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

JOB #: 8449-2018-09-80-C

September 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: October 12, 2018

Prepared by:

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Project Team Lead, Customer Service, Air Services

Reviewed by:

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

SUMMARY

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

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

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

All data collected this month were within the Alberta Ambient Air Quality Objectives and Guidelines (June, 2017).

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	1	15	8	4.2	ENE	0	1	100.0
TRS (ppb)	-	-	-	-	0.17	0.62	2	6	4.7	SE	0.32	2	100.0
THC (ppm)	-	-	-	-	2.01	2.45	17	1	4.7	ENE	2.11	30	100.0
CH ₄ (ppm)	-	-	-	-	2.01	2.45	17	1	4.7	ENE	2.11	30	100.0
NMHC (ppm)	-	-	-	-	0.00	0.01	12	9	7.7	NNE	0.00	1	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	75	96	2	5	5.5	SE	93	9	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	947	958	29	9	13.0	WNW	957	29	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	4.0	18.6	7	14	2.2	NNW	12.6	7	100.0
STATION TEMPERATURE (°C)	-	-	-	-	22.5	23.9	1	19	5.6	NNW	22.9	2	100.0
VECTOR WS (kph)	-	-	-	-	0.5	22.0	25	14	-	WSW	8.7	22	100.0
VECTOR WD (sec)	-	-	-	-	312 (NW)	-	-	-	-	-	-	-	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	September

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	100.0	0.001 ppm		0	0.000 ppm	0
TRS	100.0	0.001 ppm		-	0.000 ppm	-
THC	100.0	2.45 ppm		-	2.11 ppm	-
CH ₄	100.0	2.45 ppm		-	2.11 ppm	-
NMHC	100.0	0.01 ppm		-	0.00 ppm	-
RH	100.0	96 %		-	93 %	-
BP	100.0	958 mb		-	957 mb	-
Ambient TPX	100.0	18.6 °C		-	12.6 °C	-
Station TPX	100.0	23.9 °C		-	22.9 °C	-
Wind Speed	100.0	22.0 kph		-	8.7 kph	-
Wind Direction	100.0	-		-	-	-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

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

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

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

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

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

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

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

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

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on September 12.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on September 12.

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

- Operational time for the monitoring period was 100%.
- The routine monthly calibration was performed on September 12.
- 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 September 12 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 September 12. 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 September 12. The result was satisfactory.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 100%.
- A pressure sensor check was conducted on September 12. The result was satisfactory.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 100%.
- A temperature sensor check was conducted on September 12. 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).

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 (June, 2017).

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

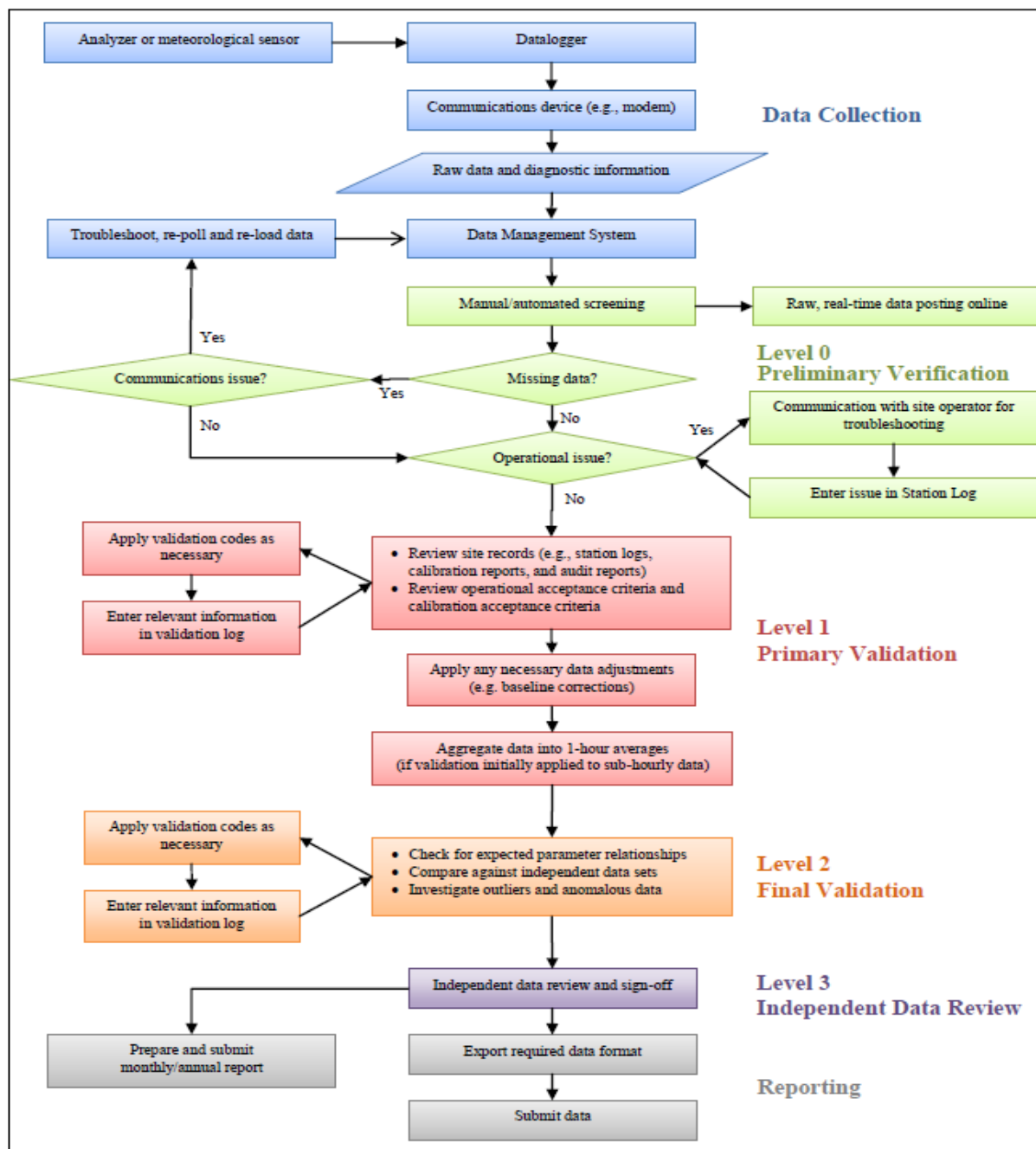
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

STATUS FLAG CODES

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

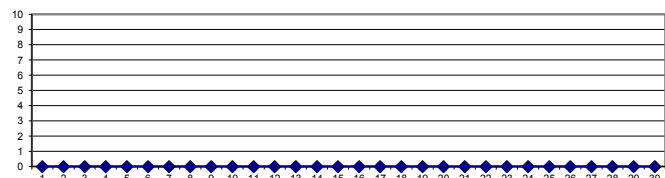
OBJECTIVE LIMIT:

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

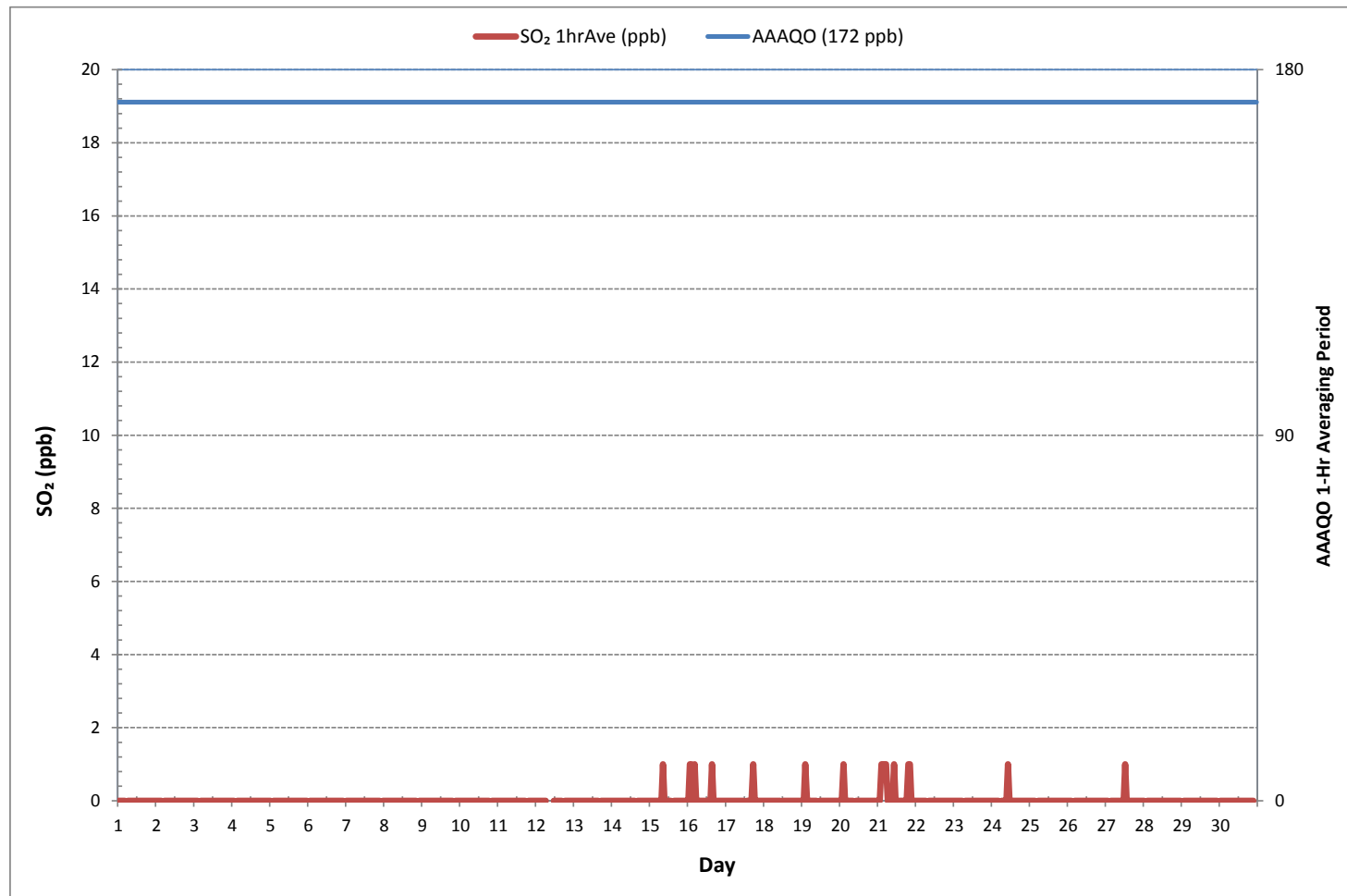
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	17
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	1 ppb @ HOUR 8 ON DAY 15
MAXIMUM 24-HR AVERAGE:	0 ppb ON DAY 1
IZS CALIBRATION TIME:	32 hrs
MONTHLY CALIBRATION TIME:	4 hrs
OPERATIONAL TIME:	720 hrs
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES September 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-SO₂[ppb]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 11.40%

Calm Avg: 0.11 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	13.2	0.0	0.0	0.0	0.0	13.2
NE	11.7	0.0	0.0	0.0	0.0	11.7
E	13.5	0.0	0.0	0.0	0.0	13.5
SE	12.4	0.0	0.0	0.0	0.0	12.4
S	7.6	0.0	0.0	0.0	0.0	7.6
SW	9.4	0.0	0.0	0.0	0.0	9.4
W	8.2	0.0	0.0	0.0	0.0	8.2
NW	12.7	0.0	0.0	0.0	0.0	12.7
Summary	88.6	0.0	0.0	0.0	0.0	88.6

% Icon Classes (ppb)

89

0-3

0

3-10

0

10-85

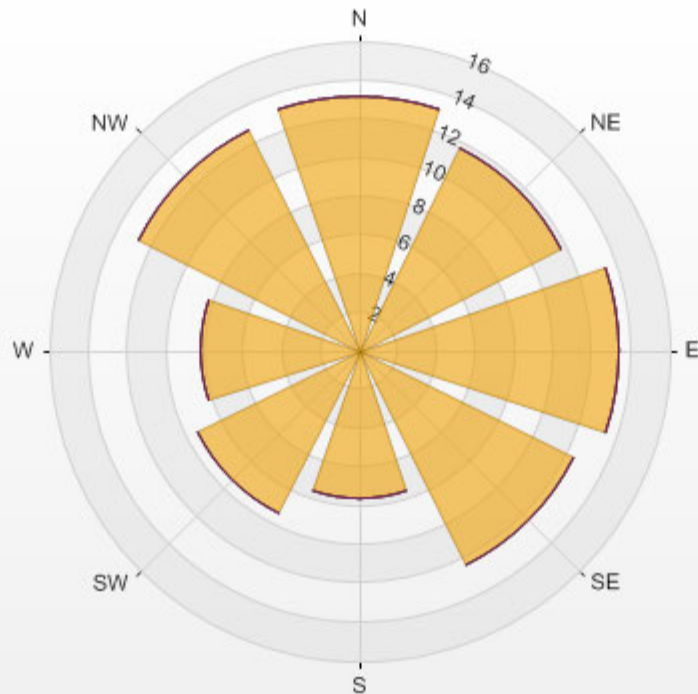
0

85-170

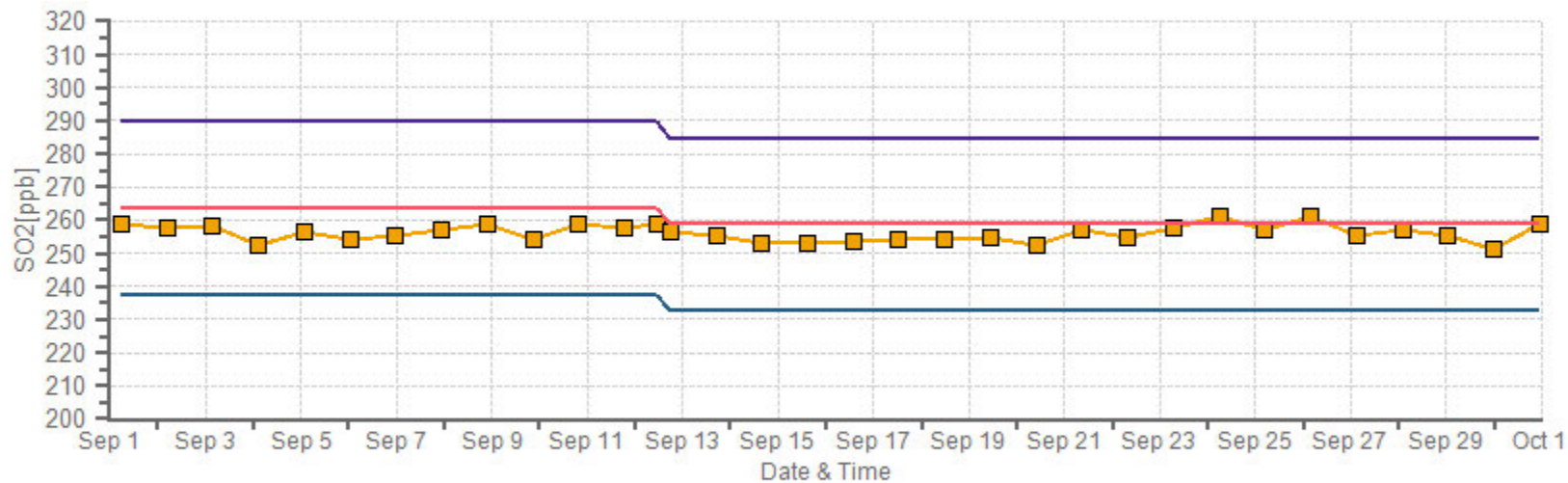
0

>170.0

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.40% Calm Poll Avg: 0.11[ppb]



SO₂[ppb] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

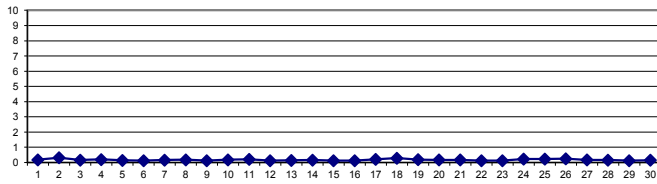
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.23	0.24	0.23	0.23	0.19	S	0.25	0.22	0.19	0.15	0.14	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.15	0.15	0.15	0.19	0.22	0.21	0.13	0.25	0.18	24
2	0.26	0.26	0.48	0.54	S	0.53	0.62	0.58	0.34	0.26	0.25	0.24	0.23	0.23	0.24	0.25	0.23	0.23	0.26	0.28	0.26	0.29	0.26	0.28	0.23	0.62	0.32	24
3	0.29	0.30	0.28	S	0.28	0.23	0.23	0.17	0.13	0.13	0.11	0.13	0.13	0.12	0.11	0.11	0.11	0.12	0.11	0.10	0.08	0.10	0.13	0.10	0.08	0.30	0.16	24
4	0.14	0.18	S	0.29	0.41	0.37	0.33	0.36	0.22	0.16	0.15	0.14	0.15	0.13	0.14	0.13	0.12	0.14	0.14	0.15	0.15	0.20	0.19	0.21	0.12	0.41	0.20	24
5	0.23	S	0.21	0.19	0.19	0.16	0.15	0.18	0.16	0.14	0.15	0.11	0.13	0.11	0.10	0.11	0.11	0.12	0.12	0.12	0.11	0.14	0.13	0.13	0.10	0.23	0.14	24
6	S	0.14	0.12	0.11	0.11	0.13	0.14	0.16	0.14	0.12	0.12	0.13	0.12	0.13	0.13	0.14	0.13	0.13	0.12	0.15	0.17	0.15	0.15	S	0.11	0.17	0.13	24
7	0.17	0.16	0.16	0.15	0.15	0.14	0.16	0.16	0.15	0.15	0.16	0.17	0.16	0.15	0.15	0.15	0.18	0.19	0.16	0.16	0.17	0.19	S	0.19	0.14	0.19	0.16	24
8	0.20	0.18	0.18	0.16	0.15	0.14	0.14	0.15	0.16	0.16	0.16	0.16	0.15	0.15	0.17	0.18	0.21	0.23	0.23	0.20	0.20	S	0.20	0.17	0.14	0.23	0.18	24
9	0.15	0.16	0.14	0.13	0.14	0.14	0.14	0.12	0.13	0.13	0.13	0.13	0.12	0.14	0.14	0.13	0.12	0.12	0.12	0.12	S	0.14	0.12	0.14	0.12	0.16	0.13	24
10	0.13	0.12	0.16	0.19	0.18	0.20	0.30	0.30	0.23	0.19	0.20	0.16	0.15	0.14	0.13	0.13	0.14	0.15	0.17	S	0.15	0.13	0.18	0.23	0.12	0.30	0.18	24
11	0.23	0.28	0.21	0.23	0.24	0.28	0.29	0.31	0.31	0.23	0.21	0.19	0.21	0.48	0.18	0.11	0.15	0.15	S	0.17	0.13	0.13	0.12	0.10	0.10	0.48	0.21	24
12	0.10	0.10	0.10	0.11	0.11	0.09	0.09	C	C	C	C	C	0.23	0.13	0.12	0.11	0.14	S	0.18	0.16	0.14	0.15	0.15	0.13	0.09	0.23	0.13	24
13	0.13	0.15	0.17	0.15	0.15	0.14	0.13	0.15	0.13	0.17	0.17	0.15	0.13	0.12	0.12	0.11	S	0.16	0.15	0.15	0.15	0.14	0.14	0.16	0.11	0.17	0.14	24
14	0.17	0.17	0.17	0.16	0.16	0.17	0.20	0.21	0.16	0.14	0.14	0.14	0.15	0.14	0.14	S	0.16	0.14	0.14	0.15	0.16	0.13	0.17	0.16	0.13	0.21	0.16	24
15	0.15	0.16	0.16	0.18	0.17	0.16	0.18	0.18	0.16	0.10	0.11	0.09	0.08	0.09	S	0.12	0.09	0.10	0.10	0.12	0.11	0.09	0.10	0.12	0.08	0.18	0.13	24
16	0.12	0.12	0.14	0.13	0.12	0.12	0.11	0.12	0.12	0.11	0.09	0.09	0.09	S	0.11	0.10	0.11	0.11	0.11	0.11	0.12	0.14	0.16	0.18	0.09	0.18	0.12	24
17	0.15	0.30	0.29	0.20	0.16	0.18	0.18	0.16	0.16	0.16	0.15	0.15	S	0.17	0.18	0.17	0.19	0.20	0.23	0.21	0.21	0.27	0.42	0.41	0.15	0.42	0.21	24
18	0.38	0.41	0.40	0.43	0.43	0.45	0.47	0.41	0.38	0.35	0.24	S	0.20	0.17	0.19	0.16	0.16	0.23	0.19	0.22	0.22	0.22	0.23	0.25	0.16	0.47	0.29	24
19	0.28	0.28	0.28	0.26	0.23	0.24	0.27	0.24	0.20	0.16	S	0.19	0.18	0.15	0.16	0.15	0.14	0.14	0.16	0.17	0.14	0.16	0.14	0.14	0.14	0.28	0.19	24
20	0.13	0.14	0.14	0.14	0.15	0.14	0.15	0.16	0.16	S	0.19	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.16	0.19	0.20	0.21	0.18	0.20	0.13	0.21	0.17	24
21	0.23	0.21	0.23	0.20	0.20	0.20	0.18	0.17	S	0.20	0.15	0.15	0.15	0.13	0.14	0.14	0.15	0.15	0.14	0.14	0.15	0.14	0.14	0.14	0.13	0.23	0.17	24
22	0.14	0.13	0.12	0.13	0.14	0.15	0.14	S	0.16	0.14	0.14	0.12	0.12	0.12	0.11	0.10	0.10	0.11	0.11	0.10	0.11	0.11	0.11	0.11	0.10	0.16	0.12	24
23	0.10	0.11	0.11	0.11	0.11	0.09	S	0.13	0.11	0.13	0.13	0.10	0.12	0.10	0.10	0.12	0.10	0.11	0.11	0.14	0.15	0.15	0.16	0.17	0.09	0.17	0.12	24
24	0.17	0.20	0.19	0.22	0.22	S	0.25	0.26	0.30	0.24	0.24	0.20	0.19	0.18	0.19	0.21	0.24	0.23	0.21	0.24	0.34	0.27	0.24	0.25	0.17	0.34	0.23	24
25	0.20	0.20	0.19	0.17	S	0.24	0.23	0.22	0.25	0.28	0.27	0.24	0.23	0.22	0.18	0.18	0.20	0.22	0.26	0.25	0.22	0.24	0.26	0.28	0.17	0.28	0.23	24
26	0.36	0.42	0.31	S	0.40	0.37	0.30	0.20	0.21	0.22	0.23	0.19	0.19	0.17	0.16	0.17	0.21	0.27	0.28	0.22	0.19	0.14	0.12	0.12	0.12	0.42	0.24	24
27	0.16	0.17	S	0.12	0.14	0.16	0.19	0.21	0.20	0.14	0.14	0.53	0.21	0.17	0.14	0.13	0.13	0.12	0.13	0.13	0.14	0.14	0.13	0.12	0.12	0.53	0.17	24
28	0.15	S	0.19	0.15	0.16	0.17	0.18	0.19	0.20	0.19	0.16	0.15	0.14	0.13	0.14	0.13	0.13	0.15	0.14	0.13	0.15	0.13	0.14	0.17	0.13	0.20	0.16	24
29	S	0.17	0.12	0.14	0.19	0.13	0.13	0.13	0.14	0.13	0.12	0.13	0.11	0.11	0.12	0.11	0.11	0.12	0.10	0.10	0.10	0.10	0.12	S	0.10	0.19	0.12	24
30	0.13	0.12	0.13	0.14	0.13	0.20	0.21	0.21	0.15	0.18	0.14	0.13	0.14	0.13	0.12	0.13	0.13	0.13	0.13	0.12	0.13	0.17	S	0.17	0.12	0.21	0.15	24
HOURLY MAX	0.38	0.42	0.48	0.54	0.43	0.53	0.62	0.58	0.38	0.35	0.27	0.53	0.23	0.48	0.24	0.25	0.24	0.27	0.28	0.28	0.34	0.29	0.42	0.41				
HOURLY AVG	0.19	0.20	0.20	0.19	0.19	0.20	0.22	0.22	0.19	0.17	0.16	0.17	0.16	0.16	0.14	0.14	0.15	0.15	0.16	0.16	0.16	0.16	0.17	0.18				

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

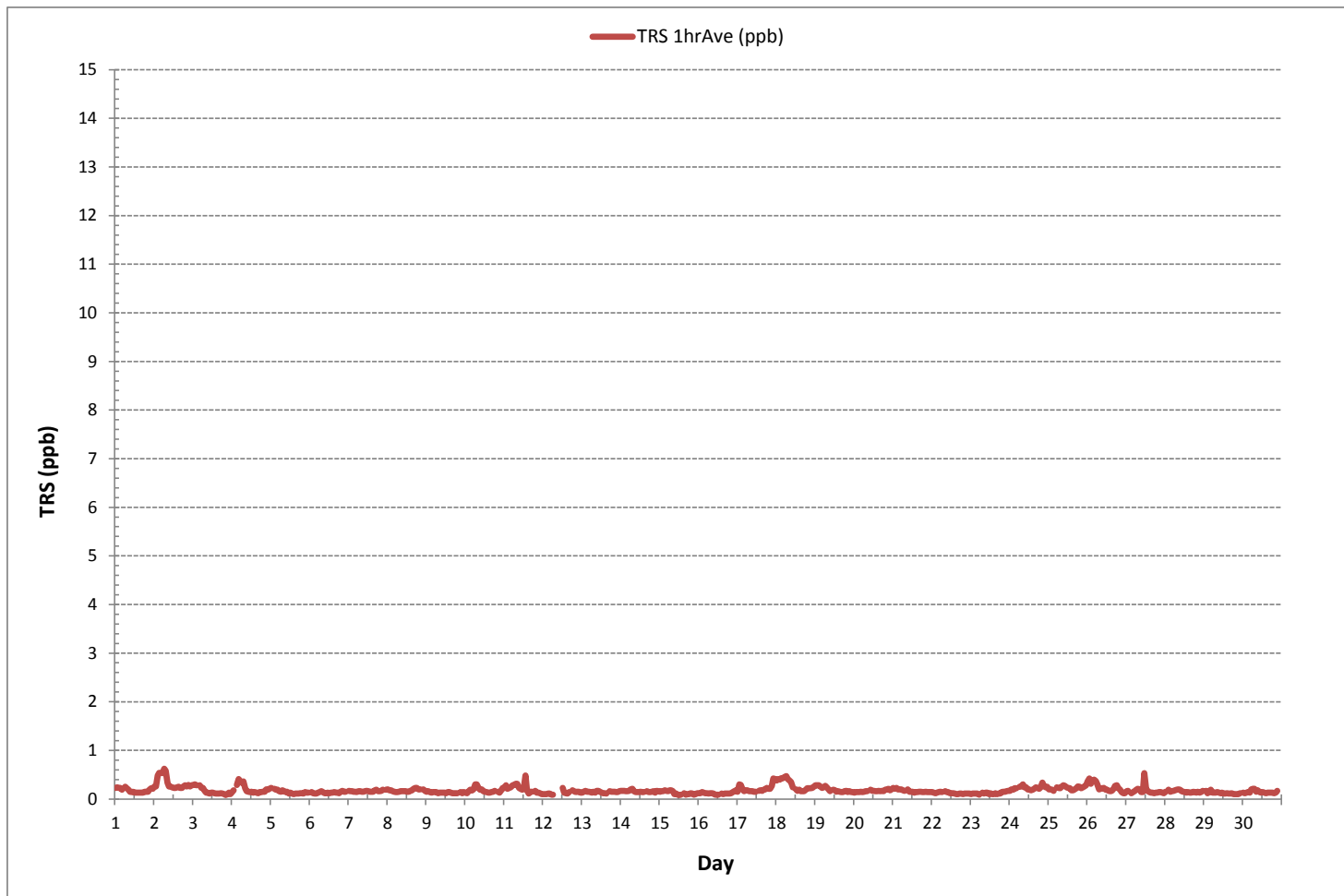
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683				
MINIMUM 1-HR AVERAGE:	0.08	ppb	@ HOUR	20	ON DAY 3
MAXIMUM 1-HR AVERAGE:	0.62	ppb	@ HOUR	6	ON DAY 2
MAXIMUM 24-HR AVERAGE:	0.32	ppb			ON DAY 2
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.07		MONTHLY AVERAGE:	0.17	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



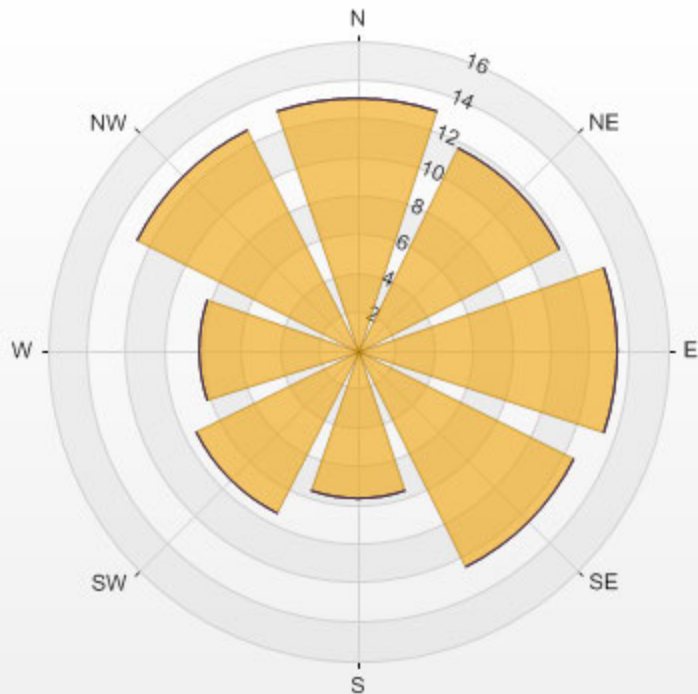
Wind: PRAMP_842
Poll.: PRAMP_842-TRS[ppb]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 11.42%

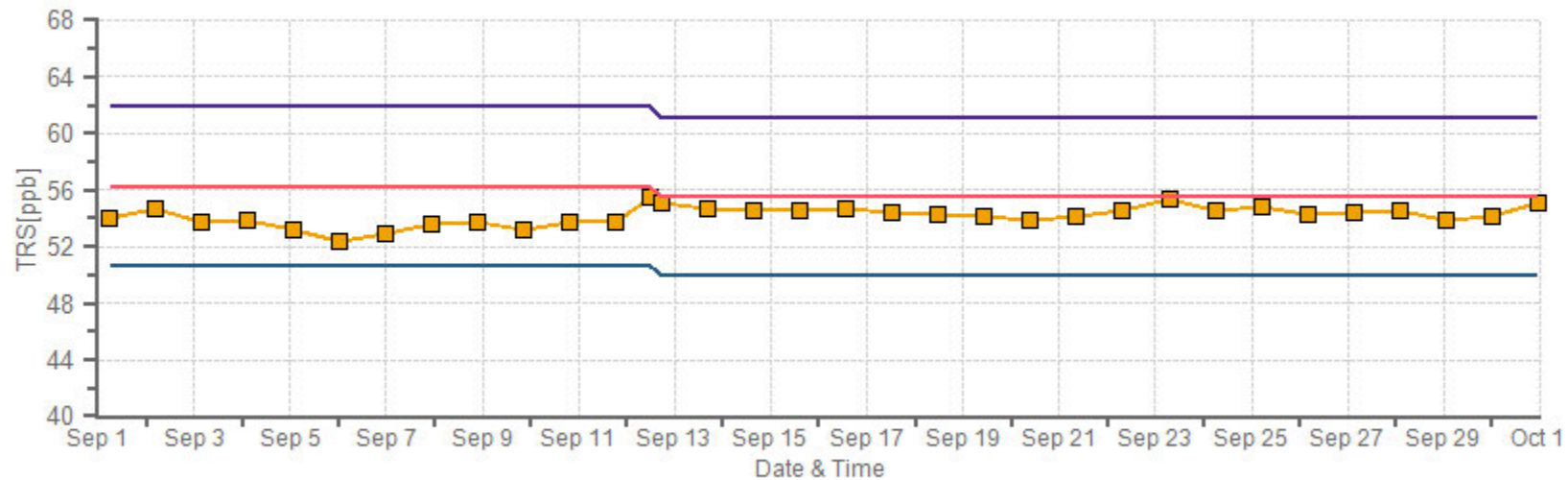
Calm Avg: 0.17 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	13.0	0.0	0.0	0.0	13.0
NE	11.7	0.0	0.0	0.0	11.7
E	13.5	0.0	0.0	0.0	13.5
SE	12.5	0.0	0.0	0.0	12.5
S	7.6	0.0	0.0	0.0	7.6
SW	9.4	0.0	0.0	0.0	9.4
W	8.2	0.0	0.0	0.0	8.2
NW	12.7	0.0	0.0	0.0	12.7
Summary	88.6	0.0	0.0	0.0	88.6

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.42% Calm Poll Avg: 0.17[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

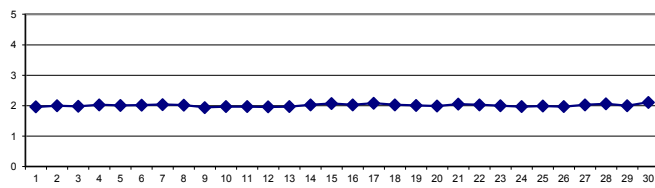
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.95	1.95	1.96	1.94	1.94	S	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.98	2.02	2.14	1.94	2.14	1.96	24	
2	2.17	2.16	2.07	2.03	S	2.04	2.04	2.04	1.99	1.97	1.97	1.96	1.95	1.96	1.95	1.96	1.95	1.95	1.97	2.00	2.02	1.99	1.98	1.97	1.95	2.17	2.00	24	
3	1.96	1.97	1.96	S	1.98	1.97	1.98	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.03	2.03	1.95	2.03	1.98	24	
4	2.03	2.12	S	2.13	2.14	2.13	2.08	2.07	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.99	1.99	2.00	2.00	2.02	2.02	2.03	1.98	2.14	2.03	24	
5	2.04	S	2.03	2.04	2.05	2.06	2.07	2.08	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	2.00	2.00	2.01	2.04	1.98	2.08	2.01	24	
6	S	2.02	2.01	2.00	2.00	2.00	1.99	2.00	2.01	2.01	2.03	2.04	2.02	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.05	2.06	2.03	S	1.99	2.06	2.02	24	
7	2.03	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.04	2.03	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.04	2.05	2.09	S	2.15	2.02	2.15	2.04	24	
8	2.14	2.10	2.06	2.05	2.03	2.03	2.03	2.02	2.01	2.01	2.02	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.00	1.99	1.96	S	1.95	1.94	1.94	2.14	2.02	24	
9	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.96	1.95	1.95	1.94	1.96	1.94	24	
10	1.94	1.95	1.98	1.98	1.98	1.99	2.00	2.01	2.00	2.00	1.98	1.96	1.96	1.97	1.97	1.96	1.95	1.94	1.93	S	1.93	1.94	1.96	1.96	1.93	2.01	1.97	24	
11	2.00	2.05	1.99	2.00	2.01	1.99	1.99	1.99	1.98	1.96	1.97	1.97	1.96	1.97	1.95	1.95	1.96	1.94	S	1.95	1.95	1.95	1.95	1.95	1.94	2.05	1.97	24	
12	1.96	1.95	1.95	1.96	1.96	1.97	1.97	1.95	1.94	1.95	C	C	C	C	1.96	1.96	1.95	S	1.96	1.96	1.97	1.98	1.97	1.97	1.94	1.98	1.96	24	
13	1.97	1.97	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.97	S	1.97	1.97	1.99	1.99	1.99	1.99	2.00	1.95	2.00	1.97	24	
14	2.00	2.03	2.06	2.06	2.07	2.07	2.10	2.16	2.07	1.98	1.97	1.97	1.97	1.98	1.98	S	1.99	1.99	2.00	2.01	2.01	2.04	2.09	2.09	1.97	2.16	2.03	24	
15	2.12	2.13	2.14	2.17	2.18	2.19	2.19	2.22	2.13	2.00	1.98	1.98	1.98	1.98	S	1.99	1.99	2.00	1.99	2.00	2.00	2.00	2.02	2.07	2.10	1.98	2.22	2.07	24
16	2.10	2.11	2.11	2.08	2.06	2.06	2.05	2.04	2.04	2.02	2.00	2.00	2.01	S	2.00	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.01	2.02	1.99	2.11	2.03	24	
17	2.05	2.45	2.37	2.28	2.19	2.13	2.07	2.06	2.04	2.01	1.99	2.00	S	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.01	2.02	2.04	2.05	1.99	2.45	2.08	24
18	2.06	2.09	2.08	2.05	2.05	2.05	2.06	2.08	2.06	2.03	2.01	S	1.99	1.98	1.99	1.98	1.99	2.01	2.01	2.02	2.02	2.01	2.01	2.02	1.98	2.09	2.03	24	
19	2.03	2.04	2.04	2.05	2.05	2.05	2.03	2.00	1.99	1.98	S	1.98	2.00	2.00	2.00	1.99	1.98	1.98	1.99	2.00	2.02	2.06	2.05	2.00	1.98	2.06	2.01	24	
20	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.00	S	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.08	1.98	2.08	1.99	24	
21	2.11	2.12	2.13	2.13	2.15	2.14	2.11	2.08	S	2.02	1.98	1.98	1.97	1.99	2.00	1.99	1.99	2.00	2.00	2.01	2.07	2.04	2.04	2.05	1.97	2.15	2.05	24	
22	2.10	2.05	2.05	2.09	2.13	2.15	2.12	S	2.06	2.00	1.98	1.98	1.98	1.98	1.97	1.98	1.99	1.99	1.99	1.99	1.99	2.01	2.01	2.01	1.97	2.15	2.03	24	
23	2.01	2.01	2.01	2.01	2.00	2.01	S	2.02	2.02	2.03	2.03	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.98	2.00	2.00	1.96	1.97	1.97	1.96	2.03	2.00	24	
24	1.98	1.98	1.98	1.98	1.99	S	1.96	1.96	1.95	1.95	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.96	1.97	1.97	1.99	1.98	2.02	2.08	1.93	2.08	1.97	24	
25	2.03	2.01	2.00	2.01	S	2.01	2.00	2.01	2.00	2.01	2.01	1.99	1.98	1.98	1.96	1.95	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.95	2.03	1.99	24	
26	2.00	1.97	1.96	S	1.98	1.98	1.99	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.98	1.98	1.97	1.97	1.98	1.98	1.96	2.00	1.97	24	
27	1.99	2.00	S	2.02	2.04	2.08	2.17	2.17	2.16	2.09	2.01	2.02	2.00	2.00	2.00	1.99	1.98	1.97	1.98	2.00	2.01	2.01	2.01	2.02	1.97	2.17	2.03	24	
28	2.09	S	2.10	2.10	2.11	2.14	2.20	2.20	2.33	2.17	2.04	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.01	2.01	1.99	2.33	2.06	24	
29	S	1.99	1.98	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.05	S	1.98	2.05	2.00	24	
30	2.08	2.10	2.17	2.20	2.19	2.30	2.33	2.27	2.19	2.17	2.08	2.00	1.98	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.27	S	2.15	1.98	2.33	2.11	24	
HOURLY MAX	2.17	2.45	2.37	2.28	2.19	2.30	2.33	2.27	2.33	2.17	2.08	2.04	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.04	2.07	2.27	2.09	2.15					
HOURLY AVG	2.03	2.05	2.04	2.05	2.04	2.05	2.05	2.04	2.03	2.01	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.01	2.01	2.03					

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

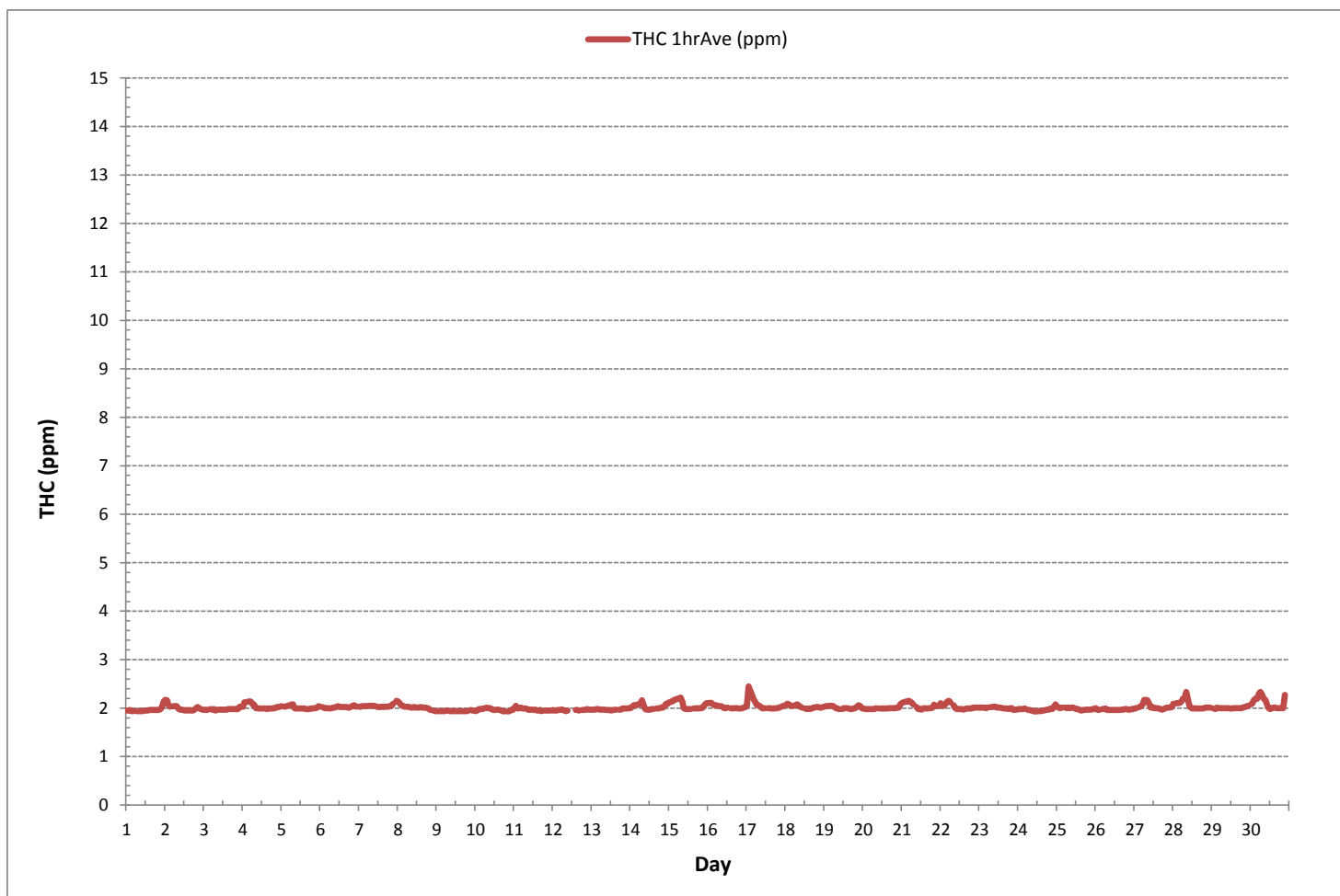
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684				
MINIMUM 1-HR AVERAGE:	1.93	ppm	@ HOUR	18	ON DAY 10
MAXIMUM 1-HR AVERAGE:	2.45	ppm	@ HOUR	1	ON DAY 17
MAXIMUM 24-HR AVERAGE:	2.11	ppm			ON DAY 30
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	2.01	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



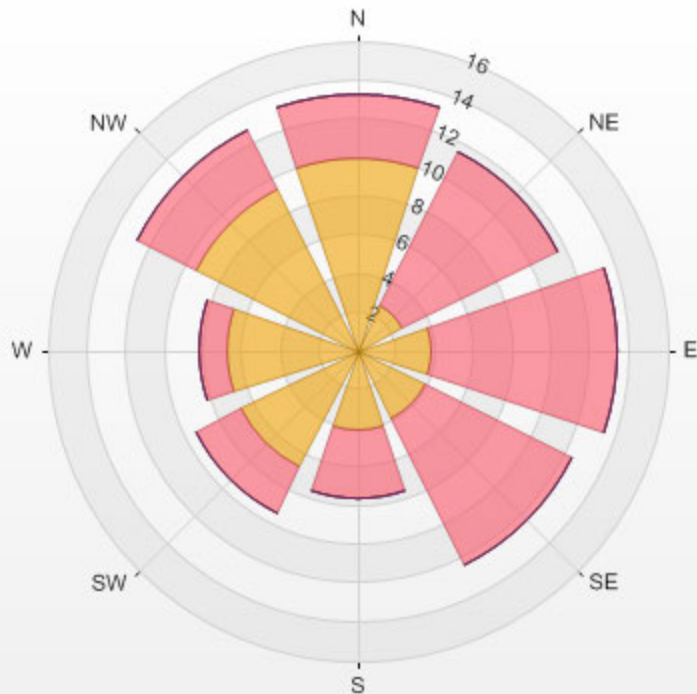
Wind: PRAMP_842
Poll.: PRAMP_842-THC55[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 11.40%

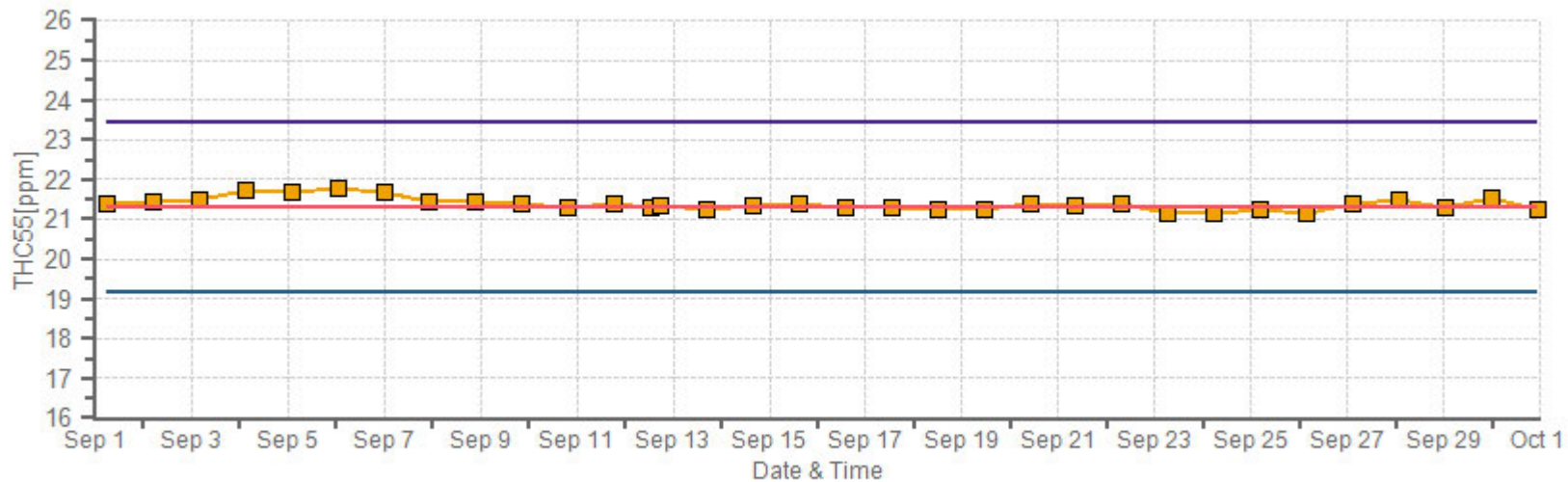
Calm Avg: 2.03 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	9.9	3.4	0.0	0.0	0.0	13.3
NE	2.6	8.9	0.0	0.0	0.0	11.6
E	3.8	9.7	0.0	0.0	0.0	13.5
SE	4.0	8.5	0.0	0.0	0.0	12.4
S	4.1	3.5	0.0	0.0	0.0	7.6
SW	6.7	2.6	0.0	0.0	0.0	9.4
W	6.7	1.5	0.0	0.0	0.0	8.2
NW	9.4	3.4	0.0	0.0	0.0	12.7
Summary	47.2	41.4	0.0	0.0	0.0	88.6

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.40% Calm Poll Avg: 2.03[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



Span Meas Span Ref Span Low Span High

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

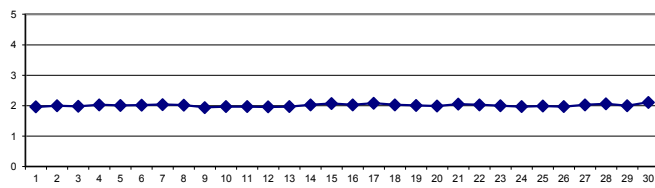
METHANE Hourly Averages (CH₄ ppm)

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	1.95	1.95	1.96	1.94	1.94	S	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.98	2.02	2.14	1.94	2.14	1.96	24		
2	2.17	2.16	2.07	2.03	S	2.04	2.04	2.04	1.99	1.97	1.97	1.96	1.95	1.96	1.95	1.96	1.95	1.95	1.97	2.00	2.02	1.99	1.98	1.97	1.95	2.17	2.00	24		
3	1.96	1.97	1.96	S	1.98	1.97	1.98	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.03	2.03	1.95	2.03	1.98	24		
4	2.03	2.12	S	2.13	2.14	2.13	2.08	2.07	2.00	2.00	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.99	1.99	2.00	2.00	2.02	2.02	2.03	1.98	2.14	2.03	24		
5	2.04	S	2.03	2.04	2.05	2.06	2.07	2.08	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.99	1.99	2.00	2.00	2.01	2.04	1.98	2.08	2.01	24		
6	S	2.02	2.01	2.00	2.00	2.00	1.99	2.00	2.01	2.01	2.03	2.04	2.02	2.02	2.02	2.02	2.02	2.01	2.01	2.03	2.05	2.06	2.03	S	1.99	2.06	2.02	24		
7	2.03	2.03	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.04	2.03	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.04	2.05	2.09	S	2.15	2.02	2.15	2.04	24		
8	2.14	2.10	2.06	2.05	2.03	2.03	2.03	2.02	2.01	2.01	2.02	2.01	2.01	2.01	2.02	2.01	2.01	2.01	2.00	1.99	1.96	S	1.95	1.94	1.94	2.14	2.02	24		
9	1.94	1.94	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.96	1.95	1.95	1.94	1.96	1.94	24		
10	1.94	1.95	1.98	1.98	1.98	1.99	2.00	2.01	2.00	2.00	1.98	1.96	1.96	1.97	1.97	1.96	1.95	1.94	1.93	S	1.93	1.94	1.96	1.96	1.93	2.01	1.97	24		
11	2.00	2.05	1.99	2.00	2.01	1.99	1.99	1.99	1.98	1.96	1.97	1.97	1.96	1.97	1.95	1.95	1.96	1.94	S	1.95	1.95	1.95	1.95	1.95	1.94	2.05	1.97	24		
12	1.96	1.95	1.95	1.96	1.96	1.97	1.97	1.95	1.94	1.94	C	C	C	C	1.96	1.96	1.95	S	1.96	1.96	1.97	1.98	1.97	1.97	1.94	1.98	1.96	24		
13	1.97	1.97	1.97	1.98	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.97	S	1.97	1.97	1.99	1.99	1.99	1.99	2.00	1.95	2.00	1.97	24		
14	2.00	2.03	2.06	2.06	2.07	2.07	2.10	2.16	2.07	1.98	1.97	1.97	1.97	1.98	1.98	S	1.99	1.99	2.00	2.01	2.01	2.04	2.09	2.09	1.97	2.16	2.03	24		
15	2.12	2.13	2.14	2.17	2.18	2.19	2.19	2.22	2.13	2.00	1.98	1.98	1.98	1.98	S	1.99	1.99	2.00	1.99	2.00	2.00	2.00	2.02	2.07	2.10	1.98	2.22	2.07	24	
16	2.10	2.11	2.11	2.08	2.06	2.06	2.05	2.04	2.04	2.02	2.00	2.00	2.01	S	2.00	1.99	1.99	2.00	2.00	2.00	1.99	1.99	2.00	2.01	2.02	1.99	2.11	2.03	24	
17	2.05	2.45	2.37	2.28	2.19	2.13	2.07	2.06	2.04	2.01	1.99	2.00	S	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.01	2.02	2.04	2.05	1.99	2.45	2.08	24	
18	2.06	2.09	2.08	2.05	2.05	2.05	2.06	2.08	2.06	2.03	2.01	S	1.99	1.98	1.99	1.98	1.99	1.98	1.99	2.01	2.01	2.02	2.02	2.01	2.01	2.02	1.98	2.09	2.03	24
19	2.03	2.04	2.04	2.05	2.05	2.05	2.03	2.00	1.99	1.98	S	1.98	2.00	2.00	2.00	1.99	1.98	1.98	1.99	2.00	2.02	2.06	2.05	2.00	1.98	2.06	2.01	24		
20	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.00	S	1.99	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	2.00	2.00	2.01	2.01	2.08	1.98	2.08	1.99	24		
21	2.11	2.12	2.13	2.13	2.15	2.14	2.11	2.08	S	2.02	1.98	1.98	1.97	1.99	2.00	1.99	1.99	2.00	2.00	2.01	2.07	2.04	2.04	2.05	1.97	2.15	2.05	24		
22	2.10	2.05	2.05	2.09	2.13	2.15	2.12	S	2.06	2.00	1.98	1.98	1.98	1.98	1.97	1.98	1.99	1.99	1.99	1.99	2.01	2.01	2.01	2.01	1.97	2.15	2.03	24		
23	2.01	2.01	2.01	2.01	2.00	2.01	S	2.02	2.02	2.03	2.03	2.01	2.01	2.01	2.00	1.99	1.99	1.99	1.98	2.00	2.00	1.96	1.97	1.97	1.96	2.03	2.00	24		
24	1.98	1.98	1.98	1.98	1.99	S	1.96	1.96	1.95	1.95	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.96	1.97	1.97	1.99	1.98	2.02	2.08	1.93	2.08	1.97	24		
25	2.03	2.01	2.00	2.01	S	2.01	2.00	2.01	2.00	2.01	2.01	1.99	1.98	1.98	1.96	1.95	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.98	1.95	2.03	1.99	24		
26	2.00	1.97	1.96	S	1.98	1.98	1.99	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.98	1.98	1.97	1.97	1.98	1.98	1.96	2.00	1.97	24		
27	1.99	2.00	S	2.02	2.04	2.08	2.17	2.17	2.16	2.09	2.01	2.02	2.00	2.00	2.00	1.99	1.98	1.97	1.98	2.00	2.01	2.01	2.01	2.02	1.97	2.17	2.03	24		
28	2.09	S	2.10	2.10	2.11	2.14	2.20	2.20	2.33	2.17	2.04	2.00	1.99	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.01	2.01	2.01	1.99	2.33	2.06	24		
29	S	1.99	1.98	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.05	S	1.98	2.05	2.00	24		
30	2.08	2.10	2.17	2.20	2.19	2.30	2.33	2.27	2.19	2.17	2.08	2.00	1.98	2.00	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.27	S	2.15	1.98	2.33	2.11	24		
HOURLY MAX	2.17	2.45	2.37	2.28	2.19	2.30	2.33	2.27	2.33	2.17	2.08	2.04	2.02	2.02	2.03	2.02	2.03	2.03	2.03	2.04	2.07	2.27	2.09	2.15						
HOURLY AVG	2.03	2.05	2.04	2.05	2.04	2.05	2.05	2.04	2.03	2.01	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	2.00	2.01	2.01	2.03						

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

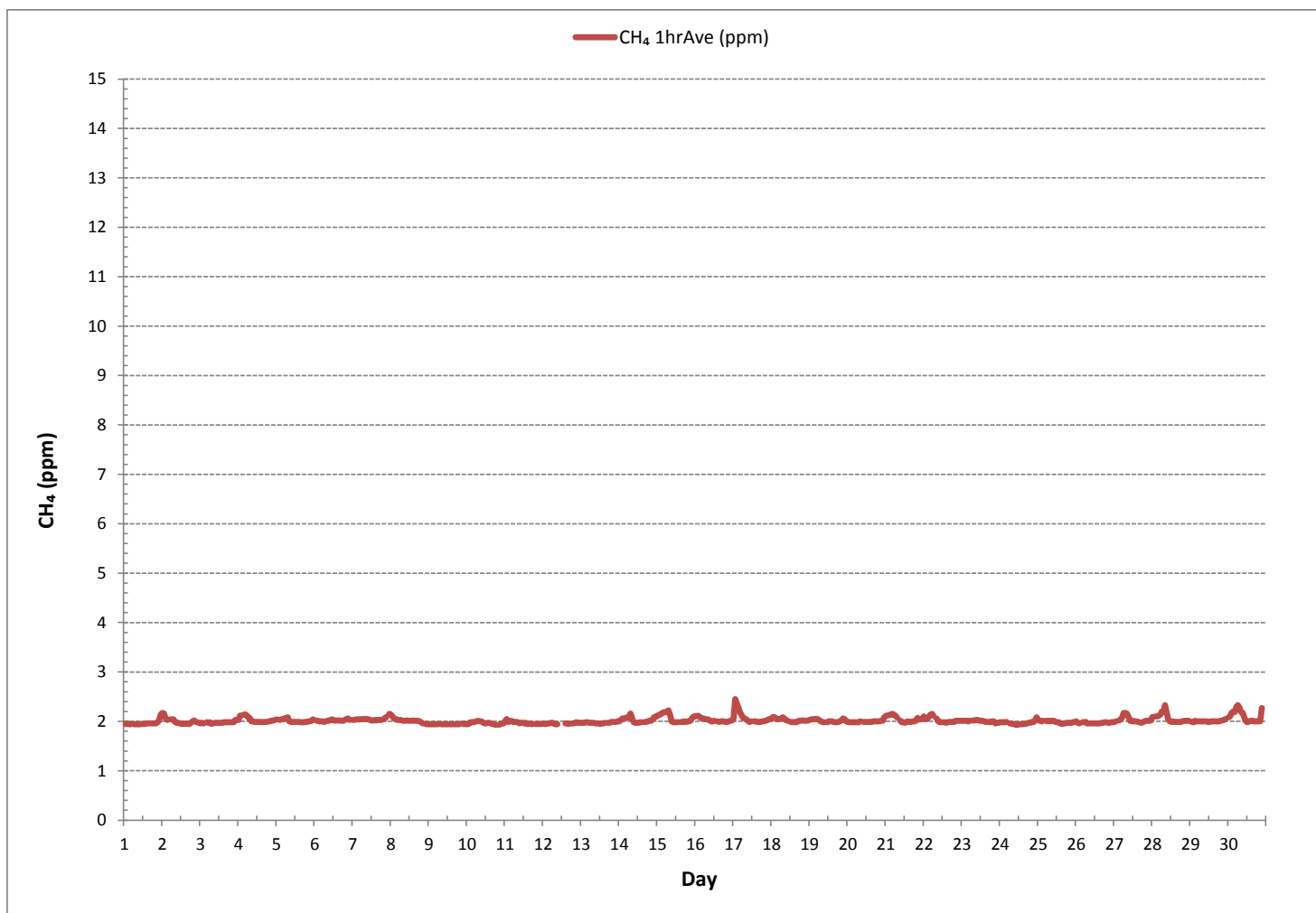
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684				
MINIMUM 1-HR AVERAGE:	1.93	ppm	@ HOUR	18	ON DAY
MAXIMUM 1-HR AVERAGE:	2.45	ppm	@ HOUR	1	ON DAY
MAXIMUM 24-HR AVERAGE:	2.11	ppm			ON DAY
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	2.01	ppm

METHANE Hourly Averages (CH₄ ppm)



Wind: PRAMP_842
Poll.: PRAMP_842-CH₄[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 11.40%

Calm Avg: 2.03 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	9.9	3.4	0.0	0.0	0.0	13.3
NE	2.6	8.9	0.0	0.0	0.0	11.6
E	3.8	9.7	0.0	0.0	0.0	13.5
SE	4.0	8.5	0.0	0.0	0.0	12.4
S	4.1	3.5	0.0	0.0	0.0	7.6
SW	6.7	2.6	0.0	0.0	0.0	9.4
W	6.7	1.5	0.0	0.0	0.0	8.2
NW	9.4	3.4	0.0	0.0	0.0	12.7
Summary	47.2	41.4	0.0	0.0	0.0	88.6

% Icon Classes (ppm)

47 0-2

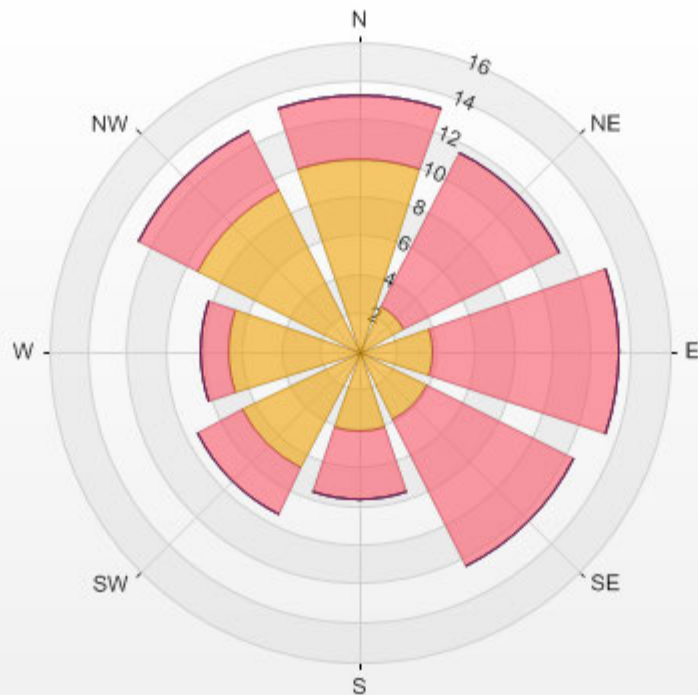
41 2-3

0 3-5

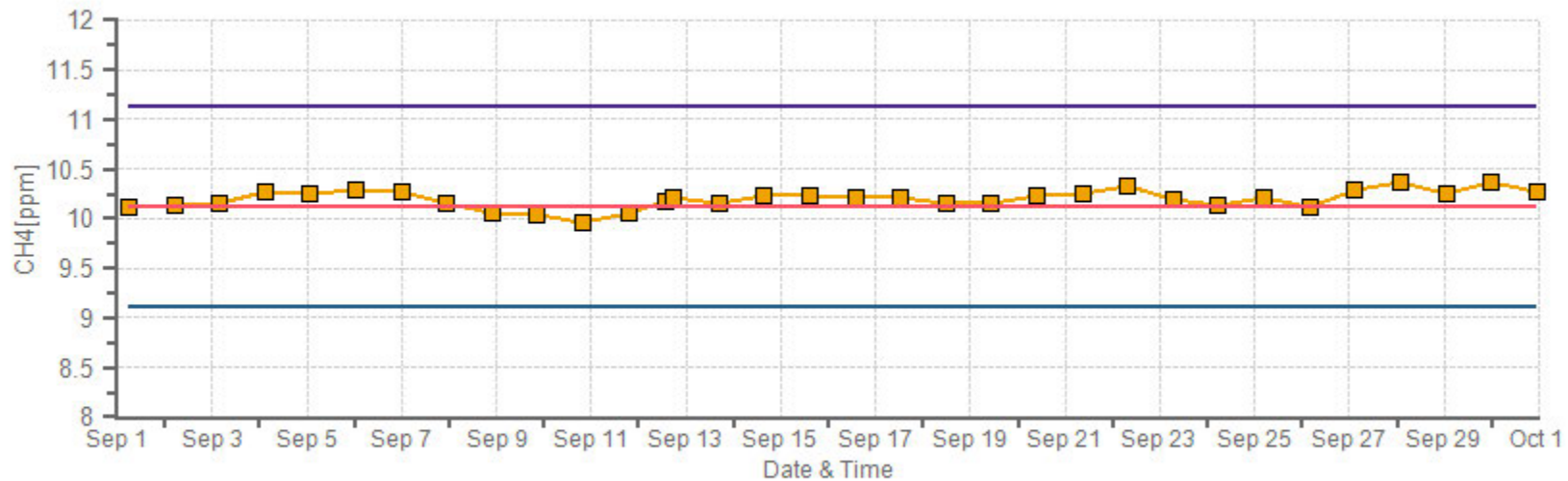
0 5-10

0 >10.0

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.40% Calm Poll Avg: 2.03[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



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

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

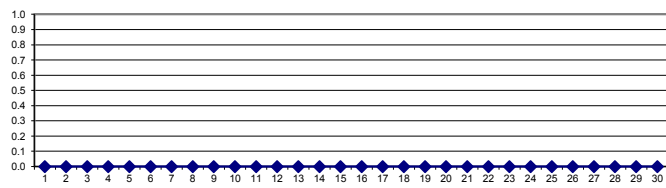
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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

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

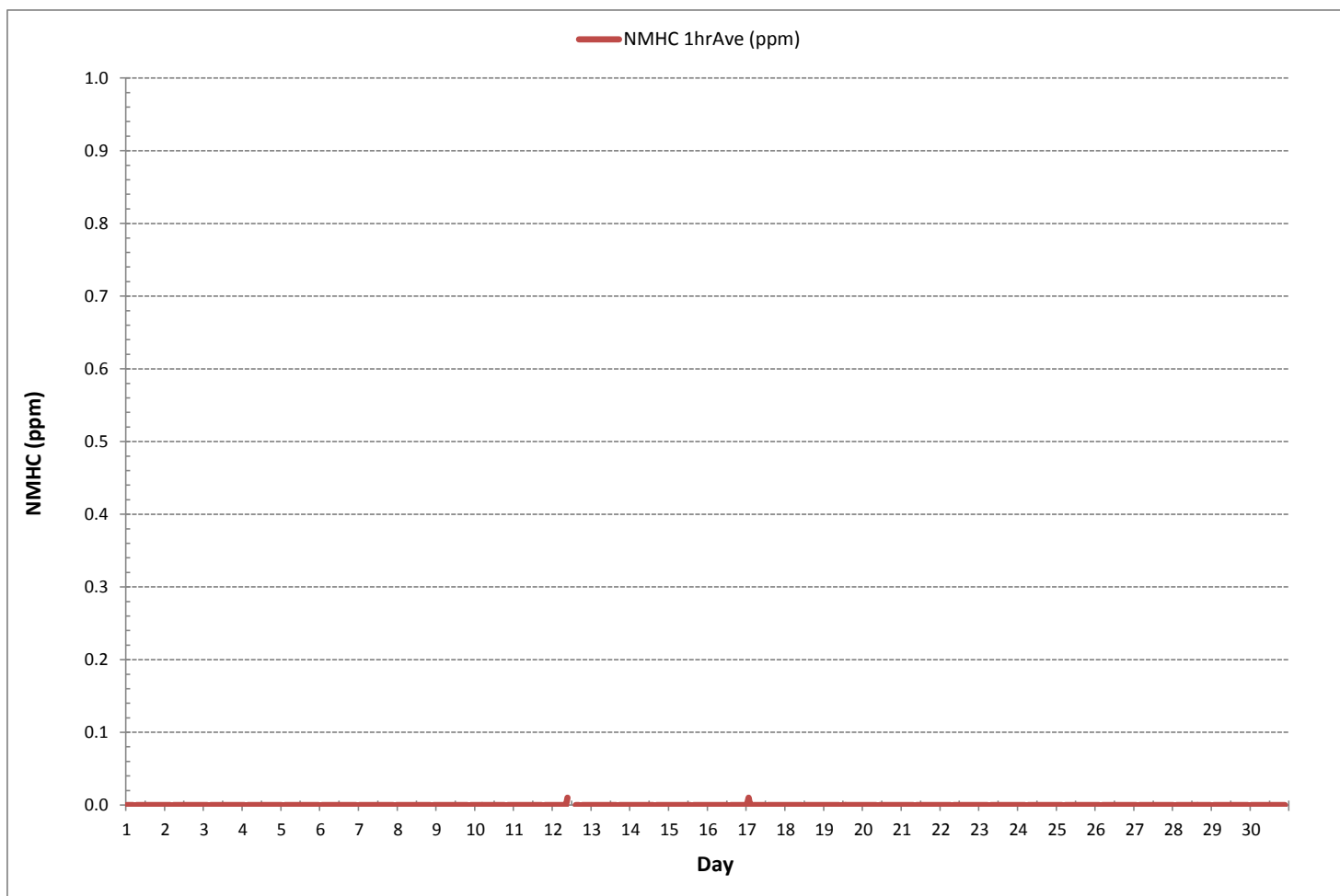
24 HR AVERAGES September 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	2				
MINIMUM 1-HR AVERAGE:	0.00	ppm @ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	0.01	ppm @ HOUR	9	ON DAY	12
MAXIMUM 24-HR AVERAGE:	0.00	ppm		ON DAY	1
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



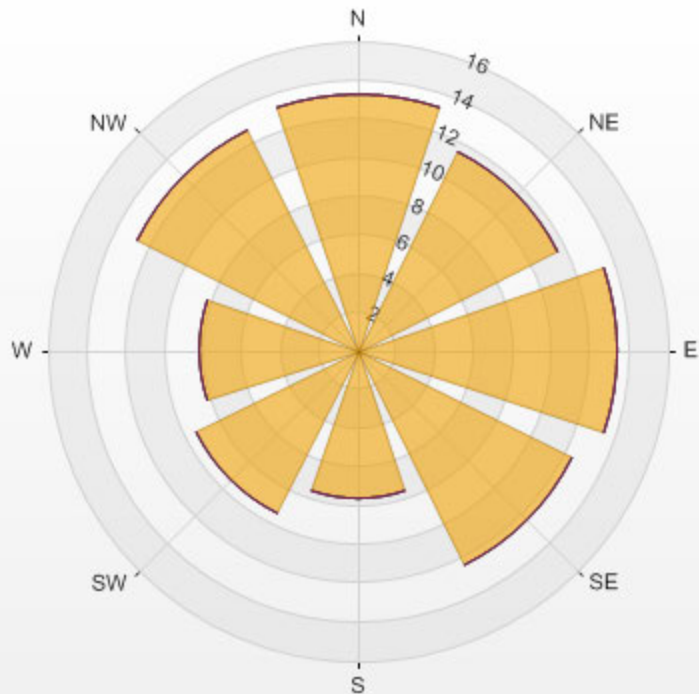
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 18/09
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 11.40%

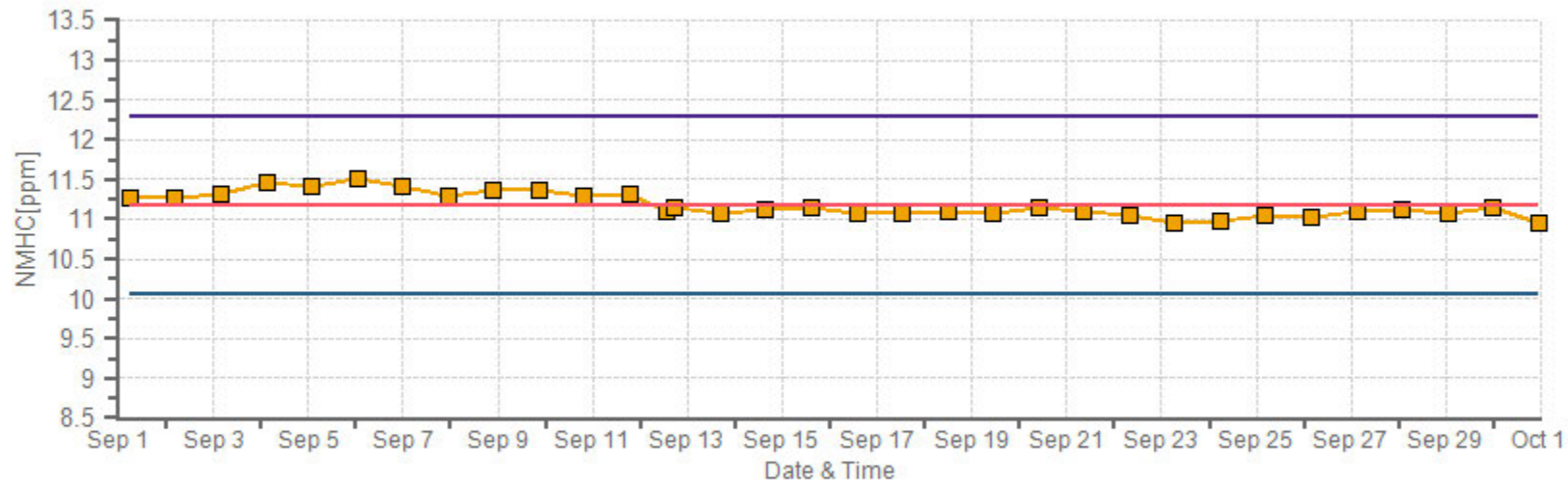
Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	13.3	0.0	0.0	0.0	0.0	13.3
NE	11.6	0.0	0.0	0.0	0.0	11.6
E	13.5	0.0	0.0	0.0	0.0	13.5
SE	12.4	0.0	0.0	0.0	0.0	12.4
S	7.6	0.0	0.0	0.0	0.0	7.6
SW	9.4	0.0	0.0	0.0	0.0	9.4
W	8.2	0.0	0.0	0.0	0.0	8.2
NW	12.7	0.0	0.0	0.0	0.0	12.7
Summary	88.6	0.0	0.0	0.0	0.0	88.6

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.40% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/09 Type: Span



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

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 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	2.7	1.3	2.8	7.5	8.1	7.9	9.0	11.1	15.1	13.2	13.5	16.2	15.3	13.7	13.0	12.8	14.3	15.6	11.1	5.6	1.8	3.1	3.3	5.6	1.3	16.2	7.3	24
2	3.4	4.4	3.9	3.6	5.4	5.5	4.7	5.9	8.9	10.4	14.0	14.9	15.0	18.8	11.7	6.9	5.9	3.0	3.5	4.3	3.4	8.7	2.2	4.2	2.2	18.8	5.8	24
3	4.0	4.7	5.9	6.8	6.1	4.2	4.1	11.0	12.0	16.3	14.4	13.9	12.9	13.2	12.7	10.0	8.2	7.1	5.6	1.6	0.9	0.1	0.5	1.6	0.1	16.3	6.0	24
4	1.1	1.5	2.0	1.4	2.4	2.8	3.6	3.8	7.2	12.4	15.1	17.7	16.6	15.8	15.6	15.1	17.1	14.0	10.6	7.5	2.7	2.4	4.2	4.1	1.1	17.7	7.0	24
5	5.0	3.9	3.0	2.4	2.7	1.1	1.4	2.0	8.1	9.6	9.0	10.4	10.1	9.4	8.2	9.3	10.2	9.2	6.6	7.1	6.7	5.6	5.5	5.7	1.1	10.4	5.2	24
6	7.5	6.1	7.7	8.6	6.4	5.6	5.3	7.3	9.1	7.9	7.7	8.8	8.7	8.8	7.8	7.8	8.2	6.6	5.6	4.6	5.2	5.0	4.9	5.5	4.6	9.1	6.8	24
7	5.3	5.0	4.5	5.1	4.9	5.1	5.2	5.1	3.5	0.8	6.2	2.9	0.3	1.5	2.2	4.1	6.3	5.0	1.8	3.1	4.7	2.0	1.8	2.6	0.3	6.3	2.5	24
8	3.9	4.8	4.4	3.9	5.3	8.4	8.3	7.9	11.1	8.2	7.6	8.1	6.1	5.0	7.0	9.4	10.2	11.9	10.4	11.6	13.3	13.3	14.1	14.5	3.9	14.5	7.8	24
9	13.1	13.0	12.3	11.1	9.2	9.7	9.4	8.9	8.5	7.9	8.6	7.4	7.4	7.4	6.1	4.1	6.4	5.0	3.8	2.3	1.1	3.3	4.1	4.3	1.1	13.1	6.3	24
10	5.5	3.2	3.6	4.2	3.8	3.1	4.1	3.7	3.2	4.3	6.2	8.3	8.7	8.9	8.5	7.1	7.4	7.0	5.5	2.6	0.1	0.5	0.2	1.2	0.1	8.9	3.4	24
11	0.9	3.6	2.5	3.5	3.2	4.0	3.2	2.5	3.2	4.7	3.9	4.8	7.0	9.4	12.9	15.1	16.1	13.3	13.2	11.3	11.9	11.6	10.5	9.6	0.9	16.1	4.4	24
12	9.1	10.0	7.7	8.0	8.2	7.6	7.9	7.6	7.9	7.7	7.8	7.8	7.3	8.2	7.7	4.8	4.8	4.5	4.1	4.7	3.9	2.4	1.4	2.5	1.4	10.0	6.2	24
13	1.9	1.3	1.9	1.2	0.6	1.0	0.3	0.9	1.2	4.2	2.8	3.5	6.0	6.7	6.5	8.6	10.8	10.9	9.7	8.5	7.8	7.2	6.6	3.3	0.3	10.9	3.6	24
14	1.8	1.8	2.1	1.6	1.4	1.7	1.5	2.3	4.5	6.9	6.9	2.0	1.9	3.5	2.1	3.2	2.9	3.6	2.5	1.7	2.6	2.3	2.8	2.3	1.4	6.9	1.4	24
15	4.0	1.0	1.3	2.5	2.3	3.2	3.3	2.6	4.2	7.1	8.2	9.4	10.4	8.1	6.7	6.9	6.3	4.6	2.5	1.6	1.6	1.8	3.7	4.6	1.0	10.4	4.3	24
16	6.5	7.1	6.3	7.6	6.0	6.7	6.4	7.0	6.3	6.9	9.2	8.4	9.3	9.3	7.9	6.1	7.0	8.0	3.5	0.8	1.6	1.5	1.1	0.8	0.8	9.3	5.1	24
17	1.4	4.7	3.3	4.2	2.0	1.0	2.6	3.2	4.1	3.8	3.9	5.7	6.3	6.0	7.0	7.5	7.5	6.3	4.3	2.5	2.4	3.7	6.0	5.0	1.0	7.5	2.2	24
18	4.5	4.5	4.6	3.1	3.6	4.1	3.2	4.5	5.2	4.7	4.0	6.0	8.4	7.4	7.5	6.8	8.7	7.3	6.5	7.7	8.0	11.0	8.7	6.2	3.1	11.0	4.7	24
19	8.5	6.1	5.8	2.6	0.7	3.0	1.7	4.6	3.8	3.5	5.0	4.6	2.1	1.2	5.7	4.3	5.4	4.4	1.3	3.0	4.1	2.0	3.6	6.7	0.7	8.5	1.0	24
20	9.0	10.2	8.9	8.5	8.3	9.7	9.2	9.4	7.7	7.8	7.5	8.7	6.7	7.7	8.1	5.8	5.4	4.9	2.5	0.5	0.8	1.9	3.1	3.5	0.5	10.2	5.7	24
21	4.1	0.9	3.8	5.8	3.5	2.8	2.0	2.4	3.0	2.0	0.2	2.2	3.0	3.8	1.2	3.8	3.1	1.8	4.4	4.3	4.5	6.7	5.7	6.9	0.2	6.9	2.7	24
22	5.2	7.7	4.6	2.7	3.9	3.6	3.2	3.0	5.4	9.4	12.0	14.3	12.4	12.4	15.4	14.3	13.0	11.2	12.0	11.9	13.1	11.2	12.1	11.6	2.7	15.4	8.7	24
23	10.9	10.8	9.9	11.2	12.6	10.7	9.6	12.2	12.3	14.8	15.0	14.0	14.9	14.8	13.0	11.6	7.5	6.0	1.1	1.2	2.6	6.6	9.3	8.9	1.1	15.0	8.3	24
24	8.2	6.6	5.1	2.0	3.4	7.0	3.5	3.8	7.7	10.0	11.4	11.7	11.7	9.8	4.6	5.6	6.9	5.0	2.2	1.3	1.4	2.3	2.8	4.0	1.3	11.7	2.9	24
25	3.7	3.8	2.9	2.6	3.3	4.1	5.3	7.4	8.6	11.2	13.4	16.5	16.3	18.4	22.0	21.8	19.7	16.5	14.6	16.2	13.9	9.6	8.1	4.8	2.6	22.0	8.6	24
26	4.9	3.4	2.4	1.3	1.6	1.0	2.8	3.4	5.3	4.3	6.8	10.7	9.7	10.8	9.3	7.6	6.0	5.3	3.3	3.0	2.6	6.9	5.6	4.0	1.0	10.8	3.5	24
27	2.8	1.8	3.0	3.2	2.2	2.2	2.7	1.8	2.9	2.5	3.8	6.5	10.3	7.9	8.9	8.9	7.9	6.1	5.1	2.7	1.9	1.1	1.6	2.8	1.1	10.3	1.1	24
28	1.4	1.8	2.2	1.3	1.6	1.6	1.3	2.0	1.4	0.8	3.3	6.4	6.1	8.3	10.0	9.3	11.7	7.4	1.9	0.5	0.2	1.3	3.0	1.4	0.2	11.7	1.7	24
29	4.4	3.9	4.4	3.0	4.0	6.7	7.1	7.5	8.6	13.0	13.1	11.2	11.5	9.4	9.6	8.8	7.1	5.3	1.6	0.6	1.3	2.1	2.1	2.4	0.6	13.1	3.7	24
30	1.2	2.4	2.5	2.3	2.4	1.8	2.2	4.5	3.8	4.2	4.8	3.9	5.1	6.1	6.9	2.8	3.6	4.2	5.0	3.7	3.0	1.4	2.9	3.0	1.2	6.9	1.8	24
HOURLY MAX	13.1	13.0	12.3	11.2	12.6	10.7	9.6	12.2	15.1	16.3	15.1	17.7	16.6	18.8	22.0	21.8	19.7	16.5	14.6	16.2	13.9	13.3	14.1	14.5				

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

LAST CALIBRATION:

August 22, 2018

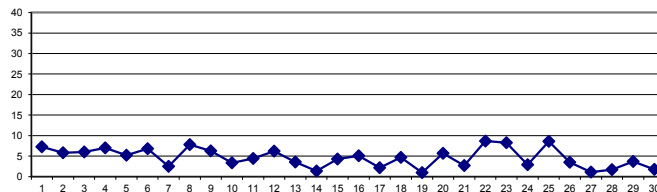
DECLINATION:

MAGNETIC DECLINATION 15 DEGREE EAST

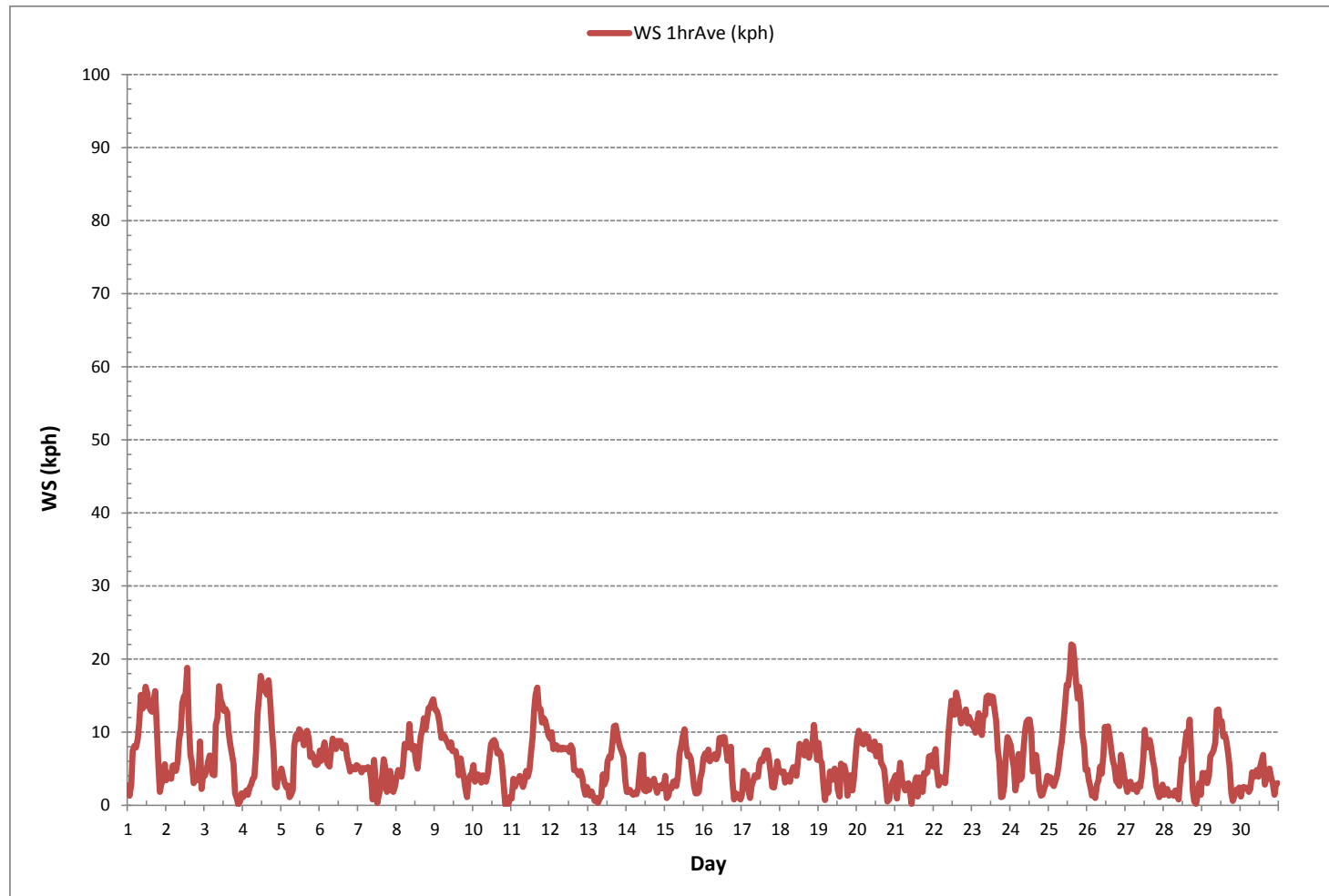
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	720				
MINIMUM 1-HR AVERAGE:	0.1	kph	@ HOUR	21	ON DAY 3
MAXIMUM 1-HR AVERAGE:	22.0	kph	@ HOUR	14	ON DAY 25
MAXIMUM 24-HR AVERAGE:	8.7	kph			ON DAY 22
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	4.0		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	0.5	kph

24 HR AVERAGES September 2018



WIND SPEED Hourly Averages (WS kph)



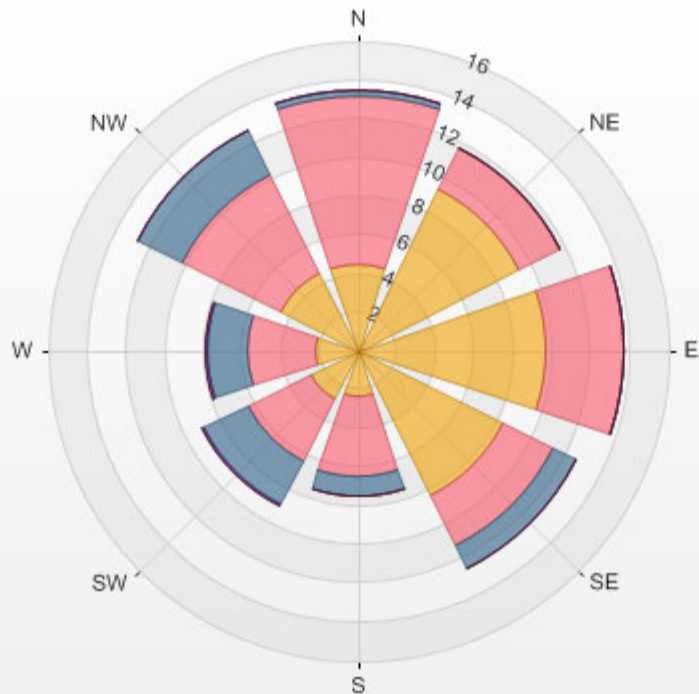
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/09
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 11.25%

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	4.4	8.8	0.3	0.0	0.0	0.0	13.5
NE	9.3	2.4	0.0	0.0	0.0	0.0	11.7
E	9.7	4.0	0.0	0.0	0.0	0.0	13.8
SE	8.3	2.9	1.4	0.0	0.0	0.0	12.6
S	2.4	4.2	1.0	0.0	0.0	0.0	7.5
SW	2.8	3.6	2.5	0.1	0.0	0.0	9.0
W	2.2	3.5	2.1	0.1	0.0	0.0	7.9
NW	4.4	5.7	2.6	0.0	0.0	0.0	12.8
Summary	43.6	35.0	9.9	0.3	0.0	0.0	88.7

%	Icon	Classes (kph)
44		1.8-6.0
35		6.0-12.0
10		12.0-20.0
0		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_842 2018/09/01 00:00 - 2018/09/30 23:00 Calm: 11.25% Calm Wind Avg Speed: 1.15(kph)



WIND DIRECTION



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

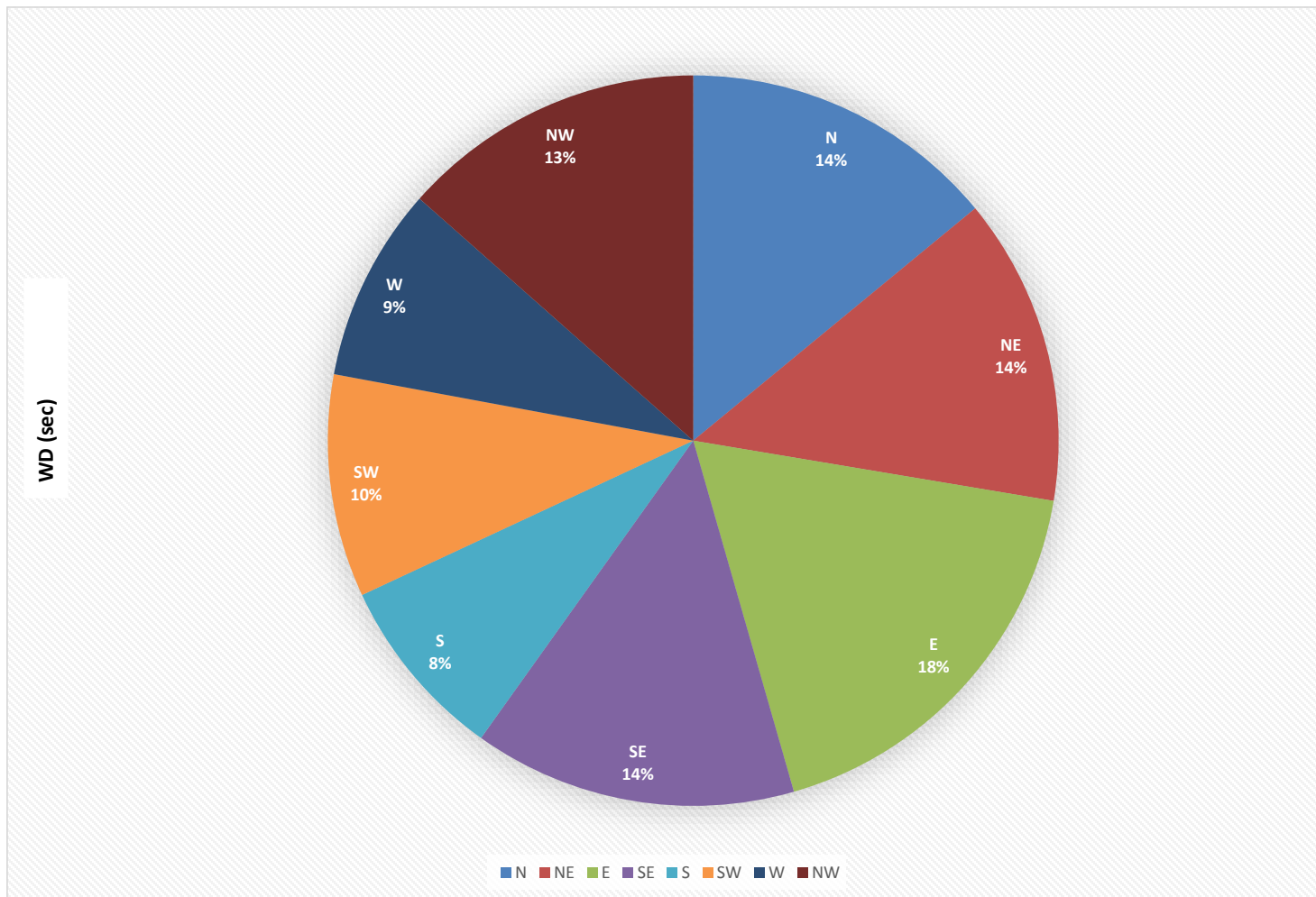
STATUS FLAG CODES

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

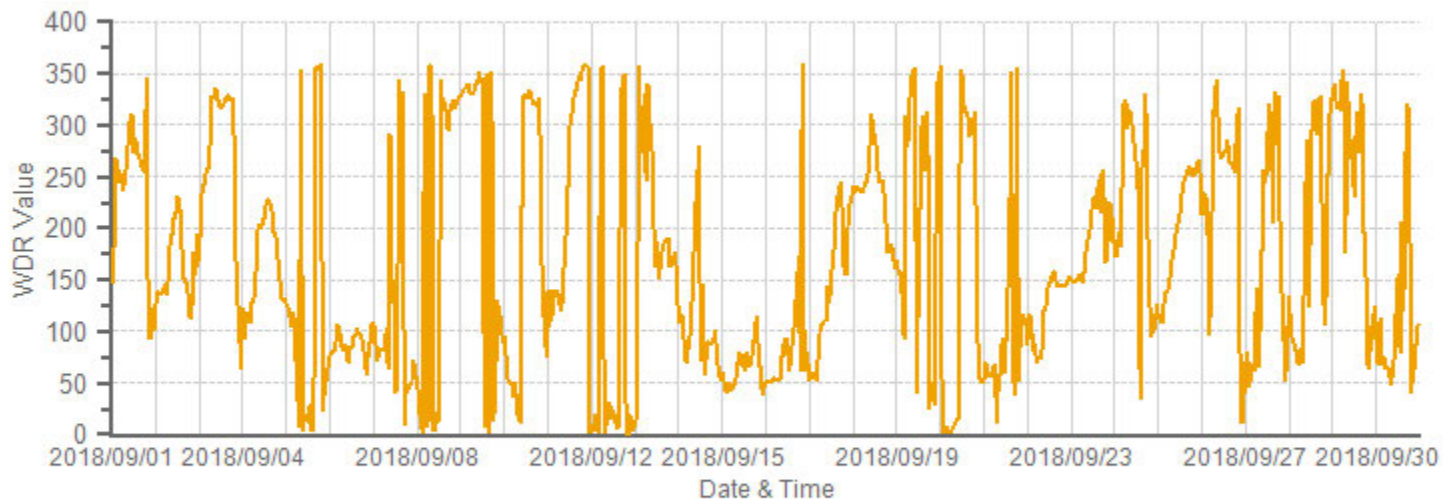
LAST CALIBRATION:	August 22, 2018
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	108		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	312 (NW)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP_842 Monthly: 18/09 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

RELATIVE HUMIDITY



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

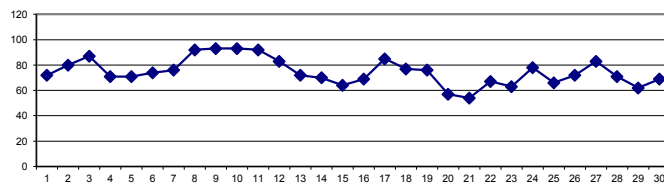
RELATIVE HUMIDITY Hourly Averages (RH %)

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

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 September 2018

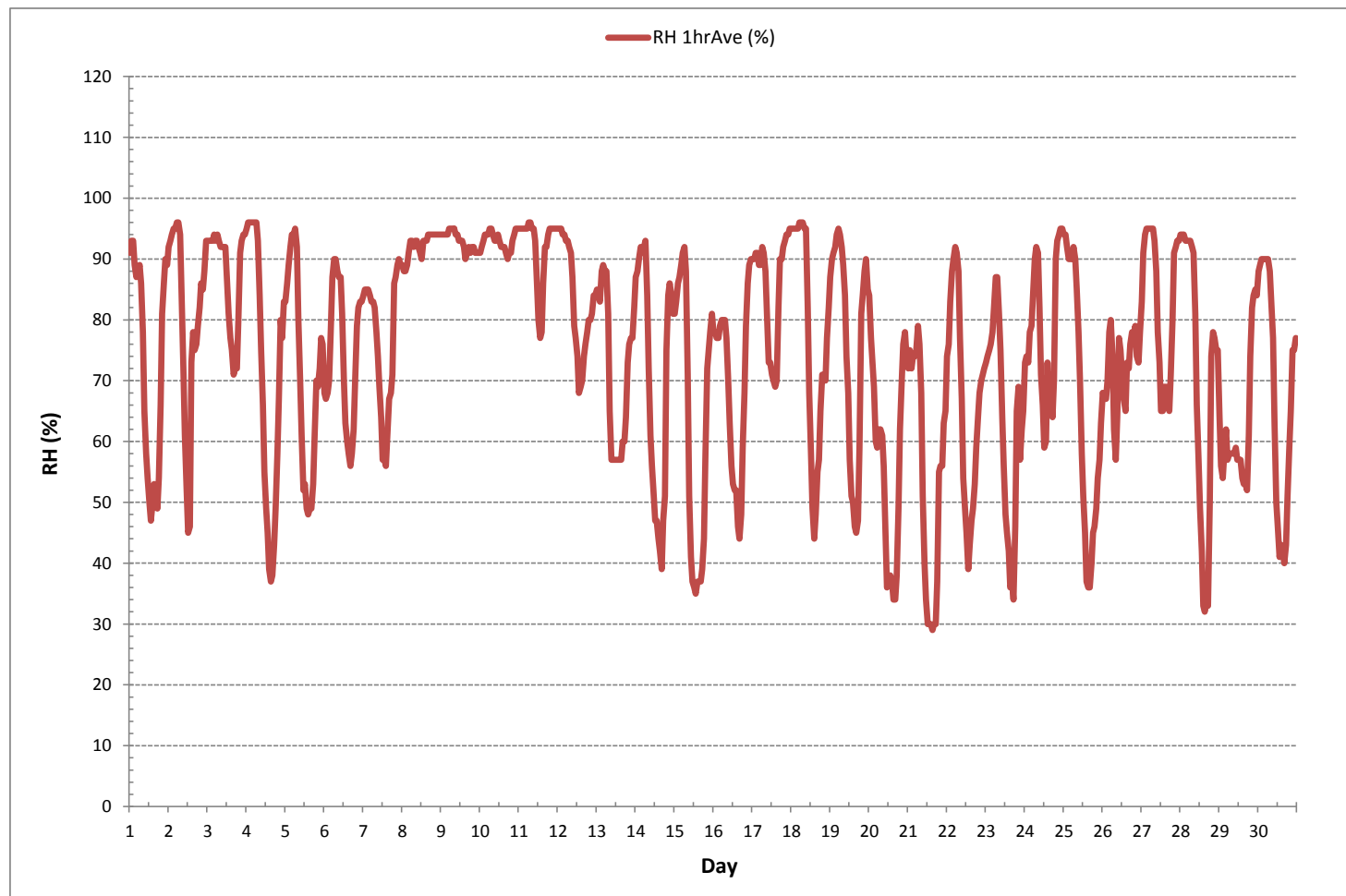


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	29	%	@ HOUR	15	ON DAY	21
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	5	ON DAY	2
MAXIMUM 24-HR AVERAGE:	93	%			ON DAY	9

OPERATIONAL TIME:	720	hrs
AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	18	
MONTHLY AVERAGE:	75	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

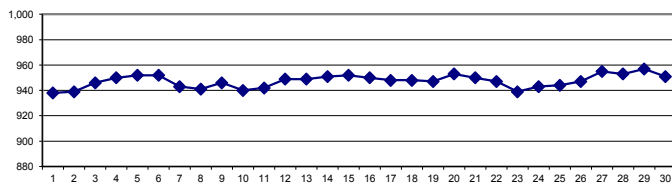
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	933	933	933	934	935	936	937	938	938	939	939	940	940	940	940	940	940	940	940	941	941	941	941	941	933	941	938	24	
2	941	941	941	940	940	940	940	940	940	940	940	939	939	939	939	939	939	938	938	938	938	938	938	938	938	941	939	24	
3	938	939	939	940	940	941	941	942	944	945	946	947	948	949	950	950	951	951	951	952	952	952	952	952	938	952	946	24	
4	953	953	952	953	952	952	952	952	952	952	952	951	951	950	949	949	948	948	947	947	948	948	948	948	947	953	950	24	
5	948	948	948	949	949	949	950	950	951	952	952	953	953	953	953	953	953	953	953	954	954	955	954	955	948	955	952	24	
6	955	955	955	954	954	954	954	954	953	953	953	953	952	951	951	950	950	950	949	949	949	949	948	948	948	948	955	952	24
7	947	946	946	945	945	944	944	944	943	943	943	943	942	942	942	942	942	942	942	942	942	942	942	941	941	947	943	24	
8	941	940	940	940	940	940	940	940	939	940	940	940	940	940	940	940	940	940	941	941	942	942	943	943	944	939	944	941	24
9	944	945	945	945	946	946	947	947	947	948	948	948	948	947	947	947	946	946	946	945	945	945	944	943	943	948	946	24	
10	943	942	942	941	941	940	940	940	940	940	940	939	939	939	940	940	940	940	940	940	940	940	940	940	939	943	940	24	
11	940	940	939	939	939	939	940	940	940	940	940	940	940	941	942	943	943	944	945	946	946	947	948	939	948	942	24		
12	948	949	949	949	949	949	949	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	950	949	948	950	949	24	
13	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	949	950	950	950	949	950	949	24	
14	950	950	951	951	951	951	951	951	951	952	952	952	952	951	951	951	951	951	951	952	952	952	953	953	950	953	951	24	
15	953	953	953	953	953	953	953	953	953	953	953	953	952	952	952	951	951	951	951	951	951	951	951	951	951	951	953	952	24
16	951	951	951	951	951	951	951	950	950	950	950	950	950	949	949	949	949	949	949	949	949	949	949	949	949	949	951	950	24
17	949	948	948	948	948	948	948	948	948	948	948	948	948	948	947	947	947	947	947	947	948	947	948	948	947	949	948	24	
18	948	947	947	947	948	948	948	948	949	949	949	949	949	949	949	949	949	948	948	948	948	948	948	948	947	949	948	24	
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21	952	952	952	952	951	951	951	951	952	952	951	951	951	950	950	949	949	949	949	949	949	949	949	949	949	949	952	950	24
22	949	949	949	948	948	948	948	948	948	948	948	948	947	947	947	947	946	946	946	946	945	945	944	944	944	949	947	24	
23	943	942	942	941	941	940	940	939	939	939	938	938	938	937	937	937	937	937	937	937	937	937	938	938	937	943	939	24	
24	938	938	938	939	940	941	941	942	943	943	944	944	945	944	945	945	945	946	946	946	946	947	947	947	938	947	943	24	
25	947	947	946	946	946	946	946	946	946	945	945	944	944	944	943	942	942	942	942	942	942	943	943	943	942	947	944	24	
26	943	943	943	943	943	944	944	945	946	946	947	947	947	948	948	949	949	949	950	950	951	951	951	952	943	952	947	24	
27	952	953	953	953	954	954	955	955	955	955	956	956	956	956	956	956	956	956	956	956	956	956	956	955	952	956	955	24	
28	955	955	955	954	954	954	953	953	953	953	953	953	952	952	951	951	951	951	951	951	952	952	952	953	951	955	953	24	
29	953	954	954	954	955	955	956	956	957	958	958	958	958	958	958	958	958	958	958	958	958	958	958	957	953	958	957	24	
30	957	957	956	956	955	955	955	954	953	953	953	952	952	951	950	949	948	948	947	947	947	946	945	945	945	957	951	24	
HOURLY MAX	957	957	956	956	955	955	956	956	957	958	958	958	958	958	958	958	958	958	958	958	958	958	958	957					
HOURLY AVG	947	947	947	947	947	947	947	948	948	948	948	948	948	948	948	947	947	947	947	947	947	948	948	948					

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

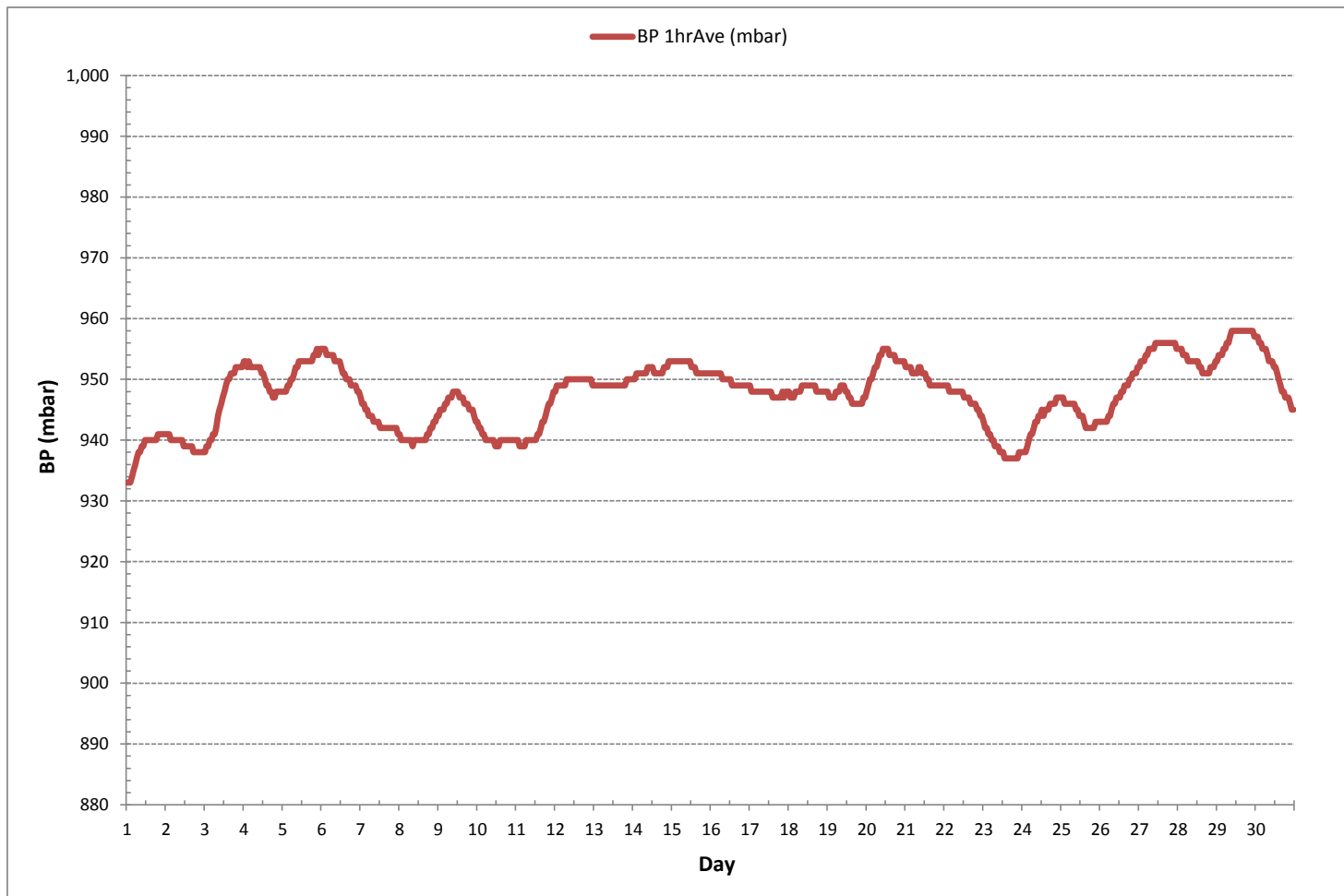
24 HR AVERAGES September 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	933	mbar	@ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	958	mbar	@ HOUR	9	ON DAY	29
MAXIMUM 24-HR AVERAGE:	957	mbar			ON DAY	29
OPERATIONAL TIME:					720	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	5				MONTHLY AVERAGE:	947 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 2018

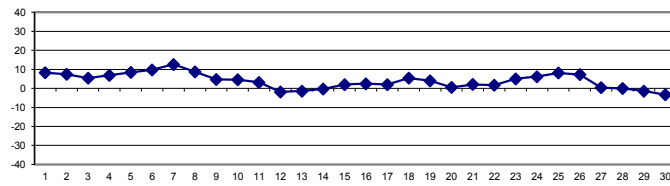
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	6.0	5.6	5.2	6.0	7.0	6.6	6.7	7.5	9.3	11.2	12.0	12.1	11.9	11.1	10.6	10.1	10.4	11.2	10.2	8.6	6.7	5.2	4.1	3.8	3.8	12.1	8.3	24
2	2.8	2.2	1.4	1.3	1.1	1.0	0.9	3.1	6.8	9.7	11.9	13.5	14.8	14.8	10.7	10.7	10.9	11.0	11.0	10.3	8.4	9.1	7.6	6.1	0.9	14.8	7.5	24
3	5.7	5.8	5.5	5.2	4.8	5.2	5.7	6.9	7.1	5.7	4.9	4.8	5.7	5.9	6.2	6.6	6.9	7.0	6.6	5.8	3.9	3.2	2.6	1.7	1.7	7.1	5.4	24
4	0.2	-0.6	-1.0	-1.5	-1.7	-1.8	-1.5	0.5	4.3	6.9	9.2	10.9	12.4	13.7	14.7	15.3	15.3	15.1	14.2	11.8	9.8	7.1	7.3	5.6	-1.8	15.3	6.9	24
5	5.1	4.4	3.8	2.0	2.2	0.7	0.5	2.6	6.6	8.6	11.1	13.0	13.5	14.0	14.9	15.1	14.6	13.7	12.1	10.3	9.4	8.5	7.4	7.3	0.5	15.1	8.4	24
6	7.5	7.0	6.7	6.6	6.3	5.9	6.1	6.5	7.2	7.4	8.1	9.8	12.7	14.0	15.1	15.6	15.6	15.3	14.3	12.1	9.8	8.8	8.3	8.4	5.9	15.6	9.8	24
7	8.5	8.3	8.2	8.2	8.5	8.8	9.0	9.6	11.1	12.6	14.0	15.2	17.4	18.1	18.6	17.9	17.2	17.0	16.3	13.2	11.9	10.7	10.6	10.5	8.2	18.6	12.6	24
8	10.4	10.4	10.1	9.6	9.2	8.8	8.6	8.5	8.2	8.3	8.7	9.3	9.6	9.6	9.8	9.4	9.0	8.7	8.6	8.6	7.7	6.8	6.3	5.8	5.8	10.4	8.7	24
9	5.5	5.2	5.0	4.8	4.6	4.3	4.1	4.0	4.0	4.0	4.1	4.4	4.6	4.6	4.9	5.5	5.2	5.1	5.3	5.2	5.3	4.9	4.1	4.0	4.0	5.5	4.7	24
10	4.1	3.8	3.4	3.5	3.6	3.6	3.8	4.2	5.1	6.1	6.2	6.0	6.6	6.4	6.2	6.3	6.0	5.7	5.5	4.6	3.5	2.5	2.0	2.2	2.0	6.6	4.6	24
11	2.3	2.6	2.6	3.2	3.3	3.6	3.9	4.4	5.1	5.8	6.5	7.6	8.4	8.6	8.0	4.9	1.3	0.4	-0.2	-0.4	-0.7	-1.0	-1.3	-1.5	-1.5	8.6	3.2	24
12	-1.6	-1.8	-2.0	-2.3	-2.5	-2.7	-3.0	-3.1	-3.0	-2.2	-1.7	-1.7	-1.2	-0.6	-0.8	-0.8	-0.7	-1.0	-1.3	-1.6	-1.8	-1.9	-2.0	-2.2	-3.1	-0.6	-1.8	24
13	-2.3	-2.2	-2.3	-2.4	-2.5	-2.6	-2.6	-2.1	-1.3	-0.9	-0.9	-0.5	-0.2	0.2	0.8	1.1	0.8	0.8	-0.2	-1.9	-2.7	-3.1	-3.3	-4.2	-4.2	1.1	-1.4	24
14	-5.2	-5.5	-6.0	-6.1	-5.3	-5.7	-6.6	-3.6	-0.5	1.2	2.2	3.6	5.0	4.8	5.2	5.2	5.9	4.6	4.0	0.5	-1.3	-1.5	-1.3	-1.2	-6.6	5.9	-0.3	24
15	-1.5	-2.1	-2.6	-2.7	-3.0	-3.4	-3.8	-2.8	1.6	4.4	5.4	5.8	6.2	6.7	6.6	6.5	6.4	6.1	5.4	4.0	2.4	1.7	0.5	-0.5	-3.8	6.7	2.0	24
16	-0.6	-0.5	-0.3	0.0	-0.3	-0.4	-0.4	-0.2	1.0	2.8	4.1	5.1	6.1	6.4	6.1	6.5	6.7	6.3	5.1	4.1	2.8	1.3	-0.3	-0.5	-0.6	6.7	2.5	24
17	-0.4	-1.2	-1.9	-1.8	-1.1	-0.5	-0.9	0.2	1.4	3.0	3.9	4.1	4.5	4.8	5.1	4.9	3.9	3.0	2.9	2.7	2.5	2.7	2.8	2.5	-1.9	5.1	2.0	24
18	2.6	2.5	2.3	2.1	1.9	2.0	1.7	2.1	2.6	3.1	5.3	7.6	8.9	9.7	10.3	9.5	9.3	9.0	7.6	6.7	6.5	6.4	5.3	3.7	1.7	10.3	5.4	24
19	2.5	1.5	1.3	0.2	-1.8	-2.2	-1.7	-0.9	-0.2	1.1	3.9	6.5	9.2	10.8	11.7	11.8	11.8	11.2	9.0	4.1	2.6	1.3	1.0	1.5	-2.2	11.8	4.0	24
20	0.8	0.2	0.2	0.2	0.3	-0.3	-1.1	-1.5	-1.3	-0.2	1.5	2.7	2.5	2.8	3.3	4.0	3.8	3.0	2.0	0.1	-1.4	-1.9	-2.8	-2.7	-2.8	4.0	0.6	24
21	-2.7	-3.4	-3.0	-3.1	-3.3	-3.2	-3.3	-2.5	-0.9	3.4	5.6	6.3	7.0	7.7	8.4	9.0	8.6	8.4	6.1	2.6	1.4	1.3	-0.2	-0.2	-3.4	9.0	2.1	24
22	-1.7	-1.7	-2.6	-3.9	-4.4	-4.8	-4.6	-2.7	0.2	2.8	4.6	5.8	6.5	7.4	6.5	6.3	6.0	5.4	4.3	3.1	2.5	2.2	2.0	1.7	-4.8	7.4	1.7	24
23	1.5	1.3	1.1	1.1	1.0	0.3	-1.2	-0.8	1.2	3.0	5.3	7.1	8.6	9.4	10.1	11.5	11.8	12.4	9.1	5.0	3.6	6.0	5.6	4.9	-1.2	12.4	5.0	24
24	3.4	3.5	4.2	3.1	3.8	4.7	4.6	4.8	5.8	7.8	9.4	10.7	11.8	11.5	10.0	11.4	10.2	10.4	8.5	4.2	2.4	1.2	0.7	1.6	0.7	11.8	6.2	24
25	2.2	2.2	2.3	2.7	2.0	2.0	1.1	1.4	3.8	6.0	8.1	10.4	12.3	14.0	15.5	15.6	15.2	14.1	12.7	12.4	11.8	10.4	9.4	7.8	1.1	15.6	8.1	24
26	6.5	6.7	6.8	6.4	5.4	5.3	5.9	7.6	8.5	8.3	7.5	8.4	9.3	9.7	9.9	9.1	9.5	8.9	7.9	7.2	5.5	5.4	5.4	4.1	4.1	9.9	7.3	24
27	2.7	0.4	-1.1	-1.9	-2.6	-3.3	-3.8	-2.8	-0.6	1.2	3.1	4.3	5.2	5.4	4.5	4.1	3.6	3.7	1.9	-0.6	-2.9	-3.3	-3.8	-4.3	-4.3	5.4	0.4	24
28	-4.7	-5.0	-5.2	-5.2	-4.9	-4.8	-4.9	-4.5	-2.4	1.6	3.7	4.8	5.9	6.2	6.8	7.1	6.3	5.7	2.7	-1.4	-2.8	-2.3	-1.8	-1.0	-5.2	7.1	0.0	24
29	0.3	0.8	0.3	-0.6	-1.1	-0.7	-1.0	-1.0	-0.7	-0.7	-0.6	-0.2	-0.1	-0.2	0.1	0.1	0.3	0.2	-1.6	-3.9	-5.0	-5.4	-5.7	-6.1	-6.1	0.8	-1.4	24
30	-7.0	-7.6	-8.2	-8.7	-9.3	-9.6	-9.4	-7.8	-5.2	-2.6	-0.3	0.8	1.4	2.8	1.9	2.3	2.9	2.0	0.0	-1.3	-2.4	-3.6	-4.2	-5.0	-9.6	2.9	-3.3	24
HOURLY MAX	10.4	10.4	10.1	9.6	9.2	8.8	9.0	9.6	11.1	12.6	14.0	15.2	17.4	18.1	18.6	17.9	17.2	17.0	16.3	13.2	11.9	10.7	10.6	10.5				
HOURLY AVG	1.8	1.4	1.1	0.9	0.7	0.6	0.4	1.3	2.8	4.3	5.6	6.6	7.6	8.0	8.1	8.1	7.8	7.5	6.3	4.5	3.3	2.8	2.2	1.8				

STATUS FLAG CODES

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

24 HR AVERAGES September 2018



MONTHLY SUMMARY

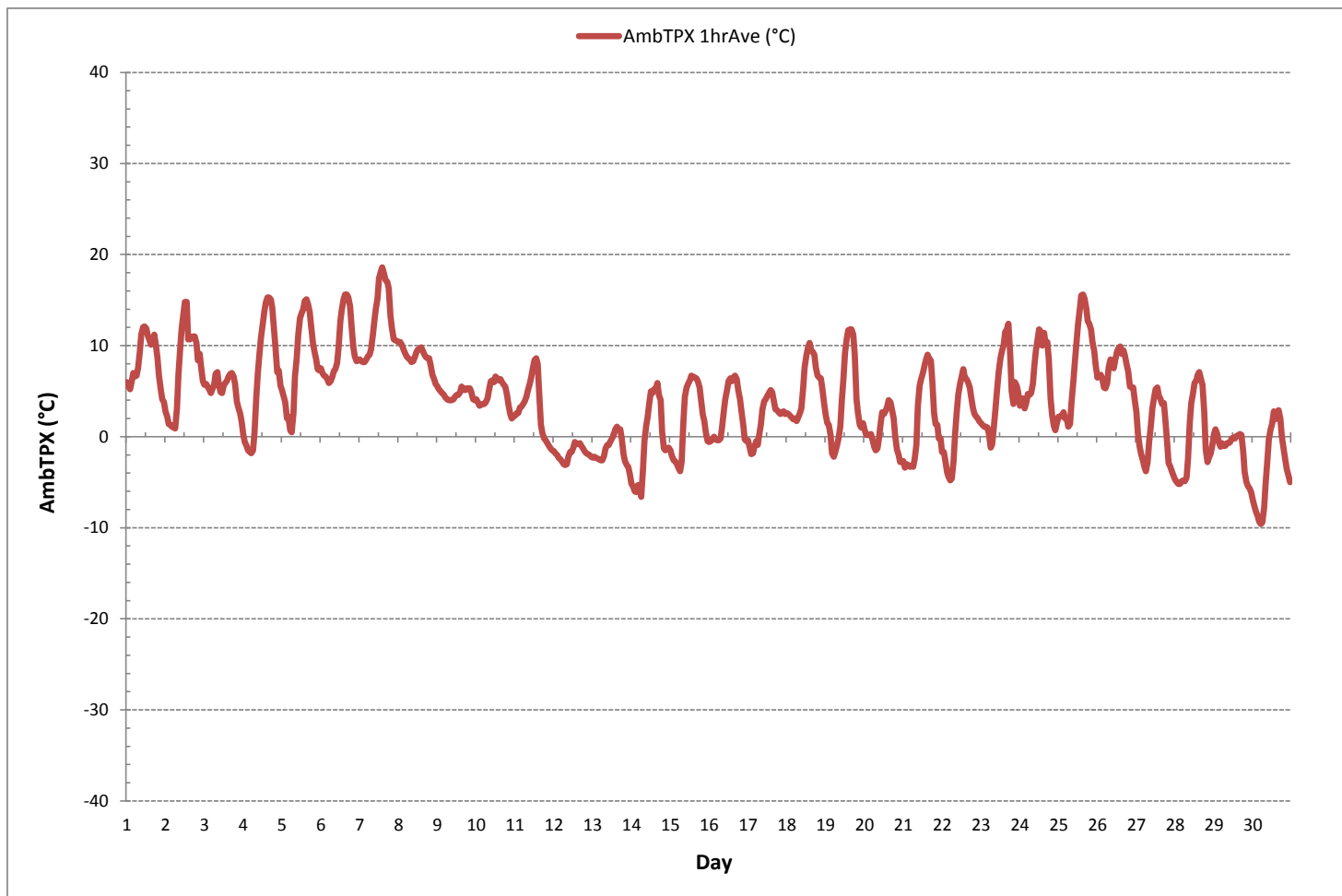
MINIMUM 1-HR AVERAGE:	-9.6	°C	@ HOUR	5	ON DAY	30
MAXIMUM 1-HR AVERAGE:	18.6	°C	@ HOUR	14	ON DAY	7
MAXIMUM 24-HR AVERAGE:	12.6	°C			ON DAY	7

OPERATIONAL TIME: 720 hrs

AMD OPERATION UPTIME: 100.0 %

STANDARD DEVIATION:	5.2	MONTHLY AVERAGE:	4.0	°C
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AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

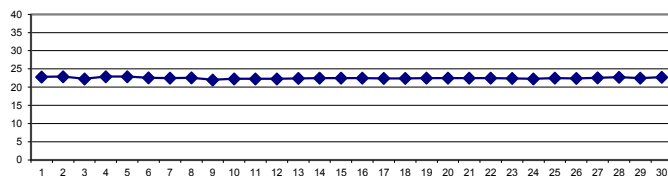
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	22.5	22.0	22.1	22.2	22.0	21.9	22.0	22.1	22.8	22.6	22.8	23.1	23.4	23.3	23.6	23.7	23.6	23.6	23.7	23.9	23.5	22.5	22.1	22.1	21.9	23.9	22.8	24
2	22.3	22.3	22.4	22.4	22.5	22.3	22.4	22.1	22.8	22.7	22.8	22.8	23.1	23.3	23.3	23.7	23.7	23.7	23.5	23.6	23.3	23.1	22.9	22.1	22.1	23.7	22.9	24
3	22.1	22.1	22.0	22.0	22.2	22.0	21.9	21.8	21.7	21.8	21.9	21.9	22.1	22.4	22.6	22.7	23.1	23.2	23.1	22.7	22.1	22.2	22.2	22.3	21.7	23.2	22.3	24
4	22.4	22.5	22.6	22.5	22.5	22.6	22.5	21.7	22.0	22.7	22.8	23.1	23.2	23.4	23.5	23.3	23.4	23.5	23.6	23.6	23.5	23.1	22.4	22.1	21.7	23.6	22.9	24
5	22.2	22.2	22.3	22.3	22.4	22.3	22.4	21.8	22.6	22.6	22.8	23.0	23.1	23.3	23.5	23.2	23.5	23.4	23.5	23.8	23.8	23.6	23.2	22.8	21.8	23.8	22.9	24
6	22.7	22.5	22.3	22.1	21.8	22.0	21.9	21.9	21.8	22.0	22.4	23.3	23.4	23.5	23.4	23.5	22.7	22.4	22.3	22.6	23.0	22.9	22.7	22.7	21.8	23.5	22.6	24
7	22.7	22.6	22.6	22.8	22.9	22.5	22.7	22.6	22.4	22.3	22.3	22.3	22.1	22.0	22.0	22.1	22.2	22.4	22.3	22.6	22.7	22.8	22.7	22.7	22.0	22.9	22.5	24
8	22.7	22.7	22.8	22.7	22.6	22.9	23.0	22.8	22.7	22.9	22.7	22.6	22.5	22.6	22.6	22.6	22.6	22.7	22.7	22.7	22.5	22.3	21.9	21.8	21.8	23.0	22.6	24
9	21.9	22.1	22.0	22.0	22.1	22.1	22.1	22.0	22.1	22.0	22.0	22.0	21.7	21.7	21.7	21.9	22.4	22.1	22.0	21.8	22.1	21.9	22.1	22.1	21.7	22.4	22.0	24
10	22.0	22.1	22.2	22.1	22.1	22.1	22.1	22.1	21.9	22.1	22.4	22.3	22.6	22.8	22.7	22.7	22.6	22.4	22.2	21.9	22.1	22.2	22.3	22.3	21.9	22.8	22.3	24
11	22.2	22.2	22.2	22.2	22.1	22.0	22.0	22.1	22.0	22.5	22.8	22.6	22.5	22.3	22.5	22.5	22.0	22.1	22.1	22.2	22.2	22.2	22.3	22.3	22.0	22.8	22.3	24
12	22.3	22.3	22.4	22.4	22.4	22.5	22.5	22.1	22.2	22.7	22.7	22.2	21.7	22.0	21.9	22.1	22.1	22.2	22.3	22.3	22.4	22.4	22.5	22.4	21.7	22.7	22.3	24
13	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.4	22.4	22.1	22.1	22.2	21.9	22.3	22.6	22.3	22.2	22.2	22.3	22.6	22.7	22.7	22.8	22.8	21.9	22.8	22.4	24
14	22.9	22.9	22.9	22.9	22.6	22.7	22.9	22.4	21.5	21.7	22.2	21.9	22.5	22.6	22.6	22.9	22.8	22.8	22.7	22.3	22.5	22.6	22.5	22.5	21.5	22.9	22.5	24
15	22.6	22.6	22.7	22.6	22.6	22.8	22.7	22.5	21.7	22.0	22.1	22.4	22.6	22.7	22.9	22.6	22.9	23.0	22.5	22.1	22.2	22.3	22.4	22.6	21.7	23.0	22.5	24
16	22.5	22.4	22.4	22.5	22.4	22.5	22.4	22.4	22.3	22.1	22.0	22.6	22.8	22.6	22.7	22.8	23.2	23.0	22.5	22.0	22.2	22.4	22.5	22.5	22.0	23.2	22.5	24
17	22.4	22.4	22.6	22.6	22.5	22.4	22.4	22.4	22.3	22.3	22.4	22.6	22.8	22.8	22.7	22.2	22.0	22.1	22.2	22.2	22.2	22.2	22.2	22.2	22.0	22.8	22.4	24
18	22.2	22.3	22.2	22.2	22.3	22.2	22.2	22.1	22.1	22.0	22.4	22.2	22.3	22.6	22.6	22.5	22.9	22.5	23.1	22.8	22.4	22.1	22.0	22.2	22.0	23.1	22.4	24
19	22.4	22.4	22.4	22.4	22.6	22.6	22.5	22.4	22.2	22.1	22.2	22.2	22.3	22.5	22.6	22.6	22.5	22.7	22.8	22.6	22.3	22.5	22.4	22.4	22.1	22.8	22.5	24
20	22.5	22.3	22.3	22.3	22.3	22.3	22.4	22.4	22.4	22.2	22.3	22.4	22.5	22.4	22.5	23.0	23.1	22.5	22.1	22.4	22.4	22.6	22.6	22.6	22.1	23.1	22.5	24
21	22.6	22.7	22.6	22.5	22.6	22.5	22.5	22.6	22.2	22.1	22.0	22.0	22.5	22.7	22.8	22.6	22.7	22.8	23.1	22.5	22.5	22.5	22.6	22.6	22.0	23.1	22.5	24
22	22.6	22.6	22.6	22.7	22.8	22.7	22.8	22.6	21.7	22.1	22.3	22.6	22.6	22.7	22.7	22.9	22.8	22.9	22.4	22.1	22.2	22.2	22.3	22.2	21.7	22.9	22.5	24
23	22.3	22.3	22.3	22.4	22.3	22.3	22.6	22.4	21.6	21.7	22.3	22.4	22.4	22.6	22.5	22.8	22.5	22.7	22.7	22.3	22.4	22.4	22.4	22.3	21.6	22.8	22.4	24
24	22.3	22.3	22.3	22.1	22.3	22.1	22.1	22.0	22.0	22.2	21.9	22.3	22.3	22.5	22.6	22.6	22.7	22.7	22.7	22.2	22.3	22.5	22.5	22.5	21.9	22.7	22.3	24
25	22.4	22.4	22.4	22.3	22.4	22.4	22.4	22.3	22.0	22.6	22.5	22.2	22.5	22.4	22.4	22.6	22.5	22.6	22.7	22.9	22.8	23.1	23.2	22.8	22.0	23.2	22.5	24
26	22.2	21.9	21.8	21.9	21.8	21.7	22.1	22.2	22.5	22.8	22.8	23.0	22.7	22.6	22.6	22.7	22.8	22.8	23.2	23.1	22.5	22.1	22.1	22.2	21.7	23.2	22.4	24
27	22.3	22.6	22.7	22.8	22.7	22.7	22.8	22.8	22.4	22.4	22.2	22.4	22.6	22.9	22.9	22.5	22.0	21.8	22.3	22.6	22.7	22.9	22.8	22.9	21.8	22.9	22.6	24
28	22.8	23.0	22.8	22.9	22.7	22.8	22.7	22.7	22.5	22.2	22.6	22.3	22.5	22.7	22.8	22.9	22.8	22.9	22.8	22.6	22.8	22.7	22.5	22.6	22.2	23.0	22.7	24
29	22.5	22.5	22.6	22.5	22.6	22.5	22.5	22.5	22.4	22.3	22.2	22.2	22.2	22.1	22.2	22.1	22.2	22.3	22.6	22.8	22.9	22.9	22.9	22.9	22.1	22.9	22.5	24
30	23.0	23.0	23.0	23.0	23.1	23.1	23.1	22.9	22.6	22.4	22.3	22.2	22.2	22.7	22.9	22.2	22.4	22.7	22.4	22.6	22.7	22.8	22.8	22.9	22.2	23.1	22.7	24
HOURLY MAX	23.0	23.0	23.0	23.0	23.1	23.1	23.1	22.9	22.8	22.9	22.8	23.3	23.4	23.5	23.6	23.7	23.7	23.7	23.7	23.9	23.8	23.6	23.2	22.9				
HOURLY AVG	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.3	22.2	22.3	22.4	22.4	22.5	22.6	22.7	22.7	22.7	22.7	22.7	22.6	22.6	22.6	22.5	22.4				

STATUS FLAG CODES

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

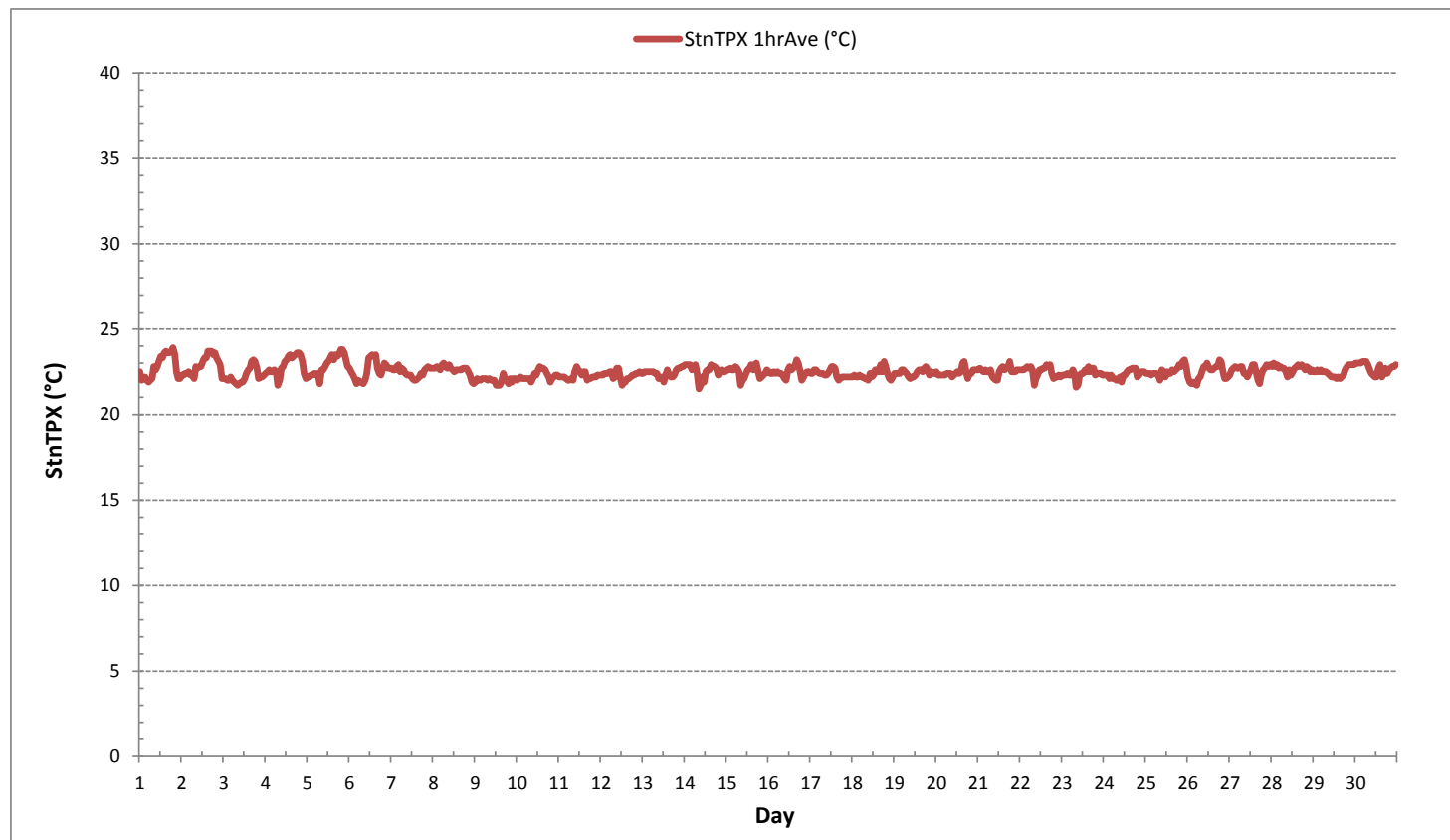
24 HR AVERAGES September 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	21.5	°C	@ HOUR	8	ON DAY	14
MAXIMUM 1-HR AVERAGE:	23.9	°C	@ HOUR	19	ON DAY	1
MAXIMUM 24-HR AVERAGE:	22.9	°C			ON DAY	2
OPERATIONAL TIME:					720	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	0.4		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:	September 12, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.99	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.3	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	7:25	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	11:10	Cal Gas Expiry Date:	May 23, 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:	August 2, 2018	As Found C.F.:	1.012		
Previous C.F.:	0.999	New C.F.:	1.001		

Calibration Standards:	Standard Calibration Points for Ranges								
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	<table><tr><td>Point</td><td>ppb</td></tr><tr><td>High</td><td>380</td></tr><tr><td>Mid</td><td>180</td></tr><tr><td>Low</td><td>90</td></tr></table>	Point	ppb	High	380	Mid	180	Low	90
Point	ppb								
High	380								
Mid	180								
Low	90								
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018									
Calibrator ID/Expiry Date: EnviroNics id# 1991 expires March 15, 2019									
Cal Gas Cylinder I.D. #: LL119513									
Cal Gas Conc. (ppm): 50.6									

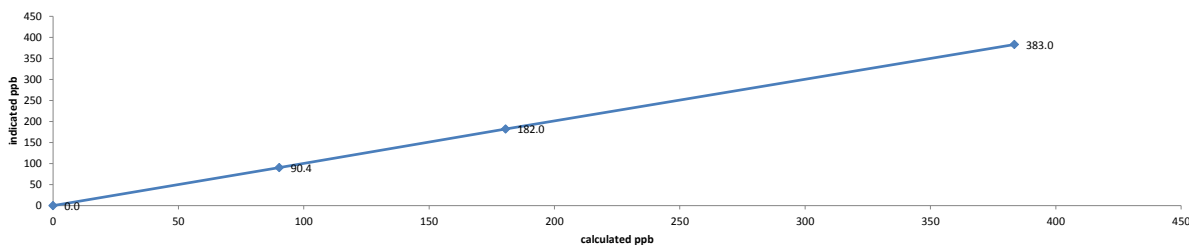
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	5980	0.00	5980	0.0	0.0	n/a
as found high	5931	45.29	5976	383.5	379.0	1.012
adjusted zero	5980	0.00	5980	0.0	0.0	n/a
adjusted high	5931	45.29	5976	383.5	383.0	1.001
mid	5966	21.36	5987	180.6	182.0	0.992
low	5977	10.68	5987	90.2	90.4	0.998
calibrator zero	5980	0.00	5980	0.0	0.9	n/a
Average C.F. =						0.997

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 =	-1.28%		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration



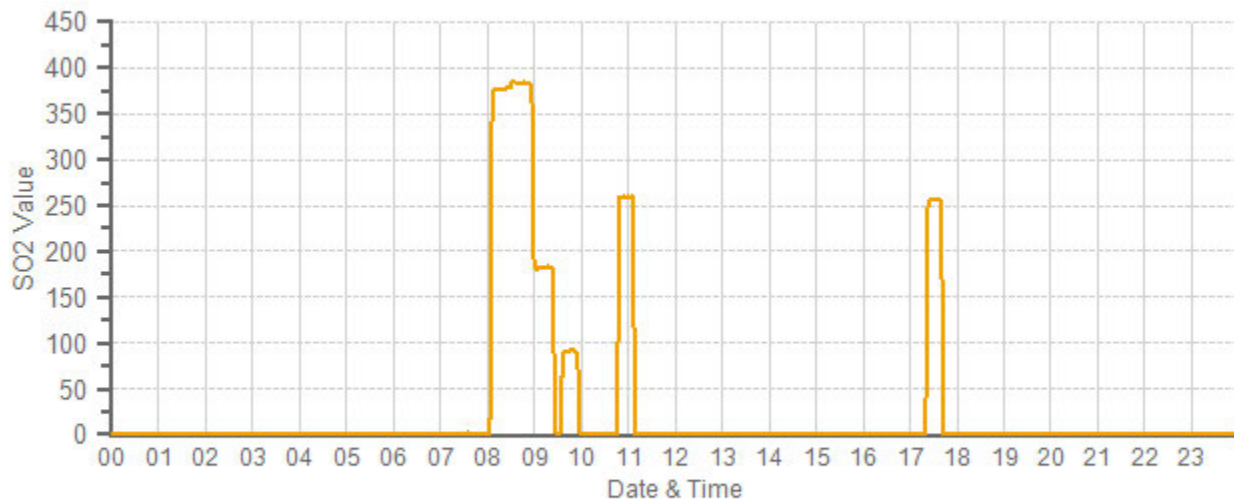
As found:	As left:
Bkg: 14	Bkg: 14.1
Coef: 1.012	Coef: 1.025
Pmt: -621.6	Pmt: -622.0
Flash: 886	Flash: 889
Internal: 26.3	Internal: 26.8
Chamber: 44.9	Chamber: 45.2
Perm Oven Gas: 45.00	Perm Oven Gas: 45.00
Perm Oven Heater: 44.09	Perm Oven Heater: 44.07
Pressure: 687.4 mmHg	Pressure: 684.1 mmHg
Sample Flow: 0.419 Lpm	Sample Flow: 0.418 Lpm
Lamp Intensity: 81 %	Lamp Intensity: 81 %
Converter: n/a	Converter: n/a
Converter Set: n/a	Converter Set: n/a
Averaging Time: 120 sec.	Averaging Time: 120
Expected Value: 263.5	Expected Value: 258.6

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 Daily: 18/09/12 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	September 12, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.99	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.3	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	7:25	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	12:01	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:	August 3, 2018	As Found C.F.:	1.021		
Previous C.F.:	1.000	New C.F.:	1.005		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Start/End Time 24 hr.:	8:04/8:14
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	Sabio id# 17200415 expires August 21, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119500	As Found Zero:	0.0
Cal Gas Conc. (ppm):	9.8	Analyzer Response: (ppb):	0.0
		Zero Corrected Result (ppb):	0.0

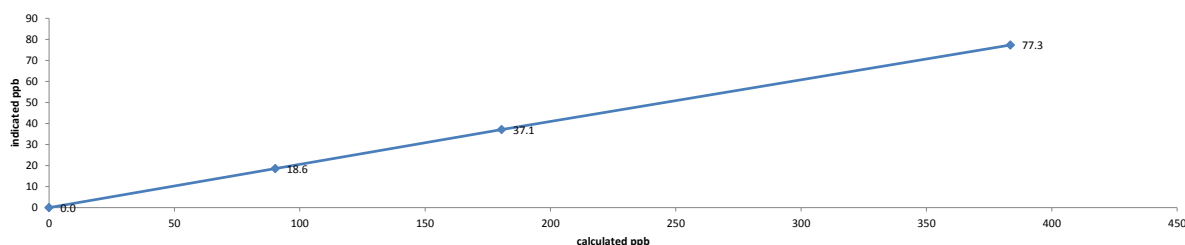
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7537	0.00	7537	0.0	0.0	n/a
as found high	7507	59.96	7567	77.7	76.1	1.021
adjusted zero	7537	0.00	7537	0.0	0.0	n/a
adjusted high	7507	59.96	7567	77.7	77.3	1.005
mid	7532	29.34	7561	38.0	37.1	1.025
low	7548	14.79	7563	19.2	18.6	1.032
calibrator zero	7537	0.00	7537	0.0	0.1	n/a
Average C.F. =						1.021

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.003		0.95-1.05
b (Intercept as % of full scale) =	0.36%		± 3% F.S.
% change in C.F. from last cal =	-2.07%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



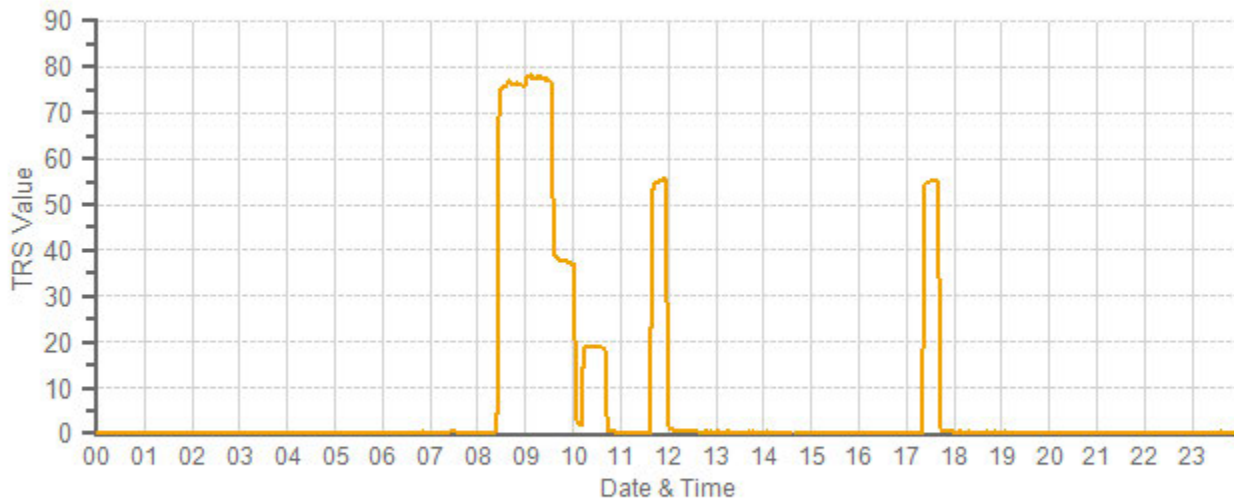
As found:	As left:
Bkg: 2.48	Bkg: 2.55
Coef: 0.833	Coef: 0.851
Pmt: -720.4	Pmt: -720.4
Flash: 976	Flash: 974
Internal: 34.1	Internal: 31.1
Chamber: 44.9	Chamber: 45.2
Perm Oven Gas: 45.00	Perm Oven Gas: 45.00
Perm Oven Heater: 44.12	Perm Oven Heater: 44.11
Pressure: 675.3	Pressure: 675.6
Sample Flow: 0.412	Sample Flow: 0.412
Lamp Intensity: 89	Lamp Intensity: 89
Converter: 850	Converter: 850
Converter Set: 850	Converter Set: 850
Averaging Time: 120	Averaging Time: 120
Expected Value: 56.2	Expected Value: 55.5

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.

TRS[ppb] Station: PRAMP_842 Daily: 18/09/12 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	September 12, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.00	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.3	°C
Location/Station Name:	842B	Weather Conditions:	Cloudy/Overcast		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	routine monthly		
Start/End Time 24 hr. (mst):	10:12/13:20	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:	1107 sccm	CH ₄ =	1.002	1.015	1.000
Last Calibration Date:	August 3, 2018	NMHC =	1.000	0.980	1.000
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.001	0.998	1.000

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Point	CH ₄	NMHC	THC
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	EnviroNics id# 1991 expires March 15, 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 ₃ H ₈ Cylinder Conc.				
CH ₄ expressed as C ₃ H ₈ =	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
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	84.57	3498	14.43	13.69	28.13	14.22	13.98	28.19	1.015	0.980	0.998
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	84.57	3498	14.43	13.69	28.13	14.43	13.69	28.12	1.000	1.000	1.000
mid	3453	42.23	3495	7.21	6.85	14.06	7.22	6.78	14.00	0.999	1.010	1.004
low	3475	21.12	3496	3.61	3.42	7.03	3.58	3.34	6.92	1.007	1.025	1.016
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. =										1.002	1.012	1.007

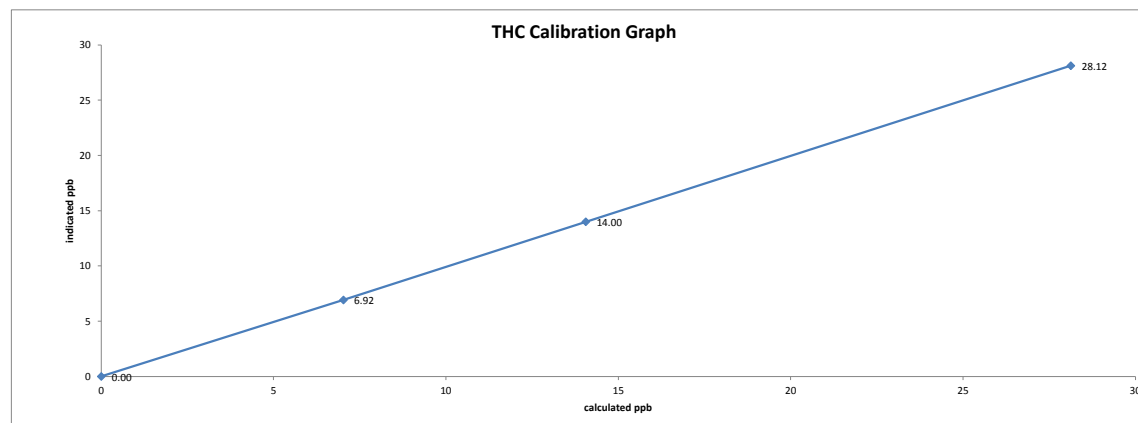
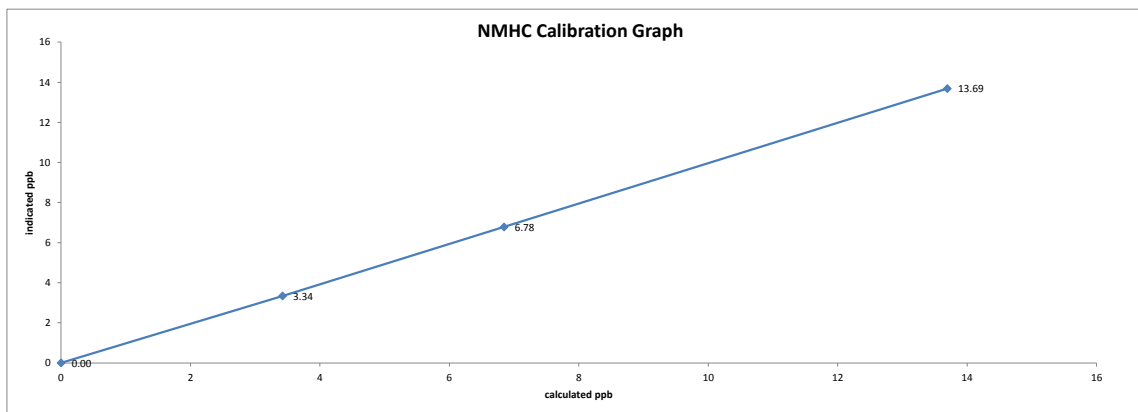
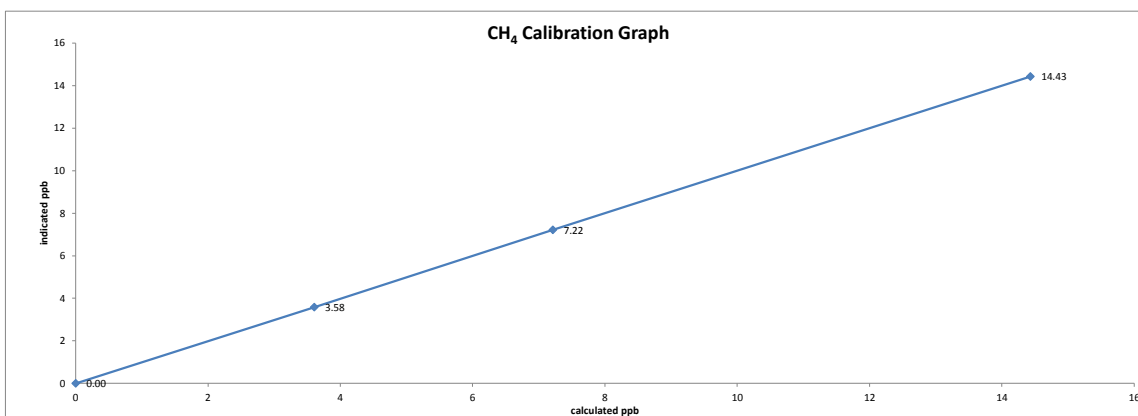
Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995	
Slope =	1.001	1.001	1.001	0.95-1.05	
b (Intercept as % of full scale) =	-0.04%	-0.22%	-0.13%	± 3% F.S.	
% change in C.F. from last cal =	-1.29%	2.04%	0.33%	± 10%	

As Left Instrument Diagnostics:												
Interface Board Voltages:	Bias Supply:	-299.8	Calibration History cnt'd:	NM Peak Area:	83120							
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8							
	Filter:	175		Methane End:	16							
	Column Oven:	75		Backflush:	18							
Cylinder Pressures/reg.:	Internal:	31.8		NMHC Start:	26							
	Carrier:	700 50		NMHC End:	56							
	Fuel:	1400 55	Run History>1:	Date:	12Sep18							
	Span Gas:	1700 18		Time:	10:28							
	Zero Air Generator:	50		CH ₄ PK HT:	0							
Internal Pressures:	Carrier:	31.7		CH ₄ RT:	8.0							
	Fuel:	37.6		CH ₄ Baseline:	43							
	Air:	34.2		CH ₄ LOD:	19							
FID Status:	Status:	LIT		CH ₄ SD:	6							
	Counts:	23222		CH ₄ CONC:	0.00							
	Flame:	352.4		NM PK HT:	0							
	Det Base:	175.0		NM Peak Area:	0							
Flame and Power Stats:	Last Power On:	31Jul2018 18:54		NM CONC:	0.00							
	Flameouts:	5		NM Base Start:	55							
	Det Oven at Start:	39.1		NM Base End:	44							
	Col Oven at Start:	71.2		NM LOD:	20							
Calibration History:	Time:	03Aug18 10:50		NM Start IDX:	62							
	Type:	SPAN		NM End IDX:	59							
	Status:	GOOD		NM Max Slope:	4.0e-01							
	Check/Adjust:	ADJUST		NM Min Slope:	-7.9e-01							
	CH ₄ Span Conc:	13.86	Expected Values:	NM PT Count:	0							
	CH ₄ SP Ratio:	0.000778		Previous CH ₄ :	10.11							
	CH ₄ RT:	13.6		Previous NMHC:	11.17							
	CH ₄ PK IDX:	28		Previous THC:	21.28							
	CH ₄ PK HT:	17811		New CH ₄ :	10.11							
	NM Span Conc:	13.15		New NMHC:	11.17							
	NM SP Ratio:	0.000158		New THC:	21.28							

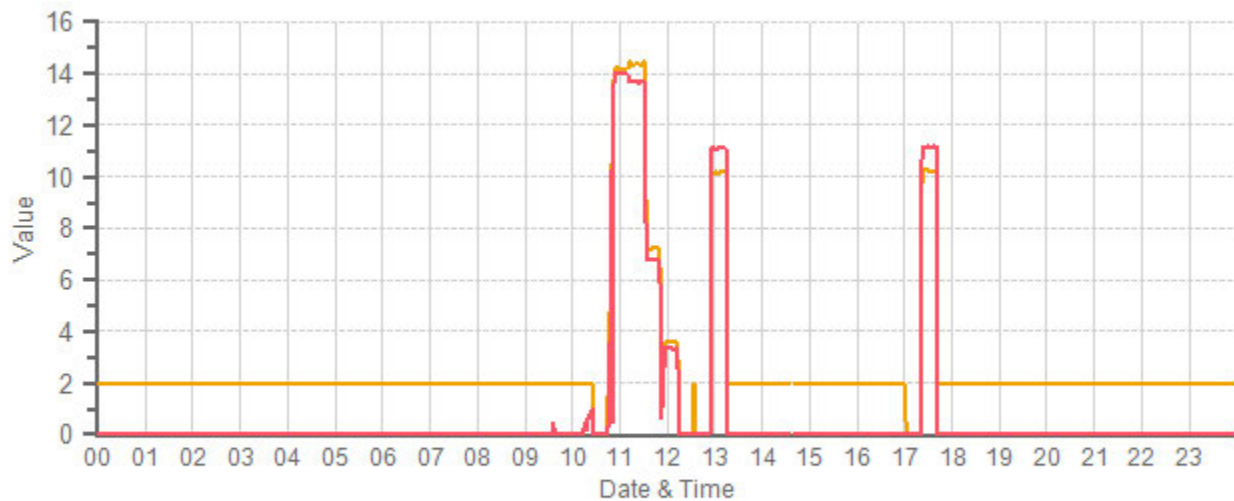
Comments:	
The analyzer sample inlet filter was changed.	
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.	
The analyzer cooling fan filter(s) were cleaned.	
The manifold blower was found to be working normally.	

Date: September 12, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 10:12/13:20
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution



Station: PRAMP_842 Daily: 18/09/12 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:	September 12, 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:	August 3, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	F.S. 160348895 expires June 19, 2020		
Reference Temperature (°C):	-3.0		
Station - Ambient Temperature (°C):	-2.7		
Temperature Difference (°C):	-0.3		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	August 3, 2018		
Reference Barometer ID:	Brunton 05535 expires December 15, 2018		
Reference Pressure - Units/Reading:	inHg	28.00	
Station Pressure - Units/Reading:	inHg	28.05	
Pressure Tolerance +/- 15% of error:	24 - 32	-0.17%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	August 3, 2018		
Reference Hygrometer ID:	F.S. id# 160348895 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	83.98		
Station Hygrometer % RH- Reading:	89.70		
RH Tolerance +/- 15% of difference:	71.38 - 96.58	-6.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	August 3, 2018	Previous check date:	August 3, 2018
Wind Speed Observed (kph):	5~15	Wind Direction Observed:	N
Wind speed on Data Logger (kph):	10	Wind Direction on Data Logger:	N
		Wind Direction Pass/Fail?:	Pass

CALIBRATORS

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
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

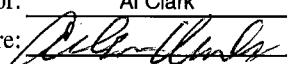
Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4988	0.000	0.000	0.788	-0.001	0.787	NO ₂	% Diff. Limit
4988	0.350	0.519	0.269	0.512	0.780	-1%	± 10%
4988	0.160	0.231	0.557	0.229	0.786	0%	± 10%
4988	0.070	0.099	0.689	0.097	0.787	-1%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

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

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-086CGA

Company: Maxxam Operator's Name: Chris Wesson
Cylinder #: LL119513 Concentration PPM: 50.6 Tolerance(%) 1 Certified By: Praxair

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 50.6

Percent variance from Stated: 1.1

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: June 17, 2016
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	<u>R&R MFC 201</u>			Make/Model	<u>Mesa Definer 220</u>
Serial Number	<u>AMU 1690</u>			Serial Number	<u>H-133034 / L-132702</u>
Last Verification Date	<u>December 13, 2017</u>			Temp. °C	<u>23.1 C</u>
Gas Type	<u>CH₄</u>	Conc.	<u>990.4</u>	B.P.	<u>707 mmHg</u>
Cylinder Number	<u>5604875</u>	Expiry Date	<u>July 2021</u>		
Gas Type	<u>C₃H₈</u>	Conc.	<u>246.5</u>		
Cylinder Number	<u>XF003845B</u>	Expiry Date	<u>July 2022</u>		

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 (sccm)		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:	<u>597</u>	<u>206</u>
Percent variance from Stated:	<u>0</u>	<u>1</u>

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

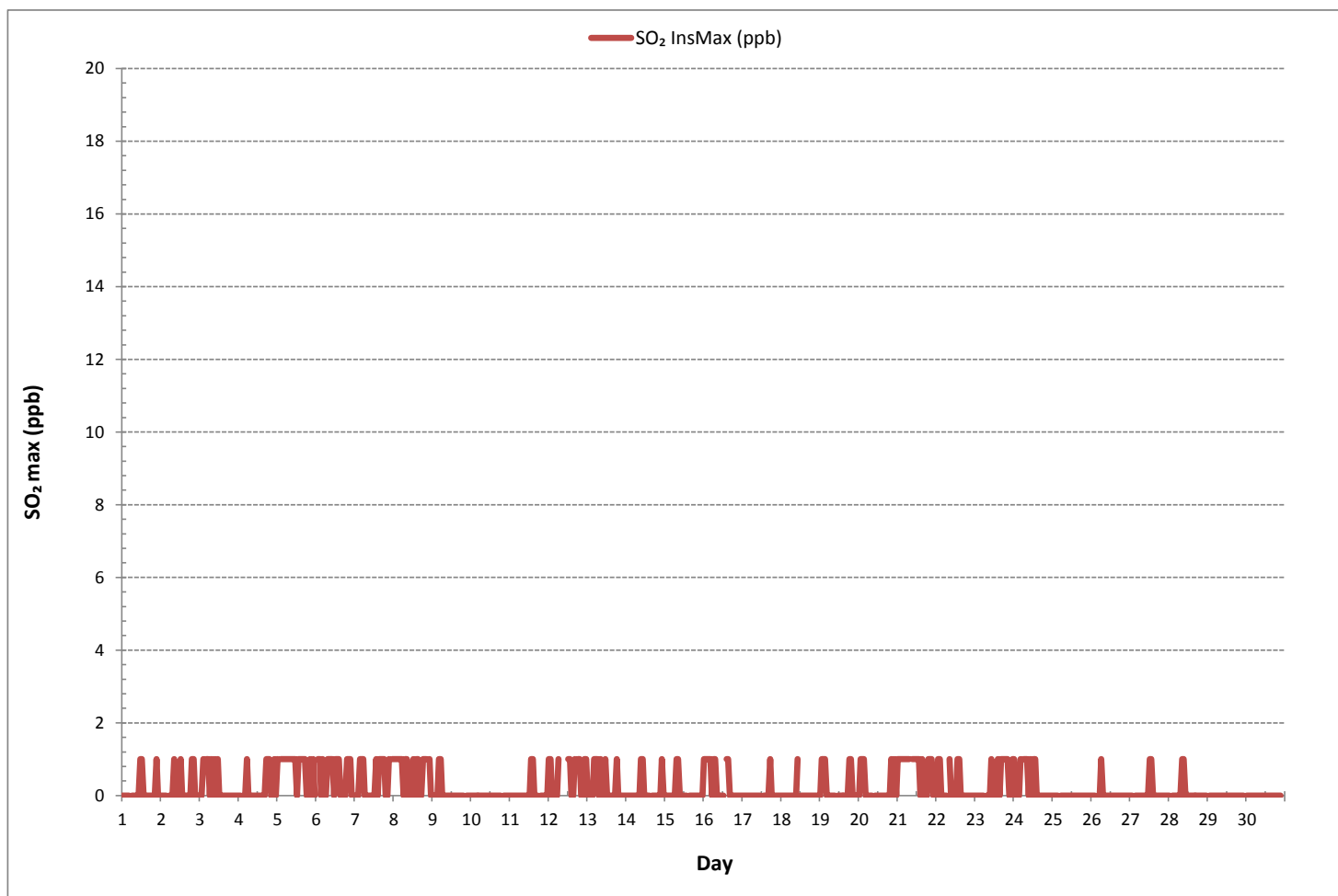
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		164					
MAXIMUM INSTANTANEOUS VALUE:		1	ppb	@ HOUR	11	ON DAY	1
IZS CALIBRATION TIME:		32	hrs	OPERATIONAL TIME:		720	hrs
MONTHLY CALIBRATION TIME:		5	hrs				
STANDARD DEVIATION:		0					

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - September 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	0.30	0.43	0.30	0.33	0.29	S	0.35	0.35	0.24	0.20	0.19	0.22	0.18	0.18	0.21	0.17	0.19	0.19	0.20	0.21	0.21	0.27	0.27	0.27	0.17	0.43	0.25	24
2	0.37	0.34	0.58	0.77	S	0.59	0.70	0.67	0.47	0.34	0.30	0.31	0.30	0.31	0.28	0.30	0.28	0.29	0.31	0.35	0.37	0.40	0.35	0.34	0.28	0.77	0.40	24
3	0.36	0.41	0.35	S	0.39	0.30	0.32	0.28	0.19	0.19	0.18	0.24	0.21	0.21	0.20	0.21	0.19	0.22	0.19	0.19	0.17	0.21	0.23	0.20	0.17	0.41	0.24	24
4	0.37	0.28	S	0.47	0.57	0.50	0.50	0.45	0.44	0.26	0.25	0.24	0.21	0.24	0.23	0.23	0.21	0.26	0.24	0.24	0.25	0.30	0.31	0.30	0.21	0.57	0.32	24
5	0.33	S	0.34	0.31	0.30	0.26	0.30	0.30	0.27	0.24	0.30	0.21	0.21	0.21	0.22	0.22	0.22	0.22	0.23	0.27	0.23	0.27	0.24	0.25	0.21	0.34	0.26	24
6	S	0.25	0.25	0.22	0.21	0.25	0.28	0.26	0.26	0.22	0.21	0.23	0.24	0.21	0.20	0.25	0.22	0.20	0.22	0.26	0.25	0.22	0.24	S	0.20	0.28	0.23	24
7	0.23	0.25	0.21	0.24	0.23	0.23	0.23	0.24	0.22	0.26	0.23	0.26	0.23	0.22	0.26	0.22	0.26	0.27	0.25	0.24	0.24	0.27	S	0.27	0.21	0.27	0.24	24
8	0.30	0.32	0.24	0.25	0.21	0.21	0.19	0.22	0.23	0.24	0.23	0.22	0.21	0.18	0.23	0.24	0.24	0.29	0.26	0.25	0.25	S	0.27	0.24	0.18	0.32	0.24	24
9	0.18	0.20	0.19	0.18	0.18	0.16	0.19	0.19	0.18	0.19	0.17	0.20	0.18	0.19	0.21	0.18	0.18	0.18	0.18	S	0.23	0.19	0.26	0.16	0.26	0.19	24	
10	0.21	0.17	0.26	0.23	0.25	0.26	0.41	0.35	0.29	0.24	0.27	0.20	0.21	0.19	0.19	0.16	0.19	0.18	0.21	S	0.28	0.20	0.32	0.33	0.16	0.41	0.24	24
11	0.36	0.39	0.27	0.29	0.36	0.38	0.35	0.37	0.41	0.27	0.26	0.26	0.29	0.79	0.34	0.18	0.22	0.20	S	0.26	0.20	0.21	0.21	0.21	0.18	0.79	0.31	24
12	0.18	0.23	0.22	0.24	0.24	0.25	0.25	C	C	C	C	C	C	0.32	0.28	0.24	0.24	S	0.30	0.26	0.24	0.23	0.25	0.27	0.18	0.32	-	24
13	0.24	0.27	0.28	0.28	0.27	0.27	0.25	0.26	0.30	0.31	0.28	0.29	0.29	0.27	0.29	0.23	S	0.34	0.31	0.29	0.31	0.31	0.28	0.31	0.23	0.34	0.28	24
14	0.31	0.31	0.31	0.34	0.31	0.34	0.34	0.39	0.33	0.29	0.29	0.30	0.32	0.30	0.31	S	0.36	0.32	0.29	0.31	0.35	0.30	0.36	0.33	0.29	0.39	0.32	24
15	0.33	0.34	0.36	0.36	0.36	0.34	0.36	0.35	0.42	0.31	0.28	0.27	0.27	0.28	S	0.30	0.30	0.30	0.30	0.34	0.33	0.27	0.30	0.33	0.27	0.42	0.32	24
16	0.32	0.30	0.31	0.31	0.31	0.32	0.29	0.31	0.29	0.30	0.27	0.25	0.29	S	0.30	0.30	0.27	0.30	0.29	0.30	0.28	0.31	0.31	0.37	0.25	0.37	0.30	24
17	0.32	0.48	0.43	0.34	0.30	0.32	0.32	0.29	0.29	0.27	0.27	0.23	S	0.28	0.28	0.26	0.31	0.29	0.32	0.33	0.31	0.49	0.53	0.53	0.23	0.53	0.34	24
18	0.49	0.58	0.55	0.52	0.55	0.56	0.59	0.50	0.47	0.43	0.31	S	0.31	0.28	0.28	0.27	0.24	0.26	0.29	0.31	0.32	0.32	0.34	0.38	0.24	0.59	0.40	24
19	0.39	0.38	0.38	0.38	0.35	0.37	0.44	0.37	0.33	0.29	S	0.34	0.31	0.26	0.28	0.25	0.26	0.26	0.29	0.31	0.25	0.30	0.26	0.24	0.24	0.44	0.32	24
20	0.21	0.22	0.26	0.27	0.26	0.24	0.24	0.26	0.25	S	0.31	0.30	0.25	0.30	0.26	0.28	0.30	0.27	0.30	0.32	0.33	0.35	0.32	0.34	0.21	0.35	0.28	24
21	0.35	0.34	0.36	0.33	0.32	0.33	0.31	0.32	S	0.40	0.30	0.29	0.29	0.29	0.30	0.31	0.31	0.34	0.28	0.30	0.36	0.31	0.32	0.29	0.28	0.40	0.32	24
22	0.30	0.31	0.31	0.32	0.32	0.31	0.31	S	0.34	0.32	0.36	0.30	0.31	0.34	0.31	0.29	0.33	0.29	0.30	0.29	0.31	0.32	0.31	0.32	0.29	0.36	0.31	24
23	0.31	0.30	0.33	0.32	0.31	0.31	S	0.36	0.31	0.34	0.34	0.31	0.33	0.29	0.29	0.33	0.29	0.27	0.27	0.32	0.32	0.35	0.33	0.33	0.27	0.36	0.32	24
24	0.33	0.36	0.35	0.35	0.38	S	0.40	0.43	0.39	0.33	0.32	0.30	0.28	0.27	0.28	0.29	0.32	0.32	0.30	0.32	0.43	0.34	0.32	0.31	0.27	0.43	0.34	24
25	0.26	0.27	0.26	0.24	S	0.30	0.29	0.29	0.32	0.34	0.35	0.31	0.30	0.28	0.26	0.25	0.27	0.29	0.33	0.32	0.29	0.30	0.33	0.35	0.24	0.35	0.30	24
26	0.44	0.48	0.38	S	0.48	0.46	0.38	0.28	0.29	0.29	0.31	0.28	0.27	0.24	0.23	0.26	0.30	0.36	0.36	0.30	0.28	0.22	0.21	0.20	0.20	0.48	0.32	24
27	0.24	0.26	S	0.21	0.25	0.26	0.30	0.31	0.29	0.23	0.24	0.72	0.30	0.26	0.24	0.23	0.23	0.22	0.23	0.22	0.24	0.24	0.23	0.22	0.21	0.72	0.27	24
28	0.24	S	0.29	0.26	0.26	0.26	0.30	0.29	0.31	0.29	0.28	0.27	0.25	0.24	0.26	0.25	0.25	0.28	0.26	0.25	0.26	0.26	0.28	0.30	0.24	0.31	0.27	24
29	S	0.30	0.26	0.28	0.34	0.28	0.27	0.27	0.30	0.27	0.27	0.29	0.27	0.26	0.27	0.28	0.28	0.30	0.27	0.28	0.27	0.27	0.29	S	0.26	0.34	0.28	24
30	0.30	0.30	0.30	0.32	0.31	0.38	0.40	0.37	0.32	0.34	0.31	0.30	0.30	0.30	0.29	0.29	0.29	0.28	0.28	0.28	0.29	0.33	S	0.33	0.28	0.40	0.31	24
HOURLY MAX	0.49	0.58	0.58	0.77	0.57	0.59	0.70	0.67	0.47	0.43	0.36	0.72	0.33	0.79	0.34	0.33	0.36	0.36	0.36	0.35	0.43	0.49	0.53	0.53				
HOURLY AVG	0.31	0.32	0.32	0.32	0.32	0.32	0.34	0.33	0.31	0.29	0.27	0.28	0.26	0.28	0.26	0.25	0.26	0.27	0.27	0.28	0.28	0.29	0.29	0.30				

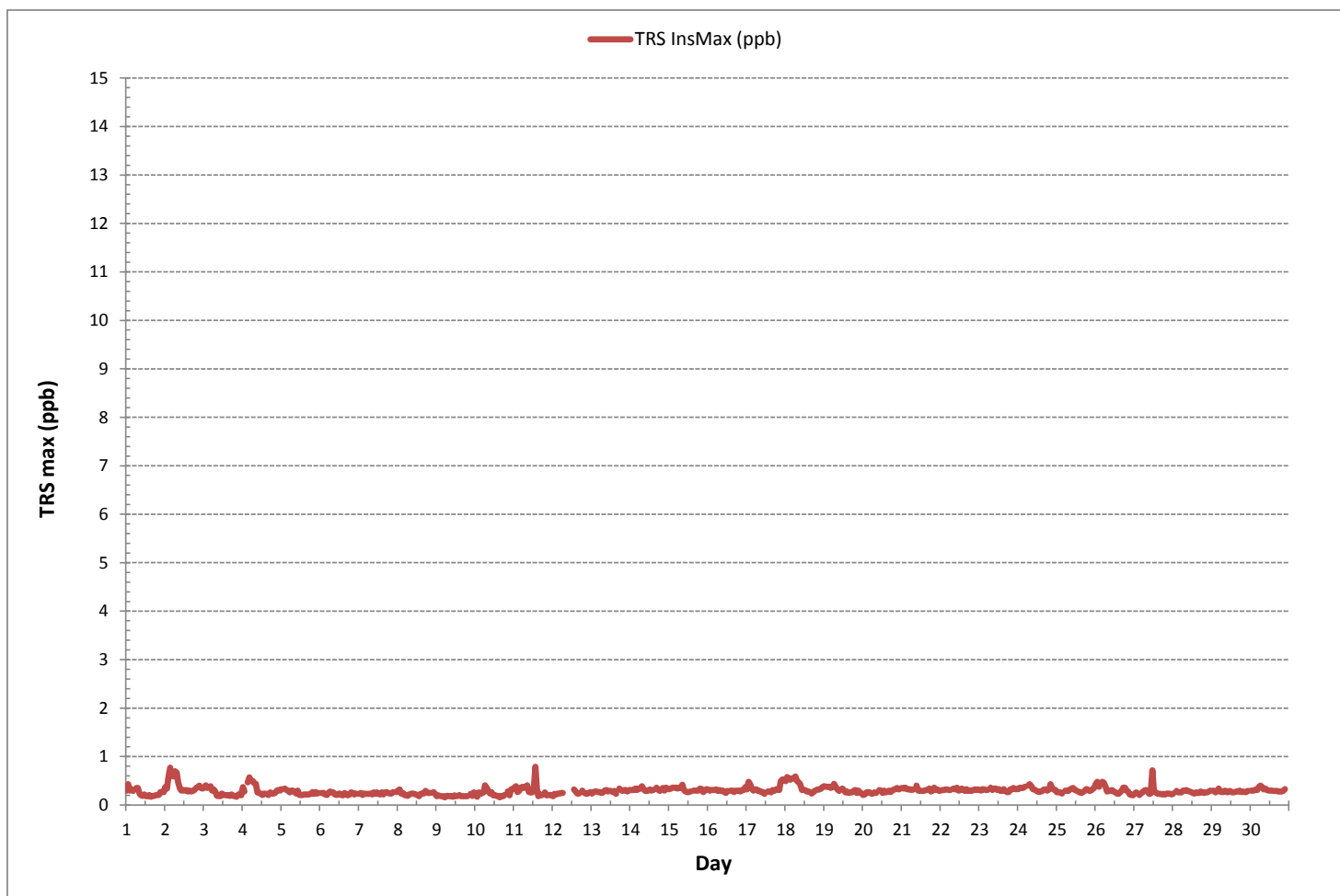
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		682							
MAXIMUM INSTANTANEOUS VALUE:		0.79	ppb	@ HOUR	13	ON DAY	11		
IZS CALIBRATION TIME:		32	hrs	OPERATIONAL TIME:				720	hrs
MONTHLY CALIBRATION TIME:		6	hrs						
STANDARD DEVIATION:		0.08							

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - September 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	1.97	2.01	1.98	1.98	1.96	\$	1.97	1.97	1.96	1.95	1.96	1.97	1.97	1.96	1.97	1.98	1.97	1.98	1.98	1.99	1.98	2.01	2.26	2.26	1.95	2.26	2.00	24	
2	2.25	2.23	2.13	2.06	\$	2.06	2.05	2.06	2.03	1.98	1.98	1.98	1.96	1.98	1.96	1.97	1.97	1.97	1.99	2.04	2.06	2.04	2.00	2.00	1.96	2.25	2.03	24	
3	2.02	2.01	1.97	\$	2.02	1.98	2.00	1.99	1.97	1.98	2.00	1.98	1.98	1.99	1.99	2.00	2.00	2.00	2.00	2.01	2.00	2.01	2.08	2.09	1.97	2.09	2.00	24	
4	2.11	2.18	\$	2.18	2.17	2.15	2.12	2.10	2.03	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.06	2.04	2.06	2.00	2.18	2.05	24	
5	2.05	\$	2.06	2.09	2.09	2.18	2.12	2.14	2.02	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.06	2.00	2.18	2.04	24	
6	\$	2.05	2.03	2.01	2.01	2.02	2.01	2.02	2.02	2.03	2.06	2.06	2.05	2.04	2.04	2.04	2.04	2.03	2.03	2.04	2.11	2.12	2.05	\$	2.01	2.12	2.04	24	
7	2.05	2.04	2.05	2.06	2.07	2.06	2.06	2.06	2.07	2.06	2.05	2.05	2.04	2.05	2.04	2.04	2.04	2.05	2.06	2.08	2.07	2.12	\$	2.20	2.04	2.20	2.06	24	
8	2.17	2.15	2.08	2.06	2.05	2.04	2.04	2.04	2.03	2.03	2.04	2.03	2.03	2.02	2.03	2.03	2.02	2.03	2.02	2.02	1.97	\$	1.97	1.95	1.95	2.17	2.04	24	
9	1.95	1.95	1.95	1.96	1.96	1.96	1.98	1.96	1.97	1.97	1.96	1.97	1.96	1.97	1.96	1.97	1.95	1.96	1.95	1.98	\$	1.99	1.97	1.97	1.95	1.99	1.96	24	
10	1.98	1.98	2.01	2.02	2.02	2.02	2.02	2.04	2.01	2.03	2.01	1.98	1.97	1.98	1.98	1.99	1.96	1.96	1.96	\$	1.95	1.97	2.00	2.02	1.95	2.04	1.99	24	
11	2.15	2.15	2.01	2.05	2.04	2.02	2.00	2.01	2.01	2.00	1.98	1.99	1.99	1.99	1.98	1.97	1.98	1.95	\$	1.97	1.97	1.98	1.97	1.97	1.95	2.15	2.00	24	
12	1.97	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.97	2.52	C	C	C	C	2.01	1.97	1.99	\$	2.00	2.00	1.99	2.01	1.98	1.98	1.97	2.52	2.01	24	
13	1.99	2.01	1.98	1.99	2.01	1.99	2.00	1.99	2.01	1.98	1.99	1.98	2.00	1.98	1.99	1.99	\$	2.00	1.98	2.00	2.01	2.02	2.00	2.01	1.98	2.02	2.00	24	
14	2.02	2.06	2.09	2.09	2.10	2.10	2.14	2.21	2.18	1.99	2.01	1.99	2.00	2.02	2.00	\$	2.00	2.02	2.01	2.04	2.05	2.08	2.13	2.12	1.99	2.21	2.06	24	
15	2.17	2.16	2.18	2.19	2.20	2.21	2.22	2.24	2.23	2.04	2.01	2.02	1.99	2.01	\$	2.01	2.01	2.02	2.02	2.03	2.02	2.04	2.11	2.12	1.99	2.24	2.10	24	
16	2.12	2.12	2.13	2.11	2.10	2.10	2.08	2.07	2.05	2.06	2.01	2.03	2.02	\$	2.02	2.01	2.02	2.03	2.02	2.02	2.05	2.04	2.05	2.06	2.01	2.13	2.06	24	
17	2.13	2.71	2.41	2.36	2.23	2.18	2.12	2.10	2.06	2.05	2.02	2.03	\$	2.01	2.02	2.01	2.03	2.01	2.02	2.02	2.02	2.04	2.07	2.07	2.10	2.01	2.71	2.12	24
18	2.11	2.20	2.12	2.08	2.09	2.08	2.08	2.13	2.09	2.05	2.04	\$	2.03	2.00	2.02	2.00	2.02	2.04	2.02	2.03	2.04	2.03	2.02	2.06	2.00	2.20	2.06	24	
19	2.05	2.06	2.06	2.06	2.07	2.07	2.06	2.04	2.01	2.00	\$	2.01	2.04	2.02	2.03	2.03	2.00	2.00	2.01	2.02	2.06	2.10	2.10	2.05	2.00	2.10	2.04	24	
20	2.01	2.00	2.00	2.00	2.02	1.99	2.00	2.00	2.02	\$	2.02	2.00	2.00	2.01	2.00	2.01	2.02	2.02	2.01	2.04	2.01	2.03	2.04	2.12	1.99	2.12	2.02	24	
21	2.16	2.14	2.15	2.15	2.17	2.20	2.15	2.11	\$	2.05	2.00	2.01	1.99	2.03	2.01	2.01	2.01	2.02	2.02	2.03	2.14	2.05	2.06	2.12	1.99	2.20	2.08	24	
22	2.16	2.07	2.08	2.16	2.18	2.18	2.17	\$	2.09	2.02	1.99	2.02	2.00	2.01	1.99	1.99	2.01	2.00	2.01	2.01	2.04	2.02	2.04	2.04	1.99	2.18	2.06	24	
23	2.04	2.02	2.02	2.02	2.02	2.04	\$	2.04	2.03	2.06	2.06	2.03	2.05	2.02	2.02	2.01	2.00	2.01	2.03	2.05	2.03	1.98	1.98	1.99	1.98	2.06	2.02	24	
24	1.99	1.99	2.01	2.00	2.02	\$	1.99	1.98	1.96	1.96	1.93	1.94	1.95	1.95	1.95	1.96	1.96	1.97	1.98	1.98	2.00	1.99	2.04	2.09	1.93	2.09	1.98	24	
25	2.03	2.02	2.01	2.02	\$	2.02	2.02	2.02	2.01	2.02	2.02	2.00	1.99	1.99	1.96	1.96	1.96	1.97	1.98	1.97	1.97	1.98	1.99	1.98	1.96	2.03	2.00	24	
26	2.01	1.98	1.98	\$	2.00	1.99	2.01	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	2.00	1.98	1.98	1.98	1.98	1.97	2.01	1.98	24	
27	2.00	2.01	\$	2.03	2.04	2.09	2.20	2.18	2.17	2.10	2.02	2.04	2.01	2.00	2.01	2.00	1.99	1.98	1.99	2.01	2.02	2.02	2.02	2.03	1.98	2.20	2.04	24	
28	2.11	\$	2.10	2.11	2.13	2.16	2.22	2.22	2.36	2.19	2.05	2.00	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.03	2.02	2.02	2.05	1.99	2.36	2.08	24	
29	\$	2.00	1.99	2.03	2.02	2.00	2.01	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.04	2.06	\$	1.99	2.06	2.01	24
30	2.09	2.11	2.18	2.21	2.21	2.31	2.34	2.29	2.20	2.18	2.09	2.01	1.99	2.01	2.02	2.02	2.00	2.01	2.01	2.00	2.02	2.34	\$	2.20	1.99	2.34	2.12	24	
HOURLY MAX	2.25	2.71	2.41	2.36	2.23	2.31	2.34	2.29	2.36	2.52	2.09	2.06	2.05	2.05	2.04	2.04	2.04	2.05	2.06	2.08	2.14	2.34	2.26	2.26					
HOURLY AVG	2.07	2.09	2.06	2.07	2.07	2.08	2.07	2.07	2.05	2.05	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.04	2.04	2.06					

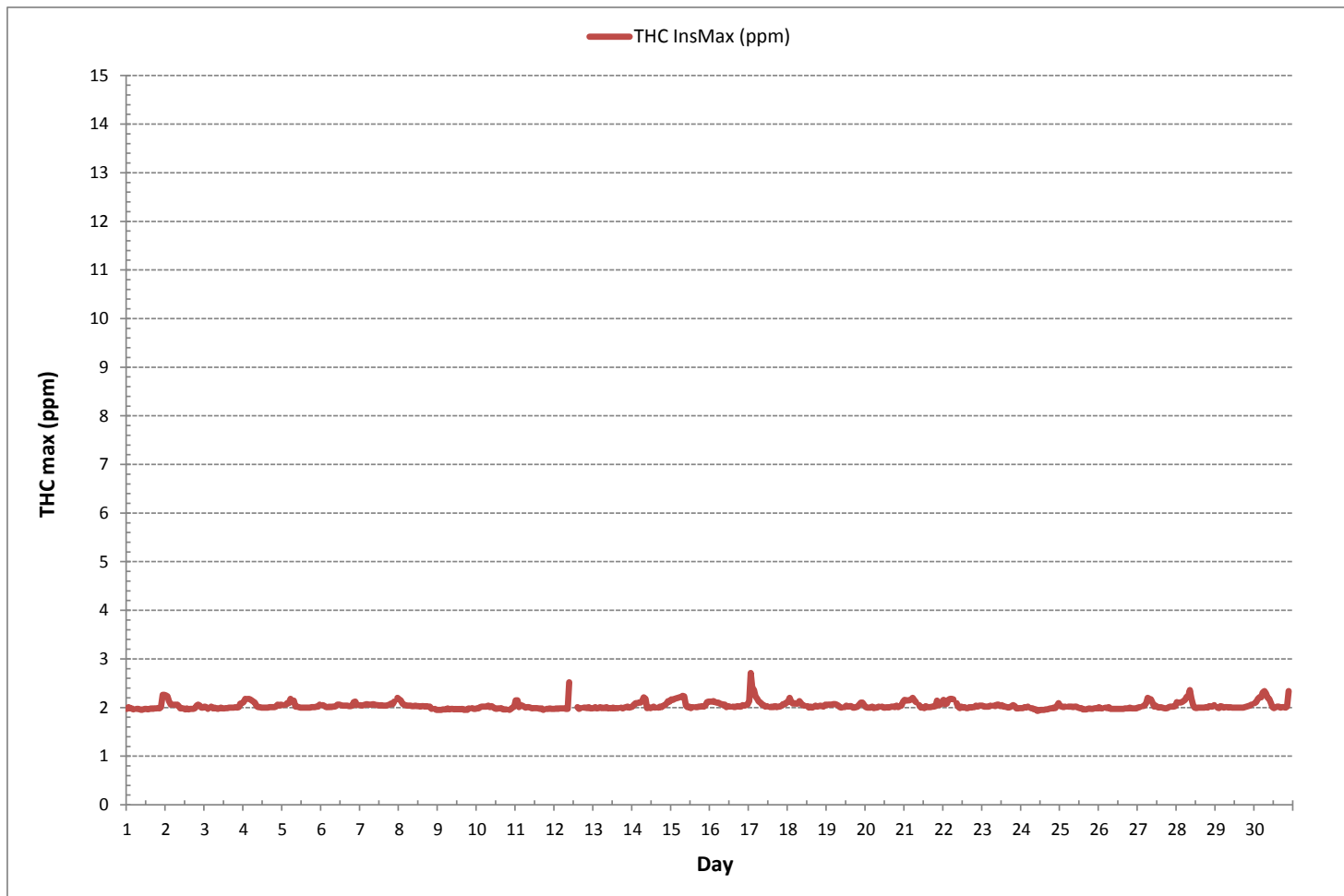
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684				
MAXIMUM INSTANTANEOUS VALUE:	2.71	ppm	@ HOUR	1	ON DAY 17
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.08				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





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

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.97	2.01	1.98	1.98	1.96	S	1.97	1.97	1.96	1.95	1.96	1.97	1.97	1.96	1.97	1.98	1.97	1.98	1.98	1.99	1.98	2.01	2.26	2.26	1.95	2.26	2.00	24
2	2.25	2.23	2.13	2.06	S	2.06	2.05	2.06	2.03	1.98	1.98	1.98	1.96	1.98	1.96	1.97	1.97	1.97	1.99	2.04	2.06	2.04	2.00	2.00	1.96	2.25	2.03	24
3	2.02	2.01	1.97	S	2.02	1.98	2.00	1.99	1.97	1.98	2.00	1.98	1.98	1.99	1.99	2.00	2.00	2.00	2.01	2.00	2.01	2.08	2.09	1.97	2.09	2.00	24	
4	2.11	2.18	S	2.18	2.17	2.15	2.12	2.10	2.03	2.01	2.01	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.06	2.04	2.06	2.00	2.18	2.05	24
5	2.05	S	2.06	2.09	2.09	2.18	2.12	2.14	2.02	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.02	2.06	2.00	2.18	2.04	24
6	S	2.05	2.03	2.01	2.01	2.02	2.01	2.02	2.02	2.03	2.06	2.06	2.05	2.04	2.04	2.04	2.04	2.03	2.03	2.04	2.11	2.12	2.05	S	2.01	2.12	2.04	24
7	2.05	2.04	2.05	2.06	2.07	2.06	2.06	2.06	2.07	2.06	2.05	2.05	2.04	2.05	2.04	2.04	2.04	2.05	2.06	2.08	2.07	2.12	S	2.20	2.04	2.20	2.06	24
8	2.17	2.15	2.08	2.06	2.05	2.04	2.04	2.04	2.03	2.03	2.04	2.03	2.03	2.02	2.03	2.03	2.02	2.03	2.02	2.02	1.97	S	1.97	1.95	1.95	2.17	2.04	24
9	1.95	1.95	1.95	1.96	1.96	1.96	1.98	1.96	1.97	1.97	1.96	1.97	1.96	1.97	1.96	1.97	1.95	1.96	1.95	1.98	S	1.99	1.97	1.97	1.95	1.99	1.96	24
10	1.98	1.98	2.01	2.02	2.02	2.02	2.02	2.04	2.01	2.03	2.01	1.98	1.97	1.98	1.98	1.99	1.96	1.96	1.96	S	1.95	1.97	2.00	2.02	1.95	2.04	1.99	24
11	2.15	2.15	2.01	2.05	2.04	2.02	2.00	2.01	2.01	2.00	1.98	1.99	1.99	1.99	1.98	1.97	1.98	1.95	S	1.97	1.97	1.98	1.97	1.97	1.95	2.15	2.00	24
12	1.97	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.97	1.96	C	C	C	C	2.01	1.97	1.99	S	2.00	2.00	1.99	2.01	1.98	1.98	1.96	2.01	1.98	24
13	1.99	2.01	1.98	1.99	2.01	1.99	2.00	1.99	2.01	1.98	1.99	1.98	2.00	1.98	1.99	1.99	S	2.00	1.98	2.00	2.01	2.02	2.00	2.01	1.98	2.02	2.00	24
14	2.02	2.06	2.09	2.09	2.10	2.10	2.14	2.21	2.18	1.99	2.01	1.99	2.00	2.02	2.00	S	2.00	2.02	2.01	2.04	2.05	2.08	2.13	2.12	1.99	2.21	2.06	24
15	2.17	2.16	2.18	2.19	2.20	2.21	2.22	2.24	2.23	2.04	2.01	2.02	1.99	2.01	S	2.01	2.01	2.02	2.02	2.03	2.02	2.04	2.11	2.12	1.99	2.24	2.10	24
16	2.12	2.12	2.13	2.11	2.10	2.10	2.08	2.07	2.05	2.06	2.01	2.03	2.02	S	2.02	2.01	2.02	2.03	2.02	2.02	2.05	2.04	2.05	2.06	2.01	2.13	2.06	24
17	2.13	2.59	2.41	2.36	2.23	2.18	2.12	2.10	2.06	2.05	2.02	2.03	S	2.01	2.02	2.01	2.03	2.01	2.02	2.02	2.04	2.07	2.07	2.10	2.01	2.59	2.12	24
18	2.11	2.20	2.12	2.08	2.09	2.08	2.08	2.13	2.09	2.05	2.04	S	2.03	2.00	2.02	2.00	2.02	2.04	2.02	2.03	2.04	2.03	2.02	2.06	2.00	2.20	2.06	24
19	2.05	2.06	2.06	2.06	2.07	2.07	2.06	2.04	2.01	2.00	S	2.01	2.04	2.02	2.03	2.03	2.00	2.00	2.01	2.02	2.06	2.10	2.10	2.05	2.00	2.10	2.04	24
20	2.01	2.00	2.00	2.00	2.02	1.99	2.00	2.00	2.02	S	2.02	2.00	2.00	2.01	2.00	2.01	2.02	2.02	2.01	2.04	2.01	2.03	2.04	2.12	1.99	2.12	2.02	24
21	2.16	2.14	2.15	2.15	2.17	2.20	2.15	2.11	S	2.05	2.00	2.01	1.99	2.03	2.01	2.01	2.01	2.02	2.02	2.03	2.14	2.05	2.06	2.12	1.99	2.20	2.08	24
22	2.16	2.07	2.08	2.16	2.18	2.18	2.17	S	2.09	2.02	1.99	2.02	2.00	2.01	1.99	1.99	2.01	2.00	2.01	2.01	2.04	2.02	2.04	2.04	1.99	2.18	2.06	24
23	2.04	2.02	2.02	2.02	2.02	2.04	S	2.04	2.03	2.06	2.06	2.03	2.05	2.02	2.02	2.01	2.00	2.01	2.03	2.05	2.03	1.98	1.98	1.99	1.98	2.06	2.02	24
24	1.99	1.99	2.01	2.00	2.02	S	1.99	1.98	1.96	1.96	1.93	1.94	1.95	1.95	1.95	1.96	1.96	1.97	1.98	1.98	2.00	1.99	2.04	2.09	1.93	2.09	1.98	24
25	2.03	2.02	2.01	2.02	S	2.02	2.02	2.02	2.01	2.02	2.02	2.00	1.99	1.99	1.96	1.96	1.96	1.97	1.98	1.97	1.97	1.98	1.99	1.98	1.96	2.03	2.00	24
26	2.01	1.98	1.98	S	2.00	1.99	2.01	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.98	1.98	1.98	2.00	1.98	1.98	1.98	1.98	1.97	2.01	1.98	24
27	2.00	2.01	S	2.03	2.04	2.09	2.20	2.18	2.17	2.10	2.02	2.04	2.01	2.00	2.01	2.00	1.99	1.98	1.99	2.01	2.02	2.02	2.02	2.03	1.98	2.20	2.04	24
28	2.11	S	2.10	2.11	2.13	2.16	2.22	2.22	2.36	2.19	2.05	2.00	1.99	2.00	2.00	2.00	2.00	2.00	2.01	2.00	2.03	2.02	2.02	2.05	1.99	2.36	2.08	24
29	S	2.00	1.99	2.03	2.02	2.00	2.01	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.03	2.04	2.06	S	1.99	2.06	2.01	24
30	2.09	2.11	2.18	2.21	2.21	2.31	2.34	2.29	2.20	2.18	2.09	2.01	1.99	2.01	2.02	2.02	2.00	2.01	2.01	2.00	2.02	2.35	S	2.20	1.99	2.35	2.12	24
HOURLY MAX	2.25	2.59	2.41	2.36	2.23	2.31	2.34	2.29	2.36	2.19	2.09	2.06	2.05	2.05	2.04	2.04	2.04	2.05	2.06	2.08	2.14	2.35	2.26	2.26				
HOURLY AVG	2.07	2.08	2.06	2.07	2.07	2.08	2.07	2.07	2.05	2.03	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.04	2.04	2.06				

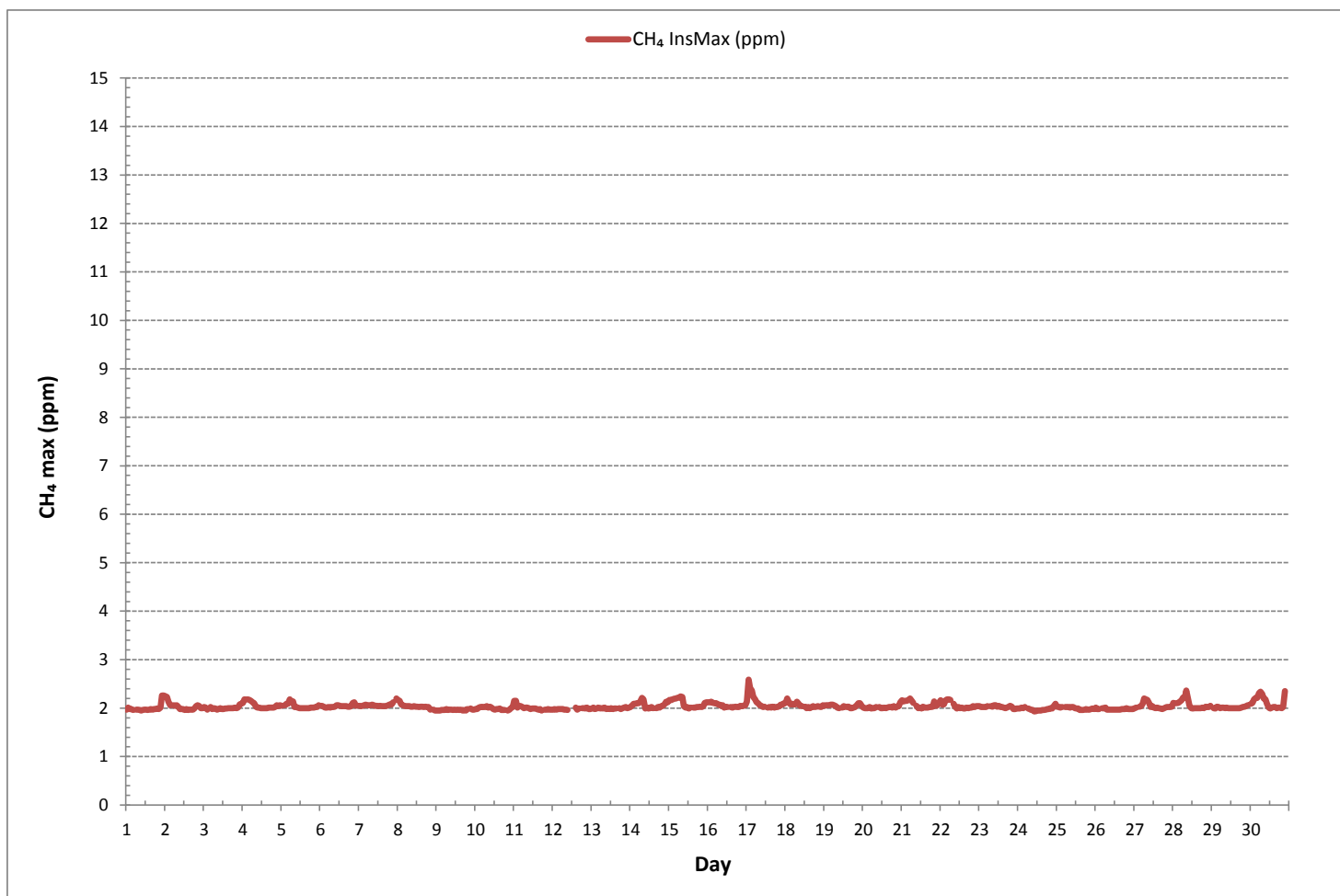
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	684				
MAXIMUM INSTANTANEOUS VALUE:	2.59	ppm	@ HOUR	1	ON DAY 17
IZS CALIBRATION TIME:	32	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.07				

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - September 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 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	0.00	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
2	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
3	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
4	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
6	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	C	C	C	C	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.03	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
17	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.01	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
24	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
25	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
27	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
28	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
29	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

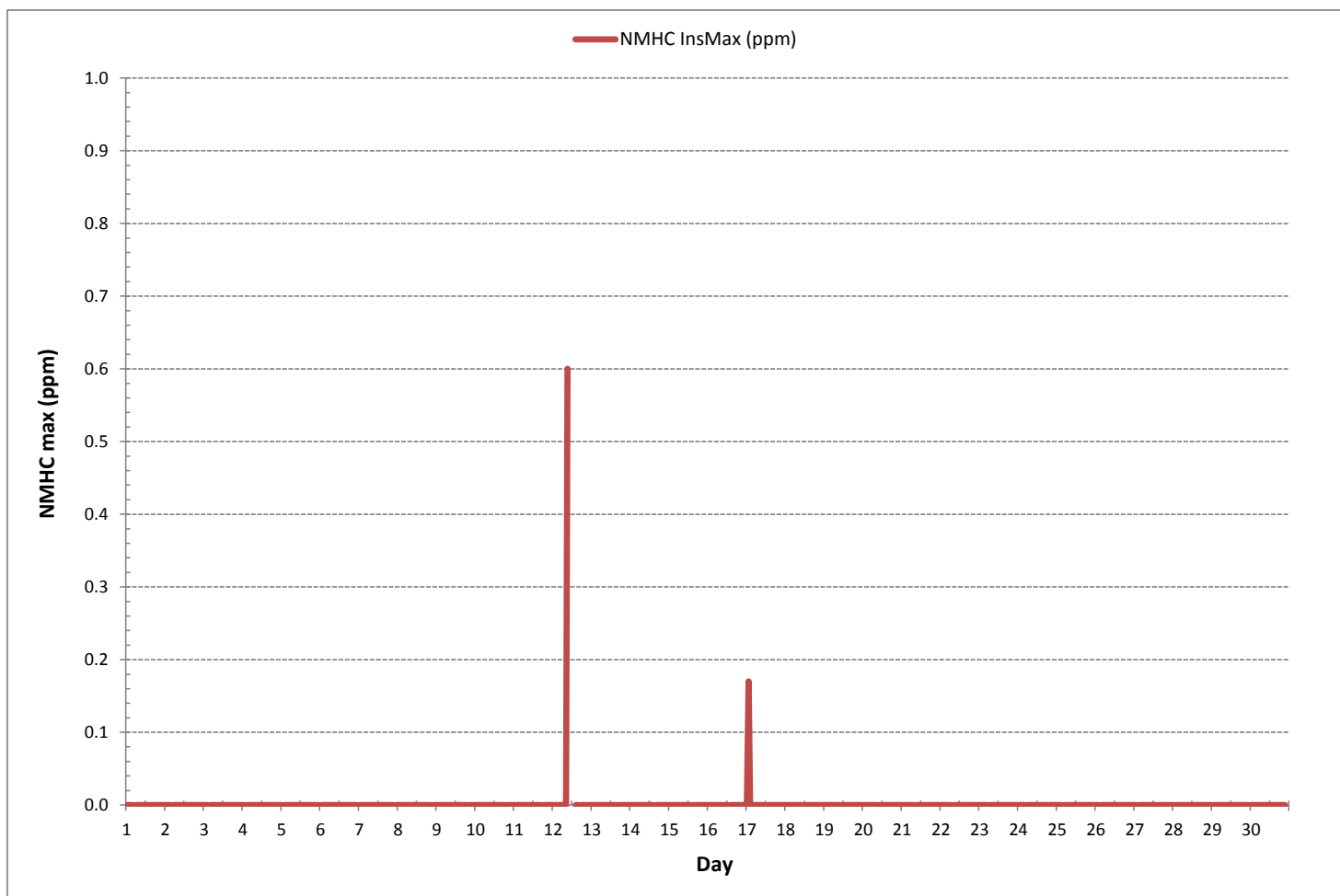
STATUS FLAG CODES

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:		2						
MAXIMUM INSTANTANEOUS VALUE:		0.60	ppm	@ HOUR	9	ON DAY	12	
IZS CALIBRATION TIME:		32	hrs	OPERATIONAL TIME:			720	hrs
MONTHLY CALIBRATION TIME:		4	hrs					
STANDARD DEVIATION:		0.02						

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - September 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	7.2	7.4	9.6	17.8	17.2	15.0	17.4	22.0	32.0	28.6	31.8	35.2	31.8	32.8	26.8	24.4	28.2	30.0	23.8	22.6	9.4	7.4	8.4	10.4	7.2	35.2	20.7	24
2	6.8	8.4	7.0	8.6	13.2	11.8	7.8	10.6	16.8	21.4	26.2	27.4	29.8	36.8	37.0	13.0	10.0	8.2	7.6	10.8	15.2	18.6	10.4	10.8	6.8	37.0	15.6	24
3	9.2	9.8	13.2	12.0	11.2	10.2	10.2	25.0	35.8	42.4	35.8	34.2	32.8	27.8	28.8	23.6	19.2	20.4	14.2	4.2	3.0	2.0	2.2	5.2	2.0	42.4	18.0	24
4	5.0	3.8	3.8	4.2	5.4	5.4	6.4	6.4	15.4	22.6	29.4	31.0	32.6	33.0	32.6	29.4	33.8	27.4	20.8	11.4	16.8	7.4	7.6	8.4	3.8	33.8	16.7	24
5	8.2	6.8	4.8	5.2	7.2	3.0	4.2	13.4	22.0	20.4	21.8	27.8	27.8	24.8	23.2	23.0	24.2	20.8	15.0	13.8	16.4	14.4	12.4	18.0	3.0	27.8	15.8	24
6	19.4	17.6	25.4	21.4	17.8	19.6	14.6	21.2	21.8	20.0	21.0	23.0	24.4	24.4	22.2	22.6	19.8	16.8	17.2	10.8	11.2	16.4	13.8	14.0	10.8	25.4	19.0	24
7	12.2	13.6	11.6	13.8	14.4	11.2	12.0	12.6	13.0	7.0	14.6	11.6	9.2	8.6	12.4	10.6	13.2	11.0	9.6	6.0	8.6	8.2	6.0	8.0	6.0	14.6	10.8	24
8	9.8	13.2	14.0	11.0	14.8	22.0	20.4	20.0	26.2	25.2	18.6	19.8	20.2	11.4	14.6	20.2	19.2	22.6	23.2	34.4	29.0	29.0	32.8	30.8	9.8	34.4	20.9	24
9	34.2	29.6	28.4	26.4	25.6	24.6	22.2	20.6	21.2	22.2	22.2	16.8	16.6	15.8	13.2	10.2	14.2	10.4	8.2	7.4	4.2	8.0	13.6	12.2	4.2	34.2	17.8	24
10	16.4	13.6	10.8	9.4	10.2	7.4	9.2	9.0	8.2	9.6	14.4	14.4	17.0	19.0	16.4	15.2	15.2	16.0	11.4	7.2	2.8	2.0	2.4	3.4	2.0	19.0	10.9	24
11	3.2	8.6	5.4	7.8	8.0	9.2	8.0	7.4	8.2	10.8	10.0	11.0	14.0	18.8	29.0	41.8	39.0	33.2	28.4	27.4	32.2	29.2	24.8	22.6	3.2	41.8	18.3	24
12	20.6	22.4	32.6	21.2	19.2	17.2	20.0	17.8	16.6	20.8	20.2	18.0	19.8	21.4	17.6	12.8	10.2	12.2	10.6	11.2	11.6	6.8	5.2	5.0	5.0	32.6	16.3	24
13	4.6	4.4	5.0	3.8	4.4	4.4	3.4	6.2	4.8	13.6	12.4	16.2	18.6	21.2	21.8	21.0	21.2	21.2	20.0	13.0	11.4	13.4	10.8	7.4	3.4	21.8	11.8	24
14	5.4	4.0	5.0	5.4	4.4	5.0	3.6	8.4	8.8	15.8	16.4	20.0	13.4	12.6	15.0	13.6	14.4	9.0	8.4	5.0	5.8	4.6	7.2	5.6	3.6	20.0	9.0	24
15	8.0	6.0	4.8	6.6	6.0	7.4	8.2	7.2	12.6	21.0	24.6	29.6	29.6	28.8	19.8	19.2	17.8	16.4	9.8	5.4	3.8	4.2	7.0	8.2	3.8	29.6	13.0	24
16	11.0	13.6	12.6	13.6	12.4	14.8	14.8	15.2	17.6	26.4	25.4	22.8	25.6	24.6	28.8	16.4	21.6	19.8	10.4	5.4	5.2	4.0	4.0	4.2	4.0	28.8	15.4	24
17	5.2	9.2	7.0	7.4	6.6	4.6	6.8	10.2	9.4	10.2	17.4	14.4	14.0	14.0	13.8	14.0	15.4	12.8	9.4	4.6	5.4	14.0	11.8	9.2	4.6	17.4	10.3	24
18	9.0	8.6	8.2	6.6	7.2	8.2	7.4	8.6	9.8	11.8	12.6	21.0	18.4	18.0	18.8	17.0	17.2	13.6	10.6	13.6	15.0	22.0	16.8	12.4	6.6	22.0	13.0	24
19	13.6	9.0	9.2	7.4	7.0	9.0	8.2	27.2	11.0	10.6	16.0	16.2	13.2	16.2	16.8	16.2	13.2	11.8	4.0	6.2	7.0	5.0	10.8	16.2	4.0	27.2	11.7	24
20	17.8	24.6	20.2	18.8	17.0	24.0	26.6	22.0	20.4	20.2	24.0	22.8	18.0	21.2	19.8	19.8	16.0	11.8	5.0	3.0	2.4	4.6	5.6	7.2	2.4	26.6	16.4	24
21	7.6	4.6	6.2	10.4	8.4	7.4	4.2	5.6	10.0	7.2	14.8	16.2	17.2	24.0	14.6	16.6	14.2	11.2	13.2	7.8	11.6	13.0	12.6	13.0	4.2	24.0	11.3	24
22	12.2	15.0	11.0	8.0	7.0	6.8	8.4	9.8	15.2	24.4	29.8	31.8	28.4	29.2	30.2	29.0	26.6	27.6	25.0	24.4	27.8	20.2	20.0	20.2	6.8	31.8	20.3	24
23	18.2	19.8	18.2	19.0	21.8	18.0	16.6	22.4	22.4	24.4	25.0	27.4	27.2	28.4	23.4	30.0	18.4	16.4	6.2	5.6	16.8	16.6	17.2	18.0	5.6	30.0	19.9	24
24	13.0	11.8	11.4	7.2	8.2	18.4	10.0	14.2	12.9	16.0	18.2	19.9	18.6	16.1	8.7	10.8	11.2	9.7	3.9	2.2	2.2	3.3	4.4	6.3	2.2	19.9	10.8	24
25	6.0	5.9	5.9	5.4	6.3	6.2	7.2	10.1	12.7	15.4	20.2	24.7	25.4	29.1	36.4	34.9	33.3	27.5	23.8	27.0	23.1	16.0	13.8	7.0	5.4	36.4	17.6	24
26	6.8	5.3	4.1	2.9	2.6	2.0	5.7	6.0	10.4	6.7	10.7	16.7	15.6	17.2	16.5	11.7	8.8	7.8	5.4	5.4	4.4	12.1	10.1	8.9	2.0	17.2	8.5	24
27	4.8	2.8	4.1	4.2	3.4	4.1	4.4	2.9	4.9	4.2	6.2	10.9	17.0	15.9	16.1	16.6	14.1	10.7	9.0	5.0	2.8	1.9	2.5	4.3	1.9	17.0	7.2	24
28	2.7	2.6	3.2	2.2	2.7	2.4	2.2	3.0	2.2	2.2	6.7	13.0	14.3	19.3	21.5	18.6	20.7	13.0	3.5	1.2	0.4	2.3	4.1	2.7	0.4	21.5	6.9	24
29	8.5	7.4	8.6	5.0	7.4	14.0	14.2	14.6	17.1	26.1	25.9	21.7	22.7	19.2	18.5	17.4	13.6	10.1	2.8	1.4	1.9	3.2	3.1	4.0	1.4	26.1	12.0	24
30	2.3	3.4	4.0	3.3	3.5	2.9	3.3	6.2	6.4	7.7	8.9	9.6	11.7	13.1	11.5	5.8	6.6	6.7	8.8	7.0	4.9	3.0	4.6	5.1	2.3	13.1	6.3	24
HOURLY MAX	34.2	29.6	32.6	26.4	25.6	24.6	26.6	27.2	35.8	42.4	35.8	35.2	32.8	36.8	37.0	41.8	39.0	33.2	28.4	34.4	32.2	29.2	32.8	30.8				

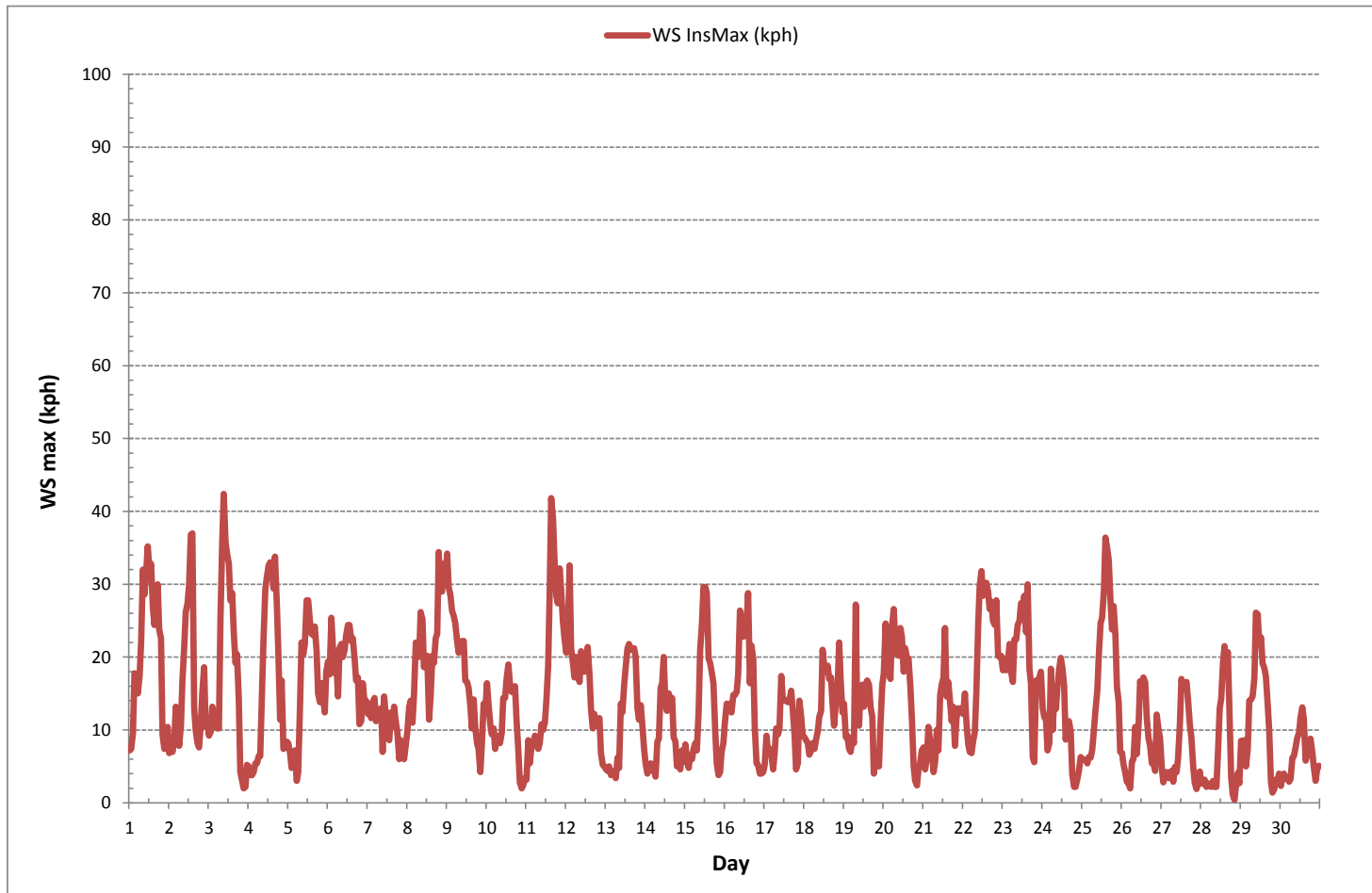
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	42.4	kph	@ HOUR	9	ON DAY	3
OPERATIONAL TIME:	720	hrs				

WIND SPEED Instantaneous Maximum (WS kph)

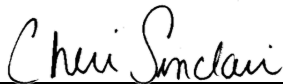


APPENDIX IV
REPORT CERTIFICATION FORM

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

12 - Oct - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-09-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Carla Reesor

Date 09 - Oct - 2018

Level 1 Primary Validation

Carla Reesor

Date 09 - Oct - 2018

Level 2 Final Validation

Carla Reesor

Date 10 - Oct - 2018

Level 3 Independent Data Review

Cheri Smolani

Date 12 - Oct - 2018

Post-Final Validation

NA

Date NA

Notes

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