

Alberta Environment and Parks (AEP)
Air.Reporting@gov.ab.ca

April 30, 2018

Subject: Monthly Report Submission for the PRAMP 842 AQM station

Peace River Area Monitoring Program Committee (PRAMP) is pleased to submit the ambient air monitoring monthly report for the PRAMP 842 AQM Station in the month of March 2018.

The air monitoring program consists of continuous air monitoring results for Sulphur Dioxide (SO₂), Total Reduced Sulphur (TRS), Total Hydrocarbon (THC), Methane (CH₄), Non-Methane Hydrocarbon (NMHC), Relative Humidity (RH), Barometric Pressure (BP), Ambient Temperature (AmbTPX), Station Temperature (StnTPX), Wind Speed (WS) and Wind Direction (WD). All the air monitoring activities were conducted by Maxxam Analytics.

All data collected in March 2018 was compliant with the requirements outlined in the Air Monitoring Directive (Alberta Environment and Parks, 2016).

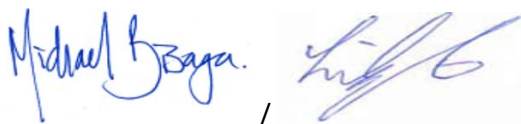
The operational time for all meteorological systems were above the 90% requirement.

Canister System: The canister was triggered on March 1 at 01:25 at five-minute concentration of 0.33 ppm. However, the canister event was not considered valid as the analyzer was not producing valid data at the time due to a malfunction. The sample was still processed for analysis for a background VOC study.

As the PRAMP Technical Program Managers, we have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. We also verify all air data that are required by the AMD to be electronically submitted to AEP and Alberta's Ambient Air Quality Data Warehouse have been submitted by the time of this report submission.

Should you have any questions, please don't hesitate to contact us.

Respectfully,



Michael Bisaga / Lily Lin
Technical Program Managers
Peace River Area Monitoring Program
780-266-7068 / 587-225-2248
prampatech@prampairshed.ca



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 842B STATION

JOB #: 8449-2018-03-80-C

March 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **April 20, 2018**

Prepared by:

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

Reviewed by:

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

SUMMARY

In March 2018, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 842b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for non-compliance parameters, as requested by the PRAMP Committee.

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

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

Canister System: One five-minute concentration of 0.33 ppm was recorded on March 1 at 01:25. This is not a valid canister event as the analyzer was not producing valid data at the time, due to a malfunction. The sample was however processed for analysis, at PRAMP's request, for a baseline VOC study.

TRS: The monthly calibration was repeated on March 2 as a precautionary measure. Four hours of downtime were recorded due to the additional quality check.

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

- Eight hours of downtime were recorded due to poor sample injections caused by a malfunction of the actuator, and the maintenance event performed to address the issue.
- The analyzer recorded erroneous static values on March 2. The analyzer was restarted and an additional zero-span check was completed as a quality check. Two hours of downtime were incurred.
- The zero phase of the daily zero-span check did not properly execute on March 3 and March 10. Additional repeat zero-span checks were triggered as corrective actions. Three hours of downtime were recorded due to the additional quality checks.
- In response to a biased low drift in span response, an additional zero-span check and a repeat calibration were performed on March 15 and March 22, respectively. Five hours of downtime were recorded due to the additional quality checks.

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 842b Station.

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Three Creeks 842b Station						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO ₂ (ppb)	172	48	0	0	0	2	1	3	13.1	ENE	1	9	100.0
TRS (ppb)	-	-	-	-	0.18	0.42	8	7	4.0	ENE	0.27	5	99.5
THC (ppm)	-	-	-	-	2.02	2.63	13	4	4.2	ENE	2.19	13	97.6
CH ₄ (ppm)	-	-	-	-	2.02	2.63	13	4	4.2	ENE	2.19	13	97.6
NMHC (ppm)	-	-	-	-	0.00	0.00	1	7	14.4	ENE	0.00	1	97.6
RELATIVE HUMIDITY (%)	-	-	-	-	68	93	20	6	1.0	NE	84	23	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	944	963	30	21	0.5	SSW	959	30	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-7.1	12.5	13	17	5.7	E	3.4	14	100.0
STATION TEMPERATURE (°C)	-	-	-	-	21.5	24.5	1	18	18.4	ENE	22.9	14	100.0
VECTOR WS (kph)	-	-	-	-	1.0	23.8	23	14	-	SW	14.7	22	100.0
VECTOR WD (sec)	-	-	-	-	109 (ESE)	-	-	-	-	-	-	-	100.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Three Creeks 842b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2018	March

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES	NO. READINGS > REGULATION		MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	100.0	0.002 ppm	0		0.001 ppm	0
TRS	99.5	0.000 ppm	-		0.000 ppm	-
THC	97.6	2.63 ppm	-		2.19 ppm	-
CH ₄	97.6	2.63 ppm	-		2.19 ppm	-
NMHC	97.6	0.00 ppm	-		0.00 ppm	-
RH	100.0	93 %	-		84 %	-
BP	100.0	963 mb	-		959 mb	-
Ambient TPX	100.0	12.5 °C	-		3.4 °C	-
Station TPX	100.0	24.5 °C	-		22.9 °C	-
Wind Speed	100.0	23.8 kph	-		14.7 kph	-
Wind Direction	100.0	-	-		-	-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

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

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

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

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

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

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

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

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

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on March 2.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 99.5%, equivalent to four hours of downtime.
- The routine monthly calibration was performed on March 1. On the initial attempt, the As-Found High point was slow to respond, where the AMD's 20-minute response time requirement was not met. A second As-Found High point response check was performed after re-purging the regulator, and the 20-minute response time requirement was met. However, the second As-Found High point marginally satisfies Maxxam's internal stability requirement. As a precaution, the calibration was repeated on March 2, using an alternate calibration equipment set-up. The results were satisfactory for both Maxxam and AMD requirements. Four hours of downtime were recorded due to the additional quality check.

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

- Operational time for the monitoring period was 97.6%, equivalent to eighteen hours of downtime.
- The actuator failed on February 28 and was replaced on March 1, following a successful shut-down calibration. A successful post-repair calibration was subsequently completed. Eight hours of downtime were recorded due to this malfunction and the maintenance event performed to address it.
- On March 2, at hour 12:00, the analyzer recorded erroneous static values over a twenty-minute period. This was investigated by the technician on site and the analyzer was restarted. An additional zero-span check was successfully completed afterwards as a quality check. No further issues were identified. Two hours of downtime were accrued due to this event.
- The carrier gas (N₂) cylinder was replaced on March 5.
- The zero phase of the daily zero-span check did not properly execute on March 3 and March 10, causing erroneous zero records. Additional repeat zero-span checks were triggered as corrective actions following these events. Investigations were carried out onsite on March 15 and no problems were identified. Three hours of downtime were recorded due to the additional quality checks.
- The erroneous zero concentrations recorded on March 3 at hours 03:00 and 06:00 and on March 10 at hour 19:00, were excluded from baseline correction during the data validation process. Daily zero results of March 2 and March 9 were applied to data collected on March 3 and March 10, respectively.
- An additional zero-span check was conducted on March 15 to assess span drift over time. The results of the additional and subsequent scheduled zero-span checks showed slight drifts towards the lower acceptance limit. As a preventing measure, a repeat calibration was conducted on March 22 and the expected span value was subsequently updated. Five hours of downtime were recorded due to the additional quality checks.
- During minute data review, data that were deemed anomalous, due to suspected poor injections, were discarded and the corresponding hourly average was re-calculated. Impacted minute data include: March 2, 05:42 - 05:43, March 16, 11:09, March 18, 14:23 - 14:24 and March 20, 00:14.
- 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. One 5-minute concentration of 0.33 ppm was recorded on March 1 at 01:25. This is not a valid canister event as the analyzer was not producing valid data at the time, due to a malfunction. The sample was however processed for analysis, at PRAMP's request, for a baseline VOC study.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 100%.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

- Operational time for the monitoring period was 100%.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 100%.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 100%.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 100%.

2.0 Project Personnel

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field technicians were Christopher Wesson and 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-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - ESC 8832

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

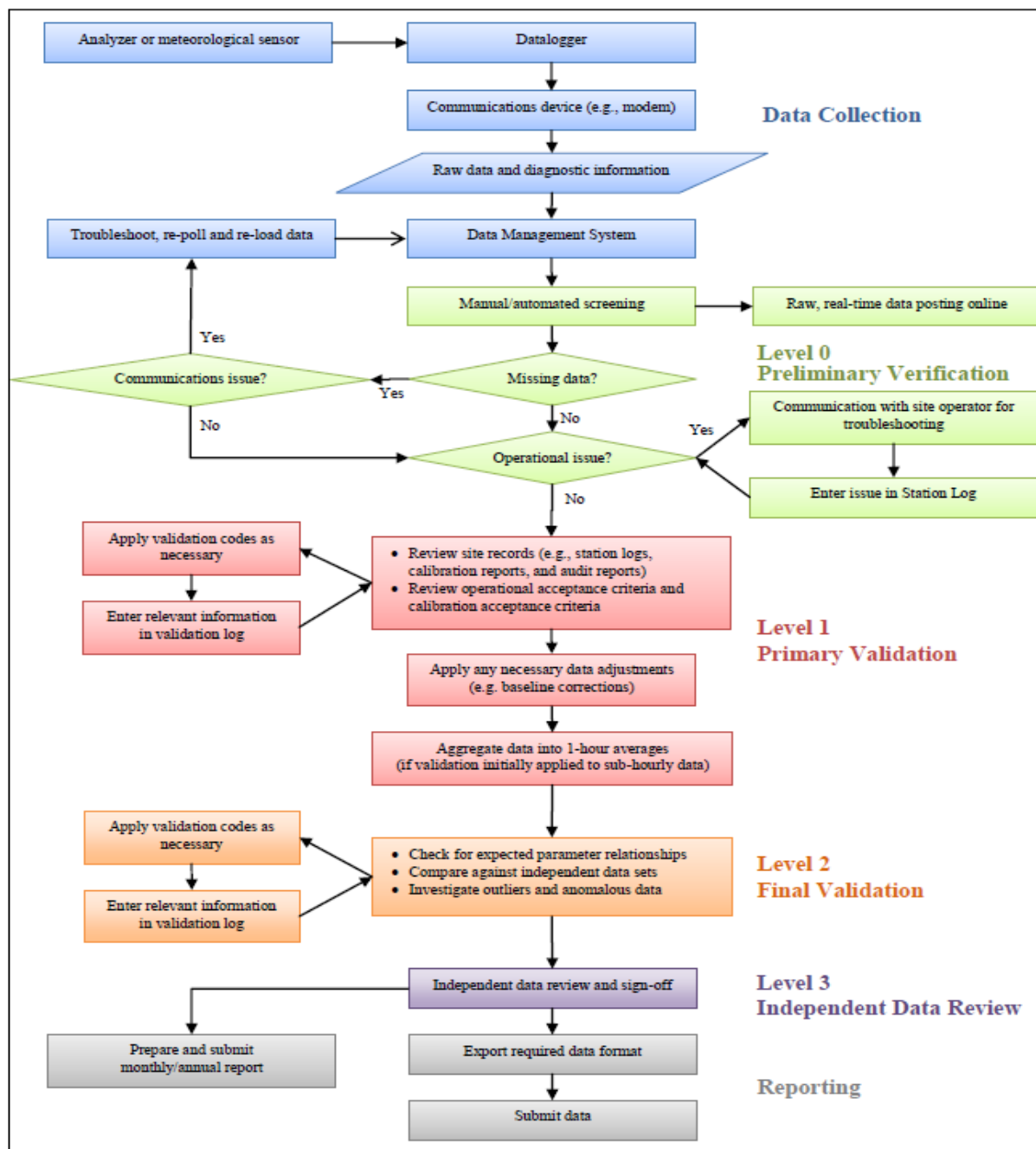
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

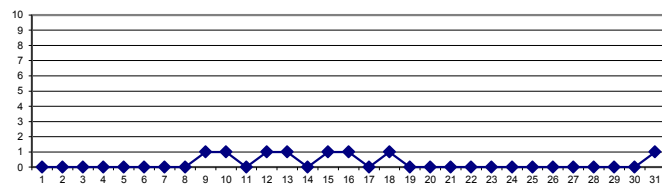
OBJECTIVE LIMIT:

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

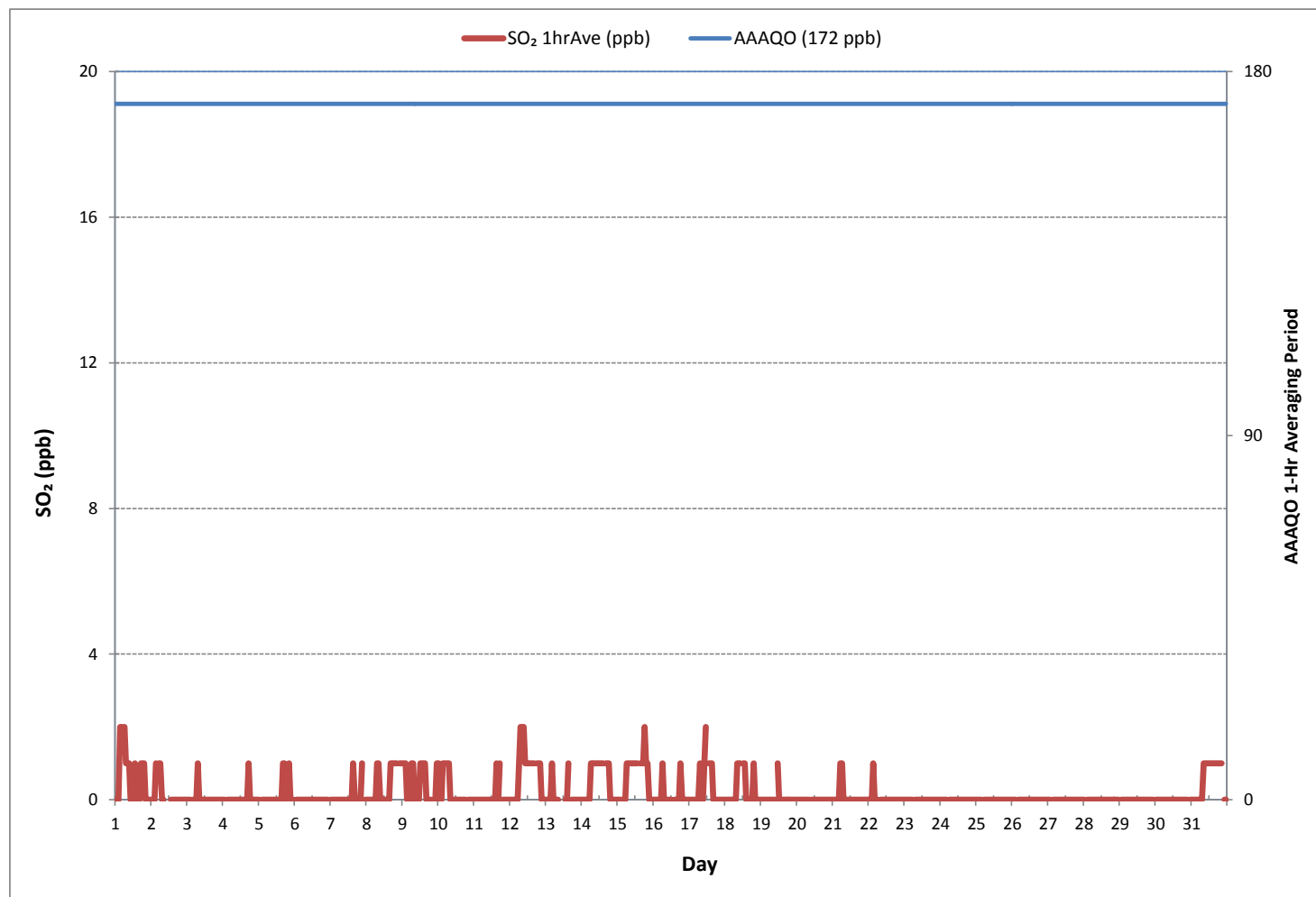
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	121
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	2 ppb @ HOUR 3 ON DAY 1
MAXIMUM 24-HR AVERAGE:	1 ppb ON DAY 9
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	4 hrs
OPERATIONAL TIME:	744 hrs
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES March 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-SO₂[ppb]
Monthly: 18/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.39%

Calm Avg: 0.14 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	8.4	0.0	0.0	0.0	0.0	8.4
NE	10.8	0.0	0.0	0.0	0.0	10.8
E	26.0	0.0	0.0	0.0	0.0	26.0
SE	12.6	0.0	0.0	0.0	0.0	12.6
S	5.0	0.0	0.0	0.0	0.0	5.0
SW	18.4	0.0	0.0	0.0	0.0	18.4
W	8.2	0.0	0.0	0.0	0.0	8.2
NW	7.4	0.0	0.0	0.0	0.0	7.4
Summary	96.6	0.0	0.0	0.0	0.0	96.6

% Icon Classes (ppb)

97 0-3

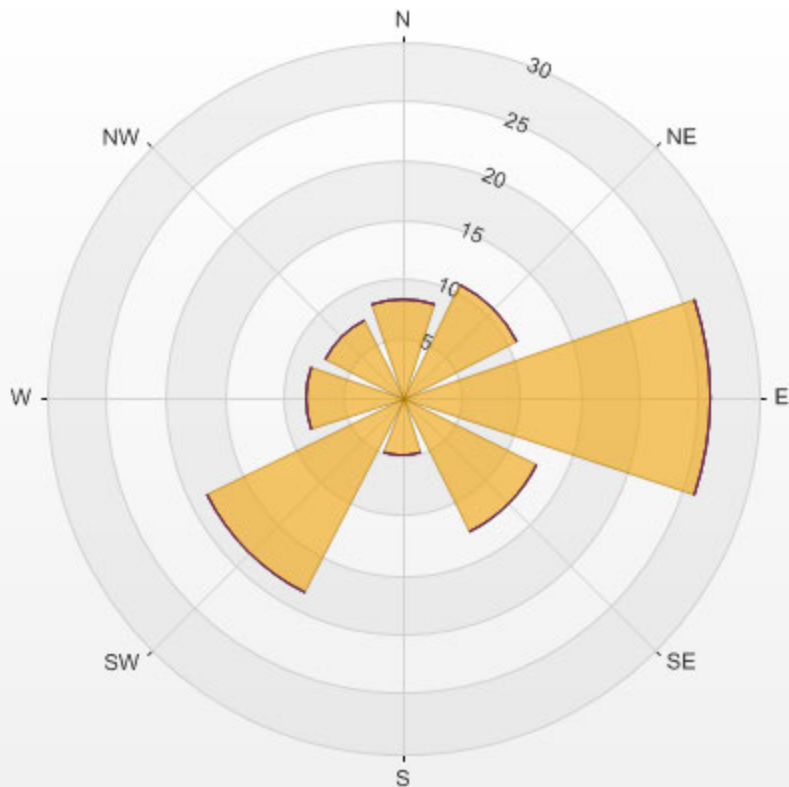
0 3-10

0 10-85

0 85-170

0 >170.0

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.39% Calm Poll Avg: 0.14[ppb]



SO₂[ppb] Calibration: PRAMP_842 Monthly: 18/03 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

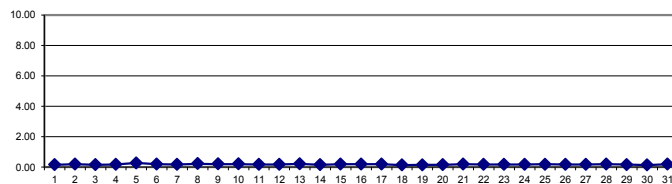
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

	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		0.15	0.14	0.16	0.20	0.23	S	0.21	0.14	0.14	0.12	0.11	0.12	0.12	0.10	0.09	C	C	C	C	C	C	0.18	0.20	0.19	0.09	0.23	0.15	24	
2		0.20	0.22	0.22	0.23	S	0.25	0.24	0.22	0.21	0.20	C1	C1	C1	C1	0.18	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.15	0.13	0.13	0.25	0.19	20	
3		0.16	0.16	0.17	S	0.18	0.16	0.16	0.14	0.16	0.17	0.17	0.17	0.16	0.19	0.16	0.17	0.15	0.15	0.15	0.16	0.16	0.16	0.15	0.16	0.14	0.19	0.16	24	
4		0.16	0.16	S	0.17	0.18	0.19	0.17	0.17	0.18	0.17	0.18	0.17	0.18	0.18	0.16	0.17	0.17	0.24	0.22	0.19	0.19	0.19	0.18	0.18	0.16	0.24	0.18	24	
5		0.20	S	0.26	0.23	0.38	0.41	0.39	0.41	0.40	0.30	0.23	0.23	0.22	0.22	0.21	0.22	0.23	0.23	0.26	0.26	0.25	0.25	0.25	0.25	0.20	0.41	0.27	24	
6		S	0.29	0.25	0.34	0.25	0.20	0.19	0.18	0.17	0.18	0.17	0.16	0.15	0.13	0.12	0.15	0.15	0.17	0.15	0.14	0.25	0.20	0.17	S	0.12	0.34	0.19	24	
7		0.15	0.13	0.16	0.16	0.16	0.15	0.19	0.25	0.27	0.20	0.16	0.17	0.16	0.18	0.16	0.18	0.16	0.18	0.18	0.18	0.19	0.21	S	0.22	0.13	0.27	0.18	24	
8		0.19	0.18	0.19	0.22	0.26	0.25	0.29	0.42	0.36	0.31	0.21	0.18	0.20	0.18	0.18	0.18	0.18	0.17	0.18	0.18	0.20	S	0.20	0.19	0.17	0.42	0.22	24	
9		0.19	0.19	0.20	0.20	0.18	0.18	0.19	0.21	0.22	0.20	0.19	0.18	0.20	0.21	0.26	0.26	0.25	0.22	0.19	0.19	S	0.19	0.20	0.19	0.18	0.26	0.20	24	
10		0.22	0.20	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.22	0.20	0.20	0.20	0.19	0.20	0.20	0.17	S	0.18	0.18	0.19	0.18	0.17	0.22	0.20	24	
11		0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.19	0.19	0.18	0.17	0.17	0.17	0.17	0.18	0.17	0.16	0.17	S	0.20	0.19	0.19	0.19	0.19	0.16	0.20	0.18	24	
12		0.17	0.17	0.16	0.17	0.18	0.16	0.18	0.17	0.19	0.18	0.19	0.20	0.19	0.18	0.17	0.17	0.16	S	0.18	0.17	0.19	0.19	0.19	0.19	0.17	0.16	0.20	0.18	24
13		0.17	0.20	0.19	0.21	0.40	0.35	0.32	0.29	0.30	0.25	0.21	0.18	0.18	0.18	0.20	0.21	S	0.20	0.16	0.17	0.16	0.15	0.15	0.15	0.15	0.40	0.22	24	
14		0.14	0.14	0.14	0.14	0.13	0.14	0.14	0.16	0.14	0.15	0.16	0.16	0.16	0.14	0.15	S	0.18	0.17	0.16	0.15	0.15	0.15	0.15	0.18	0.13	0.18	0.15	24	
15		0.15	0.18	0.18	0.17	0.18	0.17	0.19	0.19	0.21	0.22	0.21	0.21	0.21	0.20	S	0.21	0.18	0.18	0.20	0.21	0.20	0.19	0.20	0.22	0.15	0.22	0.19	24	
16		0.24	0.24	0.24	0.26	0.26	0.25	0.21	0.19	0.20	0.17	0.15	0.16	0.15	S	0.15	0.16	0.16	0.17	0.20	0.20	0.19	0.16	0.17	0.17	0.15	0.26	0.19	24	
17		0.18	0.17	0.20	0.22	0.22	0.23	0.24	0.26	0.26	0.24	0.24	0.26	S	0.22	0.20	0.19	0.18	0.16	0.17	0.17	0.16	0.14	0.16	0.17	0.16	0.14	0.26	0.20	24
18		0.16	0.15	0.17	0.15	0.14	0.15	0.15	0.15	0.14	0.14	0.11	S	0.13	0.13	0.12	0.12	0.12	0.13	0.12	0.12	0.11	0.12	0.14	0.14	0.11	0.17	0.14	24	
19		0.13	0.11	0.12	0.11	0.12	0.14	0.14	0.15	0.15	0.15	S	0.18	0.17	0.17	0.17	0.16	0.14	0.16	0.15	0.16	0.15	0.15	0.17	0.18	0.11	0.18	0.15	24	
20		0.17	0.17	0.19	0.18	0.20	0.18	0.18	0.17	0.18	S	0.16	0.16	0.16	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.19	0.14	0.20	0.16	24	
21		0.18	0.20	0.20	0.20	0.22	0.22	0.23	0.23	0.17	S	0.21	0.21	0.21	0.21	0.20	0.20	0.18	0.18	0.18	0.17	0.17	0.16	0.18	0.17	0.16	0.23	0.19	24	
22		0.17	0.17	0.15	0.17	0.16	0.17	0.15	S	0.19	0.18	0.19	0.18	0.16	0.18	0.18	0.18	0.20	0.18	0.19	0.19	0.18	0.18	0.17	0.18	0.15	0.20	0.18	24	
23		0.19	0.18	0.18	0.19	0.17	0.18	S	0.18	0.16	0.16	0.21	0.22	0.20	0.19	0.17	0.17	0.18	0.17	0.18	0.16	0.17	0.16	0.19	0.18	0.16	0.22	0.18	24	
24		0.18	0.19	0.18	0.17	0.17	S	0.19	0.17	0.17	0.18	0.19	0.18	0.19	0.18	0.16	0.17	0.17	0.17	0.17	0.18	0.18	0.17	0.17	0.17	0.16	0.19	0.18	24	
25		0.26	0.22	0.20	0.18	S	0.19	0.17	0.18	0.16	0.24	0.24	0.18	0.19	0.18	0.17	0.16	0.17	0.18	0.16	0.17	0.16	0.17	0.16	0.16	0.16	0.26	0.18	24	
26		0.18	0.17	0.18	S	0.18	0.16	0.15	0.14	0.15	0.15	0.15	0.16	0.18	0.17	0.18	0.18	0.17	0.17	0.18	0.17	0.17	0.17	0.24	0.25	0.14	0.25	0.17	24	
27		0.19	0.19	S	0.21	0.19	0.18	0.17	0.17	0.19	0.18	0.18	0.18	0.16	0.16	0.15	0.16	0.15	0.17	0.16	0.15	0.16	0.17	0.18	0.19	0.15	0.21	0.17	24	
28		0.21	S	0.24	0.24	0.25	0.26	0.27	0.23	0.21	0.18	0.17	0.17	0.16	0.15	0.15	0.16	0.15	0.15	0.16	0.15	0.17	0.15	0.15	0.16	0.15	0.27	0.19	24	
29		S	0.19	0.18	0.19	0.17	0.18	0.16	0.17	0.20	0.18	0.17	0.17	0.17	0.17	0.16	0.16	0.14	0.15	0.15	0.15	0.14	0.15	0.14	S	0.14	0.20	0.17	24	
30		0.17	0.15	0.13	0.15	0.15	0.14	0.13	0.15	0.14	0.14	0.13	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.12	0.13	0.11	0.13	S	0.16	0.11	0.17	0.13	24	
31		0.15	0.18	0.20	0.17	0.22	0.29	0.25	0.25	0.21	0.20	0.19	0.19	0.19	0.19	0.18	0.17	0.17	0.17	0.17	0.17	0.17	S	0.19	0.18	0.15	0.29	0.19	24	
HOURLY MAX		0.26	0.29	0.26	0.34	0.40	0.41	0.39	0.42	0.40	0.31	0.24	0.26	0.22	0.22	0.26	0.26	0.25	0.24	0.26	0.26	0.25	0.25	0.25	0.25	0.15	0.29	0.19	24	
HOURLY AVG		0.18	0.18	0.19	0.19	0.20	0.20	0.20	0.21	0.20	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.15	0.29	0.19	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

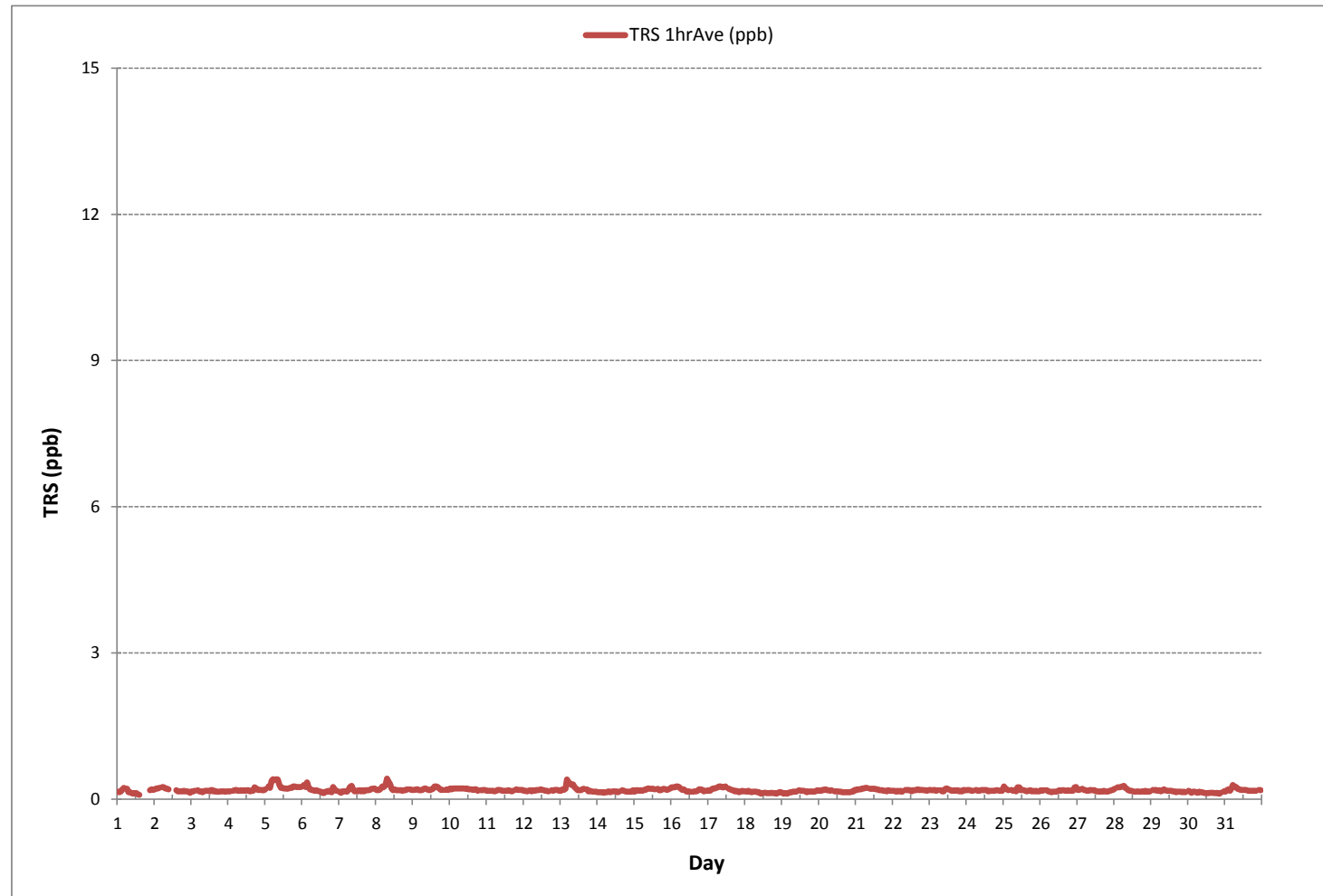
24 HR AVERAGES March 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	701				
MINIMUM 1-HR AVERAGE:	0.09	ppb @ HOUR	14	ON DAY	1
MAXIMUM 1-HR AVERAGE:	0.42	ppb @ HOUR	7	ON DAY	8
MAXIMUM 24-HR AVERAGE:	0.27	ppb		ON DAY	5
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	740	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	99.5	%
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.18	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-TRS[ppb]
Monthly: 18/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.42%

Calm Avg: 0.21 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	8.4	0.0	0.0	0.0	8.4
NE	10.8	0.0	0.0	0.0	10.8
E	25.4	0.0	0.0	0.0	25.4
SE	12.7	0.0	0.0	0.0	12.7
S	5.0	0.0	0.0	0.0	5.0
SW	18.5	0.0	0.0	0.0	18.5
W	8.3	0.0	0.0	0.0	8.3
NW	7.4	0.0	0.0	0.0	7.4
Summary	96.6	0.0	0.0	0.0	96.6

% Icon Classes (ppb)

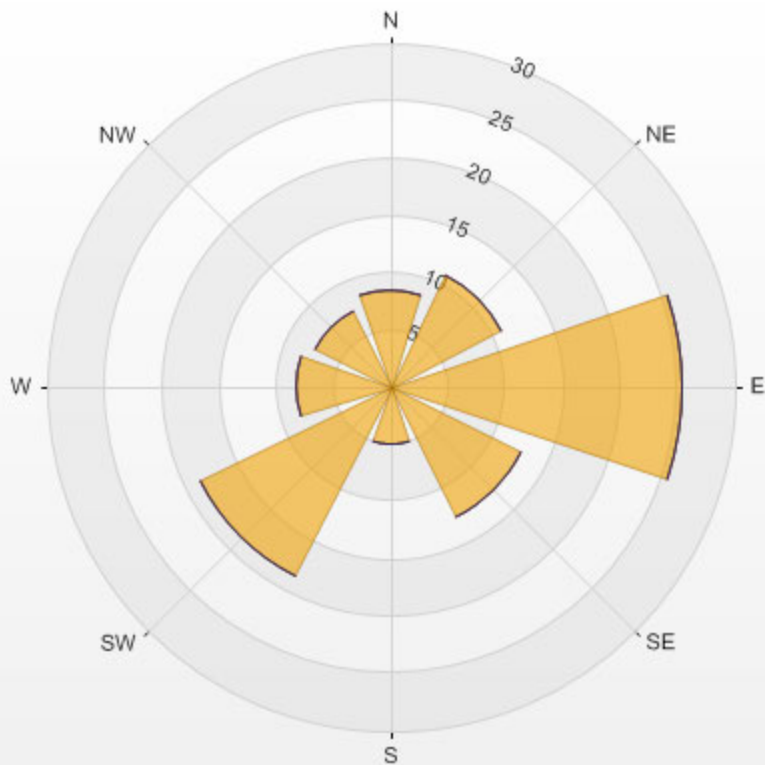
97 0-1

0 1-3

0 3-10

0 >10.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.42% Calm Poll Avg: 0.21[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/03 Type: Span



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

TOTAL HYDROCARBON

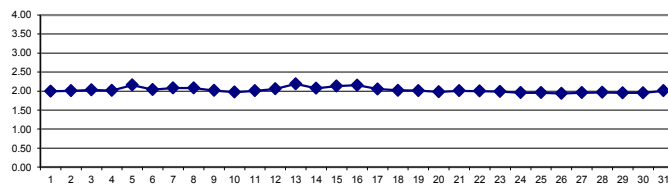
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	X	X	X	X	X	X	X	1.98	2.00	1.99	1.99	1.98	1.99	1.98	C	C	Y	C	C	C	2.01	2.01	2.01	2.01	1.98	2.01	2.00	16	
2	2.01	2.01	2.01	2.01	S	2.02	2.02	2.01	2.01	2.00	2.01	2.01	X	S1	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.01	1.99	2.02	2.01	22	
3	2.01	2.06	2.09	S	S	2.08	2.07	S1	S1	2.04	2.04	2.03	2.02	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.09	2.03	22
4	2.01	2.01	S	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.03	2.01	2.01	2.01	2.03	2.03	2.04	2.00	2.04	2.01	24	
5	2.05	S	S	2.13	2.12	2.35	2.41	2.39	2.42	2.39	2.24	2.07	2.07	2.06	2.07	2.08	2.06	2.08	2.06	2.07	2.09	2.10	2.10	2.11	2.11	2.05	2.42	2.16	24
6	S	S	2.07	2.04	2.04	2.12	2.12	2.10	2.07	2.07	2.06	2.04	2.02	2.02	2.01	2.00	2.00	2.01	2.01	2.00	2.01	2.02	2.02	2.02	S	2.00	2.12	2.04	24
7	2.02	2.02	2.06	2.08	2.07	2.09	2.14	2.27	2.31	2.15	2.04	2.04	2.05	2.05	2.06	2.05	2.05	2.03	2.03	2.03	2.03	2.08	S	S	2.07	2.02	2.31	2.08	24
8	2.06	2.05	2.07	2.12	2.21	2.18	2.26	2.38	2.34	2.20	2.04	1.98	1.97	1.97	1.97	1.98	2.00	2.00	2.01	2.03	2.03	S	S	2.02	2.01	1.97	2.38	2.08	24
9	2.01	2.06	2.06	2.04	2.03	2.03	2.02	2.02	2.08	2.03	2.02	2.01	2.01	2.02	2.03	2.02	2.00	2.00	1.99	1.98	S	1.98	1.98	1.97	1.97	2.08	2.02	24	
10	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.96	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	S	1.99	1.99	1.99	1.95	1.99	1.97	24		
11	1.98	1.98	1.98	1.97	1.97	1.97	1.98	S1	2.07	2.00	1.99	2.01	2.00	2.00	2.02	2.04	2.02	2.04	S	S	2.04	2.03	2.03	2.03	1.97	2.07	2.01	23	
12	2.03	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.08	2.09	2.08	S	S	2.09	2.09	2.10	2.10	2.13	2.09	2.01	2.13	2.06	24
13	2.07	2.11	2.18	2.21	2.63	2.59	2.54	2.55	2.54	2.33	2.12	2.09	2.07	2.08	2.11	2.10	S	S	2.00	1.99	1.99	2.00	2.01	2.01	2.02	1.99	2.63	2.19	24
14	2.01	2.00	2.00	2.03	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.12	2.12	2.11	2.12	S	S	2.07	2.06	2.06	2.07	2.07	2.05	2.04	2.05	2.00	2.12	2.07	24
15	2.05	2.06	2.07	2.06	2.06	2.07	2.09	S1	2.12	2.15	2.18	2.17	2.16	2.15	S	S	2.15	2.15	2.15	2.15	2.15	2.16	2.15	2.19	2.24	2.05	2.24	2.13	23
16	2.27	2.30	2.30	2.38	2.42	2.36	2.13	2.16	2.15	2.09	2.09	2.08	2.08	S	S	2.06	2.06	2.06	2.06	2.08	2.09	2.08	2.08	2.07	2.09	2.06	2.42	2.15	24
17	2.10	2.14	2.17	2.15	2.12	2.10	2.11	2.08	2.06	2.03	2.03	2.04	S	S	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.00	1.99	2.00	1.99	2.17	2.05	24
18	2.01	2.03	2.04	2.03	2.02	2.02	2.01	2.02	2.02	2.02	2.00	S	S	2.01	2.01	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.01	2.06	2.09	2.00	2.09	2.02	24
19	2.01	1.99	1.99	1.98	1.99	2.01	2.01	2.02	2.04	2.04	S	S	2.04	2.04	2.03	2.03	2.02	2.01	2.00	2.00	2.02	1.98	1.98	1.99	2.02	1.98	2.04	2.01	24
20	1.96	1.96	1.96	1.96	1.98	1.97	1.97	1.97	S	S	1.98	1.98	1.99	1.99	1.99	1.99	2.00	2.03	2.00	1.98	1.97	1.98	1.99	1.99	1.96	2.03	1.98	24	
21	2.01	2.01	2.02	2.02	2.02	2.02	2.02	S	S	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.02	2.01	24
22	1.99	1.99	1.99	1.99	1.99	1.98	1.98	S	C1	C1	C1	C1	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.00	1.98	2.02	2.00	20
23	2.00	1.99	1.99	2.00	2.00	2.01	S	S	2.02	2.00	2.01	1.99	1.99	1.98	1.98	1.97	1.96	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.96	2.02	1.99	24	
24	1.97	1.96	1.95	1.95	1.95	S	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.97	1.96	24	
25	1.97	1.96	1.96	1.96	S	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.97	1.97	1.95	1.96	1.95	1.97	1.96	24	
26	1.95	1.95	S	S	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.94	1.93	1.94	1.94	1.94	1.94	1.95	1.98	1.93	1.98	1.94	24	
27	1.95	1.95	S	2.01	1.95	1.94	1.94	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.96	1.96	1.94	2.01	1.96	24
28	1.97	S	S	1.98	1.97	1.98	2.00	2.02	1.99	1.97	1.96	1.95	1.95	1.96	1.96	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	2.02	1.96	24
29	S	S	1.95	1.95	1.94	1.94	1.95	1.95	2.01	1.96	1.96	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	S	1.94	2.01	1.95	24
30	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.96	1.96	S	S	1.97	1.94	1.97	1.95	24
31	2.00	2.04	2.12	2.04	2.03	2.05	2.03	2.03	2.00	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.98	S	S	1.97	1.99	1.97	2.12	2.01	24
HOURLY MAX	2.27	2.30	2.30	2.38	2.63	2.59	2.54	2.55	2.54	2.33	2.18	2.17	2.16	2.15	2.12	2.15	2.15	2.15	2.15	2.15	2.15	2.16	2.15	2.19	2.24				
HOURLY AVG	2.01	2.02	2.03	2.04	2.07	2.06	2.06	2.07	2.07	2.04	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.02				

STATUS FLAG CODES

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

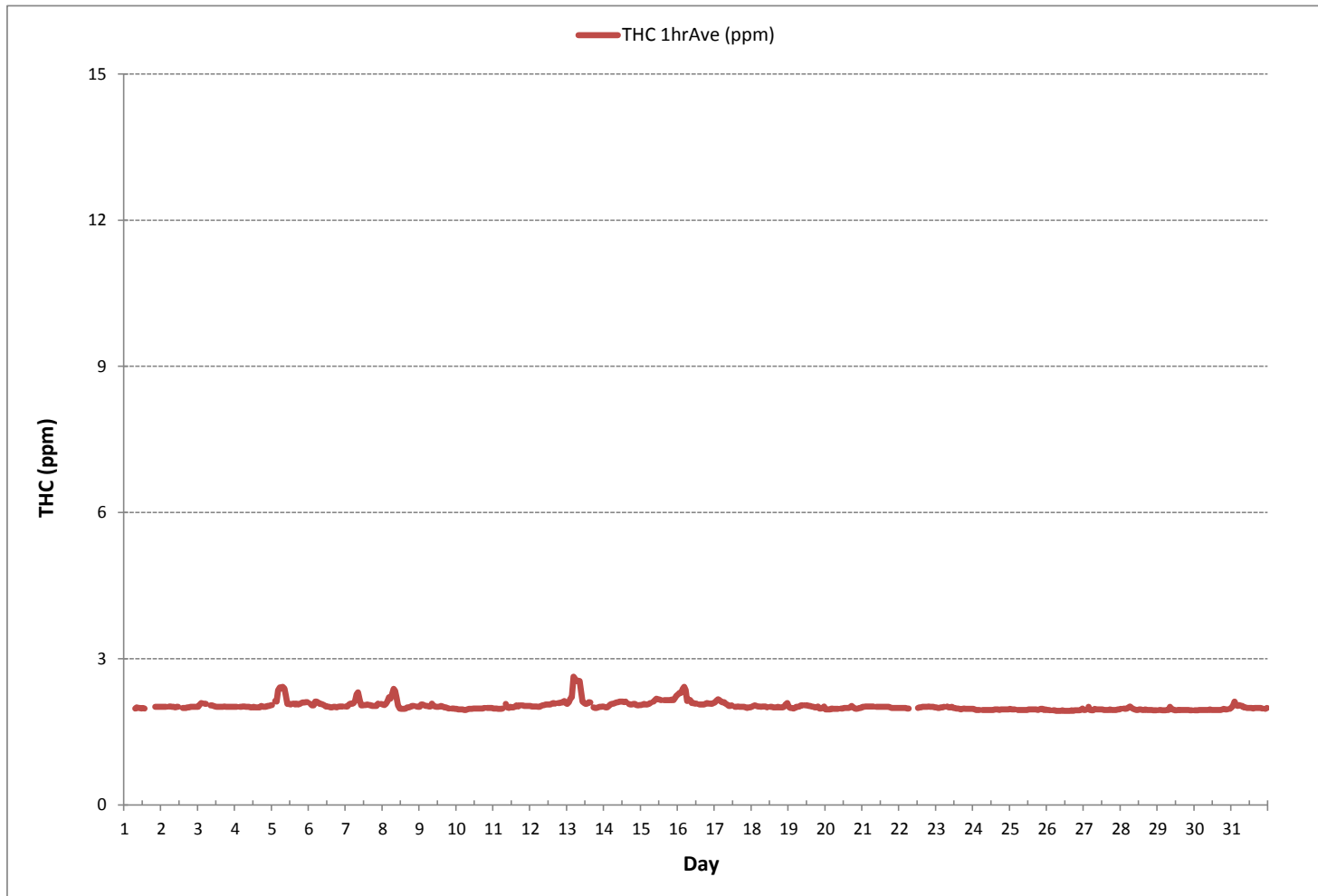
24 HR AVERAGES March 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689			
MINIMUM 1-HR AVERAGE:	1.93	ppm @ HOUR	6	ON DAY 26
MAXIMUM 1-HR AVERAGE:	2.63	ppm @ HOUR	4	ON DAY 13
MAXIMUM 24-HR AVERAGE:	2.19	ppm		ON DAY 13
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	726 hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	97.6 %
STANDARD DEVIATION:	0.09		MONTHLY AVERAGE:	2.02 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



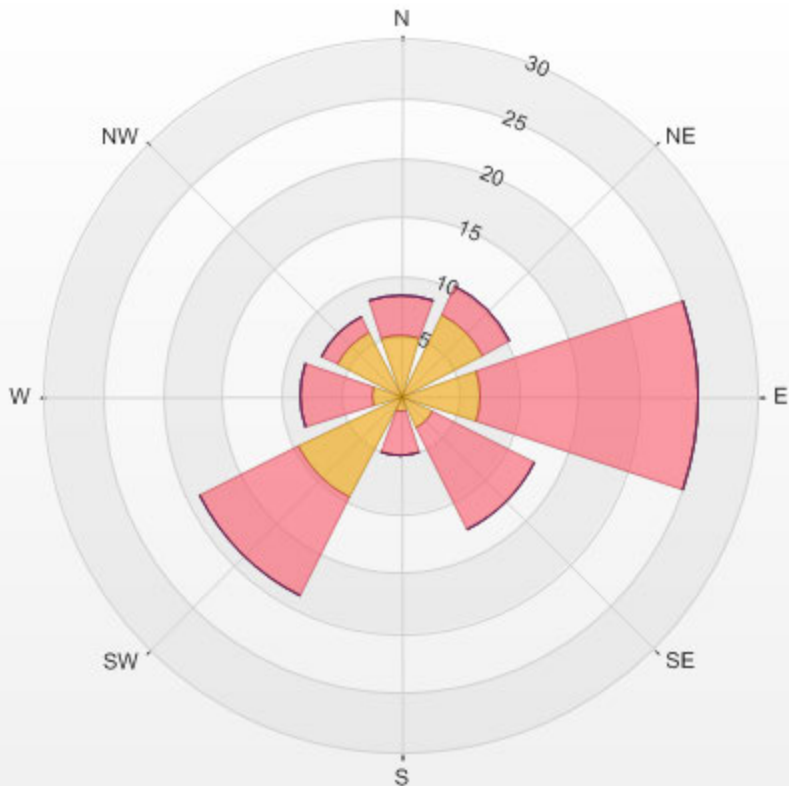
Wind: PRAMP_842
Poll.: PRAMP_842-THC55[ppm]
Monthly: 18/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.48%

Calm Avg: 2.09 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	5.1	3.5	0.0	0.0	0.0	8.6
NE	7.7	2.6	0.0	0.0	0.0	10.3
E	6.7	18.4	0.0	0.0	0.0	25.1
SE	3.1	9.6	0.0	0.0	0.0	12.6
S	1.3	3.8	0.0	0.0	0.0	5.1
SW	9.6	9.3	0.0	0.0	0.0	18.9
W	2.5	6.0	0.0	0.0	0.0	8.4
NW	6.0	1.6	0.0	0.0	0.0	7.6
Summary	41.8	54.7	0.0	0.0	0.0	96.5

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.48% Calm Poll Avg: 2.09[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/03 Type: Span



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

METHANE

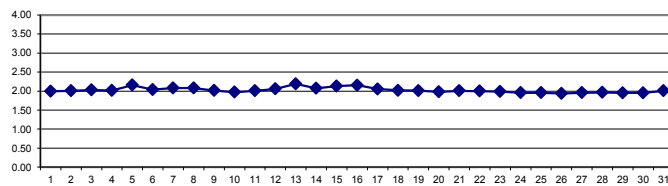
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	X	X	X	X	X	X	X	1.98	2.00	1.99	1.99	1.98	1.99	1.98	C	C	Y	C	C	C	2.01	2.01	2.01	2.01	1.98	2.01	2.00	16	
2	2.01	2.01	2.01	2.01	S	2.02	2.02	2.01	2.01	2.00	2.01	2.01	X	S1	1.99	1.99	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.01	1.99	2.02	2.01	22	
3	2.01	2.06	2.09	S	2.08	2.07	S1	S1	2.04	2.04	2.03	2.02	2.01	2.01	1.99	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.09	2.03	22	
4	2.01	2.01	S	2.01	2.01	2.02	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.03	2.01	2.01	2.01	2.03	2.03	2.04	2.00	2.04	2.01	24	
5	2.05	S	2.13	2.12	2.35	2.41	2.39	2.42	2.39	2.24	2.07	2.07	2.06	2.07	2.08	2.06	2.08	2.06	2.07	2.09	2.10	2.10	2.11	2.11	2.05	2.42	2.16	24	
6	S	2.07	2.04	2.04	2.12	2.12	2.10	2.07	2.07	2.06	2.04	2.02	2.02	2.01	2.00	2.00	2.01	2.01	2.00	2.01	2.02	2.02	2.02	S	2.00	2.12	2.04	24	
7	2.02	2.02	2.06	2.08	2.07	2.09	2.14	2.27	2.31	2.14	2.04	2.04	2.05	2.05	2.06	2.05	2.05	2.03	2.03	2.03	2.03	2.08	S	2.07	2.02	2.31	2.08	24	
8	2.06	2.05	2.07	2.12	2.21	2.18	2.26	2.38	2.34	2.20	2.04	1.98	1.97	1.97	1.97	1.98	1.99	2.00	2.01	2.03	2.03	S	2.02	2.01	1.97	2.38	2.08	24	
9	2.01	2.06	2.06	2.04	2.02	2.03	2.02	2.02	2.08	2.03	2.02	2.01	2.01	2.02	2.03	2.02	2.00	1.99	1.99	1.98	S	1.98	1.98	1.97	1.97	2.08	2.02	24	
10	1.97	1.96	1.96	1.96	1.96	1.95	1.95	1.96	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	S	1.99	1.99	1.99	1.99	1.95	1.99	1.97	24	
11	1.98	1.98	1.98	1.97	1.97	1.97	1.98	S1	2.07	2.00	1.99	2.01	2.00	2.00	2.02	2.04	2.02	2.04	S	2.04	2.03	2.03	2.03	2.03	1.97	2.07	2.01	23	
12	2.03	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.04	2.05	2.06	2.06	2.06	2.06	2.08	2.09	2.08	S	2.09	2.09	2.10	2.10	2.13	2.09	2.01	2.13	2.06	24	
13	2.07	2.11	2.18	2.21	2.63	2.59	2.54	2.55	2.54	2.33	2.12	2.09	2.07	2.08	2.11	2.10	S	2.00	1.99	1.99	2.00	2.01	2.01	2.02	1.99	2.63	2.19	24	
14	2.01	2.00	2.00	2.03	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.12	2.12	2.11	2.12	S	2.07	2.06	2.06	2.07	2.07	2.05	2.04	2.05	2.00	2.12	2.07	24	
15	2.05	2.06	2.07	2.06	2.06	2.07	2.09	S1	2.12	2.15	2.18	2.17	2.16	2.15	S	2.15	2.15	2.15	2.15	2.15	2.16	2.15	2.19	2.24	2.05	2.24	2.13	23	
16	2.27	2.30	2.30	2.38	2.42	2.36	2.13	2.16	2.15	2.09	2.09	2.08	2.08	S	2.06	2.06	2.06	2.06	2.08	2.09	2.08	2.07	2.07	2.09	2.06	2.42	2.15	24	
17	2.10	2.14	2.17	2.15	2.12	2.10	2.11	2.08	2.06	2.03	2.03	2.04	S	2.01	2.01	2.02	2.01	2.01	2.01	2.01	2.00	1.99	2.00	2.00	1.99	2.17	2.05	24	
18	2.01	2.03	2.04	2.03	2.02	2.02	2.01	2.02	2.02	2.02	2.00	S	2.01	2.01	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.06	2.09	2.00	2.09	2.02	24
19	2.01	1.99	1.99	1.98	1.99	2.01	2.01	2.02	2.04	2.04	S	2.04	2.04	2.03	2.03	2.02	2.01	2.00	2.00	2.02	1.98	1.98	1.99	2.02	1.98	2.04	2.01	24	
20	1.96	1.96	1.96	1.96	1.98	1.97	1.97	1.97	S	1.98	1.98	1.99	1.99	1.99	1.99	1.99	2.00	2.03	2.00	1.98	1.97	1.98	1.99	1.99	1.96	2.03	1.98	24	
21	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	S	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.02	2.01	24	
22	1.99	1.99	1.99	1.99	1.99	1.98	1.98	S	C1	C1	C1	C1	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.00	1.98	2.02	2.00	20	
23	2.00	1.99	1.99	2.00	2.00	2.01	S	2.02	2.00	2.00	2.01	1.99	1.99	1.98	1.98	1.97	1.96	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.96	2.02	1.99	24	
24	1.97	1.96	1.95	1.95	1.95	S	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.97	1.96	24	
25	1.97	1.96	1.96	1.96	S	1.95	1.95	1.95	1.95	1.95	1.94	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.97	1.97	1.95	1.96	1.94	1.97	1.96	24	
26	1.94	1.95	1.94	S	1.94	1.94	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	1.95	1.98	1.93	1.98	1.94	24	
27	1.95	1.95	S	2.01	1.95	1.94	1.94	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.96	1.96	1.94	2.01	1.96	24	
28	1.97	S	1.98	1.97	1.98	2.00	2.01	1.99	1.97	1.96	1.95	1.95	1.96	1.96	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	2.01	1.96	24	
29	S	1.95	1.95	1.94	1.94	1.94	1.95	1.95	2.01	1.96	1.96	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.94	1.94	S	1.94	2.01	1.95	24	
30	1.94	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.96	1.96	S	1.97	1.94	1.97	1.95	24	
31	2.00	2.04	2.12	2.04	2.03	2.05	2.03	2.03	2.00	2.00	1.99	1.99	1.99	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.98	S	1.97	1.99	1.97	2.12	2.01	24	
HOURLY MAX	2.27	2.30	2.30	2.38	2.63	2.59	2.54	2.55	2.54	2.33	2.18	2.17	2.16	2.15	2.12	2.15	2.15	2.15	2.15	2.15	2.16	2.15	2.19	2.24					
HOURLY AVG	2.01	2.02	2.03	2.04	2.07	2.06	2.06	2.07	2.07	2.04	2.02	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02					

STATUS FLAG CODES

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

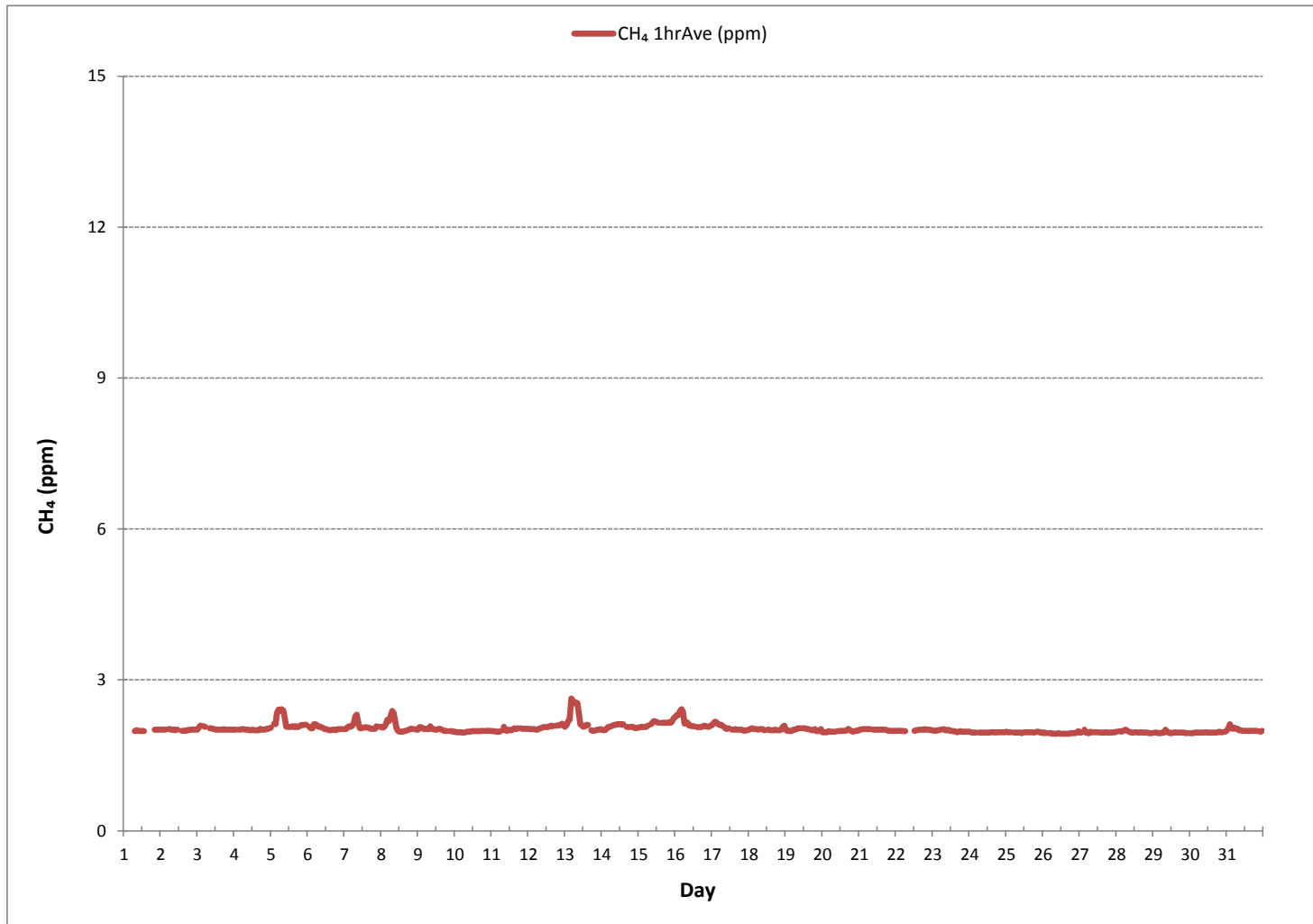
24 HR AVERAGES March 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	689			
MINIMUM 1-HR AVERAGE:	1.93	ppm	@ HOUR	6 ON DAY 26
MAXIMUM 1-HR AVERAGE:	2.63	ppm	@ HOUR	4 ON DAY 13
MAXIMUM 24-HR AVERAGE:	2.19	ppm		ON DAY 13
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	726 hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	97.6 %
STANDARD DEVIATION:	0.09		MONTHLY AVERAGE:	2.02 ppm

METHANE Hourly Averages (CH₄ ppm)



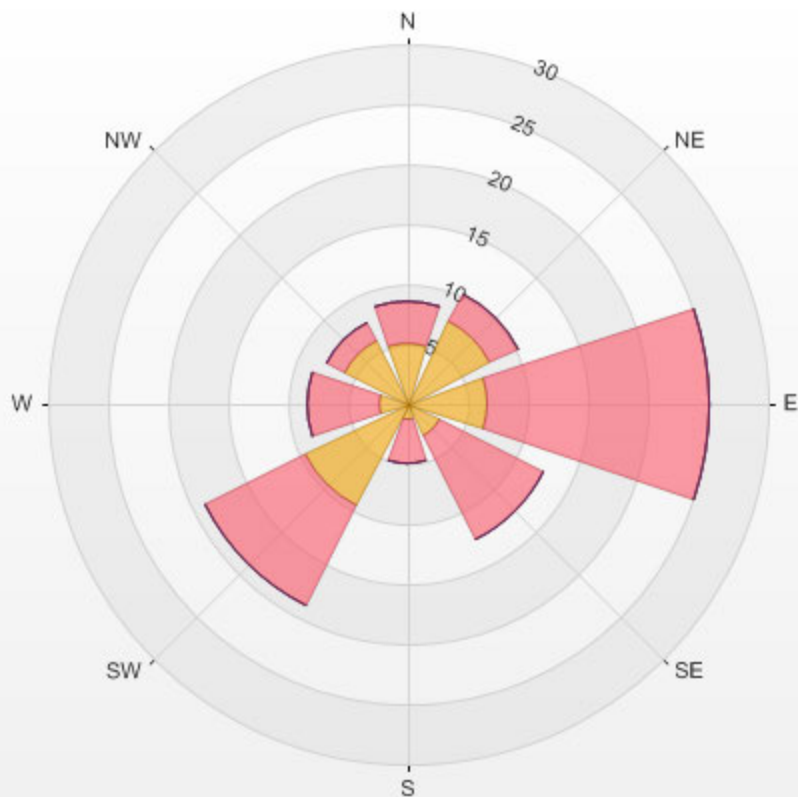
Wind: PRAMP_842
Poll.: PRAMP_842-CH₄[ppm]
Monthly: 18/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.48%

Calm Avg: 2.09 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	5.1	3.5	0.0	0.0	0.0	8.6
NE	7.7	2.6	0.0	0.0	0.0	10.3
E	6.7	18.4	0.0	0.0	0.0	25.1
SE	3.1	9.6	0.0	0.0	0.0	12.6
S	1.3	3.8	0.0	0.0	0.0	5.1
SW	9.6	9.3	0.0	0.0	0.0	18.9
W	2.5	6.0	0.0	0.0	0.0	8.4
NW	6.0	1.6	0.0	0.0	0.0	7.6
Summary	41.8	54.7	0.0	0.0	0.0	96.5

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.48% Calm Poll Avg: 2.09[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/03 Type: Span



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

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

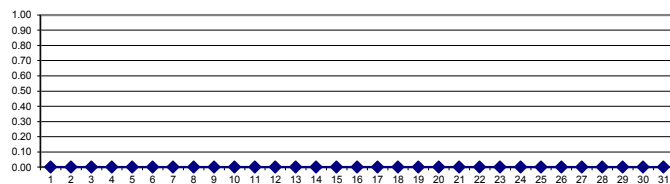
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	X	X	X	X	X	X	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	Y	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16
2	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
3	0.00	0.00	0.00	S	0.00	0.00	S1	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
4	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	S1	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	23
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	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	23
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20
23	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
24	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	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
27	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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

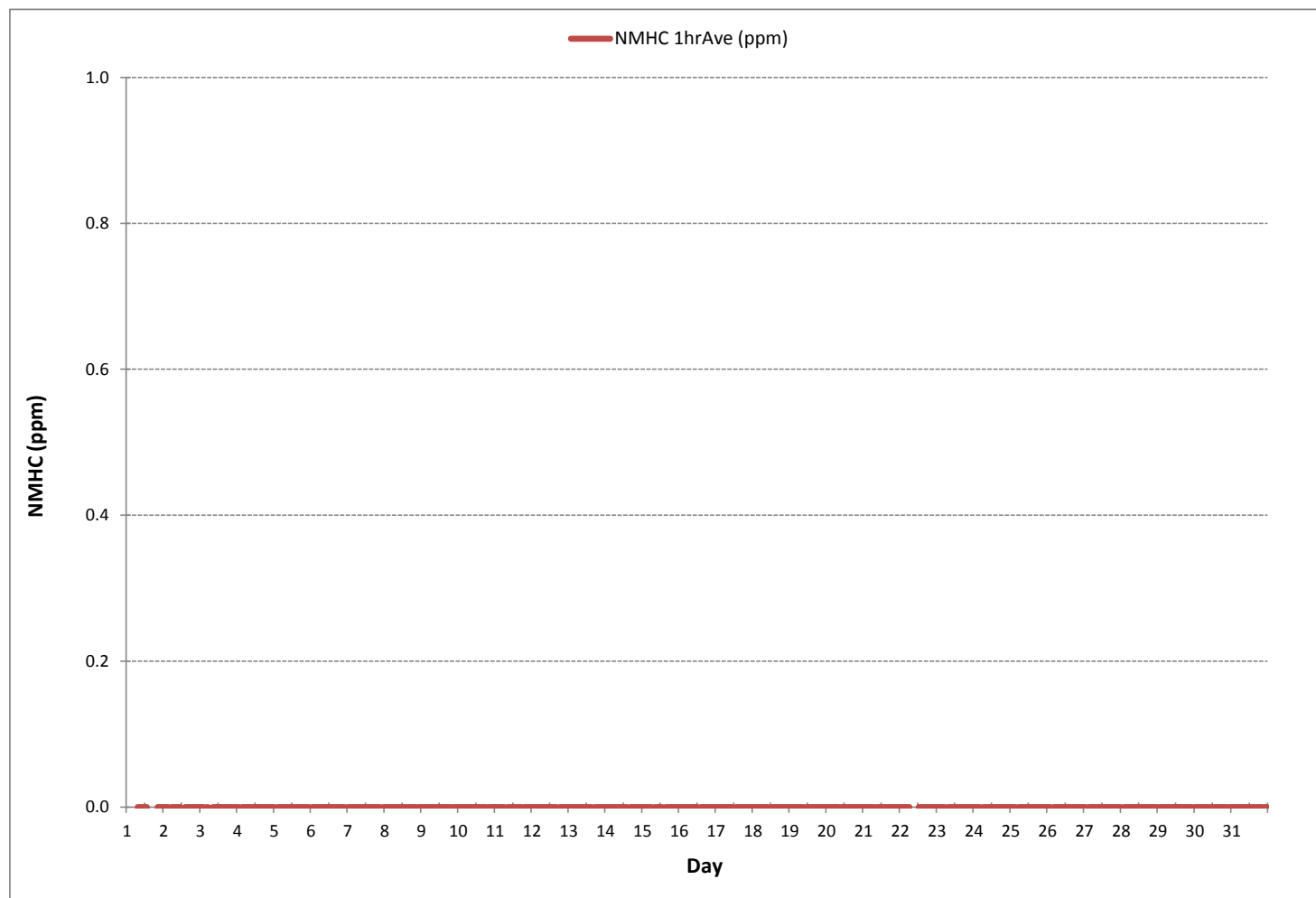
24 HR AVERAGES March 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	7	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	7	ON DAY 1
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	726	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	97.6	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



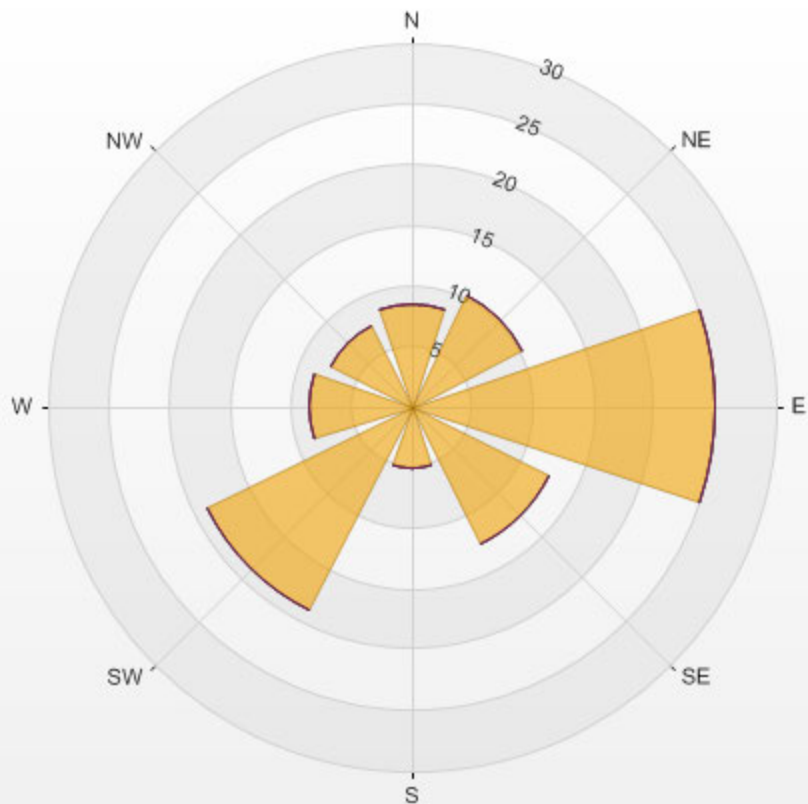
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 18/03
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 3.48%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	8.6	0.0	0.0	0.0	0.0	8.6
NE	10.3	0.0	0.0	0.0	0.0	10.3
E	25.1	0.0	0.0	0.0	0.0	25.1
SE	12.6	0.0	0.0	0.0	0.0	12.6
S	5.1	0.0	0.0	0.0	0.0	5.1
SW	18.9	0.0	0.0	0.0	0.0	18.9
W	8.4	0.0	0.0	0.0	0.0	8.4
NW	7.6	0.0	0.0	0.0	0.0	7.6
Summary	96.5	0.0	0.0	0.0	0.0	96.5

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.48% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/03 Type: Span



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

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - March 2018

WIND SPEED Hourly Averages (WS kph)

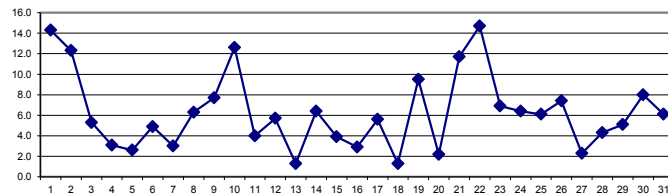
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	6.2	9.3	11.1	13.1	13.0	13.6	13.8	14.4	15.5	15.3	15.5	14.7	16.1	15.6	12.8	15.5	16.4	16.1	18.4	16.1	15.3	15.9	14.9	16.2	6.2	18.4	14.3	24
2	15.5	15.9	15.6	14.9	15.1	14.2	12.7	13.9	14.5	15.0	14.2	15.1	13.1	12.1	11.3	11.3	10.4	9.4	11.0	9.8	9.4	8.8	7.3	6.0	6.0	15.9	12.3	24
3	7.0	8.0	7.8	8.5	8.1	6.9	5.5	6.3	7.6	7.7	7.0	8.5	9.5	12.6	12.2	8.7	5.0	6.1	7.2	6.9	5.9	5.5	6.4	6.7	5.0	12.6	5.3	24
4	6.1	5.2	4.4	6.7	7.1	5.1	4.4	4.5	5.0	5.8	5.5	1.4	5.1	10.0	8.7	7.3	5.4	7.3	3.6	4.0	3.4	3.5	1.6	2.5	1.4	10.0	3.1	24
5	1.0	2.4	2.8	2.1	3.5	2.8	1.6	1.8	0.9	0.3	6.5	7.7	5.8	9.8	9.3	7.4	11.0	7.9	5.1	8.3	5.4	2.2	2.4	0.6	0.3	11.0	2.6	24
6	2.8	6.2	5.2	3.6	5.2	3.1	2.7	2.0	5.7	7.7	8.1	8.9	11.6	12.1	11.0	9.4	8.6	9.3	8.7	4.4	5.1	4.5	4.8	4.3	2.0	12.1	4.9	24
7	4.4	4.0	4.7	4.2	3.8	3.6	4.3	1.3	2.2	4.1	7.6	7.5	5.7	7.4	9.2	9.8	8.6	7.4	5.4	3.2	6.1	5.0	3.1	5.6	1.3	9.8	3.0	24
8	2.6	3.2	4.1	3.8	3.7	5.4	4.1	4.0	5.0	4.5	4.3	6.2	8.6	9.4	11.1	10.7	9.4	9.9	9.0	9.5	8.7	7.8	7.7	8.1	2.6	11.1	6.3	24
9	3.1	2.7	4.8	1.8	1.9	2.2	8.7	9.6	5.7	7.8	9.3	9.1	11.1	12.6	14.3	14.3	14.4	14.3	12.4	8.3	7.8	5.2	7.4	14.4	1.8	14.4	7.7	24
10	16.8	18.3	17.7	20.8	20.6	17.4	12.2	7.3	12.0	15.0	15.2	15.6	14.9	15.8	17.1	14.6	13.5	13.9	12.1	9.4	8.4	3.2	4.0	3.8	3.2	20.8	12.6	24
11	4.7	4.4	2.2	2.4	2.8	3.3	6.0	6.3	4.9	2.9	3.6	10.5	12.6	10.9	11.2	11.6	11.2	6.3	7.3	3.5	3.8	2.7	1.0	2.7	1.0	12.6	4.0	24
12	4.2	2.9	5.3	1.5	2.9	7.0	10.7	12.5	12.2	11.1	14.8	11.4	10.8	9.4	12.4	11.8	10.8	9.0	3.9	1.7	2.7	3.8	5.0	2.7	1.5	14.8	5.7	24
13	3.7	2.9	2.0	3.1	4.2	2.8	2.8	3.1	2.7	1.6	4.6	7.7	10.1	9.4	6.1	5.7	5.1	5.7	6.4	6.0	7.8	9.6	9.4	8.7	1.6	10.1	1.3	24
14	9.6	10.2	11.6	10.8	6.7	6.4	7.4	6.8	5.0	3.9	5.1	5.1	1.9	4.4	8.0	9.4	8.3	7.2	7.3	7.6	5.3	6.5	8.0	6.6	1.9	11.6	6.4	24
15	7.1	4.6	4.9	5.7	6.7	11.5	8.9	3.4	5.4	7.8	8.9	7.3	11.2	12.4	10.7	10.2	9.5	9.1	4.5	2.4	3.0	2.3	2.8	3.2	2.3	12.4	3.9	24
16	2.8	3.1	2.7	2.7	2.2	2.0	5.7	3.1	2.8	4.4	6.8	10.3	7.1	9.7	9.9	9.3	8.6	7.2	4.0	1.9	1.6	3.1	3.7	3.9	1.6	10.3	2.9	24
17	2.6	4.0	4.1	3.6	4.4	5.1	5.0	6.2	6.9	8.5	8.2	6.8	6.6	8.6	7.9	9.3	8.0	6.6	3.6	1.4	4.0	5.4	6.6	6.3	1.4	9.3	5.6	24
18	5.3	5.9	4.8	4.0	4.6	4.9	3.9	3.7	4.4	5.7	3.8	6.2	2.5	10.8	11.1	12.5	10.8	8.3	6.4	3.8	3.6	4.3	4.0	7.2	2.5	12.5	1.3	24
19	8.9	9.0	13.1	13.2	13.6	13.5	16.0	16.7	14.1	13.8	17.6	16.1	16.6	16.1	14.7	10.7	9.6	6.2	5.0	7.3	8.5	6.6	6.5	6.2	5.0	17.6	9.5	24
20	5.9	5.7	6.3	6.0	1.4	1.1	1.0	0.1	3.8	6.4	7.4	3.8	1.4	8.7	11.1	11.3	9.1	6.8	5.2	5.2	5.8	4.8	5.1	4.9	0.1	11.3	2.2	24
21	8.0	8.6	9.0	9.4	9.7	11.0	11.5	10.2	11.1	11.3	13.5	12.9	12.4	11.9	11.3	13.0	14.2	12.5	13.1	11.6	14.5	13.4	15.2	14.1	8.0	15.2	11.7	24
22	15.4	14.1	14.2	14.9	12.6	14.0	12.2	12.2	11.7	13.9	13.0	13.7	16.6	15.5	14.1	13.8	16.6	16.4	16.4	16.7	17.8	17.4	17.2	17.0	11.7	17.8	14.7	24
23	13.8	12.7	10.9	10.5	11.1	12.3	9.6	9.1	8.1	7.4	21.7	20.6	21.2	20.6	23.8	22.4	18.9	16.2	13.0	11.6	11.2	11.8	9.1	6.4	6.4	23.8	6.9	24
24	5.9	6.9	13.0	10.8	11.0	9.7	9.5	13.1	11.0	10.7	12.0	12.9	10.9	8.1	11.0	9.1	8.1	7.4	5.5	4.5	2.0	0.7	2.4	3.1	0.7	13.1	6.4	24
25	4.8	4.9	5.4	5.0	5.7	7.0	7.8	7.4	9.1	8.4	7.4	6.4	4.7	6.2	6.4	5.9	6.5	8.6	7.2	6.6	6.3	6.0	8.0	7.4	4.7	9.1	6.1	24
26	7.3	7.7	8.8	8.3	8.8	7.2	7.1	8.9	8.1	10.7	13.3	11.7	9.8	12.5	11.6	10.8	14.3	12.0	9.0	3.5	2.4	3.7	5.0	7.3	2.4	14.3	7.4	24
27	7.7	8.1	8.1	10.2	12.8	13.0	10.0	7.3	6.7	8.1	8.5	9.8	12.3	13.3	15.9	13.2	13.5	10.5	4.1	1.8	8.3	10.0	8.3	10.7	1.8	15.9	2.3	24
28	5.9	7.7	7.0	6.6	5.8	4.5	4.0	2.7	3.6	5.3	6.8	5.3	6.5	7.5	11.1	12.3	9.9	10.8	8.8	6.7	4.0	8.3	7.7	7.5	2.7	12.3	4.3	24
29	8.5	8.0	4.6	4.8	1.3	2.1	2.3	2.9	4.2	3.7	5.6	4.6	1.9	3.7	6.6	8.7	13.2	10.7	8.7	8.7	8.8	7.5	10.4	8.8	1.3	13.2	5.1	24
30	12.4	9.4	10.2	8.0	8.0	5.0	8.1	9.2	10.9	11.9	13.0	13.5	14.9	14.8	15.5	15.6	14.0	12.2	9.5	6.0	1.8	0.5	0.1	2.6	0.1	15.6	8.0	24
31	2.7	2.8	3.8	4.6	4.5	4.0	5.1	4.3	4.8	11.6	12.9	13.1	14.5	14.1	14.1	13.1	11.9	10.7	7.0	7.6	5.8	4.7	5.3	4.5	2.7	14.5	6.1	24
HOURLY MAX	16.8	18.3	17.7	20.8	20.6	17.4	16.0	16.7	15.5	15.3	21.7	20.6	21.2	20.6	23.8	22.4	18.9	16.4	18.4	16.7	17.8	17.4	17.2	17.0				
HOURLY AVG	3.4	3.6	3.2	3.3	3.2	3.2	3.2	3.3	2.8	1.4	0.6	1.2	3.0	4.1	3.9	3.2	3.0	1.7	1.1	1.8	2.4	3.2	3.6	3.4				

STATUS FLAG CODES

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

LAST CALIBRATION:	August 30, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

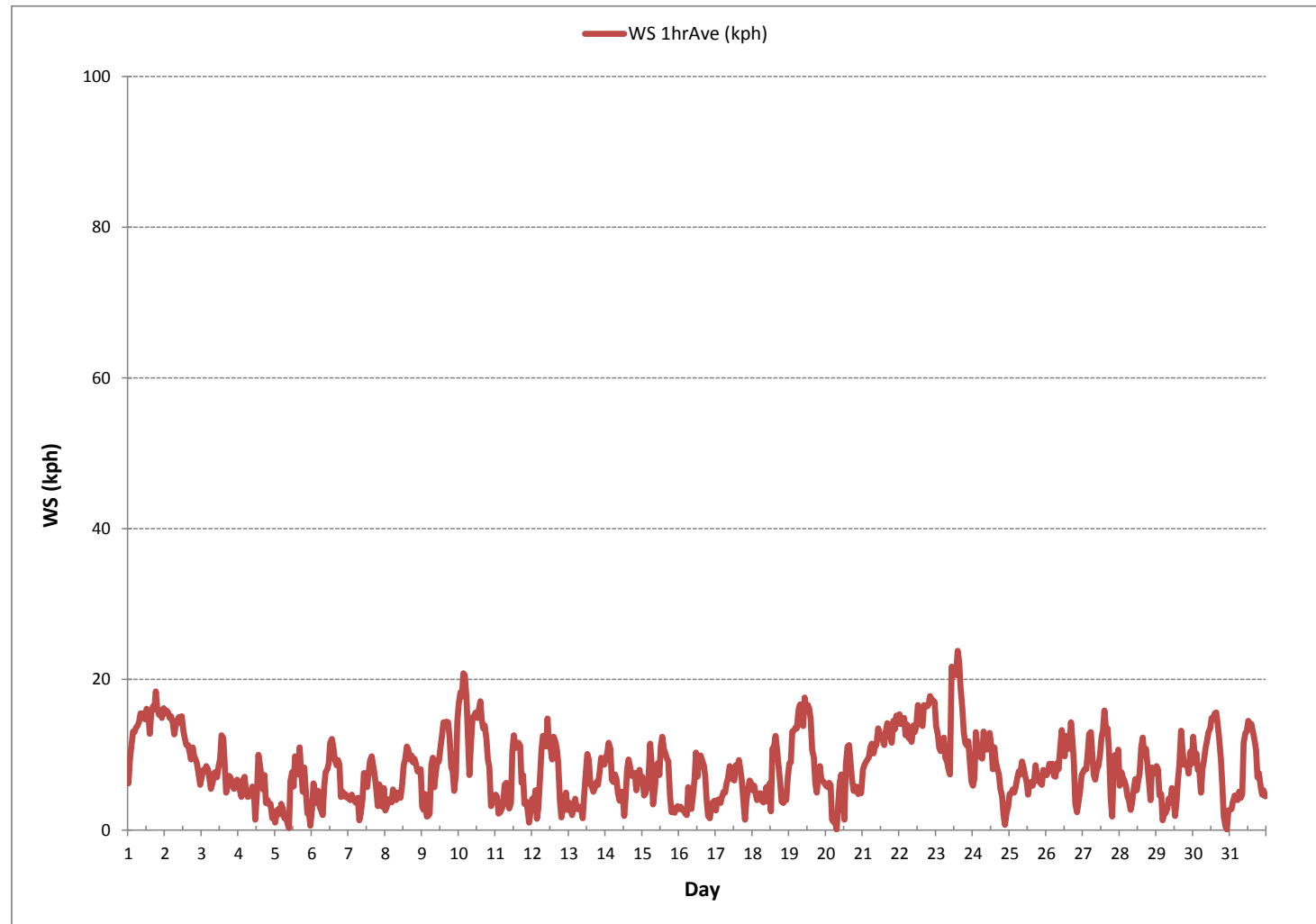
24 HR AVERAGES March 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744				
MINIMUM 1-HR AVERAGE	0.1	kph	@ HOUR	7	ON DAY	20
MAXIMUM 1-HR AVERAGE:	23.8	kph	@ HOUR	14	ON DAY	23
MAXIMUM 24-HR AVERAGE:	14.7	kph			ON DAY	22
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:		744	hrs
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.4		MONTHLY AVERAGE:		1.0	kph

WIND SPEED Hourly Averages (WS kph)



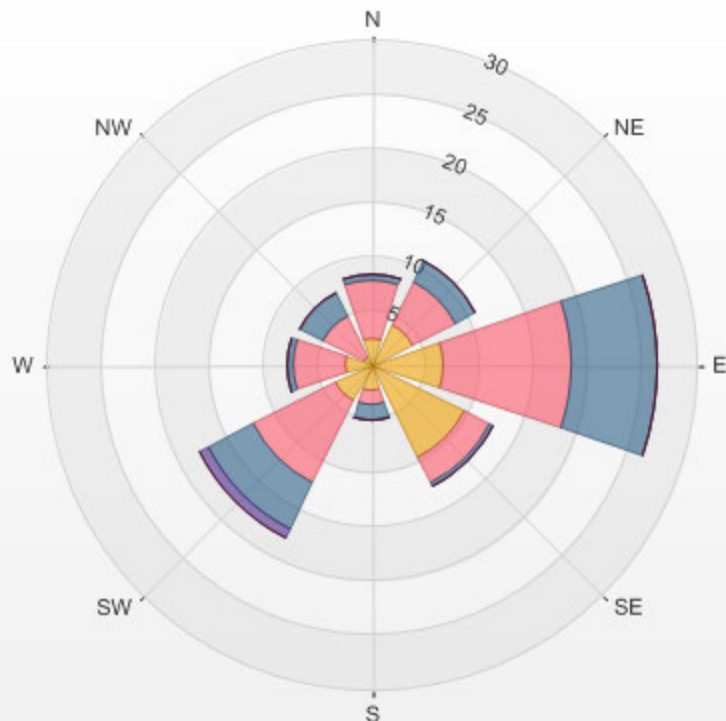
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/03
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 3.36%

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	2.6	5.2	0.7	0.0	0.0	0.0	8.5
NE	4.2	4.4	2.2	0.0	0.0	0.0	10.8
E	6.6	12.0	7.8	0.0	0.0	0.0	26.4
SE	9.7	2.4	0.4	0.0	0.0	0.0	12.5
S	2.4	1.3	1.3	0.1	0.0	0.0	5.2
SW	3.8	8.5	4.7	0.9	0.0	0.0	17.9
W	2.4	4.8	0.7	0.0	0.0	0.0	7.9
NW	0.8	4.3	2.4	0.0	0.0	0.0	7.5
Summary	32.4	43.0	20.2	1.1	0.0	0.0	96.6

%	Icon	Classes (kph)	32	43	20	1	0	0
			1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0

PRAMP_842 2018/03/01 00:00 - 2018/03/31 23:00 Calm: 3.36% Calm Wind Avg Speed: 1.15(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

WIND DIRECTION Hourly Averages (WD)

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

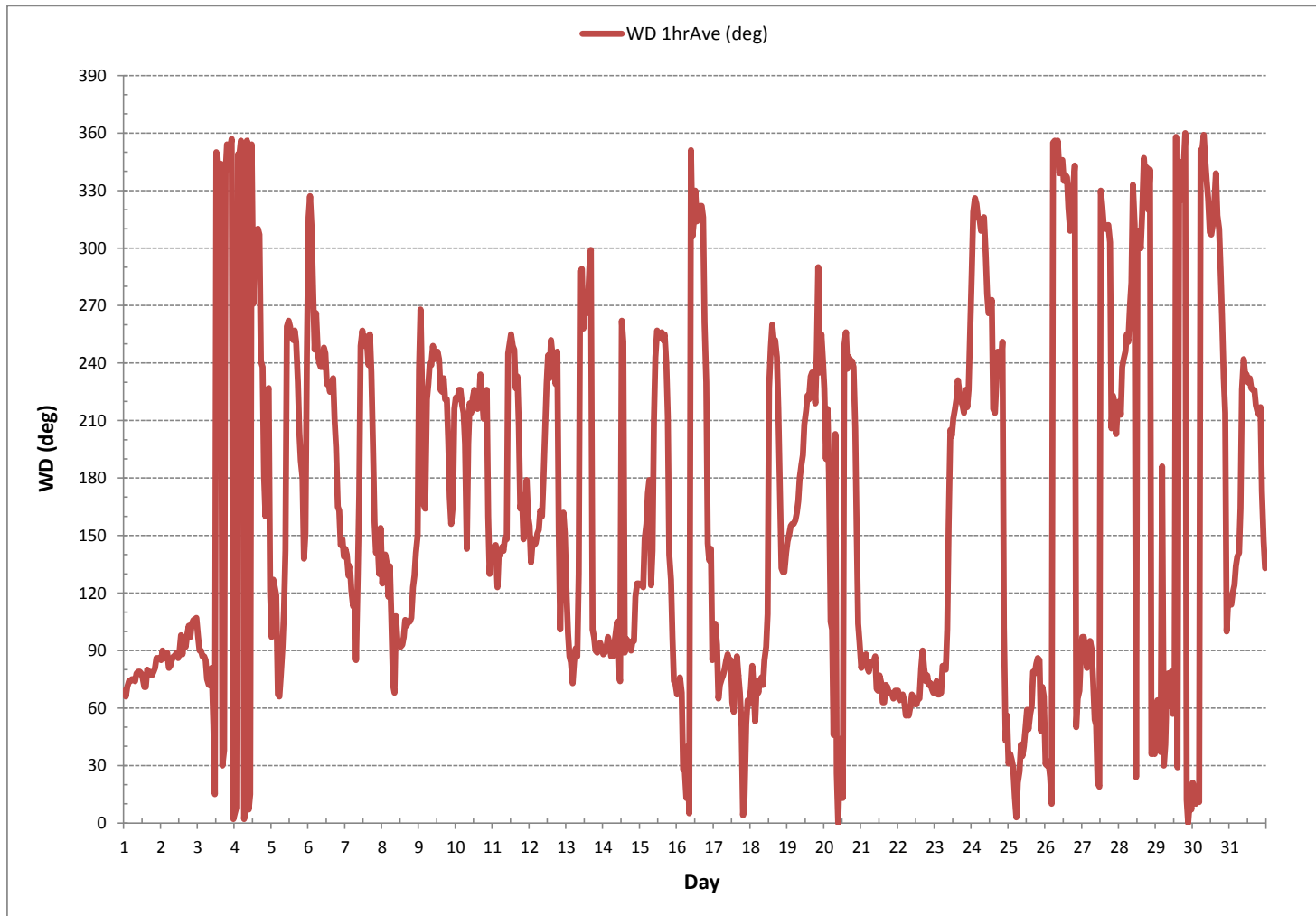
STATUS FLAG CODES

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

LAST CALIBRATION:	August 30, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	96		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	109 (ESE)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

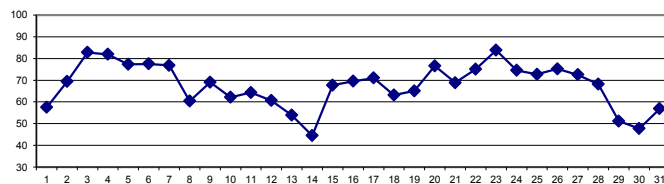
RELATIVE HUMIDITY Hourly Averages (RH %)

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

STATUS FLAG CODES

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

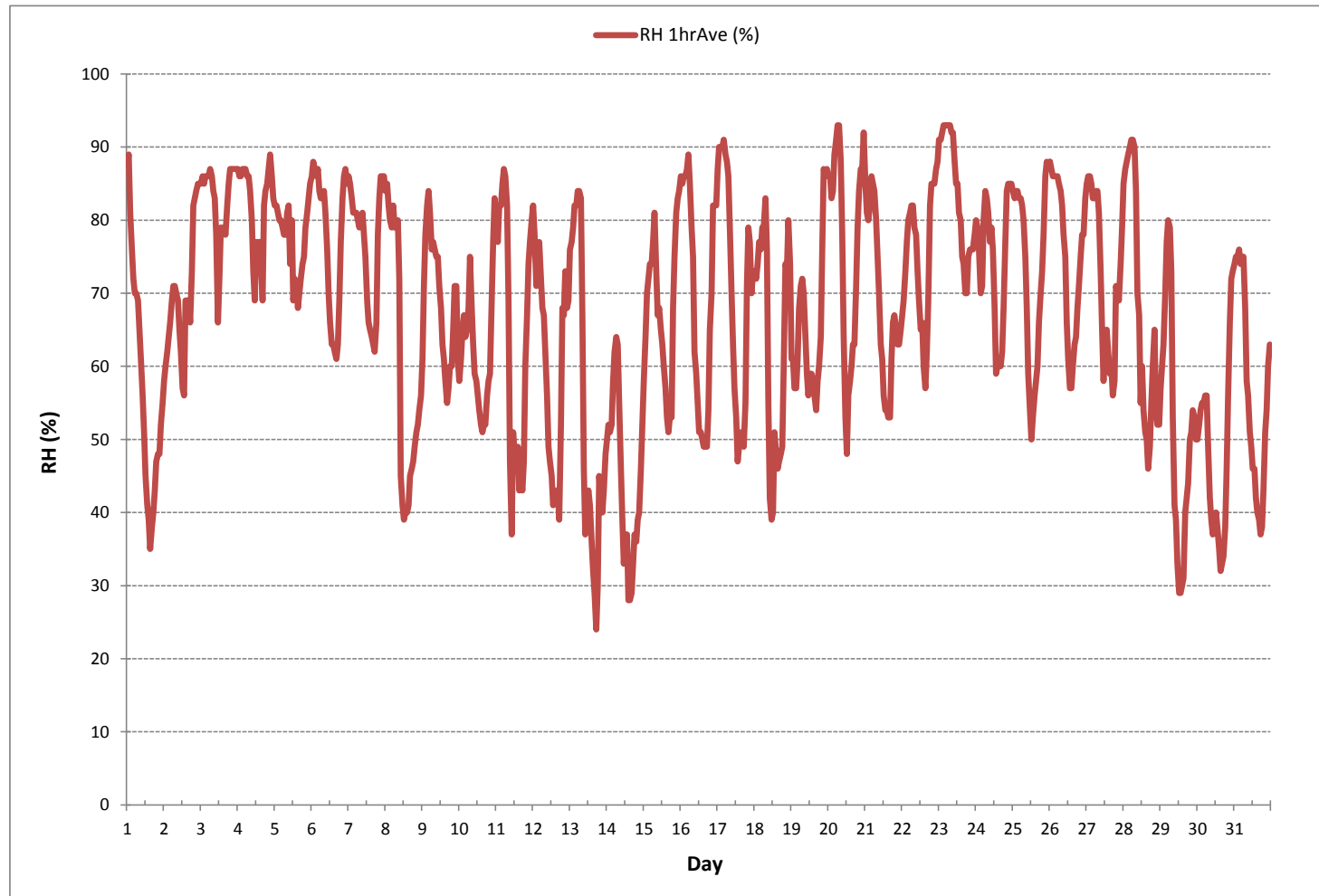
24 HR AVERAGES March 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	24	%	@ HOUR	17	ON DAY	13
MAXIMUM 1-HR AVERAGE:	93	%	@ HOUR	6	ON DAY	20
MAXIMUM 24-HR AVERAGE:	84	%			ON DAY	23
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	16		MONTHLY AVERAGE:		68	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

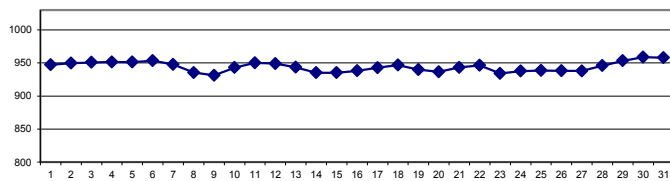
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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

STATUS FLAG CODES

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

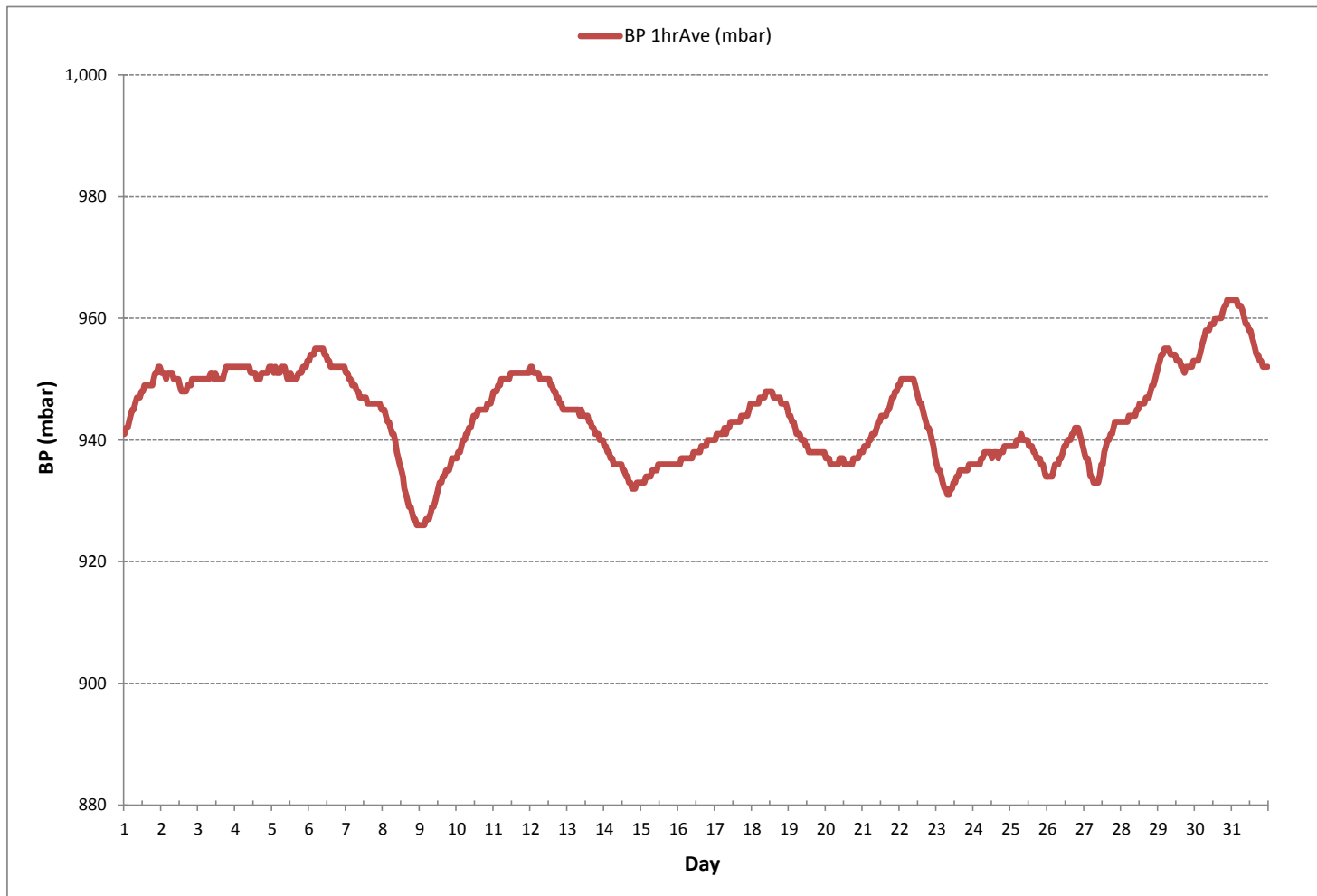
24 HR AVERAGES March 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	926	mbar	@ HOUR	22	ON DAY	8
MAXIMUM 1-HR AVERAGE:	963	mbar	@ HOUR	21	ON DAY	30
MAXIMUM 24-HR AVERAGE:	959	mbar			ON DAY	30
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	8					
MONTHLY AVERAGE:						944 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

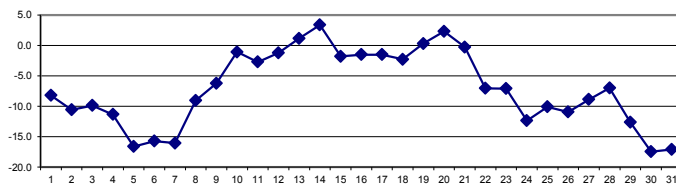
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	-9.7	-9.3	-8.3	-8.5	-9.1	-9.9	-10.7	-11.4	-11.3	-10.7	-9.4	-8.3	-6.7	-5.2	-4.7	-4.4	-5.1	-5.7	-6.3	-7.3	-8.1	-8.5	-9.1	-9.7	-11.4	-4.4	-8.2	24
2	-10.2	-10.7	-11.2	-11.5	-12.0	-12.6	-13.1	-13.3	-13.4	-13.0	-12.4	-11.7	-10.4	-9.0	-8.6	-8.4	-8.4	-9.0	-9.4	-9.4	-9.4	-9.4	-9.4	-13.4	-8.4	-10.6	24	
3	-9.5	-9.7	-10.0	-10.4	-10.6	-10.7	-10.9	-11.1	-10.8	-10.5	-8.8	-6.2	-7.4	-9.2	-8.6	-8.6	-8.0	-9.0	-10.7	-11.0	-11.0	-11.3	-11.4	-11.7	-11.7	-6.2	-9.9	24
4	-11.9	-12.3	-12.8	-13.2	-13.2	-13.0	-13.0	-12.8	-12.5	-11.4	-9.4	-7.7	-8.8	-8.1	-8.4	-7.5	-6.6	-9.0	-9.3	-9.9	-11.6	-14.3	-16.2	-19.3	-19.3	-6.6	-11.3	24
5	-20.6	-21.2	-21.6	-22.5	-23.0	-23.9	-24.0	-24.7	-21.4	-13.9	-11.1	-13.5	-10.6	-12.0	-11.9	-10.9	-12.2	-12.8	-13.7	-14.1	-14.9	-15.2	-14.8	-14.4	-24.7	-10.6	-16.6	24
6	-14.7	-14.0	-14.1	-15.7	-17.8	-19.3	-20.6	-21.3	-18.5	-16.5	-15.0	-13.7	-12.6	-12.0	-11.7	-11.3	-11.1	-11.6	-13.0	-16.2	-17.9	-19.0	-19.1	-20.3	-21.3	-11.1	-15.7	24
7	-20.6	-19.9	-20.7	-22.8	-22.8	-22.7	-22.5	-23.2	-21.4	-13.2	-11.8	-11.6	-10.3	-9.4	-9.0	-8.8	-8.9	-9.2	-10.7	-15.4	-16.2	-17.7	-18.4	-18.3	-23.2	-8.8	-16.1	24
8	-19.2	-20.0	-20.9	-22.8	-23.3	-22.5	-22.8	-23.1	-20.1	-11.4	-2.8	-0.9	0.7	1.3	1.7	1.5	0.6	0.1	-0.7	-1.6	-2.2	-2.7	-2.9	-3.8	-23.3	1.7	-9.1	24
9	-4.4	-6.4	-7.6	-10.9	-10.2	-8.5	-7.2	-8.0	-8.7	-7.7	-7.4	-6.0	-4.7	-4.0	-3.1	-2.3	-2.1	-2.6	-3.9	-4.9	-6.7	-8.5	-8.3	-5.3	-10.9	-2.1	-6.2	24
10	-4.2	-3.9	-4.2	-4.2	-2.5	-2.5	-3.5	-5.7	-3.2	-1.1	0.3	1.3	2.3	3.0	3.5	4.0	3.8	3.5	2.0	0.8	0.2	-3.2	-5.5	-7.0	-7.0	4.0	-1.1	24
11	-6.2	-5.9	-6.7	-7.1	-8.7	-9.4	-9.6	-8.6	-5.5	2.3	6.0	1.3	2.2	2.8	1.9	3.3	3.0	3.1	1.7	-1.8	-4.0	-5.4	-6.7	-7.5	-9.6	6.0	-2.7	24
12	-8.6	-7.1	-5.3	-6.5	-6.6	-5.8	-4.4	-4.1	-2.4	-0.1	1.9	2.9	4.0	5.7	5.4	5.0	5.0	5.4	1.5	-2.0	-2.3	-3.8	-3.4	-3.8	-8.6	5.7	-1.2	24
13	-5.2	-5.6	-6.1	-7.4	-7.8	-8.6	-9.2	-9.3	-5.1	1.5	5.0	4.4	4.3	5.3	7.8	9.8	11.4	12.5	9.6	4.4	4.4	5.1	4.1	2.3	-9.3	12.5	1.2	24
14	1.7	1.2	1.2	0.7	-1.1	-2.3	-2.7	-0.7	2.0	4.7	7.4	6.3	6.7	9.4	9.4	9.5	8.4	6.4	5.0	3.7	3.2	2.3	1.1	-2.7	9.5	3.4	24	
15	-0.1	-1.5	-3.2	-3.7	-4.1	-4.3	-4.8	-6.4	-4.2	-2.2	-2.6	-1.8	-0.5	0.8	1.7	2.5	2.9	2.8	2.5	-0.7	-2.1	-3.7	-4.8	-5.6	-6.4	2.9	-1.8	24
16	-6.3	-6.1	-6.7	-7.1	-8.0	-8.6	-6.2	-5.5	-4.5	0.0	0.7	2.1	3.3	3.8	4.1	4.5	4.8	4.8	3.5	1.6	-0.2	-3.0	-3.6	-4.0	-8.6	4.8	-1.5	24
17	-5.4	-6.6	-7.1	-7.7	-7.3	-6.5	-6.2	-4.8	-2.9	-1.0	0.6	2.1	3.7	4.7	4.1	3.3	3.6	4.0	2.5	-0.6	-2.7	-2.5	-1.6	-2.2	-7.7	4.7	-1.5	24
18	-2.9	-3.1	-3.7	-4.3	-4.5	-5.4	-5.6	-6.7	-5.2	-0.6	2.4	2.5	3.3	1.4	1.7	1.8	1.7	1.7	0.3	-3.0	-5.7	-6.4	-8.1	-6.5	-8.1	3.3	-2.3	24
19	-4.0	-4.8	-4.2	-4.4	-4.3	-4.4	-4.5	-3.9	-2.5	-0.3	1.7	3.0	2.8	3.4	3.9	4.4	4.7	4.1	3.8	3.4	3.1	2.2	2.0	1.7	-4.8	4.7	0.3	24
20	1.7	1.4	1.7	1.2	-0.1	-0.8	-1.1	-1.0	0.8	3.2	5.4	6.5	7.7	5.2	4.6	4.4	3.7	3.8	2.6	1.6	1.1	0.7	0.7	0.0	-1.1	7.7	2.3	24
21	-0.4	-1.0	-1.2	-1.5	-1.5	-1.3	-1.5	-1.4	-0.7	0.1	1.8	1.9	3.0	3.6	3.6	3.6	3.3	1.1	-0.5	-1.2	-2.4	-3.4	-4.6	-6.0	-6.0	3.6	-0.3	24
22	-7.0	-8.2	-9.8	-10.6	-10.9	-11.3	-11.4	-11.6	-11.0	-10.5	-9.2	-7.9	-6.5	-5.9	-3.4	-1.6	-2.2	-2.9	-3.9	-4.5	-4.3	-4.4	-4.8	-5.2	-11.6	-1.6	-7.0	24
23	-5.5	-5.0	-4.8	-4.8	-4.9	-4.8	-4.7	-4.3	-3.0	-2.3	-5.7	-6.8	-7.4	-7.1	-7.5	-8.1	-8.3	-8.1	-8.8	-10.4	-11.6	-12.0	-12.2	-12.0	-12.2	-2.3	-7.1	24
24	-11.9	-11.3	-11.4	-12.5	-13.0	-13.6	-13.9	-14.3	-14.0	-13.7	-13.6	-13.3	-12.1	-10.5	-11.2	-10.6	-10.7	-11.2	-11.6	-12.4	-12.6	-12.4	-12.2	-12.2	-14.3	-10.5	-12.3	24
25	-12.1	-12.1	-12.3	-12.5	-13.7	-14.8	-15.2	-15.0	-13.8	-11.3	-8.6	-7.0	-6.1	-6.2	-5.8	-6.2	-6.5	-7.5	-8.1	-8.7	-9.2	-9.6	-10.1	-10.1	-15.2	-5.8	-10.1	24
26	-10.0	-10.1	-10.3	-10.6	-11.3	-12.2	-13.1	-13.6	-12.9	-12.4	-12.1	-9.8	-9.1	-7.0	-6.9	-7.9	-9.2	-9.7	-11.2	-12.2	-12.9	-13.2	-12.7	-11.9	-13.6	-6.9	-10.9	24
27	-11.4	-11.4	-11.4	-11.5	-11.6	-11.6	-11.8	-11.7	-10.8	-9.5	-6.9	-5.3	-6.4	-6.3	-6.1	-5.6	-6.1	-6.2	-7.2	-10.6	-9.0	-8.1	-8.0	-8.4	-11.8	-5.3	-8.9	24
28	-10.2	-10.2	-10.1	-9.9	-9.9	-9.9	-9.7	-9.5	-8.3	-5.9	-5.6	-3.5	-4.1	-3.1	-2.7	-2.9	-1.8	-3.4	-5.1	-7.3	-8.5	-7.8	-8.7	-9.6	-10.2	-1.8	-7.0	24
29	-10.9	-13.5	-15.9	-17.8	-20.6	-22.9	-24.2	-21.1	-14.3	-10.2	-10.0	-6.8	-5.3	-4.1	-4.3	-5.0	-7.8	-8.4	-9.8	-11.4	-12.5	-14.4	-15.5	-16.8	-24.2	-4.1	-12.6	24
30	-17.8	-18.2	-19.3	-20.2	-20.5	-21.0	-22.0	-20.4	-18.5	-17.3	-16.3	-16.0	-15.6	-14.0	-12.0	-10.8	-10.9	-10.8	-12.5	-15.9	-18.7	-21.4	-23.4	-25.0	-25.0	-10.8	-17.4	24
31	-25.9	-26.5	-26.8	-25.6	-23.9	-24.6	-24.1	-21.8	-17.7	-16.9	-15.1	-13.8	-12.1	-11.3	-9.8	-9.0	-8.6	-8.6	-9.4	-11.5	-14.6	-16.3	-18.0	-18.8	-26.8	-8.6	-17.1	24
HOURLY MAX	1.7	1.4	1.7	1.2	-0.1	-0.8	-1.1	-1.0	0.8	3.2	6.0	7.4	7.7	6.7	9.4	9.8	11.4	12.5	9.6	5.0	4.4	5.1	4.1	2.3				
HOURLY AVG	-9.1	-9.5	-9.8	-10.5	-10.9	-11.3	-11.4	-11.4	-9.6	-6.9	-5.3	-4.4	-3.6	-3.1	-2.7	-2.3	-2.5	-2.9	-4.2	-6.0	-7.1	-7.9	-8.5	-9.0				

STATUS FLAG CODES

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

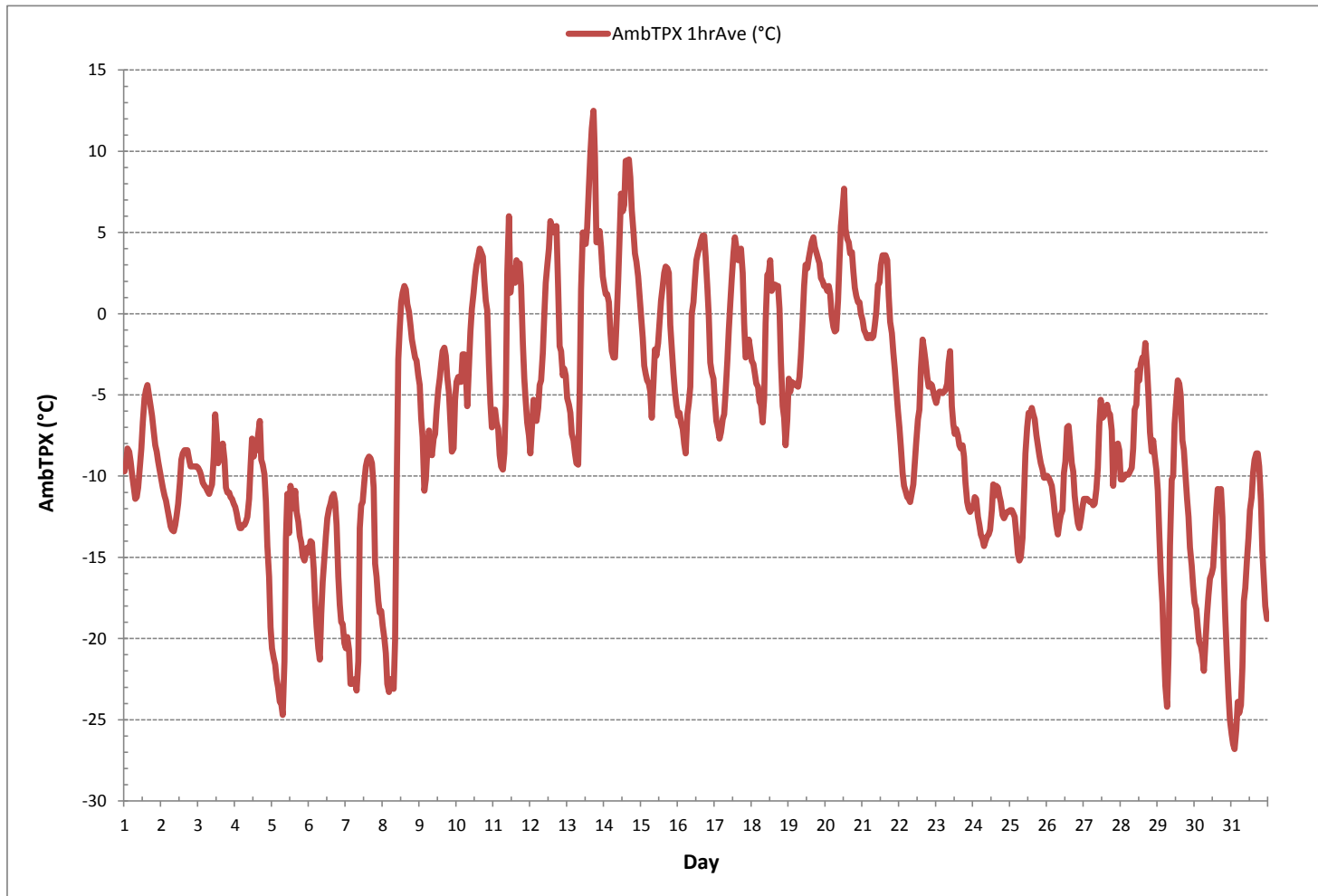
24 HR AVERAGES March 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-26.8	°C	@ HOUR	2	ON DAY	31
MAXIMUM 1-HR AVERAGE:	12.5	°C	@ HOUR	17	ON DAY	13
MAXIMUM 24-HR AVERAGE:	3.4	°C			ON DAY	14
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	7.4				MONTHLY AVERAGE:	-7.1 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

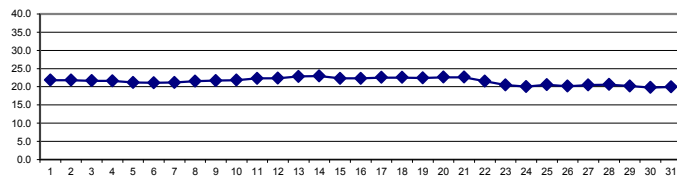
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	21.6	21.2	21.6	21.3	21.6	21.4	21.6	21.3	21.3	21.6	21.3	21.5	21.4	21.0	21.7	22.6	23.7	24.2	24.5	23.4	21.3	21.0	20.9	21.0	20.9	24.5	21.8	21.8	24
2	21.0	20.9	21.1	20.9	21.1	20.9	20.8	20.8	20.8	22.2	23.0	23.3	23.8	22.5	22.1	21.9	21.9	22.4	22.3	21.9	21.8	22.5	21.8	21.4	20.8	23.8	21.8	21.8	24
3	22.2	21.6	21.5	22.3	21.5	21.9	21.7	21.2	22.1	21.3	22.2	21.8	21.4	21.0	21.7	21.3	21.4	21.6	22.0	21.4	21.3	22.0	21.2	21.9	21.0	22.3	21.6	21.4	24
4	21.2	21.8	21.4	21.5	21.4	21.5	21.2	21.7	21.2	22.0	21.6	21.4	21.8	21.8	21.6	21.8	21.9	22.0	22.0	21.7	21.5	21.8	21.5	21.6	21.2	22.0	21.6	21.4	24
5	20.8	21.6	21.2	20.9	21.6	21.0	20.7	21.2	21.2	20.5	21.3	20.4	21.3	21.3	21.2	21.6	22.0	21.8	21.6	20.7	20.6	21.5	20.9	21.5	20.4	22.0	21.2	21.4	24
6	21.3	21.4	21.3	20.9	21.2	21.2	20.6	21.1	21.0	20.2	21.0	20.3	20.7	20.7	20.7	21.0	21.7	21.7	21.5	21.1	21.6	21.0	21.1	21.4	20.2	21.7	21.1	21.4	24
7	20.6	20.7	21.0	20.8	20.8	20.5	20.9	21.0	20.4	21.0	20.9	20.9	21.1	21.4	21.5	21.8	22.2	21.9	21.9	21.9	21.2	21.6	21.1	20.8	20.4	22.2	21.2	21.4	24
8	21.4	20.9	20.8	21.1	20.8	20.4	20.7	21.1	20.6	20.5	21.3	20.8	22.2	21.5	21.8	22.3	22.5	22.2	21.8	23.0	22.4	22.3	22.5	22.2	20.4	23.0	21.5	21.4	24
9	22.1	22.0	21.9	21.8	21.6	21.7	21.9	21.5	21.4	21.4	21.8	21.6	21.4	22.0	21.6	21.8	21.4	21.2	22.1	21.7	21.9	22.0	21.6	21.2	21.2	22.1	21.7	21.4	24
10	21.2	20.9	20.7	20.3	20.8	21.1	21.3	21.6	21.6	21.6	20.8	22.1	21.7	21.9	22.2	22.7	23.2	23.4	23.4	22.8	22.1	21.9	21.8	22.2	20.3	23.4	21.8	21.4	24
11	22.1	22.1	21.9	21.7	21.5	22.0	21.4	21.5	22.0	21.8	21.8	21.8	21.9	22.3	22.7	23.2	23.8	23.9	23.9	23.3	22.2	22.3	22.1	21.9	21.4	23.9	22.3	21.4	24
12	21.6	22.1	21.7	21.6	21.7	22.0	21.6	21.5	22.0	21.9	21.0	21.2	21.8	22.6	23.3	23.9	23.5	23.9	24.3	23.5	22.6	21.7	22.4	22.2	21.0	24.3	22.3	21.4	24
13	22.1	22.1	21.9	21.8	22.0	22.0	21.6	21.4	22.2	21.2	22.7	22.5	23.0	23.6	23.1	23.3	24.2	24.3	24.4	24.3	24.1	23.7	23.3	22.8	21.2	24.4	22.8	21.4	24
14	22.3	21.8	22.8	22.4	22.2	22.4	22.2	22.2	22.2	22.0	22.2	23.2	22.9	22.7	23.2	24.1	24.0	24.3	24.2	24.2	23.9	23.4	22.9	22.4	21.8	24.3	22.9	21.4	24
15	21.7	22.7	22.3	22.1	22.1	22.0	21.8	21.9	22.0	21.8	21.4	21.3	21.4	21.6	22.2	23.0	23.9	24.0	23.6	23.5	22.7	21.9	22.3	22.2	21.3	24.0	22.3	21.4	24
16	22.1	22.0	21.9	21.8	21.7	22.1	21.8	21.7	21.7	22.2	21.8	22.3	22.0	22.3	22.6	22.9	23.0	23.4	23.5	23.3	22.8	22.0	22.2	22.0	21.7	23.5	22.3	21.4	24
17	21.9	22.0	22.2	22.0	21.8	21.6	21.6	22.1	22.1	21.9	22.5	22.0	22.4	23.0	23.7	24.1	24.4	23.6	24.0	23.5	22.6	21.8	22.4	21.7	21.6	24.4	22.5	21.4	24
18	22.3	22.3	22.1	22.0	22.0	22.0	21.9	21.8	21.8	22.1	21.8	22.5	23.4	23.8	23.2	23.8	23.4	23.7	24.0	23.3	22.1	22.1	22.0	21.7	21.7	24.0	22.5	21.4	24
19	21.8	22.3	22.1	21.9	21.8	22.2	22.1	21.8	22.0	22.1	21.7	21.9	22.0	22.1	22.4	22.9	23.4	23.7	23.7	23.5	23.2	22.8	22.5	22.2	21.7	23.7	22.4	21.4	24
20	21.9	21.7	21.5	22.0	22.4	21.6	22.5	21.5	22.8	22.2	22.4	23.1	23.9	22.9	23.1	23.3	23.5	24.0	23.6	23.4	23.1	22.6	22.2	21.9	21.5	24.0	22.6	21.4	24
21	21.6	22.6	21.8	22.5	22.4	21.7	22.7	22.4	22.0	21.5	23.0	22.5	22.7	23.2	23.8	24.1	24.1	24.3	23.9	21.9	21.6	22.3	22.3	22.1	21.5	24.3	22.6	21.4	24
22	22.0	21.8	22.0	21.9	21.4	22.1	21.4	21.5	21.1	21.8	22.0	20.6	20.6	21.5	21.4	21.0	22.0	21.7	21.4	21.2	21.7	21.2	21.2	21.6	20.6	22.1	21.5	21.4	24
23	21.0	21.4	20.9	20.9	21.1	20.8	21.3	20.8	20.8	21.1	20.4	20.5	20.0	19.8	20.0	20.1	19.9	19.8	20.4	20.3	20.0	19.9	20.3	20.1	19.8	21.4	20.5	21.4	24
24	20.0	20.1	19.7	19.8	19.9	19.6	19.6	19.7	19.4	20.0	19.5	19.8	20.1	19.9	20.0	20.6	20.2	20.5	20.3	20.3	20.2	20.3	20.4	20.3	19.4	20.6	20.0	21.4	24
25	20.3	20.2	20.2	20.2	20.3	20.1	20.0	20.1	20.4	20.5	20.5	20.8	20.6	20.7	21.0	21.0	21.0	21.1	21.0	20.5	21.0	20.8	20.3	20.7	20.0	21.1	20.6	21.4	24
26	20.6	20.5	20.6	20.4	20.2	20.1	20.2	20.2	20.0	19.9	19.7	19.8	19.8	20.1	20.2	20.1	19.8	19.9	20.2	20.1	20.3	20.3	20.3	20.4	19.7	20.6	20.2	21.4	24
27	20.4	20.5	20.6	20.5	20.5	20.6	20.6	20.6	20.5	20.2	20.8	20.8	20.1	20.6	19.8	20.6	20.1	20.8	20.7	20.7	20.2	20.1	20.3	20.3	19.8	20.8	20.5	21.4	24
28	20.3	20.5	20.2	20.3	20.4	20.5	20.4	20.5	20.3	20.5	20.7	20.7	20.7	21.1	20.8	20.7	20.9	20.8	20.9	20.3	20.7	20.3	21.0	20.8	20.2	21.1	20.6	21.4	24
29	20.4	20.3	20.4	20.3	19.9	19.8	19.9	19.5	20.1	19.7	20.0	19.7	20.7	20.5	20.6	20.6	20.5	19.9	20.6	20.3	20.4	20.2	20.0	19.9	19.5	20.7	20.2	21.4	24
30	20.3	20.0	19.6	20.0	19.4	20.1	19.6	19.7	19.3	19.5	18.9	19.1	19.7	19.3	19.5	20.0	20.1	20.0	20.3	20.5	20.1	20.4	19.6	20.1	18.9	20.5	19.8	21.4	24
31	19.5	19.9	19.2	19.9	19.4	20.0	19.3	20.2	19.4	20.0	19.3	20.0	19.5	19.9	20.1	19.9	20.7	20.6	20.7	20.5	20.1	20.4	20.3	19.8	19.2	20.7	19.9	21.4	24
HOURLY MAX	22.3	22.7	22.8	22.5	22.4	22.4	22.7	22.4	22.8	22.2	23.0	23.3	23.9	23.8	23.8	24.1	24.4	24.3	24.5	24.3	24.1	23.7	23.3	22.8					
HOURLY AVG	21.3	21.4	21.2	21.2	21.2	21.2	21.1	21.1	21.2	21.2	21.3	21.3	21.5	21.6	21.7	22.0	22.2	22.3	22.3	22.0	21.7	21.6	21.4	21.4					

STATUS FLAG CODES

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

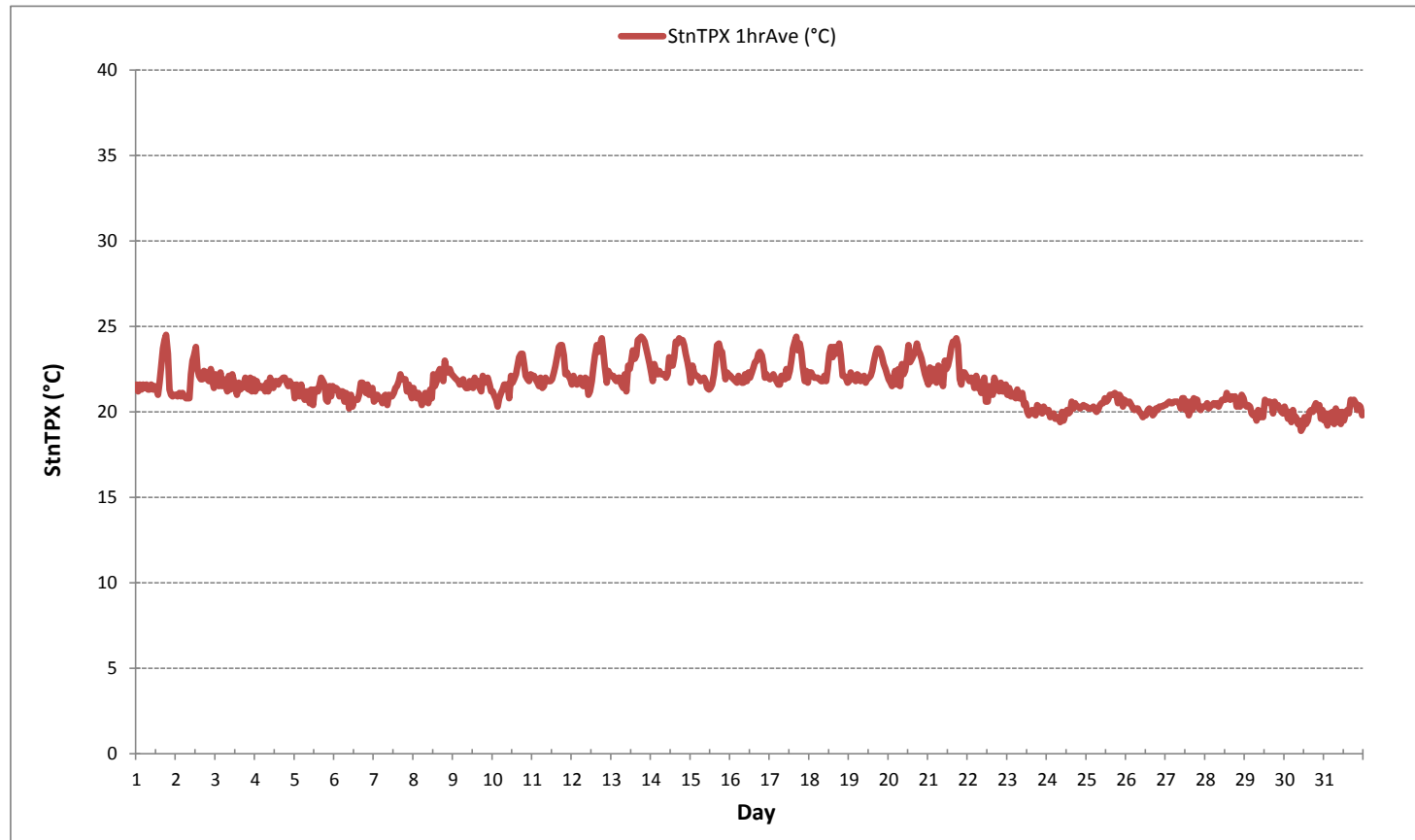
24 HR AVERAGES March 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	18.9	°C	@ HOUR	10	ON DAY	30
MAXIMUM 1-HR AVERAGE:	24.5	°C	@ HOUR	18	ON DAY	1
MAXIMUM 24-HR AVERAGE:	22.9	°C			ON DAY	14
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	1.1					
MONTHLY AVERAGE:						21.5 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date: March 2, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B
Parameter: Sulphur Dioxide
Start Time 24 hr. (mst): 9:10
End Time 24 hr. (mst): 12:50
Calibration Method: Gas Dilution

Barometer/B.P./units: Brunton 05535 expires December 15, 2018 28.01 inHg
Thermometer/Station Temp: F.S. 160348895 expires April 8, 2018 21 °C
Weather Conditions: Cloudy/Overcast
Calibration Purpose: routine monthly
Performed By/Reviewer: Limin Li Rob Fisher
Cal Gas Expiry Date: August 23, 2020
Converter Model & s/n (if applicable): n/a

Analyzer:

ID# or Serial Number: 835033373
Last Calibration Date: February 8, 2018
Previous C.F.: 1.000

Range ppb: 500
As Found C.F.: 1.000
New C.F.: 1.001

Calibration Standards:

Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018
Calibrator ID/Expiry Date: Environics id# 1991 expires March 16, 2018
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

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

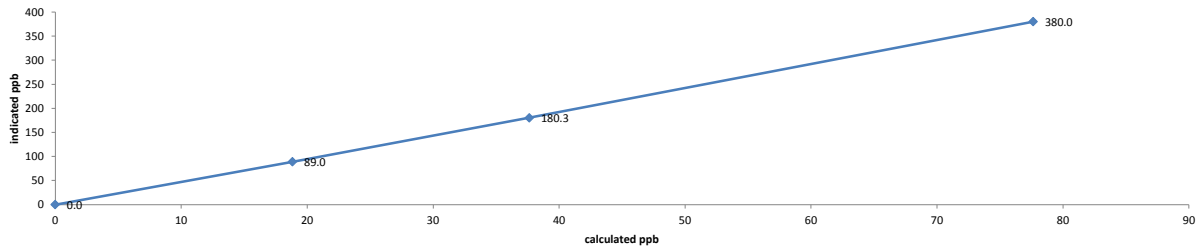
Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6058	0.00	6058	0.0	-0.4	n/a
as found high	6013	45.65	6059	380.5	380.0	1.000
adjusted zero	6058	0.00	6058	0.0	0.0	n/a
adjusted high	6013	45.65	6059	380.5	380.0	1.001
mid	6021	21.51	6043	179.8	180.3	0.997
low	6026	10.82	6037	90.5	89.0	1.017
calibrator zero	6000	0.00	6000	0.0	0.0	n/a
Average C.F. =						1.005

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000 > or = 0.995
Slope = 1.000 0.95-1.05
b (Intercept as % of full scale) = 0.08% ± 3% F.S.
% change in C.F. from last cal = -0.02% ± 10%

LIMITS

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:

Bkg:	14.6
Coef:	1.028
Pmt:	-621.6
Flash:	885
Internal:	26.4
Chamber:	44.9
Perm Oven Gas:	45.0
Perm Oven Heater:	44.09
Pressure:	680.5
Sample Flow:	0.443
Lamp Intensity:	82%
Averaging Time:	120
Expected Value:	247.0

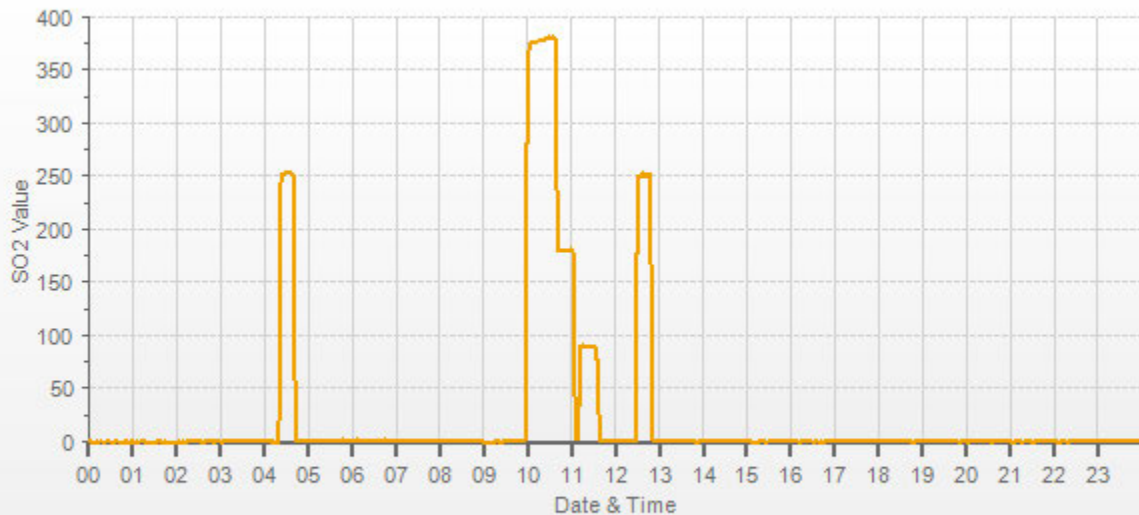
As left:

Bkg:	14.1
Coef:	1.028
Pmt:	-621.6
Flash:	885
Internal:	26.4
Chamber:	44.9
Perm Oven Gas:	45.0
Perm Oven Heater:	44.09
Pressure:	680.5
Sample Flow:	0.443
Lamp Intensity:	82%
Averaging Time:	120
Expected Value:	251.4

Comments:

The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned.
The manifold blower was found to be working normally.
No high point adjustment was required/made. The "as found" high value was copied to the "adjusted high" value field for linearity calculation purposes.

SO2[ppb] Station: PRAMP_842 Daily: 18/03/02 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	March 1, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.00	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	21	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	15:35	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	20:15	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD NOVA CDN-101 & #553		

Analyzer:	ID# or Serial Number:	11623460023	Range ppb:	100
	Last Calibration Date:	February 8, 2018	As Found C.F.:	1.010
	Previous C.F.:	1.000	New C.F.:	1.001

Calibration Standards:	Standard Calibration Points for Ranges
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018	
Calibrator ID/Expiry Date: Enviroconics id# 1991 expires March 16, 2018	
Cal Gas Cylinder I.D. #: LL119500	
Cal Gas Conc. (ppm): 9.8	

Point	ppb
High	78
Mid	38
Low	19

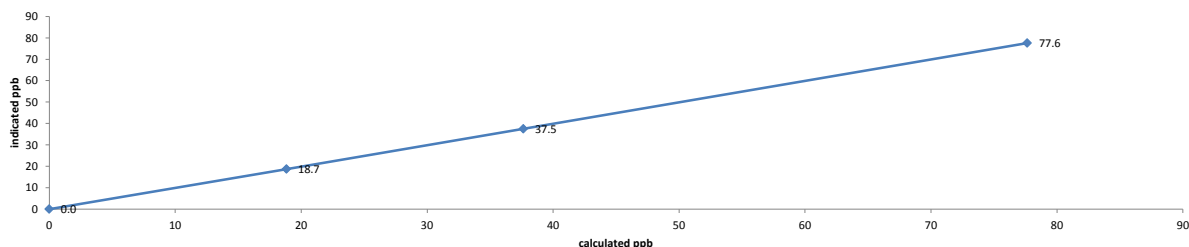
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7587	0.00	7587	0.0	-0.1	n/a
as found high	7522	60.07	7582	77.6	76.8	1.010
adjusted zero	7587	0.00	7587	0.0	0.0	n/a
adjusted high	7522	60.07	7582	77.6	77.6	1.001
mid	7563	29.16	7592	37.6	37.5	1.004
low	7565	14.57	7580	18.8	18.7	1.007
calibrator zero	7587	0.00	7587	0.0	0.1	n/a
Average C.F. =						1.004

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.000		0.95-1.05
b (Intercept as % of full scale) =	0.08%		± 3% F.S.
% change in C.F. from last cal =	-0.97%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



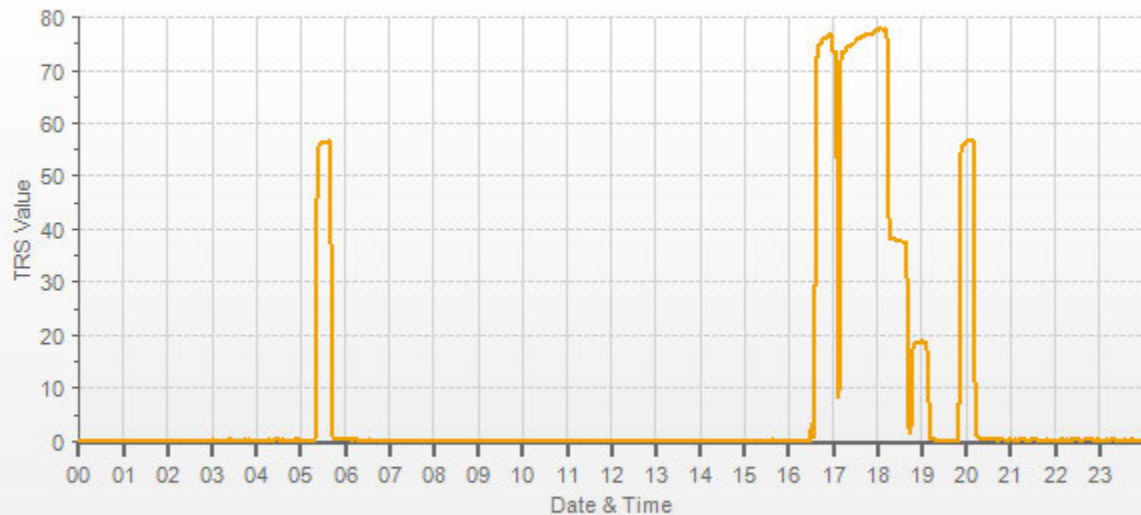
As found:		As left:	
Bkg:	2.86	Bkg:	2.80
Coef:	0.889	Coef:	0.894
Pmt:	-720.4	Pmt:	-720.4
Flash:	985	Flash:	985
Internal:	30.7	Internal:	30.7
Chamber:	44.8	Chamber:	44.8
Perm Oven Gas:	45	Perm Oven Gas:	45
Perm Oven Heater:	44.11	Perm Oven Heater:	44.11
Pressure:	669.3	Pressure:	669.3
Sample Flow:	0.407	Sample Flow:	0.407
Lamp Intensity:	89%	Lamp Intensity:	89%
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	53.8	Expected Value:	56.7

Comments:

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

Regulator re-purged, as-found re-started at 17:07.
The "As Found High" measurement marginally satisfies Maxxam's stability requirement. The monthly calibration will be repeated.

TRS[ppb] Station: PRAMP_842 Daily: 18/03/01 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	March 2, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.01	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	21	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	repeat		
Start Time 24 hr. (mst):	10:00	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	13:40	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD NOVA CDN-101 & #553		

Analyzer:		Range ppb:	100
ID# or Serial Number:	11623460023	As Found C.F.:	0.989
Last Calibration Date:	March 1, 2018	New C.F.:	1.000
Previous C.F.:	1.001		

Calibration Standards:	Standard Calibration Points for Ranges								
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	<table border="1"> <tr><th>Point</th><th>ppb</th></tr> <tr><td>High</td><td>78</td></tr> <tr><td>Mid</td><td>38</td></tr> <tr><td>Low</td><td>19</td></tr> </table>	Point	ppb	High	78	Mid	38	Low	19
Point	ppb								
High	78								
Mid	38								
Low	19								
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018									
Calibrator ID/Expiry Date: Sabio id# 17200415 expires May 16, 2018									
Cal Gas Cylinder I.D. # : LL119500									
Cal Gas Conc. (ppm): 9.8									

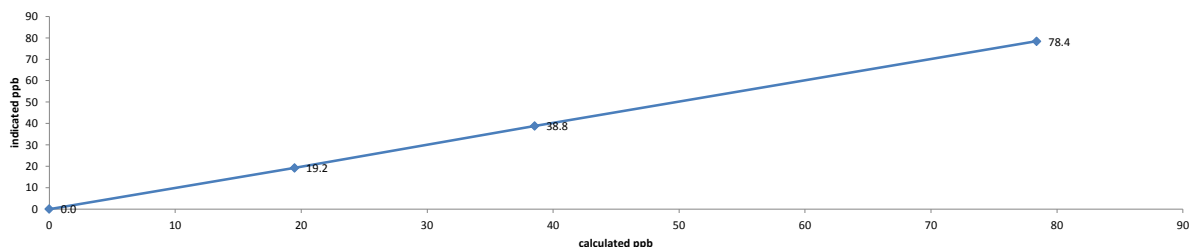
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7359	0.00	7359	0.0	0.0	n/a
as found high	7309	58.94	7368	78.4	79.3	0.989
adjusted zero	7359	0.00	7359	0.0	0.0	n/a
adjusted high	7309	58.94	7368	78.4	78.4	1.000
mid	7371	29.10	7400	38.5	38.8	0.993
low	7382	14.70	7397	19.5	19.2	1.014
calibrator zero	7587	0.00	7587	0.0	0.0	n/a
Average C.F. =						1.003

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.998		0.95-1.05
b (Intercept as % of full scale) =	0.06%		± 3% F.S.
% change in C.F. from last cal =	1.24%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:		As left:	
Bkg:	2.80	Bkg:	2.78
Coef:	0.894	Coef:	0.886
Pmt:	-720.4	Pmt:	-720.4
Flash:	985	Flash:	987
Internal:	30.7	Internal:	32.3
Chamber:	44.8	Chamber:	45.0
Perm Oven Gas:	45	Perm Oven Gas:	45
Perm Oven Heater:	44.11	Perm Oven Heater:	44.11
Pressure:	669.3	Pressure:	673.2
Sample Flow:	0.407	Sample Flow:	0.409
Lamp Intensity:	89%	Lamp Intensity:	89%
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	56.7	Expected Value:	56.7

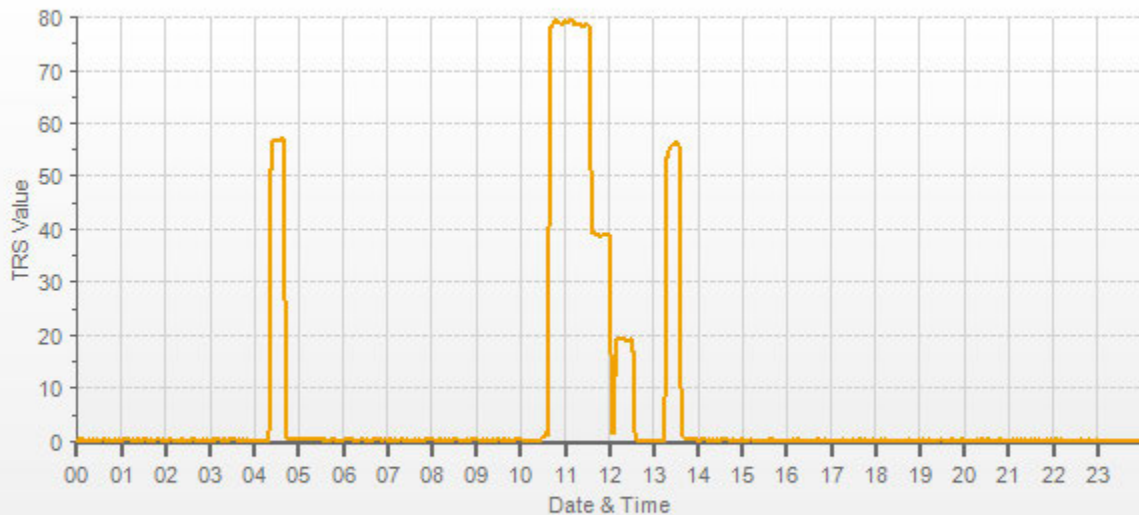
Comments:

The manifold blower was found to be working normally.

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

A different calibrator was used for the repeat calibration as the "As Found High" measurement for the March 1st calibration marginally satisfied Maxxam's stability requirement.

TRS[ppb] Station: PRAMP_842 Daily: 18/03/02 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 1, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.99	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires April 8, 2018	21	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	CH ₄ / NMHC / THC	Calibration Purpose:	shut down		
Start/End Time 24 hr. (mst):	14:00/15:53	Performed By/Reviewer:	Limin Li	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:	ID# or Serial Number: 1505664392 Measured Flow: 1187 sccm Last Calibration Date: February 8, 2018 Range ppm: 20 CH ₄ /20 NMHC/40 THC	Correction Factors:		
		Previous C.F.:	As Found C.F.:	New C.F.:
		CH ₄ = 1.000	1.005	n/a
		NMHC = 1.000	1.014	n/a
THC = 1.000	1.009	n/a		

Calibration Standards:	Standard Calibration Points for Analyzer Range of 20/20/40 ppm
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018	
Calibrator ID/Expiry Date: Sabio id# 17200415 expires May 16, 2018	
Cal Gas Cylinder I.D. #: LL168404	
CH ₄ Cylinder Conc.: 597.0 206.0 =C ₃ H ₈ Cylinder Conc.	
CH ₄ expressed as C ₃ H ₈ : 566.5 1163.5 =total CH ₄ equivalent	

Point	CH ₄	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

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

Calibrator Flow Rates (cc/min)				Correction Factors:								
Point	Diluent	Cal Gas	Total Flow	Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	CH ₄	NMHC	THC
as found zero	2435	0.00	2435	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2376	61.14	2437	14.98	14.21	29.19	14.91	14.01	28.92	1.005	1.014	1.009
mid	2426	30.77	2457	7.48	7.09	14.57	7.54	7.04	14.58	0.992	1.008	0.999
low	2441	15.72	2457	3.82	3.62	7.44	3.82	3.55	7.37	1.000	1.021	1.010
Average C.F.=										0.999	1.014	1.006

Linear Regression/Calibration Results:			
Correlation Coefficient =	CH ₄	NMHC	THC
Slope =	1.000	1.000	1.000
b (Intercept as % of full scale) =	0.996	0.987	0.991
% change in C.F. from last cal =	0.13%	0.00%	0.07%
	-0.46%	-1.45%	-0.94%
LIMITS	> or = 0.995		
	0.90-1.10		
	± 3% F.S.		
	± 10%		

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply: -293.1	Calibration History cnt'd:	NM Peak Area: 79689
Temperatures:	Detector Oven: 175	Crucial Settings:	Methane Start: 8
	Filter: 175		Methane End: 16
	Column Oven: 75		Backflush: 18
	Internal: 31.8		NM HV Start: 25
Cylinder Pressures/reg.:	Carrier: 400 50	Run History>1:	NMHC End: 54
	Fuel: 200 50		Date: 01MAR18
	Span Gas: 1350 15		Time: 13:58
	Zero Air Generator: 50		CH ₄ PK HT: 2719
Internal Pressures:	Carrier: 31.1		CH ₄ RT: 12.6
	Fuel: 47.3		CH ₄ Baseline: -234
	Air: 23.7		CH ₄ LOD: 8
FID Status:	Status: LIT		CH ₄ SD: 2
	Counts: 36571		CH ₄ CONC: 1.97
	Flame: 388.9		NM PK HT: 0
	Det Base: 175		NM Peak Area: 0
Flame and Power Stats:	Last Power On: 12JAN18 11:45		NM CONC: 0
	Flameouts: 1		NM Base Start: -207
	Det Oven at Start: 168.9		NM Base End: -211
	Col Oven at Start: 74.3		NM LOD: 14
Calibration History:	Time: 08FEB18 15:04		NM Start IDX: 19
	Type: SPAN		NM End IDX: 79
	Status: GOOD		NM Max Slope: 1.1E+00
	Check/Adjust: ADJUST		NM Min Slope: -1.2E+00
	CH ₄ Span Conc: 14.52		NM PT Count: 0
	CH ₄ SP Ratio: 0.000726	Expected Values:	Previous CH ₄ : 10.24
	CH ₄ RT: 12.6		Previous NMHC: 11.22
	CH ₄ PK IDX: 23		Previous THC: 21.47
	CH ₄ PK HT: 19990		New CH ₄ :
	NM Span Conc: 13.8		New NMHC:
	NM SP Ratio: 0.000173		New THC:

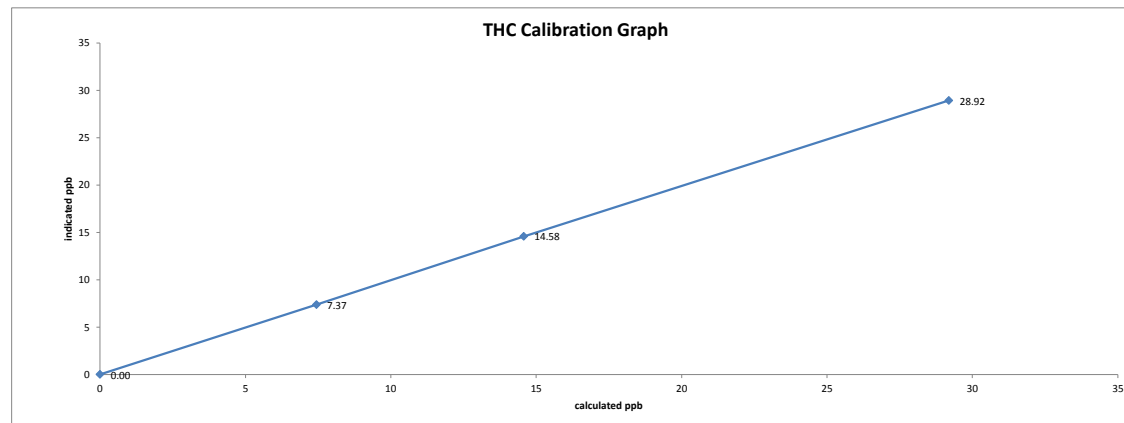
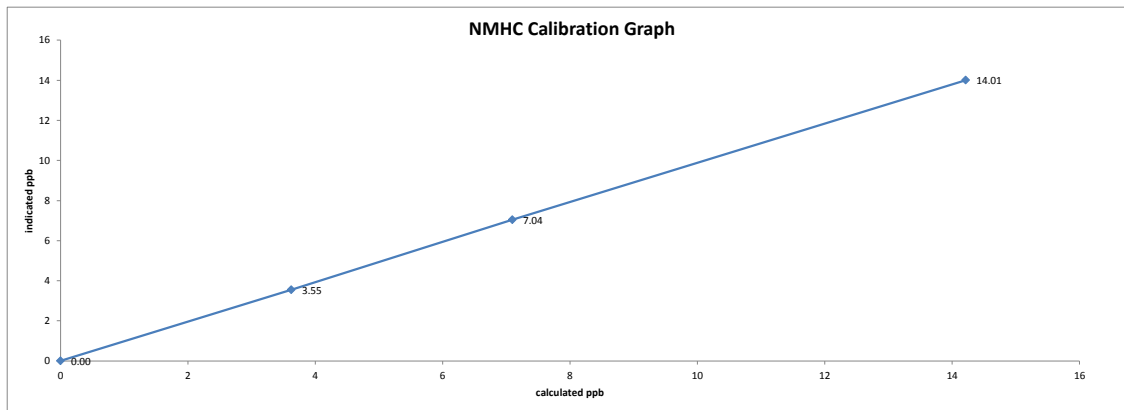
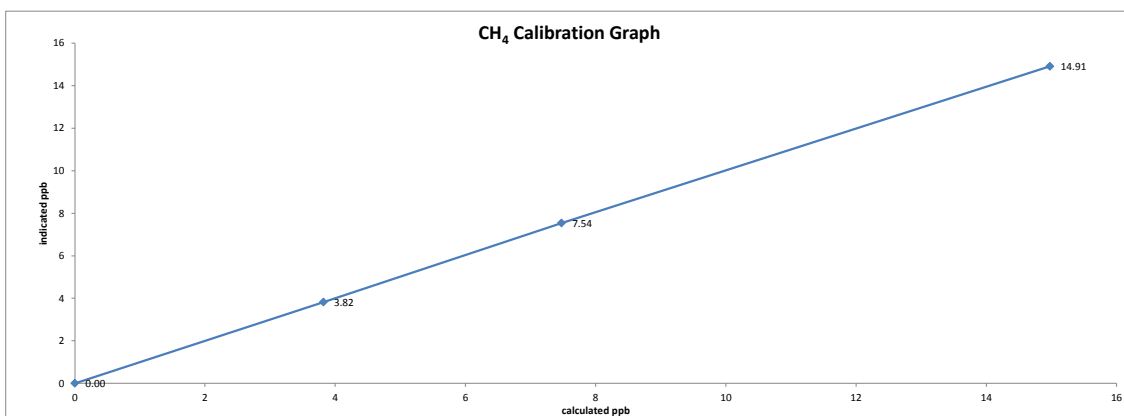
Comments:

The manifold blower was found to be working normally.

The "Shut Down" calibration was performed to change the actuator.

Date: March 1, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 14:00/15:53
Calibration Purpose: shut down
Calibration Method: Gas Dilution



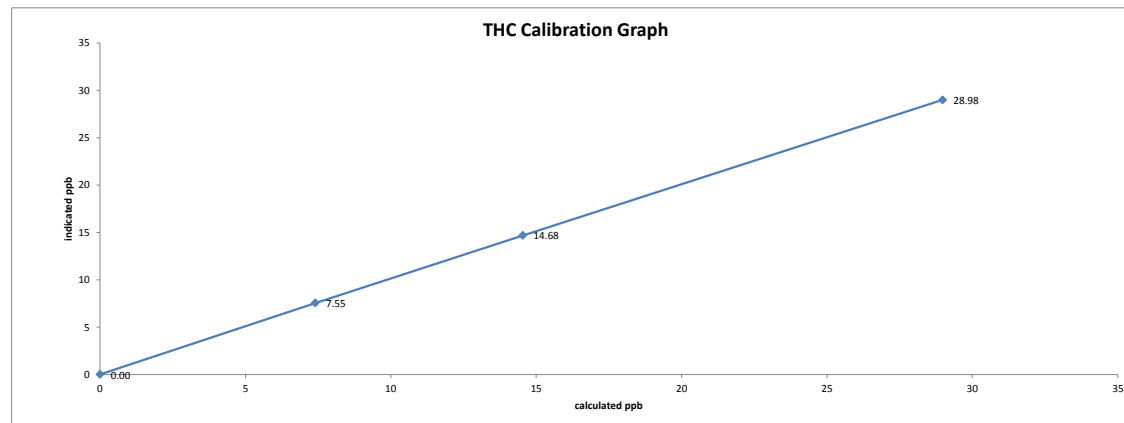
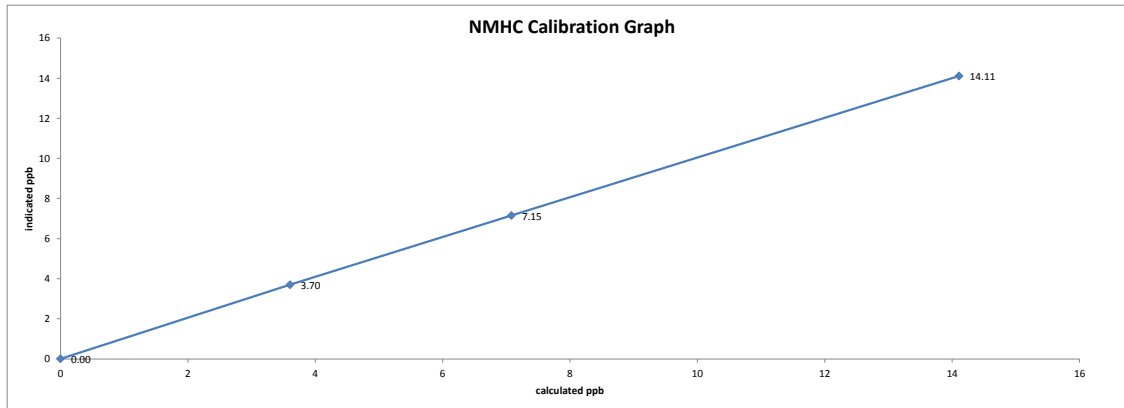
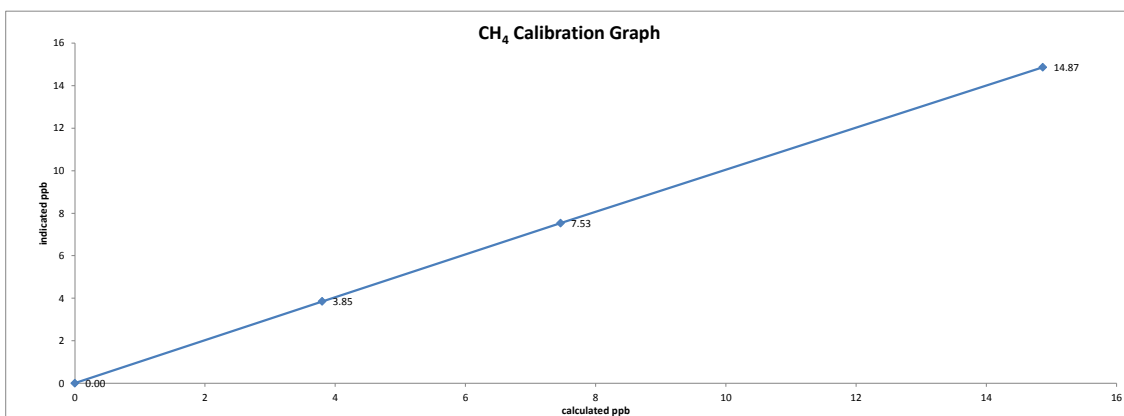


Linear Regression/Calibration Results:			
	CH ₄	NMHC	THC
Correlation Coefficient =	1.000	1.000	1.000
Slope =	0.999	0.998	0.999
b (Intercept as % of full scale)=	0.17%	0.26%	0.21%
% change in C.F. from last cal=	n/a	n/a	n/a

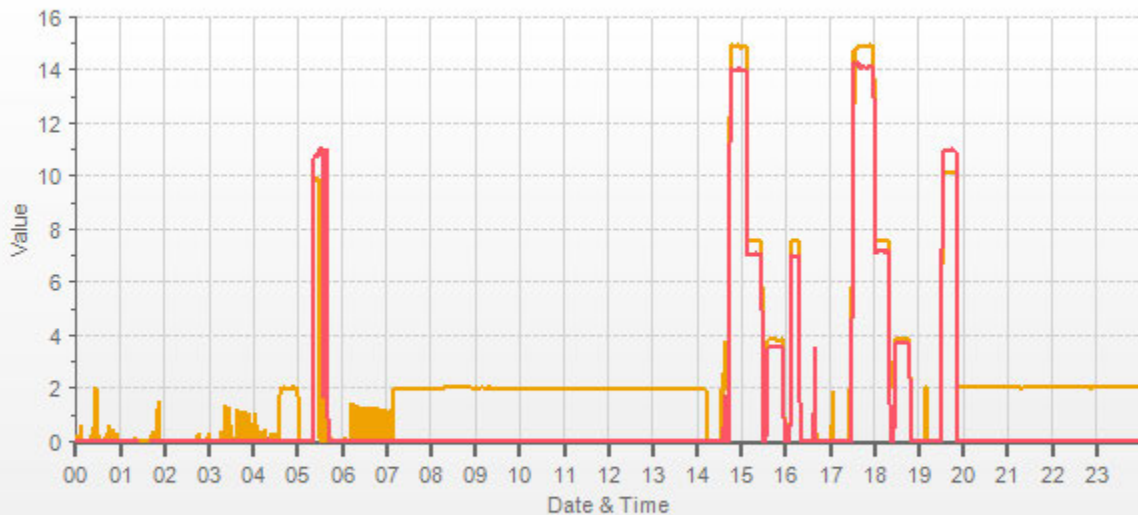
The "Post Repair" calibration was performed after replacing the actuator. A zero chromatogram was not performed.

Date: March 1, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 17:05/19:55
Calibration Purpose: post repair
Calibration Method: Gas Dilution



Station: PRAMP_842 Daily: 18/03/01 Type: AVG 1 Min. [1 Min.]



CH4[ppm] NMHC[ppm]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	March 22, 2018	Barometer/B.P./units:	Brunton 05490 expires December 11, 2018	948	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	20.6	°C
Location/Station Name:	842b	Weather Conditions:	Light snow		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	repeat		
Start/End Time 24 hr. (mst):	08:03 / 11:54	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:	ID# or Serial Number:		Correction Factors:		
	1505664392		Previous C.F.:	As Found C.F.:	New C.F.:
	Measured Flow:		CH ₄ = 1.000	1.009	1.002
	1.21 L/min		NMHC = 1.000	1.011	0.998
Last Calibration Date:		March 1, 2018	THC = 1.000	1.010	1.000
Range ppm:		20 CH ₄ /20 NMHC/40 THC			

Calibration Standards:				
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018			
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018			
Calibrator ID/Expiry Date:	Sabio id# 17100415 expires May 16, 2018			
Cal Gas Cylinder I.D. # :	LL107207			
CH4 Cylinder Conc.=	600.0	207.0	=C3H8 Cylinder Conc.	
CH4 expressed as C3H8=	569.3	1169.3	=total CH4 equivalent	

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

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015												
Calibrator Flow Rates (cc/min)				Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
Point	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
as found zero	2511	0.00	2511	0.00	0.00	0.00	0.01	0.00	0.02	n/a	n/a	n/a
as found high	2447	60.93	2508	14.58	13.83	28.40	14.45	13.68	28.14	1.009	1.011	1.010
adjusted zero	2511	0.00	2511	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
adjusted high	2447	60.93	2508	14.58	13.83	28.40	14.55	13.85	28.41	1.002	0.998	1.000
mid	2476	30.58	2507	7.32	6.94	14.26	7.36	6.97	14.34	0.994	0.996	0.995
low	2492	15.85	2508	3.79	3.60	7.39	3.82	3.63	7.46	0.993	0.991	0.992
calibrator zero	2511	0.00	2511	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
Average C.F. =										0.996	0.995	0.996

Linear Regression/Calibration Results:				LIMITS		
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995		
Slope =	0.998	1.001	0.999	0.95-1.05		
b (Intercept as % of full scale) =	0.12%	0.07%	0.12%	± 3% F.S.		
% change in C.F. from last cal =	-0.94%	-1.08%	-1.01%	± 10%		

As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-293.5	Calibration History cnt'd:	NM Peak Area:	79797						
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a						
	Filter:	174.9		Methane End:	n/a						
	Column Oven:	75.0		Backflush:	n/a						
	Internal:	33.2		NMHV Start:	n/a						
Cylinder Pressures/reg.:	Carrier:	2000	50	NMHC End:	n/a						
	Fuel:	1200	50	Date:	22Mar2018						
	Span Gas:	950	16	Time:	10:49						
	Zero Air Generator:	50	Run History>1:	CH ₄ PK HT:	0						
Internal Pressures:	Carrier:	31.1		CH ₄ RT:	12.0						
	Fuel:	47.4		CH ₄ Baseline:	27						
	Air:	23.7		CH ₄ LOD:	19						
FID Status:	Status:	LIT		CH ₄ SD:	6						
	Counts:	36720		CH ₄ CONC:	0.00						
	Flame:	388.9		NM PK HT:	0						
	Det Base:	175.1		NM Peak Area:	0						
Flame and Power Stats:	Last Power On:	02Mar2018@12:33		NM CONC:	0.00						
	Flameouts:	1		NM Base Start:	21						
	Det Oven at Start:	165.9		NM Base End:	26						
	Col Oven at Start:	74.0		NM LOD:	15						
Calibration History:	Time:	22Mar2018@09:29		NM Start IDX:	40						
	Type:	Span		NM End IDX:	65						
	Status:	Good		NM Max Slope:	8.5e-01						
	Check/Adjust:	Adjust		NM Min Slope:	-1.0e+00						
	CH ₄ Span Conc:	14.58		NM PT Count:	0						
	CH ₄ SP Ratio:	0.000732		Expected Values:	Previous CH ₄ :	10.14					
	CH ₄ RT:	12.2			Previous NMHC:	10.98					
	CH ₄ PK IDX:	21			Previous THC:	21.13					
	CH ₄ PK HT:	19913			New CH ₄ :	10.14					
	NM Span Conc:	13.83			New NMHC:	10.98					
	NM SP Ratio:	0.000173			New THC:	21.13					

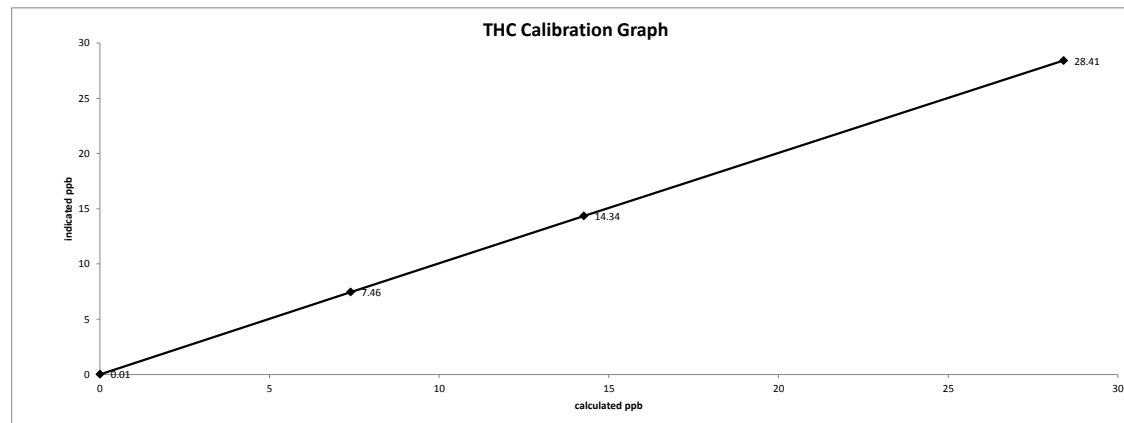
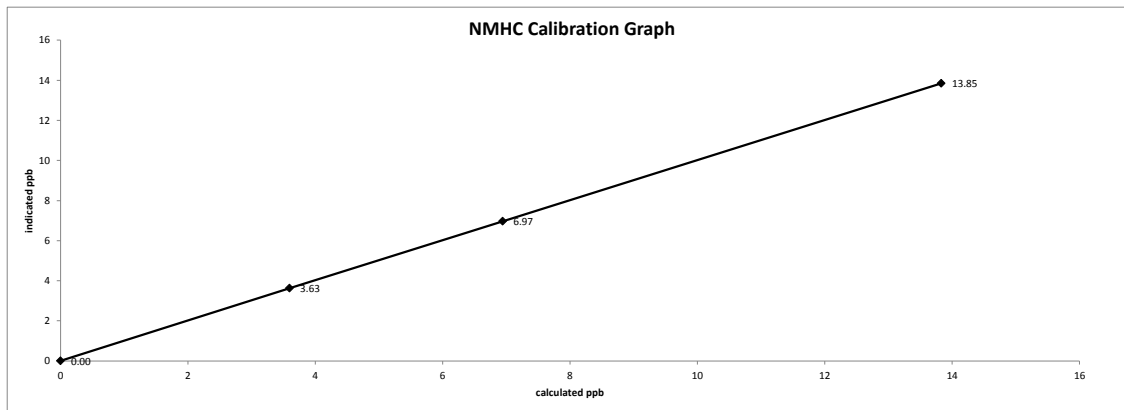
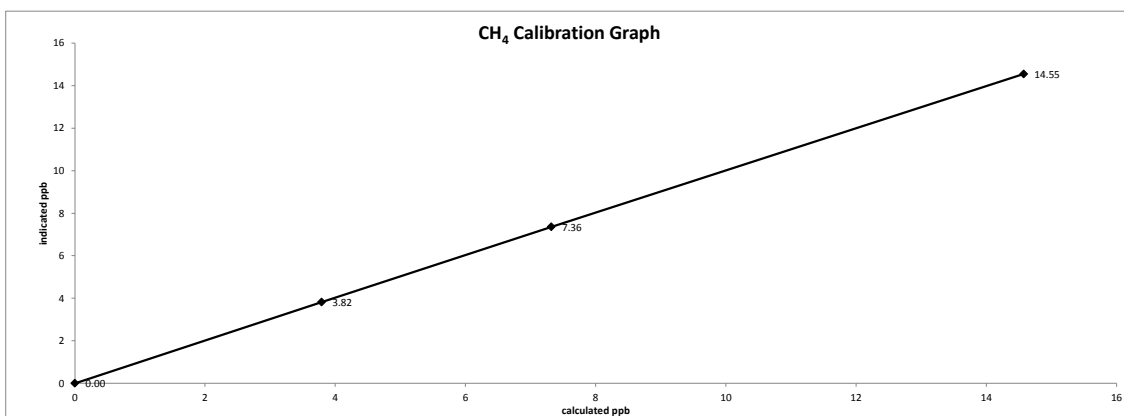
Comments:

The manifold blower was found to be working normally.

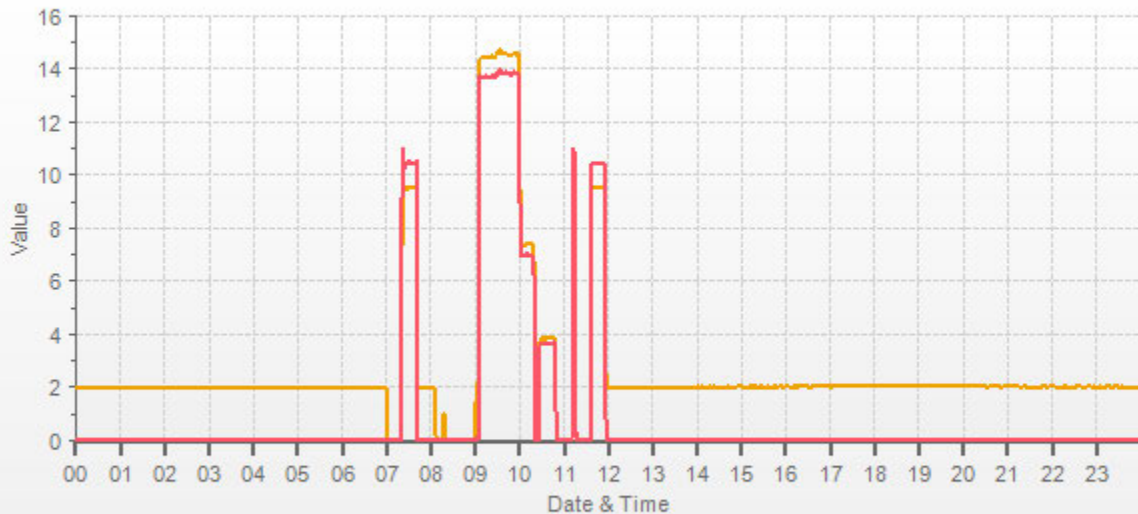
A zero chromatogram was performed to adjust the zero.

Date: March 22, 2018
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 08:03 / 11:54
Calibration Purpose: repeat
Calibration Method: Gas Dilution



Station: PRAMP_842 Daily: 18/03/22 Type: AVG 1 Min. [1 Min.]



CH4[ppm] NMHC[ppm]

WIND SYSTEM

Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Tom Bourque
Audit Date:	August 30, 2017	Start /EndTime (mst):	10:50 / 11:20
Calibration Purpose:	installation	Weather Conditions:	Cloudy/Overcast

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1V
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200kmh
Serial #:	124638	Direction Voltage Output Range:	0-1V
Previous Cal/Audit Date:	n/a or unknown	Direction Unit Output Range:	0-360°

Wind Calibrator Information

Calibrator Make/ Model:	RM Young	Serial #:	CA 4039
Maxxam Unit ID #:	n/a	Certification Date:	February 24, 2017

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.5	1.000
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.004
4000	73.7	73.4	73.4	1.004
5000	92.2	91.8	91.8	1.004
6000	110.6	110.2	110.2	1.003
7000	129.0	128.6	128.6	1.003
8000	147.4	147.1	147.0	1.003
9000	165.9	165.5	165.5	1.002
10000	184.3	184.2	184.1	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.003

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	1	353	0.5	2.0	1.3
30	330	28	329	2.0	1.0	1.5
60	300	59	299	1.0	1.0	1.0
90	270	89	269	1.0	1.0	1.0
120	240	118	239	2.0	1.0	1.5
150	210	149	209	1.0	1.0	1.0
180	180	178	179	2.0	1.0	1.5
210	150	208	150	2.0	0.0	1.0
240	120	238	119	2.0	1.0	1.5
270	90	268	89	2.0	1.0	1.5
300	60	298	59	2.0	1.0	1.5
330	30	328	29	2.0	1.5	1.8
355	0	353	0	2.0	0.4	1.2
The audit meets AMD requirements.			Average Absolute Degrees Difference=		1.3	

Comments:

CALIBRATORS

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

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4976	0.0	0.0000	0.0000	0.0001	0.0000	0.0001	Limit ± 10%	
4981	79.3	0.7801	0.7801	0.7898	0.0000	0.7898	1%	1%
4972	38.7	0.3814	0.3814	0.3841	0.0002	0.3843	1%	1%
4976	19.4	0.1910	0.1910	0.1913	0.0003	0.1916	0%	0%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>	
<u>NO</u>		<u>LIMITS</u>		<u>NOx</u>	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	1.0130	0.90-1.10		m (Slope)=	1.0129
b (Intercept % of FS)=	-0.1190	± 3% F.S.		b (Intercept % of FS)=	-0.1029

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4981	0.000	0.0000	0.7925	-0.0001	0.7924	NO ₂	% Diff. Limit
4981	0.400	0.5347	0.2578	0.5279	0.7857	-1%	± 10%
4981	0.200	0.2490	0.5435	0.2478	0.7913	0%	± 10%
4981	0.090	0.1090	0.6835	0.1095	0.7927	1%	± 10%
Absolute Average Percent Difference						0%	± 10%

LINEAR REGRESSION ANALYSIS				<i>y=mx+b (where x=calculated concentration, y=indicated concentration)</i>	
<u>NO₂</u>		<u>LIMITS</u>			
Correlation=	1.0000	≥ 0.995			
m (Slope)=	0.9864	0.90-1.10			
b (Intercept % of FS)=	0.1136	± 3% F.S.			

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

COMMENTS: Gas has ~50ppm SO2

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: March 16, 2017
Location: McIntyre Center Edmonton

Company Maxxam		Operator: Micheal Espiritu	
Calibrator:		Flow Measurement Device:	
Make/Model	Sabio 2010	Make/Model	Mesa Defender 530
Serial Number	17200415	Serial Number	L-152019 H-148944
Last Verification Date	May 2016	Temperature (°C)	25.0 C
NO Cylinder S/N	EY0000597	Barometric Pressure	697 mmhg
NO [PPM]	49.0	NOx [PPM]	49.0
Expiry Date	December 2019		

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
5028	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4930	78.7	0.783	0.783	0.809	-0.012	0.797	3%	2%
4936	38.6	0.383	0.383	0.396	-0.006	0.390	3%	2%
4935	19.4	0.193	0.193	0.199	-0.003	0.196	3%	2%
Absolute Average Percent Difference							3%	2%

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

NO	LIMITS	NOx
Correlation= 1.0000	≥ 0.990	Correlation= 1.0000
m (Slope)= 1.0334	0.90-1.10	m (Slope)= 1.0181
b (Intercept % of FS)= -0.0105	± 3% F.S.	b (Intercept % of FS)= -0.0148

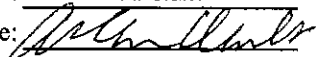
Flow	O ₂ Conc (LC)	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4930	0.000	0.000	0.806	-0.013	0.795	NO ₂	% Diff. Limit
4930	1.425	0.523	0.283	0.511	0.794	0%	± 10%
4930	0.825	0.278	0.528	0.266	0.795	0%	± 10%
4930	0.386	0.095	0.711	0.085	0.796	3%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

NO₂	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9998	0.90-1.10
b (Intercept % of FS)= -1.1702	± 3% F.S.

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

COMMENTS: Contains 50.4 ppm SO₂.

Auditor: Al Clark
Operator Signature: 

Date: May 16, 2017
Location: McIntyre Center Edmonton

Company Maxxam Operator: Micheal Espiritu

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>Mesa Defender 530</u>
Serial Number	<u>17100415</u>	Serial Number	<u>L-152019 H-148944</u>
Last Verification Date	<u>May 2016</u>	Temperature (°C)	<u>25.0 C</u>
NO Cylinder S/N	<u>EY0000597</u>	Barometric Pressure	<u>697 mmhg</u>
NO [PPM]	<u>49.0</u>	NOx [PPM]	<u>49.0</u>
Expiry Date	<u>December 2019</u>		

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4996	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5029	80.3	0.784	0.783	0.808	-0.013	0.794	3%	1%
5054	38.8	0.376	0.376	0.392	-0.006	0.386	4%	3%
5051	19.5	0.189	0.189	0.196	-0.003	0.193	4%	2%
Absolute Average Percent Difference							4%	2%

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

NO	LIMITS	NOx
Correlation= 1.0000	≥ 0.990	Correlation= 1.0000
m (Slope)= 1.0311	0.90-1.10	m (Slope)= 1.0140
b (Intercept % of FS)= 0.1350	± 3% F.S.	b (Intercept % of FS)= 0.1531

Flow	O ₂ Conc (LC)	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
5029	0.000	0.000	0.803	-0.013	0.790	NO ₂	% Diff. Limit
5029	1.508	0.568	0.235	0.552	0.787	-1%	± 10%
5029	0.882	0.312	0.491	0.298	0.789	0%	± 10%
5029	0.390	0.108	0.695	0.095	0.789	0%	± 10%
Absolute Average Percent Difference						0%	± 10%

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

NO₂	LIMITS
Correlation= 1.0000	≥ 0.995
m (Slope)= 0.9945	0.90-1.10
b (Intercept % of FS)= -1.2646	± 3% F.S.

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

COMMENTS: Contains 50.4 ppm SO₂.

Auditor: Al Clark
Operator Signature: [Signature]

Date: May 16, 2017
Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-436CGA

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

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

Expiry Date: December 8, 2019

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

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

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

Previous Stated Concentration PPM: 50.5

Percent variance from Stated: 0.2

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ **COMMENTS:** _____

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐ _____

> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐ _____

Auditor: Shea Beaton

Operator Signature: _____

Date: January 26, 2017

Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-213CGA

Company: Maxxam **Operator's Name:** C. Wesson

Cylinder #: LL119500 Concentration PPM: 9.8 Tolerance(%) 2 Certified By: Praxair

Expiry Date: August 2020

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Average Cylinder Concentration: **9.5**

Previous Stated Concentration PPM: 9.8

Percent variance from Stated: 3

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: September 22, 2017
Location: McIntyre Center Edmonton



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

DocNumber: 000116092

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

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

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

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

Certified Concentration:

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

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

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

Analytical Data:

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

1. Component: PROPANE

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

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

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

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

2. Component: METHANE

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

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

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

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

Analyzed by:

Jenna Lockman

Certified by:

Jose Vasquez



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

DocNumber: 000116091

Customer & Order Information:

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

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

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

Certified Concentration:

Expiration Date:	10/18/2025	NIST Traceable
Cylinder Number:	LL107207	Analytical Uncertainty:
207 ppm	PROPANE	± 0.6 %
600 ppm	METHANE	± 0.3 %
Balance	NITROGEN	

Certification Information: Certification Date: 10/18/2017 Term: 96 Months Expiration Date: 10/18/2025
This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data:

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

1. Component: PROPANE

Requested Concentration: 200 ppm
Certified Concentration: 207 ppm
Instrument Used: MKS Multigas 2031 FTIR
Analytical Method: Fourier Transform Infrared
Last Multipoint Calibration: 10/15/2017

First Analysis Data: Date: 10/17/2017
Z: 0 R: 246.85 C: 200.17 Conc: 207.23
R: 246.89 Z: 0 C: 200 Conc: 207.05
Z: 0 C: 200.25 R: 246.96 Conc: 207.30
UOM: ppm Mean Test Assay: 207.19 ppm

Reference Standard Type: GMIS

Ref. Std. Cylinder #: 30718442
Ref. Std. Conc: 255.6 ppm
Ref. Std. Traceable to SRM #: 2644a
SRM Sample #: 101-C-45
SRM Cylinder #: XF0038298

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

2. Component: METHANE

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

First Analysis Data: Date: 10/17/2017
Z: 0 R: 934.60 C: 565.92 Conc: 600.16
R: 934.66 Z: 0 C: 566.72 Conc: 601
Z: 0 C: 565.99 R: 931.33 Conc: 600.22
UOM: ppm Mean Test Assay: 600.46 ppm

Reference Standard Type: GMIS

Ref. Std. Cylinder #: DT0010335
Ref. Std. Conc: 990 ppm
Ref. Std. Traceable to SRM #: RGM#DT00
SRM Sample #: N/A
SRM Cylinder #: DT00007710

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

Analyzed by:

Jenna Lockman

Certified by:

Jose Vasquez

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

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

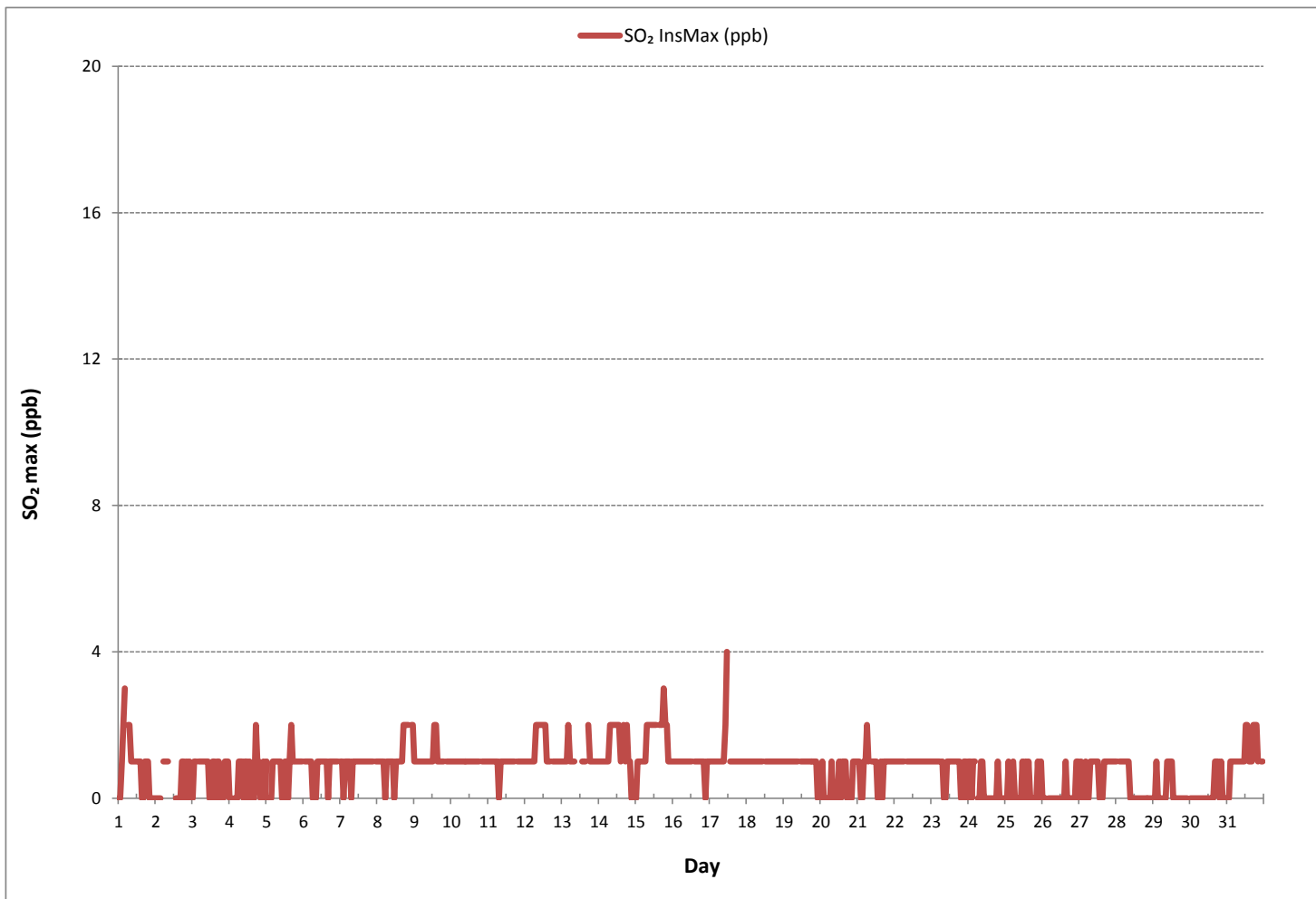
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	511
MAXIMUM INSTANTANEOUS VALUE:	4 ppb @ HOUR 11 ON DAY 17
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	4 hrs
OPERATIONAL TIME:	744 hrs
STANDARD DEVIATION:	1

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.20	0.20	0.17	0.28	0.28	S	0.36	0.20	0.20	0.22	0.22	0.20	0.22	0.20	0.20	C	C	C	C	C	C	0.28	0.28	0.28	0.17	0.36	0.23	24	
2	0.28	0.28	0.28	0.28	S	0.33	0.33	0.30	0.28	C1	C1	C1	C1	C1	0.30	0.25	0.25	0.28	0.28	0.30	0.25	0.25	0.28	0.25	0.25	0.25	0.33	0.28	19
3	0.25	0.30	0.28	S	0.30	0.25	0.25	0.25	0.30	0.28	0.28	0.26	0.30	0.33	0.25	0.28	0.25	0.28	0.25	0.28	0.28	0.25	0.25	0.25	0.25	0.25	0.33	0.27	24
4	0.28	0.25	S	0.28	0.28	0.30	0.28	0.28	0.28	0.25	0.25	0.28	0.28	0.28	0.25	0.25	0.28	0.36	0.36	0.28	0.28	0.30	0.26	0.28	0.25	0.36	0.28	24	
5	0.30	S	0.33	0.33	0.46	0.49	0.59	0.51	0.51	0.44	0.36	0.30	0.33	0.33	0.30	0.33	0.30	0.30	0.36	0.38	0.38	0.33	0.33	0.38	0.30	0.59	0.38	24	
6	S	0.41	0.33	0.54	0.41	0.33	0.30	0.25	0.30	0.28	0.25	0.28	0.30	0.25	0.25	0.28	0.28	0.30	0.30	0.30	0.38	0.36	0.33	S	0.25	0.54	0.32	24	
7	0.30	0.28	0.30	0.28	0.30	0.28	0.33	0.41	0.41	0.41	0.33	0.30	0.30	0.28	0.28	0.33	0.30	0.28	0.30	0.28	0.30	0.33	S	0.36	0.28	0.41	0.32	24	
8	0.28	0.30	0.28	0.33	0.43	0.38	0.44	0.57	0.46	0.46	0.30	0.25	0.28	0.28	0.28	0.30	0.25	0.25	0.28	0.25	0.25	S	0.25	0.25	0.25	0.57	0.32	24	
9	0.25	0.23	0.25	0.28	0.25	0.25	0.28	0.30	0.33	0.28	0.25	0.25	0.28	0.25	0.33	0.30	0.33	0.30	0.30	0.28	S	0.28	0.25	0.33	0.23	0.33	0.28	24	
10	0.30	0.28	0.30	0.28	0.25	0.30	0.28	0.33	0.28	0.30	0.28	0.30	0.28	0.25	0.28	0.28	0.28	0.25	0.25	S	0.28	0.26	0.28	0.28	0.25	0.33	0.28	24	
11	0.25	0.25	0.25	0.25	0.22	0.22	0.22	0.25	0.28	0.23	0.25	0.25	0.25	0.23	0.25	0.25	0.20	0.25	S	0.28	0.25	0.25	0.25	0.30	0.20	0.30	0.25	24	
12	0.25	0.22	0.22	0.22	0.25	0.25	0.25	0.22	0.25	0.23	0.25	0.25	0.28	0.25	0.23	0.23	0.20	S	0.25	0.23	0.26	0.28	0.28	0.20	0.20	0.28	0.24	24	
13	0.22	0.25	0.30	0.33	0.46	0.39	0.41	0.33	0.36	0.33	0.25	0.22	0.20	0.23	0.25	0.25	S	0.30	0.20	0.22	0.20	0.20	0.20	0.20	0.20	0.46	0.27	24	
14	0.20	0.20	0.20	0.20	0.20	0.17	0.17	0.20	0.17	0.20	0.22	0.23	0.20	0.19	0.23	S	0.25	0.25	0.25	0.23	0.22	0.23	0.20	0.23	0.17	0.25	0.21	24	
15	0.17	0.22	0.20	0.22	0.25	0.22	0.25	0.25	0.28	0.28	0.28	0.28	0.25	0.22	S	0.25	0.25	0.23	0.25	0.25	0.28	0.25	0.28	0.33	0.17	0.33	0.25	24	
16	0.33	0.28	0.30	0.33	0.33	0.33	0.25	0.25	0.28	0.22	0.22	0.22	0.25	S	0.22	0.25	0.23	0.25	0.28	0.25	0.28	0.22	0.22	0.22	0.22	0.33	0.26	24	
17	0.22	0.25	0.25	0.25	0.30	0.33	0.28	0.30	0.33	0.30	0.30	0.30	S	0.28	0.25	0.25	0.25	0.23	0.23	0.25	0.25	0.23	0.22	0.22	0.25	0.22	0.33	0.26	24
18	0.28	0.25	0.25	0.25	0.22	0.28	0.25	0.28	0.28	0.25	0.22	S	0.25	0.25	0.25	0.23	0.23	0.23	0.23	0.23	0.20	0.20	0.25	0.22	0.20	0.28	0.24	24	
19	0.22	0.20	0.22	0.20	0.20	0.22	0.20	0.25	0.22	0.25	S	0.25	0.25	0.22	0.22	0.23	0.20	0.20	0.23	0.20	0.20	0.23	0.22	0.22	0.20	0.25	0.22	24	
20	0.22	0.20	0.22	0.25	0.28	0.20	0.22	0.20	0.23	S	0.17	0.20	0.20	0.17	0.17	0.17	0.15	0.15	0.15	0.17	0.15	0.15	0.17	0.25	0.15	0.28	0.19	24	
21	0.20	0.22	0.22	0.22	0.22	0.22	0.25	0.28	S	0.25	0.22	0.25	0.25	0.25	0.23	0.22	0.20	0.17	0.20	0.22	0.17	0.20	0.22	0.20	0.17	0.28	0.22	24	
22	0.22	0.17	0.20	0.20	0.20	0.20	0.17	S	0.22	0.20	0.22	0.22	0.20	0.20	0.22	0.20	0.23	0.20	0.22	0.22	0.20	0.20	0.20	0.22	0.17	0.23	0.21	24	
23	0.22	0.20	0.22	0.22	0.20	0.22	S	0.20	0.17	0.20	0.25	0.23	0.22	0.25	0.22	0.20	0.20	0.20	0.22	0.17	0.20	0.20	0.22	0.22	0.17	0.25	0.21	24	
24	0.25	0.22	0.20	0.22	0.22	S	0.20	0.22	0.20	0.25	0.28	0.22	0.28	0.22	0.20	0.20	0.20	0.20	0.22	0.22	0.22	0.25	0.20	0.20	0.20	0.28	0.22	24	
25	0.33	0.25	0.25	0.20	S	0.22	0.20	0.20	0.22	0.30	0.28	0.20	0.25	0.22	0.23	0.23	0.23	0.22	0.22	0.22	0.20	0.20	0.20	0.22	0.20	0.33	0.23	24	
26	0.25	0.23	0.22	S	0.23	0.25	0.20	0.22	0.20	0.20	0.20	0.20	0.25	0.22	0.25	0.22	0.22	0.25	0.25	0.25	0.22	0.25	0.38	0.33	0.20	0.38	0.24	24	
27	0.28	0.25	S	0.30	0.25	0.25	0.26	0.22	0.30	0.23	0.28	0.25	0.22	0.28	0.25	0.23	0.22	0.25	0.22	0.22	0.25	0.25	0.28	0.22	0.30	0.25	24		
28	0.28	S	0.33	0.33	0.33	0.36	0.38	0.30	0.30	0.26	0.23	0.25	0.23	0.22	0.25	0.28	0.23	0.20	0.22	0.25	0.25	0.23	0.20	0.28	0.20	0.38	0.27	24	
29	S	0.30	0.30	0.28	0.28	0.25	0.28	0.28	0.30	0.28	0.28	0.28	0.28	0.25	0.28	0.28	0.28	0.28	0.25	0.25	0.25	0.25	0.25	S	0.25	0.30	0.27	24	
30	0.30	0.25	0.25	0.28	0.30	0.28	0.28	0.28	0.28	0.30	0.28	0.26	0.25	0.28	0.28	0.25	0.33	0.30	0.30	0.28	0.28	0.36	S	0.33	0.25	0.36	0.29	24	
31	0.33	0.33	0.38	0.33	0.43	0.49	0.41	0.46	0.38	0.36	0.36	0.36	0.38	0.38	0.38	0.33	0.36	0.33	0.33	0.33	0.36	S	0.38	0.33	0.33	0.49	0.37	24	
HOURLY MAX	0.33	0.41	0.38	0.54	0.46	0.49	0.59	0.57	0.51	0.46	0.36	0.36	0.38	0.38	0.38	0.33	0.36	0.36	0.36	0.38	0.38	0.36	0.38	0.38					
HOURLY AVG	0.26	0.25	0.26	0.27	0.29	0.28	0.29	0.29	0.29	0.28	0.26	0.25	0.26	0.25	0.25	0.25	0.25	0.25	0.26	0.25	0.25	0.25	0.25	0.27					

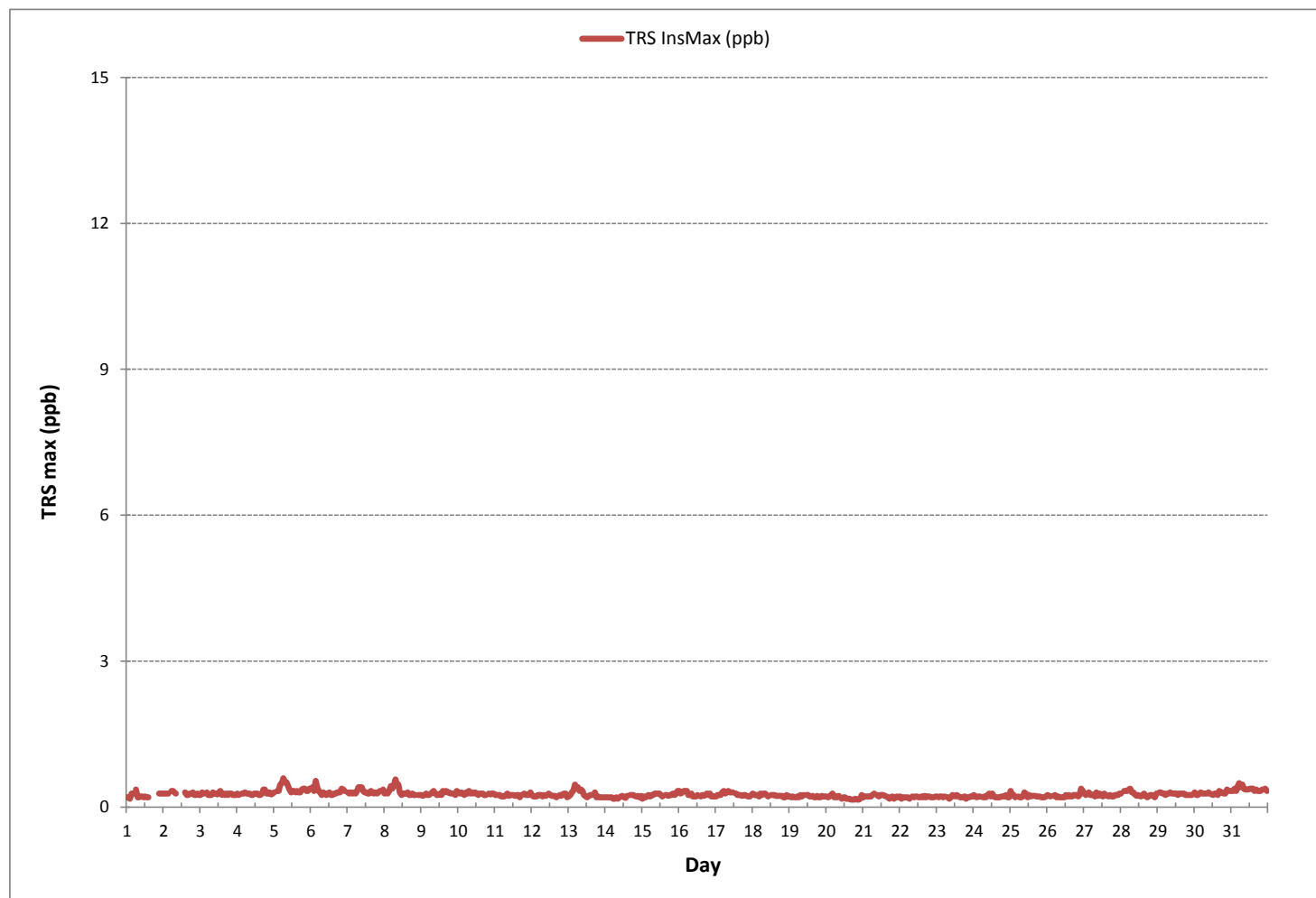
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		700					
MAXIMUM INSTANTANEOUS VALUE:		0.59	ppb	@ HOUR	6	ON DAY	5
IZS CALIBRATION TIME:		33	hrs	OPERATIONAL TIME:		739	hrs
MONTHLY CALIBRATION TIME:		6	hrs				
STANDARD DEVIATION:		0.06					

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	X	X	X	X	X	X	X	X		2.06	2.03	2.02	2.02	2.01	2.01	C	C	Y	C	C	C	2.05	2.04	2.06	2.06	2.01	2.06	2.04	15
2	2.04	2.05	2.05	2.07	S	2.06	2.05	2.07	2.04	2.05	2.05	2.06	X	S1	2.04	2.02	2.05	2.03	2.06	2.05	2.03	2.05	2.04	2.07	2.02	2.07	2.05	22	
3	2.04	2.18	2.13	S	2.17	2.12	S1	S1	2.09	2.07	2.08	2.05	2.06	2.05	2.05	2.06	2.04	2.08	2.04	2.06	2.04	2.06	2.06	2.06	2.04	2.18	2.08	22	
4	2.04	2.05	S	2.04	2.06	2.05	2.06	2.04	2.06	2.04	2.06	2.04	2.06	2.07	2.03	2.05	2.03	2.15	2.05	2.07	2.05	2.11	2.08	2.08	2.03	2.15	2.06	24	
5	2.10	S	S	2.24	2.20	2.50	2.59	2.72	2.54	2.51	2.43	2.17	2.11	2.12	2.12	2.13	2.12	2.17	2.13	2.15	2.15	2.14	2.14	2.15	2.15	2.10	2.72	2.25	24
6	S	2.13	2.09	2.08	2.18	2.17	2.14	2.13	2.11	2.09	2.07	2.06	2.05	2.04	2.03	2.05	2.05	2.04	2.06	2.04	2.05	2.05	2.05	S	2.03	2.18	2.08	24	
7	2.05	2.05	2.12	2.14	2.10	2.15	2.26	2.40	2.52	2.58	2.10	2.08	2.08	2.09	2.15	2.12	2.09	2.05	2.07	2.06	2.08	2.16	S	2.10	2.05	2.58	2.16	24	
8	2.09	2.08	2.14	2.17	2.45	2.30	2.48	2.50	2.45	2.57	2.13	2.03	2.02	2.00	2.02	2.01	2.03	2.03	2.04	2.07	2.06	S	2.06	2.04	2.00	2.57	2.16	24	
9	2.10	2.13	2.13	2.12	2.08	2.06	2.07	2.09	2.16	2.07	2.08	2.07	2.07	2.05	2.08	2.07	2.04	2.04	2.03	2.02	S	2.03	2.01	2.03	2.01	2.16	2.07	24	
10	2.00	2.02	1.99	2.00	2.02	2.01	2.01	2.00	2.03	2.01	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	S	2.03	2.02	2.04	2.03	1.99	2.04	2.01	24	
11	2.05	2.02	2.03	2.01	2.02	2.01	2.03	S1	2.23	2.08	2.06	2.19	2.03	2.04	2.07	2.08	2.06	2.07	S	2.07	2.07	2.06	2.08	2.06	2.01	2.23	2.06	23	
12	2.08	2.07	2.05	2.05	2.07	2.06	2.05	2.06	2.07	2.08	2.11	2.12	2.10	2.11	2.12	2.14	2.12	S	2.13	2.13	2.15	2.17	2.14	2.05	2.17	2.10	24		
13	2.13	2.19	2.40	2.45	2.84	2.67	2.67	2.65	2.71	2.48	2.16	2.13	2.11	2.13	2.17	2.15	S	2.11	2.02	2.02	2.04	2.04	2.04	2.04	2.02	2.84	2.28	24	
14	2.05	2.03	2.04	2.07	2.11	2.11	2.12	2.12	2.13	2.15	2.15	2.16	2.16	2.18	2.16	S	S	2.11	2.09	2.09	2.11	2.11	2.09	2.07	2.08	2.03	2.18	2.11	24
15	2.08	2.10	2.11	2.14	2.11	2.11	S1	S1	2.16	2.20	2.21	2.20	2.20	2.18	S	2.20	2.22	2.20	2.19	2.20	2.19	2.19	2.25	2.35	2.08	2.35	2.18	22	
16	2.32	2.35	2.36	2.47	2.56	2.46	2.20	2.21	2.25	2.13	2.13	2.13	2.11	S	2.10	2.08	2.09	2.09	2.14	2.12	2.14	2.11	2.11	2.13	2.08	2.56	2.21	24	
17	2.15	2.20	2.22	2.19	2.16	2.15	2.17	2.13	2.13	2.06	2.07	2.07	S	2.04	2.04	2.04	2.04	2.05	2.04	2.04	2.04	2.03	2.03	2.04	2.03	2.03	2.22	2.09	24
18	2.04	2.07	2.08	2.07	2.05	2.06	2.04	2.06	2.06	2.07	2.02	S	2.04	2.04	2.04	2.04	2.04	2.09	2.06	2.03	2.05	2.07	2.13	2.18	2.02	2.18	2.06	24	
19	2.07	2.03	2.02	2.02	2.02	2.05	2.05	2.06	2.08	2.08	S	2.08	2.07	2.07	2.07	2.06	2.08	2.03	2.04	2.07	2.03	2.04	2.04	2.10	2.02	2.10	2.05	24	
20	1.99	1.98	1.99	2.00	2.01	2.01	2.01	2.00	2.00	S	2.01	2.01	2.02	2.02	2.02	2.05	2.08	2.14	2.04	2.02	2.00	2.01	2.03	2.03	1.98	2.14	2.02	24	
21	2.03	2.04	2.05	2.05	2.05	2.05	2.05	2.05	S	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.05	2.04	24	
22	2.02	2.02	2.03	2.02	2.02	2.02	2.04	S	C1	C1	C1	C1	2.02	2.04	2.03	2.04	2.03	2.05	2.04	2.05	2.05	2.04	2.04	2.03	2.02	2.05	2.03	20	
23	2.03	2.03	2.02	2.03	2.03	2.04	S	2.05	2.04	2.04	2.04	2.02	2.02	2.02	2.01	2.02	2.00	2.01	2.00	2.00	2.02	2.00	2.02	2.01	2.00	2.05	2.02	24	
24	2.03	2.00	2.01	2.00	1.98	S	2.00	2.02	1.98	2.01	1.98	2.01	2.01	1.98	2.00	2.00	2.00	1.99	2.01	1.99	1.99	1.99	1.99	2.01	1.98	2.03	2.00	24	
25	2.00	2.01	1.99	2.02	S	1.99	1.98	1.99	1.98	2.00	2.00	1.97	2.00	1.99	2.00	1.99	2.01	1.99	1.99	2.01	2.03	2.01	1.99	2.00	1.97	2.03	2.00	24	
26	1.98	1.99	1.97	S	1.98	1.98	1.96	1.97	1.99	1.97	1.99	1.97	1.98	1.96	1.98	1.99	1.97	2.00	1.97	1.97	1.97	1.99	2.00	2.03	1.96	2.03	1.98	24	
27	1.99	2.00	S	2.08	2.03	1.97	1.99	2.04	2.03	1.99	2.00	1.99	2.00	1.99	2.00	2.00	1.99	2.00	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.97	2.08	2.00	24
28	2.01	S	2.01	2.00	2.02	2.05	2.09	2.02	2.02	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	1.99	1.99	2.03	1.98	1.99	1.97	1.97	2.09	2.00	24	
29	S	1.99	1.99	1.98	1.97	1.99	1.98	2.00	2.07	2.00	2.00	2.00	1.98	1.99	1.98	1.98	2.00	1.99	1.99	1.98	2.00	1.98	1.97	S	1.97	2.07	1.99	24	
30	1.98	2.00	1.98	2.00	1.99	1.99	1.98	1.99	1.98	1.99	1.99	2.00	1.99	1.98	2.01	1.98	2.00	1.99	2.00	2.00	1.99	1.99	S	2.03	1.98	2.03	1.99	24	
31	2.05	2.13	2.18	2.18	2.07	2.09	2.07	2.07	2.03	2.04	2.02	2.03	2.05	2.02	2.03	2.02	2.04	2.02	2.02	2.02	2.01	S	2.00	2.03	2.00	2.18	2.05	24	
HOURLY MAX	2.32	2.35	2.40	2.47	2.84	2.67	2.72	2.65	2.71	2.58	2.21	2.20	2.20	2.18	2.17	2.20	2.22	2.20	2.19	2.20	2.19	2.19	2.25	2.35					
HOURLY AVG	2.06	2.07	2.09	2.09	2.13	2.12	2.12	2.13	2.14	2.12	2.06	2.06	2.05	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.07					

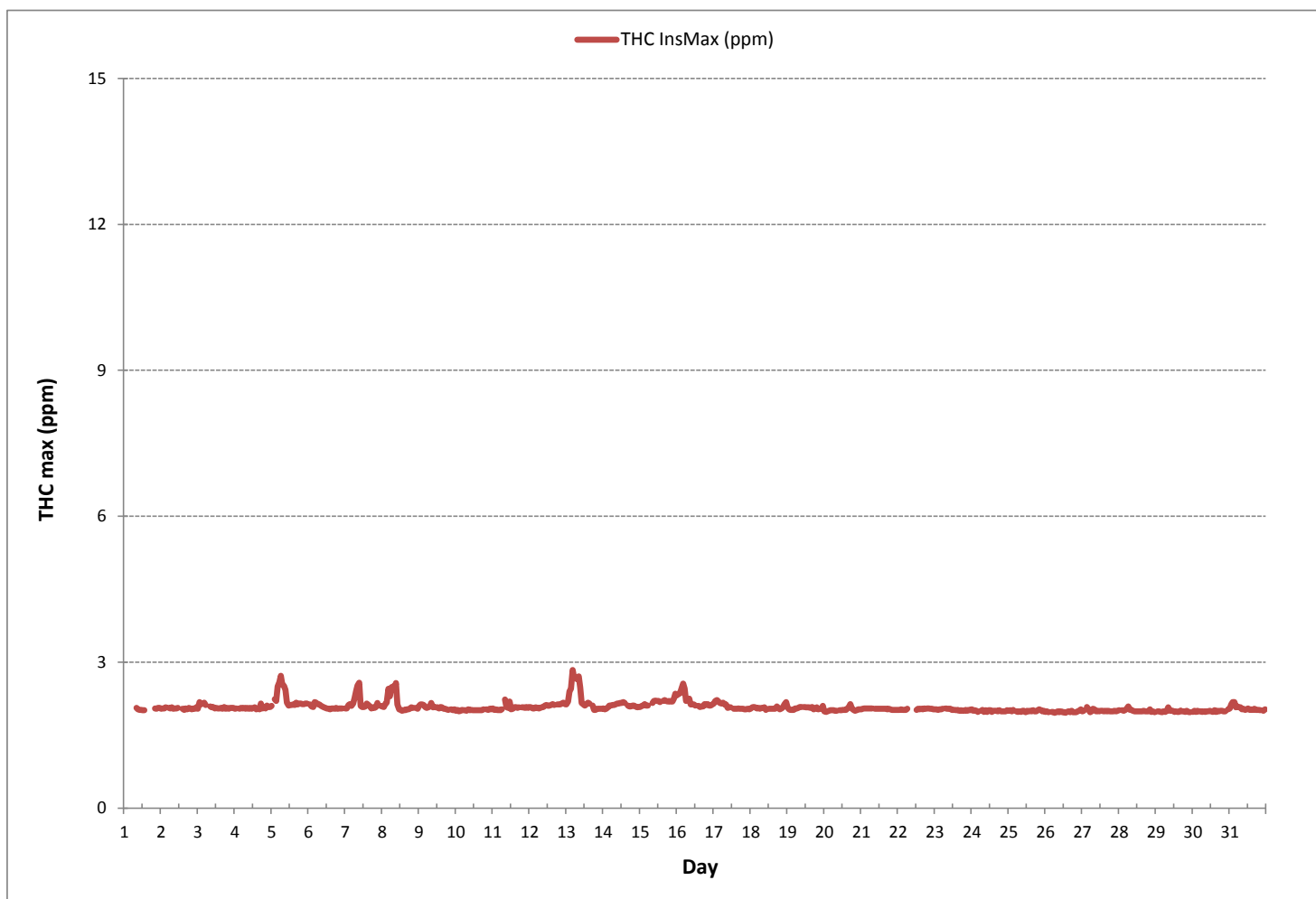
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	687				
MAXIMUM INSTANTANEOUS VALUE:	2.84	ppm	@ HOUR	4	ON DAY 13
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	724	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.11				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	X	X	X	X	X	X	X	X	2.04	2.02	2.01	2.00	2.00	2.00	C	C	Y	C	C	C	2.03	2.03	2.04	2.05	2.00	2.05	2.02	15
2	2.03	2.03	2.04	2.05	S	2.04	2.04	2.05	2.03	2.04	2.03	2.04	X	S1	2.03	2.00	2.03	2.01	2.05	2.04	2.02	2.04	2.02	2.06	2.00	2.06	2.03	22
3	2.03	2.16	2.12	S	2.15	2.10	S1	S1	2.08	2.06	2.07	2.04	2.05	2.03	2.03	2.04	2.02	2.07	2.02	2.05	2.02	2.05	2.05	2.04	2.02	2.16	2.06	22
4	2.02	2.04	S	2.03	2.05	2.03	2.05	2.03	2.05	2.03	2.05	2.02	2.04	2.05	2.01	2.04	2.02	2.13	2.04	2.05	2.03	2.10	2.07	2.07	2.01	2.13	2.05	24
5	2.09	S	2.23	2.19	2.49	2.58	2.71	2.53	2.49	2.42	2.15	2.10	2.10	2.11	2.11	2.10	2.15	2.11	2.13	2.13	2.12	2.12	2.13	2.13	2.09	2.71	2.24	24
6	S	2.11	2.08	2.07	2.16	2.15	2.13	2.11	2.10	2.08	2.05	2.04	2.03	2.03	2.02	2.03	2.04	2.02	2.05	2.03	2.04	2.03	2.03	S	2.02	2.16	2.07	24
7	2.04	2.04	2.09	2.12	2.08	2.13	2.25	2.38	2.51	2.57	2.08	2.07	2.07	2.08	2.13	2.10	2.08	2.04	2.06	2.05	2.07	2.14	S	2.08	2.04	2.57	2.14	24
8	2.08	2.07	2.12	2.15	2.43	2.29	2.46	2.49	2.44	2.56	2.11	2.02	2.01	1.99	2.00	2.00	2.02	2.02	2.03	2.06	2.05	S	2.04	2.03	1.99	2.56	2.15	24
9	2.08	2.11	2.11	2.10	2.07	2.05	2.05	2.05	2.14	2.05	2.07	2.06	2.06	2.04	2.06	2.05	2.03	2.02	2.01	2.01	S	2.01	2.00	2.02	2.00	2.14	2.05	24
10	1.99	2.00	1.98	1.98	2.00	2.00	2.00	1.98	2.01	1.99	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	S	2.01	2.01	2.02	2.02	1.98	2.02	2.00	24
11	2.03	2.00	2.02	1.99	2.01	2.00	2.01	S1	2.22	2.07	2.05	2.10	2.02	2.03	2.05	2.07	2.05	2.06	S	2.06	2.06	2.05	2.06	2.05	1.99	2.22	2.05	23
12	2.06	2.06	2.03	2.04	2.06	2.05	2.04	2.04	2.05	2.07	2.08	2.10	2.07	2.08	2.11	2.12	2.10	S	2.11	2.11	2.11	2.13	2.15	2.12	2.03	2.15	2.08	24
13	2.11	2.17	2.38	2.44	2.82	2.66	2.65	2.64	2.70	2.48	2.14	2.13	2.10	2.12	2.15	2.13	S	2.10	2.01	2.01	2.02	2.02	2.02	2.03	2.01	2.82	2.26	24
14	2.03	2.02	2.02	2.06	2.08	2.08	2.10	2.10	2.11	2.13	2.13	2.14	2.14	2.16	2.14	S	2.09	2.08	2.07	2.09	2.09	2.07	2.06	2.06	2.02	2.16	2.09	24
15	2.07	2.09	2.09	2.12	2.09	2.09	S1	S1	2.14	2.19	2.20	2.19	2.19	2.17	S	2.18	2.20	2.19	2.18	2.18	2.18	2.24	2.34	2.07	2.34	2.17	2.09	22
16	2.31	2.33	2.35	2.45	2.51	2.44	2.19	2.20	2.24	2.11	2.11	2.11	2.09	S	2.08	2.07	2.07	2.08	2.12	2.10	2.13	2.09	2.08	2.11	2.07	2.51	2.19	24
17	2.13	2.19	2.21	2.18	2.14	2.13	2.15	2.11	2.11	2.05	2.06	2.06	S	2.03	2.03	2.03	2.03	2.02	2.02	2.03	2.02	2.01	2.02	2.02	2.01	2.21	2.08	24
18	2.03	2.05	2.07	2.05	2.04	2.04	2.03	2.04	2.04	2.05	2.01	S	2.03	2.03	2.02	2.02	2.02	2.07	2.05	2.01	2.04	2.05	2.11	2.16	2.01	2.16	2.05	24
19	2.06	2.02	2.00	2.00	2.01	2.03	2.04	2.05	2.06	2.07	S	2.06	2.06	2.05	2.05	2.05	2.06	2.01	2.02	2.06	2.02	2.03	2.03	2.08	2.00	2.08	2.04	24
20	1.98	1.97	1.97	1.98	1.99	2.00	1.99	1.99	1.99	S	1.99	2.00	2.01	2.00	2.00	2.03	2.07	2.12	2.03	2.00	1.99	1.99	2.02	2.01	1.97	2.12	2.01	24
21	2.02	2.02	2.03	2.04	2.04	2.04	2.04	2.03	S	2.02	2.03	2.02	2.03	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.00	2.01	2.01	2.01	2.00	2.04	2.02	24
22	2.00	2.01	2.02	2.01	2.00	2.00	2.03	S	C1	C1	C1	C1	2.01	2.03	2.01	2.02	2.02	2.03	2.03	2.03	2.03	2.02	2.02	2.02	2.00	2.03	2.02	20
23	2.02	2.01	2.01	2.02	2.02	2.03	S	2.03	2.02	2.02	2.03	2.01	2.00	2.01	2.00	2.00	1.99	1.99	1.99	1.99	2.00	1.99	2.01	1.99	1.99	2.03	2.01	24
24	2.02	1.99	1.99	1.99	1.97	S	1.98	2.00	1.97	1.99	1.97	1.99	2.00	1.96	1.99	1.98	1.98	1.98	2.00	1.97	1.98	1.98	1.98	2.00	1.96	2.02	1.99	24
25	1.98	2.00	1.97	2.00	S	1.98	1.97	1.97	1.97	1.98	1.99	1.96	1.98	1.97	1.99	1.98	2.00	1.98	1.97	2.00	2.02	2.00	1.97	1.99	1.96	2.02	1.98	24
26	1.97	1.98	1.96	S	1.96	1.96	1.94	1.95	1.97	1.95	1.98	1.96	1.97	1.94	1.96	1.97	1.96	1.98	1.95	1.97	1.96	1.98	1.98	2.02	1.94	2.02	1.97	24
27	1.98	1.99	S	2.06	2.02	1.96	1.98	2.03	2.02	1.98	1.98	1.98	1.99	1.99	1.97	1.98	1.97	1.98	1.98	1.98	1.97	1.98	1.98	1.99	1.96	2.06	1.99	24
28	1.99	S	1.99	1.99	2.00	2.03	2.08	2.01	2.00	1.99	1.98	1.98	1.98	1.98	1.98	1.97	1.98	1.97	1.97	1.98	2.02	1.96	1.97	1.96	1.96	2.08	1.99	24
29	S	1.97	1.98	1.97	1.96	1.98	1.97	1.98	2.06	1.99	1.98	1.99	1.97	1.98	1.97	1.97	1.98	1.97	1.97	1.97	1.98	1.97	1.96	S	1.96	2.06	1.98	24
30	1.97	1.98	1.97	1.98	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.99	1.98	1.97	2.00	1.96	1.99	1.97	1.98	1.98	1.98	1.98	S	2.02	1.96	2.02	1.98	24
31	2.04	2.11	2.17	2.16	2.05	2.07	2.06	2.06	2.02	2.02	2.01	2.01	2.04	2.01	2.02	2.01	2.02	2.01	2.00	2.01	2.00	S	1.99	2.01	1.99	2.17	2.04	24
HOURLY MAX	2.31	2.33	2.38	2.45	2.82	2.66	2.71	2.64	2.70	2.57	2.20	2.19	2.19	2.17	2.15	2.18	2.20	2.19	2.18	2.18	2.18	2.18	2.24	2.34				
HOURLY AVG	2.04	2.05	2.07	2.08	2.11	2.10	2.11	2.11	2.12	2.10	2.05	2.04	2.04	2.03	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.04	2.04	2.05			

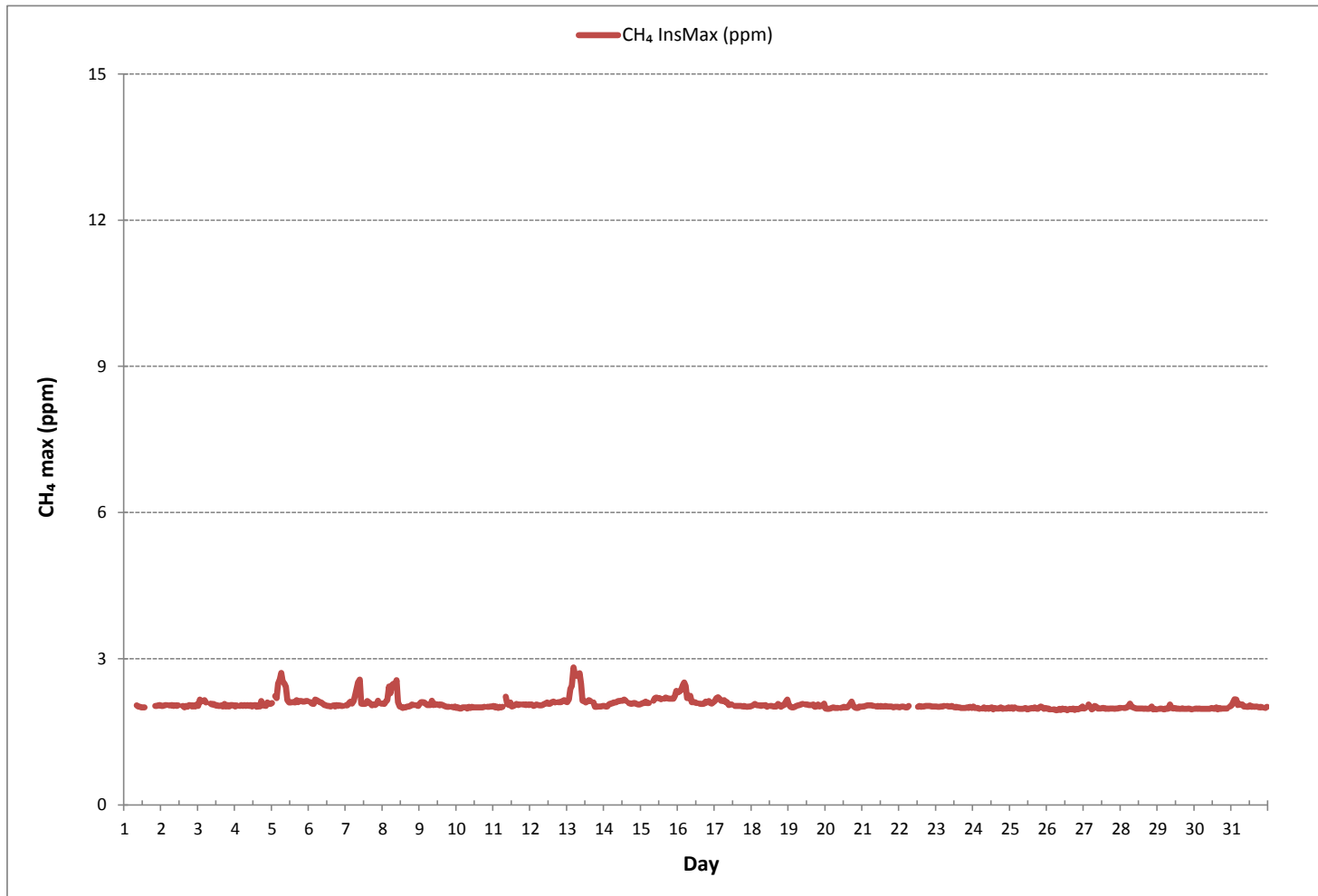
STATUS FLAG CODES

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:	687
MAXIMUM INSTANTANEOUS VALUE:	2.82 ppm @ HOUR 4 ON DAY 13
IZS CALIBRATION TIME:	32 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.11
OPERATIONAL TIME:	724 hrs

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	X	X	X	X	X	X	X	X							C	C	Y	C	C	C					0.00	0.00	0.00	15
2	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
3	0.00	0.00	0.00	S	0.00	0.00	S1	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22
4	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.06	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S1	0.00	0.00	0.00	0.08	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	0.08	0.00	23
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	S1	S1	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	22
16	0.00	0.00	0.00	0.00	0.15	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	0.15	0.01	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
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	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
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20
23	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
24	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	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
27	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.06	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
HOURLY AVG	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

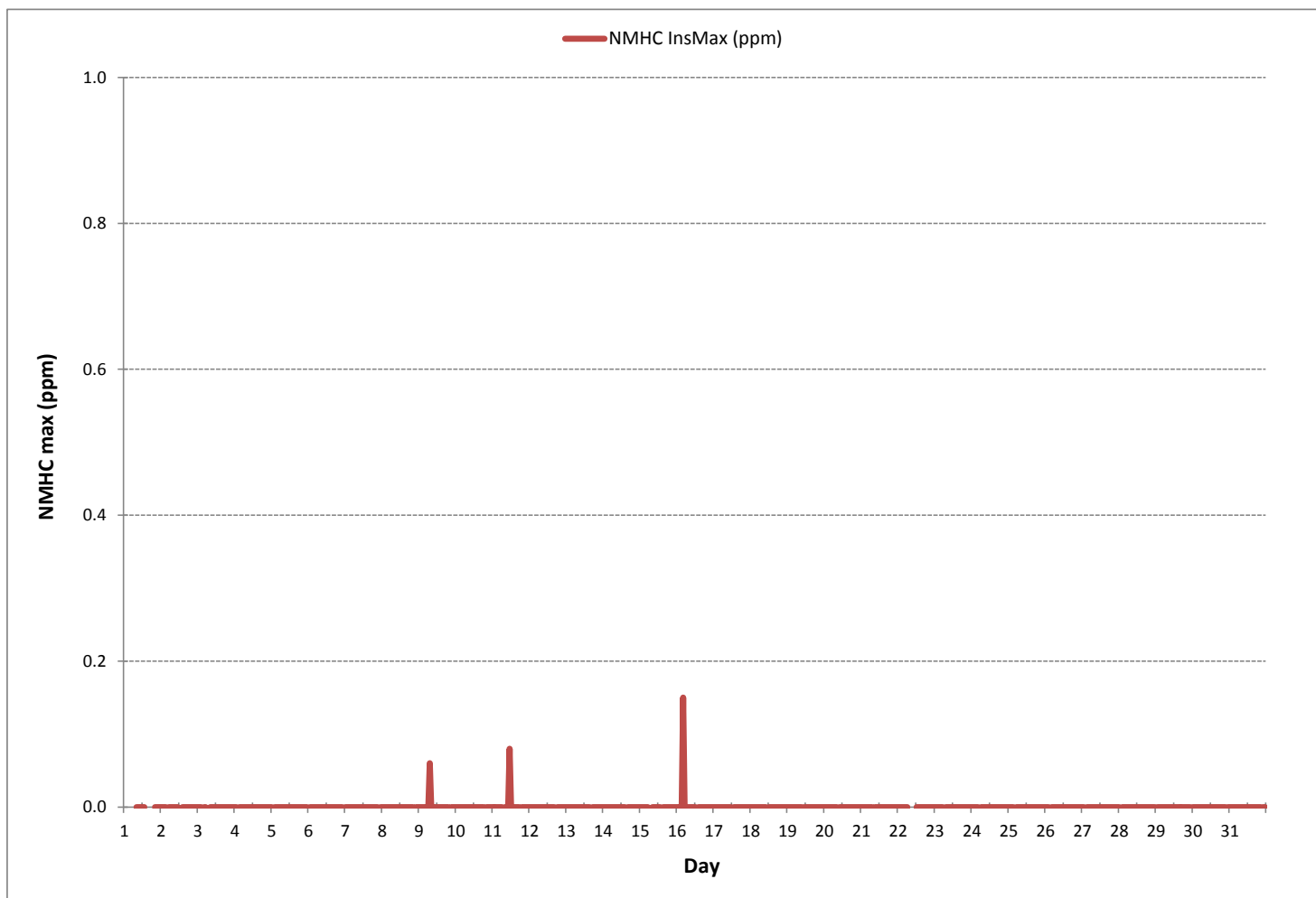
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	3				
MAXIMUM INSTANTANEOUS VALUE:	0.15	ppm	@ HOUR	4	ON DAY 16
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	724	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.01				

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - March 2018

WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	12.4	20.3	24.0	30.6	28.4	31.9	32.3	33.3	36.9	33.8	43.8	45.0	40.9	39.7	29.0	39.6	46.7	41.8	43.0	41.1	33.7	41.7	34.6	39.3	12.4	46.7	35.2	24
2	37.5	38.2	37.7	35.4	38.4	38.0	32.6	43.1	35.0	38.2	34.4	34.2	35.2	30.9	33.6	32.9	29.1	24.8	34.0	24.0	24.5	23.6	17.3	14.5	14.5	43.1	32.0	24
3	16.2	16.1	17.2	19.4	16.7	14.5	12.9	14.7	18.3	18.4	15.4	20.9	20.2	24.5	26.9	19.6	15.3	16.9	15.6	13.0	12.4	13.3	15.0	14.3	12.4	26.9	17.0	24
4	13.1	10.7	11.7	14.7	14.9	12.4	11.1	10.6	12.5	11.6	11.3	8.5	10.0	16.0	13.5	13.4	10.2	12.2	6.9	8.4	9.5	8.2	6.3	5.2	5.2	16.0	11.0	24
5	4.3	5.8	5.9	4.9	5.0	4.8	4.1	3.6	3.6	3.5	12.5	12.6	14.0	15.1	13.8	13.0	17.6	14.8	10.5	16.8	14.6	4.5	5.0	3.5	3.5	17.6	8.9	24
6	9.2	12.8	12.8	7.1	8.2	5.7	4.7	6.6	10.9	11.8	14.7	16.5	18.3	19.6	17.3	15.0	12.8	14.5	13.8	12.2	8.3	8.0	7.4	6.8	4.7	19.6	11.5	24
7	7.3	8.6	8.8	7.6	7.5	7.3	8.6	4.7	6.1	9.5	13.1	11.3	9.8	10.9	13.3	14.1	13.4	15.4	12.4	8.5	11.2	10.8	5.6	9.4	4.7	15.4	9.8	24
8	7.2	6.0	7.0	7.5	7.9	9.4	9.4	5.8	8.6	10.5	13.0	15.9	21.2	24.3	25.1	26.1	26.9	25.7	20.8	27.0	20.8	15.4	13.8	14.6	5.8	27.0	15.4	24
9	10.3	5.7	7.9	7.0	7.4	8.0	15.3	14.4	14.1	18.3	15.4	15.5	17.3	19.3	24.2	23.2	22.8	22.2	20.9	16.0	14.1	9.8	12.4	31.2	5.7	31.2	15.5	24
10	28.2	32.8	28.1	35.0	31.6	29.8	31.9	15.4	23.5	29.1	25.2	24.9	23.7	24.7	30.5	24.1	24.8	22.5	20.5	16.3	15.0	7.9	8.0	7.4	7.4	35.0	23.4	24
11	8.9	9.9	5.3	5.8	5.6	6.7	10.3	11.3	9.3	10.5	9.6	17.1	18.2	18.1	18.8	20.9	17.7	14.1	14.9	10.7	7.8	6.2	7.6	5.1	5.1	20.9	11.3	24
12	7.9	7.8	13.5	5.6	8.0	15.6	17.5	19.3	19.9	19.4	23.8	21.6	17.6	16.6	18.1	17.8	16.7	15.1	9.4	6.7	7.2	8.6	10.0	7.5	5.6	23.8	13.8	24
13	7.8	6.5	4.6	5.9	9.3	5.5	5.2	6.2	7.1	6.9	11.9	10.8	14.1	13.8	10.6	10.4	10.9	20.7	20.6	11.7	19.2	21.7	19.2	16.8	4.6	21.7	11.6	24
14	20.3	23.0	24.0	27.0	17.3	17.3	17.4	19.9	13.5	11.6	12.4	12.7	11.5	15.0	20.9	20.6	23.5	18.2	18.5	18.5	15.3	17.0	18.7	15.2	11.5	27.0	17.9	24
15	15.5	12.4	10.4	11.4	13.8	19.9	16.7	7.9	10.8	14.5	15.7	13.5	17.8	18.4	15.8	14.6	14.3	14.0	10.0	5.9	5.4	4.2	5.3	5.5	4.2	19.9	12.2	24
16	4.5	5.6	5.5	5.5	7.0	9.1	13.1	9.3	12.2	13.1	12.1	16.6	15.9	17.0	16.2	17.7	20.3	17.8	7.6	6.7	4.7	5.9	7.2	15.5	4.5	20.3	11.1	24
17	7.1	8.8	7.8	9.8	8.8	9.7	12.2	13.9	17.0	18.0	18.7	15.4	16.7	22.1	17.6	22.3	19.6	17.6	15.8	7.3	7.8	10.7	11.1	11.5	7.1	22.3	13.6	24
18	11.6	12.5	11.3	8.9	10.9	11.6	9.3	6.9	13.0	15.1	15.4	13.6	11.2	17.7	17.6	17.6	16.0	12.3	10.7	8.2	7.4	9.0	8.5	18.5	6.9	18.5	12.3	24
19	15.9	16.0	20.3	21.8	21.0	23.5	25.1	26.2	25.2	27.8	30.6	30.2	30.6	26.4	27.8	20.2	16.9	17.1	14.3	14.5	18.6	16.5	13.6	10.4	10.4	30.6	21.3	24
20	10.3	12.1	12.0	12.5	6.1	5.0	7.0	4.2	9.3	13.9	18.7	13.0	12.7	17.0	17.7	16.5	14.3	10.9	11.5	10.6	10.9	10.5	20.3	18.0	4.2	20.3	12.3	24
21	23.7	19.4	19.6	22.1	21.7	28.9	27.6	24.6	26.1	28.9	30.7	28.6	27.4	29.4	28.2	32.2	32.9	29.2	28.7	28.1	33.5	31.6	32.4	31.0	19.4	33.5	27.8	24
22	35.6	32.3	34.9	37.6	28.7	37.0	31.6	30.5	34.6	36.9	32.8	33.5	39.6	36.5	33.9	30.7	41.9	38.9	40.4	40.1	45.9	41.4	37.5	46.4	28.7	46.4	36.6	24
23	36.0	29.9	28.7	23.5	27.5	26.8	27.4	21.7	18.7	33.9	38.3	38.2	38.3	35.1	37.9	36.3	30.3	30.1	21.7	18.7	19.2	20.1	18.9	16.6	16.6	38.3	28.1	24
24	13.8	18.2	26.7	21.5	20.9	17.1	19.6	28.1	20.5	18.9	21.3	21.5	19.8	22.8	19.2	15.3	13.1	11.8	8.7	7.7	5.6	4.6	5.6	9.1	4.6	28.1	16.3	24
25	10.5	11.2	12.2	13.4	12.6	14.2	15.6	14.7	17.0	17.7	16.7	15.8	14.3	15.6	15.4	14.4	15.0	18.8	15.9	14.4	15.7	14.2	19.7	19.8	10.5	19.8	15.2	24
26	15.3	16.7	19.3	21.3	26.7	15.5	16.0	20.8	20.9	26.8	25.0	24.5	24.6	24.0	23.7	20.5	25.7	22.5	17.8	9.2	6.2	8.1	9.7	18.3	6.2	26.8	19.1	24
27	16.2	17.7	18.5	27.0	31.7	28.7	24.9	19.7	14.7	17.6	22.4	19.8	24.3	25.6	25.5	24.4	21.4	20.1	13.6	5.7	18.0	16.0	17.7	17.9	5.7	31.7	20.4	24
28	12.9	17.2	13.8	14.6	12.0	8.4	8.2	5.5	11.1	13.7	16.7	16.5	16.6	19.2	24.2	25.3	22.1	22.4	19.6	12.6	12.7	21.7	17.4	18.6	5.5	25.3	16.0	24
29	19.1	17.3	10.8	11.9	4.8	6.0	5.8	8.4	9.8	11.4	16.0	16.3	13.0	16.2	18.3	20.0	25.9	21.4	18.9	18.9	22.3	15.4	21.6	22.0	4.8	25.9	15.5	24
30	25.2	18.9	22.1	20.3	18.3	14.0	16.5	20.7	21.9	24.6	26.5	23.2	27.5	26.3	31.0	35.6	26.3	21.0	21.2	10.5	5.6	2.6	2.6	4.1	2.6	35.6	19.4	24
31	4.1	4.0	5.9	6.9	7.9	6.2	8.4	8.3	10.6	19.0	19.6	20.5	22.1	21.7	23.1	21.0	19.0	15.9	12.8	13.8	12.0	9.8	8.9	7.4	4.0	23.1	12.9	24
HOURLY MAX	37.5	38.2	37.7	37.6	38.4	38.0	32.6	43.1	36.9	38.2	43.8	45.0	40.9	39.7	37.9	39.6	46.7	41.8	43.0	41.1	45.9	41.7	37.5	46.4				
HOURLY AVG	15.1	15.3	15.8	16.2	15.7	15.8	16.1	15.5	16.5	18.9	20.4	20.3	20.8	21.9	22.2	21.8	21.4	20.0	17.8	15.0	15.0	14.2	14.2	15.5				

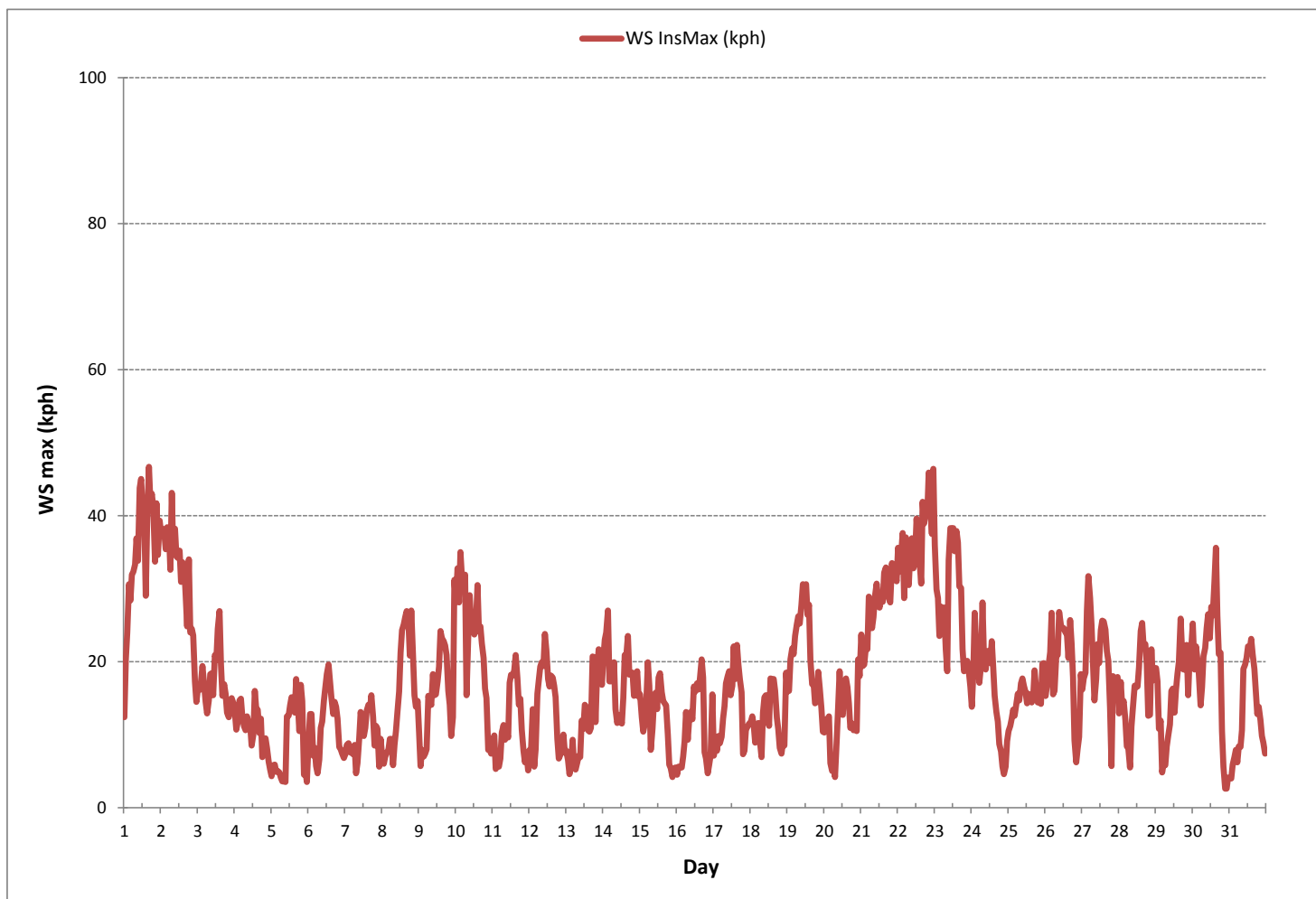
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	46.7	kph	@ HOUR	16	ON DAY	1
OPERATIONAL TIME:	744	hrs				

WIND SPEED Instantaneous Maximum (WS kph)

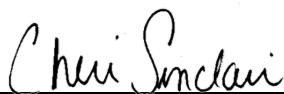


APPENDIX III
REPORT CERTIFICATION FORM

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 842b Station
Name of the Representative of the Person Responsible	Position / Title of the Representative of the Person Responsible
Mike Bisaga / Lily Lin	Technical Program Managers
Is an External Party Certifying the Report?	
☒ Yes ☐ No	
Name of External Person Certifying the Report	Position / Title of External Person Certifying the Report
Cheri Sinclair	Supervisor, Customer Service, Air Services
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
Maxxam Analytics, A Bureau Veritas Group Company	B.Sc.

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



Signature of the External Person Certifying the Report

20-04-2018

Report Issued Date (dd-mon-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-03-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Christina

Date April 04, 2018

Level 1 Primary Validation

Christina

Date April 04, 2018

Level 2 Final Validation

Christina

Date April 20, 2018

Level 3 Independent Data Review

Cheri Sinclair

Date April 20, 2018

Post-Final Validation

NA

Date NA

Notes

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