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AMBIENT AIR MONITORING MONTHLY DATA REPORT
PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
THREE CREEKS 986B STATION

JOB #: 8449-2017-11-67-C

November 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **December 19, 2017**

Prepared by:

A handwritten signature in blue ink, appearing to read "Wunmi Adekanmbi".

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

Reviewed by:

A handwritten signature in black ink, appearing to read "Cheri Sinclair".

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

SUMMARY

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

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

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

The daily zero/span schedule was reverted to a 23-hour interval on November 7, as per PRAMP's request.

TRS: One hour of downtime was incurred on November 8 due to an additional zero/span check performed to assess a biased low span drift.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0, Discussion. On this basis, Maxxam Analytics is issuing this completed report to Peace River Area Monitoring Program Committee, Three Creeks 986b Station.

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Three Creeks 986b 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	3	15	9	6.1	E	1	15	100.0
TRS (ppb)	-	-	-	-	0.27	0.45	10	4	7.6	NW	0.32	27	99.9
THC (ppm)	-	-	-	-	2.04	3.05	16	7	1.5	W	2.17	16	100.0
CH ₄ (ppm)	-	-	-	-	2.04	3.05	16	7	1.5	W	2.17	16	100.0
NMHC (ppm)	-	-	-	-	0.00	0.01	6	19	4.4	NW	0.00	1	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	79	96	23	4	5.8	SSW	92	23	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	939	959	2	16	5.7	N	957	2	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-11.0	3.7	23	11	8.7	WSW	0.0	23	100.0
STATION TEMPERATURE (°C)	-	-	-	-	23.2	24.6	3	1	2.4	ESE	23.8	3	100.0
VECTOR WS (kph)	-	-	-	-	0.3	17.1	23	8	-	SSW	8.4	1	100.0
VECTOR WD (sec)	-	-	-	-	219 (SW)	-	-	-	-	-	-	-	100.0

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Three Creeks 986b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	November

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	0.003 ppm		0	0.001 ppm	0
TRS	99.9	0.0005 ppm		-	0.0003 ppm	-
THC	100.0	3.05 ppm		-	2.17 ppm	-
CH ₄	100.0	3.05 ppm		-	2.17 ppm	-
NMHC	100.0	0.01 ppm		-	0.00 ppm	-
RH	100.0	96 %		-	92 %	-
BP	100.0	959 mb		-	957 mb	-
Ambient TPX	100.0	3.7 °C		-	0.0 °C	-
Station TPX	100.0	24.6 °C		-	23.8 °C	-
Wind Speed	100.0	17.1 kph		-	8.4 kph	-
Wind Direction	100.0	-		-	-	-

SIGNATURE OF COMPANY REPRESENTATIVE

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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%.
- Following a successful as-found response check on November 9, the case fan was replaced. A successful routine monthly multi-point calibration was subsequently completed.

TOTAL REDUCED SULPHUR (TRS)

- Operational time, for the monitoring period was 99.9%, equivalent to one hour of downtime. This was incurred due to an additional zero/span check performed on November 8 to assess a biased low span drift.
- The routine monthly calibration was performed on November 9.

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 November 9.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month.

WIND SPEED (WS) and WIND DIRECTION (WD)

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

RELATIVE HUMIDITY (RH)

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

BAROMETRIC PRESSURE (BP)

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

AMBIENT TEMPERATURE (AmbTPX)

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

STATION TEMPERATURE (StnTPX)

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

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

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

4.0 Calculations and Results

All calculations and reporting of results follow the methods described in the AMD, 2016.

5.0 Methods and Procedures

The following methods and procedures were used to complete the monitoring program:

Maxxam AIR SOP-00001: Methane, Non-Methane Hydrocarbon Analyzer Monitoring

Maxxam AIR SOP-00208: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43C UV Fluorescent Analyzer

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - ESC 8832

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

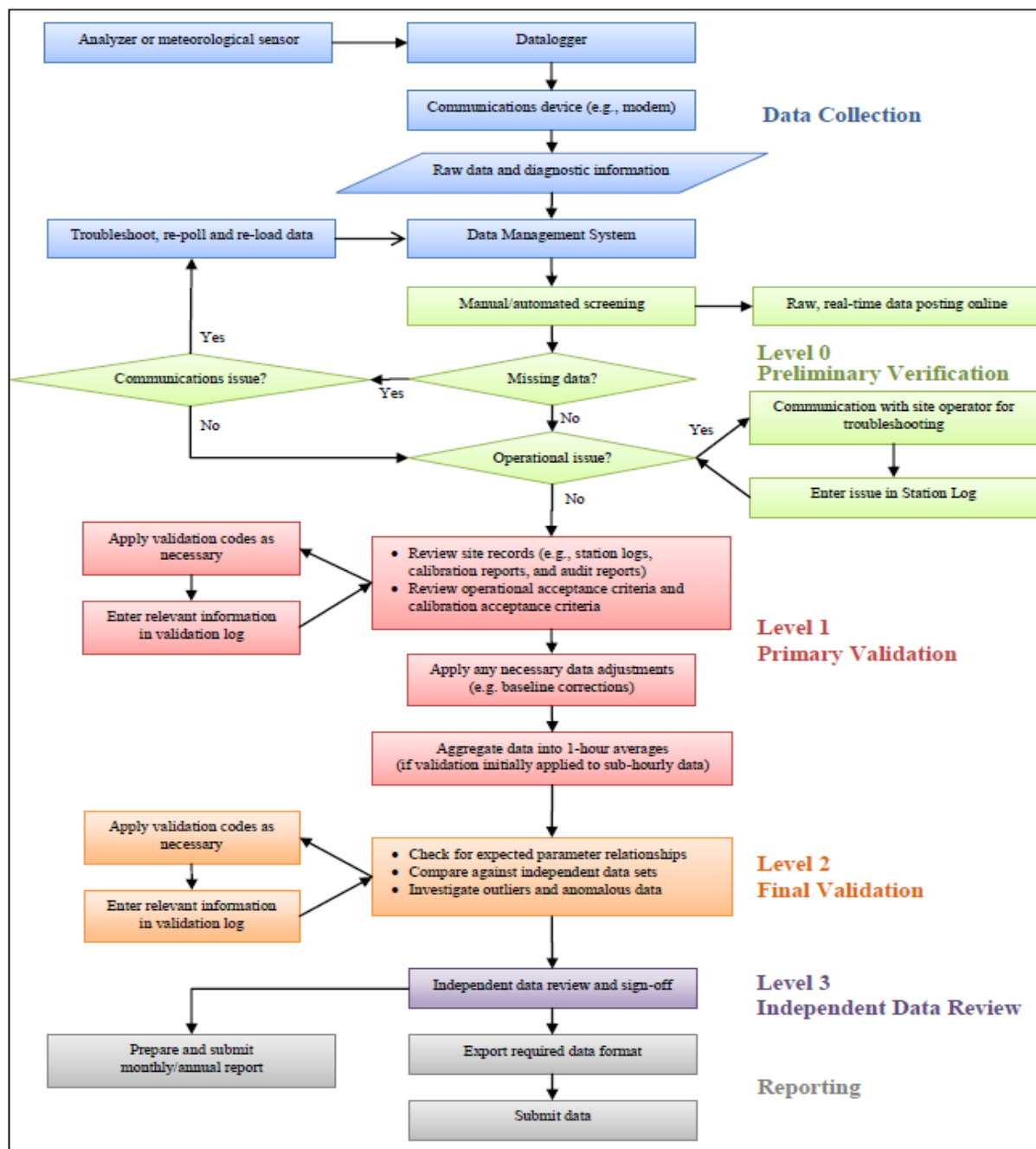
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

STATUS FLAG CODES

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

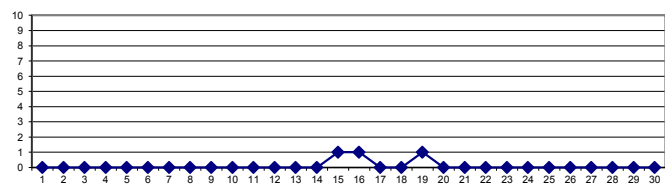
OBJECTIVE LIMIT:

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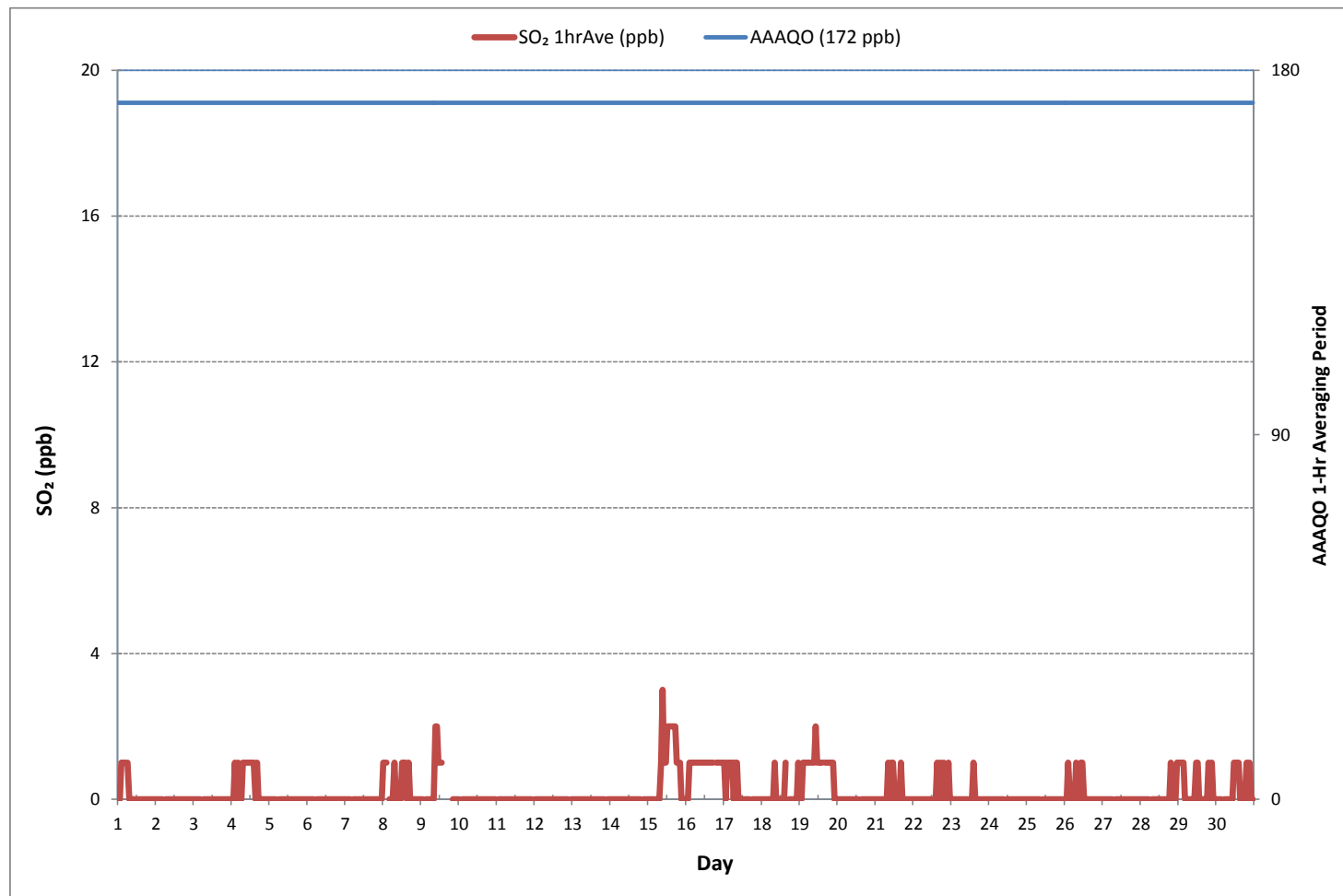
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:		0			
NUMBER OF 24-HR EXCEEDANCES:		0			
NUMBER OF NON-ZERO READINGS:		119			
MINIMUM 1-HR AVERAGE:	0	ppb @ HOUR	0	ON DAY	1
MAXIMUM 1-HR AVERAGE:	3	ppb @ HOUR	9	ON DAY	15
MAXIMUM 24-HR AVERAGE:	1	ppb		ON DAY	15
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0		MONTHLY AVERAGE:	0	ppb

24 HR AVERAGES November 2017



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 986b Station - November 2017

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

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

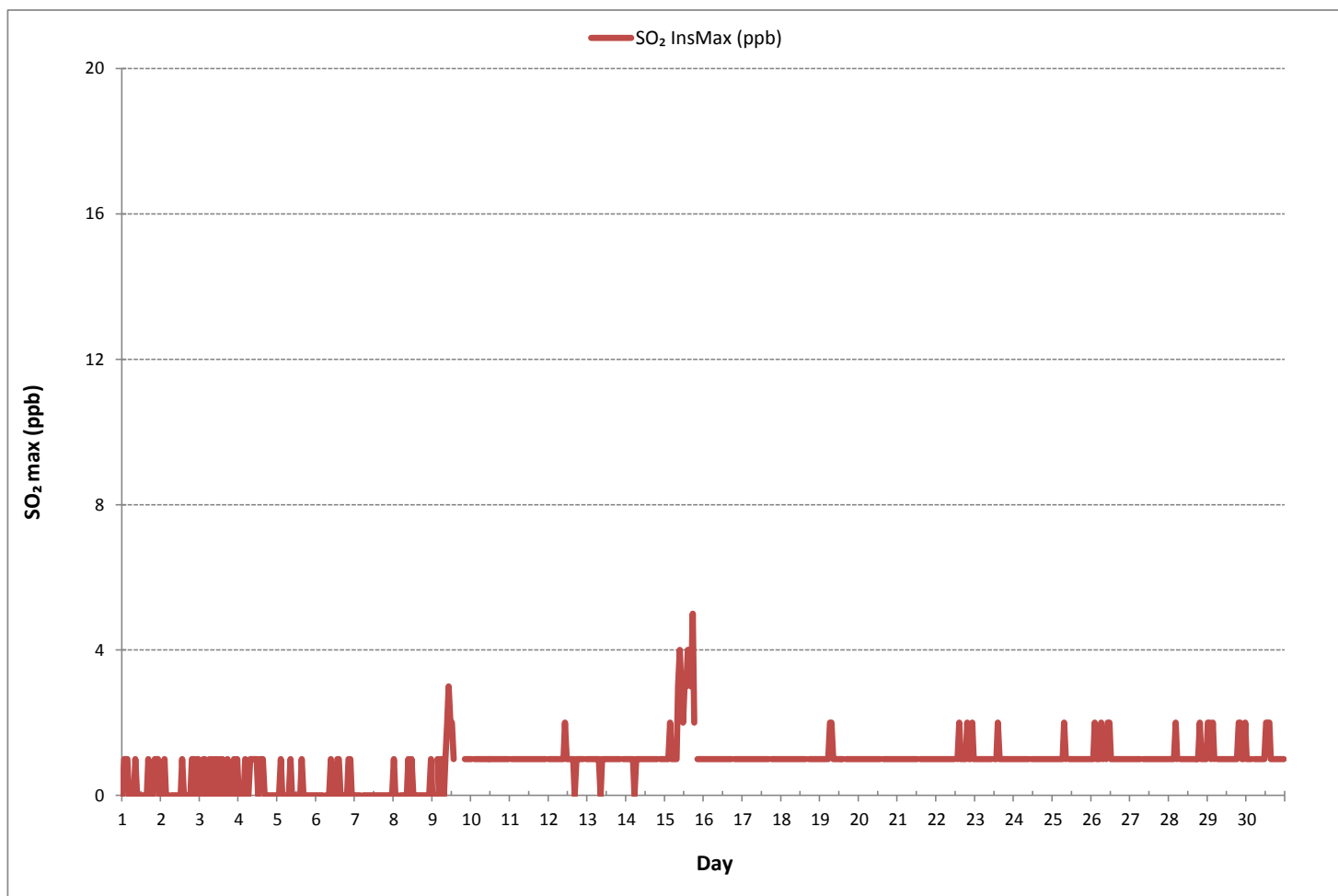
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		537					
MAXIMUM INSTANTANEOUS VALUE:		5	ppb	@ HOUR	17	ON DAY	15
IZS CALIBRATION TIME:		31	hrs	OPERATIONAL TIME:		720	hrs
MONTHLY CALIBRATION TIME:		6	hrs				
STANDARD DEVIATION:		1					

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



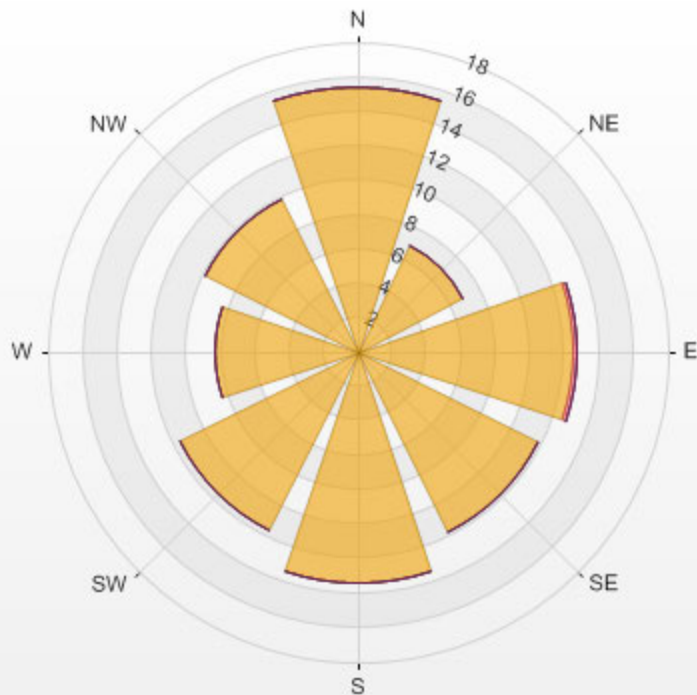
Wind: PRAMP_986
Poll.: PRAMP_986-SO₂[ppb]
Monthly: 17/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 9.96%

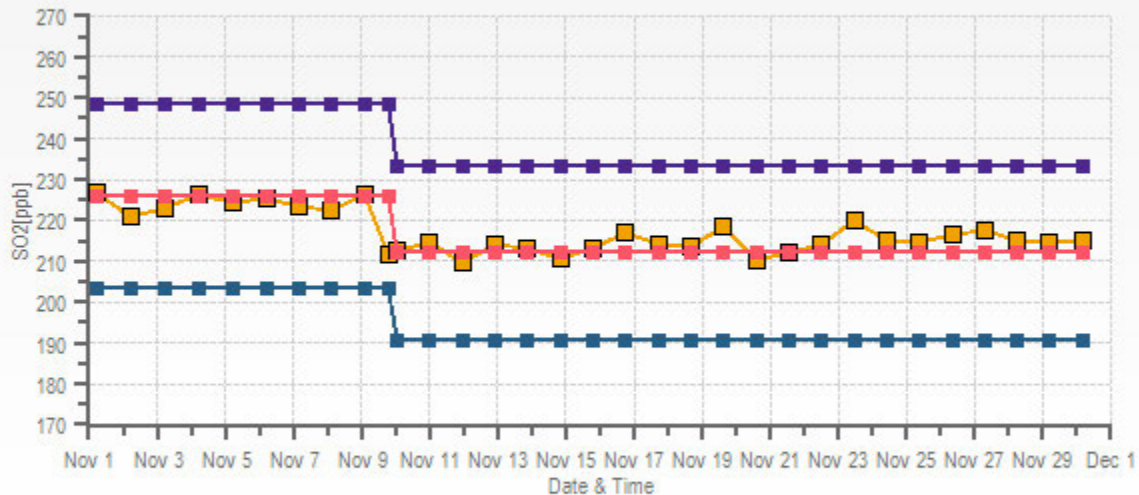
Calm Avg: 0.23 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	15.4	0.0	0.0	0.0	0.0	15.4
NE	6.9	0.0	0.0	0.0	0.0	6.9
E	12.6	0.2	0.0	0.0	0.0	12.7
SE	11.7	0.0	0.0	0.0	0.0	11.7
S	13.5	0.0	0.0	0.0	0.0	13.5
SW	11.6	0.0	0.0	0.0	0.0	11.6
W	8.4	0.0	0.0	0.0	0.0	8.4
NW	10.0	0.0	0.0	0.0	0.0	10.0
Summary	89.9	0.2	0.0	0.0	0.0	90.1

PRAMP_986 Poll.: PRAMP_986-SO₂[ppb] 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 9.96% Calm Poll Avg: 0.23[ppb]



SO2[ppb] Calibration: PRAMP_986 Monthly: 17/11 Type: Span



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

TOTAL REDUCED SULPHUR

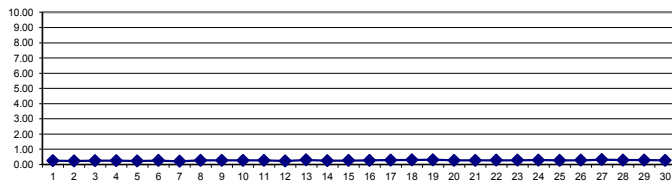
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.22	0.22	0.21	0.22	0.23	S	0.30	0.28	0.25	0.23	0.25	0.24	0.25	0.23	0.23	0.24	0.25	0.24	0.24	0.25	0.25	0.28	0.26	0.24	0.21	0.30	0.24	24
2	0.24	0.25	0.23	0.23	0.23	S	0.28	0.26	0.25	0.24	0.25	0.25	0.24	0.26	0.24	0.26	0.24	0.24	0.23	0.23	0.21	0.21	0.19	0.19	0.19	0.28	0.24	24
3	0.18	0.19	0.19	0.23	0.27	S	0.38	0.29	0.27	0.28	0.30	0.24	0.24	0.23	0.25	0.22	0.24	0.23	0.25	0.26	0.24	0.23	0.23	0.24	0.18	0.38	0.25	24
4	0.24	0.24	0.23	0.24	0.23	S	0.31	0.25	0.23	0.24	0.25	0.24	0.25	0.25	0.26	0.25	0.27	0.27	0.26	0.26	0.25	0.26	0.26	0.23	0.31	0.25	24	
5	0.26	0.26	0.26	0.25	0.24	S	0.29	0.25	0.26	0.25	0.22	0.22	0.21	0.22	0.21	0.23	0.25	0.20	0.21	0.24	0.20	0.19	0.18	0.16	0.16	0.29	0.23	24
6	0.18	0.22	0.21	0.22	0.23	S	0.32	0.25	0.25	0.27	0.26	0.22	0.24	0.25	0.27	0.26	0.26	0.24	0.26	0.40	0.31	0.27	0.27	0.26	0.18	0.40	0.26	24
7	0.26	0.25	0.25	0.24	S	0.30	0.24	0.24	0.24	0.23	0.23	0.22	0.22	0.21	0.22	0.21	0.21	0.20	0.21	0.21	0.18	0.16	0.17	0.16	0.16	0.30	0.22	24
8	0.19	0.22	0.20	S	0.30	0.24	0.23	S1	0.43	0.26	0.25	0.26	0.26	0.27	0.27	0.28	0.28	0.30	0.29	0.28	0.27	0.28	0.29	0.28	0.19	0.43	0.27	23
9	0.26	0.27	S	0.33	0.28	0.26	0.26	0.25	0.27	0.28	0.29	0.29	C	C	C	C	C	0.29	0.24	0.23	0.23	0.26	0.27	0.28	0.23	0.33	0.27	24
10	0.28	S	0.40	0.36	0.45	0.37	0.32	0.31	0.26	0.26	0.25	0.24	0.25	0.25	0.24	0.24	0.22	0.21	0.20	0.22	0.23	0.24	0.23	0.21	0.20	0.45	0.27	24
11	S	0.27	0.21	0.26	0.26	0.27	0.30	0.28	0.26	0.26	0.28	0.31	0.28	0.27	0.30	0.29	0.29	0.30	0.32	0.26	0.25	0.26	0.24	S	0.21	0.32	0.27	24
12	0.32	0.27	0.26	0.25	0.25	0.23	0.24	0.24	0.25	0.27	0.22	0.22	0.22	0.22	0.21	0.22	0.22	0.21	0.22	0.22	0.20	0.22	S	0.27	0.20	0.32	0.24	24
13	0.29	0.38	0.35	0.30	0.33	0.35	0.37	0.35	0.33	0.33	0.30	0.27	0.26	0.24	0.24	0.25	0.24	0.26	0.25	0.25	0.26	S	0.32	0.29	0.24	0.38	0.30	24
14	0.27	0.27	0.26	0.27	0.27	0.26	0.27	0.26	0.25	0.26	0.26	0.25	0.25	0.25	0.24	0.24	0.23	0.23	0.23	0.22	S	0.30	0.26	0.26	0.22	0.30	0.25	24
15	0.25	0.28	0.28	0.30	0.27	0.25	0.27	0.25	0.24	0.24	0.24	0.24	0.23	0.25	0.25	0.26	0.24	0.25	0.25	S	0.32	0.27	0.26	0.24	0.23	0.32	0.26	24
16	0.25	0.29	0.28	0.31	0.27	0.25	0.29	0.26	0.28	0.28	0.28	0.25	0.25	0.24	0.25	0.24	0.24	0.27	S	0.35	0.29	0.28	0.30	0.30	0.24	0.35	0.27	24
17	0.28	0.28	0.29	0.29	0.27	0.26	0.28	0.29	0.29	0.28	0.27	0.28	0.28	0.27	0.31	0.32	0.30	S	0.36	0.30	0.29	0.28	0.28	0.27	0.26	0.36	0.29	24
18	0.27	0.28	0.28	0.27	0.28	0.29	0.28	0.27	0.26	0.27	0.28	0.29	0.28	0.29	0.34	0.34	S	0.41	0.38	0.30	0.29	0.30	0.27	0.26	0.26	0.41	0.29	24
19	0.25	0.25	0.26	0.32	0.31	0.31	0.31	0.36	0.38	0.40	0.36	0.35	0.35	0.35	0.32	S	0.34	0.28	0.28	0.28	0.26	0.26	0.25	0.24	0.24	0.40	0.31	24
20	0.23	0.23	0.23	0.21	0.26	0.26	0.25	0.26	0.24	0.24	0.26	0.25	0.27	0.26	S	0.38	0.30	0.29	0.28	0.26	0.27	0.26	0.26	0.28	0.21	0.38	0.26	24
21	0.27	0.28	0.27	0.27	0.28	0.28	0.27	0.27	0.28	0.27	0.26	0.26	0.24	S	0.34	0.27	0.27	0.28	0.27	0.26	0.25	0.26	0.24	0.24	0.24	0.34	0.27	24
22	0.24	0.25	0.25	0.26	0.25	0.26	0.26	0.25	0.23	0.27	0.27	0.27	S	0.33	0.29	0.30	0.30	0.32	0.29	0.33	0.27	0.32	0.30	0.25	0.23	0.33	0.28	24
23	0.25	0.25	0.25	0.25	0.25	0.28	0.29	0.30	0.31	0.27	0.27	S	0.29	0.29	0.36	0.31	0.29	0.26	0.26	0.26	0.25	0.26	0.27	0.30	0.25	0.36	0.28	24
24	0.34	0.34	0.28	0.27	0.27	0.28	0.27	0.29	0.30	0.31	S	0.39	0.37	0.29	0.27	0.27	0.25	0.26	0.26	0.27	0.26	0.26	0.27	0.30	0.25	0.39	0.29	24
25	0.29	0.28	0.27	0.26	0.34	0.32	0.29	0.27	0.28	S	0.32	0.28	0.26	0.26	0.26	0.26	0.27	0.27	0.26	0.25	0.26	0.25	0.25	0.24	0.24	0.34	0.27	24
26	0.26	0.28	0.34	0.31	0.31	0.30	0.31	0.29	S	0.40	0.34	0.29	0.27	0.25	0.24	0.24	0.25	0.25	0.23	0.24	0.25	0.26	0.25	0.27	0.23	0.40	0.28	24
27	0.28	0.28	0.28	0.28	0.28	0.29	0.29	S	0.37	0.33	0.33	0.34	0.36	0.36	0.38	0.38	0.35	0.33	0.30	0.28	0.28	0.30	0.31	0.30	0.28	0.38	0.32	24
28	0.31	0.31	0.30	0.29	0.27	0.27	S	0.33	0.29	0.27	0.28	0.30	0.28	0.28	0.28	0.27	0.27	0.29	0.30	0.31	0.30	0.30	0.28	0.30	0.27	0.33	0.29	24
29	0.31	0.28	0.30	0.32	0.32	S	0.35	0.30	0.30	0.28	0.30	0.29	0.28	0.29	0.28	0.27	0.27	0.28	0.28	0.29	0.28	0.28	0.28	0.28	0.27	0.35	0.29	24
30	0.27	0.27	0.28	0.25	S	0.30	0.26	0.27	0.27	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.26	0.27	0.28	0.28	0.26	0.26	0.25	0.25	0.30	0.27	24
HOURLY MAX	0.34	0.38	0.40	0.36	0.45	0.37	0.38	0.36	0.43	0.40	0.36	0.39	0.37	0.36	0.38	0.38	0.35	0.41	0.38	0.40	0.32	0.32	0.32	0.30				
HOURLY AVG	0.26	0.27	0.27	0.27	0.28	0.28	0.29	0.28	0.28	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.26	0.27	0.26	0.27	0.26	0.26	0.26	0.26				

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

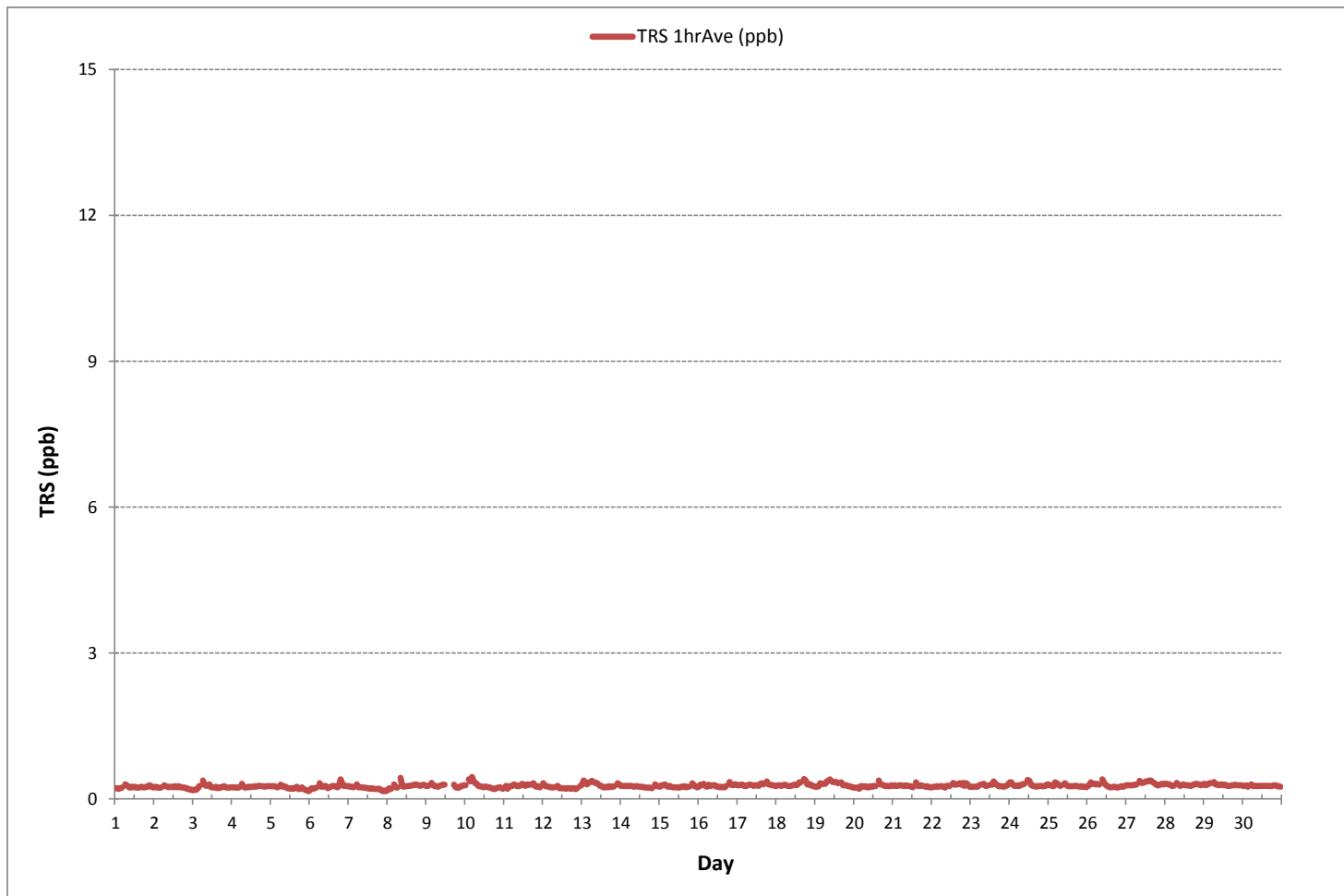
24 HR AVERAGES November 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	683				
MINIMUM 1-HR AVERAGE:	0.16	ppb	@ HOUR	23	ON DAY
MAXIMUM 1-HR AVERAGE:	0.45	ppb	@ HOUR	4	ON DAY
MAXIMUM 24-HR AVERAGE:	0.32	ppb			ON DAY
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	719	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	99.9	%
STANDARD DEVIATION:	0.04		MONTHLY AVERAGE:	0.27	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 986b Station - November 2017

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	0.32	0.34	0.34	0.32	0.35	S	0.45	0.42	0.40	0.37	0.37	0.37	0.38	0.37	0.34	0.37	0.37	0.37	0.37	0.40	0.43	0.40	0.40	0.32	0.45	0.38	24	
2	0.40	0.40	0.37	0.37	0.40	S	0.55	0.45	0.42	0.43	0.43	0.43	0.45	0.43	0.40	0.45	0.45	0.45	0.42	0.45	0.42	0.45	0.40	0.37	0.37	0.55	0.43	24
3	0.37	0.37	0.40	0.45	0.47	S	0.82	0.61	0.45	0.50	0.56	0.45	0.48	0.43	0.45	0.40	0.48	0.48	0.48	0.48	0.48	0.42	0.45	0.45	0.37	0.82	0.48	24
4	0.43	0.48	0.45	0.45	0.45	S	0.55	0.48	0.45	0.43	0.47	0.48	0.47	0.47	0.51	0.45	0.45	0.48	0.50	0.50	0.45	0.48	0.50	0.48	0.43	0.55	0.47	24
5	0.47	0.51	0.53	0.45	0.48	S	0.53	0.45	0.51	0.48	0.48	0.45	0.48	0.48	0.45	0.48	0.53	0.43	0.51	0.48	0.45	0.43	0.45	0.40	0.40	0.53	0.47	24
6	0.40	0.48	0.47	0.45	0.53	S	0.69	0.48	0.51	0.58	0.56	0.45	0.47	0.51	0.48	0.50	0.48	0.51	0.55	0.77	0.58	0.53	0.53	0.50	0.40	0.77	0.52	24
7	0.53	0.48	0.48	0.53	S	0.64	0.47	0.47	0.48	0.45	0.45	0.47	0.45	0.47	0.45	0.45	0.45	0.45	0.44	0.50	0.44	0.40	0.42	0.40	0.40	0.64	0.47	24
8	0.45	0.47	0.47	S	0.61	0.44	0.45	S1	S1	0.56	0.47	0.48	0.48	0.48	0.48	0.50	0.48	0.53	0.50	0.52	0.47	0.48	0.51	0.47	0.44	0.61	0.49	22
9	0.45	0.48	S	0.66	0.50	0.45	0.50	0.47	0.53	0.50	0.58	0.63	C	C	C	C	C	0.63	0.42	0.44	0.39	0.41	0.39	0.40	0.39	0.66	0.49	24
10	0.34	S	0.53	0.48	0.56	0.50	0.42	0.43	0.34	0.35	0.34	0.34	0.32	0.34	0.32	0.34	0.29	0.37	0.32	0.32	0.34	0.34	0.32	0.32	0.29	0.56	0.37	24
11	S	0.42	0.29	0.37	0.34	0.34	0.37	0.35	0.37	0.34	0.37	0.42	0.35	0.37	0.43	0.42	0.37	0.53	0.47	0.35	0.35	0.35	0.34	S	0.29	0.53	0.38	24
12	0.45	0.37	0.40	0.32	0.34	0.32	0.34	0.32	0.34	0.47	0.32	0.32	0.32	0.32	0.32	0.32	0.37	0.32	0.32	0.35	0.32	0.32	S	0.42	0.32	0.47	0.35	24
13	0.45	0.56	0.53	0.42	0.42	0.45	0.45	0.45	0.42	0.45	0.37	0.34	0.35	0.32	0.32	0.34	0.29	0.32	0.29	0.32	0.32	S	0.45	0.35	0.29	0.56	0.39	24
14	0.34	0.32	0.32	0.32	0.40	0.34	0.37	0.32	0.32	0.34	0.35	0.34	0.37	0.32	0.33	0.32	0.32	0.34	0.32	0.32	S	0.45	0.37	0.37	0.32	0.45	0.34	24
15	0.37	0.37	0.40	0.37	0.37	0.32	0.35	0.35	0.34	0.33	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.37	0.32	S	0.43	0.34	0.37	0.32	0.32	0.43	0.35	24
16	0.32	0.35	0.34	0.40	0.32	0.40	0.35	0.35	0.40	0.40	0.37	0.35	0.33	0.32	0.35	0.33	0.32	0.37	S	0.50	0.42	0.37	0.37	0.38	0.32	0.50	0.37	24
17	0.40	0.40	0.42	0.42	0.37	0.35	0.43	0.37	0.37	0.45	0.35	0.34	0.33	0.35	0.38	0.40	0.42	S	0.53	0.40	0.37	0.35	0.38	0.40	0.33	0.53	0.39	24
18	0.42	0.48	0.37	0.35	0.37	0.40	0.38	0.37	0.35	0.38	0.37	0.42	0.38	0.40	0.45	0.45	S	0.53	0.48	0.43	0.42	0.40	0.37	0.35	0.35	0.53	0.41	24
19	0.38	0.32	0.37	0.45	0.40	0.40	0.40	0.45	0.48	0.50	0.45	0.43	0.42	0.45	0.42	S	0.48	0.37	0.40	0.35	0.35	0.37	0.35	0.34	0.32	0.50	0.41	24
20	0.32	0.32	0.35	0.30	0.35	0.38	0.38	0.38	0.32	0.37	0.35	0.37	0.37	0.37	S	0.53	0.40	0.38	0.40	0.35	0.43	0.37	0.37	0.35	0.30	0.53	0.37	24
21	0.38	0.37	0.38	0.40	0.37	0.40	0.38	0.38	0.40	0.38	0.40	0.37	0.34	S	0.58	0.37	0.43	0.37	0.40	0.40	0.37	0.38	0.37	0.37	0.34	0.58	0.39	24
22	0.37	0.37	0.40	0.37	0.37	0.40	0.40	0.37	0.35	0.40	0.40	0.43	S	0.50	0.43	0.42	0.45	0.42	0.42	0.45	0.43	0.42	0.42	0.37	0.35	0.50	0.41	24
23	0.34	0.35	0.32	0.35	0.37	0.37	0.37	0.40	0.38	0.35	0.35	S	0.42	0.40	0.43	0.43	0.34	0.32	0.32	0.35	0.34	0.32	0.29	0.35	0.29	0.43	0.36	24
24	0.40	0.40	0.37	0.32	0.32	0.35	0.32	0.35	0.37	0.35	S	0.56	0.43	0.34	0.32	0.32	0.29	0.32	0.29	0.32	0.30	0.29	0.32	0.37	0.29	0.56	0.35	24
25	0.35	0.34	0.32	0.32	0.42	0.42	0.34	0.34	0.34	S	0.42	0.40	0.37	0.35	0.32	0.35	0.35	0.34	0.37	0.29	0.32	0.34	0.32	0.34	0.29	0.42	0.35	24
26	0.32	0.42	0.45	0.37	0.43	0.37	0.40	0.40	S	0.50	0.42	0.40	0.35	0.32	0.29	0.30	0.30	0.35	0.32	0.30	0.32	0.35	0.32	0.32	0.29	0.50	0.36	24
27	0.35	0.34	0.32	0.32	0.30	0.37	0.32	S	0.45	0.38	0.37	0.42	0.45	0.43	0.47	0.43	0.40	0.43	0.37	0.34	0.35	0.37	0.37	0.40	0.30	0.47	0.38	24
28	0.45	0.40	0.37	0.35	0.35	0.37	S	0.45	0.37	0.35	0.37	0.40	0.37	0.37	0.43	0.35	0.35	0.40	0.43	0.42	0.37	0.37	0.35	0.37	0.35	0.45	0.38	24
29	0.40	0.37	0.35	0.40	0.37	S	0.47	0.40	0.37	0.40	0.37	0.40	0.35	0.37	0.34	0.40	0.35	0.35	0.37	0.35	0.35	0.37	0.35	0.38	0.34	0.47	0.38	24
30	0.35	0.35	0.35	0.35	S	0.42	0.34	0.37	0.35	0.34	0.37	0.34	0.35	0.34	0.37	0.35	0.33	0.32	0.34	0.35	0.35	0.32	0.32	0.32	0.32	0.42	0.35	24
HOURLY MAX	0.53	0.56	0.53	0.66	0.61	0.64	0.82	0.61	0.53	0.58	0.58	0.63	0.48	0.51	0.58	0.53	0.53	0.63	0.55	0.77	0.58	0.53	0.53	0.50				
HOURLY AVG	0.39	0.40	0.40	0.39	0.40	0.40	0.43	0.41	0.40	0.42	0.41	0.41	0.39	0.39	0.40	0.40	0.39	0.41	0.40	0.41	0.39	0.39	0.39	0.38				

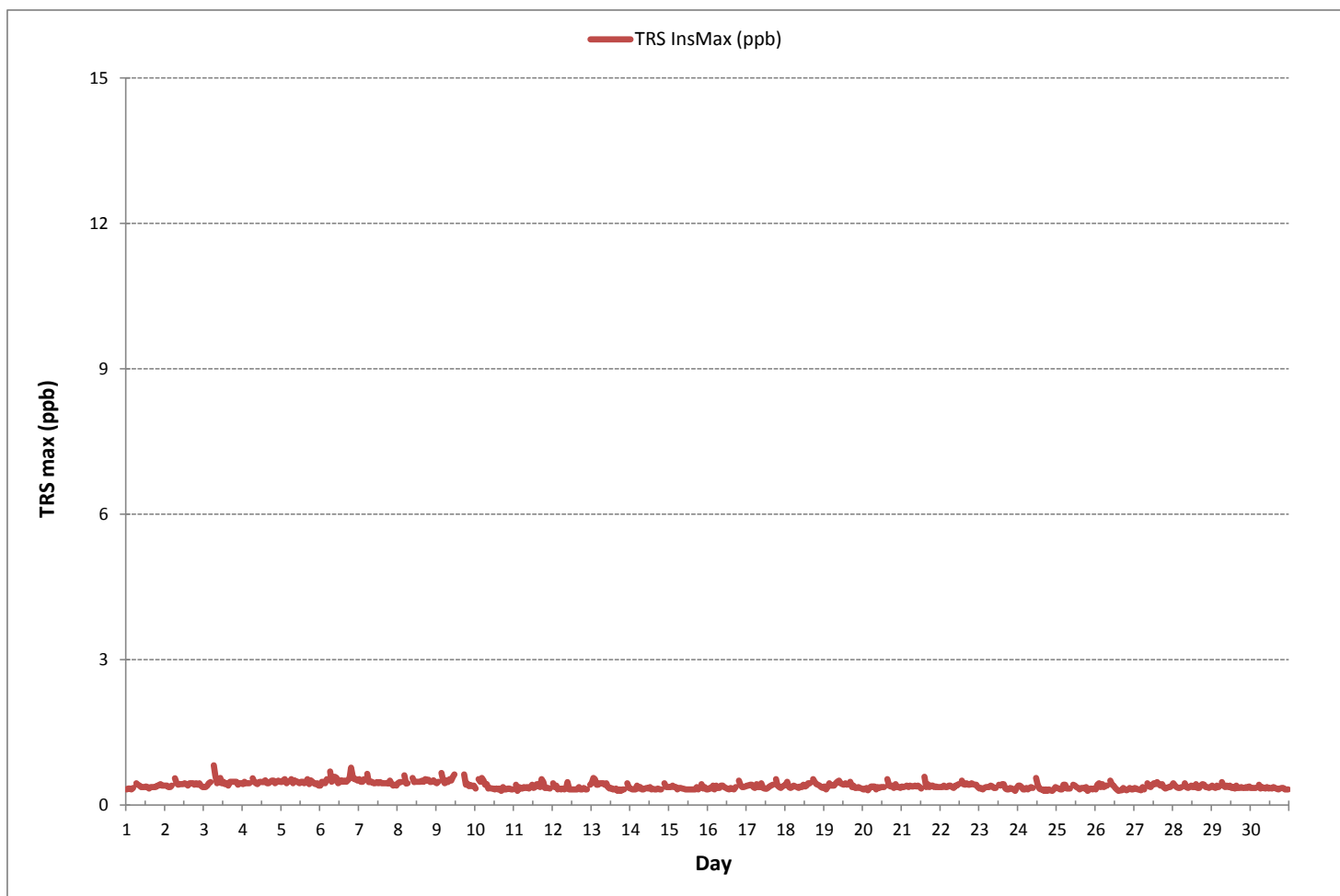
STATUS FLAG CODES

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:	0.82 ppb @ HOUR 6 ON DAY 3
IZS CALIBRATION TIME:	31 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.07
OPERATIONAL TIME:	718 hrs

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



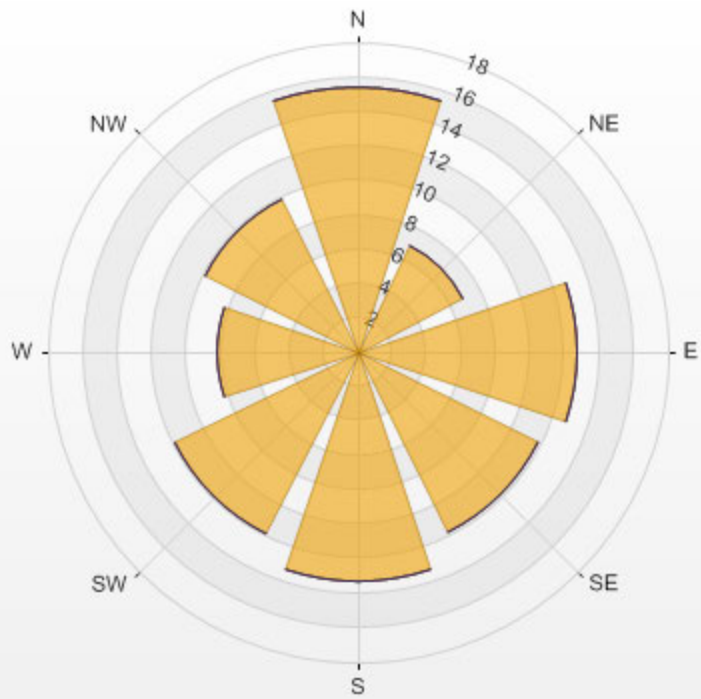
Wind: PRAMP_986
Poll.: PRAMP_986-TRS[ppb]
Monthly: 17/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 9.96%

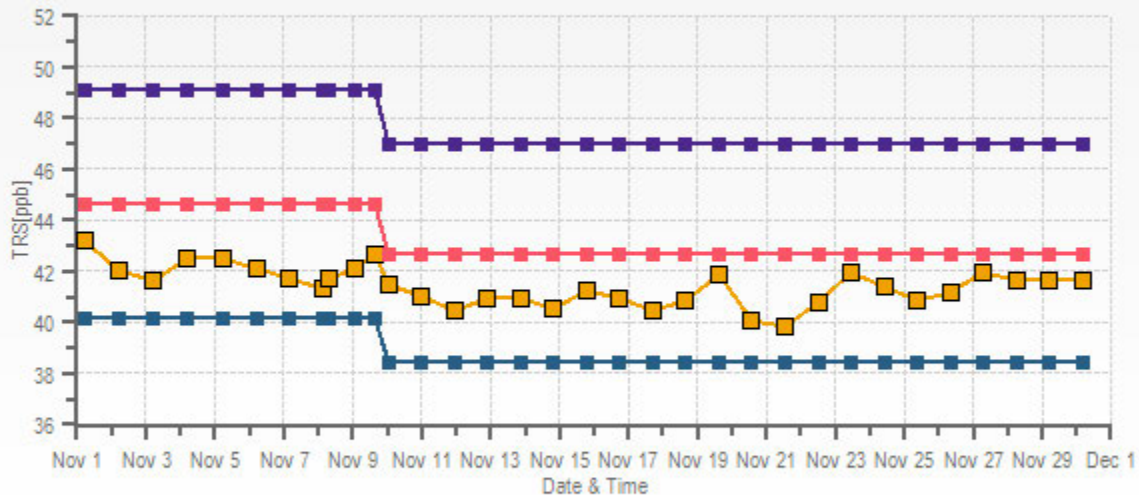
Calm Avg: 0.26 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	15.4	0.0	0.0	0.0	15.4
NE	6.9	0.0	0.0	0.0	6.9
E	12.7	0.0	0.0	0.0	12.7
SE	11.7	0.0	0.0	0.0	11.7
S	13.3	0.0	0.0	0.0	13.3
SW	11.9	0.0	0.0	0.0	11.9
W	8.2	0.0	0.0	0.0	8.2
NW	10.0	0.0	0.0	0.0	10.0
Summary	90.0	0.0	0.0	0.0	90.0

PRAMP_986 Poll.: PRAMP_986-TRS[ppb] 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 9.96% Calm Poll Avg: 0.26[ppb]



TRS[ppb] Calibration: PRAMP_986 Monthly: 17/11 Type: Span



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

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

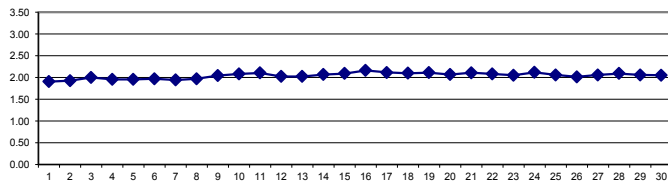
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

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	1.90	1.90	1.89	1.89	1.90	S	1.89	1.90	1.90	1.90	1.89	1.90	1.90	1.90	1.92	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.89	1.92	1.91	24
2	1.92	1.91	1.91	1.91	1.91	S	1.91	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.94	1.93	1.93	2.03	1.93	1.93	1.93	1.92	1.93	1.91	2.03	1.93	24
3	1.92	1.93	1.97	2.06	2.14	S	2.25	2.24	2.18	2.11	1.97	1.93	1.93	1.93	1.94	1.94	1.93	1.93	2.02	2.03	1.94	1.93	1.93	1.93	1.92	2.25	2.00	24
4	1.93	1.94	1.93	1.94	1.94	S	1.94	1.94	1.94	1.94	1.95	1.96	1.98	1.96	1.96	1.96	1.97	1.97	1.99	1.99	1.99	1.99	1.99	1.98	1.93	1.99	1.96	24
5	1.98	1.98	2.04	1.99	1.99	S	1.93	1.94	2.06	1.96	1.94	1.91	1.94	1.95	1.93	1.91	1.95	1.92	1.99	2.01	1.91	1.91	1.92	1.95	1.91	2.06	1.96	24
6	1.96	1.98	1.96	1.95	1.95	S	1.95	1.95	1.95	1.95	1.96	1.95	1.96	1.96	1.96	1.95	1.95	1.94	2.04	2.15	2.06	1.96	1.94	1.95	1.94	2.15	1.97	24
7	2.20	1.98	1.93	1.93	S	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.95	1.92	2.20	1.94	24
8	1.94	2.02	1.99	S	1.97	1.96	1.95	1.96	1.95	1.95	1.95	1.94	1.95	1.95	1.96	1.95	1.96	1.96	1.98	1.98	1.98	1.99	2.04	2.01	1.94	2.04	1.97	24
9	2.02	2.01	S	1.98	1.98	1.96	1.95	1.95	1.99	1.99	1.97	1.97	C	C	C	C	2.10	2.12	2.16	2.15	2.15	2.14	2.14	2.16	1.95	2.16	2.05	24
10	2.17	S	2.15	2.31	2.14	2.19	2.11	2.10	2.04	2.03	2.05	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.04	2.07	2.08	2.06	2.05	2.03	2.31	2.08	24
11	S	2.11	2.06	2.04	2.04	2.06	2.07	2.07	2.07	2.07	2.10	2.14	2.09	2.03	2.02	2.02	2.11	2.67	2.47	2.10	2.01	2.01	2.01	S	2.01	2.67	2.11	24
12	2.02	2.01	2.02	2.02	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.03	2.06	2.05	2.08	S	2.04	2.01	2.08	2.02	24
13	2.05	2.04	2.04	2.03	2.04	2.03	2.10	2.04	2.08	2.08	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.00	2.00	2.00	S	2.00	2.00	2.00	2.10	2.03	24
14	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.01	2.01	2.01	2.04	2.01	2.00	2.05	2.11	2.36	2.37	2.11	S	2.20	2.06	2.14	2.00	2.37	2.07	24
15	2.17	2.13	2.11	2.10	2.08	2.16	2.11	2.13	2.08	2.08	2.03	2.03	2.03	2.04	2.03	2.04	2.05	2.05	2.13	S	2.08	2.18	2.20	2.10	2.03	2.20	2.09	24
16	2.09	2.05	2.02	2.05	2.08	2.18	2.71	3.05	2.36	2.51	2.65	2.02	2.00	2.01	2.00	2.00	2.01	2.01	S	2.00	2.00	2.01	2.01	2.01	2.00	3.05	2.17	24
17	2.01	2.01	2.01	2.49	2.16	2.25	2.78	2.14	2.26	2.10	2.02	2.02	2.00	1.99	1.99	2.00	2.02	S	2.17	2.08	2.05	2.09	2.02	2.02	1.99	2.78	2.12	24
18	2.12	2.21	2.04	2.08	2.05	2.06	2.13	2.08	2.06	2.07	2.05	2.08	2.09	2.13	2.10	2.07	S	2.09	2.23	2.07	2.08	2.09	2.23	2.06	2.04	2.23	2.10	24
19	2.17	2.04	2.05	2.11	2.06	2.07	2.07	2.09	2.15	2.14	2.12	2.11	2.09	2.06	2.43	S	2.04	2.03	2.03	2.23	2.47	2.08	2.01	2.00	2.00	2.47	2.12	24
20	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	S	2.03	2.07	2.07	2.05	2.10	2.40	2.22	2.27	2.24	2.00	2.40	2.07	24
21	2.23	2.11	2.17	2.33	2.20	2.21	2.08	2.09	2.09	2.07	2.19	2.09	2.05	S	2.04	2.03	2.03	2.03	2.06	2.08	2.06	2.11	2.08	2.07	2.03	2.33	2.11	24
22	2.18	2.13	2.10	2.09	2.09	2.10	2.18	2.08	2.06	2.06	2.08	2.08	S	2.11	2.09	2.08	2.06	2.05	2.05	2.05	2.03	2.03	2.02	2.03	2.02	2.18	2.08	24
23	2.03	2.05	2.06	2.11	2.06	2.05	2.07	2.06	2.02	1.95	1.93	S	1.96	2.05	2.01	2.00	2.09	2.01	2.07	2.12	2.18	2.11	2.07	2.10	1.93	2.18	2.05	24
24	2.09	2.04	2.03	2.01	2.00	2.01	2.27	2.18	2.35	2.41	S	2.10	2.47	2.35	2.05	2.04	2.02	2.14	2.02	2.02	2.06	2.04	2.09	1.98	1.98	2.47	2.12	24
25	1.99	1.97	1.97	1.97	2.02	2.02	2.02	2.01	2.06	S	2.04	2.02	2.05	2.02	2.05	2.05	2.03	2.06	2.36	2.29	2.14	2.16	2.03	2.02	1.97	2.36	2.06	24
26	2.02	2.03	2.03	2.03	2.02	2.02	2.02	2.06	S	2.07	2.07	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	2.01	2.01	1.98	2.00	1.98	2.07	2.01	24
27	1.98	2.19	2.09	2.00	2.01	2.01	2.04	S	2.03	2.01	2.01	2.01	2.01	2.02	2.07	2.14	2.18	2.08	2.08	2.07	2.02	2.16	2.10	2.08	1.98	2.19	2.06	24
28	2.13	2.05	2.24	2.07	2.06	2.00	S	2.01	2.06	1.97	1.97	1.98	1.97	1.99	2.10	2.21	2.17	2.08	2.35	2.32	2.22	2.12	2.01	2.04	1.97	2.35	2.09	24
29	2.12	2.01	2.01	2.02	2.09	S	2.05	2.11	2.10	2.06	2.06	2.12	2.08	2.01	2.03	2.05	2.30	2.18	2.02	2.00	1.99	1.98	1.98	1.99	1.98	2.30	2.06	24
30	1.99	2.03	2.15	2.11	S	2.17	2.02	1.98	2.00	1.98	2.00	2.00	2.00	1.99	2.09	2.01	2.15	2.12	2.21	2.03	2.00	2.00	2.13	2.01	1.98	2.21	2.05	24
HOURLY MAX	2.23	2.21	2.24	2.49	2.20	2.25	2.78	3.05	2.36	2.51	2.65	2.14	2.47	2.35	2.43	2.21	2.30	2.67	2.47	2.32	2.47	2.22	2.27	2.24				
HOURLY AVG	2.05	2.03	2.03	2.06	2.04	2.06	2.09	2.07	2.06	2.05	2.03	2.01	2.02	2.01	2.02	2.01	2.04	2.06	2.10	2.06	2.06	2.05	2.04	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

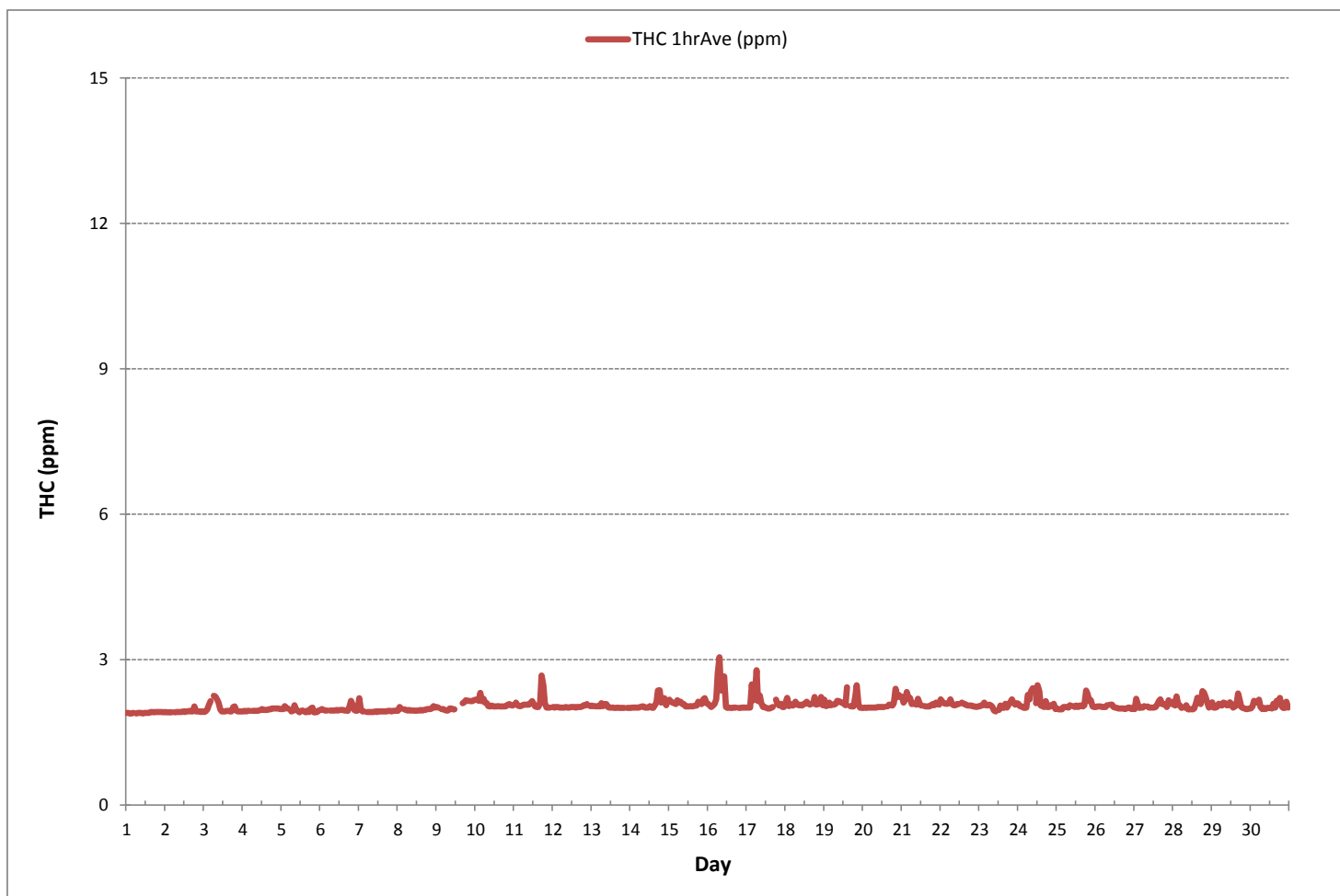
24 HR AVERAGES November 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685				
MINIMUM 1-HR AVERAGE:	1.89	ppm	@ HOUR	2	ON DAY 1
MAXIMUM 1-HR AVERAGE:	3.05	ppm	@ HOUR	7	ON DAY 16
MAXIMUM 24-HR AVERAGE:	2.17	ppm			ON DAY 16
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.12		MONTHLY AVERAGE:	2.04	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.91	1.92	1.89	1.92	1.89	S	1.89	2.04	1.91	1.93	1.93	1.90	1.93	1.95	1.93	1.93	1.93	1.92	1.93	1.93	1.93	1.95	1.99	1.93	1.89	2.04	1.93	24
2	1.93	1.93	1.92	1.93	1.93	S	1.93	1.92	1.93	1.93	1.93	1.93	1.95	1.95	1.96	2.20	2.02	1.95	3.15	1.96	1.94	1.94	1.94	1.97	1.92	3.15	2.01	24
3	1.93	1.95	2.02	2.10	2.20	S	2.30	2.27	2.22	2.15	2.07	1.93	1.95	1.96	1.95	1.95	1.94	1.95	2.36	2.21	1.96	1.97	1.95	1.96	1.93	2.36	2.05	24
4	1.96	1.95	1.95	1.95	1.96	S	1.96	1.95	1.97	1.98	1.96	1.98	2.08	1.99	1.98	1.99	1.98	2.00	2.00	1.99	2.01	2.00	2.01	1.99	1.95	2.08	1.98	24
5	2.00	2.00	2.37	2.07	2.19	S	2.04	2.07	2.22	2.04	2.05	1.94	2.15	2.15	2.58	1.96	2.08	2.06	2.29	2.81	1.93	1.92	1.94	1.96	1.92	2.81	2.12	24
6	1.99	1.99	1.98	1.98	1.97	S	1.96	1.98	1.96	1.97	1.97	1.98	1.98	1.96	1.97	1.96	1.97	1.95	2.87	2.91	2.33	2.02	1.96	1.99	1.95	2.91	2.07	24
7	3.39	2.45	2.02	2.15	S	1.95	1.93	1.95	1.95	1.95	1.94	1.93	1.95	1.98	2.01	1.93	1.94	1.95	1.94	1.95	1.97	1.96	1.96	2.01	1.93	3.39	2.05	24
8	1.96	2.07	2.02	S	1.98	1.97	1.99	2.00	1.96	1.96	1.97	1.95	1.97	1.96	1.97	1.97	1.96	2.00	2.11	1.99	1.99	2.04	2.06	2.04	1.95	2.11	2.00	24
9	2.03	2.05	S	1.99	2.00	1.98	1.97	1.97	2.04	2.02	1.98	1.99	C	C	C	C	2.12	2.14	2.21	2.22	2.18	2.14	2.15	2.33	1.97	2.33	2.08	24
10	2.38	S	2.56	3.10	2.36	2.68	2.81	2.28	2.09	2.12	2.15	2.06	2.03	2.04	2.04	2.04	2.04	2.07	2.04	2.05	2.09	2.08	2.07	2.05	2.03	3.10	2.23	24
11	S	2.38	2.08	2.05	2.06	2.07	2.08	2.09	2.14	2.08	2.23	2.92	2.43	2.31	2.02	2.16	3.11	11.64	5.51	2.35	2.02	2.01	2.02	S	2.01	11.64	2.81	24
12	2.02	2.02	2.02	2.03	2.02	2.02	2.02	2.02	2.02	2.09	2.02	2.02	2.05	2.02	2.02	2.09	2.05	2.03	2.04	2.38	2.06	2.14	S	2.33	2.02	2.38	2.07	24
13	2.37	2.29	2.05	2.04	2.41	2.04	2.88	2.04	2.39	2.53	2.07	2.02	2.02	2.01	2.04	2.00	2.04	2.00	2.01	2.00	2.00	S	2.00	2.01	2.00	2.88	2.14	24
14	2.01	2.01	2.01	2.02	2.01	2.02	2.02	2.04	2.04	2.02	2.03	2.02	2.51	2.02	2.02	2.81	2.70	5.37	5.17	3.46	S	4.81	2.37	4.10	2.01	5.37	2.68	24
15	3.14	3.88	3.12	3.17	3.34	3.37	6.29	6.29	2.92	3.12	2.04	2.04	2.03	2.07	2.04	2.05	2.05	2.16	3.24	S	2.30	2.60	2.99	2.39	2.03	6.29	2.98	24
16	2.31	2.55	2.16	2.77	3.06	5.14	9.66	9.06	4.07	8.07	5.63	2.20	2.01	2.11	2.05	2.02	2.10	2.41	S	2.01	2.02	2.01	2.02	2.02	2.01	9.66	3.45	24
17	2.03	2.03	2.06	5.96	4.77	4.73	5.72	4.61	3.59	3.33	2.06	2.33	2.01	2.01	2.03	2.00	2.18	S	2.69	3.59	2.39	2.57	2.12	2.06	2.00	5.96	2.99	24
18	4.03	3.32	2.13	2.57	2.18	2.30	2.39	2.30	2.29	2.13	2.19	2.71	2.82	2.68	2.55	2.19	S	2.25	3.84	2.43	2.54	2.78	4.29	2.41	2.13	4.29	2.67	24
19	3.92	2.49	2.30	2.97	2.71	2.69	2.36	2.14	2.78	2.31	2.28	2.33	2.71	2.42	4.12	S	2.13	2.14	2.35	4.27	4.33	6.14	2.06	2.02	2.02	6.14	2.87	24
20	2.01	2.06	2.00	2.02	2.02	2.01	2.02	2.02	2.02	2.33	2.42	2.05	2.34	2.03	S	2.05	4.60	2.22	2.47	3.38	4.00	3.65	3.52	3.12	2.00	4.60	2.54	24
21	2.95	2.92	3.42	6.08	2.88	2.91	2.25	2.66	2.81	2.45	4.12	3.16	2.41	S	2.42	2.06	2.06	2.04	2.35	2.42	2.10	2.41	2.19	2.15	2.04	6.08	2.75	24
22	2.80	2.81	2.39	2.15	2.13	2.47	2.92	2.34	2.24	2.28	2.28	2.09	S	2.12	2.09	2.75	2.17	2.34	2.07	2.45	2.21	2.21	2.03	2.21	2.03	2.92	2.33	24
23	2.05	2.43	2.39	2.85	2.34	2.17	2.08	2.08	2.19	1.98	1.95	S	3.08	2.42	2.17	2.24	2.93	2.15	2.31	2.81	5.01	3.59	2.26	2.57	1.95	5.01	2.52	24
24	2.62	2.30	2.12	2.15	2.07	2.03	4.09	5.22	5.91	5.24	S	2.58	7.02	3.61	2.71	2.49	2.13	3.32	2.67	2.51	2.76	3.84	3.37	2.16	2.03	7.02	3.26	24
25	2.00	1.99	1.98	2.08	2.11	2.09	2.16	2.06	2.73	S	2.30	2.09	2.47	2.03	2.56	2.48	2.04	2.55	3.95	5.22	3.35	4.13	2.03	2.02	1.98	5.22	2.54	24
26	2.03	2.03	2.03	2.03	2.02	2.02	2.04	2.22	S	2.29	2.16	2.02	2.04	2.00	2.00	2.00	2.00	2.00	2.01	2.01	2.12	2.22	2.00	2.68	2.00	2.68	2.09	24
27	2.16	3.94	3.58	2.01	2.20	2.12	2.65	S	2.20	2.15	2.16	2.07	2.07	2.03	3.65	2.54	2.99	2.47	2.53	2.58	2.03	2.68	2.67	2.76	2.01	3.94	2.53	24
28	2.67	2.46	3.09	2.50	2.80	2.16	S	3.14	3.41	1.98	2.01	2.01	1.98	2.10	4.13	3.44	3.19	4.07	4.38	3.92	3.63	3.21	2.02	2.76	1.98	4.38	2.92	24
29	3.59	2.22	2.22	2.13	2.49	S	2.87	4.22	4.57	3.58	2.52	2.73	2.82	2.19	2.56	3.33	3.71	3.23	2.35	2.32	2.24	2.01	2.00	2.35	2.00	4.57	2.79	24
30	2.06	2.87	2.76	3.17	S	3.02	2.80	1.99	2.56	2.00	2.30	2.14	2.08	2.06	2.89	2.43	3.15	2.89	3.79	2.82	2.36	2.09	2.94	2.43	1.99	3.79	2.59	24
HOURLY MAX	4.03	3.94	3.58	6.08	4.77	5.14	9.66	9.06	5.91	8.07	5.63	3.16	7.02	3.61	4.13	3.44	4.60	11.64	5.51	5.22	5.01	6.14	4.29	4.10				
HOURLY AVG	2.42	2.39	2.30	2.55	2.36	2.52	2.83	2.79	2.59	2.55	2.30	2.18	2.39	2.15	2.37	2.25	2.39	2.73	2.78	2.65	2.48	2.66	2.31	2.30				

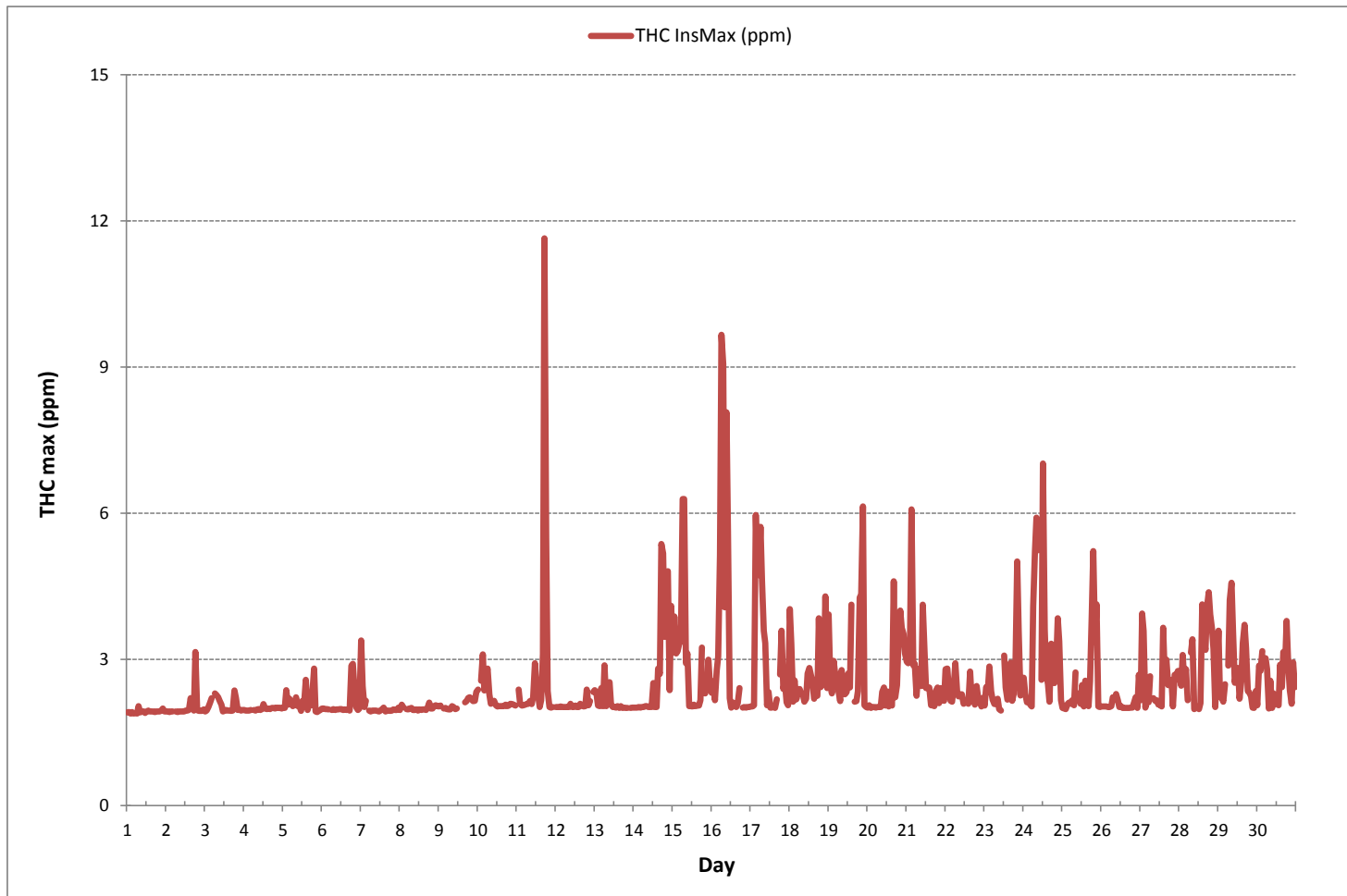
STATUS FLAG CODES

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:	685				
MAXIMUM INSTANTANEOUS VALUE:	11.64	ppm	@ HOUR	17	ON DAY 11
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.94				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



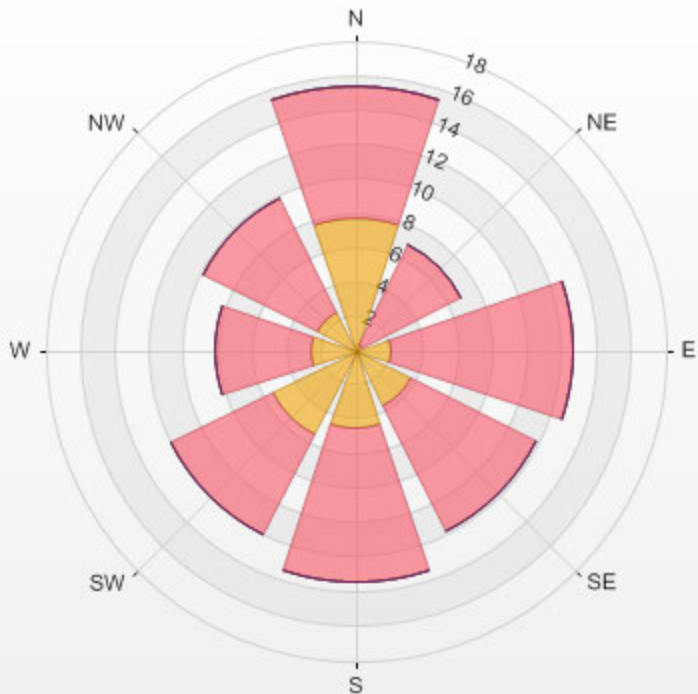
Wind: PRAMP_986
Poll.: PRAMP_986-THC55[ppm]
Monthly: 17/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 9.93%

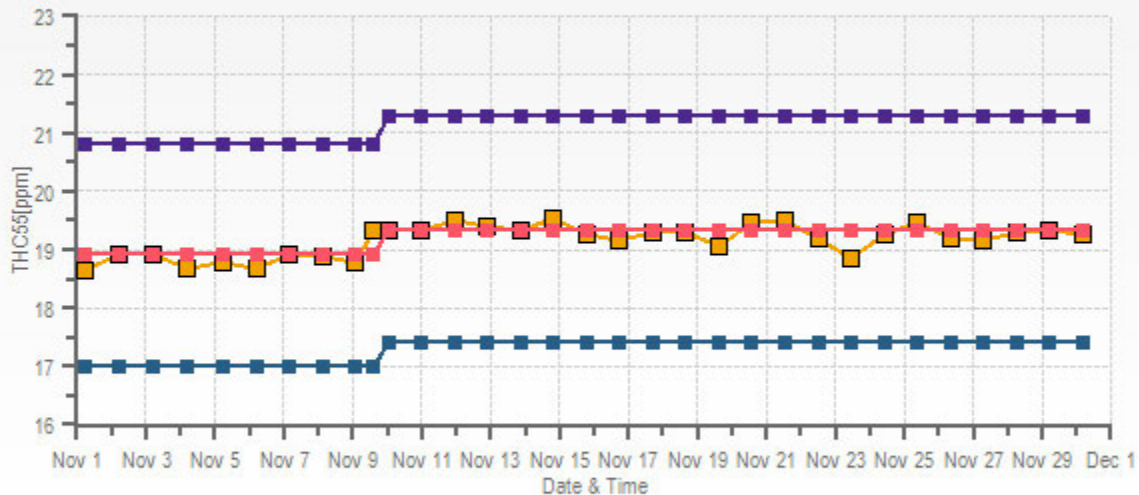
Calm Avg: 2.10 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	7.7	7.6	0.0	0.0	0.0	15.3
NE	0.4	6.4	0.0	0.0	0.0	6.9
E	2.0	10.7	0.0	0.0	0.0	12.7
SE	3.7	8.0	0.0	0.0	0.0	11.7
S	4.5	8.9	0.0	0.0	0.0	13.4
SW	5.4	6.6	0.0	0.0	0.0	12.0
W	2.6	5.6	0.0	0.0	0.0	8.2
NW	2.5	7.5	0.0	0.0	0.0	9.9
Summary	28.9	61.2	0.0	0.0	0.0	90.1

PRAMP_986 Poll.: PRAMP_986-THC55[ppm] 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 9.93% Calm Poll Avg: 2.10[ppm]



THC55[ppm] Calibration: PRAMP_986 Monthly: 17/11 Type: Span



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

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

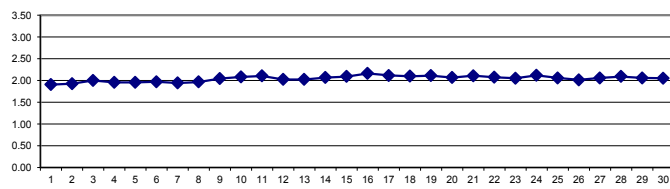
METHANE Hourly Averages (CH₄ ppm)

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	1.90	1.90	1.89	1.89	1.90	S	1.89	1.90	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.92	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.91	1.89	1.92	1.91	24
2	1.92	1.91	1.91	1.91	1.91	S	1.91	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.91	2.03	1.93	24
3	1.92	1.93	1.97	2.06	2.14	S	2.25	2.24	2.18	2.11	1.97	1.93	1.93	1.93	1.94	1.94	1.93	1.93	2.02	2.03	1.94	1.93	1.93	1.93	1.92	2.25	2.00	24
4	1.93	1.94	1.93	1.94	1.94	S	1.94	1.94	1.94	1.94	1.95	1.96	1.98	1.96	1.96	1.96	1.97	1.97	1.99	1.99	1.99	1.99	1.99	1.98	1.93	1.99	1.96	24
5	1.98	1.98	2.04	1.98	1.99	S	1.93	1.94	2.06	1.96	1.93	1.91	1.94	1.95	1.93	1.91	1.95	1.92	1.99	2.01	1.91	1.91	1.92	1.95	1.91	2.06	1.96	24
6	1.96	1.98	1.96	1.95	1.95	S	1.95	1.95	1.95	1.95	1.96	1.95	1.96	1.96	1.96	1.95	1.95	1.94	2.04	2.15	2.06	1.96	1.94	1.95	1.94	2.15	1.97	24
7	2.20	1.98	1.93	1.93	S	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.93	1.94	1.94	1.95	1.92	2.20	1.94	24
8	1.94	2.02	1.99	S	1.97	1.96	1.95	1.96	1.95	1.95	1.95	1.94	1.95	1.95	1.95	1.95	1.96	1.96	1.97	1.98	1.98	1.99	2.04	2.01	1.94	2.04	1.97	24
9	2.02	2.01	S	1.98	1.98	1.96	1.95	1.95	1.99	1.99	1.97	1.97	C	C	C	C	2.10	2.12	2.16	2.14	2.15	2.14	2.14	2.16	1.95	2.16	2.05	24
10	2.17	S	2.14	2.31	2.14	2.19	2.11	2.10	2.04	2.03	2.05	2.03	2.03	2.03	2.04	2.03	2.03	2.03	2.03	2.04	2.07	2.08	2.06	2.05	2.03	2.31	2.08	24
11	S	2.11	2.06	2.04	2.04	2.06	2.07	2.07	2.07	2.07	2.10	2.14	2.09	2.03	2.02	2.02	2.11	2.67	2.47	2.10	2.01	2.01	2.01	S	2.01	2.67	2.11	24
12	2.02	2.01	2.02	2.02	2.01	2.01	2.01	2.01	2.02	2.01	2.01	2.02	2.02	2.02	2.01	2.02	2.02	2.02	2.03	2.06	2.05	2.08	S	2.04	2.01	2.08	2.02	24
13	2.05	2.04	2.04	2.03	2.04	2.03	2.10	2.04	2.08	2.08	2.02	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.00	2.00	2.00	S	2.00	2.00	2.00	2.10	2.03	24
14	2.00	2.01	2.01	2.01	2.01	2.01	2.02	2.03	2.03	2.01	2.01	2.01	2.04	2.01	2.00	2.05	2.11	2.36	2.37	2.11	S	2.20	2.06	2.14	2.00	2.37	2.07	24
15	2.17	2.13	2.11	2.10	2.08	2.16	2.11	2.13	2.08	2.08	2.03	2.03	2.03	2.04	2.03	2.04	2.05	2.05	2.13	S	2.08	2.18	2.20	2.10	2.03	2.20	2.09	24
16	2.09	2.05	2.02	2.05	2.08	2.18	2.71	3.05	2.36	2.51	2.65	2.02	2.00	2.01	2.00	2.00	2.01	2.01	S	2.00	2.00	2.01	2.01	2.01	2.00	3.05	2.17	24
17	2.01	2.01	2.01	2.49	2.16	2.25	2.78	2.14	2.26	2.10	2.02	2.02	2.00	1.99	1.99	2.00	2.02	S	2.17	2.08	2.05	2.09	2.02	2.02	1.99	2.78	2.12	24
18	2.12	2.21	2.04	2.08	2.05	2.06	2.13	2.08	2.06	2.07	2.05	2.08	2.09	2.13	2.10	2.07	S	2.09	2.23	2.07	2.08	2.09	2.23	2.06	2.04	2.23	2.10	24
19	2.17	2.04	2.05	2.11	2.06	2.07	2.07	2.09	2.15	2.14	2.12	2.11	2.09	2.06	2.43	S	2.04	2.03	2.03	2.23	2.47	2.08	2.01	2.00	2.00	2.47	2.12	24
20	2.00	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.02	2.02	2.02	2.02	S	2.03	2.07	2.07	2.05	2.10	2.40	2.22	2.27	2.24	2.00	2.40	2.07	24
21	2.23	2.11	2.17	2.33	2.20	2.21	2.08	2.09	2.09	2.07	2.19	2.09	2.05	S	2.04	2.03	2.03	2.03	2.06	2.08	2.06	2.11	2.08	2.07	2.03	2.33	2.11	24
22	2.18	2.13	2.10	2.09	2.09	2.10	2.18	2.08	2.06	2.06	2.08	2.08	S	2.11	2.09	2.08	2.05	2.05	2.05	2.05	2.03	2.03	2.02	2.03	2.02	2.18	2.08	24
23	2.03	2.05	2.06	2.11	2.06	2.05	2.07	2.06	2.02	1.95	1.93	S	1.96	2.05	2.01	2.00	2.09	2.01	2.07	2.12	2.18	2.11	2.07	2.10	1.93	2.18	2.05	24
24	2.09	2.04	2.03	2.01	2.00	2.01	2.27	2.18	2.35	2.41	S	2.10	2.47	2.35	2.05	2.04	2.02	2.14	2.02	2.02	2.06	2.04	2.09	1.98	1.98	2.47	2.12	24
25	1.99	1.97	1.97	1.97	2.02	2.02	2.02	2.01	2.06	S	2.04	2.02	2.05	2.02	2.05	2.05	2.03	2.06	2.36	2.29	2.14	2.16	2.03	2.02	1.97	2.36	2.06	24
26	2.02	2.03	2.03	2.03	2.02	2.02	2.02	2.06	S	2.07	2.07	2.02	2.01	2.00	1.99	1.99	1.99	1.99	1.98	1.99	2.01	2.01	1.98	2.00	1.98	2.07	2.01	24
27	1.98	2.19	2.09	2.00	2.01	2.01	2.04	S	2.03	2.01	2.01	2.01	2.01	2.02	2.07	2.14	2.18	2.08	2.08	2.07	2.02	2.16	2.10	2.08	1.98	2.19	2.06	24
28	2.13	2.05	2.24	2.07	2.06	2.00	S	2.01	2.06	1.97	1.97	1.98	1.97	1.99	2.10	2.21	2.17	2.08	2.35	2.32	2.22	2.12	2.01	2.04	1.97	2.35	2.09	24
29	2.12	2.01	2.01	2.02	2.09	S	2.05	2.11	2.10	2.06	2.06	2.12	2.08	2.01	2.03	2.05	2.30	2.18	2.02	2.00	1.99	1.98	1.98	1.99	1.98	2.30	2.06	24
30	1.99	2.03	2.15	2.11	S	2.17	2.02	1.98	2.00	1.98	2.00	2.00	2.00	1.99	2.09	2.01	2.15	2.12	2.21	2.03	2.00	2.00	2.13	2.01	1.98	2.21	2.05	24
HOURLY MAX	2.23	2.21	2.24	2.49	2.20	2.25	2.78	3.05	2.36	2.51	2.65	2.14	2.47	2.35	2.43	2.21	2.30	2.67	2.47	2.32	2.47	2.22	2.27	2.24				
HOURLY AVG	2.05	2.03	2.03	2.06	2.04	2.06	2.09	2.07	2.06	2.05	2.03	2.01	2.02	2.01	2.02	2.01	2.04	2.06	2.10	2.06	2.06	2.05	2.04	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

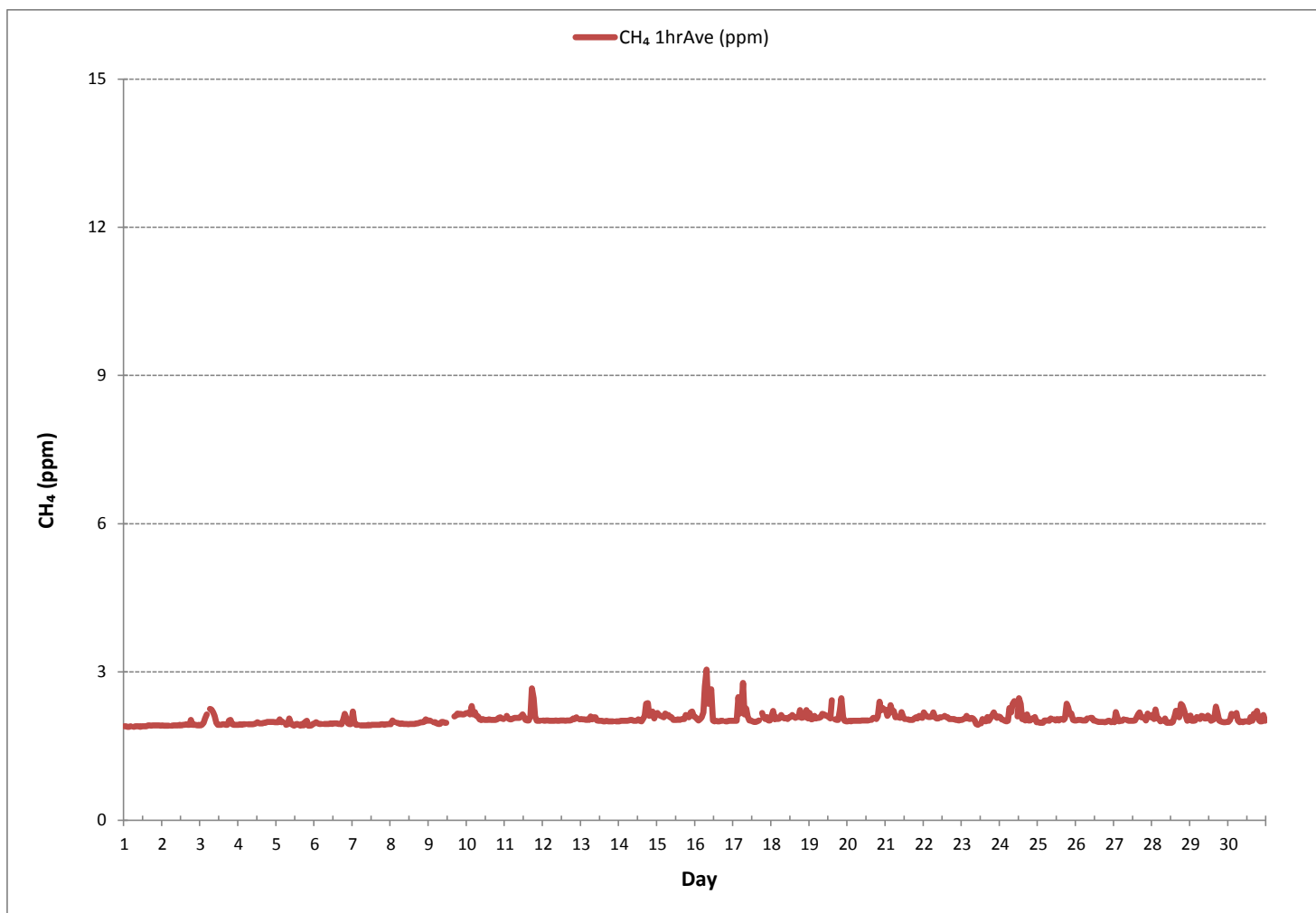
24 HR AVERAGES November 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685				
MINIMUM 1-HR AVERAGE:	1.89	ppm	@ HOUR	2	ON DAY 1
MAXIMUM 1-HR AVERAGE:	3.05	ppm	@ HOUR	7	ON DAY 16
MAXIMUM 24-HR AVERAGE:	2.17	ppm			ON DAY 16
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.12		MONTHLY AVERAGE:	2.04	ppm

METHANE Hourly Averages (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

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	1.91	1.92	1.90	1.92	1.91	S	1.90	1.93	1.91	1.93	1.93	1.91	1.94	1.95	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.95	2.00	1.94	1.90	2.00	1.93	24
2	1.94	1.93	1.92	1.94	1.93	S	1.94	1.93	1.94	1.93	1.93	1.93	1.95	1.96	1.96	2.21	2.03	1.96	3.17	1.96	1.94	1.95	1.94	1.98	1.92	3.17	2.01	24
3	1.94	1.95	2.02	2.11	2.21	S	2.32	2.28	2.23	2.16	2.07	1.94	1.95	1.96	1.95	1.95	1.94	1.95	2.37	2.23	1.96	1.97	1.95	1.96	1.94	2.37	2.06	24
4	1.96	1.95	1.96	1.95	1.96	S	1.97	1.95	1.97	1.98	1.96	1.99	2.09	1.99	1.99	2.00	1.99	2.01	2.00	2.00	2.02	2.01	2.01	2.00	1.95	2.09	1.99	24
5	2.01	2.01	2.38	2.08	2.20	S	2.05	2.08	2.23	2.05	2.06	1.94	2.16	2.16	2.59	1.96	2.08	2.07	2.30	2.82	1.94	1.92	1.95	1.96	1.92	2.82	2.13	24
6	1.99	2.00	1.99	1.99	1.97	S	1.96	1.98	1.96	1.98	1.98	1.99	1.99	1.97	1.98	1.96	1.97	1.95	2.89	2.93	2.34	2.02	1.96	2.00	1.95	2.93	2.08	24
7	3.42	2.46	2.03	2.16	S	1.95	1.94	1.95	1.95	1.95	1.95	1.94	1.96	1.99	2.02	1.94	1.94	1.96	1.95	1.96	1.98	1.96	1.96	2.02	1.94	3.42	2.06	24
8	1.96	2.08	2.02	S	1.99	1.98	2.00	2.00	1.97	1.97	1.97	1.95	1.98	1.96	1.98	1.98	1.97	2.01	2.02	1.99	1.99	2.05	2.06	2.04	1.95	2.08	2.00	24
9	2.03	2.06	S	1.99	2.01	1.99	1.98	1.97	2.06	2.02	1.99	2.00	C	C	C	C	2.13	2.15	2.18	2.17	2.17	2.15	2.17	2.34	1.97	2.34	2.08	24
10	2.39	S	2.57	3.11	2.37	2.70	2.82	2.28	2.10	2.12	2.16	2.07	2.04	2.05	2.05	2.05	2.06	2.07	2.04	2.06	2.10	2.09	2.07	2.06	2.04	3.11	2.24	24
11	S	2.39	2.09	2.06	2.07	2.08	2.09	2.11	2.15	2.09	2.25	2.94	2.45	2.32	2.02	2.17	3.13	11.62	5.52	2.36	2.02	2.02	2.03	S	2.02	11.62	2.82	24
12	2.03	2.03	2.03	2.03	2.02	2.03	2.03	2.03	2.03	2.10	2.02	2.03	2.06	2.03	2.03	2.10	2.06	2.04	2.05	2.39	2.07	2.16	S	2.33	2.02	2.39	2.08	24
13	2.38	2.30	2.06	2.05	2.43	2.04	2.89	2.04	2.40	2.54	2.08	2.02	2.03	2.02	2.06	2.01	2.04	2.01	2.02	2.01	2.01	S	2.01	2.02	2.01	2.89	2.15	24
14	2.01	2.02	2.02	2.03	2.02	2.02	2.03	2.05	2.05	2.02	2.03	2.03	2.52	2.02	2.03	2.83	2.72	5.38	5.18	3.49	S	4.82	2.38	4.12	2.01	5.38	2.69	24
15	3.16	3.90	3.13	3.18	3.36	3.39	6.30	6.30	2.94	3.13	2.04	2.04	2.04	2.08	2.04	2.05	2.06	2.17	3.25	S	2.31	2.61	3.00	2.40	2.04	6.30	2.99	24
16	2.32	2.56	2.17	2.79	3.07	5.14	9.66	9.06	4.08	8.07	5.63	2.21	2.02	2.12	2.06	2.02	2.11	2.43	S	2.02	2.02	2.02	2.03	2.03	2.02	9.66	3.46	24
17	2.04	2.04	2.07	5.95	4.78	4.74	5.73	4.62	3.61	3.35	2.06	2.34	2.01	2.02	2.03	2.01	2.19	S	2.71	3.61	2.41	2.58	2.13	2.07	2.01	5.95	3.00	24
18	4.04	3.34	2.14	2.58	2.19	2.31	2.41	2.31	2.30	2.14	2.21	2.72	2.84	2.70	2.57	2.20	S	2.26	3.86	2.44	2.55	2.79	4.31	2.43	2.14	4.31	2.68	24
19	3.93	2.50	2.31	2.99	2.72	2.70	2.37	2.15	2.79	2.32	2.29	2.33	2.73	2.43	4.13	S	2.14	2.16	2.36	4.28	4.35	6.15	2.06	2.02	2.02	6.15	2.88	24
20	2.01	2.07	2.01	2.03	2.03	2.02	2.03	2.02	2.02	2.35	2.44	2.06	2.35	2.04	S	2.06	4.61	2.23	2.48	3.40	4.02	3.68	3.54	3.13	2.01	4.61	2.55	24
21	2.97	2.94	3.44	6.08	2.90	2.92	2.27	2.67	2.82	2.45	4.13	3.18	2.43	S	2.43	2.07	2.07	2.05	2.37	2.43	2.10	2.43	2.20	2.16	2.05	6.08	2.76	24
22	2.82	2.83	2.40	2.16	2.14	2.47	2.93	2.35	2.25	2.29	2.29	2.11	S	2.14	2.10	2.76	2.08	2.35	2.08	2.46	2.22	2.22	2.04	2.22	2.04	2.93	2.34	24
23	2.06	2.45	2.40	2.87	2.36	2.18	2.09	2.08	2.20	1.99	1.95	S	3.10	2.43	2.18	2.24	2.95	2.16	2.32	2.82	5.01	3.61	2.26	2.58	1.95	5.01	2.53	24
24	2.63	2.31	2.14	2.17	2.07	2.03	4.11	5.23	5.92	5.25	S	2.59	7.04	3.63	2.73	2.50	2.14	3.34	2.69	2.51	2.77	3.87	3.39	2.17	2.03	7.04	3.27	24
25	2.01	2.00	1.98	2.09	2.11	2.11	2.18	2.07	2.75	S	2.31	2.10	2.48	2.03	2.57	2.48	2.04	2.56	3.96	5.22	3.37	4.14	2.03	2.03	1.98	5.22	2.55	24
26	2.03	2.04	2.04	2.04	2.03	2.03	2.05	2.24	S	2.30	2.17	2.03	2.05	2.01	2.00	2.00	2.00	2.00	2.02	2.01	2.14	2.23	2.00	2.70	2.00	2.70	2.09	24
27	2.17	3.95	3.59	2.02	2.22	2.13	2.67	S	2.21	2.16	2.17	2.07	2.08	2.04	3.68	2.55	3.00	2.47	2.54	2.59	2.03	2.70	2.68	2.78	2.02	3.95	2.54	24
28	2.69	2.47	3.10	2.50	2.82	2.17	S	3.16	3.42	1.99	2.01	2.02	1.99	2.11	4.15	3.46	3.21	4.09	4.40	3.93	3.66	3.23	2.03	2.77	1.99	4.40	2.93	24
29	3.61	2.24	2.24	2.15	2.50	S	2.88	4.23	4.58	3.60	2.54	2.74	2.83	2.20	2.57	3.35	3.72	3.24	2.37	2.33	2.24	2.01	2.01	2.36	2.01	4.58	2.81	24
30	2.07	2.88	2.77	3.19	S	3.03	2.81	2.00	2.57	2.01	2.31	2.16	2.09	2.07	2.90	2.45	3.17	2.90	3.81	2.83	2.37	2.10	2.96	2.45	2.00	3.81	2.60	24
HOURLY MAX	4.04	3.95	3.59	6.08	4.78	5.14	9.66	9.06	5.92	8.07	5.63	3.18	7.04	3.63	4.15	3.46	4.61	11.62	5.52	5.22	5.01	6.15	4.31	4.12				
HOURLY AVG	2.43	2.40	2.31	2.56	2.37	2.53	2.84	2.80	2.60	2.56	2.31	2.19	2.40	2.16	2.38	2.26	2.40	2.74	2.79	2.66	2.48	2.67	2.32	2.31				

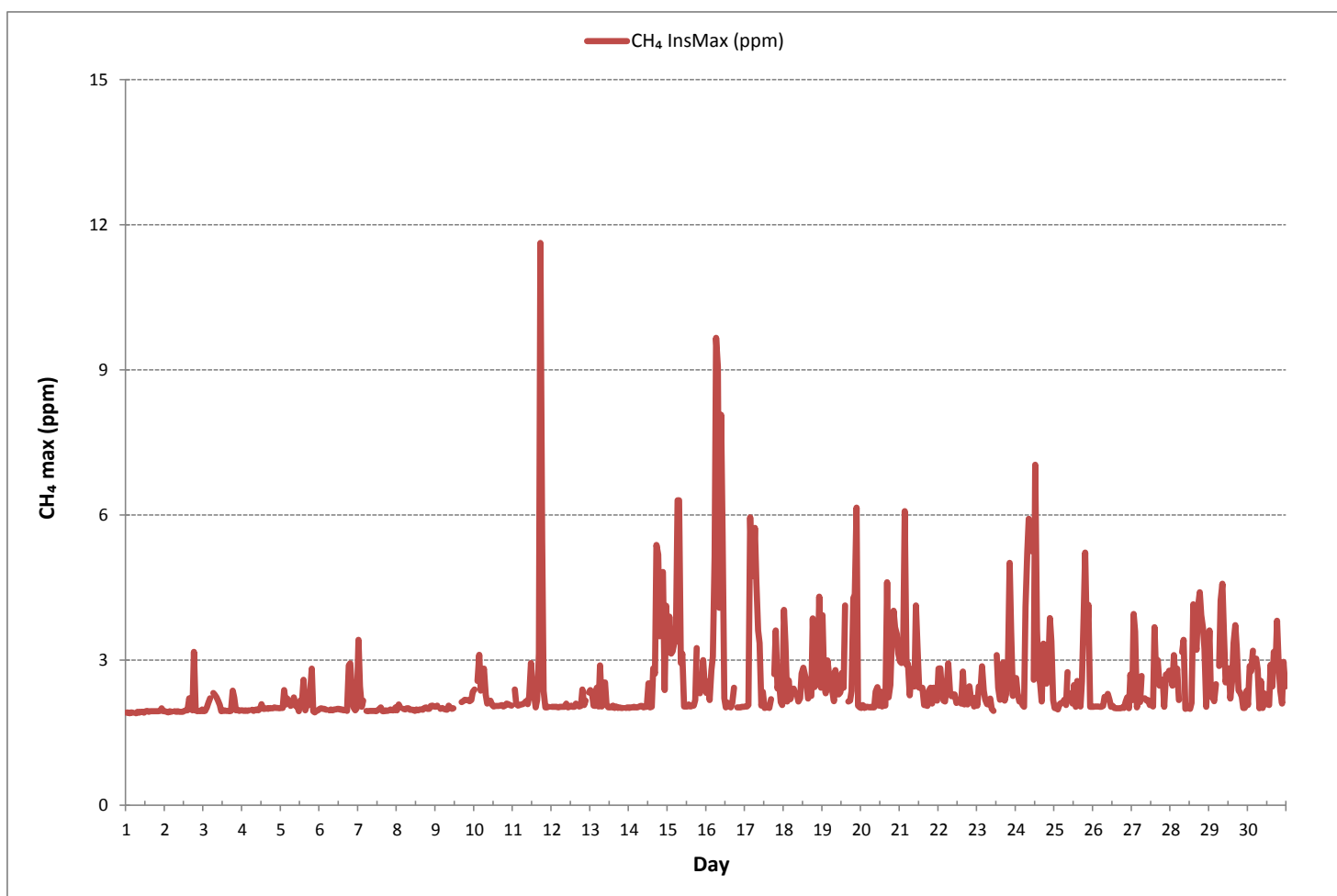
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	685				
MAXIMUM INSTANTANEOUS VALUE:	11.62	ppm	@ HOUR	17	ON DAY 11
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.94				

METHANE MAX Instantaneous Maximum (CH₄ ppm)



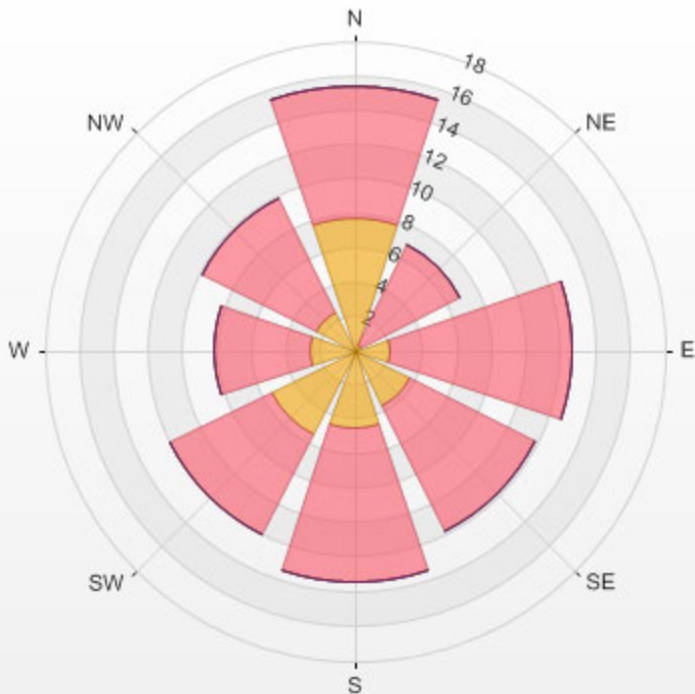
Wind: PRAMP_986
Poll.: PRAMP_986-CH₄[ppm]
Monthly: 17/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 9.93%

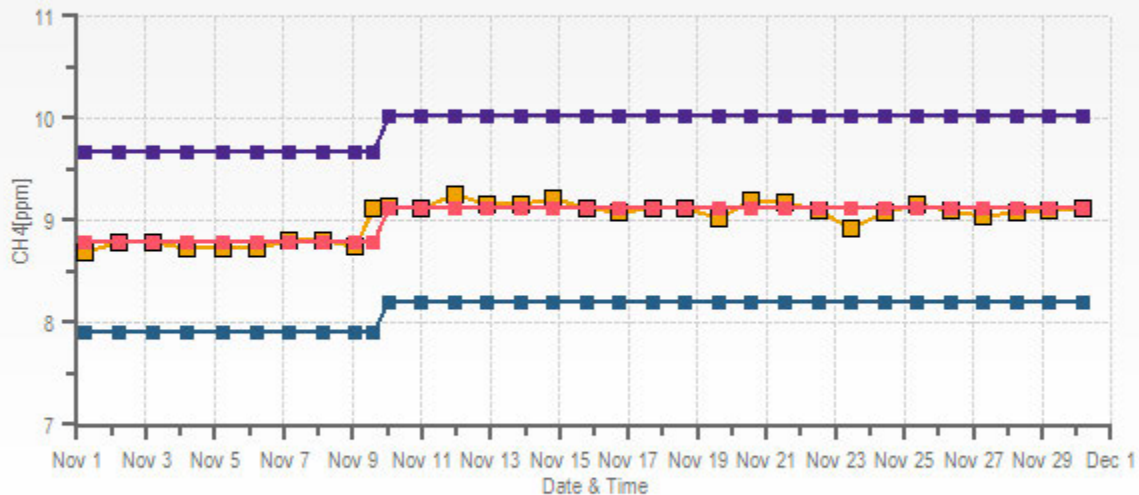
Calm Avg: 2.10 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	7.7	7.6	0.0	0.0	0.0	15.3
NE	0.4	6.4	0.0	0.0	0.0	6.9
E	2.0	10.7	0.0	0.0	0.0	12.7
SE	3.7	8.0	0.0	0.0	0.0	11.7
S	4.5	8.9	0.0	0.0	0.0	13.4
SW	5.4	6.6	0.0	0.0	0.0	12.0
W	2.6	5.6	0.0	0.0	0.0	8.2
NW	2.5	7.5	0.0	0.0	0.0	9.9
Summary	28.9	61.2	0.0	0.0	0.0	90.1

PRAMP_986 Poll.: PRAMP_986-CH4[ppm] 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 9.93% Calm Poll Avg: 2.10[ppm]



CH4[ppm] Calibration: PRAMP_986 Monthly: 17/11 Type: Span



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

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

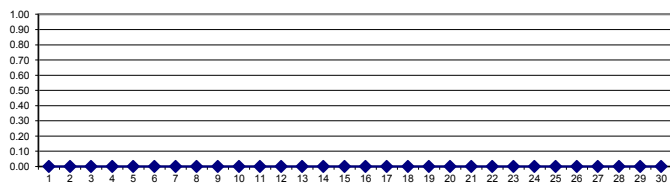
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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	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
3	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
4	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
5	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
6	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	0.01	0.00	0.00	0.00	0.00	0.01	0.00	24
7	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
8	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
9	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	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
11	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
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00	0.00	0.00	S	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	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
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	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
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
24	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
25	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
26	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
27	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
28	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
29	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
30	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
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	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 November 2017



MONTHLY SUMMARY

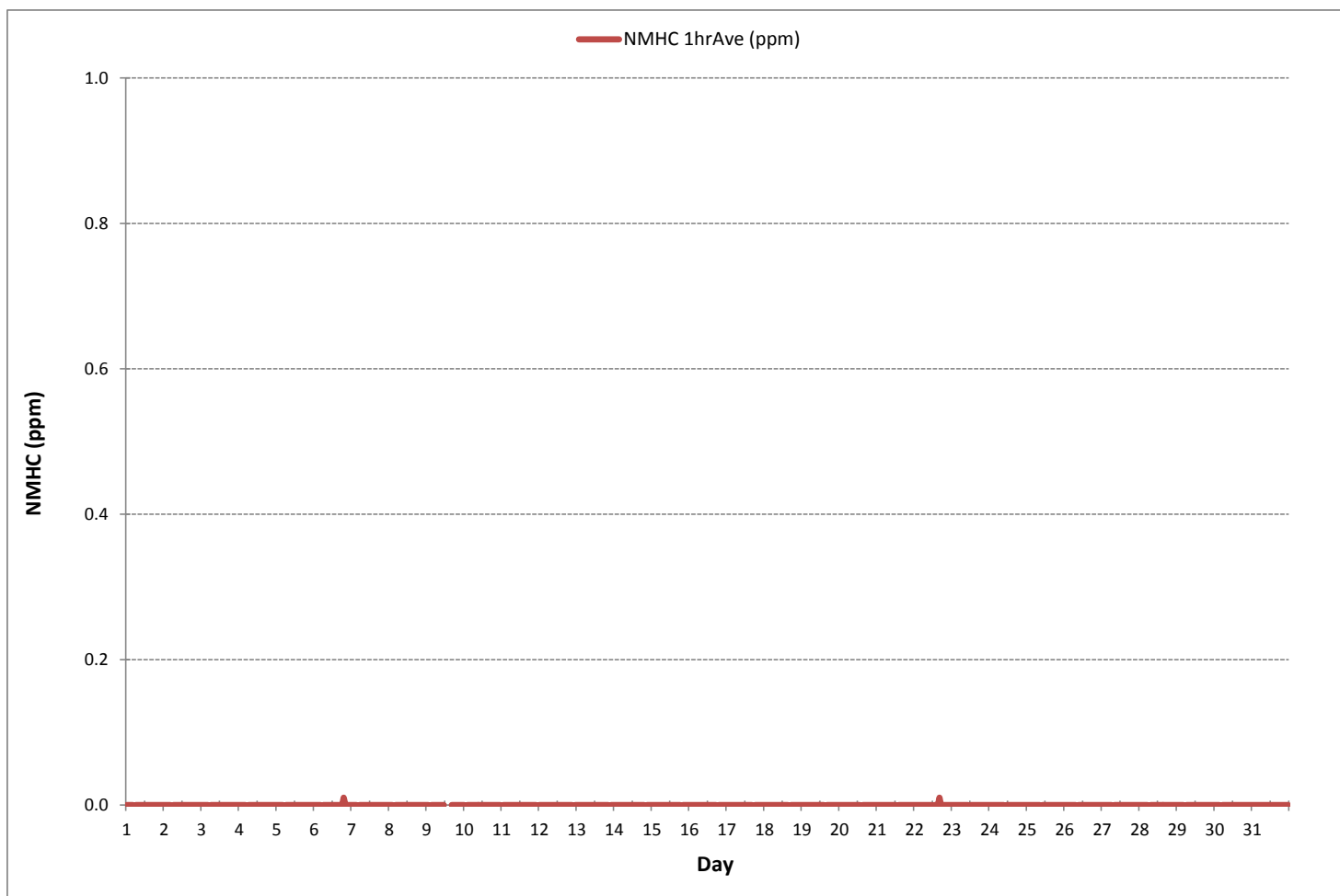
NUMBER OF NON-ZERO READINGS:	2				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.01	ppm	@ HOUR	19	ON DAY 6
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	31	hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 986b Station - November 2017

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	0.13	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	0.01	0.00	0.00	0.13	0.01	24
2	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
3	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
4	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
5	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
6	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	0.12	0.00	0.00	0.00	0.00	0.00	0.12	0.01	24
7	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
8	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	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	24
9	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.06	0.07	0.04	0.00	0.00	0.04	0.00	0.07	0.01	24
10	0.04	S	0.09	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	0.00	0.00	0.00	0.00	0.09	0.01	24
11	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
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	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	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
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	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
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	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
22	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	0.11	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.11	0.01	24
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	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	0.02	0.00	24
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	24
25	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
26	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
27	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
28	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
29	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
30	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
HOURLY MAX	0.04	0.01	0.09	0.02	0.00	0.00	0.00	0.13	0.01	0.00	0.00	0.05	0.05	0.00	0.03	0.00	0.11	0.00	0.11	0.12	0.04	0.01	0.01	0.04				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00				

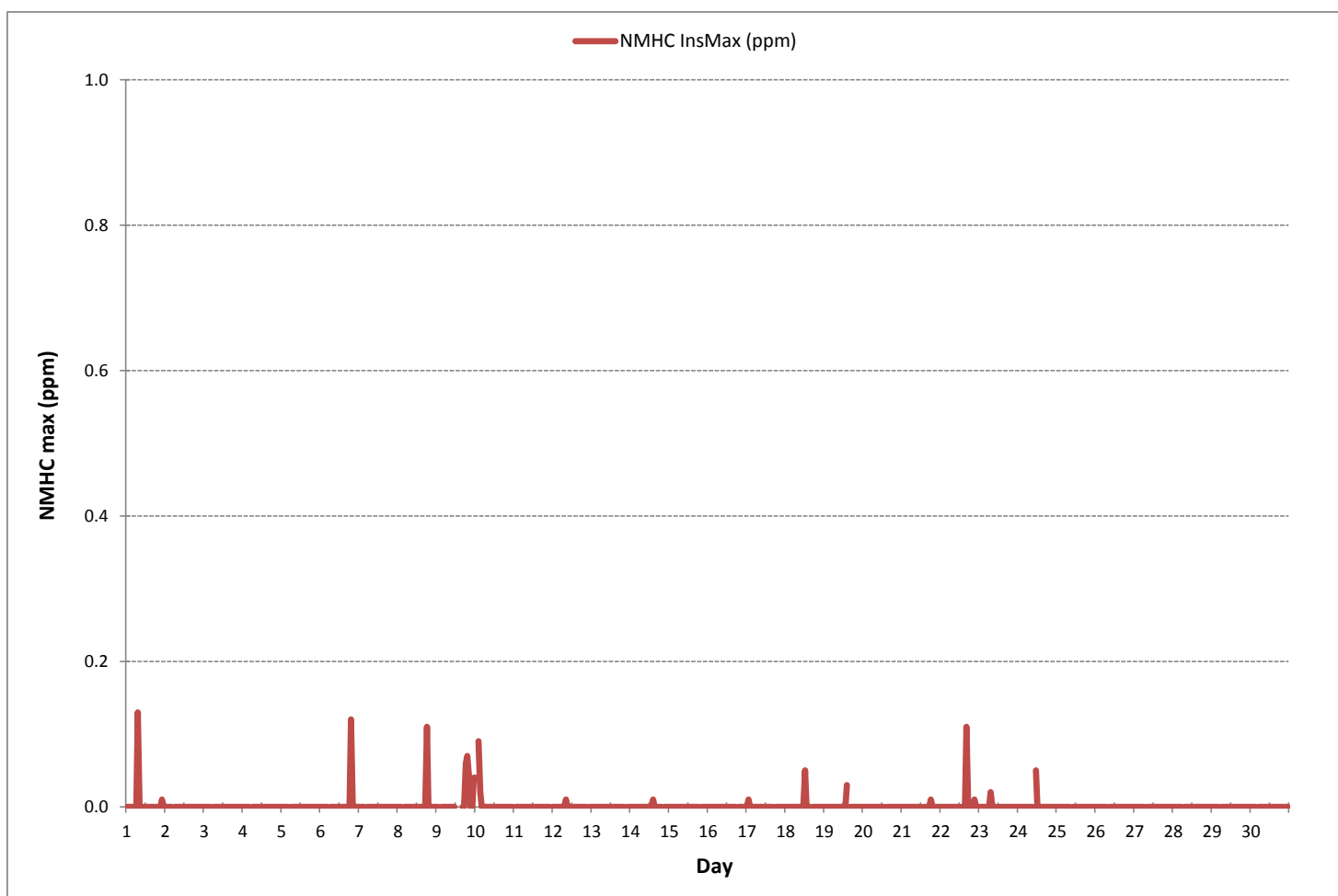
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	21
MAXIMUM INSTANTANEOUS VALUE:	0.13 ppm @ HOUR 7 ON DAY 1
IZS CALIBRATION TIME:	31 hrs
MONTHLY CALIBRATION TIME:	4 hrs
STANDARD DEVIATION:	0.01
OPERATIONAL TIME:	720 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



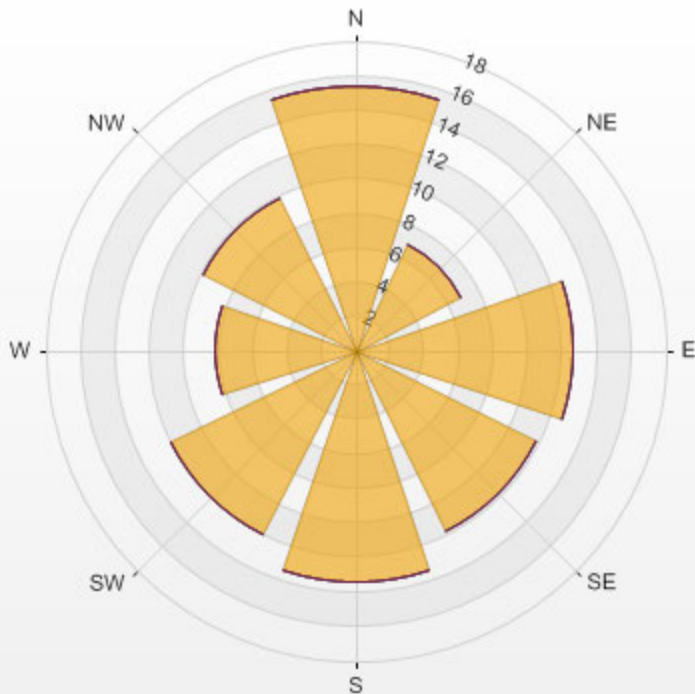
Wind: PRAMP_986
Poll.: PRAMP_986-NMHC[ppm]
Monthly: 17/11
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 9.93%

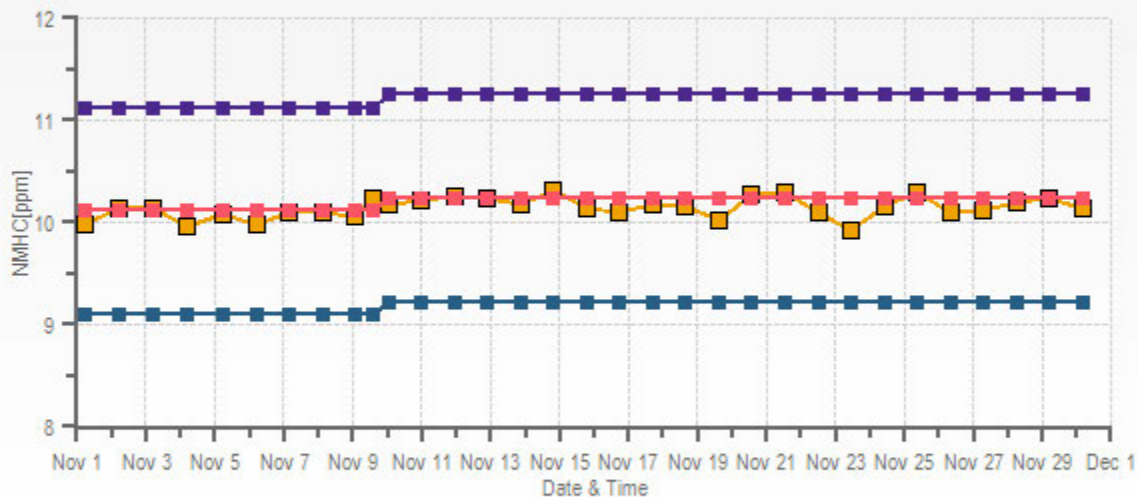
Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	15.3	0.0	0.0	0.0	0.0	15.3
NE	6.9	0.0	0.0	0.0	0.0	6.9
E	12.7	0.0	0.0	0.0	0.0	12.7
SE	11.7	0.0	0.0	0.0	0.0	11.7
S	13.4	0.0	0.0	0.0	0.0	13.4
SW	12.0	0.0	0.0	0.0	0.0	12.0
W	8.2	0.0	0.0	0.0	0.0	8.2
NW	9.9	0.0	0.0	0.0	0.0	9.9
Summary	90.1	0.0	0.0	0.0	0.0	90.1

PRAMP_986 Poll.: PRAMP_986-NMHC[ppm] 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 9.93% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_986 Monthly: 17/11 Type: Span



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

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

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	7.2	5.1	5.9	6.7	6.1	7.4	6.9	7.2	7.0	7.2	6.1	7.6	10.6	10.9	11.7	11.6	10.8	11.5	9.8	9.9	11.8	8.8	5.2	8.8	5.1	11.8	8.4	24
2	10.5	9.8	9.7	9.2	7.8	9.0	10.1	6.9	6.4	7.6	10.0	9.8	8.2	8.6	8.2	6.8	5.7	5.0	4.7	0.9	0.7	1.2	1.3	1.7	0.7	10.5	6.2	24
3	2.1	2.4	2.6	3.0	1.7	1.5	1.5	2.9	3.6	4.2	5.6	8.6	10.6	9.0	8.8	7.9	6.0	4.7	6.6	7.8	9.7	8.9	9.1	9.1	1.5	10.6	4.8	24
4	6.4	6.0	7.6	2.6	6.6	8.5	2.8	4.1	3.8	4.8	4.5	3.8	3.6	4.8	6.0	3.9	3.7	2.9	2.0	1.7	1.5	1.6	1.5	2.1	1.5	8.5	3.0	24
5	1.5	1.2	1.7	3.2	3.4	3.0	7.7	8.5	11.1	13.9	13.7	11.5	11.0	10.4	7.3	7.4	5.8	7.3	7.4	1.9	1.6	3.1	2.8	3.6	1.2	13.9	5.1	24
6	3.5	3.2	6.1	7.4	5.1	4.5	8.3	11.0	12.3	9.7	10.1	10.7	9.0	8.4	7.9	5.8	4.3	1.8	3.6	4.4	3.4	1.2	0.8	2.5	0.8	12.3	4.3	24
7	5.2	7.1	5.9	6.2	6.6	8.3	7.3	7.6	6.6	9.7	10.5	8.7	8.0	6.5	4.5	5.4	3.8	3.3	3.1	0.6	0.8	1.1	2.5	1.6	0.6	10.5	5.0	24
8	3.2	5.4	3.5	3.7	3.2	1.5	1.5	1.8	3.8	2.3	5.5	5.2	4.8	5.5	6.1	6.2	6.2	6.4	4.2	4.7	6.5	4.3	4.3	4.5	1.5	6.5	3.2	24
9	3.4	3.9	5.2	3.6	5.3	5.7	6.2	5.7	7.7	8.6	8.2	12.5	4.9	7.9	4.3	6.8	5.2	5.6	8.0	6.1	6.1	5.3	3.3	1.4	1.4	12.5	3.7	24
10	0.6	1.1	2.1	2.7	7.6	5.8	1.2	0.8	1.2	1.3	1.2	0.8	3.0	3.4	4.7	2.4	1.5	2.2	1.5	3.7	6.8	4.9	4.4	4.8	0.6	7.6	0.8	24
11	1.1	0.2	1.7	2.5	2.5	2.1	2.9	0.8	2.2	1.5	0.9	1.3	2.4	5.2	7.1	5.8	3.4	2.0	1.4	4.8	4.1	6.1	6.0	5.7	0.2	7.1	1.3	24
12	5.0	6.6	5.8	6.3	6.4	6.9	5.5	5.6	5.1	6.0	8.1	4.4	4.0	5.0	5.0	5.1	6.8	5.0	3.1	2.1	1.2	0.2	1.5	2.1	0.2	8.1	4.0	24
13	2.8	3.5	4.3	3.1	3.2	3.7	0.6	4.5	2.2	2.2	3.3	5.1	5.1	6.7	6.8	4.5	6.0	4.6	8.3	7.6	8.0	5.6	5.6	5.4	0.6	8.3	3.4	24
14	5.0	4.4	4.7	5.8	2.8	6.8	3.5	6.0	4.5	3.3	3.3	4.9	6.2	5.9	7.6	5.8	5.0	4.3	5.6	5.3	4.7	6.4	6.8	6.7	2.8	7.6	4.9	24
15	6.5	5.9	6.6	6.2	7.1	6.9	6.6	6.0	6.2	6.1	5.8	5.1	5.9	4.6	5.8	5.4	5.5	4.6	3.9	3.7	2.4	2.6	2.9	2.5	2.4	7.1	4.9	24
16	3.2	4.7	7.7	7.9	9.1	5.1	4.6	1.5	1.6	2.5	2.0	5.7	5.3	5.4	4.6	5.7	2.9	5.3	6.8	3.8	2.8	2.9	3.4	5.6	1.5	9.1	3.5	24
17	6.5	2.1	3.0	1.2	1.1	1.9	0.8	1.7	1.7	3.1	2.6	4.3	6.9	6.6	7.6	5.6	6.2	6.9	4.7	6.6	6.2	6.3	4.8	4.2	0.8	7.6	3.3	24
18	2.7	4.4	5.8	5.2	5.5	8.8	7.3	9.3	5.4	3.1	4.5	5.1	2.1	4.9	7.4	10.0	7.6	6.4	5.1	5.1	6.3	5.3	6.2	5.8	2.1	10.0	0.6	24
19	4.5	7.9	7.4	7.9	7.5	10.2	9.0	9.4	8.7	7.8	7.7	6.9	3.6	5.4	5.7	10.3	13.8	14.3	11.1	13.0	7.7	13.9	11.8	13.2	3.6	14.3	4.2	24
20	14.1	11.7	11.3	8.4	8.2	7.1	7.7	10.5	11.4	7.5	5.3	6.7	8.4	8.0	5.2	4.2	3.4	2.2	1.9	1.0	0.9	2.4	4.0	6.6	0.9	14.1	5.6	24
21	4.2	3.7	3.4	2.1	3.0	4.3	3.2	3.2	1.6	4.0	1.3	2.8	7.8	8.0	5.7	3.0	3.4	2.3	1.7	2.0	2.1	2.2	4.0	2.4	1.3	8.0	1.9	24
22	1.6	4.1	4.1	0.6	1.0	1.5	5.5	5.2	6.6	6.9	4.6	5.5	3.8	2.0	2.6	3.5	3.2	2.5	3.5	4.0	5.2	4.4	5.7	6.8	0.6	6.9	2.8	24
23	9.0	5.3	4.4	6.6	5.8	11.7	9.9	11.8	17.1	10.9	10.4	8.7	7.6	7.0	4.8	3.7	2.2	2.8	0.8	0.5	1.0	3.0	4.4	4.6	0.5	17.1	3.2	24
24	5.0	5.5	4.0	4.9	5.8	4.1	0.6	1.5	1.6	3.1	1.9	2.8	2.6	3.8	5.0	6.3	6.2	6.5	7.1	9.4	5.0	6.6	3.2	11.2	0.6	11.2	2.2	24
25	11.0	9.4	8.6	7.0	8.8	9.0	6.8	10.0	8.1	7.5	8.8	7.2	7.1	6.9	6.2	6.5	5.8	4.8	4.2	4.8	4.3	3.0	3.3	4.6	3.0	11.0	4.6	24
26	4.4	4.3	6.5	7.3	8.0	8.4	8.7	11.7	13.1	11.8	14.0	13.9	10.6	11.2	12.9	8.7	8.4	7.8	8.7	7.7	3.4	3.9	5.1	2.8	2.8	14.0	7.9	24
27	1.0	3.0	5.0	6.0	7.1	8.0	6.3	4.4	8.6	8.7	10.5	10.2	5.2	5.6	5.6	6.7	6.7	6.4	6.8	7.2	5.4	10.2	11.7	8.0	1.0	11.7	2.9	24
28	7.8	8.5	7.8	7.0	9.9	9.2	6.0	3.9	3.0	4.2	8.1	3.9	4.0	1.0	5.6	11.3	6.9	6.9	7.0	5.3	5.7	6.9	7.1	6.9	1.0	11.3	6.1	24
29	6.4	6.9	7.1	5.7	3.0	1.0	1.8	2.0	2.9	4.3	5.4	7.3	7.1	7.8	6.7	6.3	7.6	8.3	9.9	9.9	11.7	11.1	9.6	10.9	1.0	11.7	6.1	24
30	8.1	5.8	6.9	14.1	11.1	7.2	6.0	6.4	7.5	6.1	7.4	11.5	8.6	9.7	11.2	10.2	8.6	7.9	5.9	7.2	7.7	6.6	6.7	8.8	5.8	14.1	7.8	24
HOURLY MAX	14.1	11.7	11.3	14.1	11.1	11.7	10.1	11.8	17.1	13.9	14.0	13.9	11.0	11.2	12.9	11.6	13.8	14.3	11.1	13.0	11.8	13.9	11.8	13.2				
HOURLY AVG	0.3	0.3	0.2	0.4	0.4	0.3	0.3	0.7	0.6	0.4	0.4	0.7	1.3	2.1	1.3	1.2	0.5	0.2	0.4	0.7	0.9	0.5	0.6	0.8				

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

LAST CALIBRATION:

April 5, 2017

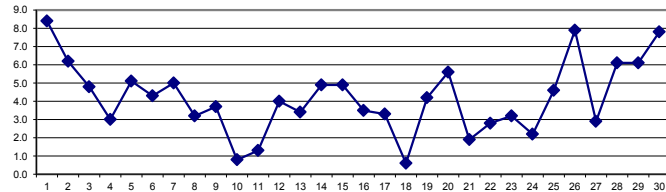
DECLINATION :

MAGNETIC DECLINATION 15 DEGREE EAST

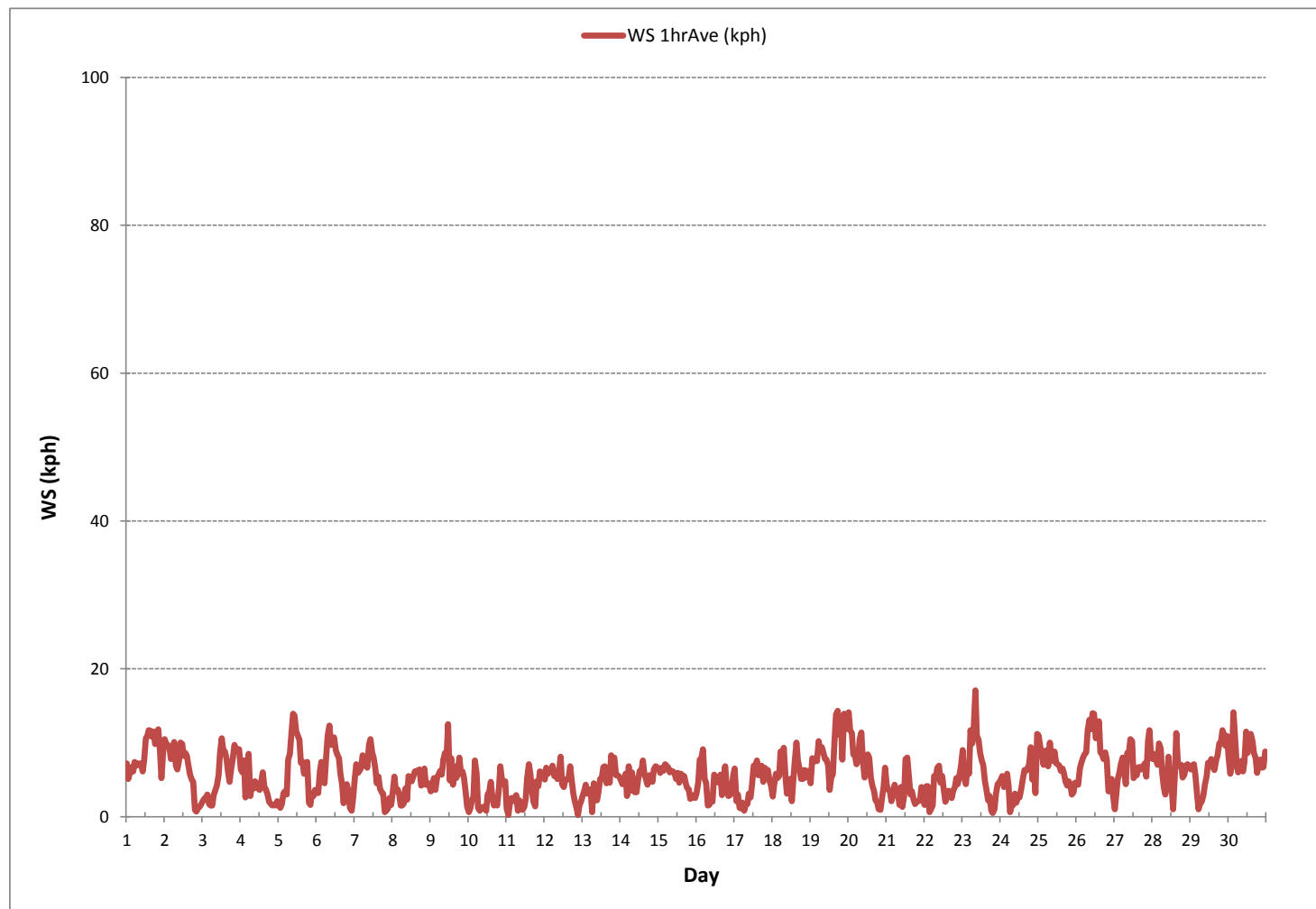
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	720				
MINIMUM 1-HR AVERAGE	0.2	kph	@ HOUR	1	ON DAY 11
MAXIMUM 1-HR AVERAGE:	17.1	kph	@ HOUR	8	ON DAY 23
MAXIMUM 24-HR AVERAGE:	8.4	kph			ON DAY 1
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	3.0		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	0.3	kph

24 HR AVERAGES November 2017



WIND SPEED Hourly Averages (WS kph)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

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	19.1	16.6	18.0	20.0	16.0	25.1	19.2	23.7	23.4	18.3	19.4	19.7	32.1	32.9	30.0	30.4	37.4	33.5	25.8	30.9	38.4	25.0	15.6	25.6	15.6	38.4	24.8	24
2	30.1	31.0	24.6	23.6	17.2	23.3	24.8	20.8	20.0	23.8	30.6	30.0	23.5	23.1	20.1	18.7	15.3	14.8	13.9	9.0	2.9	5.0	3.7	4.8	2.9	31.0	18.9	24
3	5.1	7.1	6.7	5.5	5.4	4.1	5.2	5.1	7.5	8.6	14.6	20.5	24.9	21.3	20.9	17.7	14.8	8.3	9.5	11.0	14.9	14.2	16.2	17.9	4.1	24.9	12.0	24
4	12.8	12.9	14.4	11.9	11.3	13.5	9.5	9.7	9.3	12.1	9.0	8.6	8.1	9.5	11.3	8.2	8.3	6.7	6.6	4.7	4.6	5.7	5.4	6.0	4.6	14.4	9.2	24
5	5.1	4.6	7.0	9.7	9.3	14.2	13.2	14.4	18.9	25.2	31.2	35.2	26.9	18.5	14.4	15.9	10.8	13.5	15.0	8.3	3.6	6.1	5.1	7.2	3.6	35.2	13.9	24
6	6.6	8.8	10.5	10.5	10.2	14.3	23.5	26.0	30.3	26.2	25.5	29.5	23.3	23.7	20.1	19.9	12.3	9.6	7.9	8.4	7.4	6.5	2.8	7.0	2.8	30.3	15.5	24
7	11.6	14.9	13.0	14.5	24.6	25.5	21.1	25.0	20.1	27.0	28.4	26.0	21.4	17.7	14.4	13.3	11.2	9.1	8.8	4.0	2.7	3.5	5.2	4.5	2.7	28.4	15.3	24
8	7.4	10.0	7.7	6.1	6.5	6.1	3.6	5.7	6.8	5.6	14.6	15.1	10.9	14.7	12.8	15.0	17.1	10.9	9.3	7.8	11.9	8.2	7.4	8.2	3.6	17.1	9.6	24
9	7.8	10.1	14.6	10.6	12.0	12.0	15.4	16.7	18.6	21.7	17.8	28.3	16.3	20.4	13.4	16.7	12.5	14.0	19.5	15.9	16.1	13.8	9.7	5.8	5.8	28.3	15.0	24
10	4.7	5.2	6.6	9.6	13.5	12.9	5.1	3.9	4.3	5.1	4.7	4.9	8.6	7.9	13.2	11.6	5.3	6.3	4.7	9.9	11.5	8.9	9.6	9.8	3.9	13.5	7.8	24
11	4.3	3.7	4.6	6.2	7.8	6.3	6.4	5.4	8.2	4.3	5.7	5.2	8.4	16.3	17.4	14.9	9.2	7.2	7.2	14.8	13.4	22.6	19.3	14.9	3.7	22.6	9.7	24
12	15.5	16.4	17.9	15.2	17.5	18.4	15.5	15.9	18.6	17.5	19.6	14.6	12.8	13.6	12.8	12.5	16.7	15.4	7.4	6.6	2.9	3.2	5.2	6.0	2.9	19.6	13.2	24
13	7.9	10.4	11.9	11.0	7.2	9.2	7.3	11.6	10.1	7.4	10.3	16.9	15.0	22.8	18.6	11.8	16.5	16.5	23.8	20.8	22.4	18.7	14.9	15.0	7.2	23.8	14.1	24
14	15.0	15.2	13.3	16.8	10.5	16.1	14.1	15.3	11.5	9.9	10.3	14.7	20.0	16.3	19.7	16.2	12.2	10.0	11.9	13.6	15.9	17.0	18.1	19.2	9.9	20.0	14.7	24
15	17.5	16.3	19.9	18.9	20.2	22.6	23.4	16.9	22.4	25.8	18.2	14.6	17.5	14.8	16.3	15.3	17.2	12.5	14.0	10.5	6.8	7.9	6.5	5.5	5.5	25.8	15.9	24
16	8.3	11.3	14.0	18.5	21.0	14.2	9.4	8.8	4.6	5.1	11.7	16.0	12.7	12.6	12.0	16.7	8.7	15.5	18.2	11.4	8.0	7.9	9.2	12.9	4.6	21.0	12.0	24
17	12.6	7.5	8.0	5.0	4.1	3.9	2.5	3.3	4.3	4.9	5.0	11.8	15.3	16.1	18.4	16.0	9.2	10.3	9.1	10.4	10.0	10.9	7.2	7.2	2.5	18.4	8.9	24
18	5.1	10.3	11.3	9.6	11.2	17.4	13.2	14.6	14.4	7.5	17.7	22.0	9.5	11.3	15.5	26.8	22.1	17.8	14.0	13.1	16.3	12.6	17.8	15.3	5.1	26.8	14.4	24
19	15.4	18.1	21.0	21.7	26.3	32.0	27.8	31.4	26.3	26.8	24.9	24.0	12.6	13.1	14.6	20.2	26.9	27.4	27.8	36.7	17.7	27.4	24.7	25.1	12.6	36.7	23.7	24
20	25.8	24.1	19.0	17.0	16.1	16.7	18.9	20.1	20.0	17.3	11.5	17.2	14.6	15.7	11.7	9.0	8.3	8.1	7.7	4.7	3.6	6.0	8.4	11.1	3.6	25.8	13.9	24
21	10.0	8.3	8.2	5.8	8.4	11.4	9.9	9.6	8.9	12.0	11.4	8.5	22.8	23.1	14.9	8.6	11.3	6.2	5.2	6.3	5.3	5.2	8.6	6.7	5.2	23.1	9.9	24
22	5.9	9.8	9.3	5.8	5.5	5.4	9.0	12.1	12.3	11.3	9.9	10.6	7.7	7.1	7.9	9.4	9.4	8.3	10.6	15.5	12.9	14.6	16.2	19.2	5.4	19.2	10.2	24
23	24.1	16.8	17.8	19.2	16.4	34.4	26.9	25.1	33.2	34.4	28.5	29.1	20.1	13.3	11.1	9.5	9.9	11.8	3.9	6.9	9.4	8.1	11.9	13.2	3.9	34.4	18.1	24
24	11.4	13.7	10.2	13.8	15.8	12.7	4.7	7.0	5.2	6.3	6.2	7.5	8.7	9.1	14.0	14.0	12.9	13.5	14.8	20.7	16.6	12.6	13.8	29.3	4.7	29.3	12.3	24
25	29.4	29.2	27.0	22.0	27.6	26.7	19.9	24.8	24.9	21.6	24.1	18.3	18.2	17.2	14.9	14.5	12.8	12.4	13.0	13.7	11.7	8.7	9.9	12.1	8.7	29.4	18.9	24
26	11.1	16.8	21.2	27.2	23.8	25.7	32.3	34.1	35.0	34.3	48.3	42.5	31.9	28.8	35.4	26.8	25.7	22.8	21.1	22.2	14.7	13.1	12.0	13.0	11.1	48.3	25.8	24
27	6.1	8.1	11.4	12.4	12.3	13.1	11.7	13.6	19.0	14.9	24.9	23.2	13.6	17.8	16.7	17.6	13.2	11.4	13.1	11.7	13.6	15.5	15.8	12.0	6.1	24.9	14.3	24
28	15.0	19.3	13.9	13.1	20.1	20.6	18.5	7.6	10.3	9.2	13.5	10.3	14.2	4.5	15.4	21.6	15.4	14.9	16.4	11.6	16.5	16.1	19.4	15.5	4.5	21.6	14.7	24
29	13.6	20.2	17.8	15.1	12.6	12.3	5.6	4.8	6.2	6.8	10.3	13.9	15.9	22.4	15.4	19.1	17.4	18.0	26.7	30.4	33.2	30.7	32.2	26.5	4.8	33.2	17.8	24
30	22.9	17.8	13.1	21.2	20.9	14.5	14.5	17.7	19.3	16.6	23.4	29.4	23.2	25.6	22.1	23.4	16.2	17.5	14.8	20.2	22.9	21.7	18.2	18.6	13.1	29.4	19.8	24
HOURLY MAX	30.1	31.0	27.0	27.2	27.6	34.4	32.3	34.1	35.0	34.4	48.3	42.5	32.1	32.9	35.4	30.4	37.4	33.5	27.8	36.7	38.4	30.7	32.2	29.3				
HOURLY AVG	12.9	13.8	13.8	13.9	14.4	16.2	14.4	15.0	15.8	15.6	17.7	18.9	17.0	17.0	16.5	16.4	14.5	13.5	13.4	13.7	12.9	12.6	12.3	13.2				

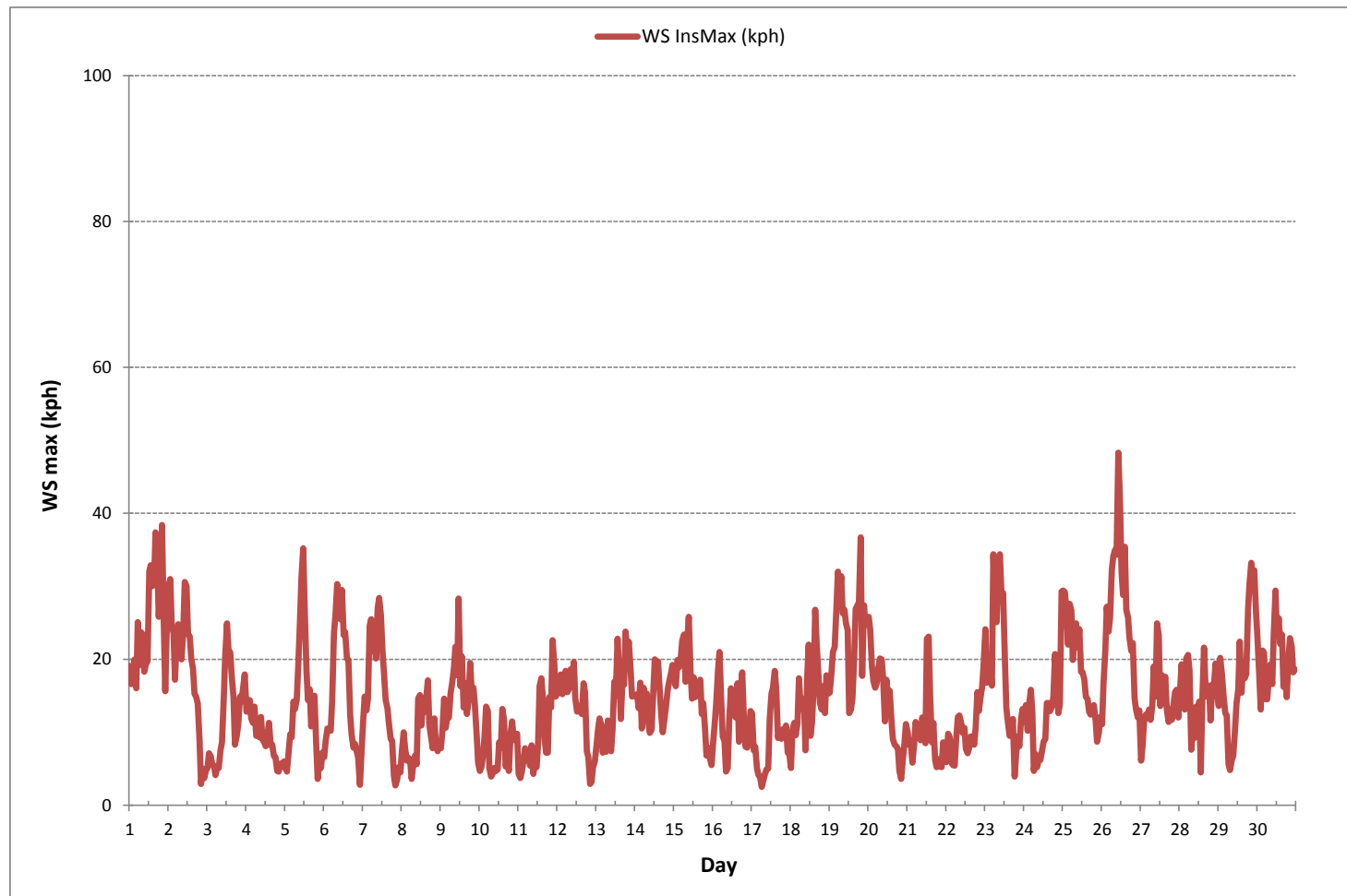
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	48.3	kph	@ HOUR	10	ON DAY	26
OPERATIONAL TIME:	720 hrs					

WIND SPEED Instantaneous Maximum (WS kph)



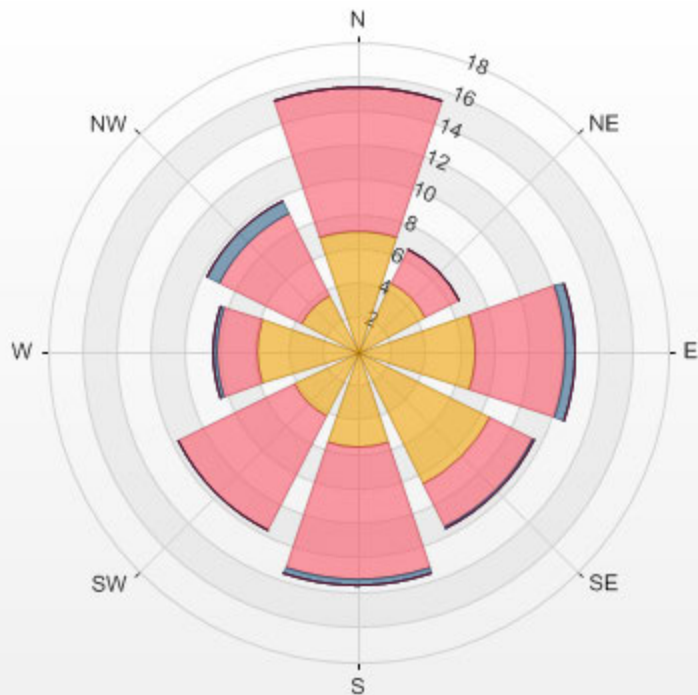
Wind: PRAMP_986
 Monitor: WSP [kph]
 Monthly: 17/11
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 10.14%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	7.1	8.3	0.0	0.0	0.0	0.0	15.4
NE	4.4	2.2	0.0	0.0	0.0	0.0	6.7
E	6.8	5.3	0.6	0.0	0.0	0.0	12.7
SE	8.6	2.8	0.1	0.0	0.0	0.0	11.5
S	5.6	7.6	0.4	0.0	0.0	0.0	13.6
SW	4.2	7.5	0.0	0.0	0.0	0.0	11.7
W	5.8	2.4	0.3	0.0	0.0	0.0	8.5
NW	3.6	5.4	0.8	0.0	0.0	0.0	9.9
Summary	46.1	41.5	2.2	0.0	0.0	0.0	89.9

%	Icon	Classes (kph)	46	42	2	0	0	0
		1.8-6.0						
		6.0-12.0						
		12.0-20.0						
		20.0-29.0						
		29.0-39.0						
		>39.0						

PRAMP_986 2017/11/01 00:00 - 2017/11/30 23:00 Calm: 10.14% Calm Wind Avg Speed: 1.21(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 986b Station - November 2017

WIND DIRECTION Hourly Averages (WD)

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

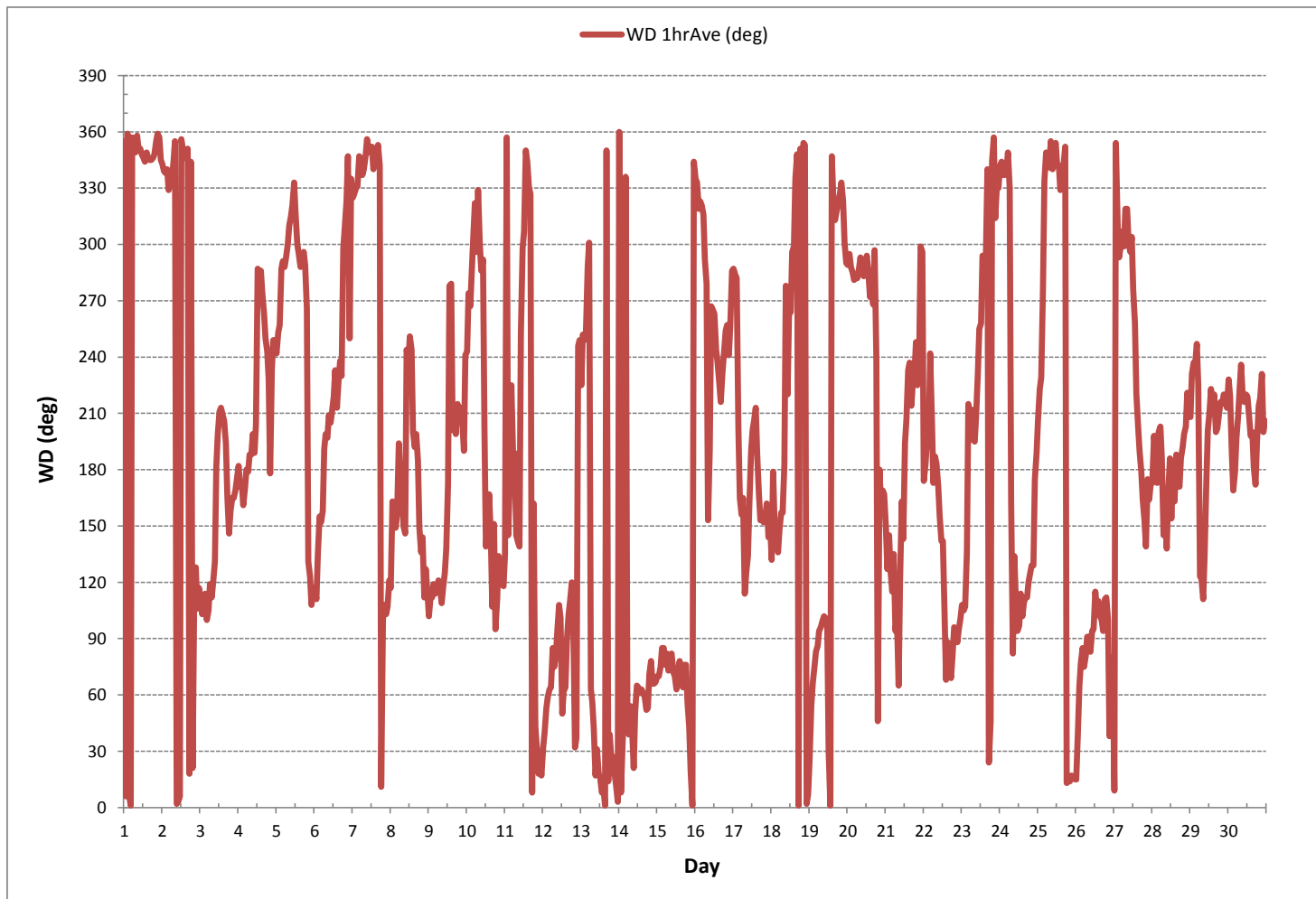
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	720	hrs
STANDARD DEVIATION:	101		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	219 (SW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 986b Station - November 2017

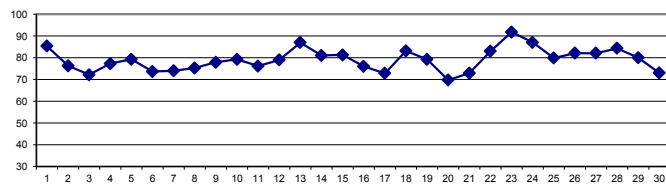
RELATIVE HUMIDITY Hourly Averages (RH %)

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	94	93	93	90	87	88	89	90	88	88	86	87	88	85	81	78	75	76	81	83	79	80	85	85	75	94	85	24
2	82	81	83	81	84	84	82	82	81	80	74	70	73	69	69	69	71	71	73	73	77	76	74	73	69	84	76	24
3	72	72	72	71	71	70	70	70	71	74	77	73	69	68	65	65	68	74	76	78	78	77	77	75	65	78	72	24
4	76	77	77	77	78	77	78	78	77	74	70	66	66	71	75	76	77	81	82	83	83	84	86	87	66	87	77	24
5	87	87	88	88	87	87	87	87	88	84	79	66	65	67	67	71	77	75	74	81	79	78	77	77	65	88	79	24
6	78	78	81	82	81	82	80	77	74	72	70	63	61	61	63	62	62	67	77	80	79	79	80	80	61	82	74	24
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12	80	80	80	80	80	79	79	79	79	77	75	72	70	70	71	72	74	81	85	86	86	87	87	88	70	88	79	24
13	88	90	91	90	89	89	88	88	88	86	86	86	86	87	87	87	87	87	85	84	84	85	85	85	84	91	87	24
14	85	85	85	82	83	82	81	81	81	81	79	77	76	77	78	81	82	84	84	82	80	80	80	80	76	85	81	24
15	81	81	81	80	81	81	80	80	81	81	81	81	82	80	79	80	82	83	83	83	84	83	82	82	79	84	81	24
16	82	82	81	81	81	79	77	75	70	71	74	73	73	73	72	71	73	76	75	76	77	77	78	77	70	82	76	24
17	77	77	77	74	72	73	72	70	68	68	70	71	68	66	69	72	74	76	77	75	76	76	75	76	66	77	73	24
18	79	82	80	82	82	82	83	87	88	86	85	81	80	79	81	83	83	84	85	85	86	85	84	84	79	88	83	24
19	84	83	82	81	81	80	79	79	79	80	81	82	83	83	83	82	81	80	79	76	74	72	70	68	68	84	79	24
20	68	68	69	69	70	70	70	69	68	69	68	66	65	66	67	68	70	72	72	73	74	73	74	77	65	77	70	24
21	79	80	77	73	72	74	74	74	75	75	72	67	65	67	68	69	72	73	73	73	74	74	75	75	65	80	73	24
22	74	75	75	74	74	75	76	77	79	80	80	80	81	83	86	90	92	92	92	92	92	91	91	91	74	92	83	24
23	91	91	92	95	96	95	93	94	91	88	83	81	84	88	89	91	93	95	95	96	96	96	96	95	81	96	92	24
24	93	93	92	91	89	87	86	84	81	81	81	82	79	82	85	88	91	92	92	91	89	90	91	79	79	93	87	24
25	77	78	80	82	87	87	87	87	85	84	75	70	71	71	74	75	77	79	81	82	82	82	83	83	70	87	80	24
26	83	83	81	81	81	81	80	81	80	81	84	84	81	78	78	80	81	82	84	84	84	85	88	87	78	88	82	24
27	87	87	86	86	85	86	85	84	85	84	83	82	81	79	79	79	80	80	79	78	77	80	79	81	77	87	82	24
28	83	86	85	85	87	86	86	84	88	89	86	84	85	87	82	81	81	79	81	83	87	85	82	83	79	89	84	24
29	83	78	78	82	87	88	86	82	83	84	89	89	79	74	76	74	78	80	76	74	75	74	75	78	74	89	80	24
30	75	77	80	80	77	78	80	78	71	73	68	68	65	66	68	69	71	73	76	76	71	67	71	74	65	80	73	24
HOURLY MAX	94	93	93	95	96	95	93	94	91	89	89	89	88	88	89	91	93	95	95	96	96	96	96	95				
HOURLY AVG	81	82	82	82	82	81	81	81	80	79	78	75	74	74	74	75	77	79	80	81	80	80	81	81				

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 November 2017

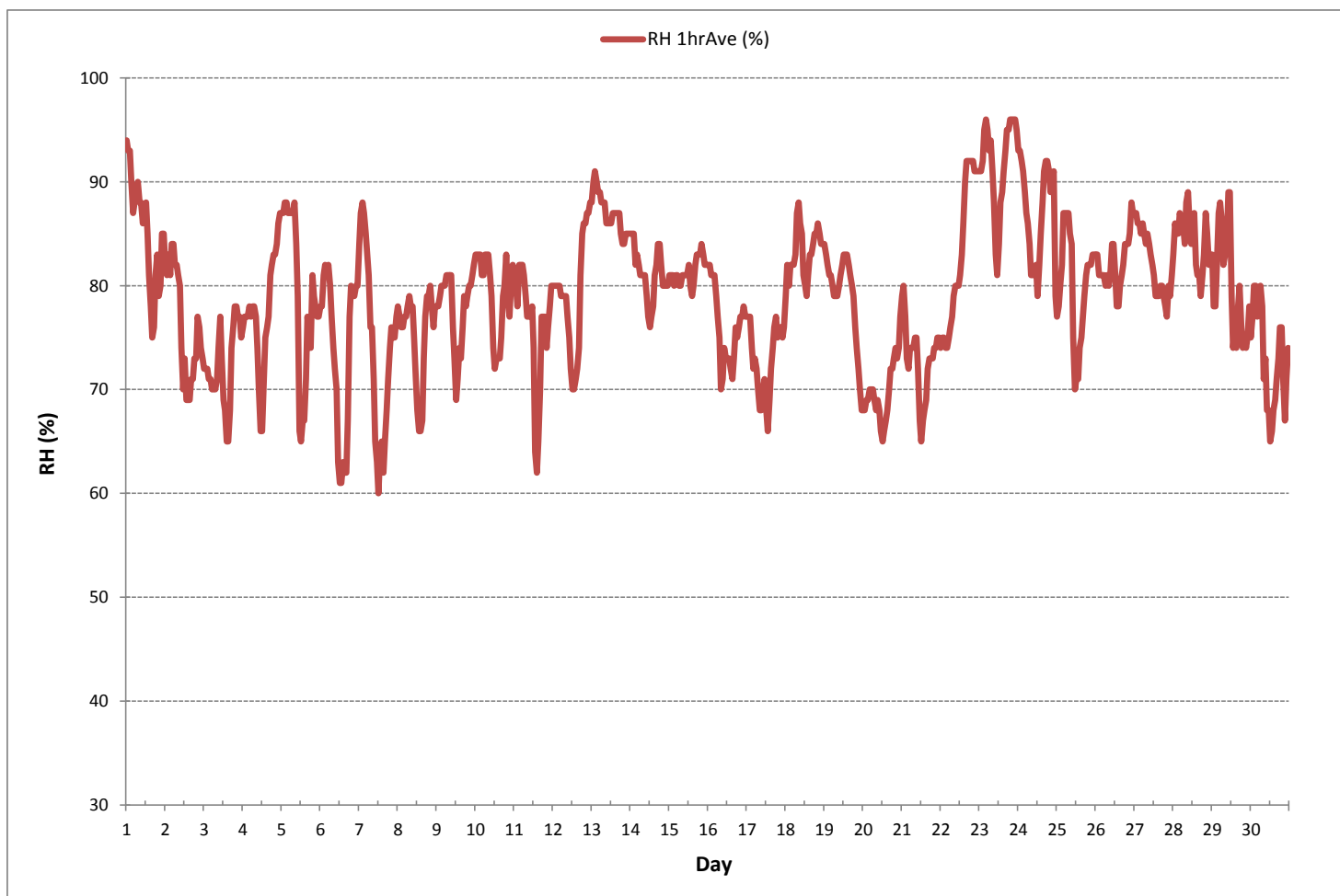


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	60	%	@ HOUR	12	ON DAY	7
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	4	ON DAY	23
MAXIMUM 24-HR AVERAGE:	92	%			ON DAY	23

OPERATIONAL TIME:	720	hrs
AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	7	
MONTHLY AVERAGE:	79	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE

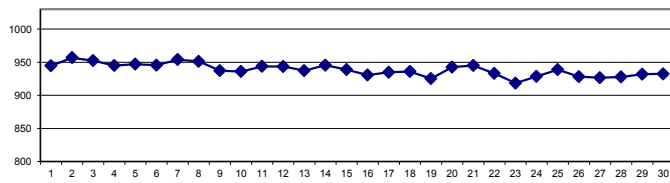
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	937	938	939	939	940	940	941	941	942	943	943	944	944	945	946	947	948	948	949	950	951	952	952	953	937	953	945	24	
2	953	953	954	954	955	955	955	956	956	957	957	957	958	958	958	958	959	959	959	959	959	959	959	959	953	959	957	24	
3	959	959	958	957	957	957	956	956	955	955	954	952	952	951	950	950	949	949	948	948	947	947	946	946	946	946	959	952	24
4	946	946	945	945	945	945	945	945	945	945	945	944	944	944	944	945	945	945	945	945	946	946	946	946	944	946	945	24	
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7	950	951	952	952	953	953	954	954	955	955	956	956	956	955	955	955	955	955	955	954	954	954	954	954	950	956	954	24	
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9	947	946	945	944	943	942	941	940	939	937	936	935	934	934	934	933	933	933	933	933	933	933	934	934	933	947	937	24	
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11	936	937	937	938	938	939	940	941	942	943	944	945	945	945	946	946	947	947	948	948	949	949	949	949	936	949	944	24	
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20	929	931	932	933	935	936	938	939	940	941	942	943	944	945	946	947	948	949	949	950	950	950	951	952	929	952	943	24	
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23	922	921	920	919	918	918	916	916	915	915	916	917	917	917	918	918	919	919	919	919	920	920	921	922	915	922	918	24	
24	923	924	925	926	927	928	929	930	930	931	931	931	931	931	931	930	930	930	929	929	928	928	928	928	923	931	929	24	
25	929	930	930	931	933	934	935	936	938	939	940	941	942	942	943	943	944	944	944	944	944	943	943	942	929	944	939	24	
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27	920	920	920	921	921	921	922	923	924	925	926	927	928	929	930	931	931	931	932	932	932	932	931	931	931	920	932	927	24
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HOURLY MAX	959	959	958	957	957	957	956	956	956	957	957	957	958	958	958	958	959	959	959	959	959	959	959	959	959				
HOURLY AVG	939	939	939	939	939	939	939	939	939	939	939	939	939	938	938	938	939	939	938	938	938	938	938	939	939				

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
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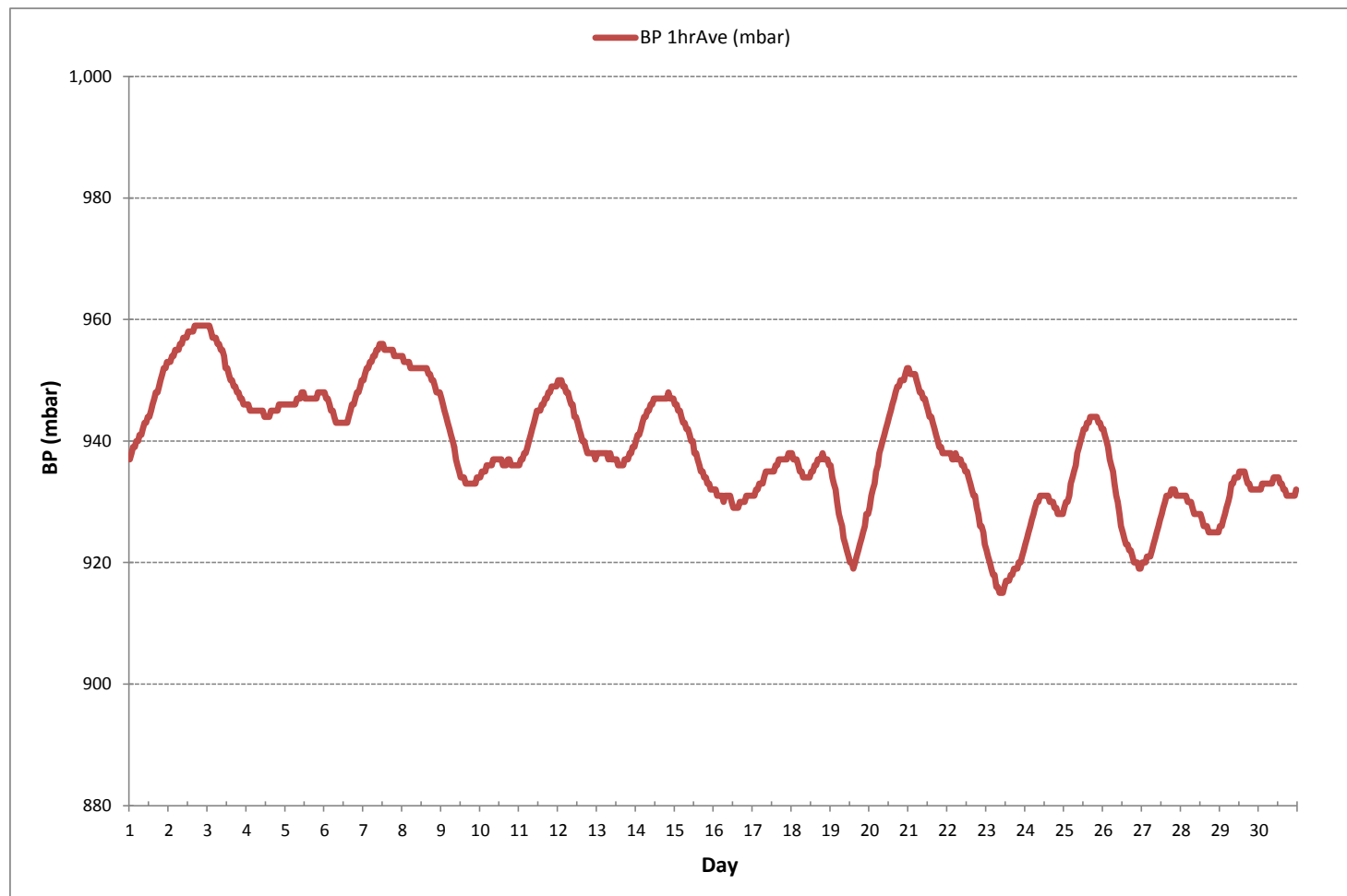
24 HR AVERAGES November 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	915	mbar	@ HOUR	8	ON DAY	23
MAXIMUM 1-HR AVERAGE:	959	mbar	@ HOUR	16	ON DAY	2
MAXIMUM 24-HR AVERAGE:	957	mbar			ON DAY	2
OPERATIONAL TIME:					720	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	10		MONTHLY AVERAGE:		939	mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 986b Station - November 2017

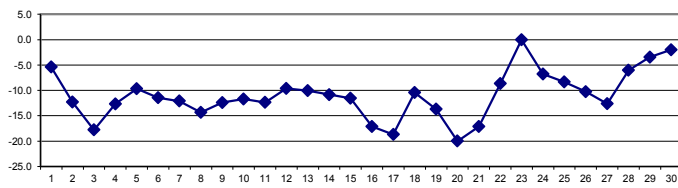
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	-2.7	-2.9	-3.2	-3.8	-4.4	-4.7	-4.9	-5.0	-5.2	-4.5	-3.7	-3.5	-3.9	-4.7	-5.3	-5.6	-6.1	-6.6	-7.4	-7.7	-8.2	-8.9	-8.4	-8.3	-8.9	-2.7	-5.4	24
2	-8.5	-9.0	-9.6	-9.7	-9.9	-10.0	-10.2	-10.6	-10.7	-10.4	-10.3	-10.2	-10.3	-10.4	-10.5	-10.9	-11.6	-12.2	-12.9	-13.9	-17.8	-20.6	-22.0	-22.8	-22.8	-8.5	-12.3	24
3	-23.6	-23.6	-23.7	-24.2	-24.3	-25.1	-25.2	-25.0	-23.6	-20.1	-14.8	-11.4	-10.7	-10.6	-10.4	-10.7	-12.1	-15.3	-17.8	-16.9	-15.5	-14.7	-13.9	-13.6	-25.2	-10.4	-17.8	24
4	-14.3	-14.8	-14.6	-15.6	-15.7	-15.1	-15.3	-15.7	-15.6	-14.1	-12.3	-10.8	-10.5	-10.4	-10.9	-11.0	-11.0	-11.5	-11.4	-11.4	-10.8	-10.1	-9.5	-15.7	-9.5	-12.7	24	
5	-9.0	-9.5	-10.1	-9.2	-9.0	-10.3	-7.4	-7.4	-7.9	-7.2	-7.1	-6.6	-6.2	-6.3	-6.0	-6.3	-6.9	-8.0	-8.2	-12.1	-15.9	-18.0	-18.3	-19.0	-19.0	-6.0	-9.7	24
6	-18.6	-18.2	-16.7	-14.8	-14.3	-14.6	-11.8	-11.1	-11.1	-10.7	-10.4	-8.6	-7.7	-7.1	-6.6	-5.7	-5.6	-7.6	-10.7	-11.3	-12.3	-12.9	-13.0	-12.7	-18.6	-5.6	-11.4	24
7	-11.9	-8.9	-8.5	-8.7	-8.9	-9.5	-10.1	-11.0	-11.3	-11.2	-11.0	-10.4	-10.3	-10.6	-10.6	-11.0	-11.7	-12.7	-13.4	-15.1	-17.5	-19.2	-19.5	-17.6	-19.5	-8.5	-12.1	24
8	-15.7	-14.6	-14.1	-13.6	-13.2	-13.2	-13.9	-15.3	-17.4	-15.9	-12.5	-11.1	-10.5	-9.9	-9.8	-10.4	-12.1	-14.6	-16.1	-17.2	-17.1	-18.0	-19.2	-18.7	-19.2	-9.8	-14.3	24
9	-18.4	-18.5	-17.3	-16.3	-16.0	-15.6	-14.3	-14.1	-13.2	-11.3	-9.2	-7.0	-5.4	-7.9	-8.4	-8.2	-10.3	-11.2	-11.7	-12.4	-12.1	-12.5	-12.9	-12.9	-18.5	-5.4	-12.4	24
10	-12.6	-12.0	-11.5	-12.0	-11.6	-12.1	-13.4	-12.5	-11.6	-11.1	-10.6	-9.6	-9.1	-8.9	-9.0	-9.2	-11.6	-15.4	-16.1	-12.5	-10.7	-10.8	-13.5	-13.9	-16.1	-8.9	-11.7	24
11	-14.0	-15.2	-16.5	-15.1	-14.5	-14.5	-15.0	-16.6	-17.7	-17.2	-14.0	-10.2	-8.6	-6.6	-6.6	-7.9	-9.9	-11.9	-12.2	-11.1	-9.7	-10.0	-10.7	-11.0	-17.7	-6.6	-12.4	24
12	-11.2	-11.5	-11.7	-11.7	-11.6	-11.4	-11.2	-11.2	-11.1	-10.7	-10.0	-8.8	-8.1	-7.9	-7.9	-8.1	-8.3	-8.5	-8.5	-8.4	-8.2	-8.0	-8.1	-8.3	-11.7	-7.9	-9.6	24
13	-8.3	-8.8	-9.1	-9.2	-9.9	-10.6	-10.8	-10.8	-10.6	-10.8	-10.8	-10.5	-10.3	-9.7	-9.3	-9.1	-9.8	-10.1	-9.8	-10.2	-10.5	-10.6	-10.7	-10.7	-10.8	-8.3	-10.0	24
14	-10.6	-10.5	-10.8	-11.2	-11.6	-11.5	-11.8	-12.0	-12.4	-11.6	-10.8	-10.4	-10.1	-10.0	-10.1	-10.2	-10.3	-10.4	-10.5	-10.5	-10.5	-10.6	-10.7	-10.9	-12.4	-10.0	-10.8	24
15	-10.9	-10.9	-11.1	-11.1	-11.2	-11.4	-11.4	-11.5	-11.6	-11.5	-11.4	-11.3	-11.2	-10.7	-10.5	-10.6	-11.0	-11.4	-11.6	-11.7	-11.7	-12.0	-13.8	-15.7	-15.7	-10.5	-11.6	24
16	-15.3	-14.3	-14.8	-15.3	-15.4	-17.3	-19.2	-21.2	-24.0	-23.5	-19.3	-15.9	-15.7	-15.8	-15.6	-15.5	-17.3	-17.7	-16.7	-16.4	-16.3	-16.2	-16.1	-16.0	-24.0	-14.3	-17.1	24
17	-16.5	-17.8	-18.8	-20.5	-22.2	-22.3	-22.1	-23.7	-26.2	-25.6	-20.8	-16.4	-14.3	-13.6	-14.2	-15.7	-17.8	-18.4	-16.3	-16.2	-15.2	-15.7	-18.9	-19.7	-26.2	-13.6	-18.7	24
18	-17.7	-15.2	-15.6	-13.3	-12.2	-9.9	-8.4	-6.8	-6.3	-8.8	-7.7	-7.0	-7.4	-6.3	-6.3	-7.1	-9.2	-10.8	-11.1	-11.3	-12.1	-12.8	-13.3	-13.4	-17.7	-6.3	-10.4	24
19	-12.8	-12.2	-12.6	-13.0	-13.2	-12.6	-12.4	-12.3	-11.9	-11.6	-11.5	-11.0	-11.2	-11.4	-12.7	-13.7	-14.6	-15.5	-16.3	-17.3	-17.7	-18.6	-19.1	-19.1	-19.1	-11.0	-13.7	24
20	-19.6	-20.2	-20.9	-21.5	-21.5	-21.4	-21.5	-21.3	-21.5	-21.9	-21.5	-20.7	-19.6	-18.8	-18.4	-18.6	-18.5	-18.6	-18.6	-19.9	-19.8	-19.0	-18.4	-18.0	-21.9	-18.0	-20.0	24
21	-18.0	-18.4	-19.4	-21.6	-23.0	-20.6	-20.1	-19.4	-18.9	-17.8	-16.2	-14.5	-13.6	-13.9	-14.6	-15.3	-15.6	-15.6	-15.6	-15.6	-15.6	-15.5	-15.8	-15.9	-23.0	-13.6	-17.1	24
22	-15.5	-15.0	-14.6	-14.4	-14.2	-13.7	-13.0	-12.0	-11.4	-10.4	-9.2	-7.9	-6.0	-5.5	-5.3	-4.4	-4.5	-4.4	-5.0	-5.2	-4.2	-4.1	-4.3	-3.6	-15.5	-3.6	-8.7	24
23	-3.4	-4.0	-3.1	-1.6	0.4	1.2	1.5	1.3	2.0	2.6	3.5	3.7	3.0	2.4	2.1	1.1	0.0	-0.4	-0.8	-1.0	-0.8	-1.3	-3.7	-4.8	-4.8	3.7	0.0	24
24	-6.4	-7.1	-7.1	-7.0	-8.0	-8.6	-10.9	-13.7	-15.4	-15.3	-12.4	-8.9	-7.0	-6.1	-5.3	-5.1	-5.1	-4.3	-3.0	-1.8	-1.3	-2.0	-1.9	1.6	-15.4	1.6	-6.8	24
25	2.0	1.8	1.6	1.0	-1.6	-3.6	-5.1	-6.4	-8.4	-9.3	-10.3	-10.3	-10.2	-10.5	-11.1	-11.7	-12.5	-13.1	-13.7	-13.7	-13.3	-13.7	-13.7	-14.0	-14.0	2.0	-8.3	24
26	-13.7	-12.6	-11.4	-11.3	-11.2	-11.3	-11.2	-11.2	-10.9	-10.5	-10.1	-10.1	-9.5	-9.1	-9.1	-9.2	-9.2	-9.3	-9.2	-8.9	-8.6	-8.9	-9.8	-10.0	-13.7	-8.6	-10.3	24
27	-10.0	-10.0	-10.1	-10.7	-11.5	-11.6	-12.3	-13.1	-11.8	-11.7	-11.7	-11.6	-10.5	-9.7	-10.5	-12.0	-13.5	-15.2	-16.2	-16.7	-18.1	-14.2	-14.4	-15.7	-18.1	-9.7	-12.6	24
28	-14.3	-11.2	-10.8	-11.2	-9.0	-7.5	-8.6	-12.4	-9.7	-8.4	-5.2	-3.7	-2.9	-2.3	-1.7	-1.4	-2.3	-3.0	-3.8	-5.1	-4.4	-2.7	-1.5	-1.5	-14.3	-1.4	-6.0	24
29	-1.2	-0.5	-1.5	-3.0	-5.0	-7.6	-12.3	-14.4	-14.3	-13.2	-8.2	-3.3	-1.1	-0.2	-0.5	-0.1	-1.1	-1.2	0.6	1.9	1.2	1.4	0.8	0.0	-14.4	1.9	-3.5	24
30	0.3	-0.8	-2.3	-3.0	-2.7	-3.3	-3.8	-3.4	-2.1	-2.9	-1.7	-1.2	-0.2	-0.2	-0.8	-1.3	-2.0	-1.8	-2.8	-2.8	-1.8	-1.1	-2.7	-3.3	-3.8	0.3	-2.0	24
HOURLY MAX	2.0	1.8	1.6	1.0	0.4	1.2	1.5	1.3	2.0	2.6	3.5	3.7	3.0	2.4	2.1	1.1	0.0	-0.4	0.6	1.9	1.2	1.4	0.8	1.6				
HOURLY AVG	-11.7	-11.5	-11.7	-11.8	-11.9	-12.0	-12.2	-12.7	-12.7	-12.2	-10.7	-9.3	-8.6	-8.4	-8.5	-8.8	-9.7	-10.5	-10.9	-11.0	-11.2	-11.4	-11.9	-12.0				

STATUS FLAG CODES

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

24 HR AVERAGES November 2017



MONTHLY SUMMARY

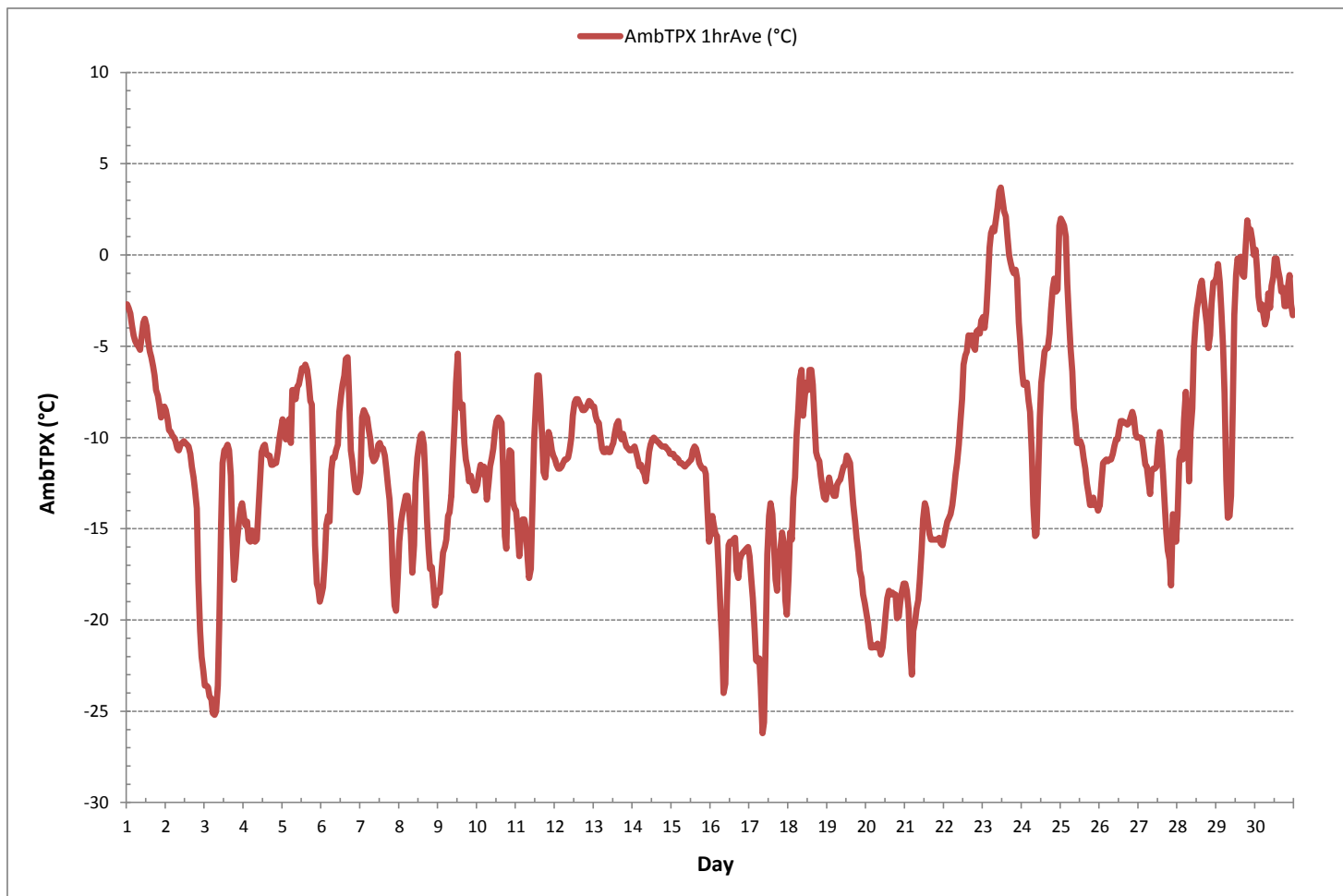
MINIMUM 1-HR AVERAGE:	-26.2	°C	@ HOUR	8	ON DAY	17
MAXIMUM 1-HR AVERAGE:	3.7	°C	@ HOUR	11	ON DAY	23
MAXIMUM 24-HR AVERAGE:	0.0	°C			ON DAY	23

OPERATIONAL TIME: 720 hrs

AMD OPERATION UPTIME: 100.0 %

STANDARD DEVIATION:	5.6		MONTHLY AVERAGE:	-11.0	°C
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AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

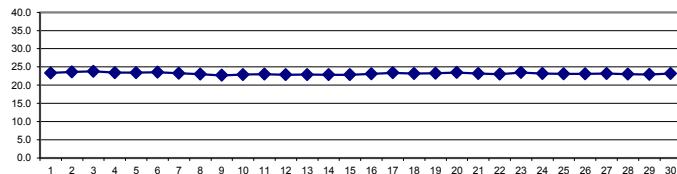
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	23.1	23.0	22.9	22.8	24.5	23.6	23.2	22.8	24.2	23.5	23.1	23.0	23.0	22.9	22.8	24.1	23.5	22.9	24.1	23.2	23.8	23.0	24.1	23.3	22.8	24.5	23.4	24	
2	23.6	23.7	23.0	24.1	23.6	23.1	23.9	23.8	23.4	23.4	23.8	23.2	23.7	23.3	23.6	23.4	23.4	23.7	23.3	23.2	23.8	23.8	24.3	24.1	23.0	24.3	23.6	24	
3	23.8	24.6	24.0	24.4	24.0	24.4	24.1	24.4	24.0	24.4	24.1	23.3	24.1	22.9	23.8	22.7	23.7	23.0	23.3	23.7	23.7	23.6	23.6	23.5	22.7	24.6	23.8	24	
4	23.4	23.5	23.5	23.5	23.6	23.6	23.5	23.6	23.5	23.7	23.6	22.7	24.1	22.7	23.7	22.8	23.8	22.6	23.9	23.3	22.9	23.8	23.2	23.2	22.6	24.1	23.4	24	
5	23.5	22.8	23.8	23.1	23.5	23.6	23.0	23.8	23.0	23.4	23.6	22.8	24.4	23.4	23.1	22.9	24.1	23.2	23.6	23.1	23.6	23.6	23.7	23.7	22.8	24.4	23.4	24	
6	23.9	24.3	24.0	23.9	23.8	23.8	23.8	23.7	23.6	23.6	23.4	22.8	24.0	22.7	24.1	23.2	22.7	23.8	23.0	23.8	23.3	23.1	23.8	23.7	22.7	24.3	23.6	24	
7	23.5	23.2	23.6	23.7	22.8	23.9	23.5	23.0	23.6	23.7	23.3	23.1	23.7	22.8	23.5	22.8	23.5	22.3	22.6	22.7	22.7	23.2	23.5	23.3	22.3	23.9	23.2	24	
8	23.3	22.9	22.9	23.2	23.2	23.1	23.0	22.9	23.0	22.3	23.3	23.2	23.3	22.6	24.1	23.1	22.3	23.4	22.1	22.7	22.9	23.1	23.2	23.7	22.1	24.1	23.0	24	
9	23.6	23.5	23.5	23.5	23.4	23.4	23.4	23.4	23.3	23.5	23.3	22.7	23.4	22.4	21.0	20.9	20.6	23.3	22.1	19.9	22.2	22.6	22.9	22.9	19.9	23.6	22.7	24	
10	23.0	22.9	23.0	22.9	22.8	23.0	22.9	23.0	23.0	22.9	22.8	23.0	22.9	22.7	22.8	22.5	22.9	22.8	22.9	22.9	23.0	22.8	23.0	22.9	22.5	23.0	22.9	24	
11	22.9	23.1	23.0	23.0	23.0	23.1	23.0	23.1	23.1	23.0	23.1	23.2	23.1	22.7	23.3	22.8	22.9	22.8	22.8	23.0	22.8	23.0	22.9	23.0	22.7	23.3	23.0	24	
12	22.8	23.0	22.9	23.0	22.9	22.9	22.8	23.0	23.0	22.7	23.1	22.8	22.8	23.0	22.7	22.8	22.8	22.7	22.8	22.8	23.0	22.8	22.9	22.8	22.7	23.1	22.9	24	
13	22.7	22.9	22.8	22.9	23.0	22.9	22.9	22.8	23.1	22.9	22.8	23.0	22.9	22.9	22.9	22.9	22.9	22.8	23.0	22.7	23.0	22.8	22.9	22.8	22.7	23.1	22.9	24	
14	23.0	22.9	22.7	23.0	22.8	23.0	22.8	22.9	23.0	22.9	23.0	22.8	22.7	23.0	22.7	22.8	22.8	22.8	22.9	22.8	22.7	22.9	22.9	22.7	22.7	23.0	22.9	24	
15	22.9	22.9	22.7	23.0	22.8	22.8	22.8	23.0	22.9	22.9	22.8	22.8	22.9	22.8	23.0	22.8	23.0	22.9	22.9	23.0	22.8	22.8	23.0	22.8	22.7	23.0	22.9	24	
16	22.9	22.8	22.9	22.8	22.8	22.9	23.0	23.1	23.4	23.2	23.4	23.3	23.1	23.3	23.3	23.3	23.2	23.2	23.2	23.3	23.3	23.1	23.3	23.1	22.8	23.4	23.1	24	
17	23.2	23.4	23.4	23.4	23.3	23.5	23.3	23.5	23.5	23.6	23.5	23.5	23.3	23.6	23.3	23.5	23.2	23.3	23.3	23.4	23.4	23.4	23.3	23.3	23.2	23.6	23.4	24	
18	23.2	23.5	23.3	23.3	23.3	23.2	23.1	23.3	23.1	23.0	23.1	23.1	23.3	22.9	23.3	22.8	23.1	23.1	23.1	23.2	23.3	23.2	23.1	23.2	22.8	23.5	23.2	24	
19	23.2	23.1	23.1	23.2	23.2	23.1	23.2	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.2	23.2	23.1	23.2	23.2	23.3	23.4	23.3	23.5	23.4	23.1	23.5	23.2	24	
20	23.5	23.6	23.6	23.6	23.6	23.6	23.6	23.5	23.5	23.6	23.6	23.6	23.6	23.4	23.5	23.4	23.4	23.4	23.3	23.3	23.2	23.4	23.3	23.2	23.2	23.6	23.5	24	
21	23.2	23.3	23.2	23.3	23.2	23.4	23.3	23.2	23.4	23.2	23.2	23.3	23.3	23.2	22.9	23.2	23.1	23.1	23.0	23.2	23.2	23.1	23.1	23.0	22.9	23.4	23.2	24	
22	23.1	23.2	23.2	23.2	23.0	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.0	23.2	22.7	23.1	22.9	23.0	22.6	23.0	22.7	23.1	22.7	23.2	22.7	22.6	23.2	23.0	24
23	23.1	22.7	23.2	23.0	22.9	23.0	23.1	23.1	23.1	23.2	23.5	24.0	24.1	22.9	23.8	24.3	24.5	23.2	23.3	23.7	23.8	23.9	23.8	23.6	22.7	24.5	23.5	24	
24	23.4	23.1	23.3	23.0	23.3	23.2	23.2	23.2	23.1	23.4	23.3	23.4	23.4	23.3	22.9	23.4	23.0	23.0	23.3	22.9	23.1	23.3	23.0	22.9	22.9	23.4	23.2	24	
25	22.9	23.0	23.1	23.2	23.2	23.1	23.0	22.7	23.3	23.2	23.1	23.1	23.2	23.3	23.0	23.0	23.2	23.2	23.1	23.3	23.2	23.2	23.1	23.3	22.7	23.3	23.1	24	
26	23.3	23.2	23.2	23.2	23.1	23.2	23.1	23.0	23.1	22.9	22.9	22.9	23.1	23.1	23.1	23.0	23.2	23.2	23.1	23.3	23.2	23.1	23.1	23.4	22.9	23.4	23.1	24	
27	23.3	23.2	23.1	23.1	23.1	23.3	23.1	23.1	23.3	23.1	23.0	23.3	23.2	23.3	23.2	23.0	23.3	23.1	23.0	23.2	23.1	23.3	23.2	23.2	23.0	23.3	23.2	24	
28	23.2	23.2	23.2	23.0	23.3	23.2	23.2	23.0	23.1	23.2	23.1	23.1	22.7	23.4	23.1	23.0	22.8	22.7	22.7	23.1	22.9	23.1	22.7	22.6	22.6	23.4	23.0	24	
29	22.6	22.7	22.7	22.6	23.3	22.7	22.9	23.1	23.1	23.0	23.2	23.0	23.0	22.9	23.0	23.0	23.0	22.9	22.8	22.9	22.9	23.0	23.0	23.0	22.6	23.3	22.9	24	
30	22.9	22.9	22.8	22.6	23.2	22.6	23.2	22.8	23.1	23.2	23.2	23.2	23.4	23.7	23.9	23.9	23.7	23.6	23.4	23.1	22.9	22.7	23.1	22.8	22.6	23.9	23.2	24	
HOURLY MAX	23.9	24.6	24.0	24.4	24.5	24.4	24.1	24.4	24.2	24.4	24.1	24.0	24.4	23.7	24.1	24.3	24.5	23.8	24.1	23.8	23.8	23.9	24.3	24.1					
HOURLY AVG	23.2	23.2	23.2	23.2	23.3	23.2	23.2	23.2	23.3	23.2	23.3	23.1	23.3	23.0	23.2	23.0	23.1	23.1	23.1	23.0	23.1	23.2	23.3	23.2					

STATUS FLAG CODES

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

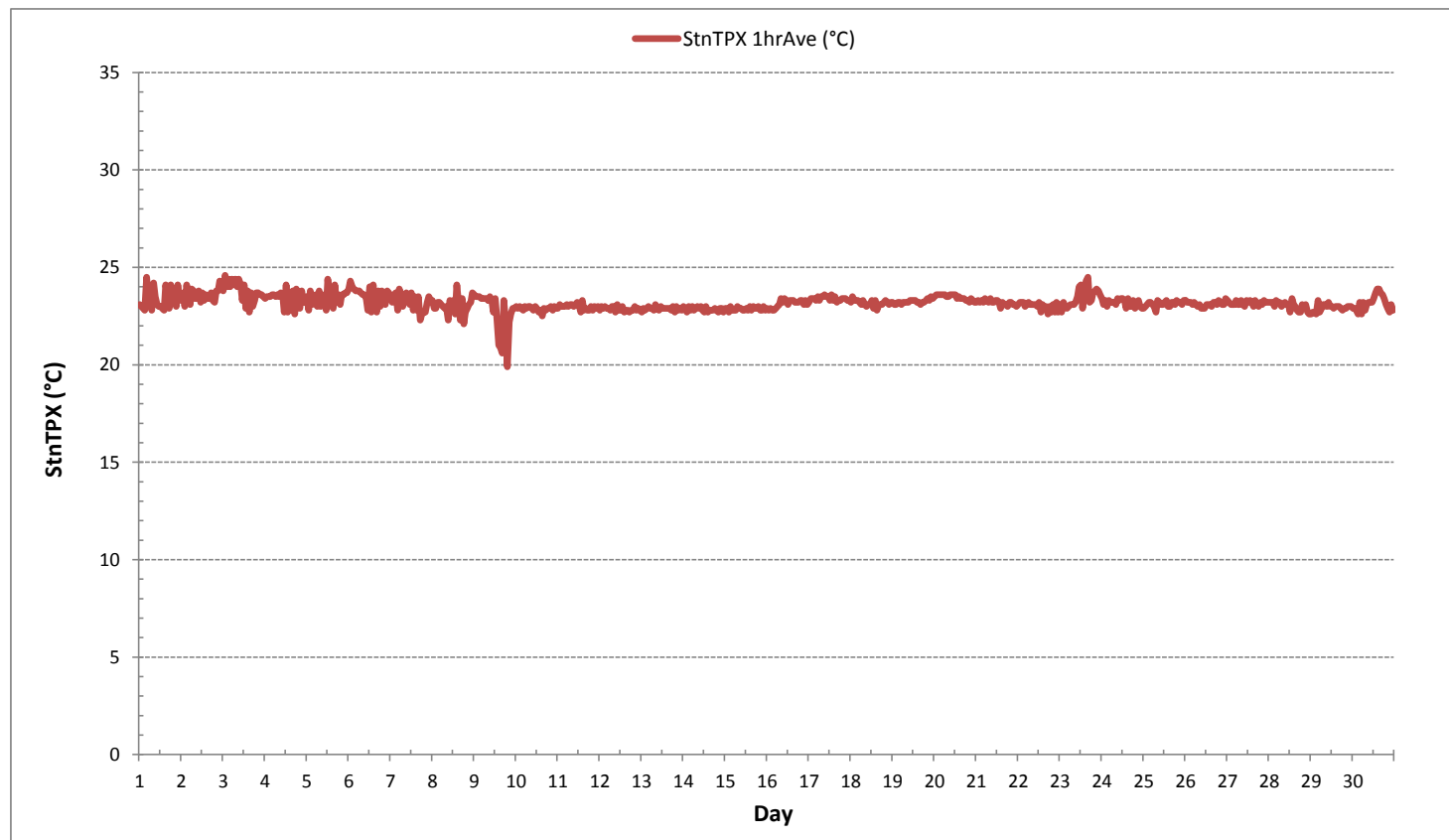
24 HR AVERAGES November 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	19.9	°C	@ HOUR	19	ON DAY	9
MAXIMUM 1-HR AVERAGE:	24.6	°C	@ HOUR	1	ON DAY	3
MAXIMUM 24-HR AVERAGE:	23.8	°C			ON DAY	3
OPERATIONAL TIME:					720	hrs
AMD OPERATION UPTIME:					100.0	%
STANDARD DEVIATION:	0.4		MONTHLY AVERAGE:		23.2	°C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43C Sulphur Dioxide Analyzer Calibration

Date:	November 9, 2017	Barometer/B.P./units:	Brunton 05535 expires December 5, 2017	937	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	986b	Weather Conditions:	Mainly sunny		
Parameter:	Sulphur Dioxide	Calibration Purpose:	as found		
Start Time 24 hr. (mst):	14:08	Performed By/Reviewer:	Chris Wesson	Tom Bourque	
End Time 24 hr. (mst):	15:31	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		

Analyzer:

ID# or Serial Number:	43C-62339-335	Range ppb:	500
Last Calibration Date:	October 3, 2017	As Found C.F.:	0.962
Previous C.F.:	0.998	New C.F.:	n/a

Calibration Standards:

Low Flow Meter ID/Expiry Date: Defender 530+ Low #156151, Expiry 02-Oct-2018
High Flow Meter ID/Expiry Date: Defender 530+ High #156312, Expiry 02-Oct-2018
Calibrator ID/Expiry Date: Sabio id# 17100415 expires May 16, 2018
Cal Gas Cylinder I.D. #: EY0000597
Cal Gas Conc. (ppm): 50.4

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

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

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	6005	0.00	6005	0.0	-1.2	n/a
as found high	5964	45.10	6009	378.2	392.0	0.962
					Average C.F. =	n/a

Linear Regression/Calibration Results:

Correlation Coefficient =	n/a	LIMITS	n/a
Slope =	n/a		n/a
b (Intercept as % of full scale) =	n/a		n/a
% change in C.F. from last cal =	3.61%		n/a

Thermo 43C Sulphur Dioxide Analyzer Calibration

As found:		As left:	
Bkg:	77.6	Bkg:	n/a
Coef:	0.907	Coef:	n/a
Pmt:	-655	Pmt:	n/a
0	Lamp=843	0	n/a
Battery:	3.3	Battery:	n/a
Internal:	26.5	Internal:	n/a
Chamber:	45.2	Chamber:	n/a
Pressure:	449.3	Pressure:	n/a
Flow:	0.781	Flow:	n/a
Intensity:	~38000	Intensity:	n/a
Averaging Time:	120	Averaging Time:	n/a
Expected Value:	n/a	Expected Value:	n/a

Comments:

The manifold blower was found to be working normally.

An "as-found zero" and "as found high" measurement was performed prior to exchanging the case fan.

Flow measurements after mid-point



Thermo 43C Sulphur Dioxide Analyzer Calibration

Date:	November 9, 2017	Barometer/B.P./units:	Brunton 05535 expires December 5, 2017	937	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	986b	Weather Conditions:	Mainly sunny		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	16:35	Performed By/Reviewer:	Chris Wesson	Tom Bourque	
End Time 24 hr. (mst):	19:34	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		

Analyzer:		Range ppb:	500
ID# or Serial Number:	43C-62339-335	As Found C.F.:	0.962
Last Calibration Date:	October 3, 2017	New C.F.:	1.000
Previous C.F.:	0.998		

Calibration Standards:		Standard Calibration Points for Ranges								
Low Flow Meter ID/Expiry Date:	Defender 530+ Low #156151, Expiry 02-Oct-2018	<table border="1"> <tr> <th>Point</th> <th>ppb</th> </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 530+ High #156312, Expiry 02-Oct-2018									
Calibrator ID/Expiry Date:	Sabio id# 17100415 expires May 16, 2018									
Cal Gas Cylinder I.D. #:	EY0000597									
Cal Gas Conc. (ppm):	50.4									

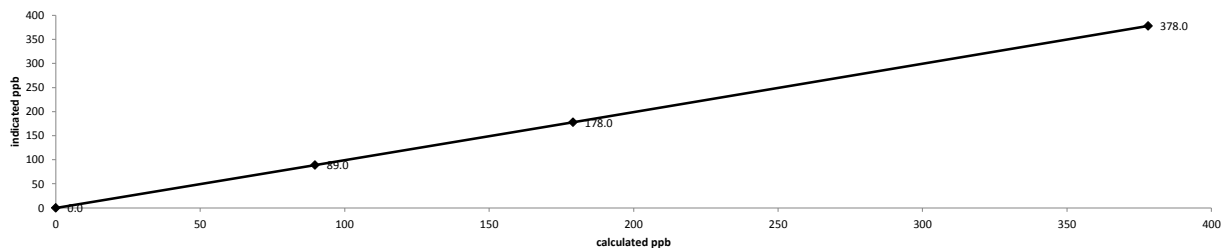
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6005	0.00	6005	0.0	-1.2	n/a
as found high	5964	45.10	6009	378.2	392.0	0.962
adjusted zero	6003	0.00	6003	0.0	0.0	n/a
adjusted high	5956	45.02	6001	378.1	378.0	1.000
mid	5993	21.37	6014	179.1	178.0	1.006
low	5992	10.69	6003	89.7	89.0	1.008
calibrator zero	6005	0.00	6005	0.0	0.0	n/a
Average C.F.=						1.005

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.000		0.95-1.05
b (Intercept as % of full scale)=	0.10%		± 3% F.S.
% change in C.F. from last cal=	3.61%		± 10%

Thermo 43C Sulphur Dioxide Analyzer Calibration



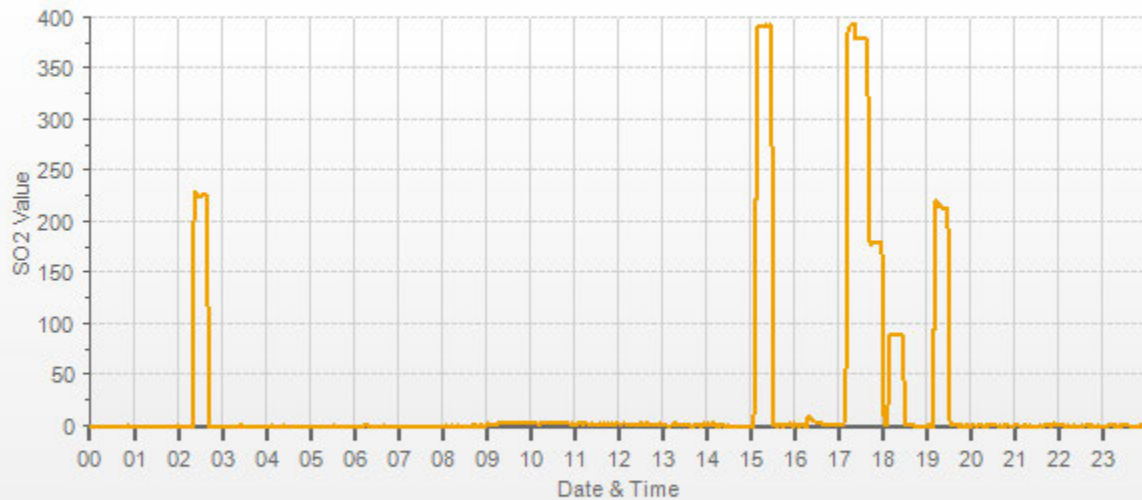
As found:		As left:	
Bkg:	77.6	Bkg:	74.0
Coef:	0.907	Coef:	0.873
Pmt:	-655	Pmt:	-654
0	Lamp=845	0	Lamp=844
Battery:	3.2	Battery:	3.3
Internal:	24.8	Internal:	27.3
Chamber:	45.1	Chamber:	45.3
Pressure:	449.5	Pressure:	449.4
Flow:	0.780	Flow:	0.781
Intensity:	~38000	Intensity:	~38000
Averaging Time:	120	Averaging Time:	120
Expected Value:	225.9	Expected Value:	225.9

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.

An "as found zero" and "as found high" measurements were performed prior to exchanging the case fan.
 Monthly calibration was completed after exchanging the case fan.

Flow measurements after mid-point

SO2[ppb] Station: PRAMP_986 Daily: 17/11/09 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration

Date:	November 9, 2017	Barometer/B.P./units:	Brunton 05535 expires December 5, 2017	937	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	986b	Weather Conditions:	Mainly sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	12:01	Performed By/Reviewer:	Chris Wesson	Tom Bourque	
End Time 24 hr. (mst):	16:11	Cal Gas Expiry Date:	May 16, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101 #516		

Analyzer:	ID# or Serial Number:	1152940011	Range ppb:	100
	Last Calibration Date:	October 3, 2017	As Found C.F.:	0.986
	Previous C.F.:	1.000	New C.F.:	1.000

Calibration Standards:		Standard Calibration Points for Ranges		SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender 530+ Low #156151, Expiry 02-Oct-2018	Point	ppb	Start/End Time 24 hr.:	12:52 / 13:02
High Flow Meter ID/Expiry Date:	Defender 530+ High #156312, Expiry 02-Oct-2018	High	78	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	API id# 830 expires February 14, 2018	Mid	38	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. # :	LL119420	Low	19	As Found Zero:	0.0
Cal Gas Conc. (ppm):	10.2			Analyzer Response: (ppb):	0.0
				Zero Corrected Result (ppb):	0.0

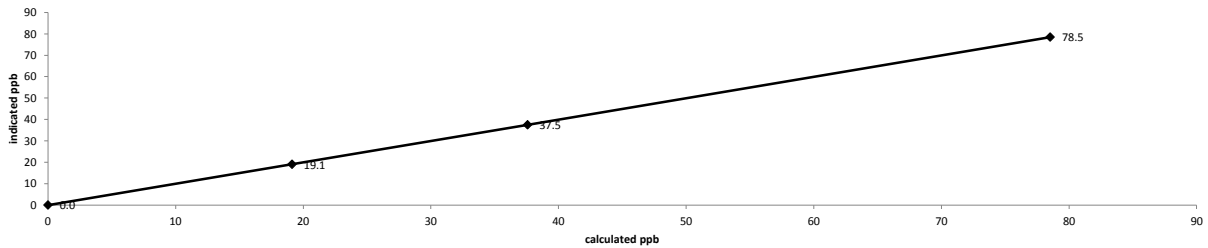
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7483	0.00	7483	0.0	0.2	n/a
as found high	7424	57.60	7482	78.5	79.8	0.986
adjusted zero	7483	0.00	7483	0.0	0.0	n/a
adjusted high	7424	57.60	7482	78.5	78.5	1.000
mid	7463	27.60	7491	37.6	37.5	1.002
low	7476	14.05	7490	19.1	19.1	1.002
calibrator zero	7483	0.00	7483	0.0	0.2	n/a
Average C.F. =						1.001

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.000		0.95-1.05
b (Intercept as % of full scale) =	0.02%		± 3% F.S.
% change in C.F. from last cal =	1.39%		± 10%

Thermo 43I-TLE Total Reduced Sulphur Analyzer Calibration



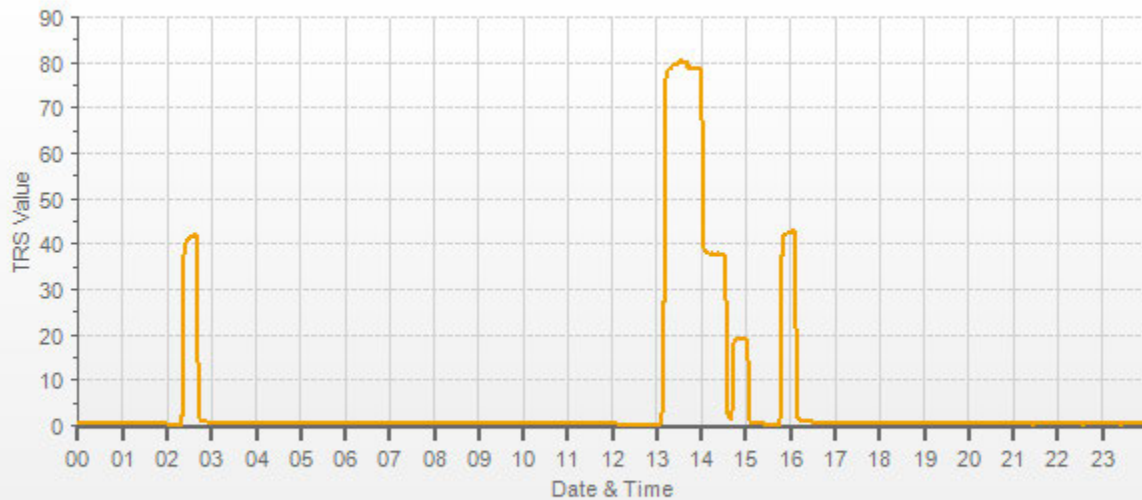
As found:		As left:	
Bkg:	1.86	Bkg:	1.97
Coef:	1.001	Coef:	0.978
Pmt:	-686.7	Pmt:	-687.1
Flash:	971	Flash:	974
Internal:	34.7	Internal:	32.4
Chamber:	45.1	Chamber:	44.9
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.25	Perm Oven Heater:	44.24
Pressure:	649.2	Pressure:	648.6
Sample Flow:	0.464	Sample Flow:	0.463
Lamp Intensity:	92	Lamp Intensity:	91
Converter:	820	Converter:	820
Converter Set:	820	Converter Set:	820
Averaging Time:	120	Averaging Time:	120
Expected Value:	44.7	Expected Value:	42.7

Comments:

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

Flow measurements after mid-point

TRS[ppb] Station: PRAMP_986 Daily: 17/11/09 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	November 9, 2017	Barometer/B.P./units:	Brunton 05535 expires December 5, 2017	937	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	986b	Weather Conditions:	Mainly sunny		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	routine monthly		
Start/End Time 24 hr. (mst):	12:01 / 15:18	Performed By/Reviewer:	Chris Wesson	Tom Bourque	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	November 25, 2023		

Analyzer:	ID# or Serial Number:	1022143392	Correction Factors:		
	Measured Flow:	1.01 L/min	Previous C.F.:	As Found C.F.:	New C.F.:
	Last Calibration Date:	October 4, 2017	CH ₄ = 1.000	1.049	1.000
	Range ppm:	20 CH ₄ /20 NMHC/40 THC	NMHC = 1.000	1.022	0.999
			THC = 1.000	1.036	0.999

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Defender 530+ Low #156151, Expiry 02-Oct-2018	Point	CH ₄	NMHC	THC
High Flow Meter ID/Expiry Date:	Defender 530+ High #156312, Expiry 02-Oct-2018	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	Sabio id# 17100415 expires May 16, 2018	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #:	LL86139	Low	3.00	3.00	6.00
CH ₄ Cylinder Conc.:	599.0 211.0 =C ₃ H ₈ Cylinder Conc.				
CH ₄ expressed as C ₃ H ₈ =	580.3 1179.3 =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	2491	0.00	2491	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
as found high	2429	60.48	2489	14.56	14.10	28.66	13.87	13.79	27.67	1.049	1.022	1.036
adjusted zero	2491	0.00	2491	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
adjusted high	2429	60.48	2489	14.56	14.10	28.66	14.56	14.11	28.68	1.000	0.999	0.999
mid	2468	30.27	2498	7.26	7.03	14.29	7.33	7.11	14.45	0.990	0.989	0.990
low	2483	15.62	2499	3.74	3.63	7.37	3.81	3.70	7.52	0.983	0.980	0.982
calibrator zero	2491	0.00	2491	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
Average C.F. =										0.991	0.990	0.990

Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995	
Slope =	0.999	1.000	0.999	0.95-1.05	
b (Intercept as % of full scale) =	0.20%	0.21%	0.23%	± 3% F.S.	
% change in C.F. from last cal =	-4.94%	-2.25%	-3.60%	± 10%	

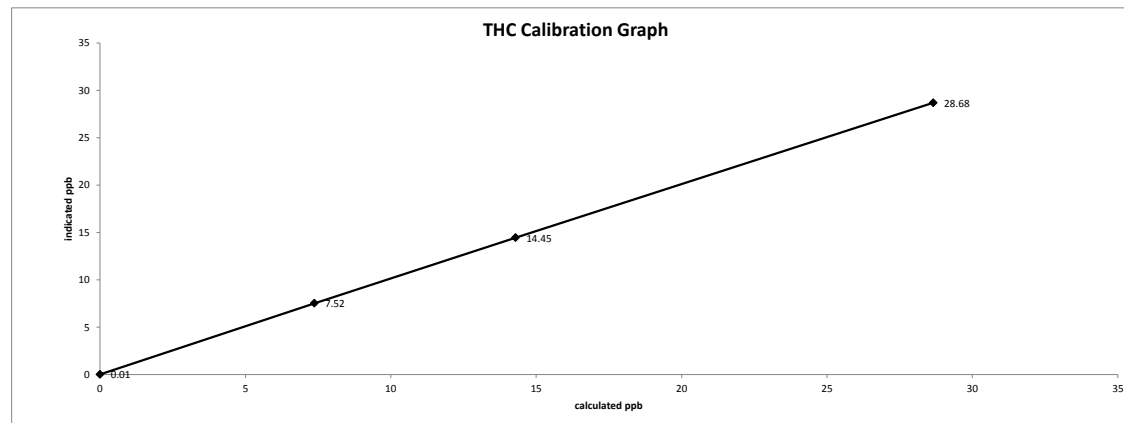
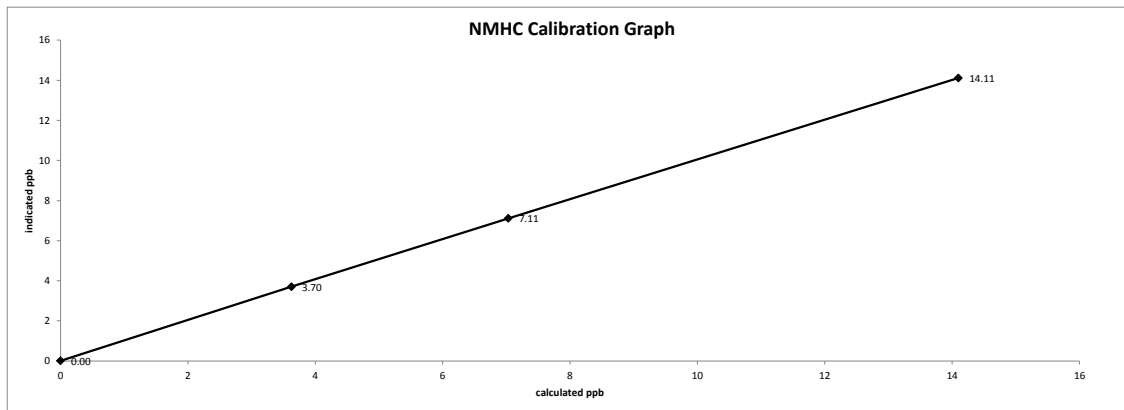
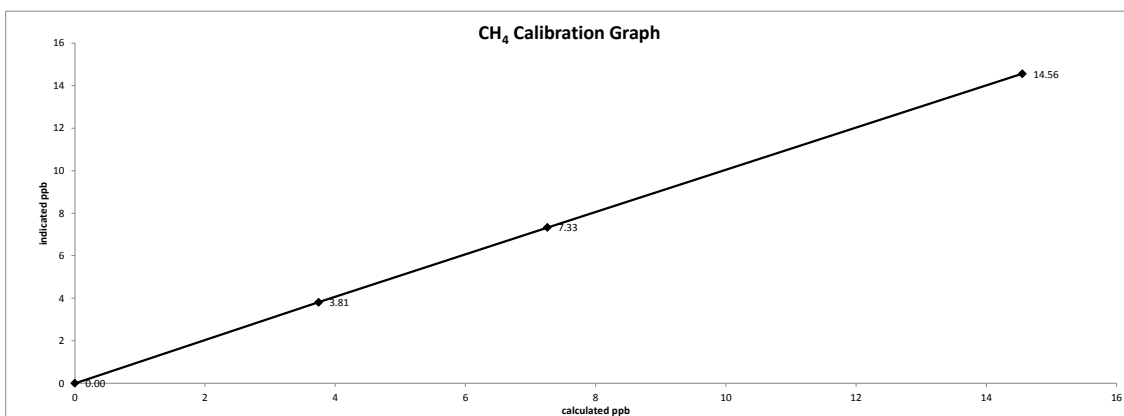
As Left Instrument Diagnostics:												
Interface Board Voltages:	Bias Supply:	-311.6	Calibration History cnt'd:	NM Peak Area:	74020							
Temperatures:	Detector Oven:	175.0	Crucial Settings:	Methane Start:	n/a							
	Filter:	175.0		Methane End:	n/a							
	Column Oven:	75.1		Backflush:	n/a							
	Internal:	36.5		NMHV Start:	n/a							
Cylinder Pressures/reg.:	Carrier:	1800 50	Run History>1:	NMHC End:	n/a							
	Fuel:	800 50		Date:	09Nov2017							
	Span Gas:	800 28		Time:	15:01							
	Zero Air Generator:	45		CH ₄ PK HT:	0							
Internal Pressures:	Carrier:	31.4		CH ₄ RT:	8.0							
	Fuel:	40.5		CH ₄ Baseline:	1606							
	Air:	32.4		CH ₄ LOD:	24							
FID Status:	Status:	Lit		CH ₄ SD:	8							
	Counts:	~20200		CH ₄ CONC:	0.00							
	Flame:	321.2		NM PK HT:	0							
	Det Base:	175.0		NM Peak Area:	0							
Flame and Power Stats:	Last Power On:	07Oct2017@02:39		NM CONC:	0.00							
	Flameouts:	2		NM Base Start:	1600							
	Det Oven at Start:	37.4		NM Base End:	1603							
	Col Oven at Start:	34.9		NM LOD:	7							
Calibration History:	Time:	09Nov2017@13:29		NM Start IDX:	49							
	Type:	Span		NM End IDX:	46							
	Status:	Good		NM Max Slope:	4.9e-01							
	Check/Adjust:	Adjust		NM Min Slope:	-3.2e-01							
	CH ₄ Span Conc:	14.56	Expected Values:	NM PT Count:	0							
	CH ₄ SP Ratio:	0.000774		Previous CH ₄ :	8.79							
	CH ₄ RT:	12.4		Previous NMHC:	10.11							
	CH ₄ PK IDX:	22		Previous THC:	18.9							
	CH ₄ PK HT:	18811		New CH ₄ :	9.11							
	NM Span Conc:	14.10		New NMHC:	10.23							
	NM SP Ratio:	0.00019		New THC:	19.34							

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.	

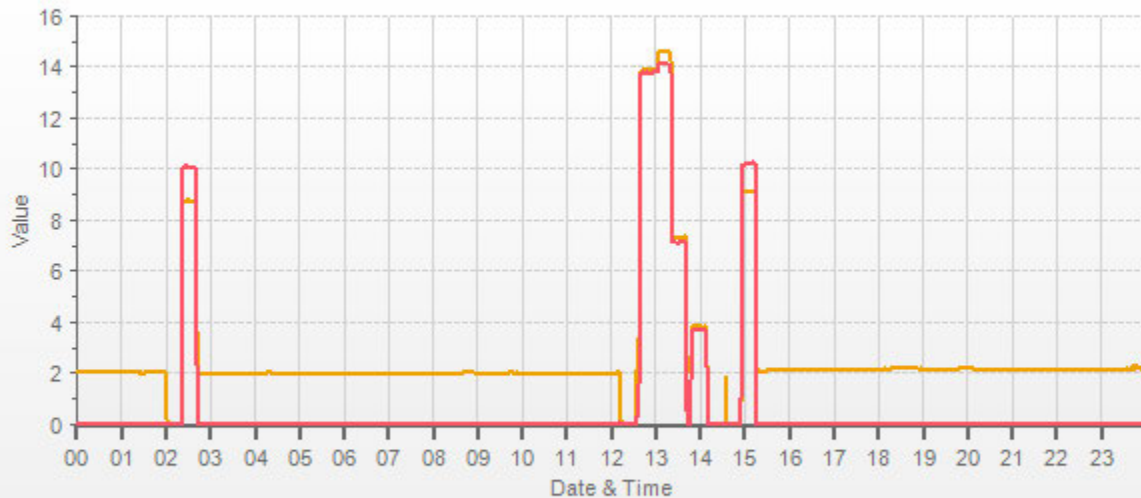
Flow measurements after mid-point

Date: November 9, 2017
Company/Airshed: PRAMP
Location/Station Name: 986b

Start/End Time 24 hr. (mst): 12:01 / 15:18
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution



Station: PRAMP_986 Daily: 17/11/09 Type: AVG 1 Min. [1 Min.]



— CH4[ppm] — NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company: PRAMP
Audit Location: 986b
Audit Date: April 5, 2017

Performed By: Limin Li
Reviewed By: Trina Whitsitt
Start /EndTime (mst): 13:30/15:30

Wind Sensor Information

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

Wind Calibrator Information

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

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

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

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

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

Comments: Adjust wind speed gain before calibration.

CALIBRATORS

Company Maxxam Operator: Micheal Espiritu

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

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

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

LINEAR REGRESSION ANALYSIS

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

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

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

LINEAR REGRESSION ANALYSIS

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

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

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

COMMENTS: Contains 50.4 ppm SO₂.

Auditor: Al Clark
Operator Signature: [Signature]

Date: May 16, 2017
Location: McIntyre Center Edmonton

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2016-509A

Company: Maxxam

Operator: Mike

Calibrator:		Flow Measurement Device:	
Make/Model	API 700	Make/Model	Bios Defender 530+
Serial Number	830	Serial Number	Hi148944 Lo 152019
Last Verification Date	January 19, 2016	Temperature (°C)	24.6
SO ₂ Cylinder Conc.	50.5	Barometric Pressure	701.4mmHg
SO ₂ Cylinder S/N	EY0000769		
Expiry Date	December 8, 2019		

Flow Measurements

Pt. No. 1 78.0 Pt. No. 2 37.7 Pt. No. 3 18.6

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
4978	0.0000	0.0000		
4974	0.7920	0.7912	0%	± 10%
4978	0.3825	0.3825	0%	± 10%
4975	0.1900	0.1908	0%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS

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

SO₂ **LIMITS**

Correlation= 1.0000 **≥ 0.995**

m (Slope)= 0.9986 **0.90-1.10**

b (Intercept % of FS)= 0.0477 **± 3% F.S.**

AENV Standards

Audit Calibrator

Make/Model R&R MFC 201

Serial/AMU Number 1690

SO₂

SRM Gas Cylinder No. CAL016625

Cylinder Conc. (ppm) 98.07

SO₂ Analyzer

Make/Model Themro 43i

Serial/AMU Number 1623

Last Calibration Date January 31, 2017

Full Scale (ppm) 1.0

Expiry Date January 5, 2019

COMMENTS: Analyzer verified prior to audit

Auditor: Shea Beaton

Date: February 14, 2017

Operator Signature: [Signature]

Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-438CGA

Company: Maxxam Operator's Name: Chris
Cylinder #: EY0000597 Concentration PPM: 50.4 Tolerance(%): 1.0 Certified By: Praxair
Expiry Date: December 8, 2019

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

Make/Model: Themro 43C Serial/AMU Number: AMU 1623
Instrument Settings: Zero: 9.5 Span: 1.023 Range: 1.0
Last Calibration: Date: 25-Jan-17 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4923	0.0	0.000			
4916	80.7	0.834	0.01642	60.917	50.8
4902	40.3	0.416	0.00822	121.638	50.6
4916	19.9	0.206	0.00405	247.035	50.9
Average Cylinder Concentration:					50.7

Previous Stated Concentration PPM: 50.4

Percent variance from Stated: 0.7

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

Auditor: Shea Beaton
Operator Signature: _____

Date: January 26, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-135CGA

Company: Maxxam **Operator's Name:** Raja Abid Ashraf

Cylinder #: LL119420 **Concentration PPM:** 10.2 **Tolerance(%)** 2 **Certified By:** Praxair

Expiry Date: May 16, 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: July 27, 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: 22.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 450i **Serial/AMU Number:** 1980

Instrument Settings: **Zero:** 21.9 **Span:** 1.069 **Range:** 0.1

Last Calibration: **Date:** July 27, 2017 **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	0.0020	~~0.00760~~	~~131.542~~	~~10.0~~
5117	38.9	0.0781	0.00760	131.542	10.0
5103	18.4	0.0379	0.00361	277.337	10.5
5097	9.4	0.0198	0.00184	542.234	10.7
Average Cylinder Concentration:					10.4

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: 2

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

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

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: July 27, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2015-091CGA

Company: Maxxam Operators name: Chris Wesson
Cylinder #: LL86139 Conc CH₄ (PPM) 599/211 Tolerance (%) 0.5 Certified By: Praxair

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1698
Last Verification Date January 18, 2016
Gas Type CH₄ Conc. 999.2
Cylinder Number D751932
Gas Type C₃H₈ Conc. 246.5
Cylinder Number XF0037998

Flow Measurement Device:

Make/Model Bios DC-2
Serial Number Bios D
Temp. °C 23
B.P. 599mmHg

Reference Analyzer:

Make/Model Thermo 55C Serial/AMU Number: 1643
Instrument Settings Zero: NA Span: NA Range: 20.0
Last Calibration: Date: 18-Jan-16 C.F. 1.000 Done By: SB

Calibrator Flows (scm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
2583	0.00	0.00	0.00				
2635	56.52	12.80	12.59	0.02145	46.621	597	213
2592	19.72	4.54	4.49	0.00761	131.440	597	215
2584	9.69	2.25	2.24	0.00375	266.667	600	217
Average Cylinder Concentration:						598	215

	<u>CH₄</u>	<u>C₃H₈</u>
Previous Stated Concentration PPM:	<u>599</u>	<u>211</u>
Percent variance from Stated:	<u>0.2</u>	<u>1.9</u>

Cylinder gas tolerances based on CH₄ only

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ COMMENTS: C₃H₈ manufacturers tolerance 1.1%
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐

Auditor: Shea Beaton Date: January 19, 2016
Operator Signature: [Signature] Location: McIntyre Center Edmonton

APPENDIX III
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Three Creeks 986b Station
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
☐ Yes ☒ No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

I certify that I have reviewed and verified the submitted report. I also certify that the report presented with this certification form is complete, accurate and representative of the monitoring results and timeframe.



Signature of the Representative of the Person
Responsible / External Person Certifying the Report

November 19, 2017

Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2017-11-67-C

Site: Three Creeks 986b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Carla Reesor

Date November 6, 2017

Level 1 Primary Validation

Carla Reesor

Date November 6, 2017

Level 2 Final Validation

Carla Reesor

Date November 19, 2017

Level 3 Independent Data Review

Cheri Sinclair

Date November 19, 2017

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.