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AMBIENT AIR MONITORING MONTHLY DATA REPORT
PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
THREE CREEKS 842B STATION

JOB #: 8449-2018-10-80-C

October 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **November 20, 2018**

Prepared by:

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Project Team Lead, Customer Service, Air Services

Reviewed by:

On behalf of: Cheri Sinclair, B.Sc.

Supervisor, Customer Service, Air Services

SUMMARY

In October 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).

With the exception of THC/CH₄/NMHC, the operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

Non-Conformance: The 90% operational time requirement was not met for THC/CH₄/NMHC this month. This contravention was reported to AEP under reference number: 346425.

- A calibration attempt on October 31 did not meet Maxxam's internal stability requirement due to poor sample injections. The rotor and actuator were replaced and a successful post-repair calibration was subsequently completed. Data was invalidated back to the point of failed performance, determined as October 21 at hour 06:00. Two hundred and fifty one hours of downtime were incurred due to this event.

The summary of results is presented on the following pages.

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

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	13	12	6.6	W	1	13	100.0
TRS (ppb)	-	-	-	-	0.20	0.56	28	23	6.2	SW	0.31	29	100.0
THC (ppm)	-	-	-	-	2.00	2.18	1	1	1.4	ENE	2.04	1	66.3
CH ₄ (ppm)	-	-	-	-	2.00	2.18	1	1	1.4	ENE	2.04	1	66.3
NMHC (ppm)	-	-	-	-	0.00	0.00	1	0	3.2	ESE	0.00	1	66.3
RELATIVE HUMIDITY (%)	-	-	-	-	66	96	12	7	9.8	N	91	12	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	944	957	9	7	7.1	ESE	956	9	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	2.4	18.4	17	13	17.1	SW	13.0	17	100.0
STATION TEMPERATURE (°C)	-	-	-	-	22.5	23.3	5	16	8.6	NW	22.7	3	100.0
VECTOR WS (kph)	-	-	-	-	3.8	33.3	20	11	-	WSW	18.6	20	100.0
VECTOR WD (sec)	-	-	-	-	204 (SSW)	-	-	-	-	-	-	-	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	October

CONTINUOUS AMBIENT MONITORING							
		ONE - HOUR AVERAGE		24 - HOUR AVERAGE			
PARAMETER	% TIME OPERATIONAL	MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES		NO. READINGS > REGULATION
SO ₂	100.0	0.002	ppm	0	0.001	ppm	0
TRS	100.0	0.001	ppm	-	0.000	ppm	-
THC	66.3	2.18	ppm	-	2.04	ppm	-
CH ₄	66.3	2.18	ppm	-	2.04	ppm	-
NMHC	66.3	0.00	ppm	-	0.00	ppm	-
RH	100.0	96	%	-	91	%	-
BP	100.0	957	mb	-	956	mb	-
Ambient TPX	100.0	18.4	°C	-	13.0	°C	-
Station TPX	100.0	23.3	°C	-	22.7	°C	-
Wind Speed	100.0	33.3	kph	-	18.6	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 verification and validation based on the requirements of the AMD (December, 2016) Chapter 6: Ambient Data Quality and Chapter 9: Reporting. 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 October 11.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on October 11.

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

- Operational time for the monitoring period was 66.3%, equivalent to 251 hours of downtime. The AMD's 90% operational time requirement was not met this month. This contravention was reported to AEP under reference number: 346425.
- The routine monthly calibration was performed on October 11. The fuel (H₂) and carrier (N₂) gas cylinders were replaced during this site visit.
- Towards the end of the month, frequent poor sample injections were observed. This prompted a site visit on October 31 where a shut-down calibration was attempted prior to maintenance. However, the Low point did not meet requirements as there were poor sample injections that impacted the stability criteria. The injection components (rotor and actuator) were replaced and a successful post-repair calibration was subsequently completed. Data was invalidated back to the point of failed performance, determined as October 21 at hour 06:00. Two hundred and fifty one hours of downtime were incurred due to this event.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month. A trigger test was performed during the routine monthly calibration on October 11 to assess the effectiveness of the canister system. No deficiencies were found.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 100%.
- An anemometer sensor check was conducted on October 11. The result was satisfactory.
- 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%.
- A humidity sensor check was conducted on October 11. The result was satisfactory.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 100%.
- A pressure sensor check was conducted on October 11. The result was satisfactory.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 100%.
- A temperature sensor check was conducted on October 11. The result was satisfactory.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 100%.

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

With the exception of THC/CH₄/NMHC, the operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems were above the 90% requirement.

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (November, 2018).

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 - Campbell Scientific Unit

Barometric Pressure - Met One Unit

Ambient Temperature - Campbell Scientific Unit

Datalogger - Envidas Ultimate

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

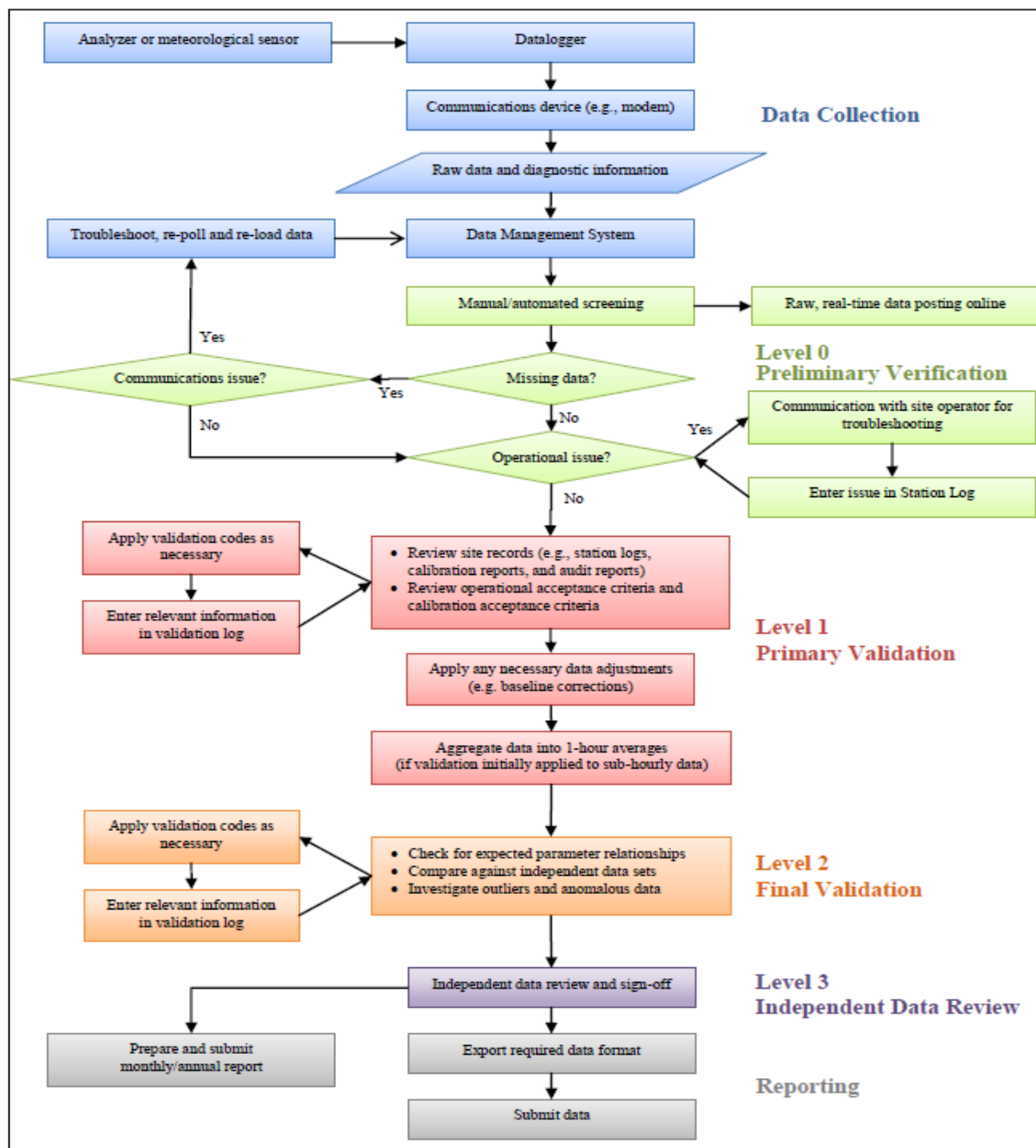
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

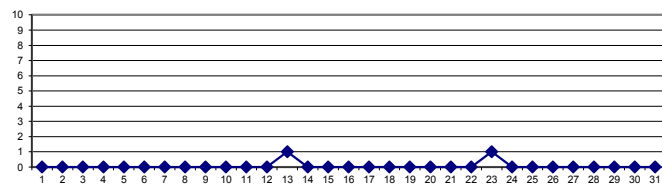
OBJECTIVE LIMIT:

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

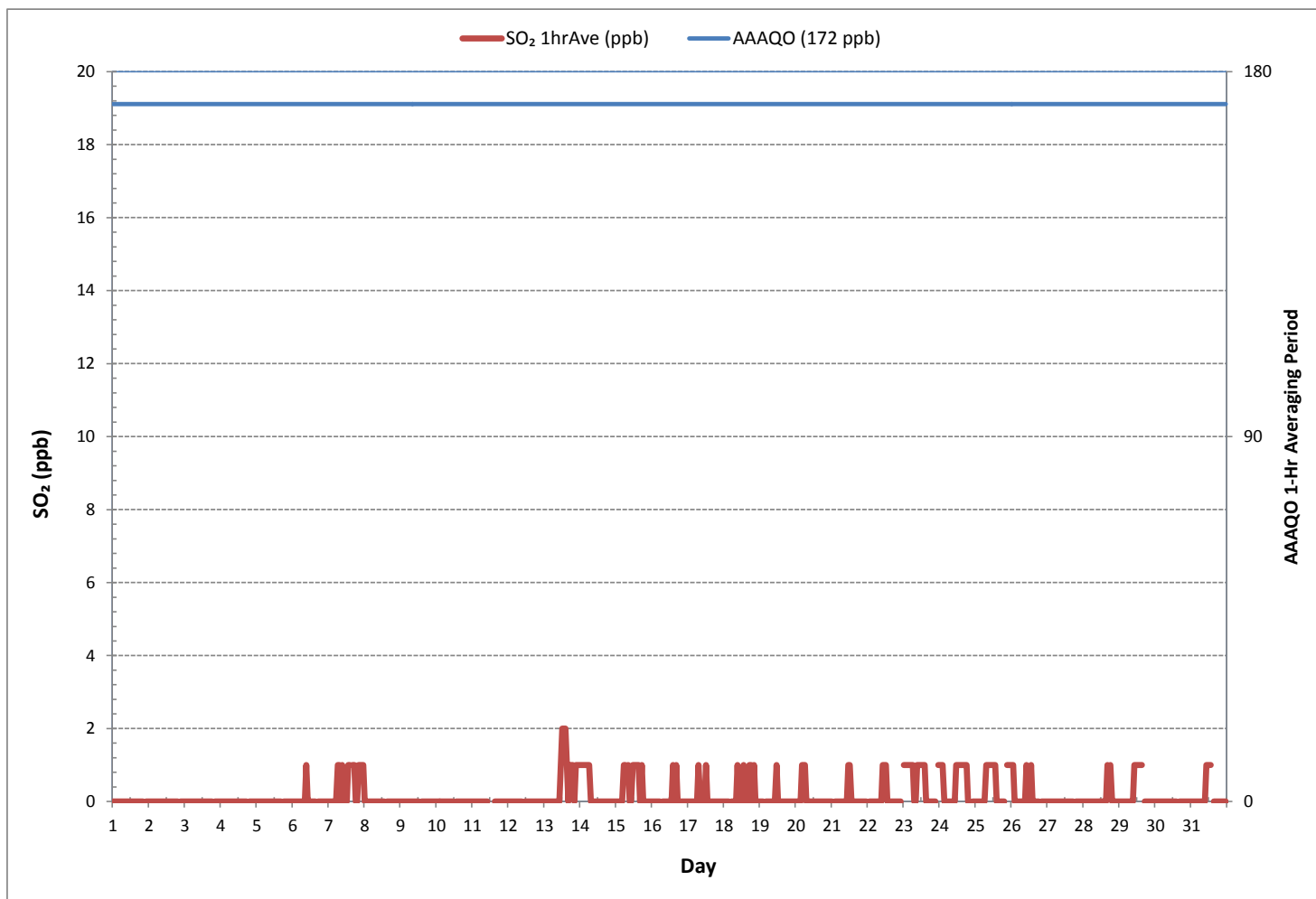
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	108
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	2 ppb @ HOUR 12 ON DAY 13
MAXIMUM 24-HR AVERAGE:	1 ppb ON DAY 13
IZS CALIBRATION TIME:	31 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 October 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



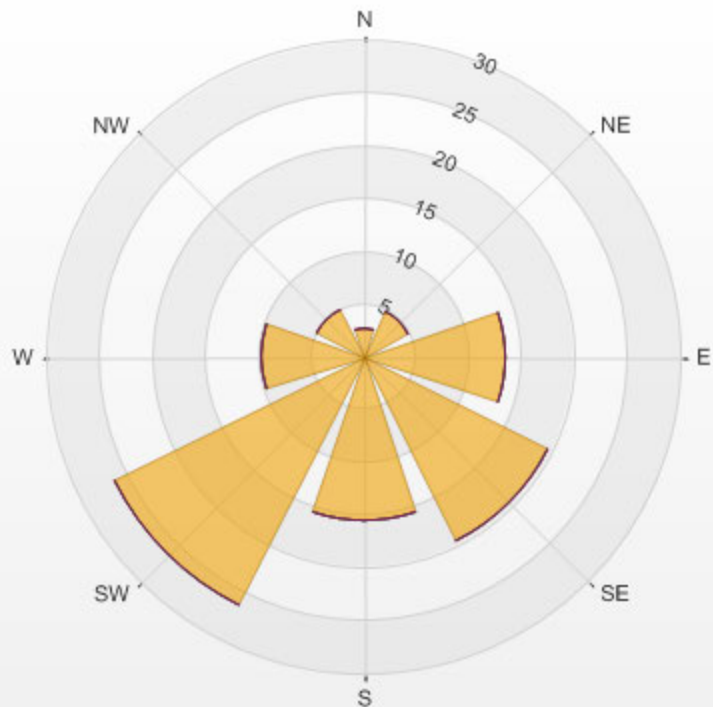
Wind: PRAMP_842
Poll.: PRAMP_842-SO₂[ppb]
Monthly: 18/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 2.96%

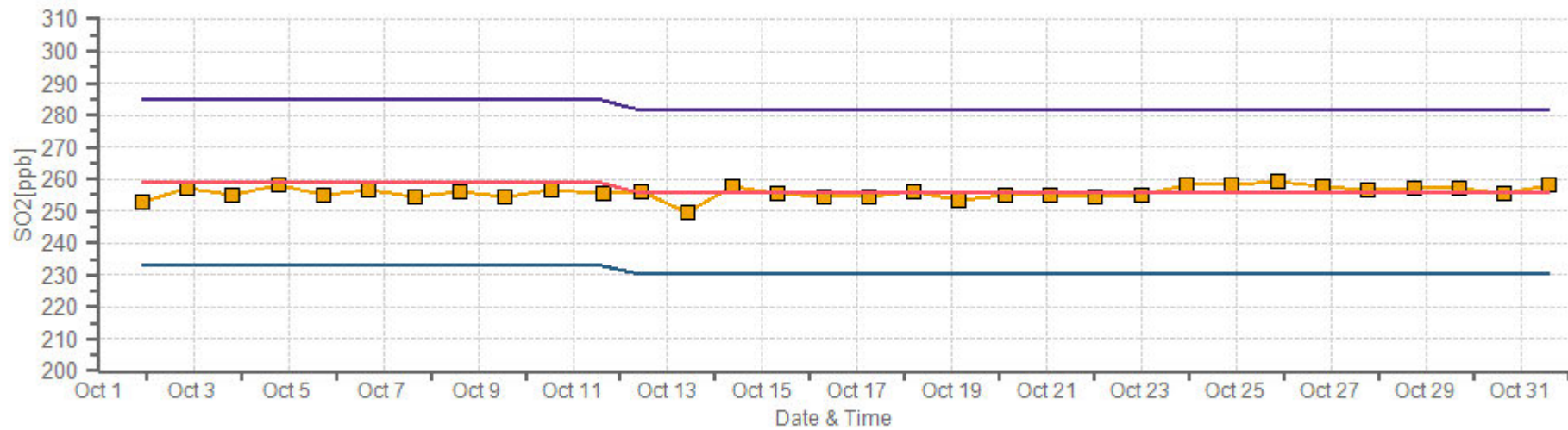
Calm Avg: 0.20 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	2.8	0.0	0.0	0.0	0.0	2.8
NE	4.8	0.0	0.0	0.0	0.0	4.8
E	13.4	0.0	0.0	0.0	0.0	13.4
SE	19.5	0.0	0.0	0.0	0.0	19.5
S	15.5	0.0	0.0	0.0	0.0	15.5
SW	26.4	0.0	0.0	0.0	0.0	26.4
W	9.7	0.0	0.0	0.0	0.0	9.7
NW	4.9	0.0	0.0	0.0	0.0	4.9
Summary	97.0	0.0	0.0	0.0	0.0	97.0

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 2.96% Calm Poll Avg: 0.20[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 18/10 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

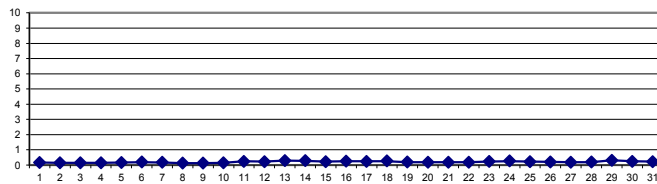
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.16	0.14	0.16	0.15	0.14	0.14	0.13	0.15	0.15	0.23	0.20	0.19	0.15	0.16	0.16	0.16	0.15	0.17	0.15	0.16	0.17	S	0.20	0.18	0.13	0.23	0.16	24	
2	0.17	0.16	0.15	0.14	0.15	0.16	0.18	0.17	0.18	0.15	0.14	0.13	0.13	0.12	0.12	0.13	0.13	0.12	0.15	0.13	S	0.18	0.18	0.16	0.12	0.18	0.15	24	
3	0.15	0.16	0.17	0.16	0.14	0.14	0.13	0.15	0.17	0.13	0.15	0.13	0.16	0.15	0.14	0.16	0.16	0.16	0.15	S	0.18	0.15	0.14	0.14	0.13	0.18	0.15	24	
4	0.14	0.13	0.14	0.14	0.14	0.14	0.12	0.14	0.13	0.13	0.14	0.14	0.14	0.15	0.13	0.13	0.19	0.15	S	0.15	0.12	0.16	0.14	0.13	0.12	0.19	0.14	24	
5	0.13	0.14	0.17	0.17	0.17	0.16	0.18	0.16	0.15	0.15	0.15	0.15	0.17	0.16	0.17	0.16	S	0.34	0.24	0.17	0.17	0.17	0.17	0.17	0.13	0.24	0.16	24	
6	0.18	0.17	0.18	0.17	0.17	0.18	0.18	0.18	0.21	0.19	0.18	0.18	0.19	0.19	0.20	0.21	S	0.34	0.20	0.20	0.19	0.20	0.19	0.18	0.17	0.34	0.19	24	
7	0.19	0.19	0.16	0.16	0.16	0.18	0.18	0.19	0.19	0.17	0.17	0.15	0.16	0.17	0.18	S	0.18	0.15	0.14	0.15	0.15	0.14	0.16	0.15	0.14	0.19	0.17	24	
8	0.15	0.15	0.15	0.15	0.15	0.13	0.14	0.13	0.13	0.14	0.14	0.12	0.12	0.12	S	0.17	0.14	0.13	0.13	0.12	0.12	0.12	0.13	0.13	0.12	0.15	0.13	24	
9	0.13	0.12	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.13	0.14	S	0.17	0.15	0.13	0.13	0.12	0.13	0.12	0.13	0.10	0.12	0.10	0.17	0.13	24	
10	0.12	0.10	0.10	0.11	0.10	0.11	0.13	0.12	0.11	0.14	0.12	0.12	S	0.17	0.17	0.18	0.17	0.17	0.21	0.21	0.22	0.21	0.21	0.23	0.10	0.23	0.15	24	
11	0.25	0.25	0.25	0.24	0.26	0.25	0.25	0.24	0.25	0.26	0.28	C	C	C	C	C	C	C	0.28	0.22	0.23	0.18	0.20	0.20	0.25	0.18	0.28	0.24	24
12	0.25	0.24	0.26	0.19	0.16	0.16	0.16	0.15	0.19	0.17	S	0.23	0.19	0.19	0.22	0.22	0.27	0.26	0.25	0.22	0.22	0.28	0.33	0.27	0.15	0.33	0.22	24	
13	0.25	0.25	0.30	0.30	0.30	0.33	0.36	0.40	0.37	S	0.24	0.16	0.19	0.20	0.19	0.16	0.19	0.21	0.26	0.35	0.42	0.42	0.42	0.44	0.16	0.44	0.29	24	
14	0.42	0.41	0.39	0.35	0.37	0.35	0.33	0.29	S	0.27	0.26	0.29	0.26	0.23	0.22	0.24	0.27	0.20	0.18	0.19	0.23	0.24	0.22	0.19	0.18	0.42	0.28	24	
15	0.20	0.19	0.22	0.21	0.21	0.20	0.20	S	0.30	0.27	0.28	0.24	0.24	0.33	0.22	0.21	0.14	0.13	0.14	0.12	0.13	0.23	0.28	0.36	0.12	0.36	0.22	24	
16	0.27	0.25	0.24	0.37	0.39	0.30	S	0.27	0.29	0.29	0.25	0.25	0.21	0.20	0.17	0.18	0.22	0.23	0.21	0.23	0.21	0.19	0.20	0.22	0.17	0.39	0.25	24	
17	0.22	0.22	0.24	0.25	0.23	S	0.26	0.26	0.24	0.25	0.25	0.24	0.26	0.25	0.22	0.23	0.21	0.22	0.24	0.25	0.22	0.22	0.23	0.22	0.21	0.26	0.24	24	
18	0.23	0.23	0.23	0.23	S	0.26	0.24	0.24	0.22	0.30	0.23	0.23	0.22	0.18	0.19	0.20	0.22	0.37	0.40	0.38	0.39	0.35	0.20	0.21	0.18	0.40	0.26	24	
19	0.16	0.15	0.18	S	0.22	0.20	0.21	0.22	0.22	0.25	0.24	0.21	0.19	0.18	0.17	0.18	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.25	0.19	24	
20	0.17	0.17	S	0.21	0.20	0.19	0.19	0.18	0.19	0.19	0.18	0.17	0.18	0.17	0.17	0.17	0.17	0.18	0.16	0.17	0.18	0.20	0.18	0.19	0.16	0.21	0.18	24	
21	0.20	S	0.21	0.19	0.18	0.18	0.19	0.19	0.21	0.19	0.18	0.18	0.19	0.19	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.14	0.15	0.14	0.21	0.18	24	
22	S	0.19	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.18	0.19	0.19	0.18	0.18	0.18	0.20	0.20	0.18	0.17	0.18	0.22	0.20	S	0.16	0.22	0.18	24	
23	0.24	0.22	0.22	0.22	0.22	0.21	0.22	0.18	0.21	0.23	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.23	0.22	0.22	0.20	0.23	S	0.30	0.18	0.30	0.23	24	
24	0.33	0.36	0.33	0.31	0.28	0.25	0.23	0.26	0.18	0.20	0.25	0.26	0.23	0.26	0.24	0.27	0.27	0.28	0.30	0.27	0.22	S	0.26	0.25	0.18	0.36	0.26	24	
25	0.24	0.24	0.24	0.22	0.22	0.22	0.22	0.21	0.20	0.19	0.20	0.23	0.23	0.22	0.21	0.22	0.22	0.20	0.21	0.21	S	0.23	0.21	0.21	0.19	0.24	0.22	24	
26	0.20	0.20	0.21	0.20	0.18	0.18	0.19	0.20	0.19	0.19	0.19	0.21	0.20	0.18	0.20	0.19	0.20	0.18	0.18	S	0.24	0.21	0.22	0.22	0.18	0.24	0.20	24	
27	0.22	0.21	0.20	0.19	0.18	0.18	0.20	0.18	0.19	0.19	0.17	0.17	0.19	0.16	0.15	0.17	0.17	0.17	S	0.21	0.17	0.16	0.16	0.16	0.15	0.22	0.18	24	
28	0.18	0.17	0.17	0.17	0.18	0.17	0.16	0.15	0.15	0.16	0.15	0.14	0.13	0.13	0.14	0.13	0.14	S	0.17	0.13	0.14	0.30	0.45	0.56	0.13	0.56	0.19	24	
29	0.55	0.40	0.29	0.27	0.33	0.35	0.32	0.26	0.33	0.33	0.29	0.28	0.25	0.27	0.32	0.32	S	0.28	0.24	0.24	0.27	0.32	0.34	0.31	0.24	0.55	0.31	24	
30	0.25	0.28	0.35	0.36	0.33	0.31	0.28	0.26	0.23	0.24	0.23	0.25	0.24	0.20	0.19	S	0.22	0.22	0.19	0.18	0.19	0.20	0.21	0.22	0.18	0.36	0.24	24	
31	0.18	0.21	0.21	0.28	0.30	0.33	0.30	0.27	0.25	0.23	0.20	0.22	0.19	0.18	S	0.21	0.17	0.36	0.27	0.17	0.11	0.13	0.19	0.19	0.11	0.36	0.22	24	
HOURLY MAX	0.55	0.41	0.39	0.37	0.39	0.35	0.36	0.40	0.37	0.33	0.29	0.29	0.26	0.33	0.32	0.32	0.27	0.37	0.40	0.38	0.42	0.42	0.45	0.56					
HOURLY AVG	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19	0.19	0.21	0.20	0.20	0.20	0.21	0.21	0.22					

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

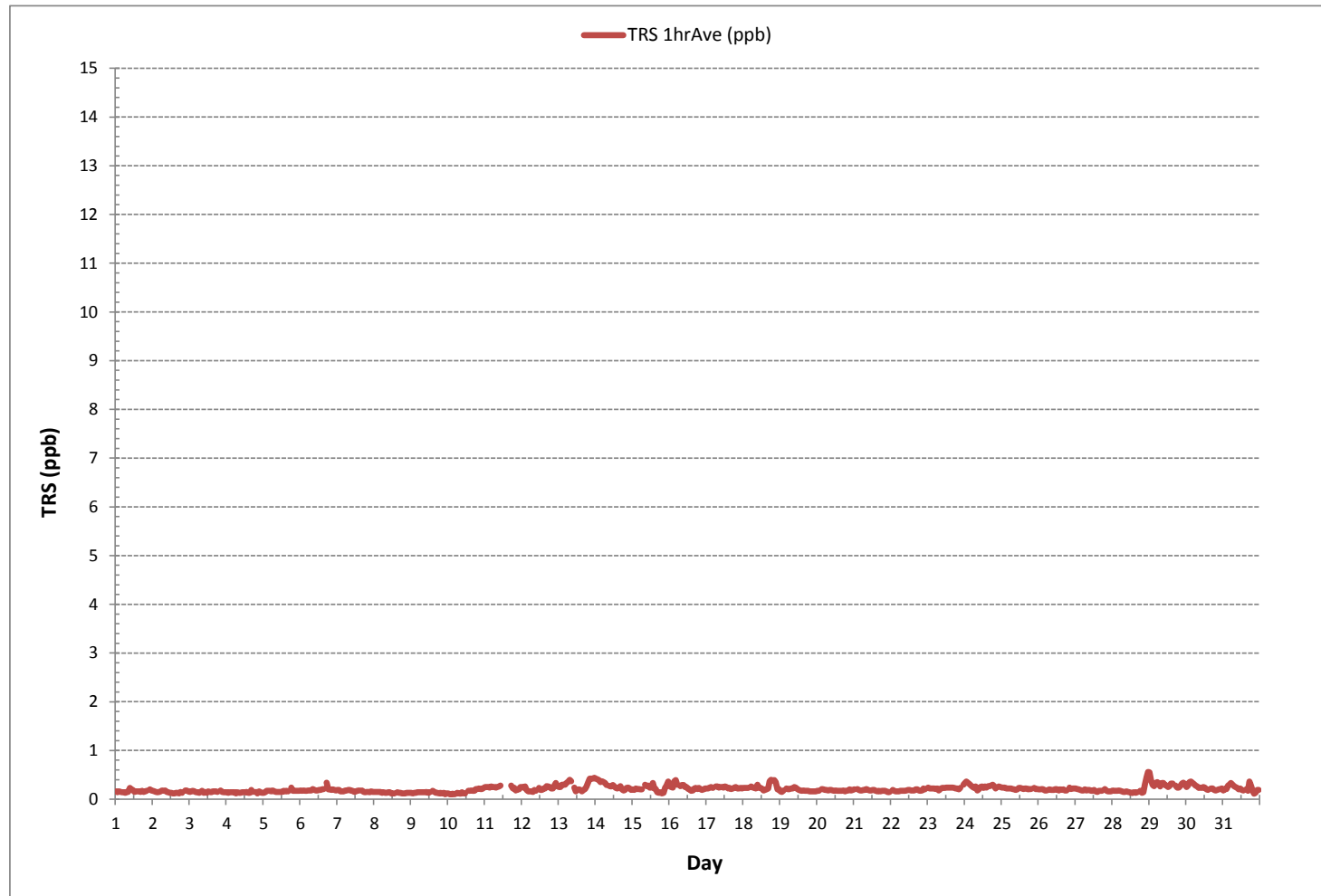
24 HR AVERAGES October 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	707			
MINIMUM 1-HR AVERAGE:	0.10	ppb @ HOUR	22	ON DAY 9
MAXIMUM 1-HR AVERAGE:	0.56	ppb @ HOUR	23	ON DAY 28
MAXIMUM 24-HR AVERAGE:	0.31	ppb		ON DAY 29
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	744 hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	0.20 ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



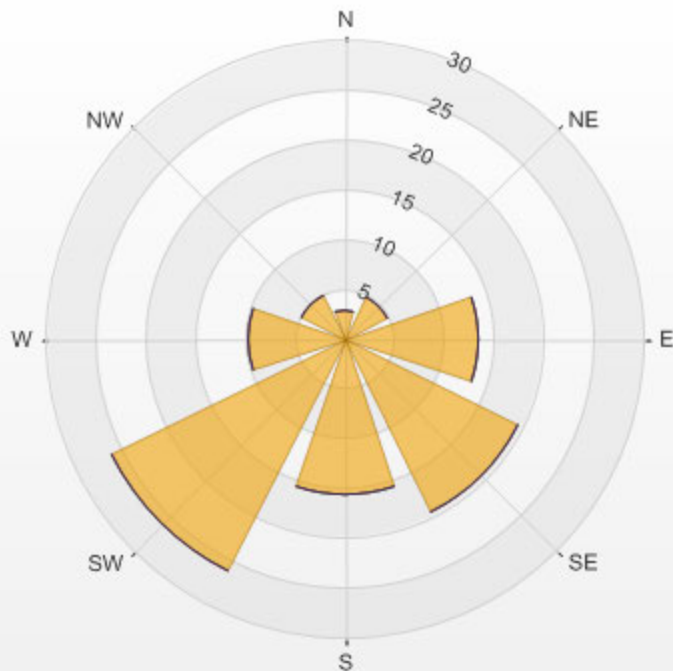
Wind: PRAMP_842
Poll.: PRAMP_842-TRS[ppb]
Monthly: 18/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 2.97%

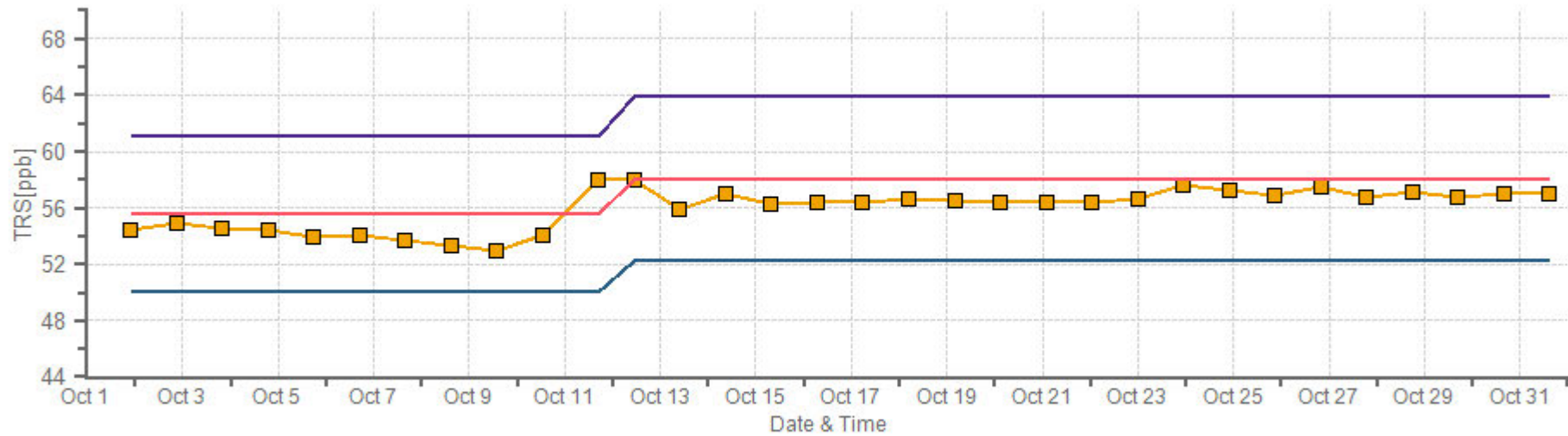
Calm Avg: 0.18 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	2.8	0.0	0.0	0.0	2.8
NE	4.8	0.0	0.0	0.0	4.8
E	13.4	0.0	0.0	0.0	13.4
SE	19.5	0.0	0.0	0.0	19.5
S	15.6	0.0	0.0	0.0	15.6
SW	26.2	0.0	0.0	0.0	26.2
W	9.8	0.0	0.0	0.0	9.8
NW	5.0	0.0	0.0	0.0	5.0
Summary	97.0	0.0	0.0	0.0	97.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 2.97% Calm Poll Avg: 0.18[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/10 Type: Span



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

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

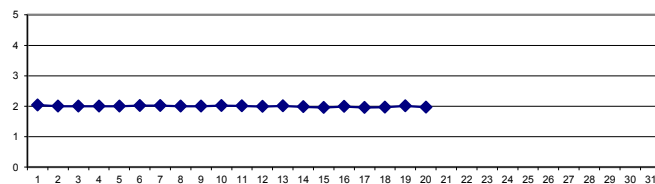
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.17	2.18	2.15	2.12	2.11	2.08	2.10	2.08	2.04	2.04	1.99	1.98	1.98	1.97	1.97	1.98	1.98	1.99	2.00	1.99	2.00	\$	1.99	2.00	1.97	2.18	2.04	24
2	2.00	2.02	2.03	2.02	2.03	2.04	2.04	2.03	2.03	2.00	1.98	1.96	1.95	1.96	1.97	1.97	1.97	1.97	2.02	2.02	\$	2.02	2.01	1.99	1.95	2.04	2.00	24
3	1.99	2.01	2.05	2.05	2.07	2.06	2.05	2.06	2.02	1.97	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	\$	2.02	1.99	2.00	2.00	1.96	2.07	2.00	24
4	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.03	2.03	2.00	1.99	2.00	1.99	1.99	1.99	1.99	2.00	2.01	\$	2.00	1.99	2.00	2.00	2.00	1.99	2.03	2.00	24
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.99	1.98	1.98	2.00	2.01	\$	2.00	2.02	2.01	2.01	2.01	2.00	1.98	2.02	2.00	24
6	2.01	2.01	2.02	2.01	2.03	2.02	2.03	2.05	2.06	2.07	2.02	2.01	2.01	2.02	2.02	2.01	\$	1.99	2.00	2.03	2.04	2.03	2.02	2.02	1.99	2.07	2.02	24
7	2.02	2.02	2.01	2.02	2.03	2.03	2.04	2.05	2.04	2.03	2.02	2.01	2.02	2.01	2.00	\$	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.02	2.00	2.05	2.02	24
8	2.02	2.01	2.01	2.01	2.00	2.00	2.02	2.01	2.00	2.00	2.00	1.99	1.98	\$	1.98	1.98	1.98	2.01	2.01	2.00	2.00	2.01	2.00	2.00	1.98	2.02	2.00	24
9	2.02	2.00	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	\$	1.99	1.98	2.00	1.99	1.99	2.01	2.00	2.01	2.00	2.00	1.98	2.02	2.00	24
10	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.02	2.02	2.03	2.02	2.03	\$	2.03	2.04	2.03	2.02	2.03	2.04	2.03	2.05	2.03	2.02	2.02	2.00	2.05	2.02	24
11	2.03	2.03	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.02	2.02	\$	2.02	2.01	C	C	C	C	2.01	2.04	1.99	1.96	1.95	1.96	1.95	2.04	2.01	24
12	1.96	1.97	1.97	1.96	1.97	1.97	1.98	1.99	1.99	2.00	\$	2.01	2.01	1.99	1.98	1.98	1.99	1.98	1.99	1.99	1.98	2.00	2.00	2.03	1.96	2.03	1.99	24
13	2.02	2.01	2.03	2.02	2.00	2.00	2.05	2.08	2.08	\$	1.99	1.97	1.98	2.00	1.99	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.97	2.08	2.01	24
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	\$	1.99	1.98	1.98	1.96	1.98	1.97	1.96	1.97	1.96	1.96	1.97	1.97	1.95	1.96	1.95	1.95	2.00	1.98	24
15	1.95	1.94	1.95	1.96	1.95	1.95	1.94	\$	1.95	1.95	1.95	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.98	1.98	2.00	2.03	1.94	2.03	1.96	24
16	1.98	1.97	1.99	2.00	2.00	2.00	\$	2.02	2.03	2.02	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.00	1.97	1.96	1.95	1.95	2.03	1.99	24
17	1.95	1.96	1.95	1.95	1.95	\$	1.96	1.97	1.98	1.98	1.97	1.97	1.99	1.96	1.95	1.94	1.96	1.98	1.96	1.98	1.96	1.95	1.96	1.96	1.94	1.99	1.96	24
18	1.96	1.97	1.99	1.98	\$	1.96	1.98	1.99	1.97	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.97	1.98	1.98	1.98	1.98	2.03	2.01	2.02	1.94	2.03	1.97	24
19	2.02	2.03	2.04	\$	2.04	2.03	2.03	2.05	2.06	2.04	2.00	2.03	2.00	1.99	1.98	1.98	1.98	1.99	2.01	2.00	1.97	1.96	1.97	1.97	1.96	2.06	2.01	24
20	1.97	1.98	\$	2.00	1.99	1.98	2.01	1.98	1.96	1.94	1.94	1.94	1.95	1.96	1.96	1.96	1.97	1.98	1.97	1.95	1.97	1.95	1.97	1.97	1.94	2.01	1.97	24
21	2.00	\$	2.00	1.99	2.00	2.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.99	2.00	2.00	6
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
31	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.02	2.02	2.00	1.99	2.01	2.01	2.01	1.99	2.02	2.01	7
HOURLY MAX	2.17	2.18	2.15	2.12	2.11	2.08	2.10	2.08	2.08	2.07	2.02	2.03	2.02	2.03	2.04	2.03	2.02	2.03	2.04	2.04	2.05	2.03	2.02	2.03				
HOURLY AVG	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	2.00	2.00	1.99	1.99	1.99	2.00				

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

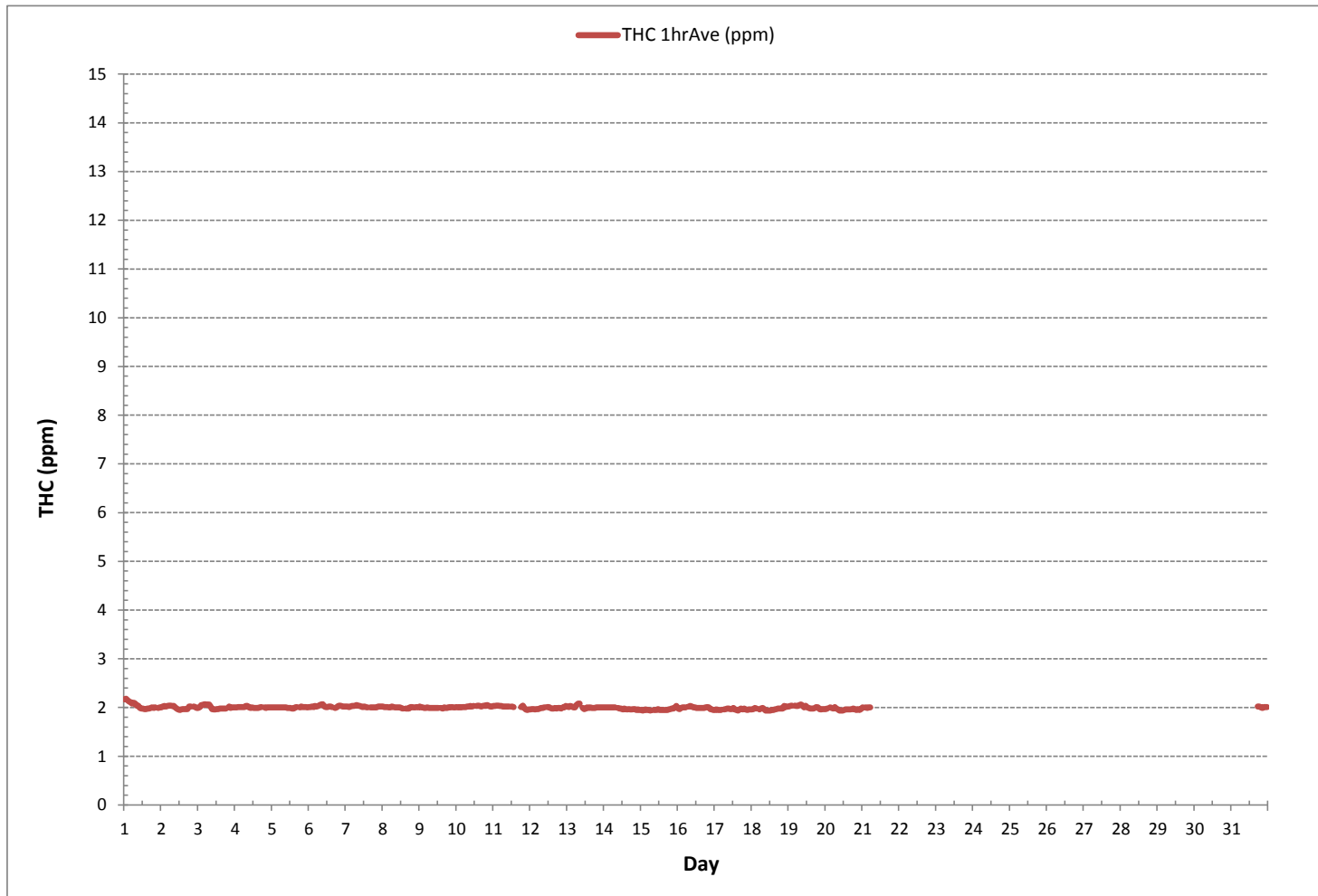
24 HR AVERAGES October 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	468			
MINIMUM 1-HR AVERAGE:	1.94	ppm @ HOUR	1	ON DAY 15
MAXIMUM 1-HR AVERAGE:	2.18	ppm @ HOUR	1	ON DAY 1
MAXIMUM 24-HR AVERAGE:	2.04	ppm		ON DAY 1
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:	493 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	66.3 %
STANDARD DEVIATION:	0.03		MONTHLY AVERAGE:	2.00 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



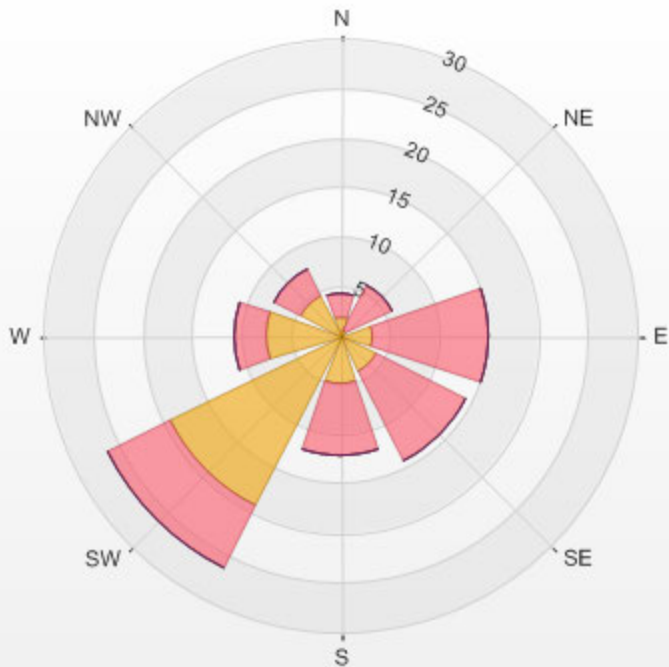
Wind: PRAMP_842
Poll.: PRAMP_842-THC55[ppm]
Monthly: 18/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.06%

Calm Avg: 2.06 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	1.9	2.4	0.0	0.0	0.0	4.3
NE	0.6	5.1	0.0	0.0	0.0	5.8
E	3.2	11.8	0.0	0.0	0.0	15.0
SE	4.1	10.0	0.0	0.0	0.0	14.1
S	4.9	7.3	0.0	0.0	0.0	12.2
SW	19.2	7.1	0.0	0.0	0.0	26.3
W	7.5	3.4	0.0	0.0	0.0	10.9
NW	4.5	3.0	0.0	0.0	0.0	7.5
Summary	45.9	50.0	0.0	0.0	0.0	95.9

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 4.06% Calm Poll Avg: 2.06[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/10 Type: Span



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

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

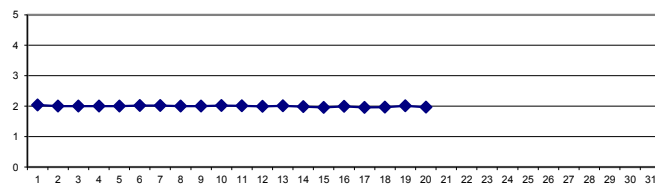
METHANE Hourly Averages (CH₄ ppm)

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	2.17	2.18	2.15	2.12	2.11	2.08	2.10	2.08	2.04	2.04	1.99	1.98	1.98	1.97	1.97	1.98	1.98	1.99	2.00	1.99	2.00	\$	1.99	2.00	1.97	2.18	2.04	24
2	2.00	2.02	2.03	2.02	2.03	2.04	2.04	2.03	2.03	2.00	1.98	1.96	1.95	1.96	1.97	1.97	1.97	1.97	2.02	2.02	\$	2.02	2.01	1.99	1.95	2.04	2.00	24
3	1.99	2.01	2.05	2.05	2.07	2.06	2.05	2.06	2.02	1.97	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	\$	2.02	1.99	2.00	2.00	1.96	2.07	2.00	24
4	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.03	2.03	2.00	1.99	2.00	1.99	1.99	1.99	1.99	2.00	2.01	\$	2.00	1.99	2.00	2.00	1.99	2.03	2.00	24	
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	1.99	1.99	1.98	1.98	2.00	2.01	\$	2.00	2.02	2.01	2.01	2.01	2.00	1.98	2.02	2.00	24
6	2.01	2.01	2.02	2.01	2.03	2.02	2.03	2.05	2.06	2.07	2.02	2.01	2.01	2.02	2.02	2.01	\$	1.99	2.00	2.03	2.04	2.03	2.02	2.02	1.99	2.07	2.02	24
7	2.02	2.02	2.01	2.02	2.03	2.03	2.04	2.05	2.04	2.03	2.02	2.01	2.02	2.01	2.00	\$	2.00	2.00	2.00	2.00	2.00	2.02	2.02	2.02	2.00	2.05	2.02	24
8	2.02	2.01	2.01	2.01	2.00	2.00	2.02	2.01	2.00	2.00	2.00	1.99	1.98	\$	\$	1.98	1.98	1.98	2.01	2.01	2.00	2.00	2.01	2.00	1.98	2.02	2.00	24
9	2.02	2.00	2.00	1.99	1.99	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	\$	1.99	1.98	2.00	1.99	1.99	2.01	2.00	2.01	2.00	2.00	1.98	2.02	2.00	24
10	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.02	2.02	2.03	2.02	2.03	\$	2.03	2.04	2.03	2.02	2.03	2.04	2.03	2.05	2.03	2.02	2.02	2.00	2.05	2.02	24
11	2.03	2.03	2.04	2.04	2.03	2.03	2.02	2.02	2.02	2.02	2.02	\$	2.02	2.01	C	C	C	C	2.01	2.04	1.99	1.96	1.95	1.96	1.95	2.04	2.01	24
12	1.96	1.97	1.97	1.96	1.97	1.97	1.98	1.99	1.99	2.00	\$	2.01	2.01	1.99	1.98	1.98	1.99	1.98	1.99	1.99	1.98	2.00	2.00	2.03	1.96	2.03	1.99	24
13	2.02	2.01	2.03	2.02	2.00	2.00	2.05	2.08	2.08	\$	1.99	1.97	1.98	2.00	1.99	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	1.97	2.08	2.01	24	
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	\$	1.99	1.98	1.98	1.96	1.98	1.97	1.96	1.97	1.96	1.96	1.97	1.97	1.95	1.96	1.95	1.95	2.00	1.98	24
15	1.95	1.94	1.95	1.96	1.95	1.95	1.94	\$	1.95	1.95	1.95	1.97	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.97	1.98	1.98	2.00	2.03	1.94	2.03	1.96	24
16	1.98	1.97	1.99	2.00	2.00	2.00	\$	2.02	2.03	2.02	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.00	1.97	1.96	1.95	1.95	2.03	1.99	24
17	1.95	1.96	1.95	1.95	1.95	\$	1.96	1.97	1.98	1.98	1.97	1.97	1.99	1.96	1.95	1.94	1.96	1.98	1.96	1.98	1.96	1.95	1.96	1.96	1.94	1.99	1.96	24
18	1.96	1.97	1.99	1.98	\$	1.96	1.98	1.99	1.97	1.94	1.94	1.94	1.94	1.95	1.95	1.96	1.97	1.98	1.98	1.98	1.98	2.03	2.01	2.02	1.94	2.03	1.97	24
19	2.02	2.03	2.04	\$	2.04	2.03	2.03	2.05	2.06	2.04	2.00	2.03	2.00	1.99	1.98	1.98	1.98	1.99	2.01	2.00	1.97	1.96	1.97	1.97	1.96	2.06	2.01	24
20	1.97	1.98	\$	2.00	1.99	1.98	2.01	1.98	1.96	1.94	1.94	1.94	1.95	1.96	1.96	1.96	1.97	1.98	1.97	1.98	1.97	1.95	1.97	1.95	1.94	2.01	1.97	24
21	2.00	\$	2.00	1.99	2.00	2.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.99	2.00	2.00	6
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0
31	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.02	2.02	2.00	1.99	2.01	2.01	2.01	1.99	2.02	2.01	7
HOURLY MAX	2.17	2.18	2.15	2.12	2.11	2.08	2.10	2.08	2.08	2.07	2.02	2.03	2.02	2.03	2.04	2.03	2.02	2.03	2.04	2.04	2.05	2.03	2.02	2.03				
HOURLY AVG	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.00	1.99	1.99	1.98	1.98	1.98	1.98	1.98	1.99	2.00	2.00	1.99	1.99	1.99	2.00				

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

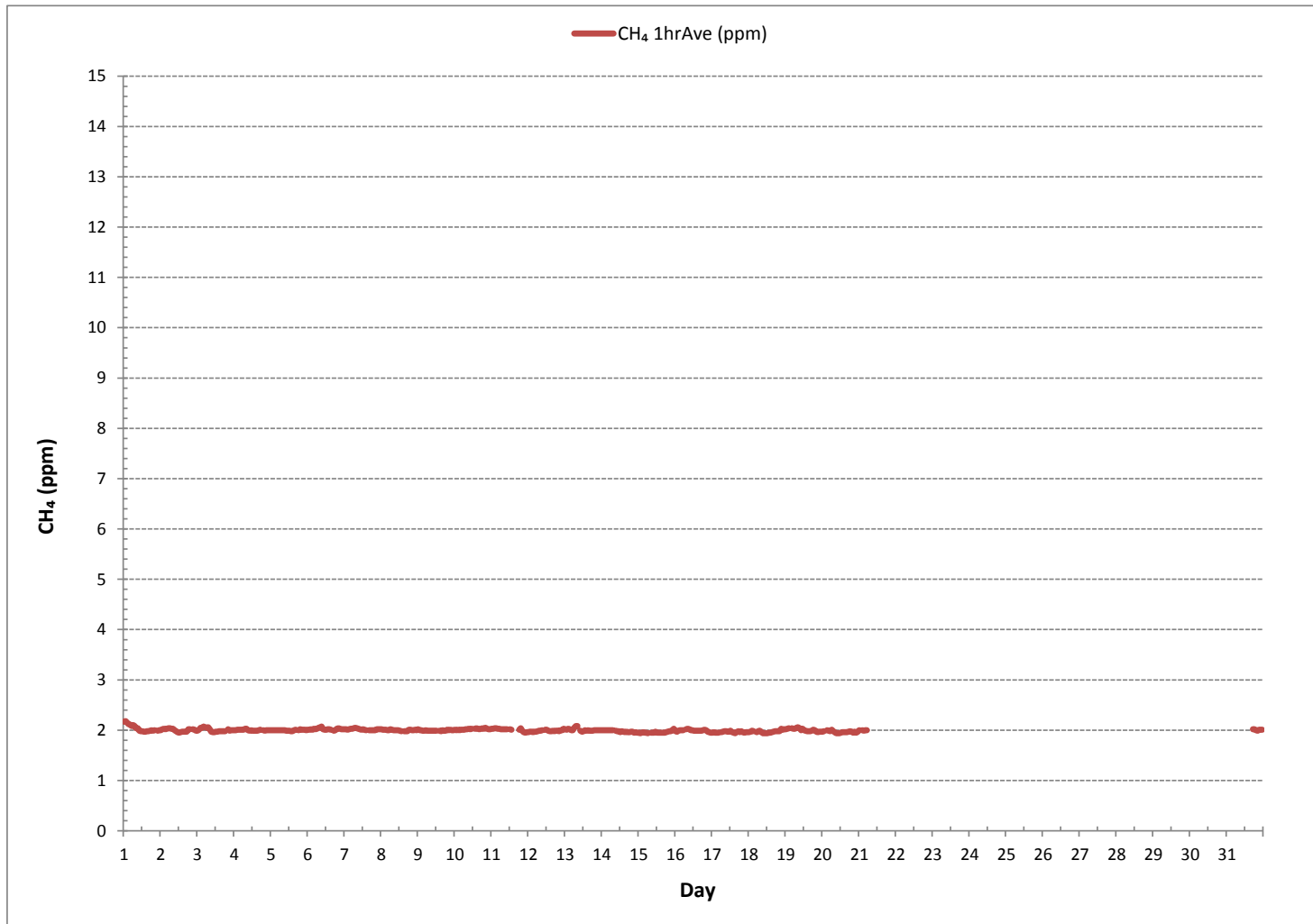
24 HR AVERAGES October 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	468			
MINIMUM 1-HR AVERAGE:	1.94	ppm @ HOUR	1	ON DAY 15
MAXIMUM 1-HR AVERAGE:	2.18	ppm @ HOUR	1	ON DAY 1
MAXIMUM 24-HR AVERAGE:	2.04	ppm		ON DAY 1
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:	493 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	66.3 %
STANDARD DEVIATION:	0.03		MONTHLY AVERAGE:	2.00 ppm

METHANE Hourly Averages (CH₄ ppm)



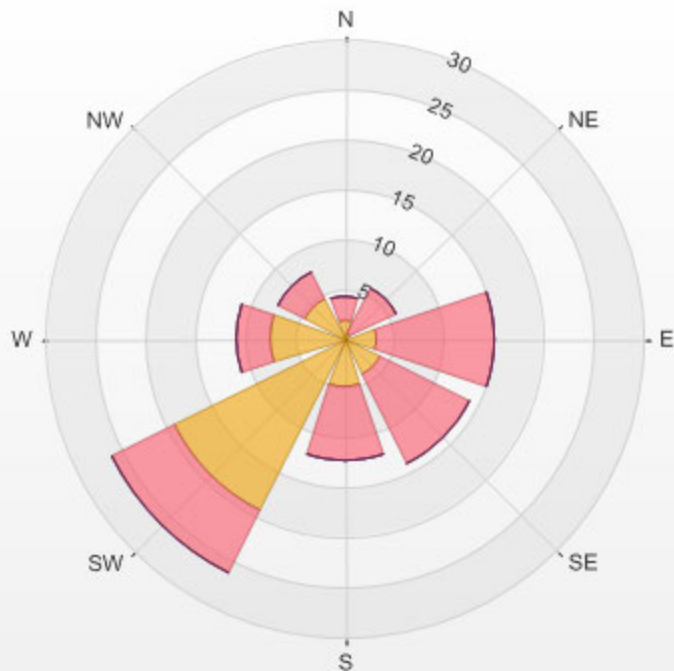
Wind: PRAMP_842
Poll.: PRAMP_842-CH₄[ppm]
Monthly: 18/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.06%

Calm Avg: 2.06 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	1.9	2.4	0.0	0.0	0.0	4.3
NE	0.6	5.1	0.0	0.0	0.0	5.8
E	3.2	11.8	0.0	0.0	0.0	15.0
SE	4.1	10.0	0.0	0.0	0.0	14.1
S	4.9	7.3	0.0	0.0	0.0	12.2
SW	19.2	7.1	0.0	0.0	0.0	26.3
W	7.5	3.4	0.0	0.0	0.0	10.9
NW	4.5	3.0	0.0	0.0	0.0	7.5
Summary	45.9	50.0	0.0	0.0	0.0	95.9

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 4.06% Calm Poll Avg: 2.06[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/10 Type: Span



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

NON-METHANE HYDROCARBON

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

[illegible]

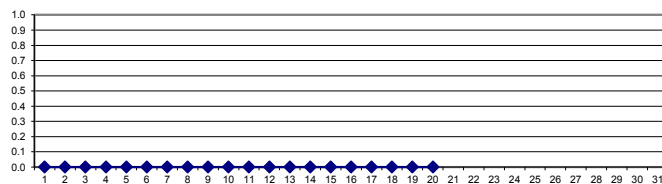
STATUS FLAG CODES

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

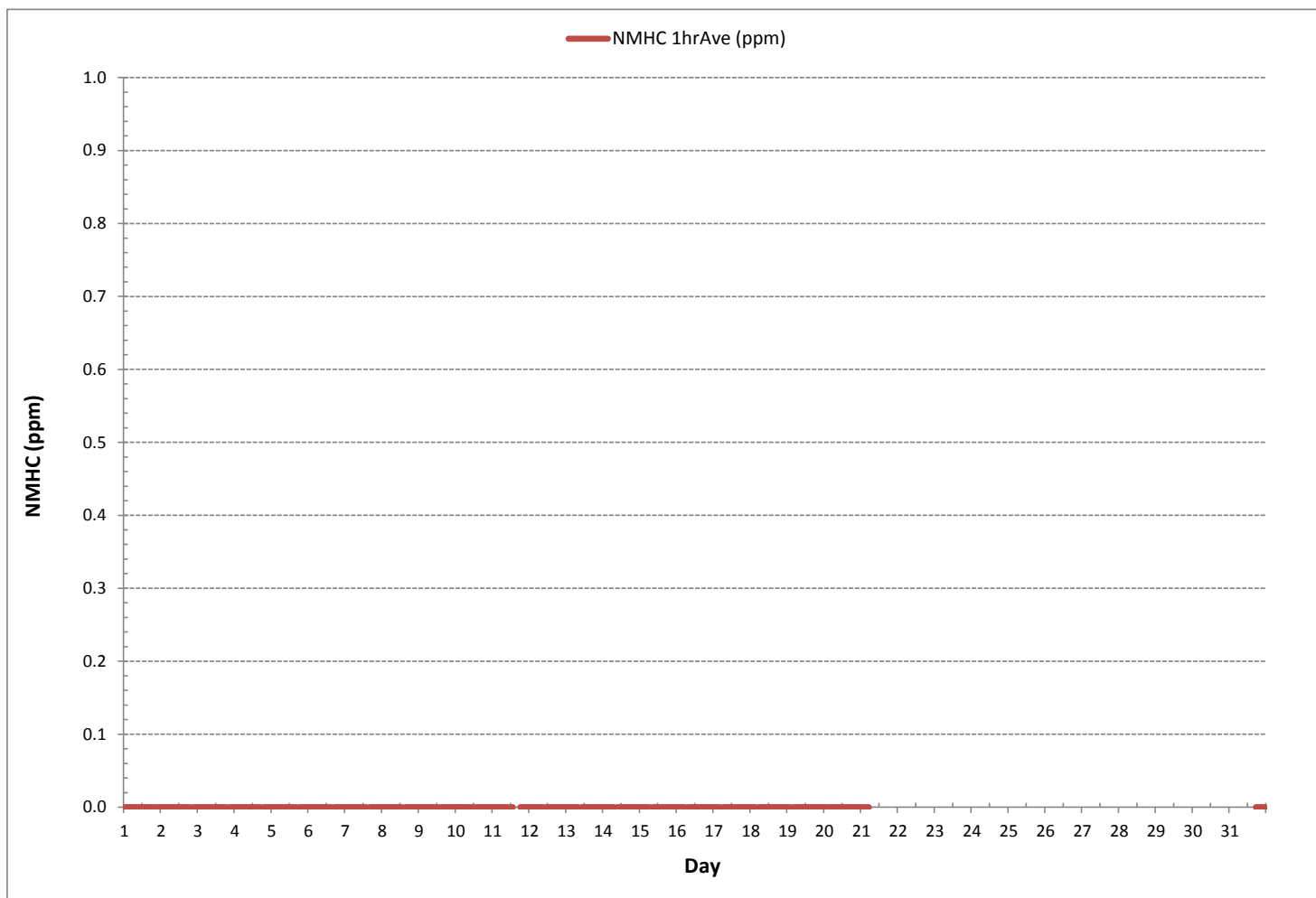
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0			
MINIMUM 1-HR AVERAGE	0.00	ppm @ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.00	ppm @ HOUR	0	ON DAY 1
MAXIMUM 24-HR AVERAGE:	0.00	ppm		ON DAY 1
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:	493 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	66.3 %
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00 ppm

24 HR AVERAGES October 2018



NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



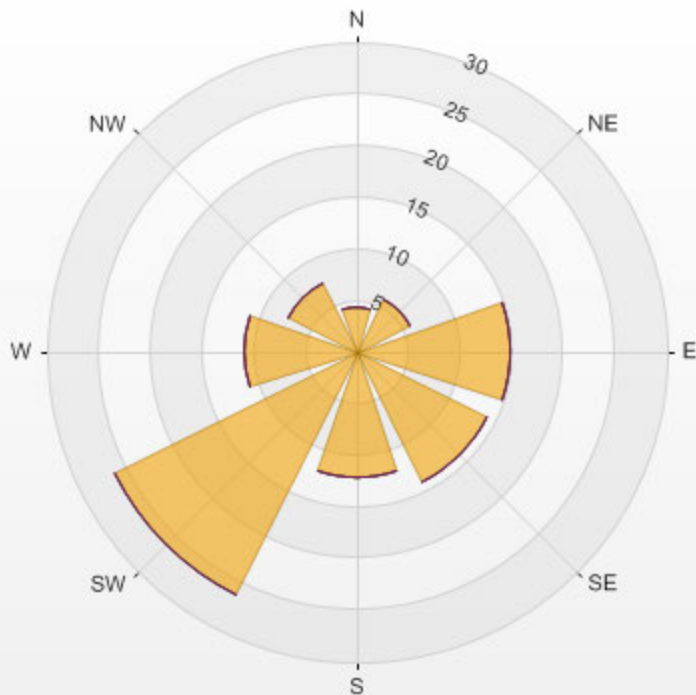
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 18/10
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 4.06%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	4.3	0.0	0.0	0.0	0.0	4.3
NE	5.8	0.0	0.0	0.0	0.0	5.8
E	15.0	0.0	0.0	0.0	0.0	15.0
SE	14.1	0.0	0.0	0.0	0.0	14.1
S	12.2	0.0	0.0	0.0	0.0	12.2
SW	26.3	0.0	0.0	0.0	0.0	26.3
W	10.9	0.0	0.0	0.0	0.0	10.9
NW	7.5	0.0	0.0	0.0	0.0	7.5
Summary	95.9	0.0	0.0	0.0	0.0	95.9

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 4.06% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/10 Type: Span



Span Meas Span Ref Span Low Span High

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

WIND SPEED Hourly Averages (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	3.2	1.4	1.0	1.5	2.5	1.0	0.7	0.9	2.4	6.1	9.7	11.5	12.0	9.9	11.9	11.6	11.6	11.8	11.4	11.7	11.7	9.7	7.7	5.0	0.7	12.0	5.1	24
2	3.0	1.7	0.6	1.6	0.5	2.1	3.3	5.6	7.2	8.4	13.2	14.6	13.3	16.5	17.5	16.4	16.2	13.0	9.4	10.0	14.2	12.6	9.2	7.0	0.5	17.5	8.5	24
3	5.8	4.1	2.6	2.0	0.9	0.9	0.9	1.9	1.9	3.3	4.8	4.2	5.6	5.9	5.5	3.8	2.9	2.2	3.0	4.7	5.7	5.6	6.1	6.2	0.9	6.2	1.4	24
4	7.2	7.1	5.5	6.4	4.6	5.0	4.1	4.3	4.4	6.3	9.9	6.5	7.4	9.8	10.1	7.8	6.2	7.6	6.2	7.6	10.4	8.4	8.3	6.8	4.1	10.4	1.3	24
5	6.1	6.0	6.6	7.8	6.0	6.2	6.8	6.4	6.9	6.5	6.0	5.3	4.9	5.5	6.0	7.3	8.6	5.6	3.3	4.0	7.5	8.3	7.6	7.1	3.3	8.6	0.4	24
6	7.2	6.5	6.4	7.2	5.2	3.6	3.9	5.3	5.1	5.5	6.1	8.8	8.0	6.1	10.9	11.0	11.0	10.9	8.0	6.9	7.1	8.5	8.4	8.4	3.6	11.0	2.4	24
7	7.3	7.5	9.5	8.0	5.7	8.2	9.6	9.4	9.1	9.3	8.5	10.7	10.7	10.9	11.2	10.3	11.2	9.2	7.3	8.2	8.0	7.1	8.0	9.3	5.7	11.2	8.8	24
8	8.0	8.2	8.3	7.4	8.6	9.8	8.6	9.8	8.1	9.7	9.0	8.5	8.6	8.6	9.7	8.7	7.8	7.7	5.8	5.7	6.7	5.6	6.5	5.2	5.2	9.8	7.7	24
9	1.8	4.3	2.4	5.6	5.8	5.9	6.2	7.1	7.2	6.3	6.8	8.0	6.0	6.2	8.4	8.5	7.5	6.8	4.5	4.2	5.7	6.5	8.0	7.7	1.8	8.5	5.9	24
10	7.1	8.0	8.3	7.2	8.6	8.1	9.3	8.9	9.4	7.1	7.2	9.7	7.5	7.8	6.5	5.1	5.3	5.7	4.8	3.7	3.1	5.9	5.4	5.5	3.1	9.7	4.9	24
11	5.4	5.2	3.7	5.5	7.3	8.5	10.1	10.7	14.2	17.5	18.2	16.6	16.8	16.8	16.7	14.9	13.1	10.1	10.4	8.5	7.8	7.3	6.9	4.7	3.7	18.2	9.5	24
12	2.0	1.6	2.3	6.6	7.6	9.7	9.8	9.8	10.1	13.4	11.7	12.6	12.5	10.7	10.4	10.6	7.8	5.8	3.9	3.0	2.2	3.6	2.0	1.8	1.6	13.4	5.0	24
13	1.5	1.4	0.8	2.0	2.3	2.9	3.8	2.9	3.1	4.0	5.2	6.6	6.6	8.0	9.7	10.8	10.8	7.8	7.4	7.8	9.1	9.9	6.8	7.4	0.8	10.8	4.1	24
14	8.6	8.4	10.9	11.0	9.7	9.6	11.7	14.0	13.6	16.1	16.9	16.7	18.0	20.6	20.2	17.8	13.4	19.1	17.5	13.0	11.5	12.6	10.0	10.2	8.4	20.6	12.5	24
15	7.7	8.4	7.4	8.8	8.9	8.2	7.9	6.6	7.6	6.0	6.4	7.2	8.1	7.1	10.4	11.8	6.5	6.7	5.8	4.6	3.0	5.5	2.5	2.6	2.5	11.8	5.2	24
16	1.9	1.8	3.6	4.7	4.8	4.9	4.5	5.6	5.6	6.9	8.2	11.0	13.3	13.8	16.3	14.7	9.7	7.1	9.7	7.9	9.9	12.7	11.5	12.2	1.8	16.3	7.0	24
17	15.0	12.4	12.5	12.8	17.0	17.8	18.0	16.8	10.8	19.9	22.4	25.0	17.0	17.1	20.9	19.0	15.5	13.9	5.8	6.2	13.3	18.3	16.5	15.0	5.8	25.0	14.9	24
18	9.2	6.7	7.4	4.7	5.0	5.9	6.7	7.3	7.2	7.0	7.7	8.2	14.6	15.2	16.1	18.1	15.6	11.1	5.2	5.2	3.1	2.9	2.2	1.0	1.0	18.1	6.9	24
19	1.6	2.2	3.7	4.5	4.1	3.9	3.0	3.2	2.6	2.4	4.9	6.0	7.3	10.0	10.8	12.9	12.3	6.7	6.6	8.2	10.8	10.9	10.8	14.1	1.6	14.1	6.4	24
20	19.8	15.2	13.8	16.3	15.5	15.3	15.0	14.5	20.6	24.8	30.1	33.3	30.6	28.7	32.5	28.6	26.1	22.5	18.3	19.6	16.8	14.3	7.9	11.1	7.9	33.3	18.6	24
21	10.0	9.2	8.5	6.9	7.0	7.7	7.9	5.7	7.7	8.5	9.7	10.0	10.4	12.1	13.9	13.6	9.5	6.8	4.8	4.2	3.6	4.3	3.8	4.4	3.6	13.9	6.2	24
22	8.0	7.6	7.3	8.0	7.5	7.3	7.7	5.9	7.0	11.6	14.1	14.8	10.5	11.4	10.6	10.1	6.3	2.5	3.0	2.3	4.7	10.0	11.4	10.6	2.3	14.8	7.5	24
23	8.2	9.2	11.8	10.0	11.2	7.6	2.7	2.6	4.4	8.0	10.8	6.8	7.4	8.4	8.1	4.5	3.4	1.6	1.6	2.4	2.2	3.5	3.4	4.2	1.6	11.8	3.9	24
24	3.1	3.1	3.6	3.2	2.7	1.8	2.9	2.3	3.3	3.1	7.9	6.7	7.0	11.6	9.3	8.2	9.2	7.6	7.4	4.1	5.6	2.9	3.7	5.0	1.8	11.6	3.6	24
25	4.7	3.9	5.1	4.8	4.7	5.6	5.4	3.3	5.0	9.7	8.3	9.2	10.1	10.0	14.0	13.6	10.0	10.4	17.7	22.8	15.8	14.8	14.6	12.0	3.3	22.8	8.7	24
26	14.5	15.0	15.0	12.4	10.0	5.0	14.6	6.8	5.4	5.3	11.0	9.6	10.7	12.1	10.9	8.0	4.9	2.8	10.0	5.8	7.3	9.2	12.4	14.7	2.8	15.0	8.9	24
27	12.0	13.5	14.4	19.7	19.6	14.8	11.0	15.5	16.5	18.1	15.8	16.1	15.8	19.0	13.4	13.0	9.2	6.2	7.4	4.4	4.3	1.8	2.2	4.3	1.8	19.7	10.7	24
28	5.0	2.5	6.6	5.2	4.6	2.7	3.0	3.5	4.0	3.4	5.1	6.3	6.9	8.6	8.5	8.8	7.3	4.0	3.4	2.2	1.8	8.0	7.8	6.2	1.8	8.8	3.4	24
29	3.3	6.2	6.9	5.3	6.2	5.7	4.4	5.0	4.6	5.9	6.9	7.4	9.8	11.4	10.7	9.7	4.5	5.0	3.8	4.1	5.2	4.8	3.3	1.9	1.9	11.4	5.3	24
30	3.4	3.1	4.3	3.4	4.6	2.2	2.4	6.5	7.9	8.7	9.4	9.4	10.8	15.4	14.8	14.5	9.3	5.2	6.8	8.1	9.3	8.3	7.9	6.3	2.2	15.4	6.5	24
31	8.3	8.1	7.7	5.3	6.2	4.6	4.1	4.2	4.4	5.4	7.6	11.2	10.7	10.8	8.0	3.3	3.0	6.8	8.4	11.1	11.2	11.0	11.9	12.7	3.0	12.7	1.5	24
HOURLY MAX	19.8	15.2	15.0	19.7	19.6	17.8	18.0	16.8	20.6	24.8	30.1	33.3	30.6	28.7	32.5	28.6	26.1	22.5	18.3	22.8	16.8	18.3	16.5	15.0				

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

LAST CALIBRATION:

August 22, 2018

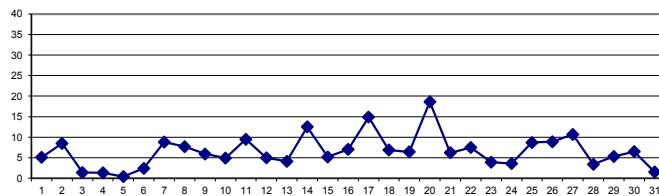
DECLINATION :

MAGNETIC DECLINATION 15 DEGREE EAST

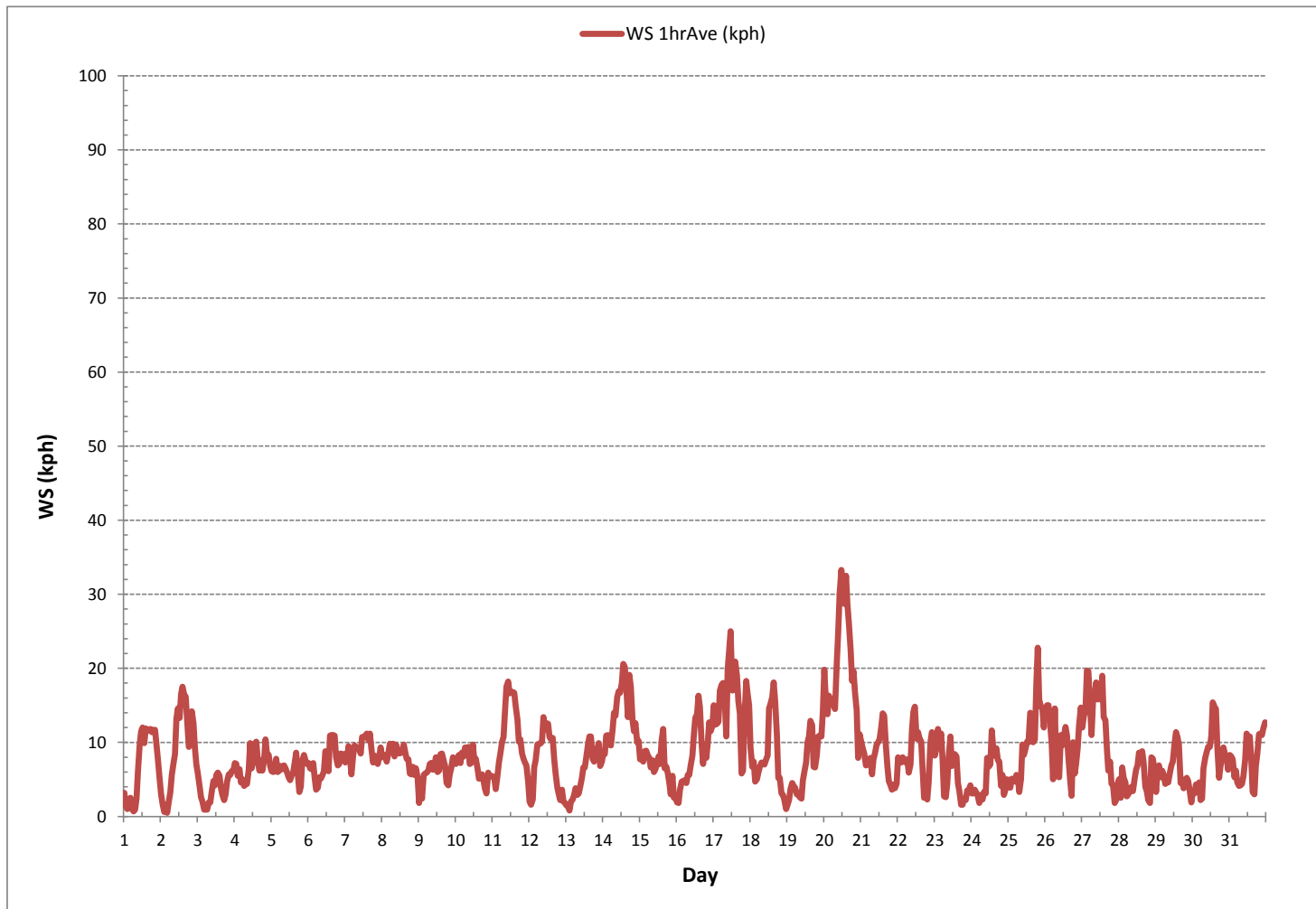
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		744				
MINIMUM 1-HR AVERAGE	0.5	kph	@ HOUR	4	ON DAY	2
MAXIMUM 1-HR AVERAGE:	33.3	kph	@ HOUR	11	ON DAY	20
MAXIMUM 24-HR AVERAGE:	18.6	kph			ON DAY	20
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:		744	hrs
			AMD OPERATION UPTIME:		100.0	%
STANDARD DEVIATION:	4.9		MONTHLY AVERAGE:		3.8	kph

24 HR AVERAGES October 2018



WIND SPEED Hourly Averages (WS kph)



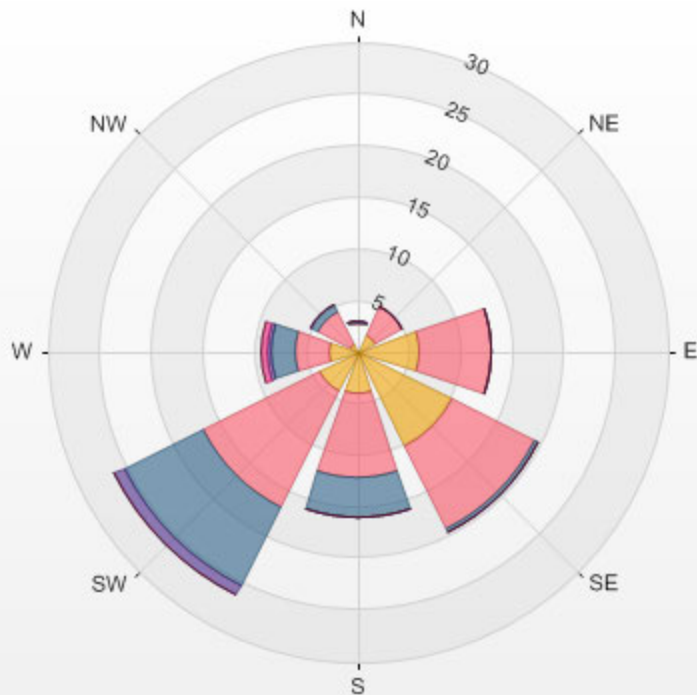
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/10
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 2.82%

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	0.1	2.7	0.1	0.0	0.0	0.0	3.0
NE	1.9	3.0	0.0	0.0	0.0	0.0	4.8
E	6.1	7.0	0.0	0.0	0.0	0.0	13.0
SE	10.4	8.7	0.4	0.0	0.0	0.0	19.5
S	4.0	8.2	3.8	0.0	0.0	0.0	16.0
SW	4.2	12.6	8.5	1.1	0.0	0.0	26.4
W	2.8	3.2	2.3	0.5	0.5	0.0	9.4
NW	0.9	3.4	0.8	0.0	0.0	0.0	5.1
Summary	30.4	48.8	15.9	1.6	0.5	0.0	97.2

%	Icon	Classes (kph)
30		1.8-6.0
49		6.0-12.0
16		12.0-20.0
2		20.0-29.0
1		29.0-39.0
0		>39.0

PRAMP_842 2018/10/01 00:00 - 2018/10/31 23:00 Calm: 2.82% Calm Wind Avg Speed: 1.18(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 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	ESE	ENE	E	ESE	SE	SE	ESE	SSW	WSW	WNW	NNW	NNW	WNW	WNW	W	NNW	NNW	W	NNW	NNW	N	N	N	NNW	NW	NW	24
2	NNW	WNW	SE	SE	SSE	S	SSW	SW	WSW	W	W	W	WSW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	WSW	SW	WSW	NW	24
3	WSW	SW	W	WSW	W	SSW	SE	SSE	E	ENE	SSW	WSW	SW	WSW	SW	SSE	S	SW	ESE	ENE	E	E	ESE	ESE	S	W	24
4	ESE	ESE	E	E	E	E	E	ENE	ENE	SE	SSW	SSW	SW	WSW	W	W	NW	NW	NNW	NNW	W	WNW	NW	W	W	W	24
5	NNW	NNW	NW	NNW	W	NW	NE	SSE	SSW	SSE	SSE	S	SSW	NNW	SSW	SSW	NW	NW	SE	ENE	E	ESE	ESE	ESE	SSE	E	24
6	ESE	E	E	E	E	ENE	NE	NE	NE	ESE	SW	WSW	W	S	NNW	NW	NNW	NNW	S	NE	ENE	ENE	ENE	ENE	NE	E	24
7	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	ENE	E	24
8	E	E	E	ENE	E	E	E	ESE	ESE	ESE	ESE	ESE	E	E	SE	ESE	E	E	E	E	E	E	ENE	E	E	E	24
9	W	ESE	SE	ESE	ESE	ESE	E	ESE	ESE	E	ESE	SE	SE	SE	ESE	ESE	ESE	E	E	E	ESE	ESE	SE	ESE	ESE	E	24
10	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SSE	SSE	S	SSW	SW	W	W	WSW	WSW	SW	S	SSW	SSW	SSW	SSE	E	24
11	S	S	SSW	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	S	W	24
12	SE	SE	ENE	NE	N	NE	E	N	NNW	NNW	NNW	NNW	NW	NW	NW	WNW	WNW	WNW	WNW	W	W	W	SW	WSW	NNW	W	24
13	WSW	WSW	S	SW	SW	WSW	WSW	WSW	WSW	W	WNW	WNW	W	SW	SSW	SW	SSW	S	SSE	SSE	SSE	S	SSE	SE	SSW	W	24
14	SSE	SSE	S	S	SSE	SSE	S	S	S	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	SW	SW	SW	SSW	SSW	SSW	W	24
15	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	WNW	WNW	W	WNW	NW	NW	S	ESE	ESE	SW	SW	WSW	WSW	W	24
16	SW	S	SE	ESE	ESE	SE	SE	SE	SE	SSE	S	SSW	SW	SSW	SW	SW	SW	S	SSW	SW	SW	SSW	SW	S	SSW	W	24
17	SSW	S	SSW	SSW	SW	SW	SSW	S	SSE	SSW	SW	SW	SW	SW	WSW	SW	SW	SW	S	SW	WSW	SW	WSW	WSW	SW	W	24
18	WSW	WSW	SW	W	SW	SW	SW	SW	W	WNW	WNW	WSW	SW	W	WNW	WNW	WNW	WNW	NW	WNW	WNW	SSW	SSW	S	W	W	24
19	ESE	E	ESE	ESE	SE	ESE	ESE	ESE	ESE	S	E	E	SE	SSE	SSE	SSE	SSE	SE	ESE	ESE	SE	SE	SE	SSE	SE	E	24
20	SSE	S	S	SSW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	W	24
21	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	W	W	WSW	WSW	SW	SSW	SE	SE	SE	ESE	SE	SW	SW	E	24
22	SE	SE	SE	ESE	ESE	SE	SE	SE	SE	SSE	S	SSE	S	SSE	S	SSE	SW	SSW	E	ENE	E	SE	SE	SE	SSE	E	24
23	SE	SE	SSE	SSE	SSE	SSE	ESE	E	SE	SSE	S	S	S	WSW	WSW	W	W	SSE	E	E	E	ENE	ENE	NE	SSE	E	24
24	E	E	ENE	E	E	SSE	ESE	ENE	ESE	SSE	SW	SSW	SSW	SW	SSW	SSW	SSW	SSE	SSE	SSW	SW	S	SE	ESE	S	W	24
25	SE	ESE	SE	SE	SE	SE	SE	SE	SE	S	S	SSE	SSE	SSE	SSW	SSW	S	SSE	S	SSW	SSW	SSW	SSW	SSW	S	W	24
26	SSW	SSW	SSW	SSW	SSW	SE	S	SSW	SE	ESE	S	S	S	S	SSW	S	SSE	ESE	S	SSE	SSE	SE	S	SSW	S	W	24
27	SSW	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	W	WSW	SW	WSW	SW	SW	SE	SE	SE	WSW	W	24
28	ESE	ESE	SE	SE	ENE	SE	SSE	ENE	ENE	ENE	E	E	E	E	E	E	E	ENE	NE	NE	NE	SSW	SW	SW	E	W	24
29	WSW	SW	SW	SW	SSW	SSW	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	S	S	S	SE	SE	SE	SSE	SSE	SSE	SSW	W	24
30	ESE	ESE	SE	SE	SE	SSE	S	SSW	SSW	SSW	SSW	SW	SW	WSW	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	W	24
31	SSW	S	S	SE	SSE	SE	SE	SE	SE	SSE	S	SW	SW	SSW	S	SE	SSE	NNW	NNW	NNW	NNW	NNW	NNW	NNW	SW	W	24

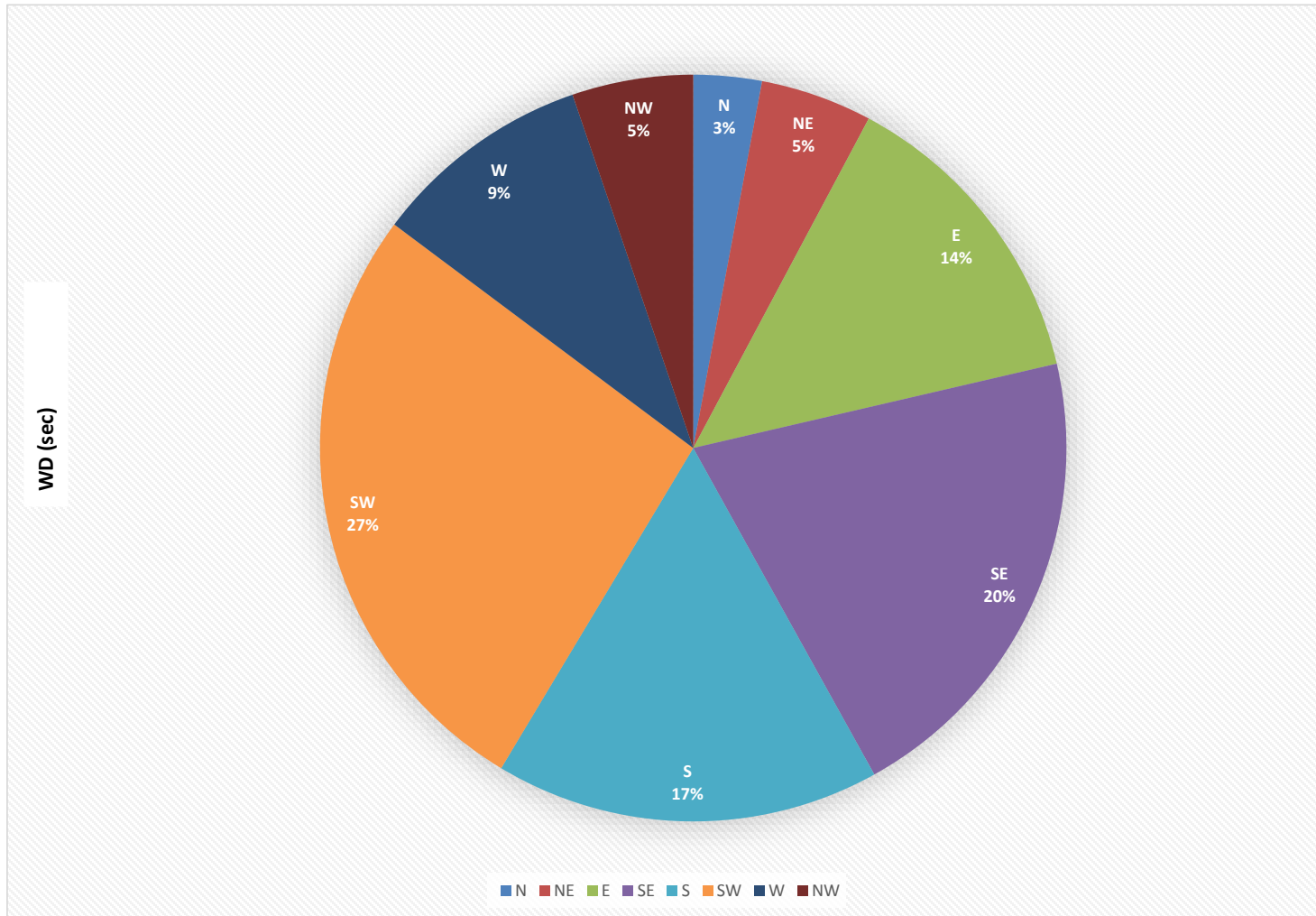
STATUS FLAG CODES

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 22, 2018
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	74		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	204 (SSW)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP_842 Monthly: 18/10 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

RELATIVE HUMIDITY

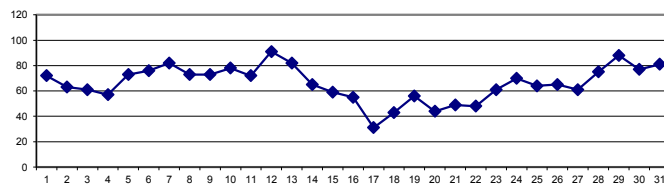
RELATIVE HUMIDITY Hourly Averages (RH %)

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

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

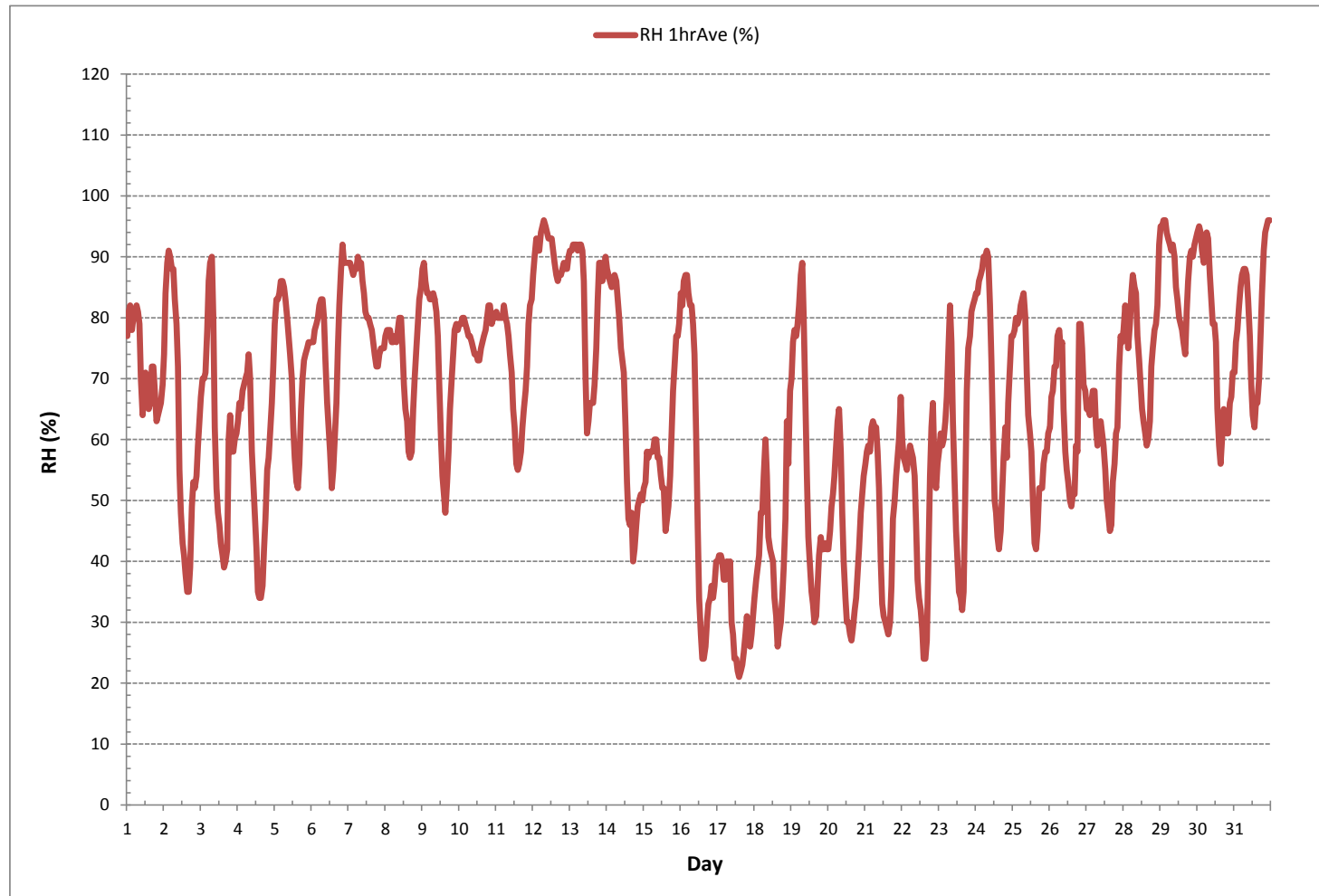
24 HR AVERAGES October 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	21	%	@ HOUR	14	ON DAY	17
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	7	ON DAY	12
MAXIMUM 24-HR AVERAGE:	91	%			ON DAY	12
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	19		MONTHLY AVERAGE:		66	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

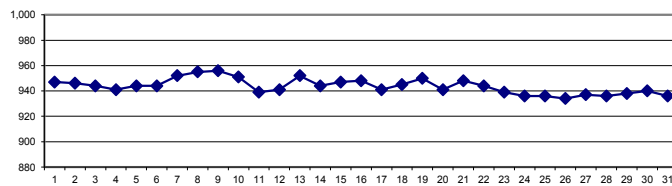
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	945	945	944	944	944	944	944	944	944	945	945	946	946	947	947	948	948	949	950	951	951	951	952	951	944	952	947	24	
2	952	952	952	951	951	950	950	949	949	948	947	946	945	944	943	942	942	942	941	941	941	941	941	941	941	941	952	946	24
3	941	942	942	942	943	944	945	945	945	946	946	946	946	946	945	945	945	945	945	944	944	944	944	943	941	946	944	24	
4	943	943	942	942	941	941	941	941	941	941	940	940	940	940	940	940	940	941	941	941	941	942	942	942	943	940	943	941	24
5	943	943	943	944	944	944	944	945	945	945	945	945	945	945	945	944	944	944	944	943	943	943	942	942	942	942	945	944	24
6	941	941	941	940	940	941	941	941	942	943	943	944	944	945	945	946	947	947	948	949	949	949	949	949	940	949	944	24	
7	949	950	950	950	951	951	950	951	951	951	952	952	952	952	953	953	953	954	954	955	955	955	955	955	949	955	952	24	
8	956	956	956	956	956	956	956	956	955	955	955	955	955	954	954	953	953	953	953	953	953	953	953	954	953	956	955	24	
9	955	955	955	955	956	956	956	957	957	957	957	957	957	957	956	956	955	955	955	955	955	955	954	954	953	953	957	956	24
10	953	953	953	952	952	951	951	951	951	951	951	951	950	950	950	950	950	950	950	949	949	949	948	948	948	953	951	24	
11	947	947	946	946	945	943	943	942	942	941	940	939	938	937	936	936	936	935	935	934	934	934	934	934	934	934	947	939	24
12	933	933	932	932	932	932	933	934	936	937	939	940	942	943	944	945	946	947	947	948	949	949	949	950	932	950	941	24	
13	950	951	951	951	951	951	952	952	952	953	954	954	954	953	953	953	953	953	952	952	952	952	951	951	950	954	952	24	
14	950	949	949	948	947	946	946	945	945	944	944	943	943	942	942	941	941	941	941	941	942	942	942	943	941	950	944	24	
15	943	944	944	944	945	945	945	945	945	946	946	946	946	946	947	947	948	948	949	949	949	950	950	950	943	950	947	24	
16	950	950	950	949	949	949	949	949	949	949	949	949	949	948	947	947	946	946	946	946	945	945	945	945	945	950	948	24	
17	945	944	944	944	943	943	942	942	942	941	940	940	940	940	939	939	939	938	938	938	938	938	938	939	938	945	941	24	
18	940	940	940	941	941	941	941	942	942	943	944	945	945	945	945	946	947	947	948	948	949	949	950	950	940	950	945	24	
19	951	951	951	952	952	953	953	953	954	955	955	954	953	953	952	951	950	949	948	947	945	944	943	942	942	955	950	24	
20	942	942	941	941	941	940	940	941	940	940	940	940	940	941	941	941	941	941	942	942	942	942	943	943	940	943	941	24	
21	944	944	945	945	946	946	947	947	948	948	949	949	949	949	949	949	949	949	949	949	949	949	948	948	944	949	948	24	
22	948	948	947	947	946	946	946	945	945	945	945	945	945	944	944	943	943	942	942	942	942	942	942	942	942	948	944	24	
23	942	941	941	941	941	941	941	940	940	940	940	940	940	940	939	939	938	938	938	937	937	937	937	937	937	942	939	24	
24	937	937	936	936	936	936	936	937	937	937	937	937	937	937	936	936	936	936	936	936	936	936	936	936	936	937	936	24	
25	936	936	936	936	936	936	936	936	936	937	937	937	936	936	936	935	935	935	935	935	936	936	936	936	935	937	936	24	
26	936	936	936	936	936	935	936	936	936	936	935	935	934	934	934	934	933	933	933	933	932	932	932	932	932	936	934	24	
27	932	932	932	932	932	933	934	934	935	936	937	938	939	939	940	940	940	940	941	941	941	941	941	941	932	941	937	24	
28	940	940	940	940	939	938	937	937	937	937	936	936	935	934	934	934	934	934	934	935	935	936	936	936	934	940	936	24	
29	936	936	936	937	937	937	937	937	938	938	938	938	938	939	939	939	939	939	939	939	940	939	939	939	936	940	938	24	
30	939	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	939	939	939	939	938	938	940	940	24	
31	938	938	937	937	936	936	936	935	935	935	935	934	934	934	934	934	934	935	936	937	938	940	941	942	934	942	936	24	
HOURLY MAX	956	956	956	956	956	956	956	957	957	957	957	957	957	957	956	956	955	955	955	955	955	955	955	955	955	955	955		
HOURLY AVG	944	944	944	944	944	943	943	944	944	944	944	944	944	944	944	943	943	943	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

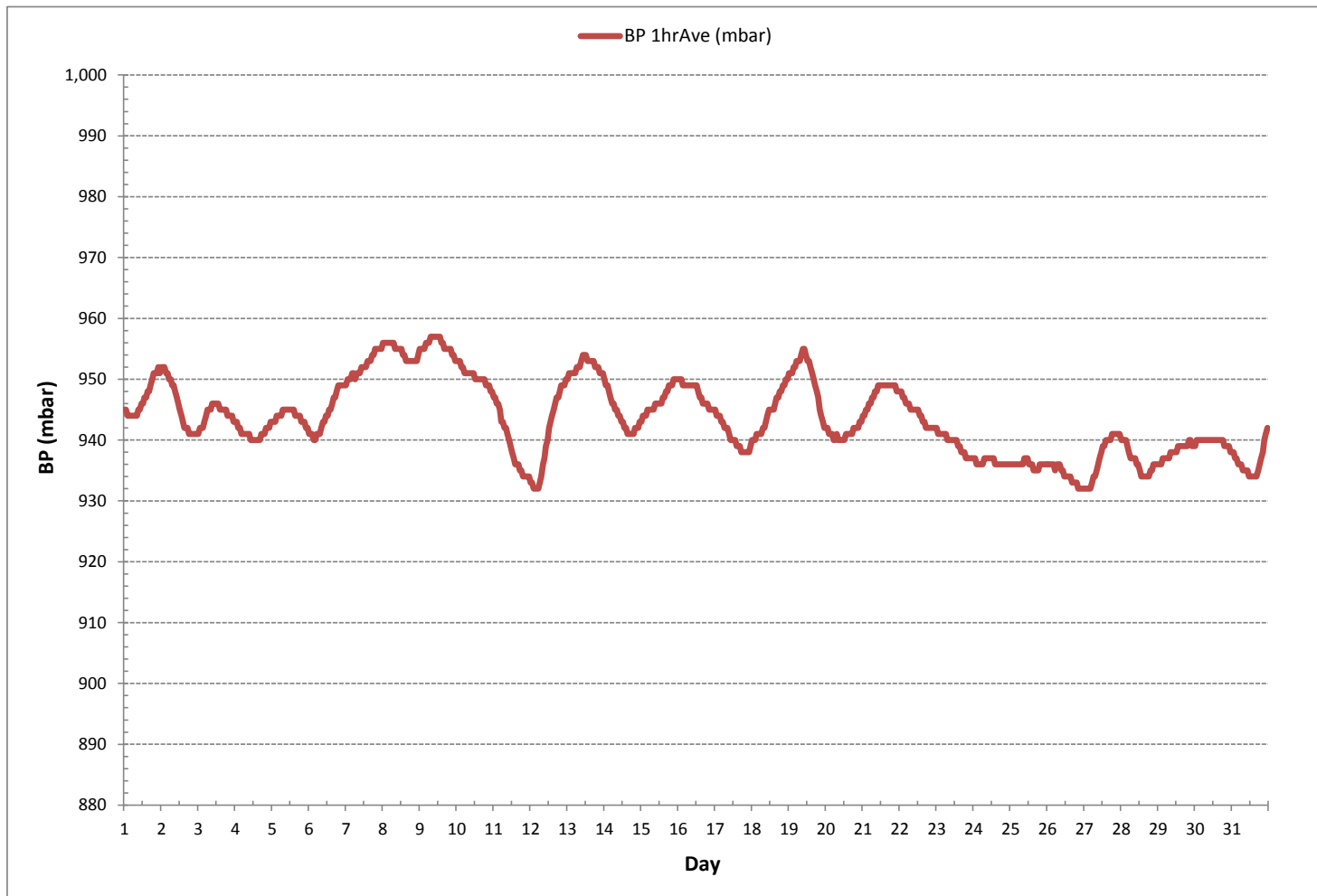
24 HR AVERAGES October 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	932	mbar	@ HOUR	2	ON DAY	12
MAXIMUM 1-HR AVERAGE:	957	mbar	@ HOUR	7	ON DAY	9
MAXIMUM 24-HR AVERAGE:	956	mbar			ON DAY	9
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	6					MONTHLY AVERAGE: 944 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

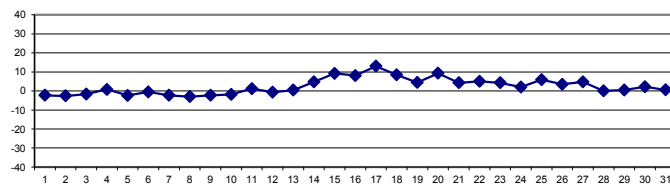
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	-4.9	-5.5	-5.3	-4.3	-4.2	-4.3	-4.3	-3.9	-2.6	-1.2	0.2	0.8	0.4	0.6	0.4	-0.1	-0.7	-1.2	-1.6	-1.8	-2.2	-2.6	-2.9	-3.8	-5.5	0.8	-2.3	24
2	-5.1	-7.5	-8.7	-9.5	-8.6	-8.2	-7.8	-5.9	-4.7	-3.0	-0.9	0.2	1.2	1.9	2.5	3.0	2.8	2.2	0.0	-0.8	-0.1	-0.5	-1.5	-2.6	-9.5	3.0	-2.6	24
3	-3.5	-4.4	-4.1	-4.0	-5.2	-7.1	-8.4	-8.4	-4.9	-1.0	0.3	1.4	2.1	2.8	3.6	4.2	3.8	3.2	-1.0	-2.3	-1.6	-1.9	-2.3	-2.3	-8.4	4.2	-1.7	24
4	-2.4	-2.7	-2.3	-3.1	-3.2	-3.1	-2.9	-3.1	-1.8	1.4	3.0	4.3	5.8	6.8	7.0	7.4	6.9	5.2	2.7	1.4	0.3	-1.5	-2.9	-3.4	-3.4	7.4	0.8	24
5	-4.2	-4.5	-4.3	-4.2	-4.1	-3.9	-3.9	-3.8	-3.6	-3.4	-2.8	-2.1	-0.6	0.5	1.4	1.8	0.6	-1.5	-2.6	-2.5	-2.4	-2.5	-2.8	-2.9	-4.5	1.8	-2.4	24
6	-2.6	-2.5	-2.7	-2.6	-2.5	-2.6	-2.5	-2.3	-2.1	-0.5	1.3	2.2	3.2	4.7	4.0	3.0	2.2	0.8	0.0	-1.0	-2.0	-2.3	-2.6	-2.8	-2.8	4.7	-0.5	24
7	-2.9	-2.8	-2.9	-3.0	-3.0	-3.1	-3.3	-3.2	-3.0	-2.6	-2.0	-1.5	-1.1	-1.1	-1.3	-1.4	-1.5	-1.5	-1.6	-1.9	-2.2	-2.4	-2.5	-3.0	-3.3	-1.1	-2.3	24
8	-3.5	-3.7	-3.8	-3.8	-3.7	-4.0	-4.4	-4.6	-4.6	-4.1	-3.7	-2.9	-2.0	-1.2	-0.5	0.5	0.6	-0.2	-1.7	-2.7	-3.5	-4.4	-5.1	-5.7	-5.7	0.6	-3.0	24
9	-7.4	-5.7	-4.4	-4.3	-4.3	-4.4	-4.5	-4.6	-4.3	-3.7	-3.0	-1.4	0.6	1.9	2.5	3.0	2.0	0.7	-1.2	-2.3	-3.0	-3.2	-2.7	-2.5	-7.4	3.0	-2.3	24
10	-2.7	-2.8	-2.8	-2.8	-2.8	-2.7	-2.6	-2.5	-2.3	-1.9	-1.6	-1.2	-0.8	-0.6	-0.5	-0.5	-0.7	-1.0	-1.4	-1.6	-1.6	-1.7	-1.8	-1.8	-2.8	-0.5	-1.8	24
11	-2.0	-1.9	-2.0	-2.2	-3.0	-3.7	-3.4	-3.0	-2.2	-0.9	0.2	2.0	2.9	3.9	4.4	4.8	5.0	4.9	4.5	4.5	4.5	4.0	3.8	3.8	-3.7	5.0	1.2	24
12	3.3	2.8	2.1	2.3	1.2	0.0	-0.3	-0.8	-1.2	-1.8	-1.8	-1.6	-1.6	-1.7	-1.2	-1.0	-0.9	-1.3	-1.7	-1.9	-2.0	-2.0	-2.2	-2.4	-2.4	3.3	-0.7	24
13	-2.2	-2.3	-2.3	-2.2	-2.1	-2.1	-2.0	-2.0	-1.8	-0.3	1.8	2.6	2.8	3.2	3.8	4.7	4.2	3.3	1.4	0.3	0.3	1.1	0.1	-0.9	-2.3	4.7	0.4	24
14	-0.7	-0.8	-0.6	-0.7	-1.4	-1.8	-1.3	-0.5	0.7	2.7	4.2	5.8	8.3	9.6	10.5	10.7	10.2	10.7	9.8	8.4	7.9	8.2	8.0	8.3	-1.8	10.7	4.8	24
15	8.1	7.7	6.6	6.8	6.6	7.2	7.4	7.0	7.3	8.6	9.3	10.4	11.9	11.6	13.2	13.7	13.0	12.1	10.9	9.7	8.8	7.6	7.6	6.7	6.6	13.7	9.2	24
16	5.2	5.5	4.1	3.5	2.8	2.3	1.3	0.6	1.0	3.2	6.7	9.8	12.2	14.3	15.7	16.2	16.1	13.4	11.4	11.0	9.9	10.3	10.0	8.7	0.6	16.2	8.1	24
17	9.4	8.7	9.0	9.7	10.9	10.3	8.8	8.8	7.9	11.7	13.4	16.1	16.8	18.4	18.4	17.7	17.1	16.1	14.3	13.0	14.4	14.2	13.6	12.5	7.9	18.4	13.0	24
18	11.4	10.8	10.3	9.9	7.8	7.7	6.0	4.4	6.7	9.9	11.0	11.6	12.0	13.4	13.2	13.7	12.6	10.6	8.7	6.8	4.6	0.5	1.8	-0.3	-0.3	13.7	8.5	24
19	-1.0	-2.2	-2.6	-1.7	-1.8	-2.4	-3.9	-4.1	-1.4	2.9	5.8	8.4	9.9	10.9	11.6	12.0	11.2	9.1	7.2	6.5	7.4	7.8	7.6	8.5	-4.1	12.0	4.4	24
20	9.2	8.5	7.9	8.2	7.9	6.8	6.8	7.0	8.0	9.6	11.3	12.4	13.0	12.9	13.6	13.5	12.7	11.4	10.1	9.0	7.9	6.2	5.4	4.2	4.2	13.6	9.3	24
21	3.6	2.9	2.5	2.3	1.1	0.6	0.5	0.1	1.4	4.0	7.0	8.8	10.0	10.7	11.1	10.8	9.6	7.2	3.8	3.1	1.9	1.0	0.1	-1.4	-1.4	11.1	4.3	24
22	0.0	0.6	0.9	1.2	0.8	0.4	0.3	0.6	1.7	5.0	7.7	9.0	10.6	12.1	13.8	14.4	13.3	8.4	3.7	1.6	0.1	4.0	5.3	4.5	0.0	14.4	5.0	24
23	3.6	2.9	3.7	3.5	2.8	1.9	0.3	-2.3	-0.6	4.3	6.6	9.1	10.8	12.4	12.9	14.1	13.2	7.6	2.9	0.6	-0.7	-1.9	-2.1	-2.4	-2.4	14.1	4.3	24
24	-3.0	-3.3	-3.9	-4.4	-5.0	-4.8	-4.8	-5.6	-5.3	-0.2	2.8	5.4	8.5	9.6	10.8	11.7	10.6	8.3	6.1	4.5	6.0	3.5	1.9	0.9	-5.6	11.7	2.1	24
25	1.0	0.9	0.4	0.7	0.8	0.4	0.3	0.4	1.4	4.6	6.6	7.3	8.0	10.2	12.4	12.8	12.0	9.6	9.4	9.5	9.0	8.6	7.7	6.4	0.3	12.8	5.9	24
26	5.4	4.1	3.4	2.3	1.8	0.0	-0.2	-0.1	-0.4	2.7	4.4	5.3	5.5	6.0	6.3	6.1	5.4	3.5	4.0	3.8	3.2	3.2	4.0	4.5	-0.4	6.3	3.5	24
27	4.9	5.0	5.4	5.6	5.6	5.5	5.6	5.3	4.8	5.0	5.3	6.0	7.0	8.6	9.0	9.4	8.3	5.4	4.0	2.5	1.8	-0.6	-2.1	-2.0	-2.1	9.4	4.8	24
28	-2.6	-3.5	-2.5	-1.6	-2.2	-3.4	-4.1	-3.6	-2.8	-0.9	0.8	2.1	3.0	3.8	4.2	4.3	4.1	3.3	1.6	0.9	0.5	0.7	0.2	-0.1	-4.1	4.3	0.1	24
29	-0.1	-0.1	-0.1	-0.1	0.0	-0.4	-1.2	-1.9	-2.7	-1.9	0.0	1.1	2.3	3.3	4.2	5.2	5.2	2.4	0.7	-0.2	-0.6	-0.8	-1.2	-1.5	-2.7	5.2	0.5	24
30	-3.0	-3.3	-1.6	-0.9	-0.6	-1.6	-2.2	-2.2	-0.1	1.3	2.8	3.3	4.9	6.7	7.5	7.6	6.1	4.8	4.5	4.8	4.8	3.7	3.3	2.7	-3.3	7.6	2.2	24
31	2.9	1.7	0.9	-0.1	-0.9	-1.6	-1.6	-1.6	-1.1	0.0	1.9	4.0	5.5	6.3	5.1	5.0	4.5	1.3	-1.5	-3.0	-3.3	-3.2	-3.2	-3.4	-3.4	6.3	0.6	24
HOURLY MAX	11.4	10.8	10.3	9.9	10.9	10.3	8.8	8.8	8.0	11.7	13.4	16.1	16.8	18.4	18.4	17.7	17.1	16.1	14.3	13.0	14.4	14.2	13.6	12.5				
HOURLY AVG	0.5	0.1	0.0	0.0	-0.3	-0.7	-1.0	-1.2	-0.4	1.6	3.2	4.5	5.6	6.5	7.1	7.4	6.8	5.1	3.5	2.6	2.2	1.7	1.4	0.9				

STATUS FLAG CODES

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

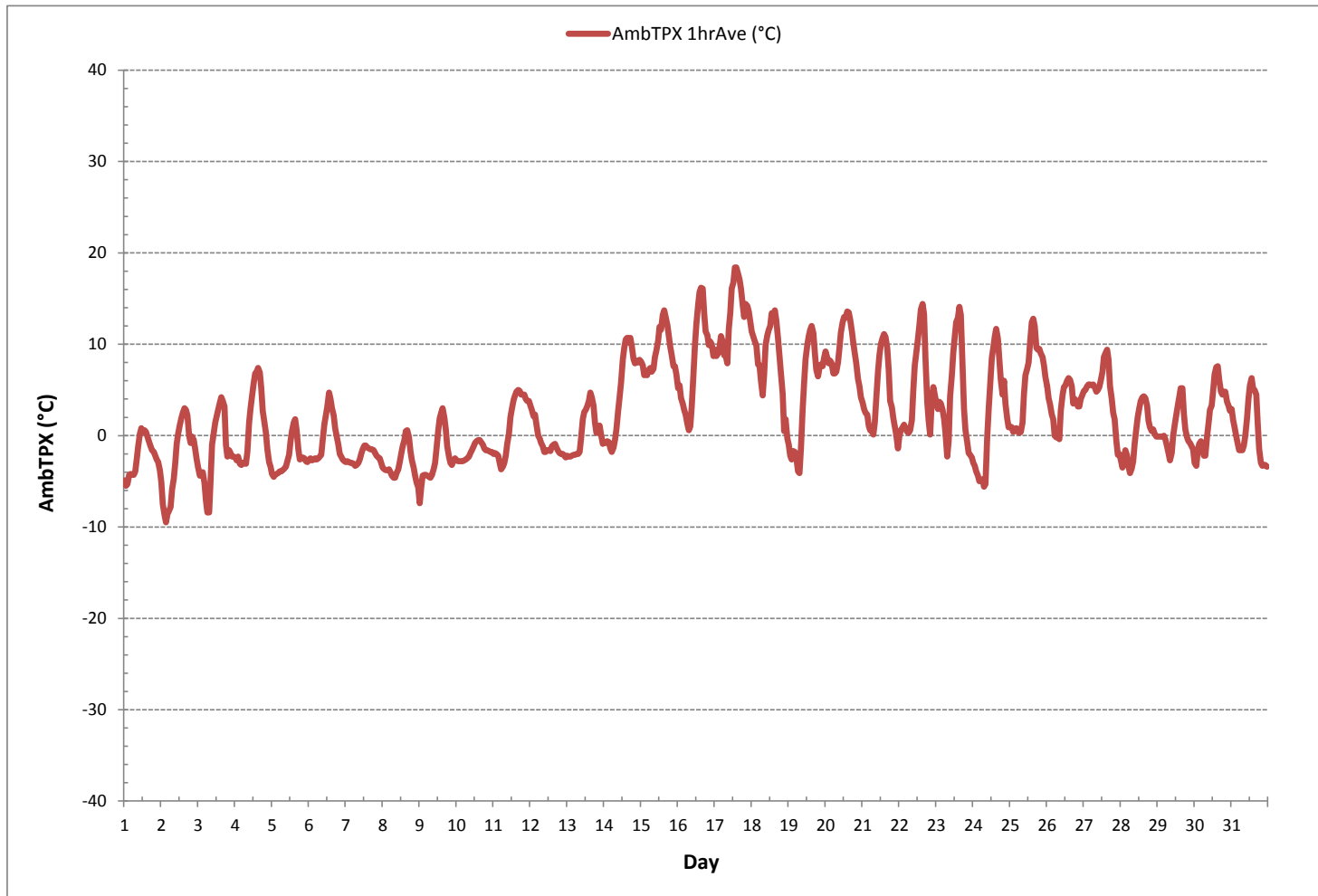
24 HR AVERAGES October 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-9.5	°C	@ HOUR	3	ON DAY	2
MAXIMUM 1-HR AVERAGE:	18.4	°C	@ HOUR	13	ON DAY	17
MAXIMUM 24-HR AVERAGE:	13.0	°C			ON DAY	17
OPERATIONAL TIME:					744	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	5.4				MONTHLY AVERAGE:	2.4 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

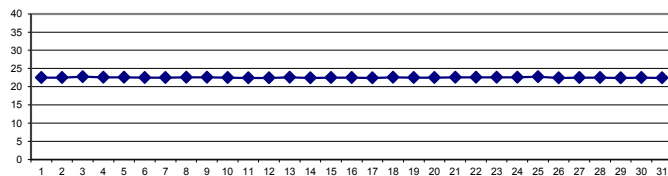
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	22.8	22.8	22.7	22.7	22.7	22.7	22.7	22.6	22.5	22.5	21.9	22.1	21.9	22.1	22.1	22.3	22.3	22.4	22.4	22.4	22.5	22.6	22.5	22.6	22.6	21.9	22.8	22.5	24
2	22.8	23.0	23.2	23.2	23.0	22.9	22.9	22.8	22.6	22.4	22.1	21.6	22.0	22.1	22.0	22.2	22.3	22.2	22.6	22.6	22.6	22.5	22.6	22.8	21.6	23.2	22.5	24	
3	22.8	22.8	22.9	22.6	22.7	22.9	23.0	23.1	22.6	21.7	22.0	22.2	22.8	22.9	23.0	22.9	22.9	23.1	22.5	22.8	22.7	22.7	22.8	22.7	21.7	23.1	22.7	24	
4	22.6	22.8	22.7	22.6	22.8	22.7	22.6	22.5	22.5	22.3	22.6	22.6	22.5	22.9	22.7	22.8	22.8	23.2	22.4	22.5	22.4	22.5	22.6	22.7	22.3	23.2	22.6	24	
5	22.6	22.8	22.6	22.7	22.5	22.5	22.5	22.5	22.5	22.4	22.4	22.2	22.1	22.1	22.4	23.2	23.3	22.5	22.7	22.6	22.6	22.6	22.7	22.6	22.1	23.3	22.6	24	
6	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.4	22.6	22.1	22.7	22.9	23.0	22.8	22.1	22.2	22.4	22.4	22.5	22.5	22.5	22.5	22.1	23.0	22.5	24	
7	22.6	22.6	22.6	22.6	22.6	22.6	22.5	22.6	22.5	22.4	22.5	22.4	22.3	22.3	22.3	22.5	22.4	22.5	22.4	22.5	22.5	22.5	22.5	22.6	22.3	22.6	22.5	24	
8	22.7	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.7	22.6	22.5	22.5	22.4	22.3	22.4	22.3	22.4	22.3	22.6	22.7	22.8	22.8	22.8	22.9	22.3	22.9	22.6	24	
9	22.9	22.9	22.6	22.6	22.6	22.7	22.6	22.6	22.6	22.5	22.5	22.1	22.2	22.5	22.7	23.2	23.3	22.3	22.6	22.8	22.8	22.7	22.6	22.6	22.1	23.3	22.6	24	
10	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.4	22.4	22.4	22.3	22.4	22.4	22.6	22.5	22.5	22.6	22.5	22.5	22.3	22.6	22.5	24	
11	22.6	22.5	22.6	22.6	22.6	22.7	22.6	22.7	22.6	22.5	22.5	22.4	22.9	22.7	22.8	22.6	21.7	21.9	22.0	22.2	22.0	22.1	22.1	22.1	21.7	22.9	22.4	24	
12	22.1	22.0	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.3	22.4	22.4	22.3	22.4	22.3	22.3	22.4	22.4	22.5	22.5	22.5	22.6	22.5	22.6	22.0	22.6	22.4	24	
13	22.5	22.5	22.5	22.5	22.4	22.5	22.4	22.5	22.4	22.3	22.2	22.6	22.8	22.9	23.3	23.0	23.1	22.8	22.3	22.6	22.6	22.5	22.6	22.6	22.2	23.3	22.6	24	
14	22.6	22.6	22.5	22.5	22.6	22.6	22.5	22.6	22.4	22.0	21.7	21.8	22.3	22.7	22.7	22.7	22.8	23.0	22.9	22.6	22.1	22.0	21.9	21.8	21.7	23.0	22.4	24	
15	22.5	22.1	22.2	22.2	22.3	22.0	21.9	22.0	22.0	22.4	23.0	22.6	22.5	22.6	22.5	22.5	22.7	22.6	22.8	22.7	22.9	23.0	22.8	22.6	21.9	23.0	22.5	24	
16	21.9	22.4	22.3	22.3	22.5	22.4	22.6	22.5	22.5	22.3	22.4	22.7	22.6	22.5	22.5	22.5	22.7	22.8	23.2	23.0	22.5	22.1	22.0	21.9	21.9	23.2	22.5	24	
17	22.2	22.0	22.2	22.0	22.0	22.4	22.4	22.1	21.9	22.4	22.2	22.3	22.4	22.5	22.6	22.3	22.7	22.6	22.8	22.9	23.0	22.7	22.8	22.9	21.9	23.0	22.4	24	
18	22.9	22.9	23.0	22.9	22.8	22.2	22.5	22.4	22.4	22.2	22.0	22.2	22.4	22.7	22.5	22.6	22.7	22.8	22.6	22.4	22.5	22.6	22.6	22.7	22.0	23.0	22.6	24	
19	22.7	22.8	22.8	22.7	22.7	22.8	22.7	22.8	22.5	22.0	22.2	22.4	22.6	22.8	22.7	22.7	22.8	23.0	22.7	22.0	21.7	21.7	22.1	22.0	21.7	23.0	22.5	24	
20	22.0	22.3	22.4	22.3	22.2	22.1	22.4	22.4	22.2	22.4	22.1	22.4	22.6	22.6	22.6	22.6	22.8	23.1	23.2	22.8	22.3	22.3	22.4	22.6	22.0	23.2	22.5	24	
21	22.6	22.6	22.6	22.7	22.7	22.7	22.7	22.7	22.5	22.2	22.1	22.4	22.5	22.7	22.6	22.8	22.8	22.9	22.4	22.5	22.6	22.6	22.6	22.7	22.1	22.9	22.6	24	
22	22.7	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.5	22.2	22.7	22.4	22.7	22.7	22.7	22.7	22.7	23.1	22.5	22.5	22.6	22.6	22.3	22.4	22.2	23.1	22.6	24	
23	22.4	22.5	22.4	22.4	22.5	22.5	22.5	22.7	22.5	21.9	22.6	22.4	22.6	22.6	22.7	22.7	22.7	22.9	22.4	22.6	22.7	22.7	22.7	22.7	21.9	22.9	22.6	24	
24	22.7	22.7	22.8	22.9	22.8	22.9	22.8	22.8	22.8	22.4	22.2	22.8	22.3	22.6	22.8	22.6	22.8	22.6	22.1	22.5	22.4	22.4	22.5	22.6	22.1	22.9	22.6	24	
25	22.6	22.6	22.6	22.6	22.6	22.5	22.6	22.6	22.4	22.0	22.6	22.9	23.0	22.8	22.6	22.7	22.9	22.8	22.8	22.8	23.0	23.1	22.9	22.4	22.0	23.1	22.7	24	
26	22.2	22.3	22.5	22.5	22.6	22.5	22.7	22.7	22.5	21.9	22.2	22.6	22.5	22.6	22.9	22.7	22.3	22.3	22.3	22.2	22.3	22.3	22.3	22.3	21.9	22.9	22.4	24	
27	22.2	22.2	22.2	22.2	22.2	22.2	22.3	22.2	22.3	22.2	22.2	22.2	22.4	22.6	22.8	22.9	23.0	22.9	22.5	22.6	22.6	22.7	22.8	22.8	22.2	23.0	22.5	24	
28	22.8	22.8	22.8	22.7	22.6	22.7	22.7	22.7	22.7	22.6	22.4	22.2	22.2	21.9	22.2	22.2	22.2	22.3	22.4	22.4	22.3	22.5	22.3	22.4	21.9	22.8	22.5	24	
29	22.4	22.4	22.4	22.4	22.4	22.4	22.6	22.6	22.7	22.5	21.7	21.9	22.1	22.0	22.2	22.6	23.0	22.4	22.6	22.6	22.7	22.7	22.7	22.7	21.7	23.0	22.4	24	
30	22.8	22.8	22.7	22.5	22.5	22.5	22.8	22.8	22.7	22.4	22.1	22.0	21.9	22.4	23.2	22.9	22.5	22.2	22.3	22.4	22.3	22.4	22.5	22.4	21.9	23.2	22.5	24	
31	22.3	22.4	22.6	22.5	22.6	22.6	22.7	22.3	22.4	22.1	22.8	22.2	22.5	22.5	22.6	22.1	21.8	22.0	22.2	22.3	22.3	22.2	22.3	22.3	21.8	22.8	22.4	24	
HOURLY MAX	22.9	23.0	23.2	23.2	23.0	22.9	23.0	23.1	22.8	22.6	23.0	22.9	23.0	22.9	23.3	23.2	23.3	23.2	23.2	23.0	23.0	23.1	22.9	22.9					
HOURLY AVG	22.5	22.6	22.6	22.5	22.6	22.5	22.6	22.6	22.5	22.3	22.3	22.3	22.4	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.5	22.5	22.5					

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

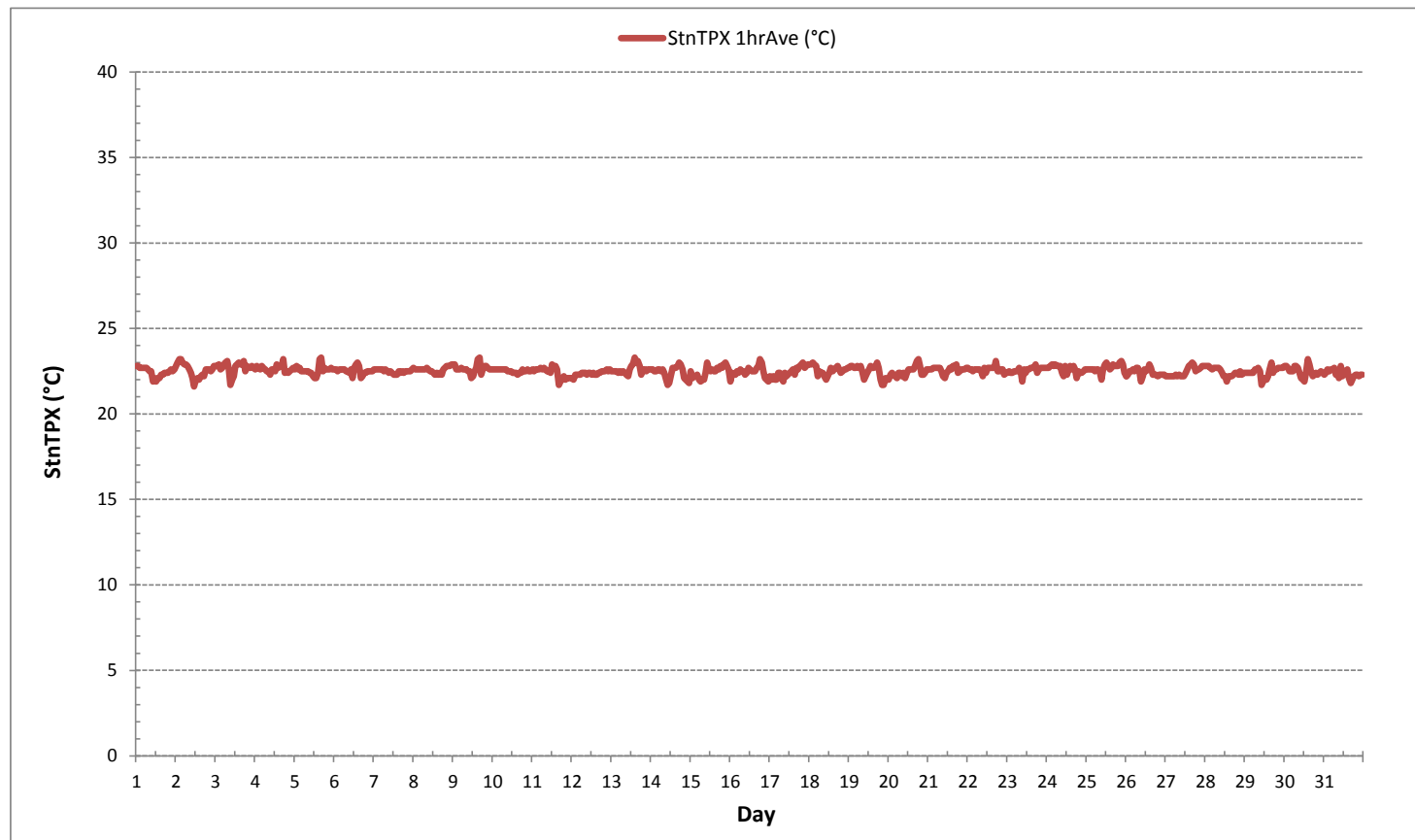
24 HR AVERAGES October 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	21.6	°C	@ HOUR	11	ON DAY	2
MAXIMUM 1-HR AVERAGE:	23.3	°C	@ HOUR	16	ON DAY	5
MAXIMUM 24-HR AVERAGE:	22.7	°C			ON DAY	3
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	0.3		MONTHLY AVERAGE:			22.5 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	October 11, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.68	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires June 19, 2020	22.6	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	11:24	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	14:51	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	835033373 Maxxam	Range ppb:	500		
Last Calibration Date:	September 12, 2018	As Found C.F.:	0.982		
Previous C.F.:	1.001	New C.F.:	0.999		

Calibration Standards:

Low Flow Meter ID/Expiry Date: N/A

High Flow Meter ID/Expiry Date: N/A

Calibrator ID/Expiry Date: Sabio id# 17200415 expires August 21, 2019

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

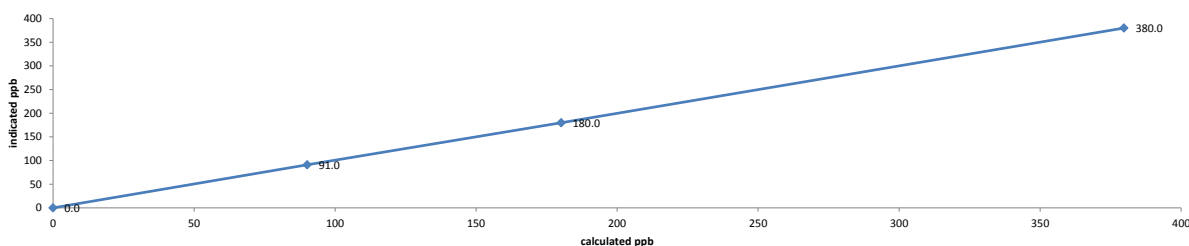
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6000	0.00	6000	0.0	0.3	n/a
as found high	5953	45.10	5998	379.7	387	0.982
adjusted zero	6000	0.00	6000	0.0	0	n/a
adjusted high	5953	45.10	5998	379.7	380	0.999
mid	5977	21.40	5998	180.2	180	1.001
low	5987	10.70	5998	90.1	91	0.990
calibrator zero	6000	0.00	6000	0.0	0.3	n/a
Average C.F. =						0.997

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) =	-0.05%	± 3% F.S.	
% change in C.F. from last cal =	1.90%	± 10%	

Thermo 43i Sulphur Dioxide Analyzer Calibration



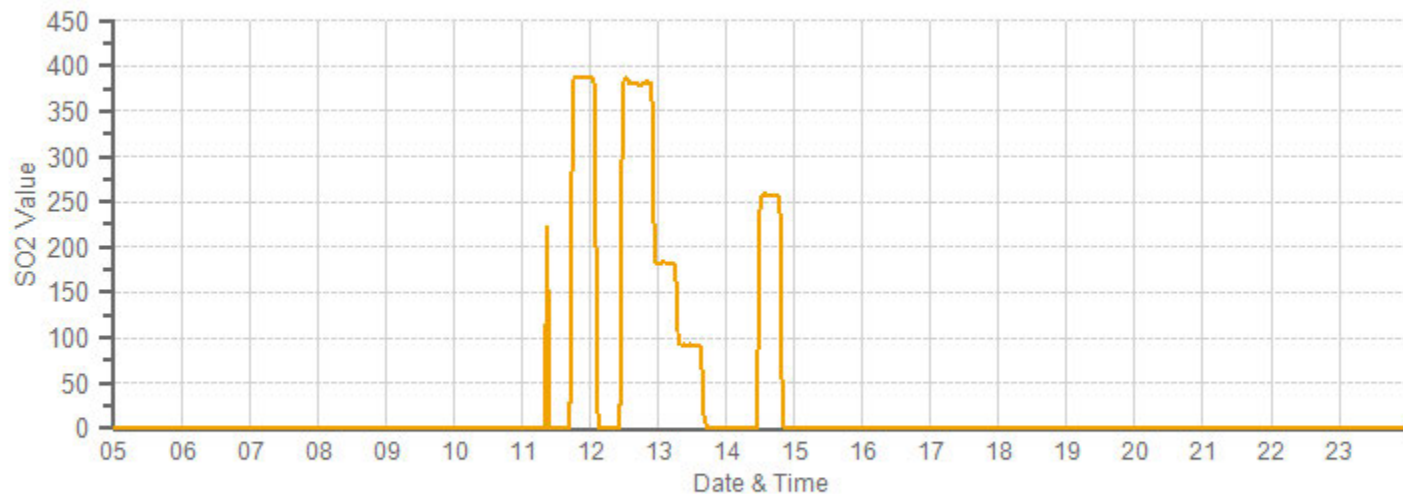
As found:		As left:	
Bkg:	14.2	Bkg:	14.1
Coef:	1.025	Coef:	1.009
Pmt:	-621.6	Pmt:	-621.6
Flash:	890	Flash:	893
Internal:	27.0	Internal:	27.3
Chamber:	45.1	Chamber:	45.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.08	Perm Oven Heater:	44.07
Pressure:	679.6 mmHg	Pressure:	679.6 mmHg
Sample Flow:	0.414 Lpm	Sample Flow:	0.414 Lpm
Lamp Intensity:	81%	Lamp Intensity:	81%
Averaging Time:	120	Averaging Time:	120
Expected Value:	258.6	Expected Value:	255.6

Comments:

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

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

SO2[ppb] Station: PRAMP_842 Periodically: 2018/10/11 05:00-2018/10/11 23:59 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	October 11, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.68	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires June 19, 2020	22.6	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	11:24	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	16:47	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	September 12, 2018	As Found C.F.:	1.050		
Previous C.F.:	1.005	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):								
Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018	<table><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	Start/End Time 24 hr.: 11:27/11:43
Point	ppb									
High	78									
Mid	38									
Low	19									
High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018		SO2 Analyzer Range: 500								
Calibrator ID/Expiry Date: Enviroconics id# 1991 expires March 15, 2019		Target Concentration (ppb): 380								
Cal Gas Cylinder I.D. #: LL119500		As Found Zero: 0.1								
Cal Gas Conc. (ppm): 9.8		Analyzer Response (ppb): 0.2								
		Zero Corrected Result (ppb): 0.1								

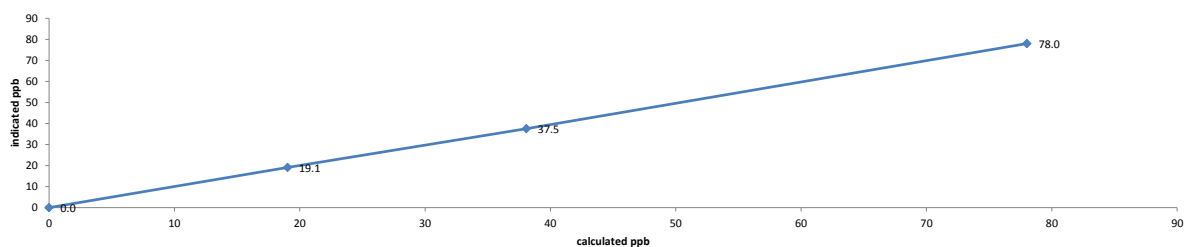
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7476	0.00	7476	0.0	0.1	n/a
as found high	7401	59.73	7461	78.5	74.8	1.050
adjusted zero	7477	0.00	7477	0.0	0.0	n/a
adjusted high	7423	59.57	7483	78.0	78.0	1.000
mid	7439	29.02	7468	38.1	37.5	1.016
low	7458	14.51	7473	19.0	19.1	0.996
calibrator zero	7477	0.00	7477	0.0	0.1	n/a
Average C.F. =						1.004

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.001		0.95-1.05
b (Intercept as % of full scale) =	0.09%		± 3% F.S.
% change in C.F. from last cal =	-4.50%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:	As left:
Bkg: 2.57	Bkg: 2.88
Coef: 0.851	Coef: 0.888
Pmt: -720.4	Pmt: -720.4
Flash: 980	Flash: 978
Internal: 31.3	Internal: 31.2
Chamber: 44.9	Chamber: 45.0
Perm Oven Gas: 45.00	Perm Oven Gas: 45.00
Perm Oven Heater: 44.11	Perm Oven Heater: 44.11
Pressure: 668.1	Pressure: 666.3
Sample Flow: 0.408	Sample Flow: 0.406
Lamp Intensity: 89	Lamp Intensity: 89
Converter: 850	Converter: 850
Converter Set: 850	Converter Set: 850
Averaging Time: 120	Averaging Time: 120
Expected Value: 55.5	Expected Value: 58.0

Comments:

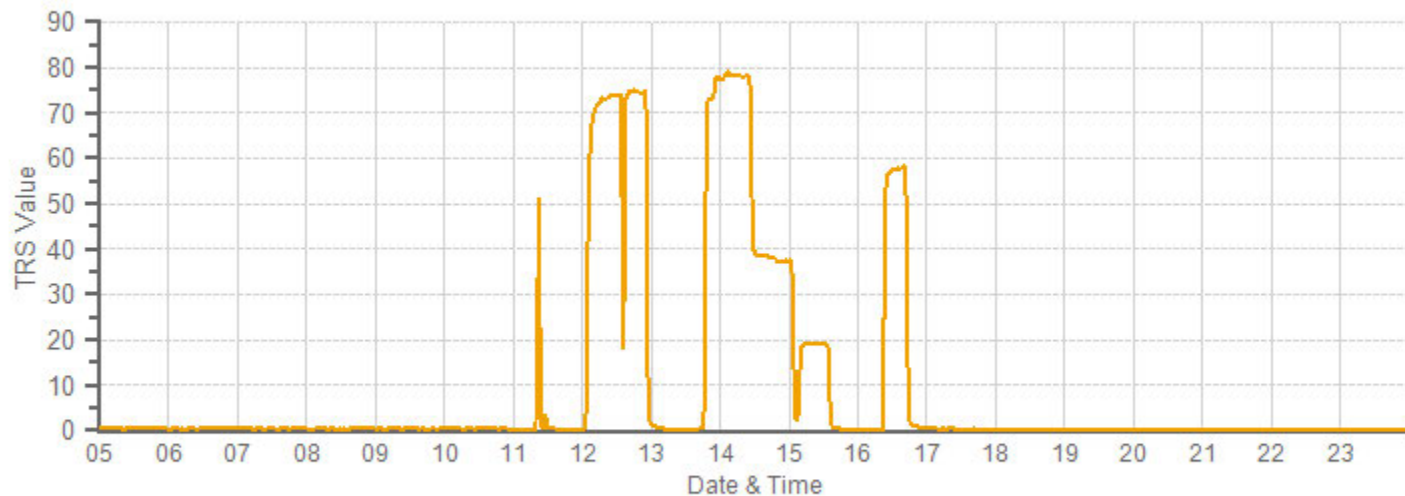
The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

Repurged the regulator during the As Found High point.

TRS[ppb] Station: PRAMP_842 Periodically: 2018/10/11 05:00-2018/10/11 23:59 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	October 11, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.66	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires June 19, 2020	22.3	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	CH ₄ / NMHC / THC	Calibration Purpose:	routine monthly		
Start/End Time 24 hr. (mst):	14:08/18:00	Performed By/Reviewer:	LIMIN LI	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:

Serial Number/Owner:	1433563261	Maxxam
Measured Flow:	1106 sccm	
Last Calibration Date:	September 12, 2018	
Range ppm:	20 CH ₄ /20 NMHC/40 THC	

Previous C.F.:	As Found C.F.:	New C.F.:
CH ₄ = 1.000	1.006	1.001
NMHC = 1.000	1.016	0.999
THC = 1.000	1.011	1.000

Calibration Standards:

Low Flow Meter ID/Expiry Date:	N/A
High Flow Meter ID/Expiry Date:	N/A
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires August 21, 2019
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)				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	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	3414	84.20	3498	14.37	13.64	28.01	14.29	13.42	27.71	1.006	1.016	1.011
adjusted zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	3414	84.20	3498	14.37	13.64	28.01	14.35	13.65	28.00	1.001	0.999	1.000
mid	3456	42.10	3498	7.19	6.82	14.00	7.27	6.84	14.11	0.988	0.997	0.992
low	3477	21.10	3498	3.60	3.42	7.02	3.68	3.40	7.08	0.979	1.005	0.991
calibrator zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F. =										0.989	1.000	0.995

Linear Regression/Calibration Results:				LIMITS
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995
Slope =	1.000	1.000	1.000	0.95-1.05
b (Intercept as % of full scale) =	0.997	1.002	0.999	± 3% F.S.
% change in C.F. from last cal =	-0.56%	-1.61%	-1.07%	± 10%

As Left Instrument Diagnostics:												
Interface Board Voltages:	Bias Supply:	-300.5	Calibration History cnt'd:	NM Peak Area:	88604							
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8							
	Filter:	175		Methane End:	16							
	Column Oven:	75.0		Backflush:	18							
	Internal:	33.1		NMHV Start:	26							
Cylinder Pressures/reg.:	Carrier:	2300 50	Run History>1:	NMHC End:	56							
	Fuel:	2100 50		Date:	11OCT18							
	Span Gas:	1300 24		Time:	12:56							
	Zero Air Generator:	50		CH ₄ PK HT:	2577							
Internal Pressures:	Carrier:	31.7		CH ₄ RT:	13.6							
	Fuel:	37.6		CH ₄ Baseline:	8							
	Air:	34.3		CH ₄ LOD:	246							
FID Status:	Status:	LIT		CH ₄ SD:	82							
	Counts:	21033		CH ₄ CONC:	2.03							
	Flame:	351.2		NM PK HT:	0							
	Det Base:	175		NM Peak Area:	0							
Flame and Power Stats:	Last Power On:	31JUL18 18:54		NM CONC:	0.00							
	Flameouts:	5		NM Base Start:	-38							
	Det Oven at Start:	39.1		NM Base End:	-66							
	Col Oven at Start:	71.2		NM LOD:	23							
Calibration History:	Time:	12SEP18 11:09		NM Start IDX:	25							
	Type:	SPAN		NM End IDX:	55							
	Status:	GOOD		NM Max Slope:	7.9e-01							
	Check/Adjust:	ADJUST		NM Min Slope:	-1.3e+00							
	CH ₄ Span Conc:	14.43		NM PT Count:	0							
	CH ₄ SP Ratio:	0.000788	Expected Values:	Previous CH ₄ :	10.21							
	CH ₄ RT:	13.6		Previous NMHC:	11.06							
	CH ₄ PK IDX:	28		Previous THC:	21.14							
	CH ₄ PK HT:	18306		New CH ₄ :	10.21							
	NM Span Conc:	13.69		New NMHC:	11.06							
	NM SP Ratio:	0.000155		New THC:	21.14							

Comments:

The analyzer sample inlet filter was changed. A new nitrogen cylinder was installed.

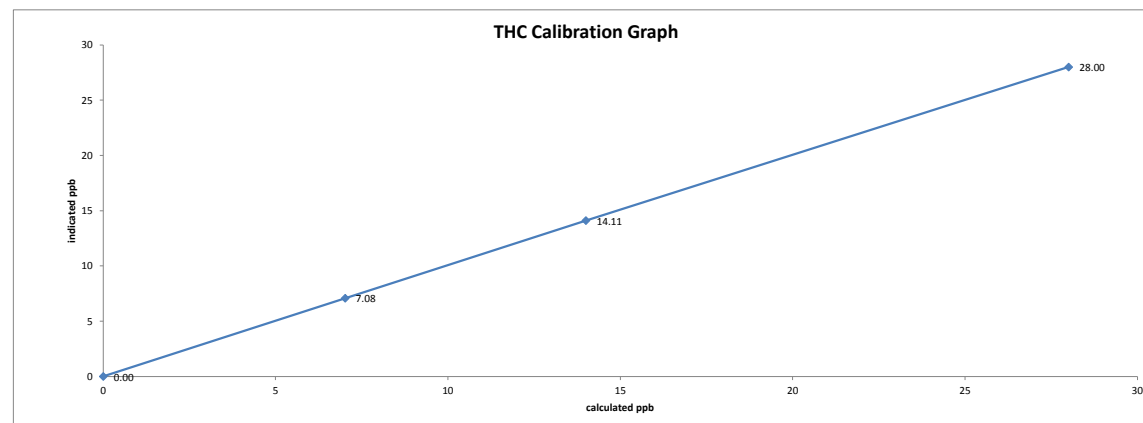
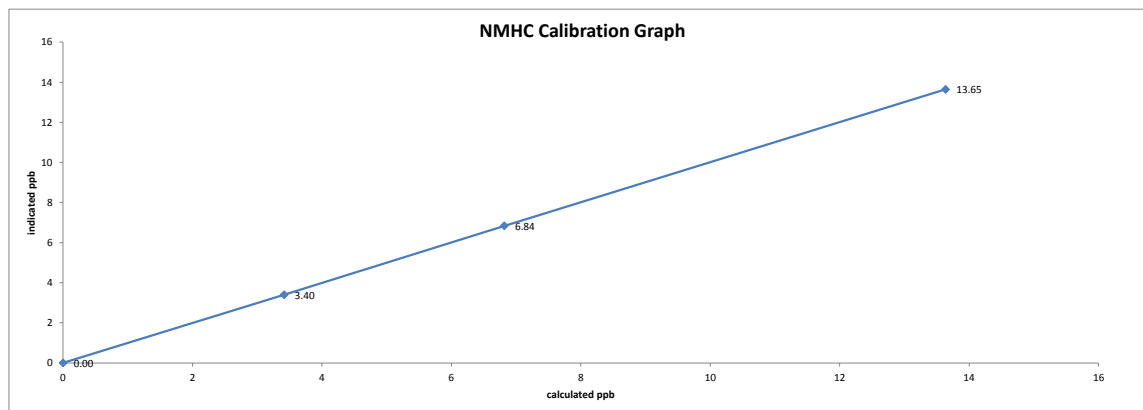
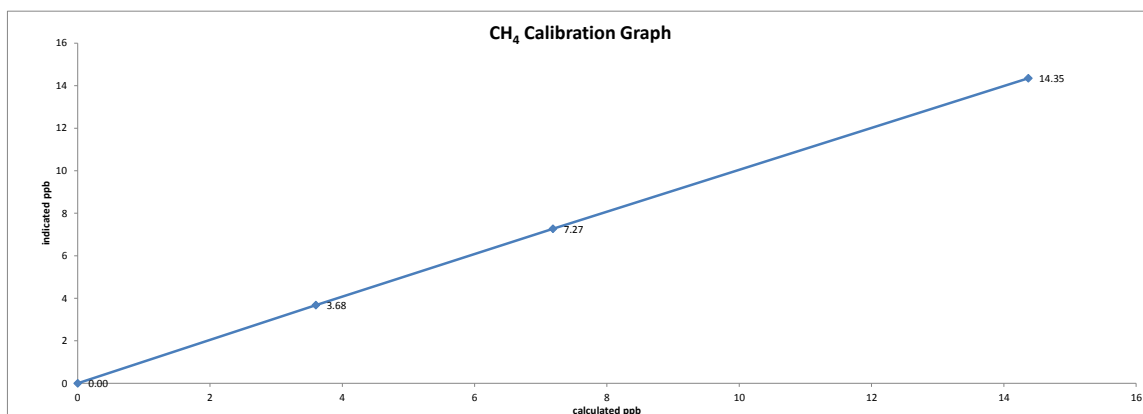
A new hydrogen cylinder was installed. No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.

The analyzer cooling fan filter(s) were cleaned.

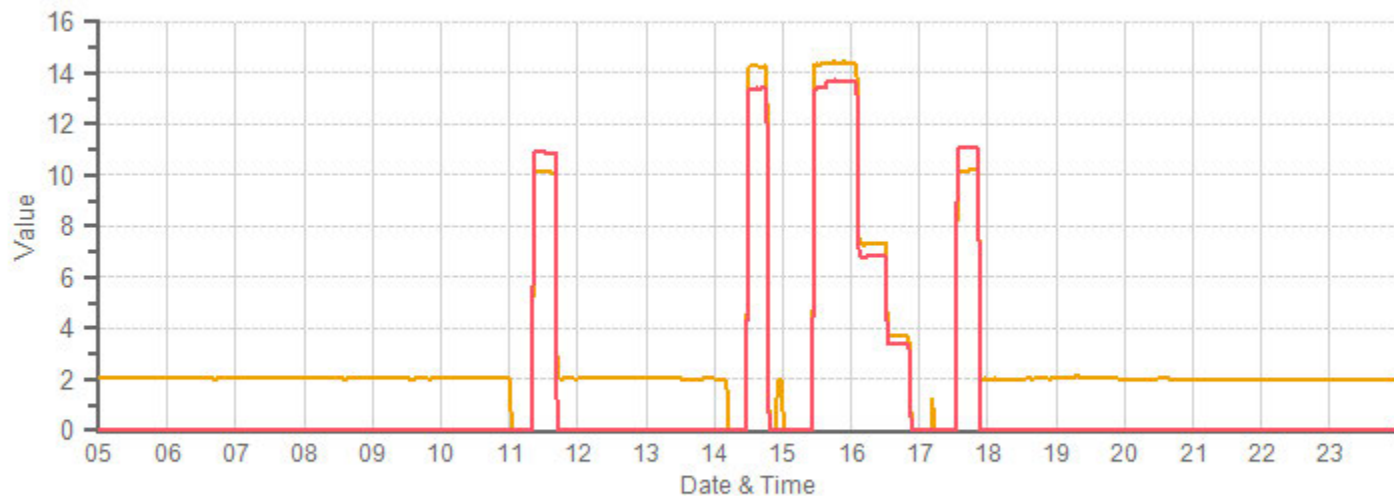
The manifold blower was found to be working normally.

Date: October 11, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 14:08/18:00
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution



Station: PRAMP_842 Periodically: 2018/10/11 05:00-2018/10/11 23:59 Type: AVG 1 Min. [1 Min.]



— CH4[ppm] — NMHC[ppm]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	October 31, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.52	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires June 19, 2020	22.2	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	post repair		
Start/End Time 24 hr. (mst):	13:30/16:40	Performed By/Reviewer:	LIMIN LI	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:		Correction Factors:			
Serial Number/Owner:	1433563261 Maxxam	Previous C.F.:	As Found C.F.:		New C.F.:
Measured Flow:	1085 sccm	CH ₄ =	1.000	n/a	1.001
Last Calibration Date:	October 11, 2018	NMHC =	1.000	n/a	0.999
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.000	n/a	1.000

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	n/a	Point	CH ₄	NMHC	THC
High Flow Meter ID/Expiry Date:	n/a	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires August 21, 2019	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. # :	LL168404	Low	3.00	3.00	6.00
CH ₄ Cylinder Conc. =	597.0 206.0 =C ₂ H ₆ Cylinder Conc.				
CH ₄ expressed as C ₂ H ₆ =	566.5 1163.5 =total CH ₄ equivalent				

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
adjusted zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	3414	84.20	3498	14.37	13.64	28.01	14.36	13.65	28.01	1.001	0.999	1.000
mid	3456	42.10	3498	7.19	6.82	14.00	7.24	6.83	14.07	0.992	0.998	0.995
low	3477	21.10	3498	3.60	3.42	7.02	3.64	3.42	7.06	0.989	0.999	0.994
calibrator zero	3500	0.00	3500	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F.=										0.994	0.999	0.996

Linear Regression/Calibration Results:				LIMITS		
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995		
Slope =	1.000	1.000	1.000	0.95-1.05		
b (Intercept as % of full scale) =	0.999	1.001	1.000	± 3% F.S.		
% change in C.F. from last cal =	0.14%	0.00%	0.07%	n/a		
	n/a	n/a	n/a	n/a		

As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-300.2	Calibration History cnt'd:	NM Peak Area:	87438						
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8						
	Filter:	175		Methane End:	16						
	Column Oven:	75.0		Backflush:	18						
	Internal:	32.5		NMHV Start:	26						
Cylinder Pressures/reg.:	Carrier:	1700 50	Run History>1:	NMHC End:	56						
	Fuel:	1450 50		Date:	31OCT18						
	Span Gas:	1000 24		Time:	15:13						
	Zero Air Generator:	48		CH ₄ PK HT:	4834						
Internal Pressures:	Carrier:	31.7		CH ₄ RT:	13.4						
	Fuel:	37.6		CH ₄ Baseline:	2004						
	Air:	34.3		CH ₄ LOD:	163						
FID Status:	Status:	LIT		CH ₄ SD:	54						
	Counts:	22026		CH ₄ CONC:	3.66						
	Flame:	351.5		NM PK HT:	632						
	Det Base:	175		NM Peak Area:	21827						
Flame and Power Stats:	Last Power On:	31OCT18 11:34		NM CONC:	3.4						
	Flameouts:	5		NM Base Start:	1812						
	Det Oven at Start:	126.8		NM Base End:	1834						
	Col Oven at Start:	65.3		NM LOD:	13						
Calibration History:	Time:	31OCT18 14:22		NM Start IDX:	2						
	Type:	SPAN		NM End IDX:	93						
	Status:	GOOD		NM Max Slope:	3.2e+01						
	Check/Adjust:	ADJUST		NM Min Slope:	-2.2e+01						
	CH ₄ Span Conc:	14.37	Expected Values:	NM PT Count:	83						
	CH ₄ SP Ratio:	0.000752		Previous CH ₄ :	10.11						
	CH ₄ RT:	13.4		Previous NMHC:	11.17						
	CH ₄ PK IDX:	27		Previous THC:	21.28						
	CH ₄ PK HT:	19114		New CH ₄ :	10.11						
	NM Span Conc:	13.64		New NMHC:	11.17						
	NM SP Ratio:	0.000156		New THC:	21.28						

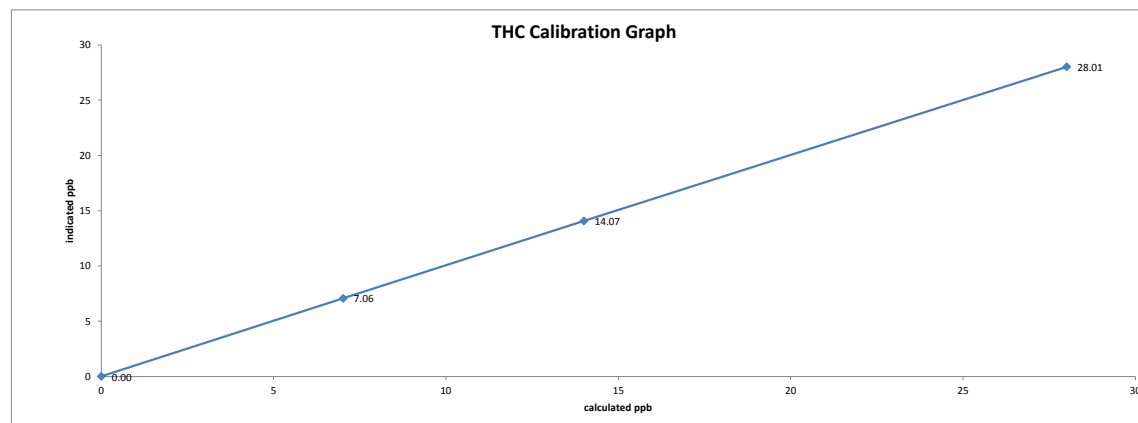
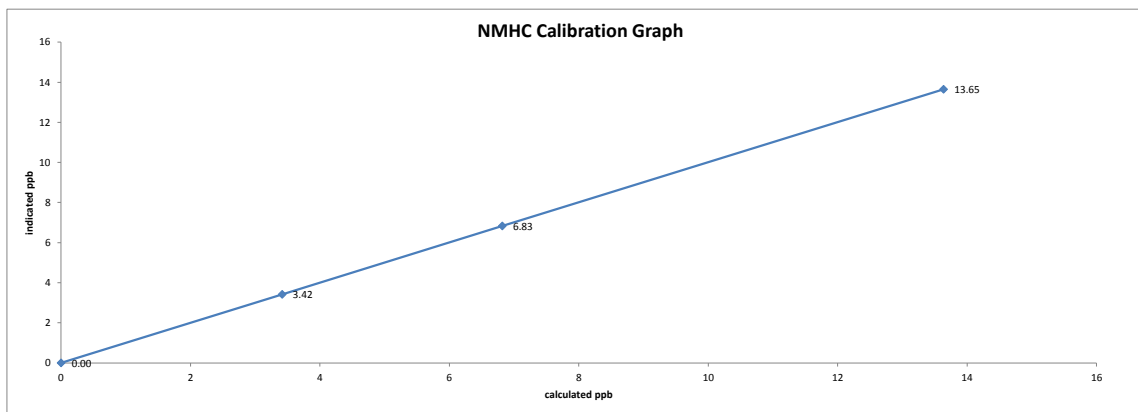
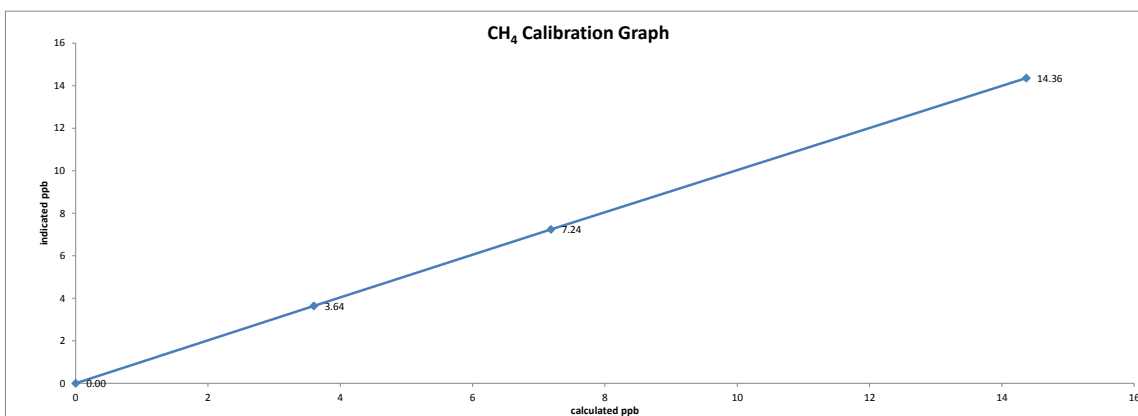
Comments:

The manifold blower was found to be working normally.

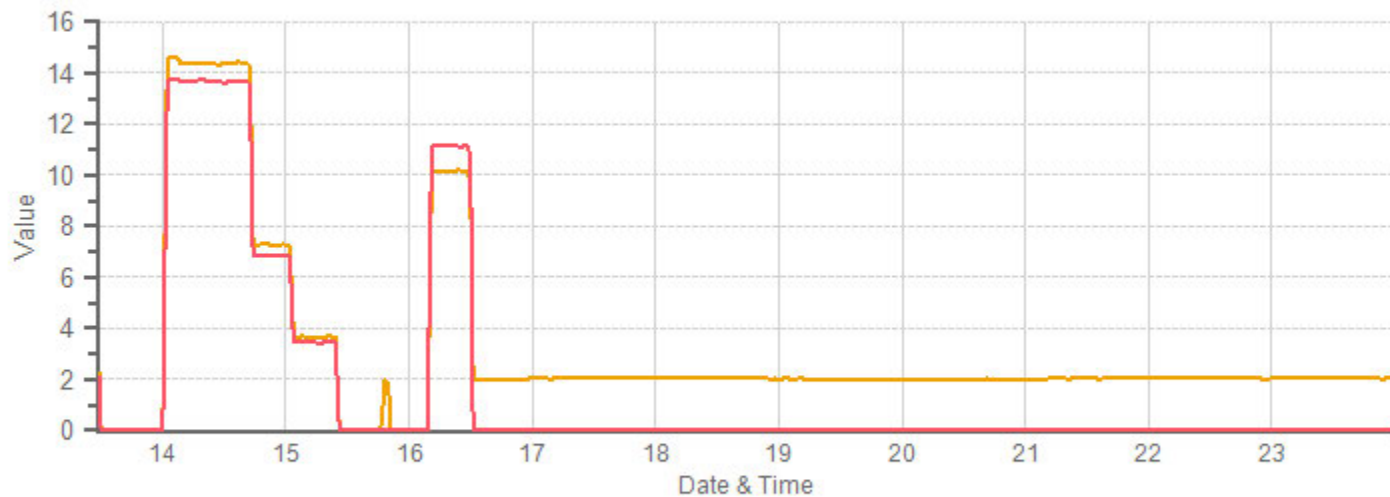
A post repair calibration was performed after replacing the rotor and actuator.

Date: October 31, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 13:30/16:40
Calibration Purpose: post repair
Calibration Method: Gas Dilution



Station: PRAMP_842 Periodically: 2018/10/31 13:29-2018/10/31 23:59 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:	Rob Fisher
Audit Date:	August 22, 2018	Start/End Time (mst):	17:50 / 18:21
Calibration Purpose:	routine annual	Weather Conditions:	Smoke

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0 - 1 V
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200 KPH
Serial #:	124638	Direction Voltage Output Range:	0 - 1 V
Previous Cal/Audit Date:	August 30, 2017	Direction Unit Output Range:	0-360 °

Wind Calibrator Information

Calibrator I.D. and Expiry Date: RM Young 18802 id# CA03309 expires September 25, 2018

Wind Speed Audit Data

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.4	0.4	-
1000	18.4	18.4	18.4	1.002
2000	36.9	36.8	36.8	1.002
3000	55.3	55.2	55.2	1.002
4000	73.7	73.6	73.6	1.002
5000	92.2	91.8	91.9	1.003
6000	110.6	110.2	110.2	1.003
7000	129.0	128.8	128.8	1.002
8000	147.4	147.2	147.2	1.002
9000	165.9	165.6	165.6	1.002
10000	184.3	184.5	184.2	1.000
The audit meets AMD requirements.			Average Correction Factor=	1.002

Wind Direction Audit Data

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	355	1.0	0.0	0.5
30	330	30	330	0.0	0.0	0.0
60	300	60	300	0.0	0.0	0.0
90	270	91	270	-1.0	0.0	0.5
120	240	120	240	0.0	0.0	0.0
150	210	151	211	-1.0	-1.0	1.0
180	180	180	181	0.0	-1.0	0.5
210	150	210	151	0.0	-1.0	0.5
240	120	240	121	0.0	-1.0	0.5
270	90	270	90	0.0	0.0	0.0
300	60	300	60	0.0	0.0	0.0
330	30	330	30	0.0	0.0	0.0
355	0	355	1	0.0	1.0	0.5
The audit meets AMD requirements.			Average Absolute Degrees Difference=		0.3	

Comments:

METEOROLOGICAL SYSTEMS CHECK



Meteorological System Checklist

Date:	October 11, 2018		
Technician:	Limin Li		
Reviewer:	Rob Fisher		
Station:	PRAMP 842B		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Campbell Scientific	HMP45C	C2608
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	Campbell Scientific	HMP45C	C2608
Anemometer:	RM Young	05305VK	124638
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	September 12, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020		
Reference Temperature (°C):	4.6		
Station - Ambient Temperature (°C):	4.1		
Temperature Difference (°C):	0.5		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	September 12, 2018		
Reference Barometer ID:	Brunton 05535 expires December 15, 2018		
Reference Pressure - Units/Reading:	inHg	27.62	
Station Pressure - Units/Reading:	inHg	27.676	
Pressure Tolerance +/- 15% of error:	23 - 32	-0.20%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	September 12, 2018		
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	54.60		
Station Hygrometer % RH- Reading:	54.80		
RH Tolerance +/- 15% of difference:	46.41 - 62.79	-0.4%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	September 12, 2018	Previous check date:	September 12, 2018
Wind Speed Observed (kph):	20 ~ 30	Wind Direction Observed:	N
Wind speed on Data Logger (kph):	24	Wind Direction on Data Logger:	N
		Wind Direction Pass/Fail?:	Pass

CALIBRATORS

Company Maxxam		Operator: Mike	
Calibrator:		Flow Measurement Device:	
Make/Model	Sabio	Make/Model	Bios Definer 220
Serial Number	17200415	Serial Number	H=128686; L=129069
Last Verification Date	May 16, 2017	Temperature (°C)	22.2 C
NO Cylinder S/N	LL104183	Barometric Pressure	706.1mmHg
NO [PPM]	50.8 NOx [PPM] 50.9		
Expiry Date	October 24, 2020		

Dilution Flow (scm)			
Pt. #1 5057	Pt. #2 5055	Pt. #3 5070	
Gas Flow (scm)			
Pt. #1 77.4	Pt. #2 37.9	Pt. #3 19.1	

Calibrator Flow (scm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5102	0.0	0.0000	0.0000	0.0001	-0.0002	-0.0001	Limit ± 10%	
5057	77.4	0.7775	0.7779	0.7973	0.0012	0.7985	3%	3%
5055	37.9	0.3809	0.3816	0.3896	0.0000	0.3896	2%	2%
5070	19.1	0.1914	0.1918	0.1962	0.0000	0.1962	2%	2%
Absolute Average Percent Difference							2%	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)=	1.0253	0.90-1.10		m (Slope)=	1.0266
b (Intercept % of FS)=	-0.0176	± 3% F.S.		b (Intercept % of FS)=	-0.0763

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5057	0.0	0.0000	0.7868	0.0006	0.7874	NO ₂	% Diff. Limit
5057	500.0	0.5003	0.2865	0.5016	0.7875	0%	± 10%
5057	275.0	0.2802	0.5066	0.2797	0.7862	0%	± 10%
5057	100.0	0.1053	0.6815	0.1046	0.7863	-1%	± 10%
Absolute Average Percent Difference						0%	± 10%

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)
NO₂		LIMITS		
Correlation=	1.0000	≥ 0.995		
m (Slope)=	1.0020	0.90-1.10		
b (Intercept % of FS)=	-0.0259	± 3% F.S.		

AENV Standards		NO_x Analyzer	
Audit Calibrator			
Make/Model	Thermo 146i	Make/Model	Thermo 42i
Serial/AMU Number	1809	Serial/AMU Number	1868
SRM Gas Cylinder No.	APEX1170572	Last Calibration Date	August 16, 2018
Cylinder Conc. (ppm)	49.99	Full Scale (ppm)	1.0
		Cylinder Gas Expiry Date	November 15, 2020

COMMENTS:

Auditor: Shea Beaton

Operator Signature: 

Date: August 21, 2018

Location: McIntyre Center Edmonton

Company: Maxxam		Operator: Chris W	
Calibrator:		Flow Measurement Device:	
Make/Model	Envionics 2000	Make/Model	Mesa Defender 530
Serial Number	1991	Serial Number	L-153351 H-152571
Last Verification Date	March 2017	Temperature (°C)	25.0 C
NO Cylinder S/N	LL108015	Barometric Pressure	695 mmHg
NO [PPM]	52.2	NOx [PPM]	52.3
Expiry Date	Oct 2020		

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
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4988	75.1	0.786	0.787	0.785	-0.002	0.783	0%	-1%
4988	36.5	0.382	0.383	0.382	0.001	0.383	0%	0%
4988	18.3	0.192	0.192	0.190	0.000	0.190	-1%	-1%
Absolute Average Percent Difference							0%	1%

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

NO	LIMITS	NOx
Correlation= 1.0000	≥ 0.990	Correlation= 1.0000
m (Slope)= 0.9996	0.90-1.10	m (Slope)= 0.9956
b (Intercept % of FS)= -0.0599	± 3% F.S.	b (Intercept % of FS)= -0.0005

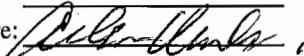
Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4988	0.000	0.000	0.788	-0.001	0.787	NO ₂	% Diff. Limit
4988	0.350	0.519	0.269	0.512	0.780	-1%	± 10%
4988	0.160	0.231	0.557	0.229	0.786	0%	± 10%
4988	0.070	0.099	0.689	0.097	0.787	-1%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

NO₂	LIMITS	
Correlation= 1.0000	≥ 0.995	
m (Slope)= 0.9885	0.90-1.10	
b (Intercept % of FS)= -0.0567	± 3% F.S.	

AENV Standards	NO_x Analyzer
Audit Calibrator	
Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1170572
Cylinder Conc. (ppm)	49.99
	Make/Model
	Teco 42i
	Serial/AMU Number
	AMU 1868
	Last Calibration Date
	March 14, 2018
	Full Scale (ppm)
	1.0
	Cylinder Gas Expiry Date
	November 2020

COMMENTS: Cylinder contains 47.9 ppm SO₂.

Auditor: Al Clark
Operator Signature: 

Date: March 15, 2018
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			
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



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-488CGA

Company: Maxxam **Operators name:** Mike
Cylinder #: LL168404 **Conc CH₄ (PPM)** 597/206 **Tolerance (%)** 2 **Certified By:** Praxair
Expiry Date: October 2025

Reference Calibrator and Gas:				Flow Measurement Device:	
Make/Model	R&R MFC 201			Make/Model	Mesa Definer 220
Serial Number	AMU 1690			Serial Number	H-133034 / L-132702
Last Verification Date	December 13, 2017			Temp. °C	23.1 C
Gas Type	CH ₄	Conc.	990.4	B.P.	707 mmHg
Cylinder Number	5604875	Expiry Date	July 2021		
Gas Type	C ₃ H ₈	Conc.	246.5		
Cylinder Number	XF003845B	Expiry Date	July 2022		

Reference Analyzer:

Make/Model: Teco 55i Serial/AMU Number: 2108
Instrument Settings: Zero: N/A Span: N/A Range: 20.0
Last Calibration: Date: Dec 12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
3500	0.0	0.00	0.00				
3618	80.4	13.22	12.69	0.02	45.00	595	208
3547	39.8	6.64	6.42	0.01	89.12	592	208
3560	19.8	3.33	3.23	0.01	179.80	599	211
Average Cylinder Concentration:						595	209

	<u>CH₄</u>	<u>C₃H₈</u>
Previous Stated Concentration PPM:	597	206
Percent variance from Stated:	0	1

Cylinder gas tolerances based on CH₄ only

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 Date: December 13, 2017
Operator Signature: *[Signature]* Location: McIntyre Center Edmonton

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



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

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

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

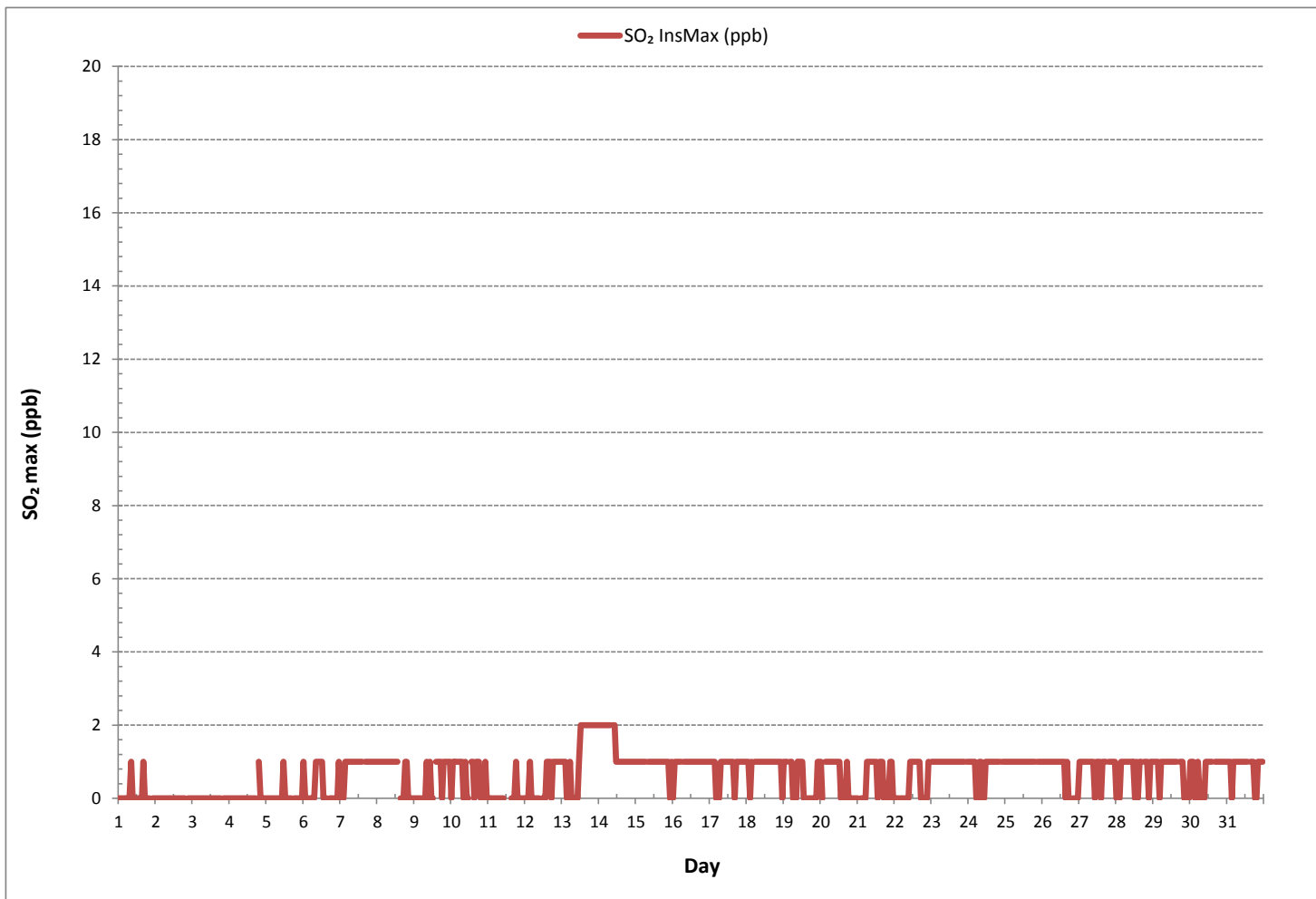
STATUS FLAG CODES

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:		425						
MAXIMUM INSTANTANEOUS VALUE:		2	ppb	@ HOUR	12	ON DAY	13	
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:			744	hrs
MONTHLY CALIBRATION TIME:		4	hrs					
STANDARD DEVIATION:		1						

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 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	0.31	0.29	0.31	0.30	0.28	0.29	0.27	0.29	0.29	0.37	0.34	0.33	0.27	0.30	0.28	0.28	0.28	0.30	0.28	0.29	0.28	\$	0.33	0.31	0.27	0.37	0.30	24	
2	0.29	0.29	0.29	0.28	0.29	0.30	0.33	0.32	0.33	0.29	0.30	0.28	0.28	0.29	0.30	0.30	0.30	0.29	0.33	0.32	\$	0.37	0.36	0.34	0.28	0.37	0.31	24	
3	0.32	0.32	0.33	0.33	0.32	0.31	0.31	0.31	0.33	0.29	0.30	0.28	0.31	0.30	0.29	0.32	0.30	0.31	0.30	\$	0.33	0.30	0.30	0.30	0.28	0.33	0.31	24	
4	0.29	0.29	0.29	0.30	0.30	0.30	0.29	0.31	0.30	0.29	0.31	0.31	0.31	0.32	0.32	0.31	0.38	0.33	\$	0.34	0.30	0.34	0.32	0.31	0.29	0.38	0.31	24	
5	0.31	0.31	0.33	0.33	0.34	0.34	0.35	0.34	0.32	0.32	0.32	0.31	0.32	0.32	0.32	0.32	\$	0.40	0.32	0.32	0.34	0.32	0.32	0.31	0.40	0.33	24		
6	0.34	0.33	0.32	0.31	0.32	0.33	0.32	0.32	0.33	0.33	0.31	0.32	0.32	0.32	0.33	0.34	\$	0.48	0.33	0.32	0.32	0.34	0.32	0.32	0.31	0.48	0.33	24	
7	0.31	0.31	0.29	0.31	0.30	0.31	0.33	0.32	0.33	0.30	0.33	0.30	0.32	0.32	0.32	\$	0.33	0.30	0.29	0.29	0.31	0.30	0.32	0.31	0.29	0.33	0.31	24	
8	0.30	0.31	0.30	0.30	0.31	0.29	0.30	0.29	0.29	0.30	0.31	0.28	0.28	0.29	\$	0.31	0.29	0.30	0.29	0.29	0.30	0.31	0.29	0.30	0.28	0.31	0.30	24	
9	0.30	0.29	0.30	0.31	0.30	0.31	0.31	0.32	0.31	0.30	0.32	0.30	0.31	\$	0.34	0.33	0.31	0.30	0.30	0.30	0.30	0.30	0.29	0.30	0.29	0.34	0.31	24	
10	0.31	0.29	0.30	0.30	0.29	0.30	0.32	0.31	0.31	0.33	0.34	0.34	\$	0.36	0.36	0.35	0.35	0.33	0.38	0.37	0.36	0.34	0.35	0.36	0.29	0.38	0.33	24	
11	0.36	0.36	0.36	0.34	0.36	0.33	0.32	0.31	0.31	0.32	0.32	\$	C	C	C	C	C	C	0.27	0.21	0.21	0.16	0.17	0.18	0.21	0.16	0.36	0.28	24
12	0.21	0.20	0.20	0.12	0.09	0.08	0.07	0.08	0.09	0.07	\$	0.13	0.09	0.09	0.13	0.13	0.19	0.19	0.17	0.14	0.16	0.20	0.26	0.20	0.07	0.26	0.14	24	
13	0.19	0.19	0.24	0.26	0.26	0.28	0.31	0.36	0.33	\$	0.19	0.11	0.14	0.16	0.15	0.13	0.15	0.17	0.20	0.31	0.38	0.37	0.37	0.39	0.11	0.39	0.25	24	
14	0.37	0.37	0.34	0.30	0.31	0.30	0.29	0.24	\$	0.23	0.20	0.24	0.22	0.19	0.19	0.21	0.24	0.15	0.15	0.15	0.19	0.20	0.20	0.17	0.15	0.37	0.24	24	
15	0.17	0.16	0.20	0.18	0.17	0.17	0.17	\$	0.27	0.24	0.24	0.22	0.21	0.31	0.19	0.18	0.11	0.11	0.11	0.10	0.09	0.20	0.25	0.34	0.09	0.34	0.19	24	
16	0.25	0.21	0.22	0.35	0.36	0.27	\$	0.24	0.25	0.26	0.20	0.20	0.16	0.14	0.11	0.12	0.15	0.17	0.14	0.14	0.13	0.12	0.13	0.14	0.11	0.36	0.19	24	
17	0.12	0.12	0.14	0.14	0.12	\$	0.15	0.15	0.13	0.14	0.14	0.13	0.14	0.13	0.12	0.13	0.12	0.13	0.14	0.15	0.12	0.12	0.12	0.12	0.12	0.15	0.13	24	
18	0.13	0.14	0.13	0.13	\$	0.16	0.15	0.14	0.13	0.22	0.16	0.16	0.15	0.11	0.12	0.14	0.16	0.30	0.33	0.31	0.34	0.30	0.14	0.15	0.11	0.34	0.18	24	
19	0.09	0.09	0.13	\$	0.16	0.15	0.16	0.17	0.17	0.20	0.19	0.16	0.14	0.13	0.12	0.13	0.12	0.12	0.12	0.11	0.11	0.10	0.11	0.10	0.09	0.20	0.13	24	
20	0.11	0.11	\$	0.22	0.18	0.19	0.17	0.21	0.12	0.14	0.12	0.11	0.11	0.10	0.10	0.11	0.11	0.12	0.09	0.11	0.14	0.13	0.12	0.11	0.09	0.22	0.13	24	
21	0.13	\$	0.16	0.13	0.12	0.13	0.13	0.12	0.15	0.14	0.14	0.13	0.14	0.14	0.12	0.12	0.13	0.12	0.13	0.14	0.13	0.12	0.12	0.12	0.12	0.16	0.13	24	
22	\$	0.16	0.15	0.13	0.12	0.12	0.14	0.14	0.12	0.12	0.14	0.14	0.14	0.13	0.12	0.14	0.14	0.15	0.12	0.11	0.12	0.16	0.14	\$	0.11	0.16	0.13	24	
23	0.17	0.16	0.15	0.17	0.17	0.16	0.17	0.12	0.15	0.17	0.17	0.17	0.17	0.17	0.19	0.18	0.18	0.18	0.17	0.15	0.15	0.19	\$	0.24	0.12	0.24	0.17	24	
24	0.29	0.32	0.28	0.28	0.23	0.20	0.18	0.20	0.14	0.14	0.21	0.22	0.19	0.21	0.20	0.22	0.23	0.24	0.26	0.21	0.17	\$	0.21	0.20	0.14	0.32	0.22	24	
25	0.19	0.19	0.20	0.18	0.16	0.18	0.15	0.15	0.13	0.13	0.14	0.16	0.16	0.16	0.13	0.15	0.15	0.13	0.13	0.13	\$	0.16	0.14	0.13	0.13	0.20	0.15	24	
26	0.12	0.13	0.12	0.14	0.11	0.11	0.13	0.13	0.12	0.13	0.12	0.14	0.13	0.13	0.13	0.13	0.12	0.11	0.12	\$	0.16	0.14	0.14	0.14	0.11	0.16	0.13	24	
27	0.16	0.15	0.14	0.12	0.11	0.12	0.14	0.11	0.12	0.12	0.10	0.11	0.12	0.08	0.08	0.10	0.10	0.09	\$	0.13	0.10	0.09	0.09	0.11	0.08	0.16	0.11	24	
28	0.12	0.11	0.11	0.13	0.12	0.11	0.12	0.10	0.11	0.10	0.10	0.10	0.09	0.09	0.10	0.08	0.10	\$	0.14	0.08	0.10	0.27	0.43	0.52	0.08	0.52	0.14	24	
29	0.51	0.35	0.24	0.23	0.28	0.31	0.27	0.19	0.28	0.29	0.23	0.22	0.20	0.20	0.25	0.24	\$	0.20	0.16	0.18	0.20	0.26	0.27	0.24	0.16	0.51	0.25	24	
30	0.18	0.21	0.29	0.32	0.28	0.25	0.23	0.21	0.16	0.18	0.16	0.19	0.19	0.14	0.13	\$	0.17	0.17	0.14	0.13	0.15	0.15	0.15	0.18	0.13	0.32	0.19	24	
31	0.14	0.16	0.17	0.24	0.27	0.29	0.27	0.23	0.23	0.20	0.18	0.19	0.15	0.15	\$	0.18	0.16	0.33	0.24	0.14	0.07	0.09	0.14	0.15	0.07	0.33	0.19	24	
HOURLY MAX	0.51	0.37	0.36	0.35	0.36	0.34	0.35	0.36	0.33	0.37	0.34	0.34	0.32	0.36	0.36	0.35	0.38	0.48	0.40	0.37	0.38	0.37	0.43	0.52					
HOURLY AVG	0.24	0.23	0.23	0.24	0.23	0.23	0.23	0.22	0.22	0.22	0.22	0.21	0.20	0.20	0.20	0.20	0.20	0.22	0.21	0.21	0.21	0.22	0.23	0.24					

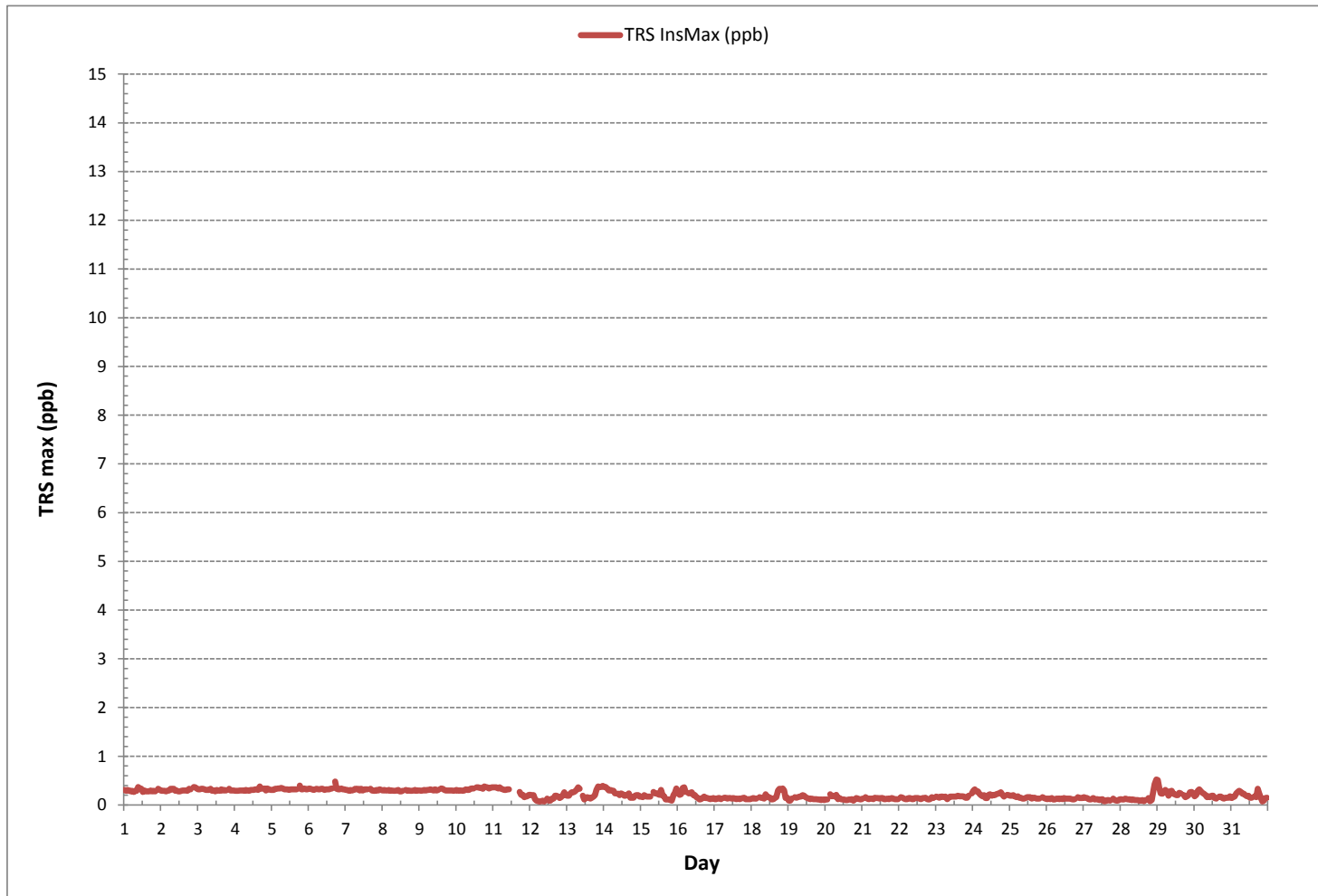
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		707					
MAXIMUM INSTANTANEOUS VALUE:		0.52	ppb	@ HOUR	23	ON DAY	28
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:		744	hrs
MONTHLY CALIBRATION TIME:		6	hrs				
STANDARD DEVIATION:		0.09					

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	2.24	2.20	2.17	2.13	2.12	2.09	2.11	2.09	2.05	2.05	2.00	1.99	1.98	1.98	1.98	2.00	1.99	2.00	2.00	2.00	2.00	\$	2.00	2.01	1.98	2.24	2.05	24	
2	2.02	2.04	2.04	2.03	2.04	2.05	2.05	2.04	2.04	2.01	1.98	1.96	1.96	1.97	1.98	1.98	1.97	1.97	1.98	2.05	2.04	\$	2.03	2.03	2.00	1.96	2.05	2.01	24
3	2.00	2.02	2.06	2.06	2.08	2.07	2.06	2.06	2.03	1.98	1.96	1.97	1.97	1.98	1.98	1.99	1.98	1.98	1.99	\$	2.03	2.00	2.00	2.00	2.00	1.96	2.08	2.01	24
4	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.04	2.03	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.01	\$	2.00	2.00	2.01	2.01	2.01	2.00	2.04	2.01	24	
5	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.01	2.01	\$	2.01	2.02	2.02	2.01	2.02	2.01	1.99	2.02	2.01	24	
6	2.02	2.02	2.03	2.02	2.04	2.03	2.04	2.05	2.07	2.08	2.03	2.02	2.03	2.03	2.03	2.02	\$	2.00	2.01	2.04	2.04	2.03	2.03	2.02	2.00	2.08	2.03	24	
7	2.03	2.03	2.02	2.03	2.04	2.03	2.05	2.06	2.05	2.04	2.03	2.02	2.02	2.02	2.01	\$	2.00	2.01	2.01	2.01	2.01	2.02	2.03	2.02	2.00	2.06	2.03	24	
8	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.01	2.01	2.01	2.01	2.01	2.00	1.99	\$	1.99	1.99	1.99	2.02	2.02	2.01	2.01	2.02	2.01	1.99	2.03	2.01	24	
9	2.04	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	\$	2.00	1.99	2.01	2.00	2.00	2.01	2.01	2.01	2.01	2.01	1.99	2.04	2.00	24	
10	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.03	2.03	2.04	2.03	2.04	\$	2.04	2.05	2.04	2.03	2.04	2.06	2.04	2.06	2.04	2.03	2.03	2.01	2.06	2.03	24	
11	2.04	2.04	2.04	2.05	2.04	2.04	2.02	2.03	2.02	2.02	2.03	\$	2.03	2.02	C	C	C	C	2.02	2.06	2.01	1.97	1.96	1.97	1.96	2.06	2.02	24	
12	1.97	1.98	1.98	1.97	1.98	1.98	1.99	1.99	2.00	2.00	\$	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.04	1.97	2.04	1.99	24	
13	2.03	2.02	2.04	2.03	2.01	2.01	2.06	2.09	2.09	\$	2.00	1.98	1.99	2.00	2.00	2.00	1.99	2.01	1.99	2.01	2.01	2.00	2.01	2.01	1.98	2.09	2.02	24	
14	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	\$	2.00	1.99	1.98	1.97	1.99	1.98	1.97	1.98	1.97	1.97	1.98	1.98	1.96	1.97	1.95	1.95	2.01	1.99	24	
15	1.96	1.95	1.95	1.96	1.96	1.96	1.95	\$	1.96	1.96	1.96	1.98	1.96	1.96	1.96	1.96	1.95	1.95	1.97	1.98	1.98	1.99	2.01	2.04	1.95	2.04	1.97	24	
16	1.99	1.98	2.00	2.01	2.01	2.01	\$	2.03	2.03	2.02	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.02	1.98	1.96	1.96	1.96	2.03	2.00	24	
17	1.96	1.97	1.96	1.96	1.96	\$	1.96	1.98	1.99	1.99	1.98	1.98	2.00	1.97	1.96	1.95	1.97	1.99	1.96	1.99	1.97	1.96	1.96	1.97	1.95	2.00	1.97	24	
18	1.97	1.98	1.99	1.99	\$	1.97	1.99	2.00	1.98	1.95	1.95	1.95	1.95	1.96	1.96	1.97	1.98	1.99	1.99	1.99	2.00	2.04	2.02	2.04	1.95	2.04	1.98	24	
19	2.03	2.04	2.05	\$	2.04	2.04	2.04	2.06	2.06	2.05	2.01	2.03	2.00	2.00	1.99	1.99	1.99	2.00	2.02	2.01	1.98	1.97	1.97	1.98	1.97	2.06	2.02	24	
20	1.98	1.99	\$	2.01	2.00	2.03	2.03	2.02	1.96	1.96	1.95	1.96	1.96	1.97	1.96	1.97	1.97	1.97	1.98	1.98	1.96	1.98	1.96	1.98	1.95	2.03	1.98	24	
21	2.01	\$	2.00	2.00	2.01	2.01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.00	2.01	2.01	6	
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
31	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.03	2.03	2.00	2.00	2.02	2.02	2.02	2.00	2.03	2.02	7	
HOURLY MAX	2.24	2.20	2.17	2.13	2.12	2.09	2.11	2.09	2.09	2.08	2.03	2.04	2.03	2.04	2.05	2.04	2.03	2.04	2.06	2.06	2.06	2.04	2.03	2.04					
HOURLY AVG	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.02	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.00	2.00	2.00	2.00					

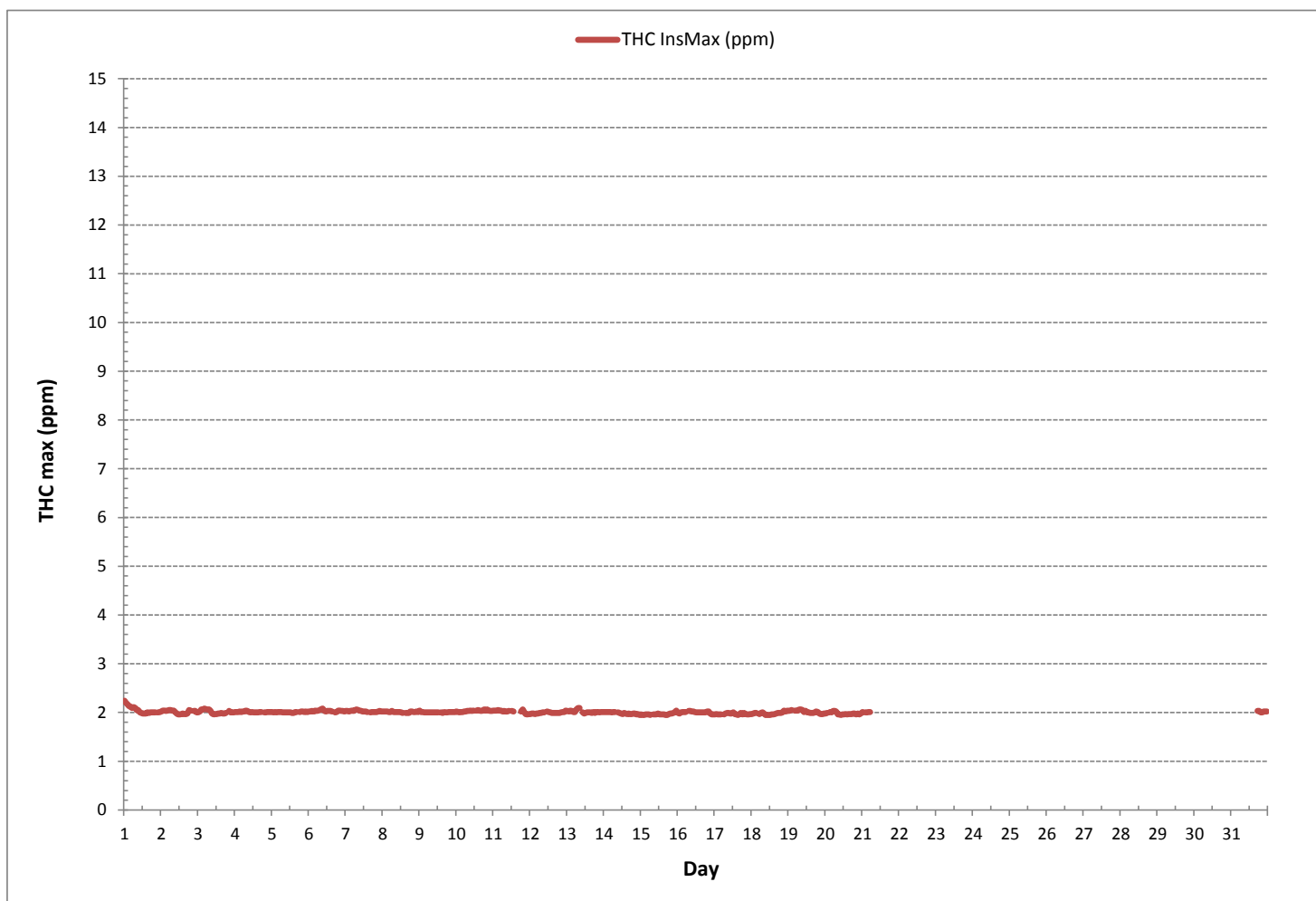
STATUS FLAG CODES

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:	468				
MAXIMUM INSTANTANEOUS VALUE:	2.24	ppm	@ HOUR	0	ON DAY 1
IZS CALIBRATION TIME:	21	hrs	OPERATIONAL TIME:	493	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.03				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY																													
1	2.24	2.20	2.17	2.13	2.12	2.09	2.11	2.09	2.05	2.05	2.00	1.99	1.98	1.98	1.98	1.99	1.99	2.00	2.00	2.00	2.00	S	2.00	2.01	1.98	2.24	2.05	2.4	
2	2.02	2.04	2.04	2.03	2.04	2.05	2.05	2.04	2.04	2.01	1.98	1.96	1.96	1.97	1.98	1.98	1.97	1.97	1.98	2.05	2.04	S	2.03	2.03	2.00	1.96	2.05	2.01	24
3	2.00	2.02	2.06	2.06	2.08	2.07	2.06	2.06	2.03	1.98	1.96	1.97	1.97	1.98	1.98	1.99	1.98	1.98	1.99	S	2.03	2.00	2.00	2.00	2.00	1.96	2.08	2.01	24
4	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.04	2.03	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.01	2.01	S	2.00	2.00	2.01	2.01	2.01	2.00	2.04	2.01	24	
5	2.01	2.00	2.01	2.00	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.01	2.01	S	2.01	2.02	2.02	2.01	2.02	2.01	1.99	2.02	2.01	24	
6	2.02	2.02	2.03	2.02	2.04	2.03	2.04	2.05	2.07	2.08	2.03	2.02	2.03	2.03	2.03	2.02	S	2.00	2.01	2.04	2.04	2.03	2.03	2.02	2.00	2.08	2.03	24	
7	2.03	2.03	2.02	2.03	2.04	2.03	2.05	2.06	2.05	2.04	2.03	2.02	2.02	2.02	2.01	S	2.00	2.01	2.01	2.01	2.01	2.02	2.03	2.02	2.00	2.06	2.03	24	
8	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.01	2.01	2.01	2.01	2.00	1.99	S	1.99	1.99	1.99	2.01	2.02	2.02	2.01	2.01	2.02	2.01	1.99	2.03	2.01	24	
9	2.04	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	S	2.00	1.99	2.01	2.00	2.00	2.01	2.01	2.01	2.01	2.01	1.99	2.04	2.00	24	
10	2.02	2.01	2.01	2.01	2.01	2.02	2.02	2.03	2.03	2.04	2.03	2.04	S	2.04	2.05	2.04	2.03	2.04	2.06	2.04	2.06	2.04	2.03	2.03	2.01	2.06	2.03	24	
11	2.04	2.04	2.04	2.05	2.04	2.04	2.02	2.03	2.02	2.02	2.03	S	2.03	2.02	C	C	C	C	2.02	2.06	2.01	1.97	1.96	1.97	1.96	2.06	2.02	24	
12	1.97	1.98	1.98	1.97	1.98	1.98	1.99	1.99	2.00	2.00	S	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.04	1.97	2.04	1.99	24	
13	2.03	2.02	2.04	2.03	2.01	2.01	2.06	2.09	2.09	S	2.00	1.98	1.99	2.00	2.00	2.00	1.99	2.01	1.99	2.01	2.01	2.00	2.01	2.01	1.98	2.09	2.02	24	
14	2.01	2.01	2.01	2.01	2.01	2.00	2.01	2.01	S	2.00	1.99	1.98	1.97	1.99	1.98	1.97	1.98	1.97	1.97	1.98	1.98	1.96	1.97	1.95	1.95	2.01	1.99	24	
15	1.96	1.95	1.95	1.96	1.96	1.96	1.95	S	1.96	1.96	1.96	1.98	1.96	1.96	1.96	1.96	1.95	1.95	1.97	1.98	1.98	1.99	2.01	2.04	1.95	2.04	1.97	24	
16	1.99	1.98	2.00	2.01	2.01	2.01	S	2.03	2.03	2.02	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.02	2.02	1.98	1.96	1.96	1.96	2.03	2.00	24	
17	1.96	1.97	1.96	1.96	1.96	S	1.96	1.98	1.99	1.99	1.98	1.98	2.00	1.97	1.96	1.95	1.97	1.99	1.96	1.99	1.97	1.96	1.96	1.97	1.95	2.00	1.97	24	
18	1.97	1.98	1.99	1.99	S	1.97	1.99	2.00	1.98	1.95	1.95	1.95	1.95	1.96	1.96	1.97	1.98	1.99	1.99	1.99	2.00	2.04	2.02	2.04	1.95	2.04	1.98	24	
19	2.03	2.04	2.05	S	2.04	2.04	2.04	2.06	2.06	2.05	2.01	2.03	2.00	2.00	1.99	1.99	1.99	2.00	2.02	2.01	1.98	1.97	1.97	1.98	1.97	2.06	2.02	24	
20	1.98	1.99	S	2.01	2.00	2.03	2.03	2.02	1.96	1.96	1.95	1.96	1.96	1.97	1.96	1.97	1.97	1.97	1.98	1.98	1.96	1.98	1.96	1.98	1.95	2.03	1.98	24	
21	2.01	S	2.00	2.00	2.01	2.01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.00	2.01	2.01	6	
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	0	
31	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	2.03	2.03	2.00	2.00	2.02	2.02	2.02	2.00	2.03	2.02	7
HOURLY MAX	2.24	2.20	2.17	2.13	2.12	2.09	2.11	2.09	2.09	2.08	2.03	2.04	2.03	2.04	2.05	2.04	2.03	2.04	2.06	2.06	2.06	2.06	2.04	2.03	2.04				
HOURLY AVG	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.02	2.01	2.00	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.01	2.00	2.00	2.00	2.00					

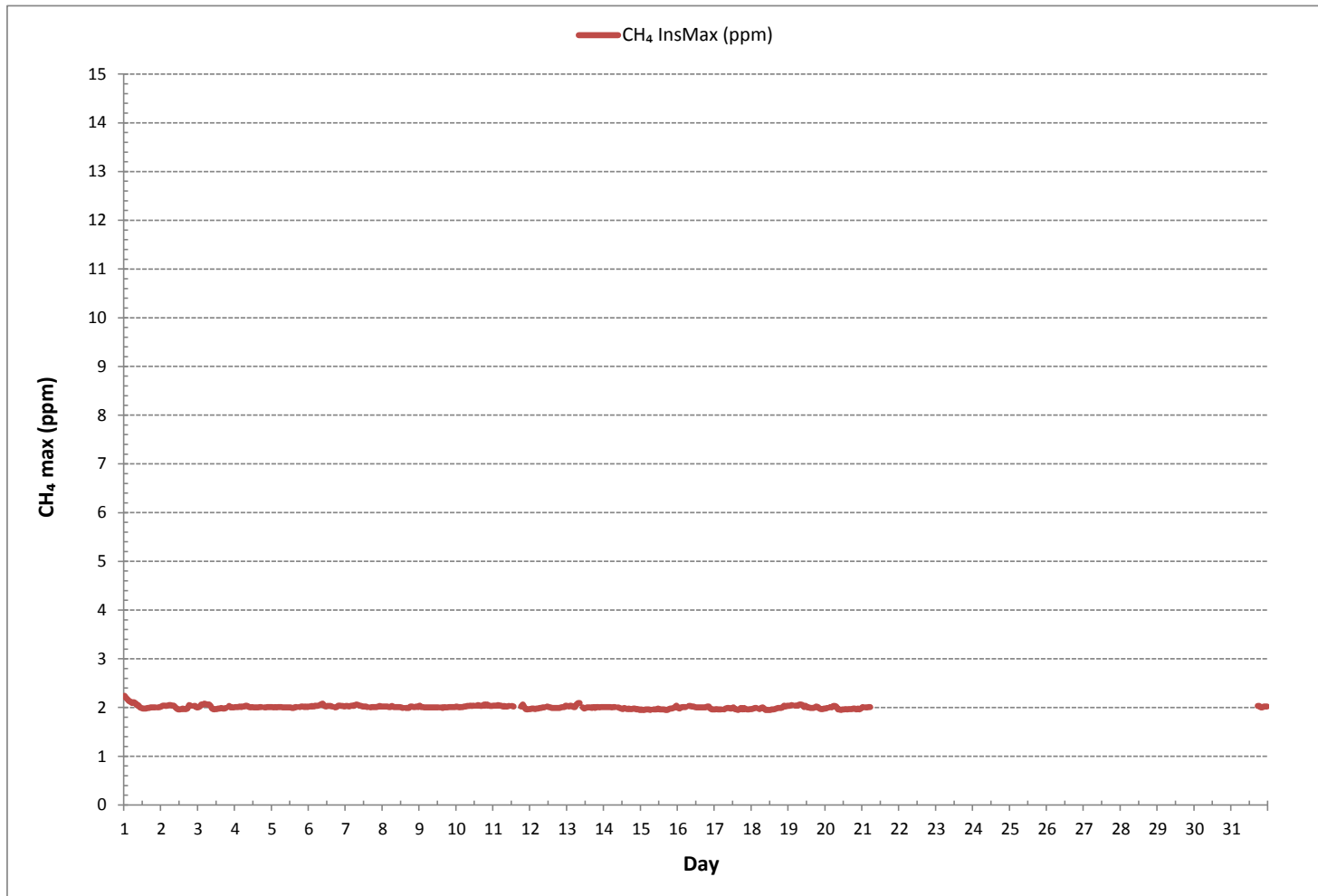
STATUS FLAG CODES

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:	468
MAXIMUM INSTANTANEOUS VALUE:	2.24 ppm @ HOUR 0 ON DAY 1
IZS CALIBRATION TIME:	21 hrs
MONTHLY CALIBRATION TIME:	4 hrs
STANDARD DEVIATION:	0.03
OPERATIONAL TIME:	493 hrs

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

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

STATUS FLAG CODES

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

MONTHLY SUMMARY

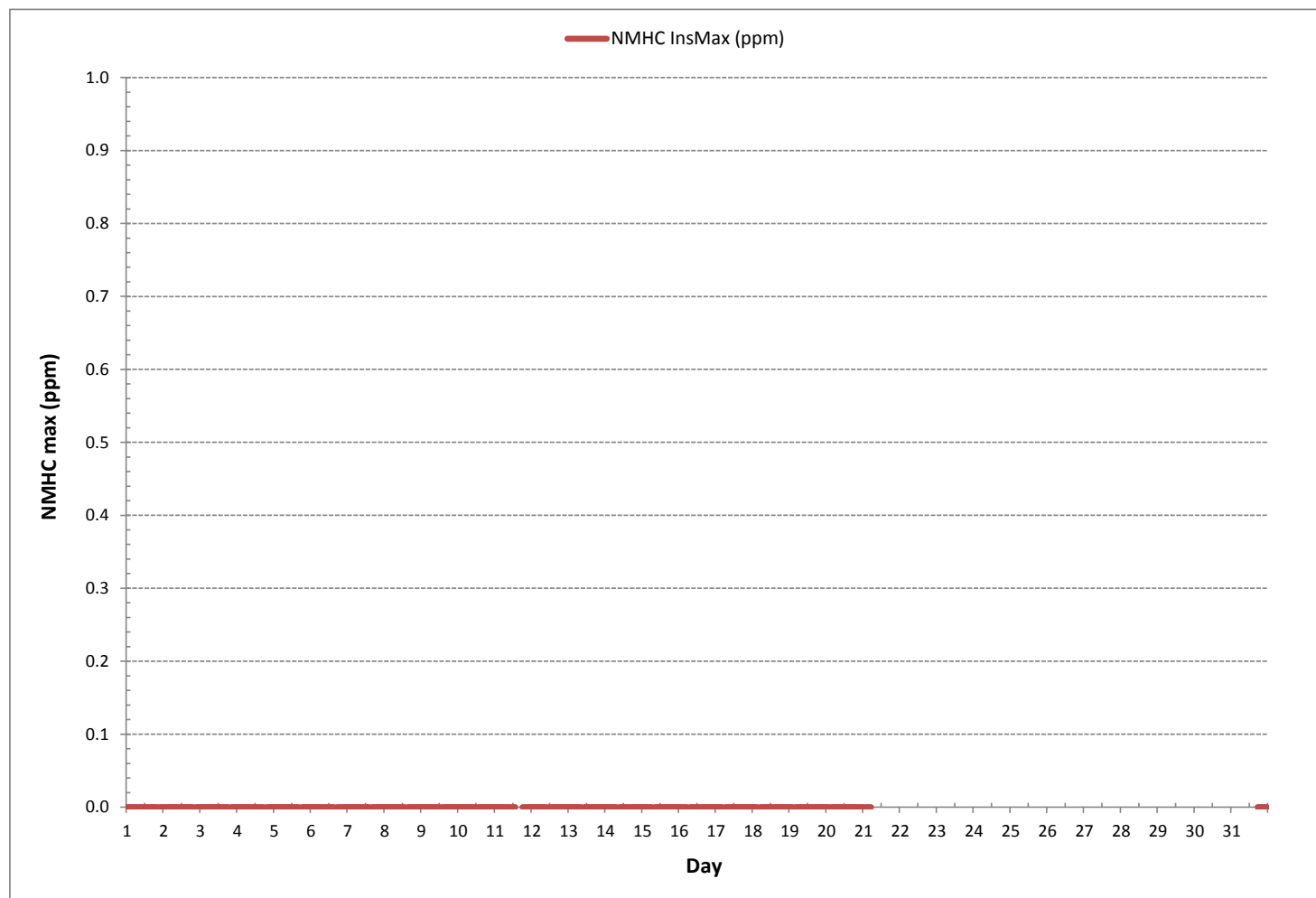
NUMBER OF NON-ZERO READINGS:	0
MAXIMUM INSTANTANEOUS VALUE:	0.00 ppm @ HOUR 0 ON DAY 1
IZS CALIBRATION TIME:	21 hrs
MONTHLY CALIBRATION TIME:	4 hrs
STANDARD DEVIATION:	0.00
OPERATIONAL TIME:	493 hrs



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - October 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	4.9	2.5	1.8	2.5	3.8	1.5	1.2	2.0	4.0	10.5	18.2	20.9	21.8	18.7	23.4	23.2	23.3	24.6	22.4	23.3	23.5	20.2	14.6	9.4	1.2	24.6	13.4	24
2	5.2	2.6	1.2	2.8	1.3	3.4	4.9	8.3	10.9	13.1	21.7	25.0	23.4	28.5	26.8	25.4	26.0	20.7	14.0	15.7	22.3	19.7	13.6	10.3	1.2	28.5	14.5	24
3	8.0	6.0	4.3	3.1	1.7	2.1	2.1	2.8	3.2	6.5	10.2	9.5	11.6	12.8	11.7	8.1	6.1	3.5	4.1	8.7	11.3	12.2	13.3	13.7	1.7	13.7	7.4	24
4	14.2	15.1	12.0	12.0	10.0	9.6	7.2	7.2	7.5	10.5	16.4	12.4	14.3	16.6	16.4	14.5	10.4	14.2	11.5	14.0	19.2	17.1	15.8	13.8	7.2	19.2	13.0	24
5	11.6	11.4	13.5	15.2	12.1	12.0	13.1	12.3	12.3	12.5	11.4	11.7	10.4	11.2	12.3	13.2	13.8	8.9	5.9	7.2	16.0	17.0	15.3	14.1	5.9	17.0	12.3	24
6	15.0	13.0	11.7	14.5	10.9	7.3	8.2	10.2	10.0	10.5	12.0	16.1	14.7	14.0	19.2	18.4	18.8	21.1	15.4	13.0	14.3	16.2	16.1	18.0	7.3	21.1	14.1	24
7	16.1	14.5	19.8	16.6	12.0	16.6	20.2	18.6	19.1	18.6	17.9	21.5	21.2	22.1	21.5	21.7	22.3	19.4	14.2	17.5	16.8	15.0	17.5	19.0	12.0	22.3	18.3	24
8	16.1	17.4	16.9	15.3	16.8	19.1	17.9	20.1	16.2	18.8	20.0	17.1	16.7	17.3	16.4	16.0	16.3	15.7	11.3	11.6	14.3	11.1	12.6	10.9	10.9	20.1	15.9	24
9	3.2	8.6	5.4	10.8	10.9	11.4	13.1	14.2	13.5	12.6	12.8	14.7	12.8	15.1	16.8	17.2	14.9	13.6	8.9	8.2	11.0	12.5	14.8	14.7	3.2	17.2	12.2	24
10	12.2	14.6	15.0	13.2	15.3	14.6	16.5	14.8	16.4	11.9	12.0	15.1	12.2	11.8	9.3	7.5	7.6	8.4	7.0	5.4	5.0	8.2	7.7	8.6	5.0	16.5	11.3	24
11	8.1	8.0	5.7	7.9	9.8	12.3	15.1	16.1	21.4	26.6	27.6	25.1	25.3	24.6	25.0	21.9	19.8	15.4	15.8	13.5	12.2	11.0	10.4	7.3	5.7	27.6	16.1	24
12	3.2	2.9	3.5	11.4	14.0	18.7	19.2	18.7	19.2	26.8	24.5	24.7	23.6	20.5	18.7	17.4	12.6	9.0	6.3	4.7	3.8	5.5	3.0	2.9	2.9	26.8	13.1	24
13	2.1	2.4	1.6	3.2	3.7	4.0	5.3	4.4	4.4	6.7	9.8	12.2	11.7	13.8	15.6	15.9	16.0	10.7	9.9	10.4	13.3	15.0	10.9	10.6	1.6	16.0	8.9	24
14	12.8	12.4	17.2	16.8	15.5	14.8	18.4	21.3	21.1	24.7	26.9	25.6	27.0	32.6	32.3	26.6	21.0	28.9	26.5	19.5	17.7	19.3	16.0	14.2	12.4	32.6	21.2	24
15	12.0	13.1	11.3	13.2	12.5	11.8	10.6	9.5	11.9	9.1	9.4	10.7	14.6	11.5	17.2	19.3	11.8	12.3	10.3	8.2	4.7	7.6	4.1	4.1	4.1	19.3	10.9	24
16	3.3	2.7	4.6	6.5	6.4	6.8	6.0	7.8	7.6	10.1	11.8	17.5	20.1	21.1	25.1	21.8	14.4	9.4	13.9	12.9	14.6	17.6	17.3	16.5	2.7	25.1	12.3	24
17	22.7	17.8	18.6	20.5	26.8	27.4	26.9	25.7	16.8	31.6	35.5	39.1	25.9	27.8	35.4	28.8	23.6	20.3	9.5	9.1	22.1	28.6	25.7	23.7	9.1	39.1	24.6	24
18	14.2	9.3	10.2	6.7	7.6	8.8	10.4	10.4	11.8	11.9	14.3	14.9	22.1	27.5	26.9	30.2	26.2	18.3	8.1	7.4	5.5	5.4	3.4	3.2	3.2	30.2	13.1	24
19	2.7	3.5	4.8	6.6	5.9	5.1	4.2	4.2	3.6	4.2	9.6	11.6	12.5	17.0	17.5	20.3	18.8	10.6	12.2	15.2	19.1	18.9	18.5	23.6	2.7	23.6	11.3	24
20	31.2	24.0	21.9	30.6	27.2	30.8	29.0	31.2	33.8	40.6	48.2	55.2	50.9	48.8	53.1	46.8	44.8	37.0	29.9	31.7	27.0	21.3	12.2	16.4	12.2	55.2	34.3	24
21	15.2	14.1	12.7	10.6	11.6	12.5	12.2	9.4	10.9	12.8	14.2	17.8	18.4	19.8	23.4	21.8	15.1	9.4	7.8	7.0	5.9	7.0	6.6	8.2	5.9	23.4	12.7	24
22	12.0	11.7	11.9	12.7	11.9	11.8	12.9	11.1	12.3	18.3	22.0	22.3	15.7	17.2	16.3	15.5	8.9	3.7	4.3	3.5	7.1	14.4	17.8	16.5	3.5	22.3	13.0	24
23	13.4	13.7	16.1	14.3	15.9	11.4	4.9	3.8	7.0	12.0	15.5	10.6	11.4	12.5	11.9	6.7	4.6	2.8	2.4	3.3	3.0	4.4	4.5	5.3	2.4	16.1	8.8	24
24	4.2	4.0	4.6	4.0	3.6	3.0	4.0	3.3	4.8	5.1	11.8	10.1	10.7	16.8	14.0	11.9	13.0	11.1	10.1	7.1	8.9	5.1	5.0	6.6	3.0	16.8	7.6	24
25	6.4	5.1	6.6	7.3	7.8	7.9	8.9	6.7	7.8	14.4	11.4	13.2	14.2	15.3	21.7	21.2	14.7	14.4	26.4	35.7	24.7	23.4	22.2	18.4	5.1	35.7	14.8	24
26	21.5	23.2	23.7	19.0	14.6	8.3	23.8	9.9	7.5	8.2	15.3	14.6	15.2	17.2	16.9	11.4	6.9	3.8	14.8	9.4	10.8	14.6	19.7	22.2	3.8	23.8	14.7	24
27	19.0	21.1	21.9	32.5	32.8	25.3	17.5	24.6	26.4	29.8	26.0	27.7	26.4	31.6	23.0	20.7	13.4	9.3	10.0	6.3	6.7	2.9	3.1	6.2	2.9	32.8	19.3	24
28	7.4	4.3	9.6	8.4	6.0	4.0	4.6	5.0	6.5	7.2	10.0	11.6	13.2	16.6	16.4	16.7	14.7	7.6	5.0	3.8	3.0	12.0	11.0	9.5	3.0	16.7	8.9	24
29	5.2	8.8	10.5	7.9	8.3	7.6	6.0	7.4	6.2	8.2	10.0	10.5	13.6	16.6	15.4	14.1	7.3	7.9	5.5	5.4	6.7	6.1	4.6	3.4	3.4	16.6	8.5	24
30	4.5	4.1	5.8	4.9	6.2	3.4	3.8	9.2	11.7	13.0	14.0	13.8	15.5	23.4	23.5	22.6	14.4	8.0	10.4	12.1	13.9	13.2	11.8	9.2	3.4	23.5	11.4	24
31	11.8	11.4	10.5	7.5	8.8	6.7	5.7	5.6	5.6	7.6	11.8	16.3	16.2	16.4	11.3	4.9	4.6	12.6	15.2	21.7	22.1	21.8	22.9	25.5	4.6	25.5	12.7	24
HOURLY MAX	31.2	24.0	23.7	32.5	32.8	30.8	29.0	31.2	33.8	40.6	48.2	55.2	50.9	48.8	53.1	46.8	44.8	37.0	29.9	35.7	27.0	28.6	25.7	25.5				

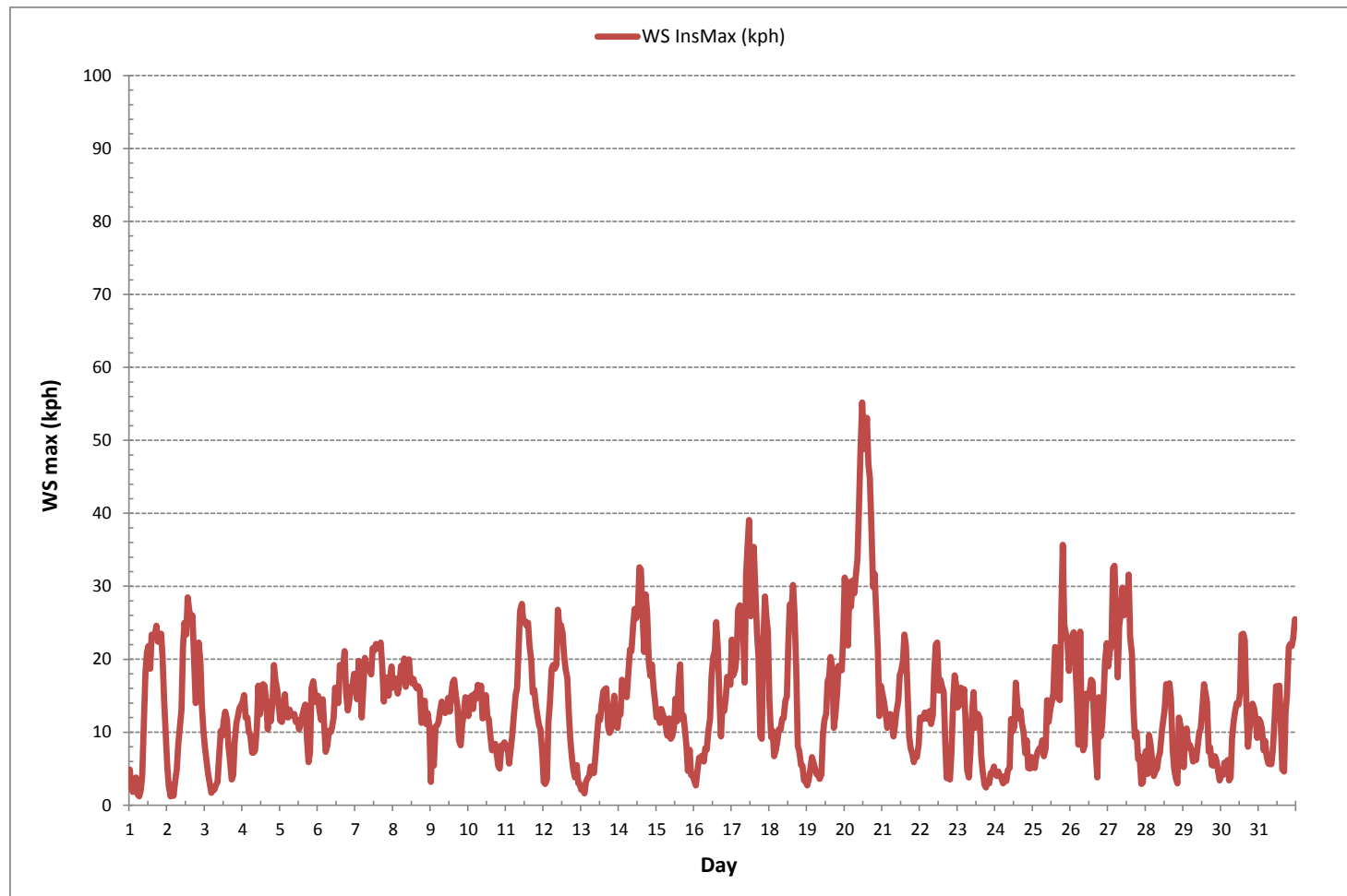
STATUS FLAG CODES

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:	55.2	kph	@ HOUR	11	ON DAY	20
OPERATIONAL TIME:	744	hrs				

WIND SPEED Instantaneous Maximum (WS kph)

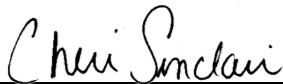


APPENDIX IV
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program 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? (If 'Yes', fill in the fields below for the external person.)	
☒ 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 - Nov - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: <u>Peace River Area Monitoring Program Committee</u>	Project #: <u>8449-2018-10-80-C</u>
Site: <u>Three Creeks 842b Station</u>	Contact: <u>Karla Reesor</u>

Level 0 Preliminary Verification	 	Date <u>19 - Nov - 2018</u>
Level 1 Primary Validation	 	Date <u>19 - Nov - 2018</u>
Level 2 Final Validation	 	Date <u>20 - Nov - 2018</u>
Level 3 Independent Data Review	 	Date <u>20 - Nov - 2018</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

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