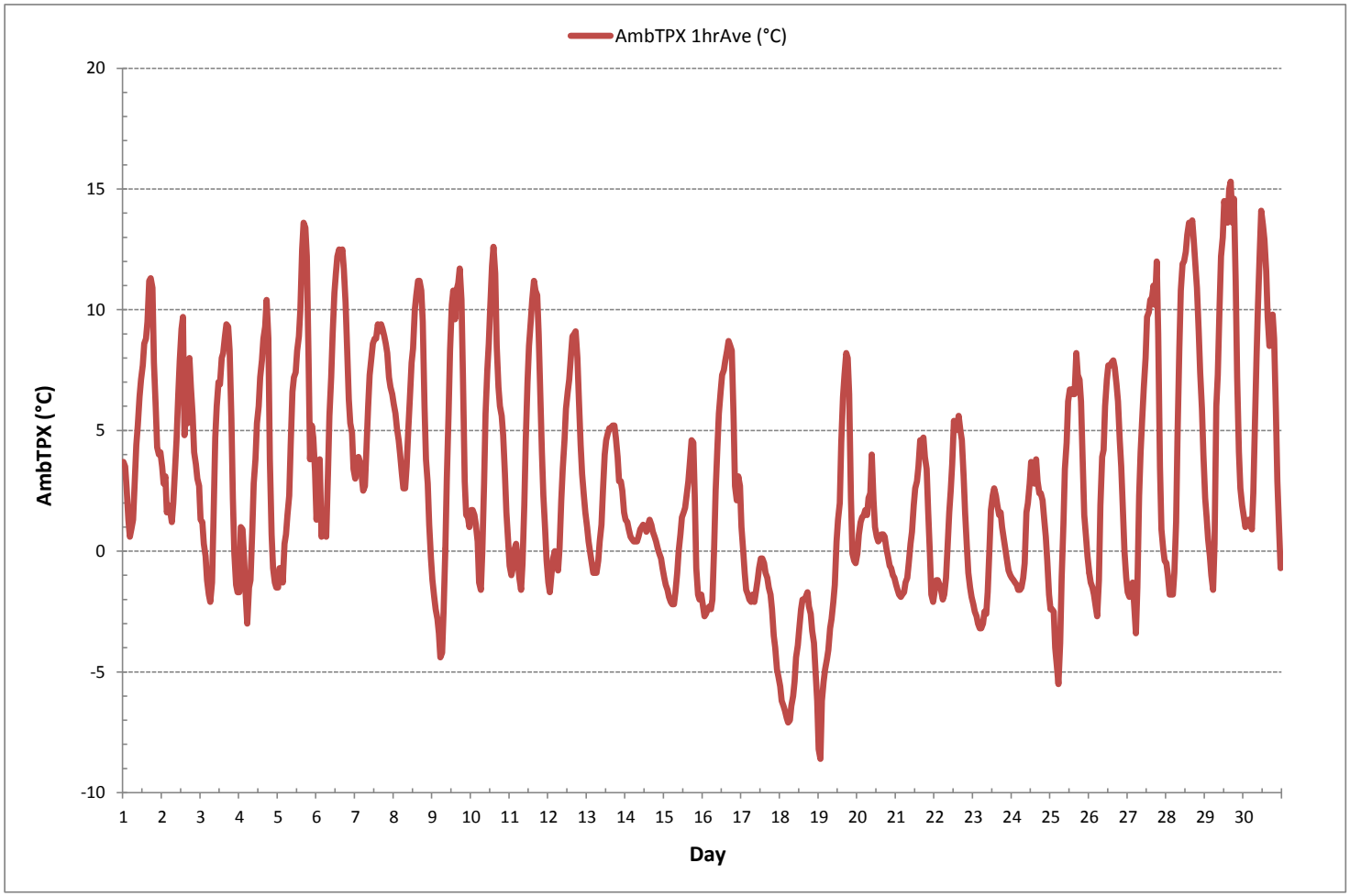
24 HR AVERAGES April 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-8.6	°C	@ HOUR	1	ON DAY	19	
MAXIMUM 1-HR AVERAGE:	15.3	°C	@ HOUR	16	ON DAY	29	
MAXIMUM 24-HR AVERAGE:	7.4	°C			ON DAY	29	
			OPERATIONAL TIME:			720	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	4.7		MONTHLY AVERAGE:			3.0	°C

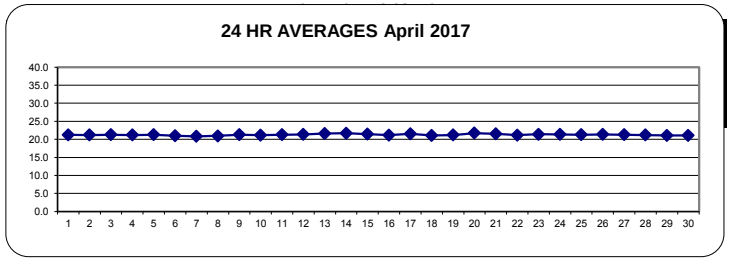
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

STATION TEMPERATURE Hourly Averages (StnTPX °C)

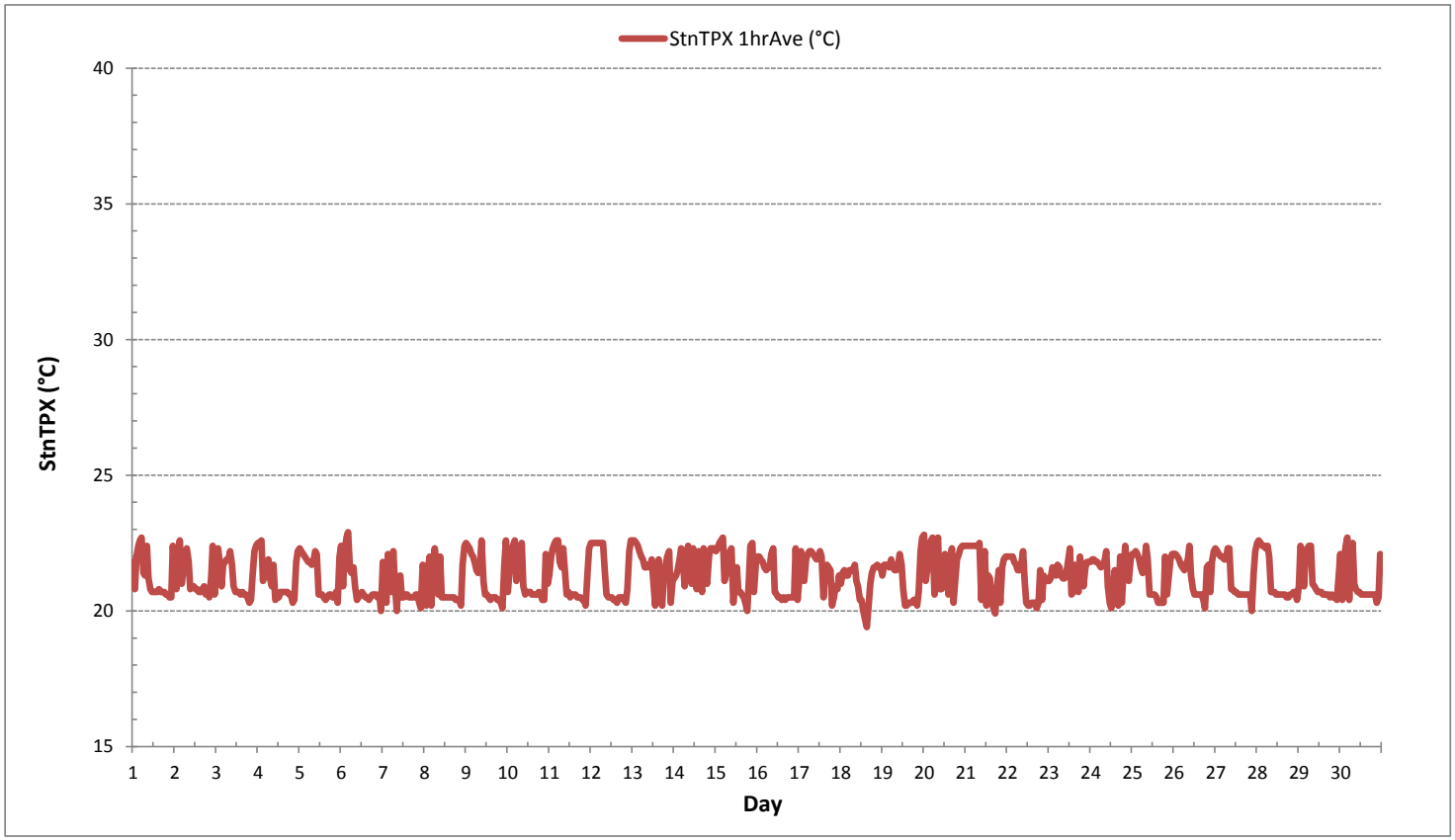
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	21.8	20.8	22.0	22.4	22.6	22.7	21.4	21.3	22.4	21.2	20.8	20.7	20.7	20.7	20.7	20.8	20.7	20.7	20.7	20.6	20.6	20.5	20.5	22.2	20.5	22.7	21.2	24
2	21.5	20.8	22.1	22.6	21.0	21.5	22.0	22.3	21.8	20.8	20.9	20.9	20.8	20.8	20.7	20.7	20.8	20.9	20.6	20.8	20.5	21.2	22.4	20.6	20.5	22.6	21.2	24
3	21.5	22.3	21.8	20.9	21.7	21.8	21.9	21.9	22.2	21.7	20.9	20.7	20.7	20.7	20.6	20.7	20.6	20.6	20.5	20.3	20.4	21.3	22.2	22.4	20.3	22.4	21.3	24
4	22.5	22.5	22.6	21.1	21.6	21.7	21.9	21.2	20.9	21.7	20.4	20.5	20.5	20.7	20.7	20.7	20.7	20.7	20.6	20.6	20.3	20.4	21.8	22.2	20.3	22.6	21.2	24
5	22.3	22.2	22.1	22.0	21.9	21.8	21.8	21.7	21.8	22.2	22.1	20.6	20.6	20.6	20.5	20.4	20.5	20.6	20.6	20.5	20.5	20.7	20.3	22.0	20.3	22.3	21.3	24
6	22.4	20.9	22.1	22.7	**22.9**	21.5	21.4	21.6	20.9	20.4	20.5	20.6	20.7	20.6	20.5	20.5	20.4	20.5	20.6	20.6	20.6	20.5	20.6	20.0	20.0	**22.9**	21.0	24
7	21.8	21.4	20.3	22.1	21.0	20.7	22.2	21.0	20.0	21.1	21.3	20.5	20.5	20.6	20.6	20.5	20.5	20.5	20.5	20.6	20.6	20.3	20.1	21.7	20.0	22.2	20.9	24
8	21.4	20.2	21.5	22.0	20.2	21.6	22.3	21.6	20.6	22.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.4	20.4	20.4	20.2	21.7	22.4	20.2	22.4	21.0	24
9	22.5	22.4	22.3	22.1	22.0	21.8	21.5	21.4	21.7	22.6	21.1	20.6	20.6	20.5	20.4	20.5	20.5	20.5	20.4	20.4	20.3	20.1	21.7	22.6	20.1	22.6	21.3	24
10	20.7	21.4	22.1	22.4	22.6	21.1	21.3	21.9	22.5	20.9	20.6	20.7	20.7	20.7	20.6	20.6	20.6	20.6	20.7	20.6	20.4	20.4	22.1	21.0	20.4	22.6	21.1	24
11	21.3	22.0	22.3	22.5	22.6	22.6	21.8	21.6	22.3	21.4	20.6	20.7	20.5	20.6	20.6	20.6	20.5	20.5	20.5	20.4	20.4	20.2	21.4	22.3	20.2	22.6	21.3	24
12	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	21.4	20.6	20.5	20.5	20.5	20.4	20.4	20.3	20.5	20.5	20.5	20.4	20.3	20.8	22.2	22.6	20.3	22.6	21.4	24
13	22.6	22.6	22.5	22.4	22.2	22.0	21.9	21.6	21.6	21.7	21.6	21.9	21.1	20.2	21.4	21.9	20.5	20.2	21.3	21.7	22.0	22.2	20.3	21.1	20.2	22.6	21.6	24
14	21.2	21.3	21.5	21.9	22.3	21.8	20.9	22.0	22.4	21.5	21.0	22.3	21.3	20.8	22.2	21.1	20.7	22.3	21.4	21.0	22.0	22.3	22.3	22.3	20.7	22.4	**21.7**	24
15	22.2	22.3	22.5	22.6	22.7	21.1	21.4	21.9	22.2	22.3	20.3	21.0	21.6	20.7	20.7	20.6	20.5	20.3	20.0	21.1	22.4	22.5	20.7	21.7	20.0	22.7	21.5	24
16	22.0	22.0	21.9	21.8	21.6	21.5	21.6	21.6	22.1	22.3	20.7	20.6	20.5	20.5	20.4	20.5	20.4	20.5	20.5	20.5	20.5	20.5	22.3	20.4	20.4	22.3	21.1	24
17	21.1	22.2	21.3	21.1	21.9	22.1	22.2	22.2	22.1	22.0	21.9	22.0	22.2	22.0	20.5	21.5	21.7	21.6	21.5	20.2	20.5	20.9	20.8	21.3	20.2	22.2	21.5	24
18	21.0	21.4	21.5	21.3	21.3	21.5	21.5	21.5	21.7	21.1	20.9	20.4	20.4	20.0	19.7	**19.4**	20.1	21.0	21.4	21.6	21.6	21.7	21.6	21.6	**19.4**	21.7	21.1	24
19	21.3	21.7	21.7	21.7	21.6	21.9	21.6	21.5	21.5	21.7	22.1	21.7	20.8	20.2	20.2	20.3	20.3	20.3	20.4	20.4	20.2	20.7	22.2	22.7	20.2	22.7	21.2	24
20	22.8	21.1	21.6	22.2	22.6	22.7	20.6	22.0	22.7	20.8	20.8	20.9	22.1	21.6	20.6	21.8	22.3	20.3	21.2	21.9	22.1	22.3	22.4	22.4	20.3	22.8	**21.7**	24
21	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.5	20.4	21.7	22.2	20.2	21.3	21.2	20.4	20.1	19.9	20.8	21.5	20.3	21.6	21.9	22.0	19.9	22.5	21.6	24
22	22.0	22.0	22.0	22.0	21.8	21.7	21.5	21.5	21.7	22.2	21.1	20.3	20.2	20.2	20.3	20.3	20.3	20.1	20.3	21.5	20.4	21.3	21.2	21.1	20.1	22.2	21.1	24
23	21.1	21.2	21.6	21.5	21.3	21.7	21.6	21.3	21.2	21.2	21.4	21.8	22.3	20.6	20.7	21.7	21.1	20.7	22.0	21.4	20.9	21.6	21.8	21.8	20.6	22.3	21.4	24
24	21.8	21.9	21.9	21.8	21.8	21.7	21.6	21.7	21.8	22.2	20.9	20.3	20.1	20.9	21.5	20.3	20.2	22.0	20.3	21.5	22.4	21.6	21.1	21.9	20.1	22.4	21.4	24
25	22.1	22.1	22.2	22.1	21.9	21.6	21.4	21.6	22.4	21.9	20.6	20.6	20.6	20.6	20.5	20.3	20.3	20.3	20.3	22.0	20.6	21.2	21.9	22.1	20.3	22.4	21.3	24
26	22.1	22.1	22.0	21.9	21.7	21.6	21.5	21.7	21.9	22.4	21.3	20.8	20.6	20.6	20.6	20.6	20.6	20.4	20.1	21.6	21.7	20.7	21.8	22.2	20.1	22.4	21.4	24
27	22.3	22.2	22.1	22.0	22.0	21.9	21.9	22.3	22.3	20.8	20.8	20.7	20.7	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.0	21.4	22.2	20.0	22.3	21.3	24
28	22.5	22.6	22.5	22.4	22.4	22.3	22.4	22.0	20.7	20.7	20.7	20.6	20.6	20.6	20.6	20.6	20.6	20.5	20.5	20.6	20.6	20.7	20.7	20.4	20.4	22.6	21.2	24
29	20.9	22.4	22.2	20.9	22.0	22.3	22.4	22.4	21.0	20.9	20.8	20.7	20.7	20.7	20.6	20.6	20.6	20.6	20.5	20.6	20.5	20.5	20.4	21.3	20.4	22.4	21.1	24
30	22.1	20.4	21.8	22.4	22.7	20.4	21.7	22.5	21.0	20.8	20.7	20.7	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.3	20.5	22.1	20.3	22.7	21.1	24
HOURLY MAX	22.8	22.6	22.6	22.7	22.9	22.7	22.5	22.5	22.7	22.6	22.1	22.3	22.3	22.0	22.2	21.9	22.3	22.3	22.0	22.0	22.4	22.5	22.4	22.7				
HOURLY AVG	21.9	21.8	22.0	22.0	22.0	21.8	21.7	21.8	21.7	21.5	21.0	20.9	20.8	20.7	20.7	20.7	20.6	20.6	20.7	20.9	20.8	21.0	21.4	21.8				



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	19.4	°C	@ HOUR	15	ON DAY	18	
MAXIMUM 1-HR AVERAGE:	22.9	°C	@ HOUR	4	ON DAY	6	
MAXIMUM 24-HR AVERAGE:	21.7	°C			ON DAY	14, 20	
			OPERATIONAL TIME:			720	hrs
			AMD OPERATION UPTIME:			100.0	%
STANDARD DEVIATION:	0.8		MONTHLY AVERAGE:			21.3	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE

Thermo 43C Sulphur Dioxide Analyzer Calibration

Date:	April 18, 2017	**Barometric Pressure:**	27.95 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	21
Location/Station Name:	986b	**Weather Conditions:**	Light snow
Parameter:	Sulphur Dioxide	**Calibration Purpose:**	routine monthly
Start Time 24 hr. (mst):	8:55	**Performed By/Reviewer:**	Limin Li / Trina Whitsitt
End Time 24 hr. (mst):	13:00	**Cal Gas Expiry Date:**	December 8, 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:	March 7, 2017	**As Found C.F.:**	1.024
Previous C.F.:	0.999	**New C.F.:**	1.000

Calibrator:

Flow Meter ID's:	sn: 108646 / sn: 4425
Make & Model:	Sabio 2010
Serial #:	17200415
Cal Gas Cylinder I.D. # :	EY0000769
Cal Gas Conc. (ppm):	50.5

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

SO_2 Scrubber Check (10 mins.)

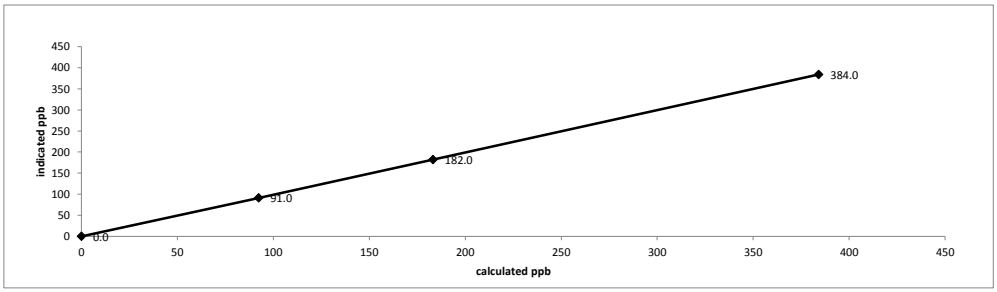
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**(ppb)**	**(ppb)**	
as found zero	6400	0.00	6400	0.0	1.0	n/a
as found high	6353	48.69	6402	384.1	376.0	1.024
adjusted zero	6400	0.00	6400	0.0	0.0	n/a
adjusted high	6353	48.69	6402	384.1	384.0	1.000
mid	6396	23.29	6419	183.2	182.0	1.007
low	6414	11.75	6426	92.3	91.0	1.015
calibrator zero	6400	0.00	6400	0.0	0.0	n/a
					Average C.F.=	1.007

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	**1.000**	**> or = 0.995**
Slope =	**0.999**	**.95-1.05**
b (Intercept as % of full scale)=	**0.16%**	**± 3% F.S.**
% change in C.F. from last cal=	**-2.53%**	**± 10%**

Thermo 43C Sulphur Dioxide Analyzer Calibration



As found:		As left:	
BKG:	70.7	BKG:	74.5
COEF:	0.872	COEF:	0.889
PMT:	-654	PMT:	-654
LAMP:	844	LAMP:	844
BATTERY:	3.3	BATTERY:	3.3
INTERNAL:	33.2	INTERNAL:	27.3
CHAMBER:	45.6	CHAMBER:	45.3
PRESSURE:	450.2	PRESSURE:	442.3
FLOW:	0.807	FLOW:	0.811
INTENSITY:	38037	INTENSITY:	37984
Expected Value:	276.4	Expected Value:	284.7

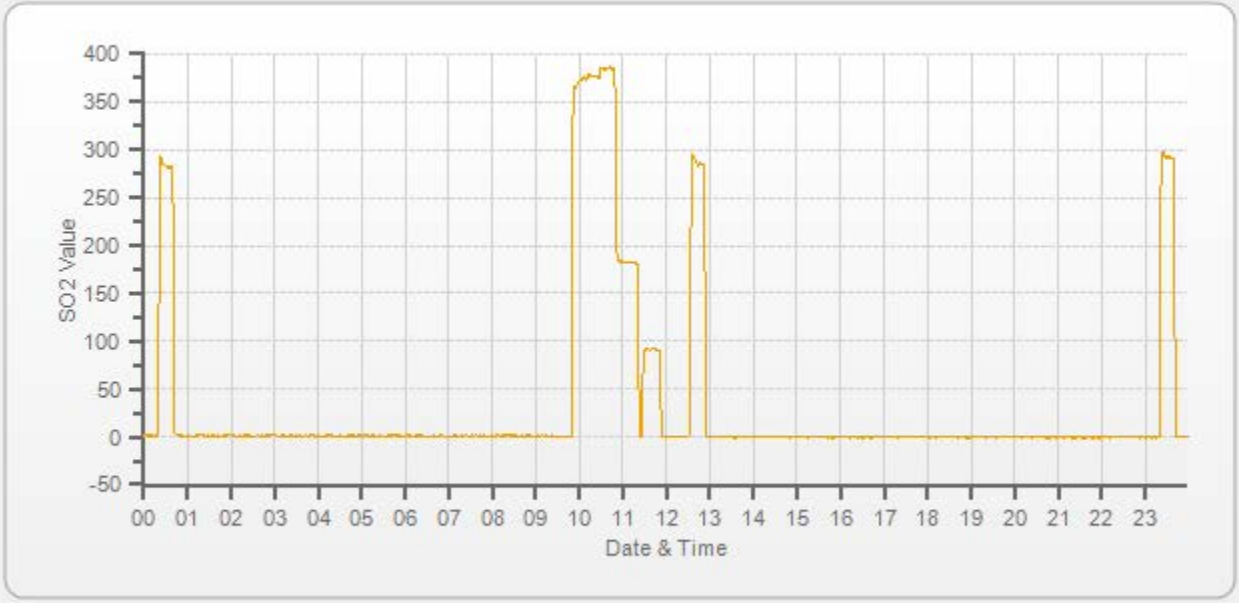
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

Flow measurements completed after mid-point.

SO2[ppb] Station: PRAMP_986 Daily: 2017/04/18 Type: AVG 1 Min. [1 Min.]



TOTAL REDUCED SULPHUR

Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	April 18, 2017	**Barometric Pressure:**	27.95 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	22
Location/Station Name:	986b	**Weather Conditions:**	Light snow
Parameter:	Total Reduced Sulphur	**Calibration Purpose:**	routine monthly
Start Time 24 hr. (mst):	8:55	**Performed By/Reviewer:**	Limin Li / Trina Whitsitt
End Time 24 hr. (mst):	13:00	**Cal Gas Expiry Date:**	January 6, 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:	March 7, 2017	**As Found C.F.:**	1.070
Previous C.F.:	1.000	**New C.F.:**	0.999

Calibrator:

Flow Meter ID's:	sn: 108646 / sn: 4425
Make & Model:	Environics 2000
Serial #:	1991
Cal Gas Cylinder I.D. # :	BLM 002508
Cal Gas Conc. (ppm):	10.2

Standard Calibration Points for Ranges

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

SO_2 Scrubber Check (10 mins.)

Start/End Time 24 hr.:	09:15-09:25
Target Concentration (ppb):	780
Result (ppb):	0
Zero Corrected Result (ppb):	**0**

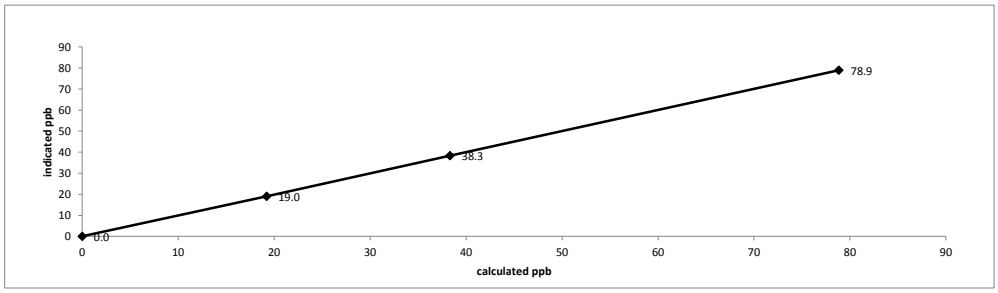
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	**Diluent**	**Cal Gas**	**Total**	**(ppb)**	**(ppb)**	
as found zero	7470	0.00	7470	0.0	0.0	n/a
as found high	7429	57.88	7487	78.9	73.7	1.070
adjusted zero	7470	0.00	7470	0.0	0.0	n/a
adjusted high	7429	57.88	7487	78.9	78.9	0.999
mid	7482	28.22	7510	38.3	38.3	1.001
low	7482	14.13	7496	19.2	19.0	1.012
calibrator zero	7508	0.00	7508	0.0	0.1	n/a
					Average C.F.=	1.004

Linear Regression/Calibration Results:

		LIMITS
Correlation Coeffecient =	**1.000**	**> or = 0.995**
Slope =	**0.998**	**.95-1.05**
b (Intercept as % of full scale)=	**0.11%**	**± 3% F.S.**
% change in C.F. from last cal=	**-6.99%**	**± 10%**

Thermo 43i Total Reduced Sulphur Analyzer Calibration



As found:		**As left:**	
BKG:	1.88	BKG:	2.03
COEF:	0.933	COEF:	1.004
PMT:	-687.1	PMT:	-687.1
FLASH:	975	FLASH:	976
INTERNAL:	31.9	INTERNAL:	31.4
CHAMBER:	45	CHAMBER:	44.9
PERM OVEN GAS:	45	PERM OVEN GAS:	45.00
PERM OVEN HEATER:	44.24	PERM OVEN HEATER:	44.24
PRESSURE:	655.0	PRESSURE:	655.9
SAMPLE FLOW:	0.468	SAMPLE FLOW:	0.469
LAMP INTENSITY:	91	LAMP INTENSITY:	91
CONVERTER:	820	CONVERTER:	820
CONVERTER SET:	820	CONVERTER SET:	820
Expected Value:	39.4	Expected Value:	44.4

Comments:

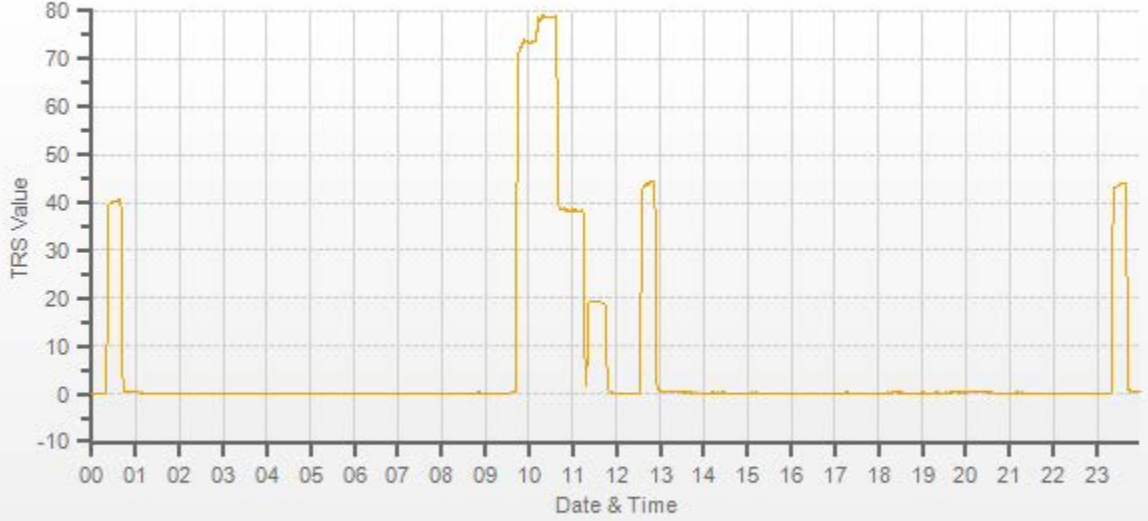
The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

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

Flow measurements completed after mid-point.

TRS[ppb] Station: PRAMP_986 Daily: 2017/04/18 Type: AVG 1 Min. [1 Min.]



TOTAL HYDROCARBON

Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	April 18, 2017	**Barometric Pressure:**	27.95 inHg
Company/Airshed:	PRAMP	**Station Temperature °C:**	22
Location/Station Name:	986b	**Weather Conditions:**	Light snow
Parameter:	CH_4 / NMHC / THC	**Calibration Purpose:**	routine monthly
Start/End Time 24 hr. (mst):	12:30/15:40	**Performed By/Reviewer:**	Limin Li / Trina Whitsitt
Calibration Method:	Gas Dilution	**Cal Gas Expiry Date:**	November 24, 2022

Analyzer:

ID# or Serial Number:	1022143392
Measured Flow:	1062sccm
Last Calibration Date:	March 7, 2017
Range ppm:	20 CH4/20 NMHC/40 THC

Correction Factors:

	Previous C.F.:	As Found C.F.:	New C.F.:
CH_4 =	1.000	1.010	1.000
NMHC =	0.999	1.039	1.000
THC =	1.000	1.024	1.000

Calibrator:

Flow Meter ID's:	sn: 108646 / sn: 4425		
Make & Model:	Sabio 2010		
Serial #:	17200415		
Cal Gas Cylinder I.D. # :	LL165367		
CH4 Cylinder Conc.=	590.0	207.0	**=C_3H_8 Cylinder Conc.**
CH_4 as C_3H_8=	569.3	1159.3	**=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

Point	Calibrator Flow Rates (cc/min): 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)	Correction Factors: CH_4	NMHC	THC
as found zero	2465	0.00	2465	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2465	62.73	2528	14.64	14.13	28.77	14.50	13.60	28.10	1.010	1.039	1.024
adjusted zero	2465	0.00	2465	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2465	62.73	2528	14.64	14.13	28.77	14.64	14.12	28.76	1.000	1.000	1.000
mid	2458	31.02	2489	7.35	7.09	14.45	7.40	7.13	14.53	0.994	0.995	0.994
low	2456	14.09	2470	3.37	3.25	6.61	3.40	3.27	6.67	0.990	0.993	0.991
calibrator zero	2456	0.00	2456	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
									Average C.F.=	0.995	0.996	0.995

Linear Regression/Calibration Results:

	CH_4	NMHC	THC	LIMITS
Correlation Coeffecient =	1.000	1.000	1.000	> or = 0.995
Slope =	0.999	0.999	0.999	.95-1.05
b (Intercept as % of full scale)=	0.12%	0.09%	0.10%	± 3% F.S.
% change in C.F. from last cal=	-0.98%	-3.98%	-2.38%	± 10%

		As found:				As left:
Interface Board Voltages:	Bias Supply:	-311		Calibration History cnt'd:	NM Peak Area:	76522
Temperatures:	Detector Oven:	175.0		Crucial Settings:	Methane Start:	8
	Filter:	175.0			Methane End:	16
	Column Oven:	75.0			Backflush:	18
	Internal:	34			NMHV Start:	30
Cylinder Pressures/reg.:	Carrier:	2450	50		NMHC End:	56
	Fuel:	2000	50	Run History>1:	Date:	18APR17
	Span Gas:	1900	28		Time:	10:37
	Zero Air Generator:	45			CH_4 PK HT:	2608
Internal Pressures:	Carrier:	21.4			CH_4 RT:	12.4
	Fuel:	40.5			CH_4 Baseline:	1595
	Air:	32.4			CH_4 LOD:	13
FID Status:	Status:	LIT			CH_4 SD:	4
	Counts:	19996			CH_4 CONC:	1.9
	Flame:	321.5			NM PK HT:	0
	Det Base:	175			NM Peak Area:	0
Flame and Power Stats:	Last Power On:	22FEB2017@13:45			NM CONC:	0
	Flameouts:	1			NM Base Start:	1594
	Det Oven at Start:	170.6			NM Base End:	1593
	Col Oven at Start:	74.7			NM LOD:	5
Calibration History:	Time:	07MAR17 11:17			NM Start IDX:	16
	Type:	SPAN			NM End IDX:	48
	Status:	GOOD			NM Max Slope:	5.4e-01
	Check/Adjust:	ADJUST			NM Min Slope:	-3.8e-01
	CH_4 Span Conc:	14.67			NM PT Count:	0
	CH_4 SP Ratio:	0.000729		Expected Values:	Previous CH4:	8.87
	CH_4 RT:	12.4			Previous NMHC	10.73
	CH_4 PK IDX:	22			Previous THC:	19.61
	CH_4 PK HT:	20128			New CH4:	8.84
	NM Span Conc:	13.93			New NMHC	10.93
	NM SP Ratio:	0.000182			New THC:	19.79

Comments:

The analyzer sample inlet filter was changed.

A new hydrogen cylinder was installed.

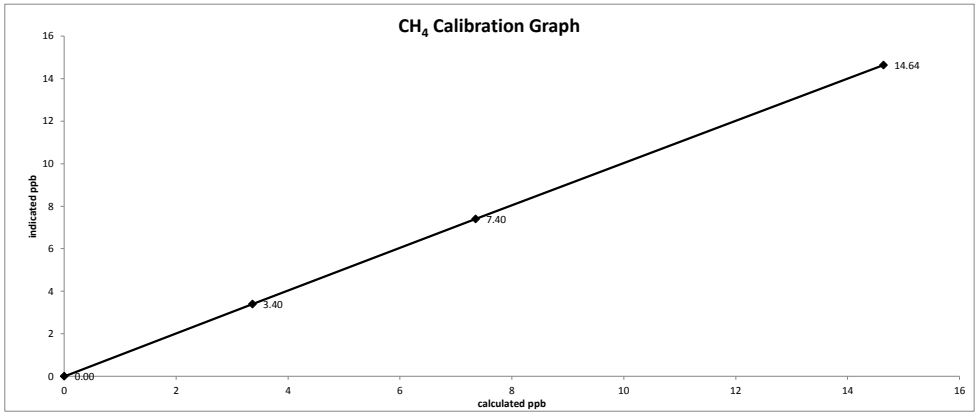
A new span gas cylinder was installed.

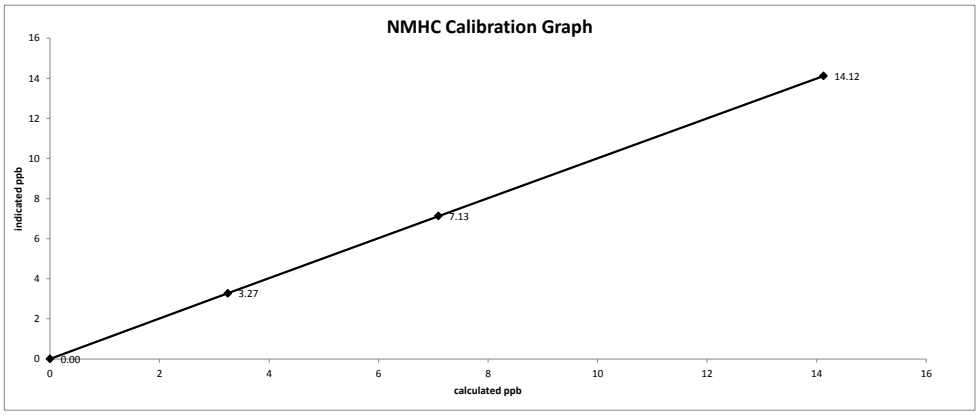
A new nitrogen cylinder was installed.

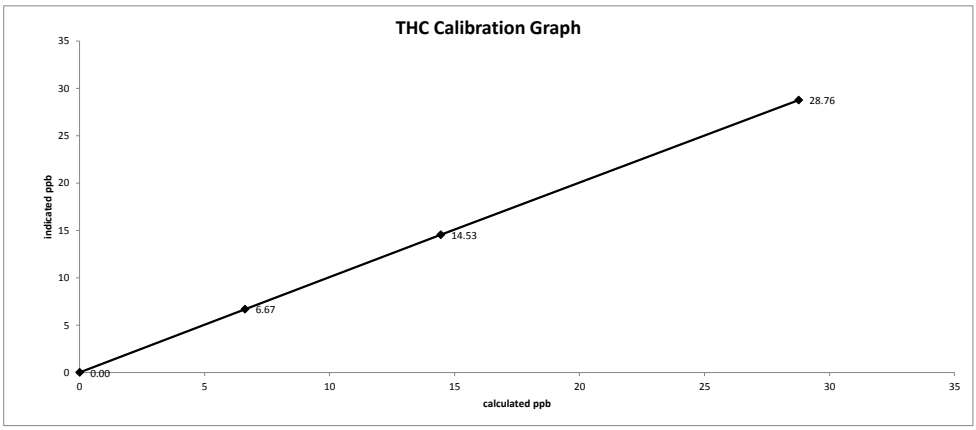
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

Flow measurements completed after mid-point.

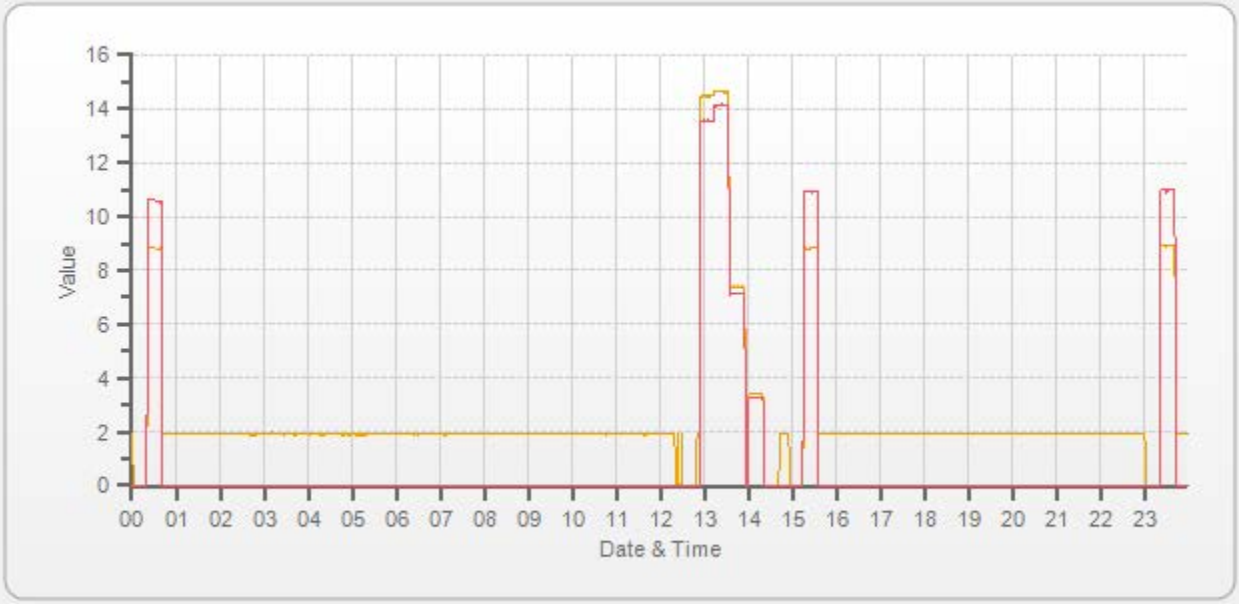
Date:	**April 18, 2017**	**Start/End Time 24 hr. (mst):**	**12:30/15:40**
Company/Airshed:	**PRAMP**	**Calibration Purpose:**	**routine monthly**
Location/Station Name:	**986b**	**Calibration Method:**	**Gas Dilution**







Station: PRAMP_986 Daily: 2017/04/18 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:

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	**Performed By:**	Limin Li
Audit Location:	986b	**Reviewed By:**	Trina Whitsitt
Audit Date:	April 5, 2017	**Start /EndTime (mst):**	13:30/15:30

Wind Sensor Information

Sensor ID Data:		**Sensor Outputs:**	
Sensor Make:	RM Young	**Velocity Voltage Output Range:**	0-1 V
Sensor Model:	05305VK	**Velocity Unit Output Range:**	0-200 km/h
Serial #:	129612	**Direction Voltage Output Range:**	0-1 V
Previous Cal/Audit Date:	February 15, 2017	**Direction Unit Output Range:**	0-360 degrees

Wind Calibrator Information

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

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.4	0.999
2000	36.9	36.8	36.8	1.003
3000	55.3	55.2	55.2	1.002
4000	73.7	73.6	73.6	1.002
5000	92.2	92.0	92.0	1.002
6000	110.6	110.5	110.5	1.001
7000	129.0	128.9	128.9	1.001
8000	147.4	147.4	147.4	1.000
9000	165.9	165.9	165.9	1.000
10000	184.3	184.5	184.5	0.999
		The audit meets AMD requirements.	**Average Correction Factor=**	**1.001**

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	353	0.4	2.5	1.5
30	330	29	329	1.4	1.3	1.3
60	300	60	300	0.4	0.3	0.3
90	270	89	271	0.8	-1.2	1.0
120	240	120	242	0.5	-1.6	1.1
150	210	150	212	0.1	-1.8	1.0
180	180	181	181	-0.9	-1.1	1.0
210	150	212	151	-1.5	-0.8	1.2
240	120	241	120	-1.3	-0.2	0.8
270	90	271	90	-0.5	-0.1	0.3
300	60	300	60	0.2	0.5	0.3
330	30	329	29	1.4	0.7	1.1
355	0	353	0	2.5	0.3	1.4
The audit meets AMD requirements.			**Average Absolute Degrees Difference=**			**0.9**

Comments: Adjust wind speed gain before calibration.

CALIBRATORS

aemera.org

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2016-076A

Company Maxxam **Operator:** Christopher Wesson

Calibrator:		**Flow Measurement Device:**	
Make/Model	Sabio 2010	Make/Model	N/A
Serial Number	17200415	Serial Number	N/A
Last Verification Date	May 2015	Temperature (°C)	N/A
NO Cylinder S/N	LL42475	Barometric Pressure	N/A
NO/NOX Concentration	48.5/48.5		

Dilution Flow (sccm)

Pt. #1 5000 Pt. #2 5000 Pt. #3 5000

Gas Flow (sccm)

Pt. #1 80 Pt. #2 40 Pt. #3 20

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO_2	NOx	NO	NOx
5029	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5030	80.6	0.777	0.777	0.805	-0.005	0.800	4%	3%
5025	39.4	0.380	0.380	0.394	-0.002	0.392	4%	3%
5028	19.8	0.191	0.191	0.198	-0.001	0.197	4%	3%
						Absolute Average Percent Difference	3.65%	3.09%

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)=	1.0360	**0.90-1.10**	m (Slope)=	1.0295
b (Intercept % of FS)=	0.0110	**± 3% F.S.**	b (Intercept % of FS)=	0.0293

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
5030	Lamp C.	0.000	0.804	-0.004	0.800	NO_2	% Diff. Limit
5030	1.388	0.495	0.309	0.491	0.800	0%	± 10%
5030	0.745	0.241	0.563	0.239	0.802	1%	± 10%
5030	0.367	0.091	0.713	0.089	0.801	2%	± 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)=	0.9988	**0.90-1.10**
b (Intercept % of FS)=	-0.2760	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Teco 42i
Make/Model	Teco 146i	Serial/AMU Number	AMU 1868
Serial/AMU Number	AMU 1809	Last Calibration Date	May 18, 2016
		Full Scale (ppm)	1.0

COMMENTS: Contains 50.3 ppm SO2. Flows not measured as per Chapter 7, Section 5 of AMD.

Auditor: Al Clark Date: May 18, 2016

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2016-527A

Company Maxxam **Operator:** Mike

Calibrator:				**Flow Measurement Device:**	
Make/Model	Environics 2000			Make/Model	Bios Defender 530
Serial Number	1991			Serial Number	Hi148944 Lo 152019
Last Verification Date	March 31, 2016			Temperature (°C)	24.5
NO Cylinder S/N	EY0000597			Barometric Pressure	699
NO [PPM]	49.0	NOx [PPM]	49.0		
Expiry Date	December 8, 2019				

Dilution Flow (sccm)

Pt. #1 4902 Pt. #2 4935 Pt. #3 4957

Gas Flow (sccm)

Pt. #1 79.3 Pt. #2 38.7 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
4976	0.0	0.0000	0.0000	0.0001	0.0000	0.0001	Limit ± 10%	
4981	79.3	0.7801	0.7801	0.7898	0.0000	0.7898	1%	1%
4972	38.7	0.3814	0.3814	0.3841	0.0002	0.3843	1%	1%
4976	19.4	0.1910	0.1910	0.1913	0.0003	0.1916	0%	0%
					Absolute Average Percent Difference		1%	1%

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

NO		**LIMITS**	**NOx**	
Correlation=	1.0000	**≥ 0.990**	Correlation=	1.0000
m (Slope)=	1.0130	**0.90-1.10**	m (Slope)=	1.0129
b (Intercept % of FS)=	-0.1190	**± 3% F.S.**	b (Intercept % of FS)=	-0.1029

Flow	O_3 Conc	NO Decrease	NO	NO2	NOX	% Diff. Vs Audit gas	
4981	0.000	0.0000	0.7925	-0.0001	0.7924	NO_2	% Diff. Limit
4981	0.400	0.5347	0.2578	0.5279	0.7857	-1%	± 10%
4981	0.200	0.2490	0.5435	0.2478	0.7913	0%	± 10%
4981	0.090	0.1090	0.6835	0.1095	0.7927	1%	± 10%
				Absolute Average Percent Difference		0%	± 10%

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

NO_2		**LIMITS**
Correlation=	1.0000	**≥ 0.995**
m (Slope)=	0.9864	**0.90-1.10**
b (Intercept % of FS)=	0.1136	**± 3% F.S.**

AENV Standards		**NO_X Analyzer**	
Audit Calibrator		Make/Model	Thermo 42i
Make/Model	Thermo 146i	Serial/AMU Number	1868
Serial/AMU Number	1809	Last Calibration Date	March 15, 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: March 16, 2017

Operator Signature: Location: McIntyre Center Edmonton

CALIBRATION GASES

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-436CGA

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

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

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

Make/Model: Themro 43C Serial/AMU Number: AMU 1623

Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0

Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

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

Previous Stated Concentration PPM: 50.5

Percent variance from Stated: **0.2**

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

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

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

Auditor: Shea Beaton Date: January 26, 2017

Operator Signature: Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-338CGA

Company: Maxxam **Operator's Name:** Limin Li

Cylinder #: BLM002508 Concentration PPM: 10.2 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU1690
Last Verification Date: March 31, 2015
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
Serial Number: AMU 1659
Temp.°C: 23.0 C
B.P. 689 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 14.5 Span: 1.035 Range: 0.1
Last Calibration: Date: Mar 31/15 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	0.0000			
5080	38.2	0.0725	0.00752	132.984	9.6
5078	17.9	0.0340	0.00353	283.687	9.6
5066	9.1	0.0170	0.00180	556.703	9.5
				Average Cylinder Concentration:	**9.6**

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: **6.0**

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: March 31, 2015

Operator Signature: Al Clark Location: McIntyre Center Edmonton

Alberta Government

Calibration Gas Audit

CH4 / C3H8 Cylinder Gas

File No. 2015-029CGA

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

Cylinder #: LL165367 Conc CH4 (PPM) 590/207 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	12.06	11.37	0.02005	49.883	602	206
3549	22.3	3.77	3.57	0.00628	159.148	600	207
3523	10.4	1.77	1.70	0.00295	338.750	600	209
					Average Cylinder Concentration:	**600**	**207**

	CH4	**C3H8**
Previous Stated Concentration PPM:	590	207
Percent variance from Stated:	**1.8**	**0.2**

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

24-05-2017

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Maxxam
A Bureau Veritas Group Company

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee **Project #:** 8449-2017-04-67-C
Site: Three Creeks 986b Station **Contact:** Lily Lin

Level 0 Preliminary Verification		**Date**	16-May-17
Level 1 Primary Validation		**Date**	16-May-17
Level 2 Final Validation		**Date**	19-May-17
Level 3 Independent Data Review		**Date**	24-May-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.