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

JOB #: 8449-2017-12-80-C

December 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **January 23, 2018**

Prepared by:

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SUMMARY

In December 2017, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 842b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for 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, with the exception of TRS, were above the 90% requirement.

Non-Conformance: The TRS analyzer failed an as-found response check on December 29. Data was invalidated back to the last valid zero-span check recorded before the analyzer exhibited an abrupt drift in span response. This was determined as December 25, at hour 02:00. 111 hours of downtime were recorded due to this event. Operational time was 85.1%. The 90% operational time requirement was not met this month. This contravention was reported to AEP under reference number: 333776.

SO₂: The resident analyzer (API 100A, s/n: 838) was removed on December 7, for maintenance purposes. Model Thermo 43i (s/n: 835033373) was installed as a replacement.

THC/CH₄/NMHC: Twenty-four hours of downtime were recorded this month.

- Due to low fuel gas pressure and the subsequent corrective actions performed, twenty-two hours of downtime were recorded between December 5 and December 6.
- The zero air generator was replaced on December 7 for maintenance purposes. One hour of downtime was recorded due to this event.
- One hour of downtime was recorded on December 28 at hour 19:00 due to an interference from station activities.

The summary of results is presented on the following pages.

Any deviations or modifications made to the sampling or analytical methods are outlined in Section 1.0, Discussion. On this basis, Maxxam Analytics is issuing this completed report to Peace River Area Monitoring Program Committee, Three Creeks 842b Station.

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Three Creeks 842b Station						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO ₂ (ppb)	172	48	0	0	0	2	31	14	11.2	SSW	1	31	100.0
TRS (ppb)	-	-	-	-	0.17	0.29	31	20	6.9	S	0.22	2	85.1
THC (ppm)	-	-	-	-	2.03	4.83	26	3	4.5	E	2.57	26	96.8
CH ₄ (ppm)	-	-	-	-	2.03	4.83	26	3	4.5	E	2.57	26	96.8
NMHC (ppm)	-	-	-	-	0.00	0.00	1	0	10.4	SW	0.00	1	96.8
RELATIVE HUMIDITY (%)	-	-	-	-	73	96	1	16	9.2	WSW	92	2	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	948	970	29	8	2.6	E	967	29	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-10.0	5.5	9	14	18.9	SW	4.4	9	100.0
STATION TEMPERATURE (°C)	-	-	-	-	21.3	24.1	7	10	16.8	SSW	22.7	1	100.0
VECTOR WS (kph)	-	-	-	-	6.1	23.2	10	8	-	WSW	16.4	15	100.0
VECTOR WD (sec)	-	-	-	-	231 (SW)	-	-	-	-	-	-	-	100.0

**SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY**

Three Creeks 842b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	December

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES	NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION	
SO ₂	100.0	0.002 ppm	0	0.001 ppm	0	
TRS	85.1	0.000 ppm	-	0.000 ppm	-	
THC	96.8	4.83 ppm	-	2.57 ppm	-	
CH ₄	96.8	4.83 ppm	-	2.57 ppm	-	
NMHC	96.8	0.00 ppm	-	0.00 ppm	-	
RH	100.0	96 %	-	92 %	-	
BP	100.0	970 mb	-	967 mb	-	
Ambient TPX	100.0	5.5 °C	-	4.4 °C	-	
Station TPX	100.0	24.1 °C	-	22.7 °C	-	
Wind Speed	100.0	23.2 kph	-	16.4 kph	-	
Wind Direction	100.0	-	-	-	-	

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

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

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

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

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

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

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

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

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

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time, for the monitoring period was 100%.
- The analyzer was removed for maintenance on December 7 in order to address the PMT temperature alarm experienced during the November monitoring period. Following a successful shut-down calibration, the resident analyzer (API 100A, s/n: 838) was removed. A successful installation calibration was subsequently completed for the replacement analyzer (Thermo 43i, s/n: 835033373).

TOTAL REDUCED SULPHUR (TRS)

- Operational time, for the monitoring period was 85.1%, equivalent to 111 hours of downtime.
- The routine monthly calibration was performed on December 7.
- The analyzer spanned outside the lower acceptance limit on December 26. A repeat span check and subsequent scheduled zero-span check results were within limits but still drifting low. As a precaution, a site visit was scheduled. Upon arrival at the station, the exhaust tube was found frozen due to extremely low temperatures. An as-found response check was attempted on December 29 but was unsuccessful. The results were confirmed with an alternate calibration equipment. Following several troubleshooting attempts, the problem was traced to the scrubber material which may have been impacted by low temperatures. The scrubber material was renewed and a successful post-repair calibration was performed on the same day. A leak check was conducted after the calibration, as a quality check. The results met AMD requirements.
- Data was invalidated back to the last valid zero-span check recorded before the analyzer exhibited an abrupt drift in span response. This was determined to be on December 25 at hour 02:00. 111 hours of downtime were recorded due to this event. The 90% operational time requirement was not met this month. This contravention was reported to AEP under reference number: 333776.

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

- Operational time, for the monitoring period was 96.8%, equivalent to twenty-four hours of downtime.
- Due to low fuel gas pressure, the analyzer recorded anomalous low hourly and span concentrations on December 5, prompting an immediate site visit. The fuel gas cylinder was replaced on December 6. As a quality check, a zero-span check was triggered after the replacement. The result was within limits. Twenty-two hours of downtime were recorded due to this event.
- Following a successful shut-down calibration on December 7, the zero air generator was replaced for maintenance purposes. A successful post-repair calibration was completed subsequently. One hour of downtime was recorded due to this maintenance event.
- One hour of downtime was recorded on December 28 at hour 19:00 due to an interference from station activities.
- 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 technicians were Christopher Wesson and Raja Ashraf.

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, with the exception of TRS, were above the 90% requirement. This contravention was reported to AEP under reference number: 333776.

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 - API 100A and Thermo 43i UV Fluorescent Analyzers

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - ESC 8832

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

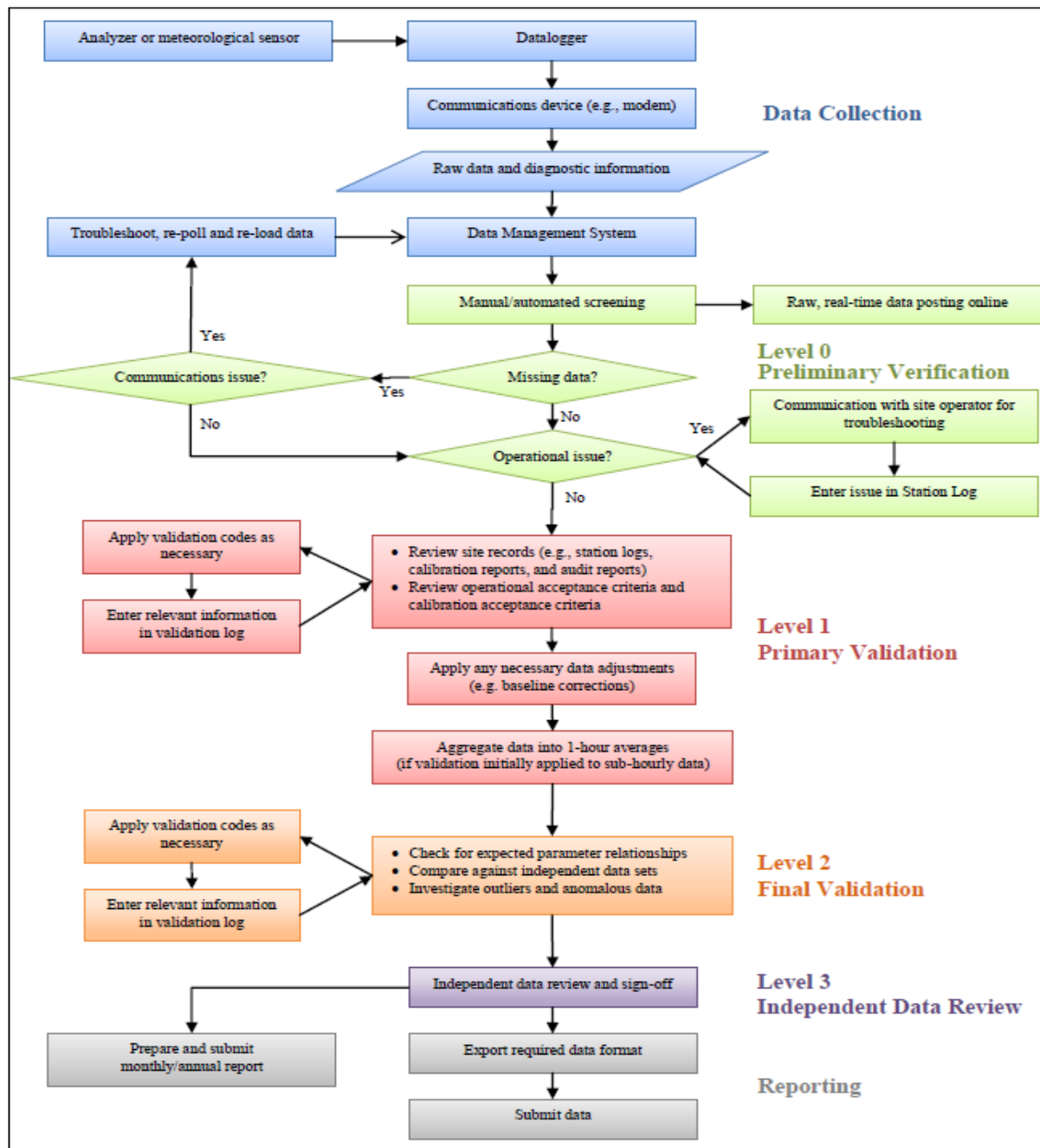
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

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

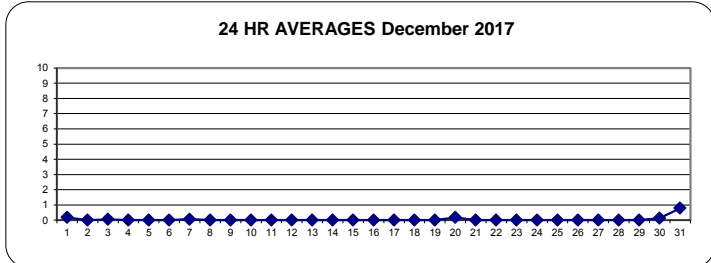
OBJECTIVE LIMIT:

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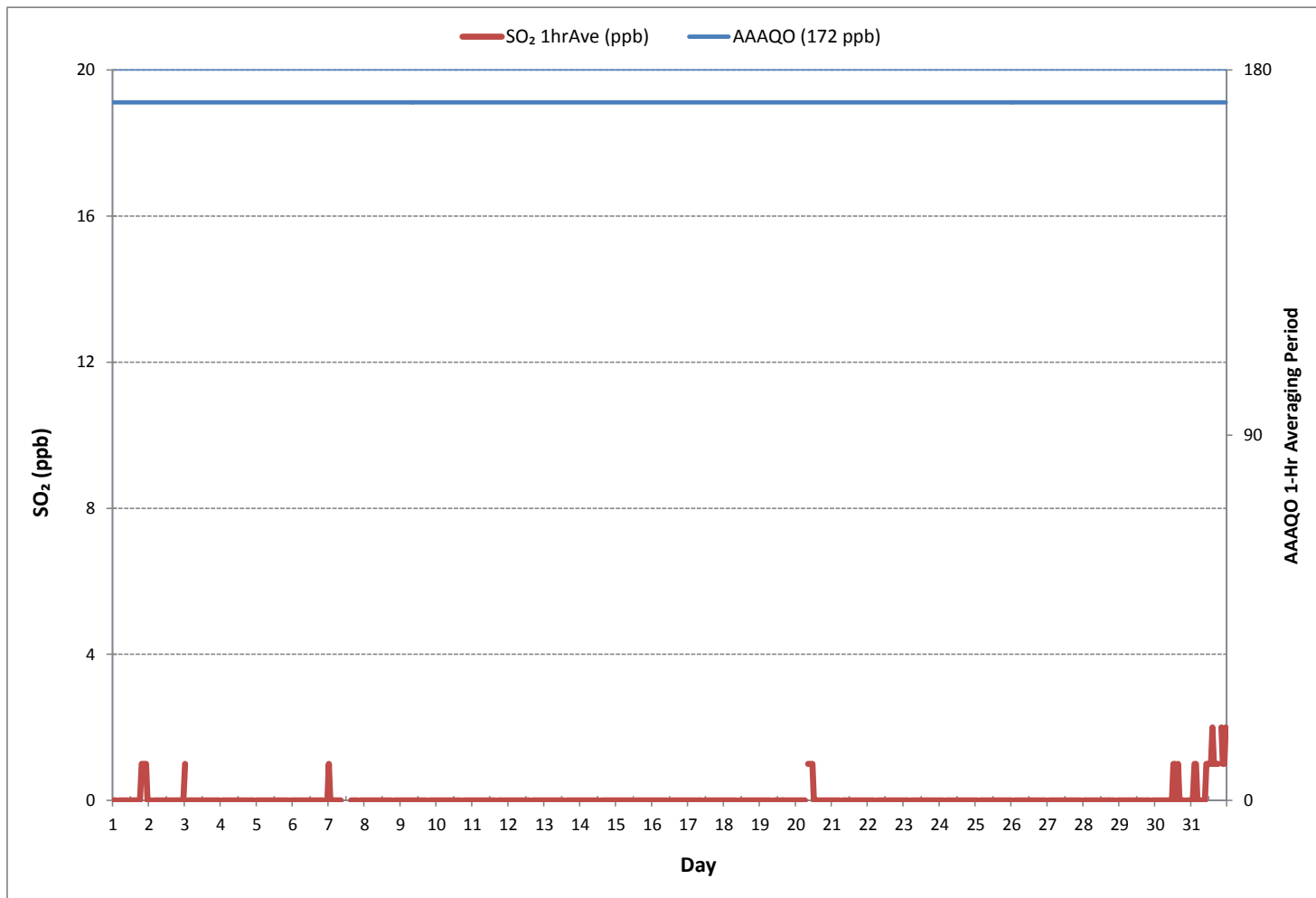
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0		
NUMBER OF 24-HR EXCEEDANCES:	0		
NUMBER OF NON-ZERO READINGS:	28		
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR	0 ON DAY	1
MAXIMUM 1-HR AVERAGE:	2 ppb @ HOUR	14 ON DAY	31
MAXIMUM 24-HR AVERAGE:	1 ppb	ON DAY	31
IZS CALIBRATION TIME:	33 hrs	OPERATIONAL TIME:	744 hrs
MONTHLY CALIBRATION TIME:	6 hrs	AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0	MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES December 2017



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 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	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	1	24	
2	1	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	24	
3	2	S	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	24	
4	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	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	24	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	2	1	2	1	24	
7	2	2	1	1	1	1	1	1	1	C	C	C	C	C	C	C	1	1	1	1	S	1	1	1	1	1	2	24	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	24	
9	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	S	1	1	1	1	1	1	0	24	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	1	24	
11	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	
12	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	1	24	
13	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	
14	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	
15	1	1	1	1	1	1	0	1	1	1	1	1	S	0	1	1	1	1	1	0	1	1	1	1	1	1	0	24	
16	0	0	0	1	1	0	0	1	1	1	0	S	1	1	2	2	1	1	1	1	1	1	1	0	0	2	1	24	
17	0	1	1	0	0	0	0	0	0	1	S	0	0	0	1	0	1	0	0	1	1	1	1	1	0	1	0	24	
18	0	0	0	1	0	1	0	1	1	S	1	1	0	0	1	0	1	0	0	0	0	1	1	1	0	1	0	24	
19	1	1	1	1	1	1	1	1	S	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	24	
20	1	1	1	1	1	1	1	S	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	24	
21	1	1	1	1	1	1	S	1	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	24	
22	1	1	1	1	1	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	2	24	
23	1	1	1	1	S	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	24	
24	1	1	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	24	
25	1	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	24	
26	1	S	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	24	
27	S	1	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	24	
28	1	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	
29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S	1	1	1	1	24	
30	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	S	1	1	1	1	2	24	
31	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	S	2	2	2	2	1	2	2	24
HOURLY MAX	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
HOURLY AVG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

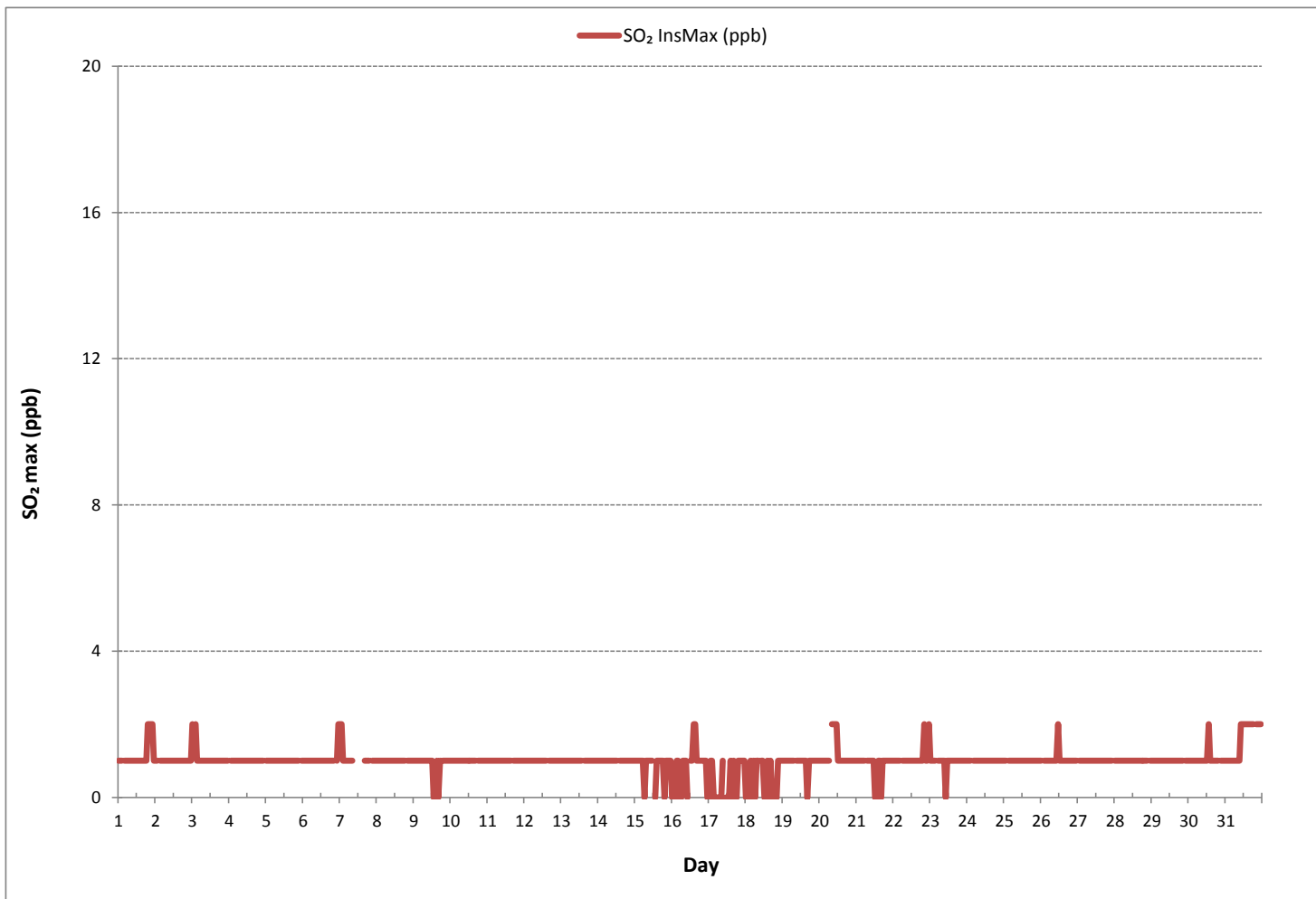
STATUS FLAG CODES

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:	661
MAXIMUM INSTANTANEOUS VALUE:	2 ppb @ HOUR 19 ON DAY 1
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	7 hrs
OPERATIONAL TIME:	744 hrs
STANDARD DEVIATION:	0

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



Wind: PRAMP_842
 Poll.: PRAMP_842-SO₂[ppb]
 Monthly: 17/12
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

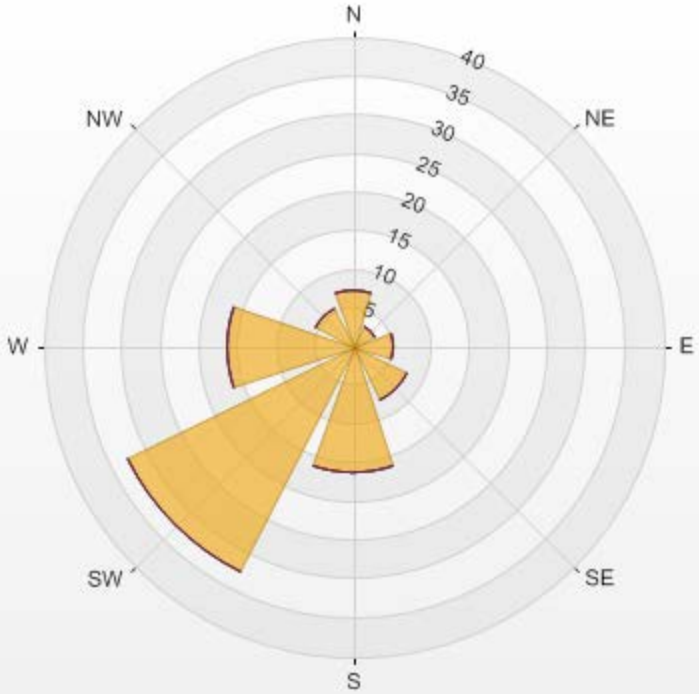
Calm: 5.82%

Calm Avg: 0.09 [ppb]

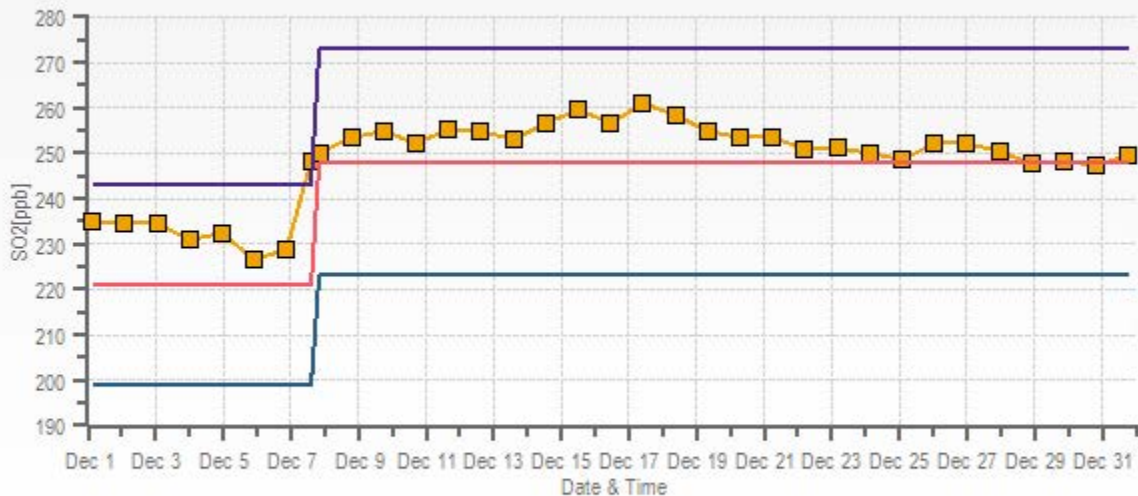
Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	7.2	0.0	0.0	0.0	0.0	7.2
NE	3.0	0.0	0.0	0.0	0.0	3.0
E	5.3	0.0	0.0	0.0	0.0	5.3
SE	7.8	0.0	0.0	0.0	0.0	7.8
S	16.3	0.0	0.0	0.0	0.0	16.3
SW	32.6	0.0	0.0	0.0	0.0	32.6
W	16.5	0.0	0.0	0.0	0.0	16.5
NW	5.5	0.0	0.0	0.0	0.0	5.5
Summary	94.2	0.0	0.0	0.0	0.0	94.2

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

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.82% Calm Poll Avg: 0.09[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 17/12 Type: Span



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

TOTAL REDUCED SULPHUR

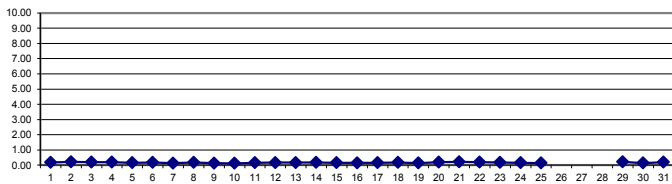
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	0.15	0.16	0.16	S	0.19	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.18	0.16	0.16	0.17	0.16	0.17	0.17	0.19	0.20	0.21	0.20	0.15	0.21	0.17	24																							
2	0.19	0.19	S	0.21	0.25	0.27	0.24	0.23	0.22	0.18	0.17	0.18	0.19	0.21	0.20	0.21	0.23	0.21	0.23	0.21	0.24	0.23	0.25	0.24	0.17	0.27	0.22	24																							
3	0.21	S	0.27	0.22	0.22	0.22	0.21	0.21	0.23	0.22	0.21	0.22	0.21	0.20	0.19	0.17	0.18	0.18	0.17	0.17	0.18	0.15	0.15	0.15	0.15	0.27	0.20	24																							
4	S	0.24	0.23	0.21	0.19	0.21	0.21	0.22	0.22	0.21	0.20	0.19	0.19	0.19	0.19	0.18	0.20	0.20	0.19	0.19	0.19	0.20	S	0.18	0.24	0.20	24																								
5	0.20	0.19	0.18	0.18	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.15	0.14	0.15	0.15	0.15	0.15	0.13	0.15	S	0.18	0.13	0.20	0.16	24																							
6	0.14	0.15	0.16	0.16	0.17	0.19	0.19	0.18	0.17	0.17	0.15	0.17	0.16	0.17	0.17	0.18	0.17	0.18	0.18	0.17	0.16	S	0.19	0.15	0.14	0.19	0.17	24																							
7	0.14	0.14	0.13	0.12	0.13	0.12	0.11	0.10	0.09	0.09	0.08	0.08	0.08	0.07	C	C	C	C	C	0.28	0.16	S	0.18	0.17	0.16	0.07	0.28	0.13	24																						
8	0.16	0.15	0.15	0.16	0.17	0.16	0.16	0.17	0.16	0.17	0.20	0.20	0.19	0.18	0.17	0.16	0.18	0.19	0.17	0.18	S	0.22	0.17	0.18	0.15	0.15	0.22	0.17	24																						
9	0.14	0.16	0.15	0.16	0.15	0.15	0.15	0.16	0.14	0.13	0.12	0.13	0.11	0.11	0.12	0.11	0.10	0.10	S	0.14	0.11	0.11	0.10	0.11	0.10	0.16	0.13	24																							
10	0.10	0.10	0.10	0.11	0.10	0.11	0.11	0.12	0.11	0.10	0.11	0.12	0.11	0.12	0.12	0.12	S	0.15	0.13	0.11	0.12	0.12	0.13	0.10	0.15	0.11	24																								
11	0.13	0.15	0.15	0.15	0.16	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.16	0.15	0.16	S	0.20	0.19	0.16	0.17	0.16	0.15	0.16	0.13	0.20	0.16	24																							
12	0.15	0.17	0.16	0.17	0.18	0.18	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	S	0.19	0.17	0.16	0.16	0.17	0.16	0.17	0.15	0.15	0.19	0.17	24																							
13	0.17	0.16	0.16	0.15	0.17	0.17	0.16	0.16	0.16	0.15	0.14	0.15	0.16	0.16	S	0.19	0.17	0.18	0.17	0.17	0.17	0.17	0.17	0.19	0.14	0.19	0.17	24																							
14	0.21	0.20	0.18	0.18	0.18	0.18	0.19	0.19	0.18	0.18	0.17	0.17	0.17	S	0.21	0.19	0.19	0.17	0.16	0.15	0.16	0.16	0.16	0.15	0.15	0.21	0.18	24																							
15	0.14	0.16	0.15	0.15	0.15	0.15	0.16	0.15	0.16	0.15	0.15	0.18	S	0.20	0.17	0.17	0.16	0.15	0.15	0.15	0.16	0.16	0.16	0.14	0.14	0.20	0.16	24																							
16	0.14	0.15	0.14	0.15	0.15	0.16	0.17	0.16	0.15	0.16	0.14	S	0.18	0.15	0.13	0.15	0.14	0.13	0.14	0.15	0.14	0.14	0.14	0.14	0.13	0.18	0.15	24																							
17	0.13	0.12	0.14	0.14	0.14	0.15	0.14	0.14	0.15	S	0.17	0.15	0.14	0.15	0.16	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.12	0.17	0.15	24																							
18	0.17	0.18	0.18	0.18	0.18	0.18	0.20	0.20	0.19	S	0.21	0.18	0.17	0.17	0.17	0.17	0.15	0.14	0.14	0.15	0.14	0.15	0.14	0.13	0.13	0.21	0.17	24																							
19	0.14	0.13	0.14	0.14	0.14	0.13	0.13	0.14	S	0.16	0.13	0.12	0.13	0.13	0.13	0.12	0.11	0.12	0.15	0.14	0.12	0.13	0.14	0.11	0.16	0.13	24																								
20	0.15	0.15	0.16	0.17	0.18	0.17	0.18	S	0.22	0.20	0.20	0.20	0.19	0.18	0.20	0.20	0.20	0.20	0.22	0.20	0.22	0.22	0.22	0.22	0.15	0.22	0.19	24																							
21	0.22	0.23	0.22	0.23	0.21	0.22	S	0.24	0.22	0.21	0.21	0.22	0.22	0.21	0.20	0.22	0.21	0.20	0.20	0.24	0.22	0.20	0.20	0.20	0.20	0.24	0.22	24																							
22	0.20	0.17	0.19	0.18	0.19	S	0.22	0.19	0.19	0.19	0.21	0.21	0.21	0.18	0.20	0.20	0.20	0.21	0.20	0.19	0.22	0.19	0.19	0.20	0.17	0.22	0.20	24																							
23	0.21	0.20	0.20	0.20	S	0.24	0.18	0.20	0.17	0.18	0.17	0.17	0.18	0.17	0.17	0.15	0.14	0.15	0.14	0.16	0.16	0.17	0.18	0.18	0.14	0.24	0.18	24																							
24	0.18	0.18	0.19	S	0.22	0.19	0.16	0.17	0.15	0.15	0.15	0.16	0.16	0.16	0.14	0.15	0.16	0.14	0.15	0.14	0.15	0.17	0.16	0.14	0.14	0.22	0.16	24																							
25	0.13	0.14	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.13	0.14	0.14	3																						
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																							
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																							
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																							
29	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	Y	C1	C1	C1	C1		0.23	0.27	0.25	S	0.16	0.14																									
30	0.11	0.10	0.10	0.10	0.10	0.10	0.12	0.11	0.11	0.11	0.13	0.14	0.13	0.16	0.15	0.15	0.15	0.15	0.16	0.15	S	0.17	0.17	0.16	0.10	0.17	0.13	24																							
31	0.16	0.17	0.15	0.15	0.17	0.16	0.15	0.15	0.15	0.16	0.17	0.17	0.21	0.23	0.22	0.23	0.23	0.22	0.22	S	0.29	0.27	0.25	0.23	0.15	0.29	0.20	24																							
HOURLY MAX	0.22	0.24	0.27	0.23	0.25	0.27	0.24	0.24	0.23	0.22	0.21	0.22	0.22	0.23	0.22	0.23	0.23	0.22	0.28	0.27	0.29	0.27	0.25	0.24																											
HOURLY AVG	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.17	0.18	0.17	0.17																											

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

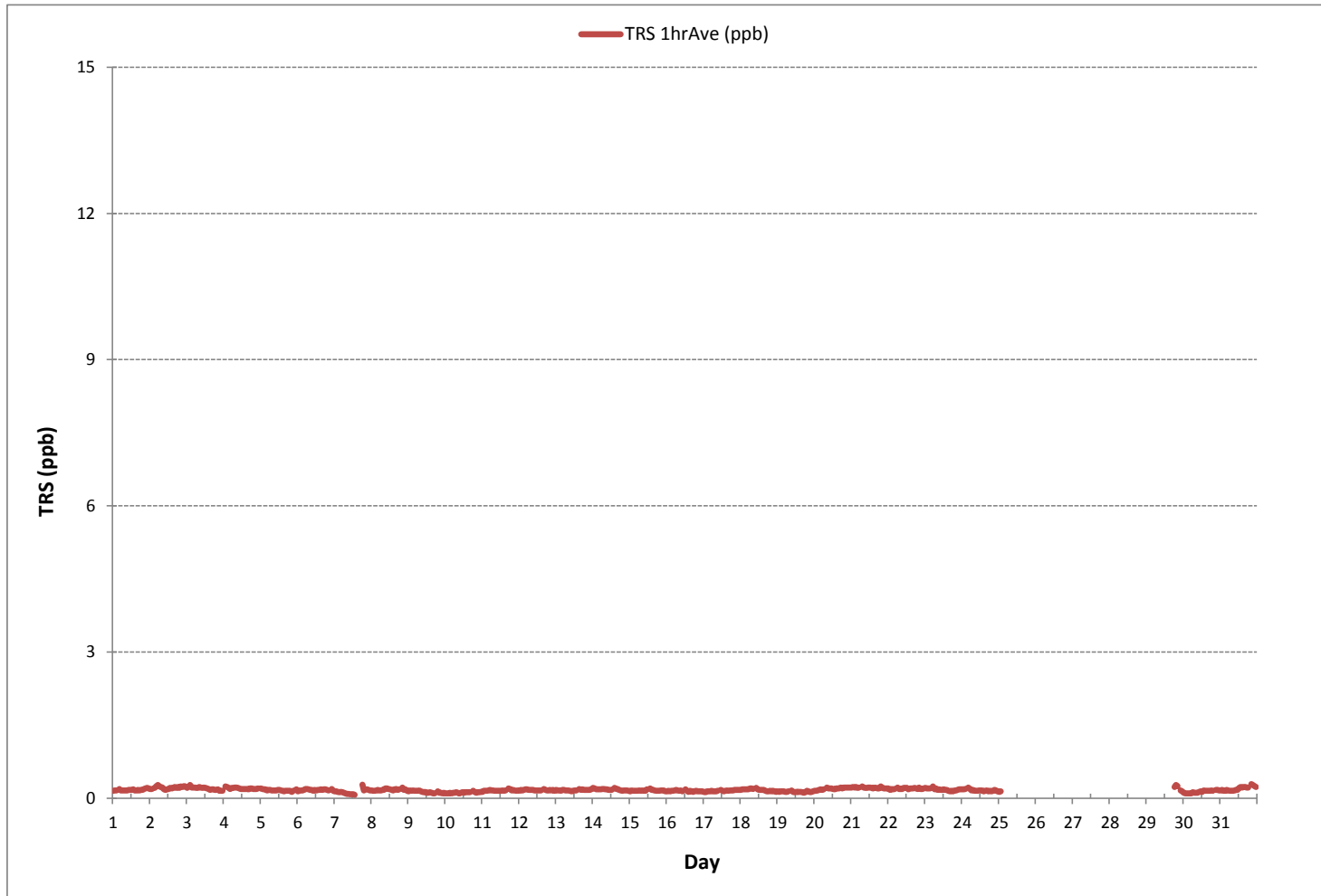
24 HR AVERAGES December 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	600			
MINIMUM 1-HR AVERAGE:	0.07 ppb	@ HOUR	13	ON DAY 7
MAXIMUM 1-HR AVERAGE:	0.29 ppb	@ HOUR	20	ON DAY 31
MAXIMUM 24-HR AVERAGE:	0.22 ppb			ON DAY 2
IZS CALIBRATION TIME:	29 hrs	OPERATIONAL TIME:	633	hrs
MONTHLY CALIBRATION TIME:	4 hrs	AMD OPERATION UPTIME:	85.1	%
STANDARD DEVIATION:	0.03	MONTHLY AVERAGE:	0.17	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 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	0.20	0.23	0.23	S	0.25	0.20	0.20	0.20	0.23	0.20	0.20	0.20	0.26	0.22	0.22	0.22	0.21	0.23	0.20	0.20	0.25	0.22	0.23	0.23	0.20	0.26	0.22	24	
2	0.22	0.22	S	0.25	0.30	0.30	0.28	0.28	0.26	0.22	0.20	0.23	0.23	0.25	0.23	0.26	0.28	0.26	0.28	0.23	0.28	0.26	0.28	0.26	0.20	0.30	0.25	24	
3	0.23	S	0.33	0.28	0.25	0.30	0.26	0.26	0.30	0.28	0.28	0.28	0.31	0.33	0.25	0.25	0.25	0.28	0.26	0.26	0.23	0.22	0.22	0.22	0.22	0.33	0.27	24	
4	S	0.33	0.28	0.28	0.28	0.28	0.28	0.28	0.25	0.28	0.28	0.28	0.25	0.25	0.25	0.22	0.20	0.23	0.28	0.23	0.20	0.22	0.23	S	0.20	0.33	0.26	24	
5	0.28	0.26	0.22	0.28	0.20	0.25	0.23	0.23	0.22	0.22	0.21	0.30	0.21	0.25	0.22	0.25	0.23	0.26	0.22	0.25	0.22	0.25	S	0.30	0.20	0.30	0.24	24	
6	0.26	0.23	0.26	0.25	0.25	0.28	0.28	0.28	0.25	0.25	0.22	0.30	0.23	0.25	0.23	0.25	0.25	0.22	0.23	0.20	0.22	S	0.28	0.22	0.20	0.30	0.25	24	
7	0.20	0.20	0.20	0.22	0.22	0.22	0.20	0.20	0.20	0.22	0.20	0.23	0.23	0.20	C	C	C	C	C	C	0.25	S	0.30	0.25	0.28	0.20	0.30	0.22	24
8	0.25	0.25	0.25	0.23	0.25	0.25	0.25	0.23	0.22	0.25	0.25	0.25	0.22	0.22	0.22	0.23	0.22	0.20	0.26	S	0.33	0.22	0.23	0.22	0.20	0.33	0.24	24	
9	0.20	0.20	0.22	0.22	0.20	0.22	0.22	0.23	0.23	0.20	0.20	0.22	0.20	0.18	0.20	0.20	0.20	0.20	S	0.25	0.25	0.20	0.17	0.20	0.17	0.25	0.21	24	
10	0.18	0.20	0.22	0.20	0.17	0.20	0.20	0.20	0.22	0.18	0.20	0.20	0.20	0.23	0.23	0.25	0.22	S	0.25	0.20	0.20	0.20	0.20	0.23	0.17	0.25	0.21	24	
11	0.22	0.25	0.22	0.20	0.22	0.31	0.20	0.23	0.20	0.23	0.22	0.22	0.20	0.25	0.20	0.20	S	0.28	0.22	0.23	0.23	0.22	0.20	0.20	0.20	0.31	0.22	24	
12	0.17	0.20	0.20	0.20	0.23	0.23	0.23	0.20	0.22	0.20	0.22	0.20	0.20	0.20	0.20	S	0.23	0.20	0.22	0.18	0.23	0.22	0.22	0.22	0.17	0.23	0.21	24	
13	0.22	0.23	0.20	0.20	0.22	0.20	0.20	0.28	0.20	0.22	0.20	0.20	0.22	0.28	S	0.25	0.23	0.22	0.25	0.22	0.22	0.22	0.22	0.25	0.20	0.28	0.22	24	
14	0.25	0.28	0.25	0.25	0.26	0.25	0.25	0.28	0.25	0.22	0.25	0.23	0.25	S	0.28	0.28	0.28	0.23	0.23	0.20	0.23	0.20	0.20	0.22	0.20	0.28	0.24	24	
15	0.20	0.22	0.20	0.20	0.20	0.17	0.20	0.17	0.20	0.18	0.17	0.20	S	0.22	0.18	0.20	0.20	0.22	0.20	0.20	0.20	0.25	0.22	0.20	0.17	0.25	0.20	24	
16	0.20	0.22	0.20	0.22	0.22	0.23	0.25	0.23	0.22	0.25	0.22	S	0.25	0.22	0.20	0.25	0.22	0.20	0.22	0.22	0.22	0.23	0.22	0.25	0.20	0.25	0.22	24	
17	0.25	0.17	0.22	0.17	0.25	0.23	0.22	0.22	0.20	0.20	S	0.23	0.20	0.17	0.20	0.20	0.23	0.22	0.20	0.22	0.23	0.23	0.22	0.22	0.17	0.25	0.21	24	
18	0.23	0.22	0.23	0.23	0.25	0.22	0.23	0.25	0.20	S	0.28	0.22	0.20	0.23	0.25	0.23	0.22	0.22	0.22	0.25	0.20	0.22	0.23	0.25	0.20	0.28	0.23	24	
19	0.28	0.23	0.25	0.26	0.23	0.22	0.25	0.25	S	0.30	0.25	0.25	0.25	0.25	0.23	0.25	0.22	0.22	0.28	0.25	0.25	0.28	0.28	0.22	0.30	0.25	24		
20	0.28	0.30	0.33	0.30	0.30	0.30	0.36	S	0.41	0.30	0.33	0.30	0.30	0.28	0.28	0.30	0.30	0.33	0.30	0.33	0.36	0.33	0.33	0.33	0.33	0.28	0.41	0.32	24
21	0.30	0.36	0.36	0.33	0.33	0.36	S	0.36	0.36	0.30	0.30	0.33	0.33	0.33	0.31	0.36	0.30	0.30	0.33	0.36	0.36	0.30	0.33	0.30	0.30	0.36	0.33	24	
22	0.33	0.30	0.33	0.33	0.33	S	0.38	0.36	0.36	0.30	0.36	0.33	0.38	0.30	0.36	0.30	0.33	0.33	0.33	0.31	0.38	0.33	0.36	0.33	0.30	0.38	0.34	24	
23	0.36	0.36	0.36	0.33	S	0.43	0.30	0.36	0.30	0.30	0.28	0.28	0.33	0.30	0.30	0.28	0.30	0.28	0.25	0.30	0.33	0.30	0.33	0.33	0.25	0.43	0.32	24	
24	0.33	0.36	0.33	S	0.41	0.33	0.30	0.30	0.28	0.30	0.36	0.36	0.30	0.33	0.33	0.31	0.33	0.33	0.36	0.30	0.33	0.36	0.30	0.28	0.28	0.41	0.33	24	
25	0.28	0.33	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.28	0.33	0.31	3	
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
29	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y	C1	C1	C1	C1	C1	C1	0.25	0.25	S	0.15	0.09	0.25	0.19	5	
30	0.09	0.07	0.12	0.07	0.07	0.12	0.15	0.08	0.09	0.07	0.12	0.15	0.09	0.17	0.15	0.12	0.15	0.15	0.17	0.09	S	0.15	0.15	0.12	0.07	0.17	0.12	24	
31	0.12	0.12	0.12	0.15	0.12	0.12	0.12	0.15	0.12	0.17	0.15	0.17	0.17	0.22	0.18	0.23	0.20	0.20	0.20	S	0.28	0.28	0.28	0.20	0.12	0.28	0.18	24	
HOURLY MAX	0.36	0.36	0.36	0.33	0.41	0.43	0.38	0.36	0.41	0.30	0.36	0.36	0.38	0.33	0.36	0.36	0.33	0.33	0.36	0.36	0.38	0.38	0.36	0.36	0.33				
HOURLY AVG	0.24	0.24	0.25	0.24	0.24	0.25	0.24	0.25	0.24	0.23	0.24	0.25	0.24	0.25	0.24	0.25	0.24	0.24	0.25	0.24	0.26	0.25	0.24	0.24					

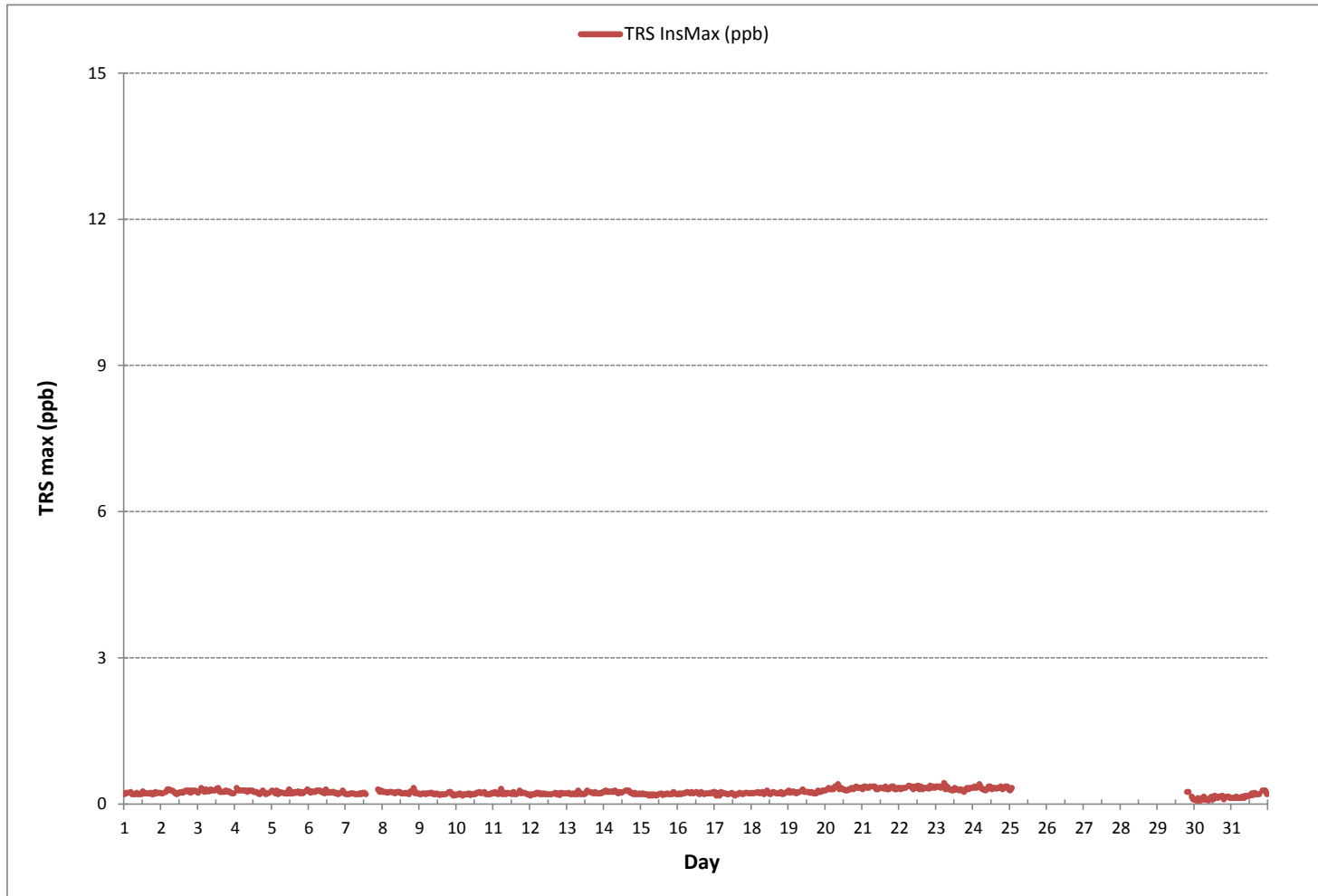
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	598
MAXIMUM INSTANTANEOUS VALUE:	0.43 ppb @ HOUR 5 ON DAY 23
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	632 hrs
STANDARD DEVIATION:	0.06

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



Wind: PRAMP_842
 Poll.: PRAMP_842-TRS[ppb]
 Monthly: 17/12
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 3.00%

Calm Avg: 0.15 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	6.2	0.0	0.0	0.0	6.2
NE	2.7	0.0	0.0	0.0	2.7
E	2.7	0.0	0.0	0.0	2.7
SE	7.2	0.0	0.0	0.0	7.2
S	18.2	0.0	0.0	0.0	18.2
SW	36.7	0.0	0.0	0.0	36.7
W	18.0	0.0	0.0	0.0	18.0
NW	5.5	0.0	0.0	0.0	5.5
Summary	97.0	0.0	0.0	0.0	97.0

% Icon Classes (ppb)

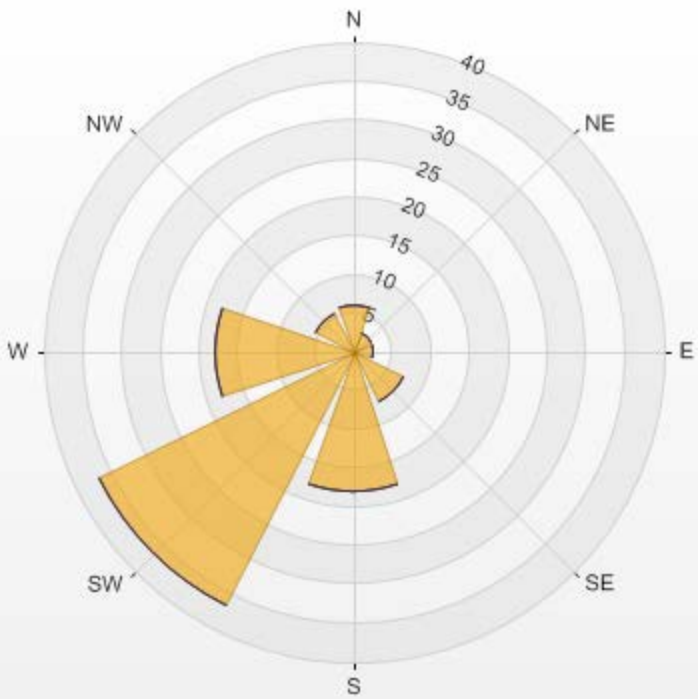
97 0-1

0 1-3

0 3-10

0 >10.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 3.00% Calm Poll Avg: 0.15[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 17/12 Type: Span



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

TOTAL HYDROCARBON



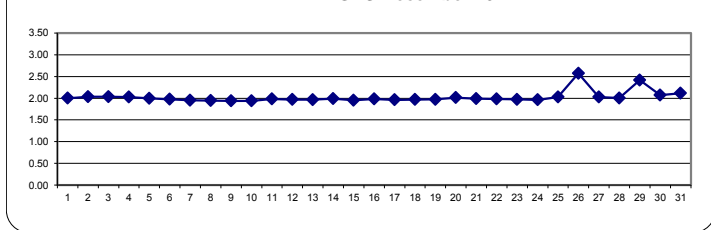
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.99	1.99	2.00	S	1.99	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.99	1.99	1.99	2.01	2.02	2.03	2.03	2.02	1.98	2.03	2.00	24	
2	2.07	2.04	S	2.02	2.02	2.02	2.03	2.04	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.04	2.02	2.07	2.03	24	
3	2.04	S	2.05	2.04	2.04	2.03	2.04	2.04	2.04	2.04	2.05	2.07	2.06	2.04	2.03	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.07	2.03	24	
4	S	2.12	2.24	2.17	2.12	2.03	2.01	2.02	2.02	2.01	2.01	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.97	S	1.97	2.24	2.03	24	
5	1.98	1.97	1.97	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.01	2.04	2.07	2.05	2.03	2.00	X	S	X	1.97	2.07	1.99	22	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	1.97	S	1.98	1.98	1.97	1.98	1.98	4	
7	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	C	C	Y	C	C	C	C	1.93	1.93	1.93	1.94	S	1.94	1.94	1.94	1.93	1.97	1.95	23	
8	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.93	1.93	1.94	1.94	1.94	1.94	1.93	1.94	S	1.93	1.93	1.93	1.93	1.93	1.96	1.94	24	
9	1.94	1.94	1.93	1.93	1.93	1.93	1.95	1.95	1.93	1.95	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	S	1.95	1.95	1.96	1.95	1.93	1.93	1.96	1.94	24	
10	1.93	1.93	1.94	1.93	1.95	1.92	1.94	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.95	1.93	1.94	S	1.94	1.94	1.95	1.95	1.94	1.94	1.92	1.96	1.94	24	
11	1.95	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.00	S	2.00	2.00	2.00	1.98	1.96	1.95	1.99	1.98	1.97	1.95	2.00	1.98	24
12	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.97	1.97	1.99	1.98	1.97	1.95	S	1.96	1.95	1.94	1.97	1.95	1.96	1.96	1.95	1.94	1.99	1.97	24	
13	1.96	1.96	1.95	1.96	1.96	1.96	1.95	1.97	1.96	1.96	1.95	1.95	1.96	S	1.98	1.97	1.97	1.97	1.97	1.98	1.99	1.99	1.98	1.99	1.95	1.99	1.97	24	
14	2.00	2.01	2.00	2.00	1.99	2.00	2.00	2.01	2.01	2.01	2.00	2.00	1.99	S	2.00	2.00	1.99	1.98	1.96	1.94	1.95	1.95	1.96	1.96	1.94	2.01	1.99	24	
15	1.94	1.94	1.94	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	S	1.96	1.95	1.96	1.95	1.97	1.96	1.96	1.96	1.97	1.97	1.96	1.94	1.97	1.95	24	
16	1.96	1.97	1.97	2.00	1.95	1.99	2.01	1.98	1.97	1.98	1.98	S	1.98	1.98	1.97	1.98	1.97	1.97	1.96	1.96	1.99	1.99	1.99	1.98	1.95	2.01	1.98	24	
17	1.97	1.96	1.96	1.98	1.96	1.95	1.92	1.95	1.95	1.95	S	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.99	1.99	2.00	1.99	2.00	1.92	2.00	1.96	24
18	1.99	1.99	1.98	1.98	2.00	1.98	1.97	1.97	1.97	S	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.96	1.96	2.00	1.97	24	
19	1.96	1.97	1.97	1.96	1.97	1.97	1.97	1.96	S	1.96	1.99	2.04	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.96	2.04	1.97	24
20	1.98	1.98	1.99	1.97	2.00	2.01	S	2.01	2.00	1.99	1.99	2.00	2.02	2.03	2.03	2.04	2.04	2.04	2.03	2.03	2.03	2.02	2.03	1.97	2.04	2.01	2.01	24	
21	2.03	2.02	2.03	2.02	1.99	1.99	S	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.97	1.97	2.03	1.99	24	
22	1.98	1.98	1.98	2.02	2.02	S	1.99	1.99	1.97	1.97	1.97	1.97	2.02	2.00	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.96	2.02	1.98	24	
23	1.99	1.97	1.99	1.98	S	1.98	1.97	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.98	1.98	1.99	1.97	1.97	1.96	1.99	1.97	24	
24	1.97	1.97	1.97	S	1.97	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.95	1.98	1.96	24	
25	1.97	1.98	S	1.98	1.99	1.99	2.00	2.00	2.00	2.00	2.02	2.05	2.03	2.02	2.05	2.04	2.05	2.03	2.02	2.05	2.06	2.09	2.07	2.10	1.97	2.10	2.03	24	
26	2.24	S	3.59	4.83	4.06	3.92	3.08	3.46	2.87	2.32	2.24	2.19	2.17	2.10	2.04	2.04	2.03	2.01	2.02	1.99	1.99	2.00	2.01	2.01	1.99	4.83	2.57	24	
27	S	2.01	2.01	2.06	2.11	2.07	2.04	2.04	2.05	2.05	2.04	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.01	2.00	2.00	S	2.00	2.11	2.03	24	
28	2.01	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.98	2.01	2.00	1.99	1.99	1.99	1.99	2.00	X	2.00	2.05	S	2.11	1.98	2.11	2.00	23	
29	2.08	2.08	2.24	2.34	2.45	2.53	2.89	3.09	3.05	3.04	3.05	2.90	2.28	2.11	2.08	2.09	2.08	2.08	2.12	2.32	2.32	S	2.20	2.18	2.08	3.09	2.42	24	
30	2.13	2.13	2.11	2.10	2.09	2.08	2.08	2.10	2.07	2.07	2.06	2.05	2.06	2.05	2.04	2.04	2.04	2.04	2.05	2.06	2.05	S	2.05	2.05	2.06	2.04	2.13	2.07	24
31	2.06	2.07	2.07	2.06	2.06	2.05	2.07	2.09	2.10	2.12	2.13	2.06	2.11	2.13	2.14	2.14	2.16	2.17	2.16	S	2.18	2.17	2.17	2.18	2.05	2.18	2.12	24	
HOURLY MAX	2.24	2.13	3.59	4.83	4.06	3.92	3.08	3.46	3.05	3.04	3.05	2.90	2.28	2.13	2.14	2.14	2.16	2.17	2.16	2.32	2.32	2.17	2.20	2.18					
HOURLY AVG	2.00	1.99	2.06	2.11	2.08	2.07	2.06	2.08	2.06	2.04	2.04	2.03	2.01	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.00	2.00	2.00	2.00					

STATUS FLAG CODES

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

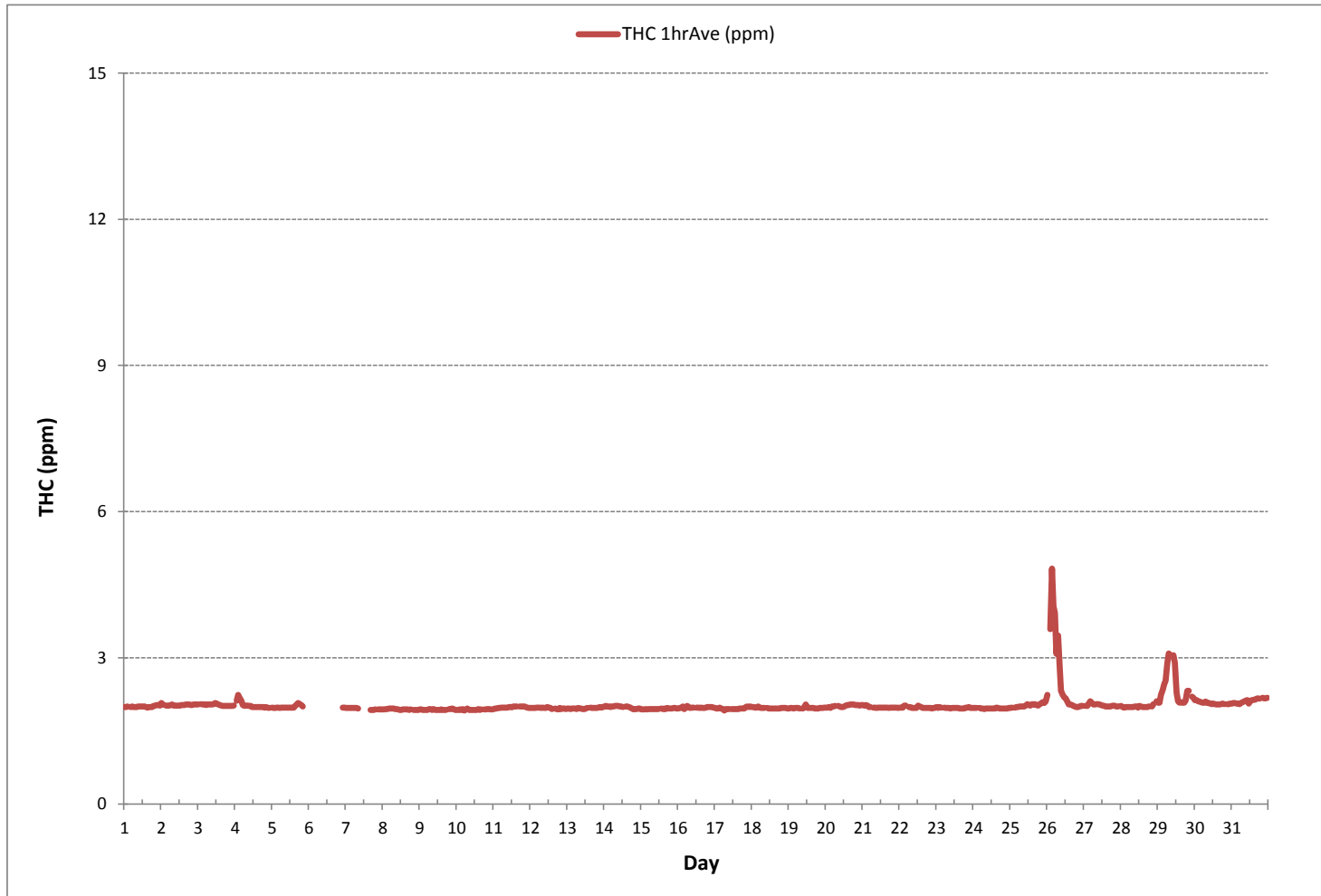
24 HR AVERAGES December 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681			
MINIMUM 1-HR AVERAGE:	1.92 ppm	@ HOUR	5	ON DAY
MAXIMUM 1-HR AVERAGE:	4.83 ppm	@ HOUR	3	ON DAY
MAXIMUM 24-HR AVERAGE:	2.57 ppm			ON DAY
IZS CALIBRATION TIME:	33 hrs	OPERATIONAL TIME:	720 hrs	
MONTHLY CALIBRATION TIME:	6 hrs	AMD OPERATION UPTIME:	96.8 %	
STANDARD DEVIATION:	0.21	MONTHLY AVERAGE:	2.03 ppm	

TOTAL HYDROCARBONS Hourly Averages (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY 1	2.04	2.02	2.06	S	2.03	2.09	2.02	2.03	2.02	2.03	2.03	2.03	2.03	2.03	2.02	2.01	2.03	2.02	2.02	2.04	2.05	2.23	2.06	2.07	2.01	2.23	2.04	24
2	2.12	2.13	S	2.10	2.05	2.05	2.14	2.12	2.08	2.05	2.06	2.05	2.05	2.06	2.06	2.07	2.09	2.09	2.07	2.06	2.09	2.11	2.08	2.05	2.14	2.08	24	
3	2.07	S	2.08	2.08	2.18	2.06	2.07	2.07	2.08	2.07	2.08	2.12	2.09	2.07	2.07	2.05	2.04	2.05	2.05	2.05	2.05	2.06	2.06	2.07	2.04	2.18	2.07	24
4	S	2.24	2.33	2.35	2.18	2.09	2.12	2.05	2.05	2.05	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.04	2.04	2.04	2.05	2.01	S	2.01	2.35	2.08	24	
5	2.04	2.00	2.01	2.21	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.05	2.09	2.12	2.09	2.07	2.03	X	S	X	2.00	2.21	2.04	22
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S	2.01	2.01	2.01	2.01	3
7	2.00	2.00	2.00	1.99	2.01	2.00	2.00	1.99	1.99	C	C	Y	C	C	C	C	1.97	1.96	1.96	1.97	S	1.97	1.97	1.97	1.96	2.01	1.98	23
8	1.97	1.97	1.97	1.98	1.99	1.99	1.99	1.99	1.98	1.98	1.98	1.97	1.96	1.97	1.97	1.97	1.96	1.97	S	1.97	1.96	1.96	1.96	1.96	1.96	1.99	1.97	24
9	1.98	1.97	1.98	1.95	1.96	1.97	2.00	2.00	1.99	1.99	1.95	1.96	1.96	1.95	1.99	1.97	1.95	1.96	S	1.99	2.01	2.00	2.04	1.96	1.95	2.04	1.98	24
10	1.96	1.96	2.00	2.00	2.02	1.97	1.98	2.00	1.96	1.96	1.96	1.96	1.96	1.97	1.99	1.96	S	1.97	1.97	1.98	1.98	1.98	1.98	1.96	2.02	1.98	24	
11	1.98	1.99	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.03	2.02	2.03	2.03	2.03	2.03	S	2.04	2.03	2.03	2.02	2.02	2.01	2.01	1.98	2.04	2.01	24
12	2.00	2.01	2.00	2.00	2.02	2.02	2.00	2.00	2.03	2.01	2.02	2.03	2.04	2.03	2.02	S	2.03	2.01	2.02	2.03	1.99	2.00	1.99	1.98	1.98	2.04	2.01	24
13	1.99	1.98	1.99	1.99	1.99	2.00	1.98	2.00	2.00	2.00	1.98	1.98	1.99	2.00	S	2.03	1.99	2.00	1.99	2.00	2.04	2.02	2.01	2.02	1.98	2.04	2.00	24
14	2.03	2.04	2.03	2.03	2.03	2.02	2.03	2.03	2.04	2.03	2.04	2.04	2.03	S	2.03	2.03	2.03	2.02	1.99	1.97	1.97	1.98	2.05	2.04	1.97	2.05	2.02	24
15	1.97	1.97	1.97	2.00	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	S	2.00	1.98	1.99	1.98	2.01	1.99	1.99	1.99	1.99	2.00	2.00	1.97	2.01	1.99	24
16	2.00	2.01	2.02	2.06	2.02	2.03	2.06	2.01	2.00	2.01	2.01	S	2.01	2.01	2.00	2.01	2.00	2.00	2.01	2.02	2.02	2.01	2.01	2.01	2.00	2.06	2.02	24
17	2.00	1.99	1.99	2.03	2.03	1.98	1.98	1.98	1.98	1.98	S	1.99	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	2.08	2.08	2.03	2.04	1.98	2.08	2.00	24
18	2.05	2.05	2.02	2.03	2.09	2.01	2.00	2.00	2.00	S	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.09	2.01	24
19	1.99	2.00	1.99	1.99	1.99	2.00	2.00	2.00	S	1.99	2.04	2.12	2.03	2.00	2.00	1.99	1.99	2.00	2.02	1.99	1.99	2.00	2.00	2.01	1.99	2.12	2.01	24
20	2.01	2.01	2.02	2.03	2.03	2.03	2.05	S	2.04	2.03	2.02	2.02	2.04	2.05	2.05	2.06	2.07	2.06	2.07	2.07	2.06	2.05	2.05	2.06	2.01	2.07	2.04	24
21	2.05	2.05	2.08	2.06	2.03	2.02	S	2.01	2.01	2.00	2.01	2.01	2.01	2.01	2.01	2.00	2.00	2.01	2.00	2.01	2.00	2.00	2.00	2.00	2.00	2.08	2.02	24
22	2.01	2.01	2.02	2.11	2.06	S	2.03	2.08	2.00	2.00	2.00	2.01	2.07	2.07	2.04	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	2.00	1.99	2.11	2.02	24
23	2.06	2.01	2.05	2.03	S	2.01	2.00	2.00	2.00	1.99	2.00	2.00	2.00	2.00	1.99	1.99	1.99	1.99	1.99	2.02	2.03	2.02	2.00	2.01	1.99	2.06	2.01	24
24	1.99	2.02	2.01	S	2.00	1.99	2.00	1.98	2.00	1.99	1.99	1.99	2.00	2.00	1.99	2.03	2.02	2.01	1.99	2.03	1.98	2.01	2.00	2.02	1.98	2.03	2.00	24
25	2.03	2.01	S	2.01	2.12	2.03	2.03	2.03	2.04	2.03	2.09	2.09	2.07	2.06	2.10	2.09	2.09	2.07	2.06	2.08	2.11	2.18	2.15	2.14	2.01	2.18	2.07	24
26	2.58	S	5.14	9.47	6.43	6.47	3.74	4.03	3.32	2.66	2.34	2.26	2.21	2.16	2.08	2.07	2.06	2.04	2.03	2.03	2.02	2.04	2.04	2.03	2.02	9.47	3.18	24
27	S	2.04	2.05	2.18	2.18	2.16	2.08	2.07	2.08	2.08	2.07	2.06	2.05	2.03	2.03	2.02	2.03	2.04	2.04	2.05	2.03	2.03	2.03	S	2.02	2.18	2.07	24
28	2.06	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.04	2.05	2.03	2.03	2.02	2.02	2.02	2.03	X	2.03	2.18	S	2.17	2.02	2.18	2.04	23
29	2.15	2.17	2.49	2.54	2.60	2.76	3.10	3.17	3.08	3.07	3.13	3.16	2.67	2.24	2.13	2.13	2.12	2.11	2.21	2.51	2.38	S	2.29	2.22	2.11	3.17	2.54	24
30	2.16	2.18	2.15	2.13	2.13	2.13	2.13	2.17	2.12	2.13	2.09	2.09	2.08	2.09	2.07	2.08	2.07	2.08	2.09	2.08	S	2.11	2.10	2.11	2.07	2.18	2.11	24
31	2.10	2.10	2.12	2.09	2.11	2.08	2.12	2.14	2.15	2.19	2.25	2.11	2.15	2.16	2.17	2.18	2.19	2.22	2.20	S	2.23	2.21	2.20	2.21	2.08	2.25	2.16	24
HOURLY MAX	2.58	2.24	5.14	9.47	6.43	6.47	3.74	4.03	3.32	3.07	3.13	3.16	2.67	2.24	2.17	2.18	2.19	2.22	2.21	2.51	2.38	2.23	2.29	2.22				
HOURLY AVG	2.05	2.03	2.16	2.34	2.22	2.21	2.13	2.14	2.11	2.08	2.08	2.08	2.06	2.04	2.03	2.03	2.03	2.03	2.03	2.04	2.04	2.05	2.04	2.04				

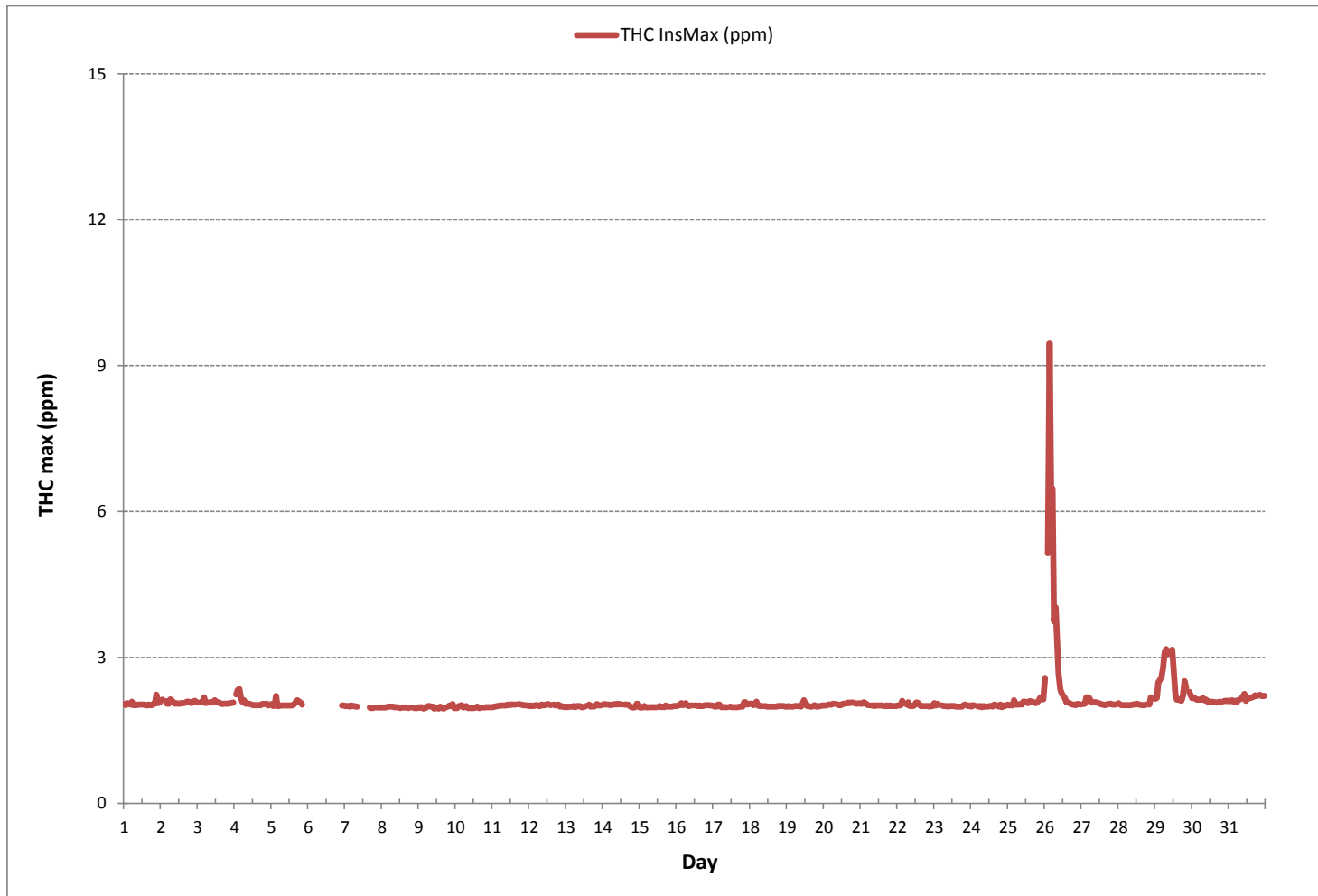
STATUS FLAG CODES

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:	680
MAXIMUM INSTANTANEOUS VALUE:	9.47 ppm @ HOUR 3 ON DAY 26
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	6 hrs
OPERATIONAL TIME:	719 hrs
STANDARD DEVIATION:	0.42

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



Wind: PRAMP_842
 Poll.: PRAMP_842-THC55[ppm]
 Monthly: 17/12
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

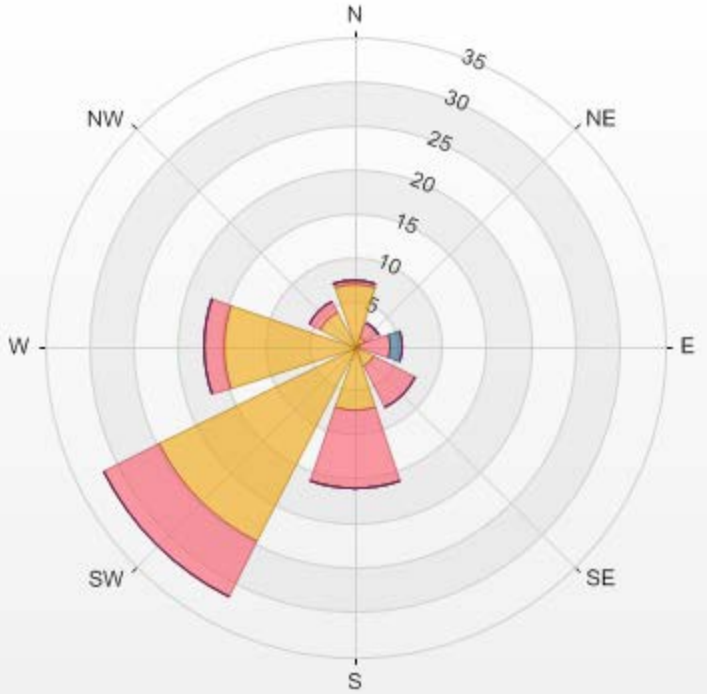
Calm: 5.87%

Calm Avg: 2.08 [ppm]

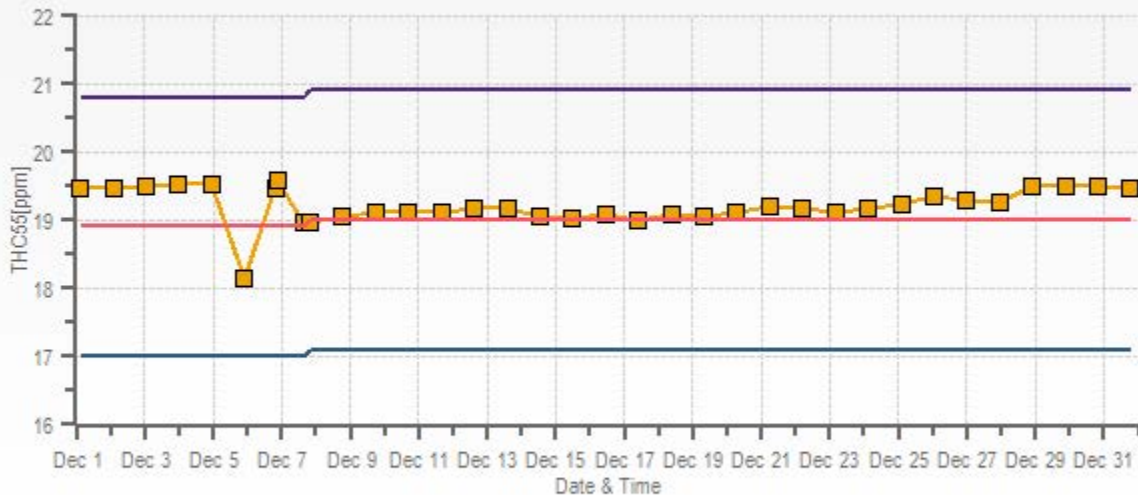
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	7.2	0.3	0.0	0.0	0.0	7.5
NE	1.3	1.6	0.2	0.0	0.0	3.1
E	0.7	3.4	1.3	0.0	0.0	5.4
SE	2.5	5.1	0.0	0.0	0.0	7.6
S	7.2	8.8	0.0	0.0	0.0	16.0
SW	24.7	7.1	0.0	0.0	0.0	31.7
W	14.8	2.2	0.0	0.0	0.0	17.0
NW	4.4	1.3	0.0	0.0	0.0	5.7
Summary	62.9	29.8	1.5	0.0	0.0	94.1

% Icon Classes (ppm) 63 0-2 30 2-3 1 3-5 0 5-10 0 >10.0

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.87% Calm Poll Avg: 2.08[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 17/12 Type: Span



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

METHANE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - December 2017

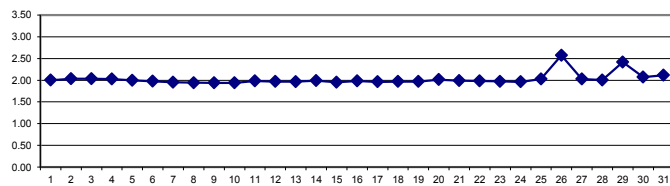
METHANE Hourly Averages (CH₄ ppm)

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	1.99	1.99	2.00	S	1.99	1.99	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.99	1.99	1.99	2.01	2.02	2.03	2.03	2.02	1.98	2.03	2.00	24	
2	2.07	2.04	S	2.02	2.02	2.02	2.03	2.04	2.02	2.02	2.02	2.02	2.02	2.03	2.03	2.03	2.04	2.04	2.04	2.03	2.03	2.04	2.04	2.04	2.02	2.07	2.03	24	
3	2.04	S	2.05	2.04	2.04	2.03	2.04	2.04	2.04	2.04	2.05	2.07	2.06	2.04	2.03	2.02	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.01	2.07	2.03	24	
4	S	2.12	2.24	2.17	2.12	2.03	2.01	2.02	2.02	2.01	2.01	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.98	1.99	1.98	1.99	1.98	S	1.97	2.24	2.03	24	
5	1.98	1.97	1.97	1.97	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	2.01	2.04	2.07	2.05	2.03	2.00	X	S	X	1.97	2.07	1.99	22	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	1.97	S	1.98	1.98	1.97	1.98	1.98	4	
7	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.96	C	C	Y	C	C	C	C	1.93	1.93	1.93	1.94	S	1.94	1.94	1.94	1.93	1.97	1.95	23	
8	1.94	1.94	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.95	1.94	1.93	1.93	1.94	1.94	1.93	1.94	1.93	1.94	S	1.93	1.93	1.93	1.93	1.93	1.96	1.94	24	
9	1.94	1.94	1.93	1.93	1.93	1.93	1.95	1.95	1.93	1.95	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	S	1.95	1.95	1.96	1.95	1.93	1.93	1.96	1.94	24	
10	1.93	1.93	1.94	1.93	1.95	1.92	1.94	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.95	1.93	1.94	S	1.94	1.94	1.95	1.95	1.94	1.94	1.92	1.96	1.94	24	
11	1.95	1.96	1.96	1.97	1.97	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.99	2.00	2.00	S	2.00	2.00	2.00	2.00	2.00	1.99	1.98	1.97	1.95	2.00	1.98	24	
12	1.97	1.97	1.97	1.97	1.98	1.98	1.98	1.97	1.98	1.97	1.97	1.99	1.98	1.97	1.95	S	1.96	1.95	1.94	1.97	1.95	1.96	1.96	1.95	1.94	1.99	1.97	24	
13	1.96	1.96	1.95	1.96	1.96	1.96	1.95	1.97	1.96	1.96	1.95	1.95	1.96	1.97	S	1.98	1.97	1.97	1.97	1.98	1.99	1.98	1.99	1.99	1.95	1.99	1.97	24	
14	2.00	2.01	2.00	2.00	1.99	2.00	2.00	2.01	2.01	2.01	2.00	2.00	1.99	S	2.00	2.00	1.99	1.98	1.96	1.94	1.95	1.95	1.96	1.96	1.94	2.01	1.99	24	
15	1.94	1.94	1.94	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	S	1.96	1.95	1.96	1.95	1.97	1.96	1.96	1.96	1.96	1.97	1.96	1.96	1.94	1.97	1.95	24
16	1.96	1.97	1.97	2.00	1.95	1.99	2.01	1.98	1.97	1.98	1.98	S	1.98	1.98	1.97	1.98	1.97	1.97	1.98	1.96	1.96	1.97	1.97	1.98	1.95	2.01	1.98	24	
17	1.97	1.96	1.96	1.98	1.96	1.95	1.92	1.95	1.95	1.95	S	1.95	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.96	1.99	1.99	1.99	1.99	1.92	2.00	1.96	24	
18	1.99	1.99	1.98	1.98	2.00	1.98	1.97	1.97	1.97	S	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.96	1.96	2.00	1.97	24	
19	1.96	1.97	1.96	1.96	1.97	1.97	1.97	1.96	S	1.96	1.99	2.04	1.97	1.97	1.97	1.96	1.97	1.96	1.96	1.96	1.97	1.97	1.97	1.97	1.98	1.96	2.04	1.97	24
20	1.98	1.98	1.99	1.97	2.00	2.01	S	2.01	2.00	1.99	1.99	2.00	2.02	2.02	2.03	2.04	2.04	2.04	2.03	2.03	2.03	2.02	2.03	1.97	2.04	2.01	2.01	24	
21	2.03	2.02	2.03	2.02	1.99	1.99	S	1.98	1.98	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	1.97	1.98	1.98	1.98	1.98	1.97	1.97	2.03	1.99	24	
22	1.98	1.98	1.98	2.02	2.02	S	1.99	1.99	1.97	1.97	1.97	1.97	2.02	2.00	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.96	1.97	1.96	2.02	1.98	2.02	24	
23	1.99	1.97	1.99	1.98	S	1.98	1.97	1.97	1.97	1.96	1.97	1.97	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.98	1.98	1.99	1.97	1.97	1.96	1.99	1.97	24	
24	1.97	1.97	1.97	S	1.97	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.98	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.95	1.98	1.96	24		
25	1.97	1.98	S	1.98	1.99	1.99	2.00	2.00	2.00	2.00	2.02	2.05	2.03	2.02	2.05	2.04	2.05	2.03	2.02	2.05	2.06	2.09	2.07	2.10	1.97	2.10	2.03	24	
26	2.24	S	3.59	4.83	4.06	3.92	3.08	3.46	2.87	2.32	2.24	2.19	2.17	2.10	2.04	2.04	2.03	2.01	2.02	1.99	1.99	2.01	2.01	1.99	4.83	2.57	24		
27	S	2.01	2.01	2.06	2.11	2.07	2.04	2.04	2.05	2.05	2.04	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.01	2.02	2.01	2.00	2.00	S	2.00	2.11	2.03	24	
28	2.01	1.99	1.98	1.99	1.99	1.99	1.99	1.99	1.99	2.00	2.00	1.98	2.01	2.00	1.99	1.99	1.99	1.99	2.00	X	2.00	2.05	S	2.11	1.98	2.11	2.00	23	
29	2.08	2.08	2.24	2.34	2.45	2.53	2.89	3.09	3.05	3.04	3.05	2.90	2.28	2.11	2.08	2.09	2.08	2.08	2.12	2.32	2.32	S	2.20	2.18	2.08	3.09	2.42	24	
30	2.13	2.13	2.11	2.10	2.09	2.08	2.08	2.10	2.07	2.07	2.06	2.05	2.06	2.05	2.04	2.04	2.04	2.05	2.06	2.05	S	2.05	2.05	2.06	2.04	2.13	2.07	24	
31	2.06	2.07	2.07	2.06	2.06	2.05	2.07	2.09	2.10	2.12	2.13	2.06	2.11	2.13	2.14	2.14	2.16	2.17	2.16	S	2.18	2.17	2.17	2.18	2.05	2.18	2.12	24	
HOURLY MAX	2.24	2.13	3.59	4.83	4.06	3.92	3.08	3.46	3.05	3.04	3.05	2.90	2.28	2.13	2.14	2.14	2.16	2.17	2.16	2.32	2.32	2.17	2.20	2.18					
HOURLY AVG	2.00	1.99	2.06	2.11	2.08	2.07	2.06	2.08	2.06	2.04	2.04	2.03	2.01	2.00	2.00	2.00	1.99	1.99	1.99	2.00	2.00	2.00	2.00	2.00					

STATUS FLAG CODES

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

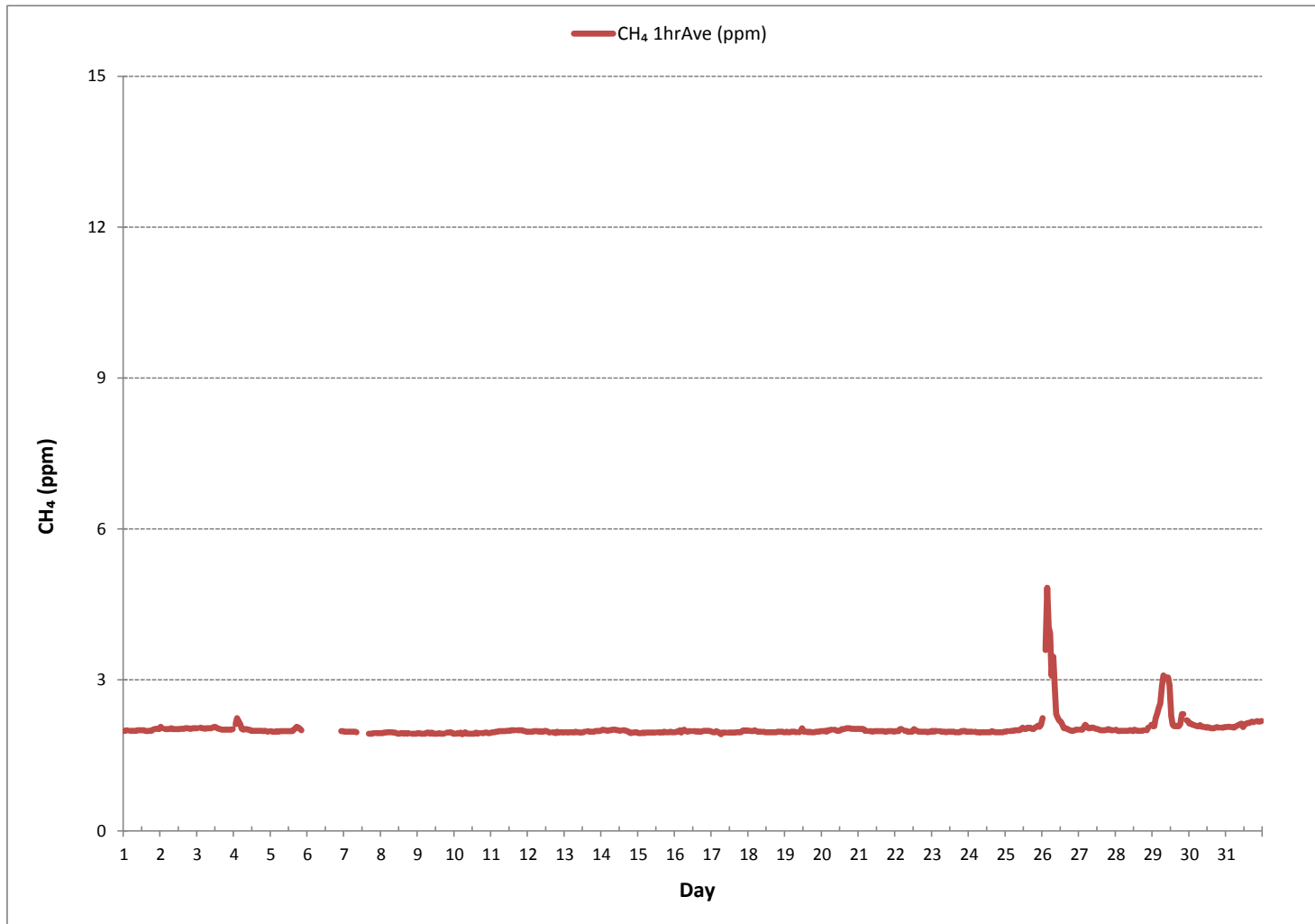
24 HR AVERAGES December 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	681			
MINIMUM 1-HR AVERAGE:	1.92 ppm	@ HOUR	5	ON DAY 10
MAXIMUM 1-HR AVERAGE:	4.83 ppm	@ HOUR	3	ON DAY 26
MAXIMUM 24-HR AVERAGE:	2.57 ppm			ON DAY 26
IZS CALIBRATION TIME:	33 hrs	OPERATIONAL TIME:	720	hrs
MONTHLY CALIBRATION TIME:	6 hrs	AMD OPERATION UPTIME:	96.8	%
STANDARD DEVIATION:	0.21	MONTHLY AVERAGE:	2.03	ppm

METHANE Hourly Averages (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 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	2.00	2.00	2.04	S	2.02	2.01	2.01	2.01	2.00	2.02	2.01	2.02	2.02	2.02	2.01	2.00	2.01	2.01	2.01	2.03	2.04	2.04	2.04	2.06	2.00	2.06	2.02	24	
2	2.10	2.11	S	2.08	2.04	2.03	2.12	2.10	2.05	2.04	2.04	2.04	2.04	2.04	2.05	2.05	2.05	2.07	2.07	2.06	2.05	2.05	2.05	2.06	2.03	2.12	2.06	24	
3	2.06	S	2.07	2.07	2.06	2.05	2.05	2.05	2.06	2.06	2.07	2.10	2.08	2.06	2.05	2.04	2.03	2.03	2.04	2.03	2.03	2.04	2.04	2.05	2.03	2.10	2.05	24	
4	S	2.23	2.31	2.34	2.16	2.08	2.03	2.04	2.03	2.03	2.03	2.01	2.01	2.01	2.00	2.00	2.00	2.00	2.02	2.02	2.03	2.03	2.00	S	2.00	2.34	2.06	24	
5	2.03	1.99	1.99	1.99	1.99	1.99	2.00	1.99	2.00	1.99	2.00	2.00	1.99	2.00	2.00	2.04	2.08	2.10	2.07	2.05	2.02	X	S	X	1.99	2.10	2.01	22	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S	X	1.99	2.00	2.00	3		
7	1.99	1.99	1.98	1.98	1.99	1.98	1.98	1.98	1.98	C	C	Y	C	C	C	C	1.95	1.95	1.94	1.96	S	1.96	1.96	1.96	1.94	1.99	1.97	23	
8	1.96	1.96	1.96	1.97	1.98	1.98	1.98	1.97	1.97	1.96	1.96	1.95	1.94	1.95	1.96	1.95	1.95	1.95	1.95	S	1.95	1.94	1.94	1.94	1.94	1.98	1.96	24	
9	1.97	1.97	1.97	1.94	1.94	1.96	1.99	1.99	1.97	1.98	1.94	1.94	1.94	1.94	1.98	1.97	1.94	1.94	S	1.97	2.00	1.99	2.02	1.95	1.94	2.02	1.97	24	
10	1.94	1.94	1.98	1.99	2.01	1.95	1.96	1.99	1.94	1.94	1.94	1.94	1.94	1.95	1.98	1.94	1.95	S	1.96	1.96	1.97	1.96	1.96	1.96	1.94	2.01	1.96	24	
11	1.97	1.98	1.97	1.99	1.99	1.99	2.00	1.99	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	S	2.03	2.02	2.02	2.01	2.01	2.00	1.99	1.97	2.03	2.00	24	
12	1.99	1.99	1.98	1.98	2.01	2.00	1.99	1.99	2.02	2.00	2.02	2.02	2.03	2.02	2.00	S	2.02	1.99	2.00	2.02	1.97	1.98	1.98	1.97	1.97	2.03	2.00	24	
13	1.97	1.97	1.97	1.97	1.98	1.98	1.97	1.99	1.98	1.99	1.96	1.96	1.98	1.98	S	2.02	1.98	1.99	1.98	1.99	2.02	2.01	2.00	2.01	1.96	2.02	1.98	24	
14	2.02	2.02	2.02	2.02	2.01	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.01	S	2.01	2.02	2.01	2.01	1.98	1.96	1.96	1.97	2.04	2.03	1.96	2.04	2.01	24	
15	1.95	1.95	1.96	1.99	1.97	1.96	1.97	1.96	1.96	1.96	1.97	1.96	S	1.99	1.97	1.97	1.97	2.00	1.98	1.97	1.98	1.98	1.98	1.98	1.95	2.00	1.97	24	
16	1.98	2.00	2.00	2.05	2.01	2.01	2.04	2.00	1.99	1.99	2.00	S	2.00	1.99	1.99	1.99	1.99	1.99	2.00	2.01	2.00	2.00	2.00	2.00	1.98	2.05	2.00	24	
17	1.99	1.98	1.98	2.02	2.01	1.97	1.97	1.97	1.97	S	1.97	1.97	1.97	1.96	1.97	1.97	1.98	1.98	1.98	1.98	2.07	2.07	2.02	2.03	1.96	2.07	1.99	24	
18	2.03	2.04	2.00	2.02	2.07	2.00	1.99	1.99	1.99	S	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.99	1.99	1.98	1.98	1.98	2.07	2.00	24	
19	1.98	1.99	1.98	1.98	1.98	1.98	1.99	1.98	S	1.98	2.03	2.10	2.01	1.99	1.98	1.98	1.98	1.98	1.98	2.01	1.98	1.98	1.99	1.99	1.98	2.10	1.99	24	
20	2.00	2.00	2.01	2.02	2.01	2.02	2.03	S	2.03	2.01	2.00	2.01	2.02	2.03	2.04	2.05	2.06	2.05	2.05	2.05	2.04	2.04	2.03	2.04	2.00	2.06	2.03	24	
21	2.04	2.04	2.07	2.04	2.02	2.00	S	2.00	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.07	2.00	24	
22	1.99	1.99	2.00	2.08	2.05	S	2.01	2.07	1.99	1.99	1.99	2.00	2.06	2.06	2.03	1.98	1.99	1.99	1.99	1.98	1.98	1.98	1.98	1.99	1.98	2.08	2.01	24	
23	2.05	2.00	2.04	2.02	S	1.99	1.99	1.98	1.99	1.97	1.99	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.97	2.01	2.02	2.01	1.99	1.99	1.97	2.05	1.99	24	
24	1.98	2.00	1.99	S	1.99	1.98	1.99	1.97	1.98	1.98	1.98	1.98	1.98	1.98	1.97	2.02	2.01	2.00	1.97	2.01	1.97	1.99	1.98	2.01	1.97	2.02	1.99	24	
25	2.01	2.00	S	2.00	2.10	2.02	2.02	2.01	2.02	2.02	2.07	2.08	2.05	2.05	2.09	2.07	2.08	2.05	2.05	2.07	2.09	2.16	2.13	2.12	2.00	2.16	2.06	24	
26	2.58	S	5.13	9.47	6.41	6.46	3.74	4.02	3.30	2.64	2.32	2.25	2.20	2.14	2.06	2.06	2.05	2.02	2.01	2.01	2.01	2.02	2.02	2.02	2.01	9.47	3.17	24	
27	S	2.03	2.03	2.16	2.16	2.14	2.06	2.06	2.07	2.06	2.05	2.04	2.03	2.02	2.02	2.01	2.01	2.03	2.03	2.03	2.02	2.01	2.02	S	2.01	2.16	2.05	24	
28	2.05	2.02	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.02	2.02	2.04	2.01	2.01	2.00	2.01	2.01	2.01	X	2.02	2.16	S	2.15	2.00	2.16	2.03	23	
29	2.14	2.15	2.48	2.53	2.59	2.75	3.09	3.16	3.07	3.12	3.14	2.66	2.23	2.11	2.11	2.10	2.10	2.20	2.47	2.37	S	2.28	S	2.28	2.21	2.10	3.16	2.53	24
30	2.14	2.16	2.13	2.12	2.11	2.11	2.11	2.15	2.11	2.11	2.08	2.07	2.07	2.07	2.06	2.06	2.06	2.06	2.07	2.07	S	2.08	2.08	2.08	2.06	2.16	2.09	24	
31	2.08	2.08	2.10	2.08	2.09	2.07	2.10	2.12	2.13	2.18	2.24	2.09	2.14	2.14	2.15	2.16	2.17	2.20	2.18	S	2.21	2.20	2.19	2.19	2.07	2.24	2.14	24	
HOURLY MAX	2.58	2.23	5.13	9.47	6.41	6.46	3.74	4.02	3.30	3.07	3.12	3.14	2.66	2.23	2.15	2.16	2.17	2.20	2.20	2.47	2.37	2.20	2.28	2.21					
HOURLY AVG	2.04	2.02	2.15	2.32	2.20	2.19	2.11	2.12	2.09	2.07	2.07	2.06	2.04	2.02	2.02	2.02	2.01	2.02	2.02	2.03	2.03	2.02	2.02	2.03					

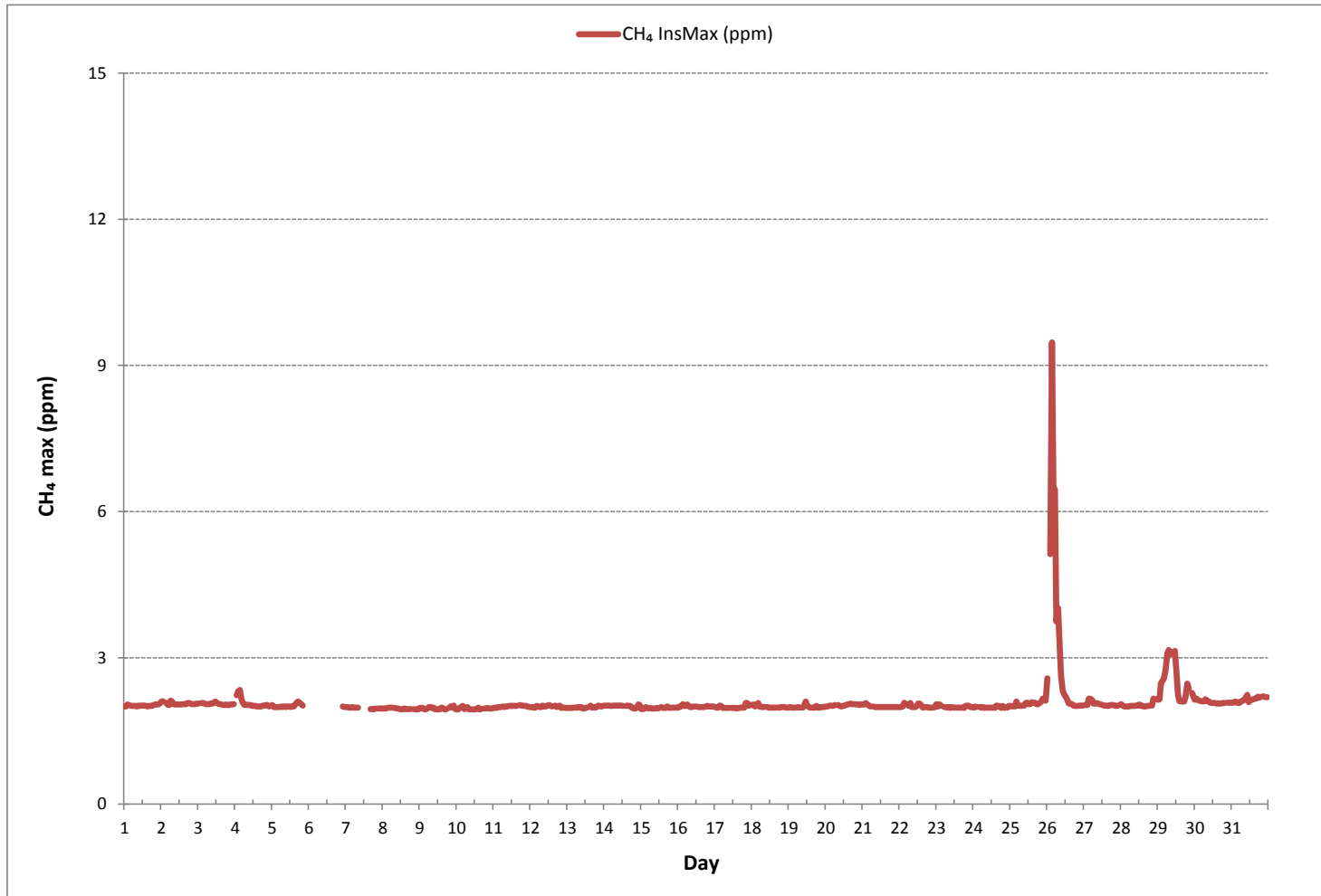
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	680
MAXIMUM INSTANTANEOUS VALUE:	9.47 ppm @ HOUR 3 ON DAY 26
IZS CALIBRATION TIME:	33 hrs
MONTHLY CALIBRATION TIME:	6 hrs
OPERATIONAL TIME:	719 hrs
STANDARD DEVIATION:	0.43

METHANE MAX Instantaneous Maximum (CH₄ ppm)



Wind: PRAMP_842
 Poll.: PRAMP_842-CH₄[ppm]
 Monthly: 17/12
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

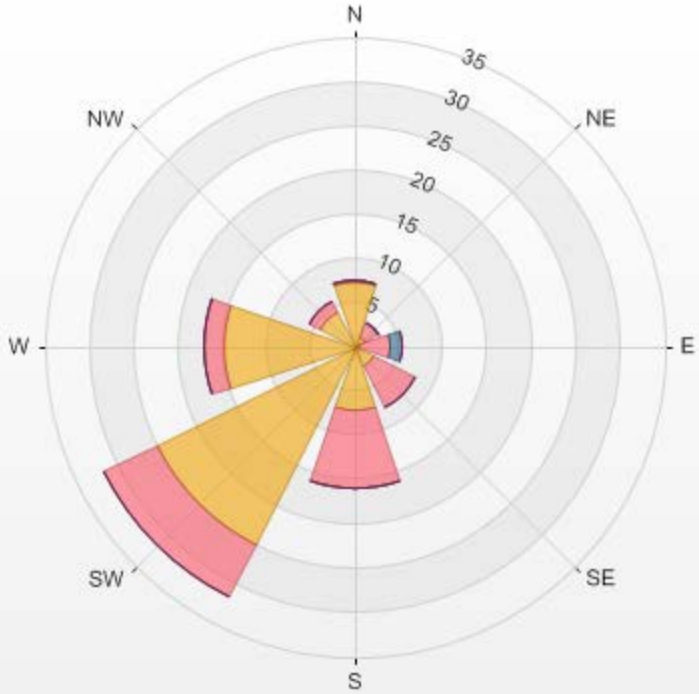
Calm: 5.87%

Calm Avg: 2.08 [ppm]

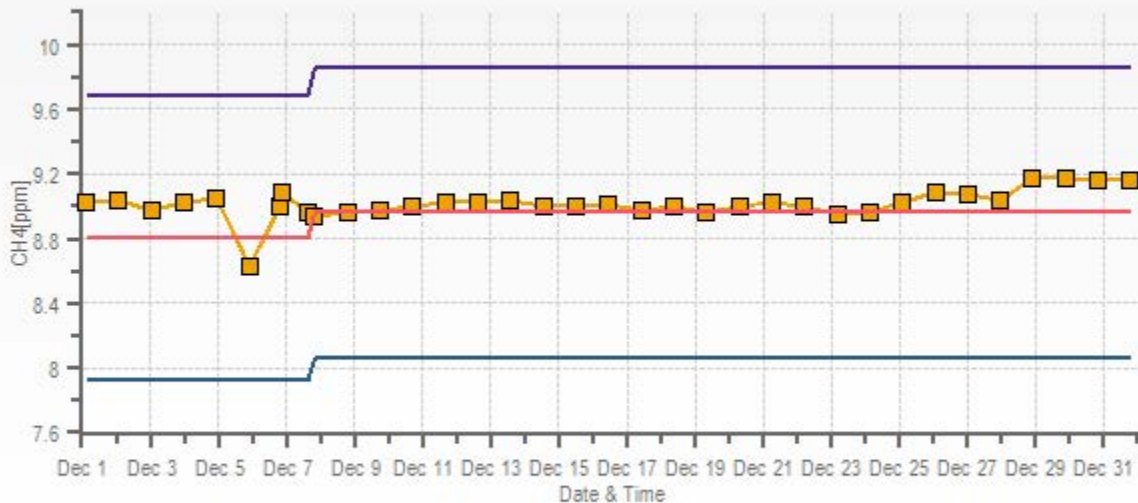
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	7.3	0.2	0.0	0.0	0.0	7.5
NE	1.3	1.6	0.2	0.0	0.0	3.1
E	0.7	3.4	1.3	0.0	0.0	5.4
SE	2.5	5.1	0.0	0.0	0.0	7.6
S	7.2	8.8	0.0	0.0	0.0	16.0
SW	25.0	6.8	0.0	0.0	0.0	31.7
W	14.8	2.2	0.0	0.0	0.0	17.0
NW	4.4	1.3	0.0	0.0	0.0	5.7
Summary	63.3	29.4	1.5	0.0	0.0	94.1

% Icon Classes (ppm) 63 0-2 29 2-3 1 3-5 0 5-10 0 >10.0

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.87% Calm Poll Avg: 2.08[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 17/12 Type: Span

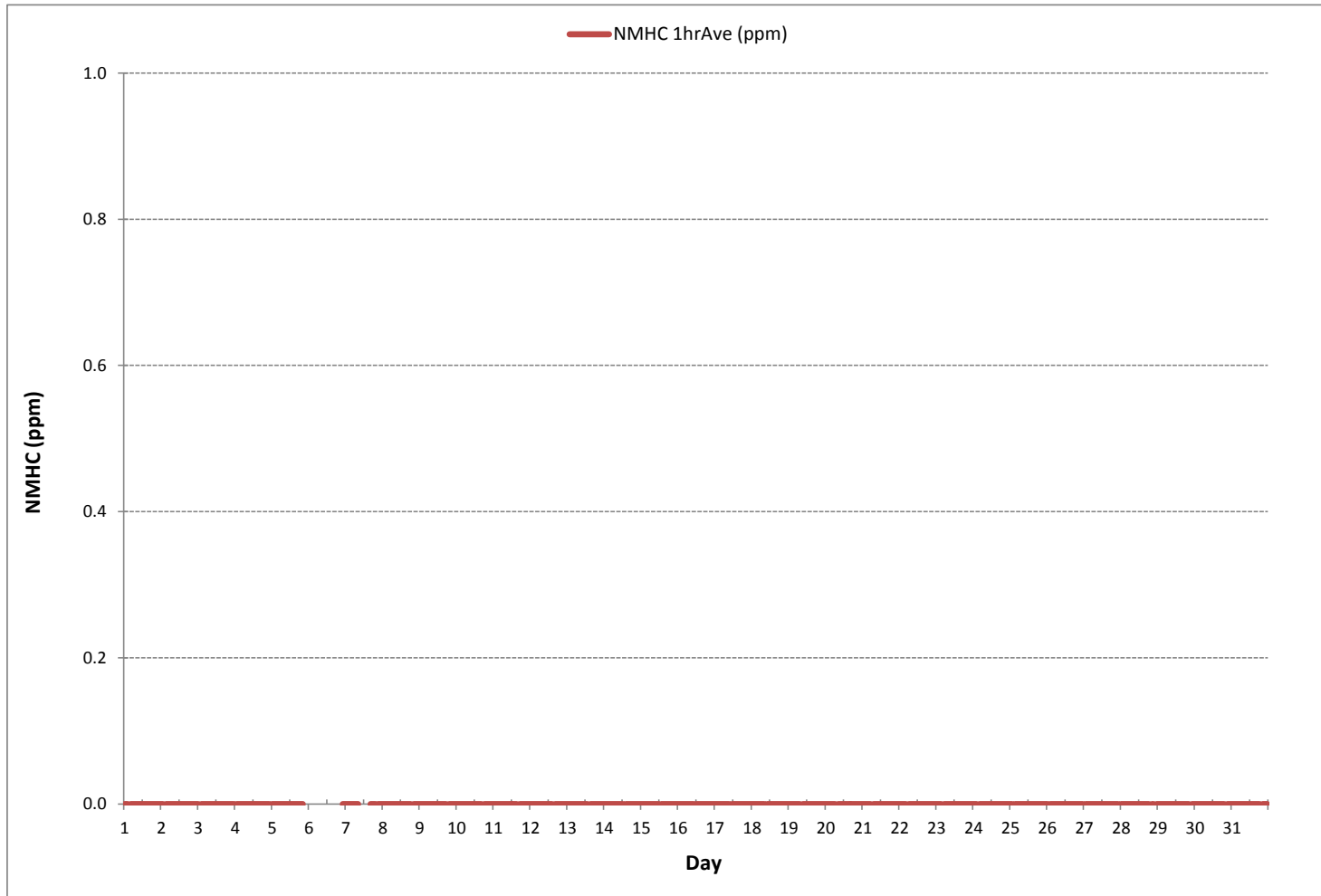


—■— Span Meas — Span Ref — Span Low — Span High

NON-METHANE HYDROCARBON



NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 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	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	0.03	0.00	0.00	S	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.18	0.00	0.00	0.00	0.18	0.01	24	
2	0.01	0.01	S	0.05	0.00	0.00	0.01	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.06	0.05	0.00	0.00	0.06	0.01	24
3	0.00	S	0.00	0.01	0.13	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.13	0.01	24
4	S	0.01	0.10	0.00	0.00	0.00	0.09	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	S	0.00	0.10	0.01	24	
5	0.00	0.00	0.00	0.21	0.00	0.00	0.01	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	X	S	X	0.00	0.21	0.01	22	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S	0.00	0.01	0.00	0.01	0.01	3
7	0.02	0.01	0.01	0.00	0.02	0.01	0.00	0.00	0.00	C	C	Y	C	C	C	C	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.02	0.00	23	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
12	0.00	0.00	0.00	0.00	0.00	0.00	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
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	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
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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
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	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
16	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	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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
19	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	0.00	24
20	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	0.00	24
21	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	0.00	24
22	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	0.00	24
23	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	0.00	24
24	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	0.00	24
25	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
26	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	0.00	24
27	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	S	0.00	0.00	24
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	0.00	0.00	S	0.00	0.00	0.00	0.00	23
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	S	0.00	0.00	0.06	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
HOURLY MAX	0.03	0.01	0.10	0.21	0.13	0.07	0.09	0.02	0.05	0.02	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.02	0.06	0.01	0.18	0.05	0.01					
HOURLY AVG	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00					

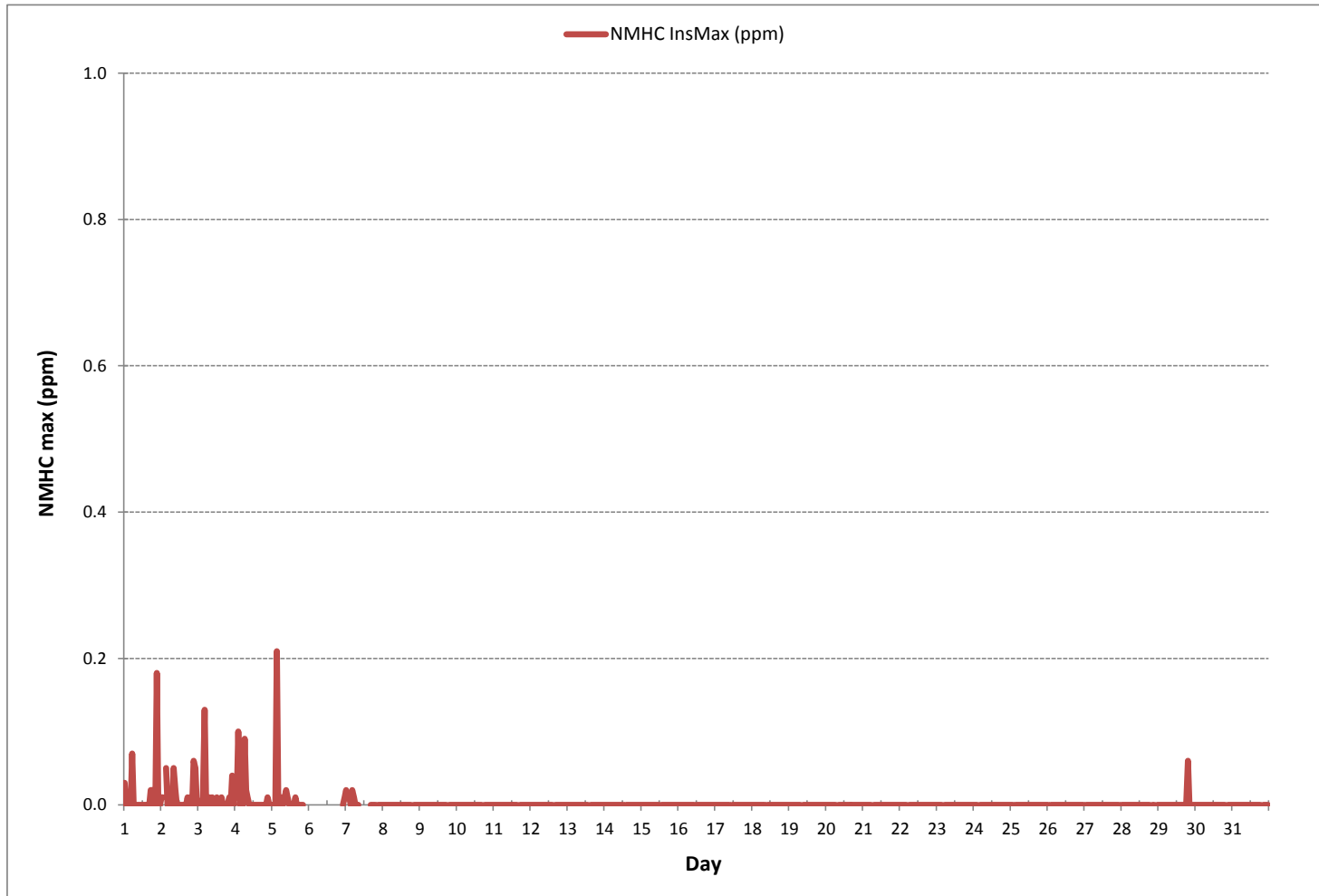
STATUS FLAG CODES

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:	42					
MAXIMUM INSTANTANEOUS VALUE:	0.21	ppm	@ HOUR	3	ON DAY	5
IZS CALIBRATION TIME:	33	hrs	OPERATIONAL TIME:	719	hrs	
MONTHLY CALIBRATION TIME:	6	hrs				
STANDARD DEVIATION:	0.01					

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



Wind: PRAMP_842
 Poll.: PRAMP_842-NMHC[ppm]
 Monthly: 17/12
 Type: PollutionRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

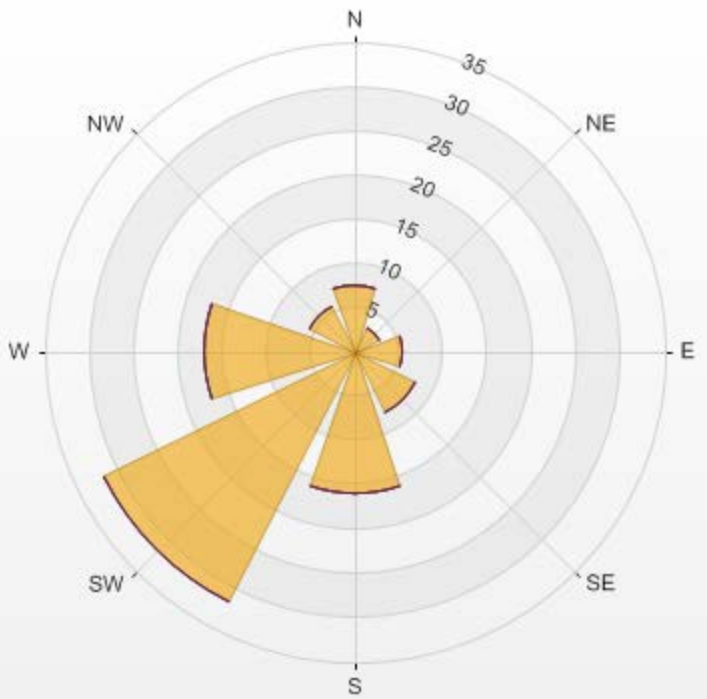
Calm: 5.87%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	7.5	0.0	0.0	0.0	0.0	7.5
NE	3.1	0.0	0.0	0.0	0.0	3.1
E	5.4	0.0	0.0	0.0	0.0	5.4
SE	7.6	0.0	0.0	0.0	0.0	7.6
S	16.0	0.0	0.0	0.0	0.0	16.0
SW	31.7	0.0	0.0	0.0	0.0	31.7
W	17.0	0.0	0.0	0.0	0.0	17.0
NW	5.7	0.0	0.0	0.0	0.0	5.7
Summary	94.1	0.0	0.0	0.0	0.0	94.1

% Icon Classes (ppm) 94 0-0.1 0 0.1-0.3 0 0.3-1 0 1-2 0 >2.0

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.87% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 17/12 Type: Span



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

WIND SPEED



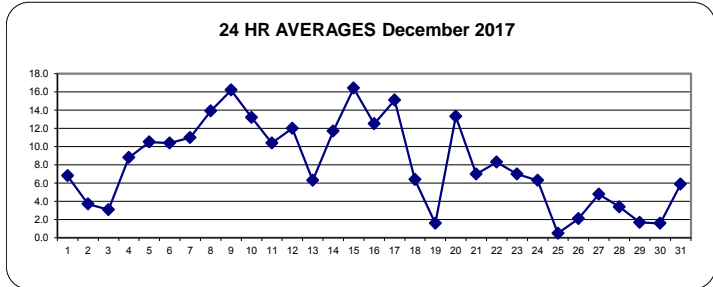
WIND SPEED Hourly Averages (WS kph)

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	10.4	15.6	6.4	10.3	11.7	8.6	6.4	3.8	4.0	7.6	5.0	3.0	10.5	9.7	7.1	6.6	9.2	11.2	9.0	5.5	3.8	5.1	7.8	10.1	3.0	15.6	6.8	24
2	6.7	4.6	3.8	6.2	6.1	2.5	3.0	2.9	0.7	1.8	2.7	3.5	3.5	5.8	5.3	5.3	4.6	5.7	6.3	8.5	8.6	7.4	9.2	6.8	0.7	9.2	3.7	24
3	6.6	5.5	4.5	1.4	3.1	2.4	4.1	4.5	4.0	3.1	4.9	5.3	5.9	5.3	6.9	7.4	6.1	3.1	1.2	0.7	0.5	0.9	0.7	1.9	0.5	7.4	3.1	24
4	2.1	3.2	2.1	3.3	6.6	8.3	10.7	9.0	9.4	9.3	10.7	15.6	14.2	15.0	14.2	16.3	16.1	14.8	11.2	16.4	14.5	13.5	8.1	13.9	2.1	16.4	8.8	24
5	13.9	17.2	19.5	14.4	18.4	16.9	17.7	18.6	15.7	13.3	10.9	12.1	12.5	11.4	12.8	8.0	7.0	9.4	3.7	2.0	2.1	4.1	2.6	1.9	1.9	19.5	10.5	24
6	3.1	5.7	7.0	5.5	9.0	7.7	9.5	10.1	15.9	17.8	15.5	13.9	13.0	12.5	12.3	14.2	15.2	12.2	6.6	11.8	13.5	13.0	10.9	11.6	3.1	17.8	10.4	24
7	17.4	14.2	17.5	16.1	14.5	14.7	15.2	14.1	13.6	14.2	16.8	15.7	12.1	15.1	11.4	10.4	5.2	4.6	6.4	6.2	5.8	4.2	3.9	9.7	3.9	17.5	11.0	24
8	16.2	13.3	9.9	8.5	7.1	6.8	7.9	8.7	9.4	13.7	13.4	15.8	18.4	20.8	20.3	17.5	19.6	20.4	18.4	15.5	19.6	19.9	17.7	18.6	6.8	20.8	13.9	24
9	17.3	15.1	20.3	20.1	16.0	19.0	18.9	17.2	21.3	18.7	20.2	20.7	21.4	17.0	18.9	12.3	13.7	15.2	12.7	9.7	10.8	13.3	12.2	8.9	8.9	21.4	16.2	24
10	12.7	12.3	13.6	15.1	15.3	18.2	15.2	15.6	23.2	20.2	19.2	20.8	16.9	15.8	16.2	16.1	14.3	12.5	10.5	6.4	6.7	6.6	5.7	6.0	5.7	23.2	13.2	24
11	5.7	7.2	7.9	5.1	4.8	5.0	5.5	5.9	6.0	6.0	6.6	10.4	14.0	13.7	13.1	19.1	17.7	13.1	16.1	14.3	16.4	17.4	19.2	19.3	4.8	19.3	10.4	24
12	23.1	20.7	13.5	17.0	7.3	13.4	12.0	14.9	13.0	8.5	7.1	8.5	12.6	13.0	14.9	14.9	9.4	11.9	10.4	10.7	9.6	10.3	12.6	10.8	7.1	23.1	12.0	24
13	12.1	10.2	8.5	6.5	6.4	7.6	7.3	11.0	7.8	10.1	16.2	12.9	8.7	5.9	2.1	6.1	7.6	5.9	7.4	3.6	3.0	4.4	5.5	5.3	2.1	16.2	6.3	24
14	6.0	4.3	6.9	5.6	7.3	9.7	8.8	7.3	10.6	15.7	14.0	15.5	18.6	15.3	16.6	17.1	16.9	13.9	16.2	14.9	15.9	14.7	13.7	16.0	4.3	18.6	11.7	24
15	13.6	13.1	18.0	19.6	20.3	16.7	14.0	12.4	15.5	15.7	15.2	13.4	17.3	17.9	20.4	17.8	14.9	16.3	18.8	19.8	19.7	17.8	15.9	17.2	12.4	20.4	16.4	24
16	15.4	11.8	9.0	9.3	12.9	12.2	10.8	8.3	7.9	9.4	10.5	13.3	13.7	13.9	12.5	13.2	15.8	17.5	19.6	20.8	21.5	20.1	19.6	15.0	7.9	21.5	12.5	24
17	15.1	18.7	16.2	14.9	13.1	18.4	19.8	17.5	14.9	18.2	19.6	20.4	22.4	22.3	19.9	19.2	16.4	14.8	11.9	10.0	9.9	9.7	10.3	11.6	9.7	22.4	15.1	24
18	11.6	12.2	8.9	6.5	9.8	12.6	14.0	12.0	9.3	7.8	10.3	9.1	9.0	8.6	8.9	6.9	6.1	7.2	8.6	7.6	7.0	7.5	6.2	4.4	4.4	14.0	6.4	24
19	7.2	5.6	4.6	2.4	2.3	2.0	1.6	0.3	1.5	1.8	2.5	2.9	5.8	4.7	4.1	2.0	2.0	3.5	4.6	6.7	5.5	5.9	10.6	11.7	0.3	11.7	1.6	24
20	10.0	9.8	11.6	13.4	15.7	16.9	15.2	17.5	17.2	14.8	14.6	13.9	12.0	13.0	15.7	14.2	12.7	14.7	16.2	13.1	10.8	10.8	10.0	9.2	9.2	17.5	13.3	24
21	8.9	9.5	6.3	2.9	7.5	6.7	6.4	7.2	8.0	7.7	8.2	8.2	7.9	7.9	9.4	9.0	10.4	12.3	8.6	8.0	9.8	8.3	10.4	10.0	2.9	12.3	7.0	24
22	8.2	6.0	4.8	5.7	8.9	9.0	9.6	9.4	5.3	5.5	7.7	7.7	8.6	11.1	10.4	10.5	11.8	10.9	11.3	9.9	11.4	10.3	10.0	7.0	4.8	11.8	8.3	24
23	10.7	11.9	8.8	9.4	8.7	8.5	8.3	11.7	13.6	12.2	12.2	12.3	12.3	13.1	10.4	9.1	2.7	1.5	2.3	4.4	6.1	6.8	6.7	9.2	1.5	13.6	7.0	24
24	9.3	10.1	15.3	12.3	11.4	10.8	11.5	8.1	7.2	5.1	1.6	1.6	5.5	5.5	6.2	5.1	4.9	3.0	3.3	3.2	3.8	6.7	7.6	6.0	1.6	15.3	6.3	24
25	6.0	1.7	0.5	1.2	2.0	1.9	0.0	0.9	1.1	1.9	1.6	1.4	0.5	2.7	4.6	3.6	2.8	2.1	4.3	1.9	2.4	1.7	3.9	3.7	0.0	6.0	0.5	24
26	2.7	3.3	4.7	4.5	4.6	4.8	4.7	2.7	1.4	4.0	4.4	3.2	1.6	2.7	5.6	3.6	3.5	3.4	2.7	1.1	3.3	4.1	1.1	0.0	0.0	5.6	2.1	24
27	1.0	0.2	1.3	2.5	2.9	3.4	3.8	3.2	4.7	5.6	5.1	8.0	10.1	10.0	8.9	8.3	8.1	8.6	8.3	7.4	4.9	6.8	7.9	6.2	0.2	10.1	4.8	24
28	3.9	8.9	10.1	10.3	11.5	9.0	7.5	5.7	0.5	0.7	1.4	1.6	3.2	4.5	5.8	4.3	1.1	0.4	0.5	1.1	1.9	3.2	3.8	2.0	0.4	11.5	3.4	24
29	2.4	2.4	1.8	1.3	2.3	2.7	3.5	2.8	2.6	3.2	2.8	1.5	0.3	4.9	2.7	3.0	1.2	3.0	4.4	4.8	2.2	2.6	3.5	2.4	0.3	4.9	1.7	24
30	0.8	1.3	3.3	2.0	1.6	1.0	4.4	3.5	1.6	1.2	0.5	0.5	0.6	0.5	4.6	4.7	0.6	2.7	4.7	5.5	6.3	6.9	6.5	6.2	0.5	6.9	1.6	24
31	6.2	7.6	7.6	4.7	3.2	3.5	3.5	0.6	1.6	2.8	5.3	8.1	13.5	10.8	11.2	9.4	9.6	9.9	9.3	7.8	6.9	6.5	7.9	11.3	0.6	13.5	5.9	24
HOURLY MAX	23.1	20.7	20.3	20.1	20.3	19.0	19.8	18.6	23.2	20.2	20.2	20.8	22.4	22.3	20.4	19.2	19.6	20.4	19.6	20.8	21.5	20.1	19.6	19.3				
HOURLY AVG	6.5	6.1	5.0	4.7	4.5	5.0	4.9	5.3	5.5	5.6	6.0	6.9	8.1	8.2	8.0	7.6	7.3	6.8	6.2	5.8	5.7	5.8	5.8	6.0				

STATUS FLAG CODES

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

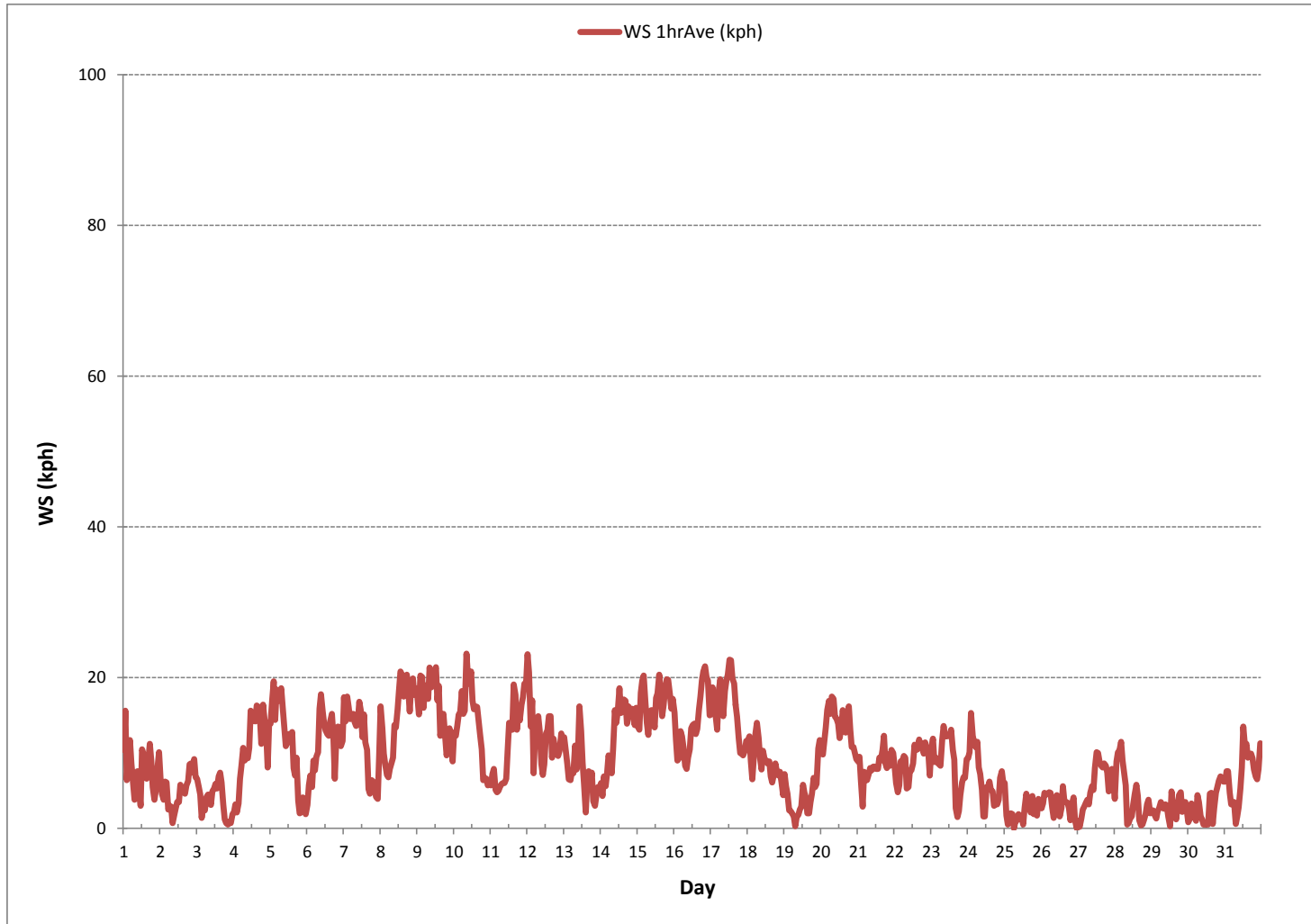
LAST CALIBRATION:	August 30, 2017
DECLINATION:	MAGNETIC DECLINATION 15 DEGREE EAST



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	742
MINIMUM 1-HR AVERAGE:	0.0 kph @ HOUR 6 ON DAY 25
MAXIMUM 1-HR AVERAGE:	23.2 kph @ HOUR 8 ON DAY 10
MAXIMUM 24-HR AVERAGE:	16.4 kph ON DAY 15
MONTHLY CALIBRATION TIME:	0 hrs
OPERATIONAL TIME:	744 hrs
AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	5.5
MONTHLY AVERAGE:	6.1 kph

WIND SPEED Hourly Averages (WS kph)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - December 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	24.1	28.1	16.9	18.4	19.1	14.1	13.3	8.3	9.5	12.6	10.2	7.5	17.4	16.5	13.9	20.2	15.6	20.2	16.5	9.8	9.1	8.8	17.1	17.7	7.5	28.1	15.2	24	
2	12.3	10.3	8.1	11.4	14.4	6.9	7.7	6.5	5.3	3.9	5.4	7.8	7.5	9.7	10.2	10.0	9.8	9.9	12.3	15.3	13.7	13.5	14.4	12.8	3.9	15.3	10.0	24	
3	12.9	9.8	7.9	6.4	5.3	5.8	7.0	7.1	8.3	5.7	11.3	16.5	12.4	10.2	13.5	12.9	11.5	11.2	7.8	3.5	2.6	3.6	4.2	5.9	2.6	16.5	8.5	24	
4	4.7	6.0	6.8	8.0	15.2	18.3	17.5	16.1	16.6	16.7	17.9	27.0	23.6	25.3	25.9	27.4	31.9	24.5	22.2	32.5	27.0	22.4	23.3	31.5	4.7	32.5	20.3	24	
5	25.8	30.3	34.8	31.5	32.4	29.7	32.2	32.3	35.7	28.6	22.5	27.7	26.7	26.2	26.7	13.5	13.1	18.4	12.9	4.6	6.6	8.1	7.4	6.1	4.6	35.7	22.2	24	
6	8.3	9.3	11.5	11.5	15.6	11.4	18.6	23.1	31.1	30.4	27.1	26.4	22.2	21.2	21.4	24.3	25.6	21.2	18.2	24.2	24.7	22.8	23.4	22.7	8.3	31.1	20.7	24	
7	31.2	25.5	28.3	26.7	25.7	25.7	27.3	25.1	25.4	30.4	26.6	21.8	26.2	21.2	17.8	13.1	14.0	10.2	9.4	9.6	8.5	11.9	21.5	8.5	31.2	21.2	24		
8	25.4	25.1	17.9	14.3	11.9	10.6	12.3	14.6	21.9	24.0	23.7	29.0	32.6	35.9	35.1	28.7	33.8	34.0	30.7	28.3	32.8	33.0	28.0	31.7	10.6	35.9	25.6	24	
9	29.9	30.7	38.5	34.3	29.8	37.2	34.9	32.2	35.4	35.5	35.7	35.3	36.8	30.6	32.1	33.7	24.2	27.9	27.8	18.7	18.0	21.9	20.8	15.9	15.9	38.5	29.9	24	
10	25.7	27.0	33.2	27.8	27.6	29.7	25.8	32.5	40.9	38.0	43.4	37.1	31.1	29.7	26.9	26.5	26.6	22.8	20.6	17.8	13.1	11.5	13.7	13.1	11.5	43.4	26.8	24	
11	11.0	24.4	21.5	11.7	11.0	12.5	10.6	11.6	9.2	15.0	14.5	25.0	24.9	29.4	23.7	34.3	35.8	24.8	29.6	25.6	31.1	32.0	28.8	31.7	9.2	35.8	22.1	24	
12	36.5	42.7	25.8	31.9	16.8	29.3	24.7	25.1	24.3	16.0	11.5	15.2	21.0	23.8	23.5	27.8	18.7	22.9	18.3	19.9	19.8	19.1	20.2	19.6	11.5	42.7	23.1	24	
13	20.8	19.2	17.6	10.6	11.2	13.5	12.1	17.9	14.3	25.7	28.0	26.6	17.7	13.6	5.5	10.0	13.8	11.2	14.6	11.7	5.3	9.3	10.1	10.6	5.3	28.0	14.6	24	
14	13.5	8.2	11.4	10.6	16.4	17.8	19.5	16.5	27.0	28.3	25.2	30.5	31.8	27.0	31.1	29.9	29.0	26.4	26.9	25.9	25.2	24.3	28.4	29.1	8.2	31.8	23.3	24	
15	24.7	22.9	27.5	35.0	38.6	30.5	26.1	23.9	28.4	25.7	26.4	29.6	29.1	30.8	34.4	32.1	26.6	25.8	31.1	33.2	33.8	31.0	30.3	29.5	22.9	38.6	29.5	24	
16	26.6	21.5	15.8	18.8	23.7	23.9	16.9	18.3	17.7	17.9	21.2	21.3	24.6	23.7	21.0	24.1	25.0	30.9	34.2	37.2	40.1	35.3	37.5	28.5	15.8	40.1	25.2	24	
17	27.3	36.2	32.0	29.6	30.1	30.9	37.4	38.3	28.5	35.4	34.7	35.2	42.3	40.6	35.4	32.9	27.7	26.5	22.2	17.4	19.1	15.8	18.5	20.1	15.8	42.3	29.8	24	
18	20.9	21.6	17.2	11.9	22.1	28.1	32.7	24.7	18.7	16.9	25.9	21.0	15.3	16.0	15.8	14.3	12.8	17.0	23.1	20.8	16.7	21.1	14.7	11.8	11.8	32.7	19.2	24	
19	16.6	14.1	12.6	8.4	6.1	6.5	5.6	2.1	2.9	4.5	4.9	7.2	11.6	9.2	8.1	5.6	8.6	8.1	12.6	13.5	9.7	16.1	18.0	19.4	2.1	19.4	9.7	24	
20	18.3	16.8	18.5	22.2	27.5	31.6	27.8	31.2	30.5	26.1	24.2	27.5	21.1	21.6	27.1	22.5	23.3	25.5	29.9	22.9	17.6	19.4	16.8	16.9	16.8	31.6	23.6	24	
21	15.2	15.5	15.9	10.7	18.8	16.9	17.9	17.7	16.3	20.5	18.4	19.1	22.1	21.0	20.7	21.8	20.8	30.9	17.7	16.0	21.6	15.5	22.5	17.5	10.7	30.9	18.8	24	
22	16.5	11.3	10.2	12.2	16.2	14.5	15.3	14.9	13.0	11.8	15.2	12.5	13.9	17.7	18.2	16.1	19.0	17.9	17.7	20.0	23.0	18.5	17.4	15.8	10.2	23.0	15.8	24	
23	21.8	20.2	18.3	15.2	16.7	13.8	15.1	23.4	26.8	20.4	23.1	22.0	29.6	31.5	29.0	24.8	8.8	5.9	5.1	9.1	11.3	13.1	14.9	28.5	5.1	31.5	18.7	24	
24	25.2	31.4	42.9	29.9	27.8	33.7	30.9	20.0	16.0	13.5	5.9	10.5	14.2	12.3	16.7	14.4	10.5	8.3	8.2	6.5	8.7	17.7	16.8	17.8	5.9	42.9	18.3	24	
25	13.5	9.6	3.2	5.8	4.6	9.3	3.4	3.5	3.7	4.5	3.4	4.2	2.8	5.8	7.0	7.7	4.5	7.8	8.2	6.3	6.4	7.2	7.1	7.8	2.8	13.5	6.1	24	
26	7.1	6.2	7.2	6.8	6.7	7.0	6.6	6.4	3.4	8.7	6.9	6.9	5.5	7.5	8.1	6.5	8.0	8.0	7.3	4.3	10.5	12.1	4.3	2.2	2.2	12.1	6.8	24	
27	3.2	2.7	3.6	4.4	4.8	7.0	6.8	7.6	8.1	9.9	10.8	14.4	16.3	16.0	15.2	14.7	14.1	14.3	14.5	13.1	11.2	12.6	13.6	10.1	2.7	16.3	10.4	24	
28	10.5	22.9	27.6	24.8	24.7	20.1	18.1	11.4	8.5	4.3	3.5	4.9	9.2	11.1	14.8	10.6	5.8	2.5	2.5	6.6	7.7	6.8	7.8	4.2	2.5	27.6	11.3	24	
29	3.8	5.5	3.9	3.0	3.6	5.3	5.4	4.3	4.2	5.1	5.1	3.9	3.9	8.1	6.0	7.8	4.4	5.4	7.9	8.0	5.3	7.2	7.7	8.6	3.0	8.6	5.6	24	
30	4.6	4.7	8.4	9.0	7.1	5.9	9.7	8.6	5.2	4.1	4.0	4.0	2.8	7.3	7.7	7.2	5.5	5.0	9.2	14.0	15.1	14.0	13.0	12.2	2.8	15.1	7.8	24	
31	13.3	16.7	16.7	12.1	8.0	8.9	7.6	4.0	5.4	7.0	10.4	21.0	22.4	21.7	20.2	19.3	15.8	16.7	14.9	13.7	11.3	13.4	18.9	20.1	4.0	22.4	14.1	24	
HOURLY MAX	36.5	42.7	42.9	35.0	38.6	37.2	37.4	38.3	40.9	38.0	43.4	37.1	42.3	40.6	35.4	34.3	35.8	34.0	34.2	37.2	40.1	35.3	37.5	31.7					
HOURLY AVG	17.8	18.6	18.1	16.6	17.4	17.9	17.6	17.1	17.5	17.5	17.8	19.5	19.8	20.2	19.9	19.3	17.5	17.6	17.3	16.4	16.4	16.6	17.1	17.4					

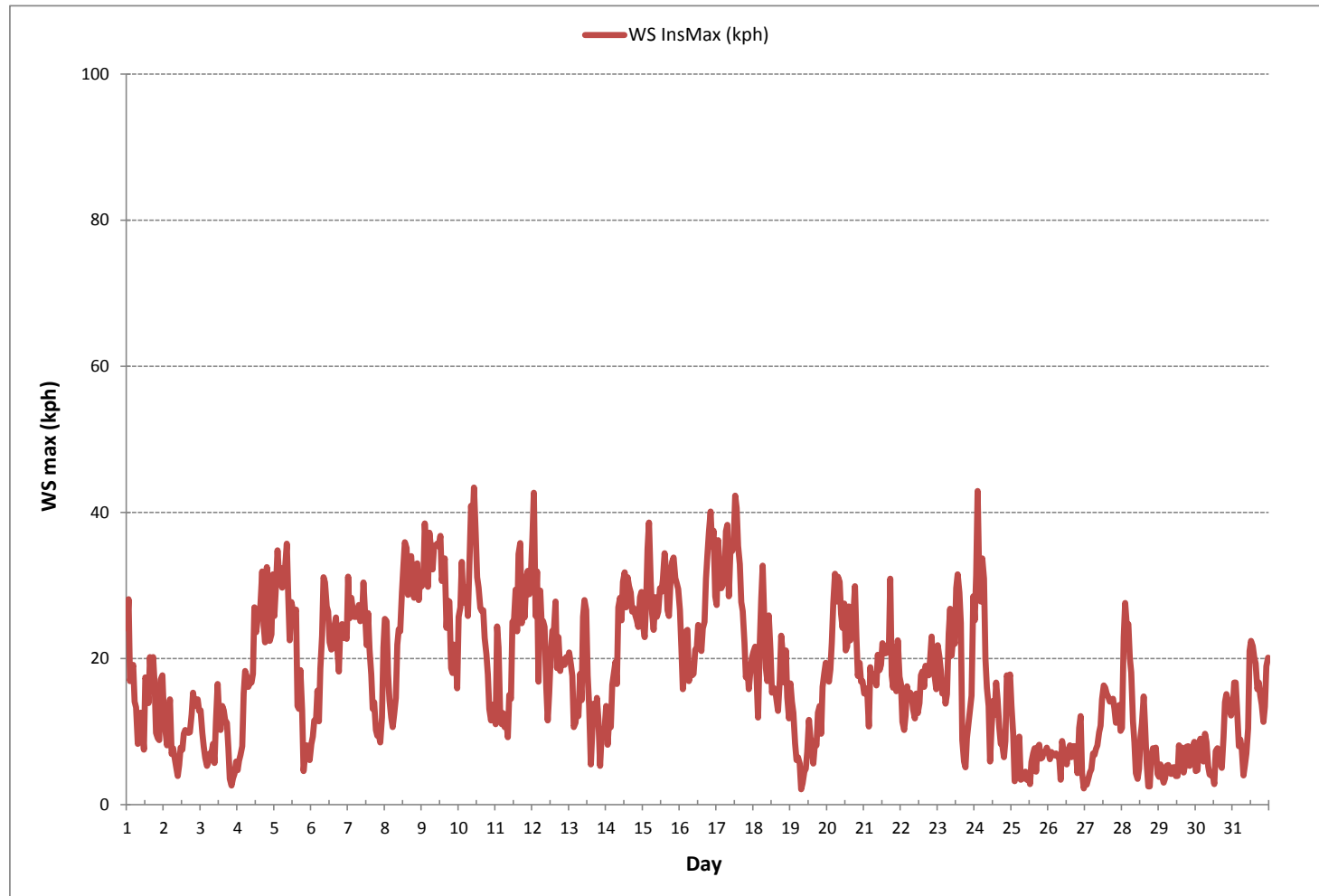
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	43.4 kph	@ HOUR	10	ON DAY	10
OPERATIONAL TIME:	744 hrs				

WIND SPEED Instantaneous Maximum (WS kph)



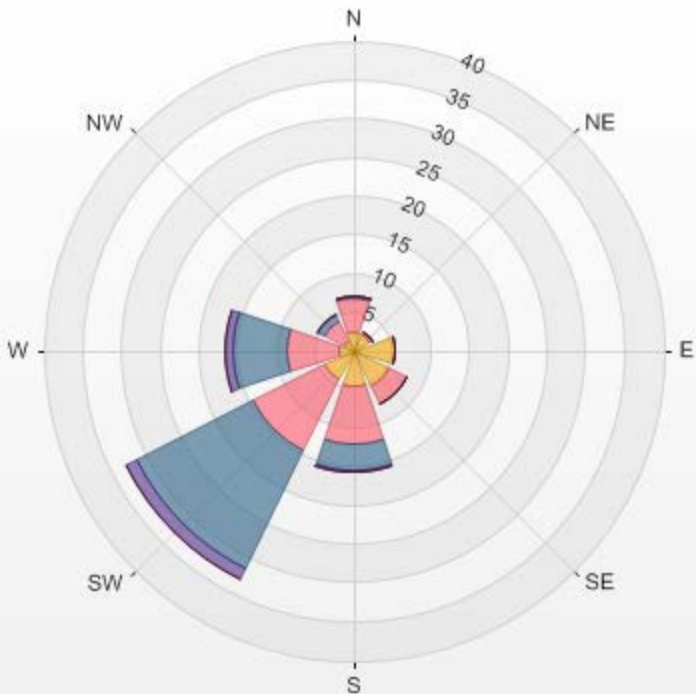
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 17/12
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 5.91%

Direction	1.5-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	2.4	4.3	0.4	0.0	0.0	0.0	7.1
NE	2.4	0.4	0.0	0.0	0.0	0.0	2.8
E	5.5	0.0	0.0	0.0	0.0	0.0	5.5
SE	5.2	2.6	0.0	0.0	0.0	0.0	7.8
S	4.6	7.5	3.4	0.4	0.0	0.0	15.9
SW	4.2	10.4	16.9	1.5	0.0	0.0	32.9
W	2.0	6.6	7.0	1.1	0.0	0.0	16.7
NW	1.3	2.8	1.2	0.0	0.0	0.0	5.4
Summary	27.7	34.5	28.9	3.0	0.0	0.0	94.1

% Icon	Classes (kph)	28	 1.5-6.0	35	 6.0-12.0	29	 12.0-20.0	3	 20.0-29.0	0	 29.0-39.0	0	 >39.0
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PRAMP_842 2017/12/01 00:00 - 2017/12/31 23:00 Calm: 5.91% Calm Wind Avg Speed: 0.84(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - December 2017

WIND DIRECTION Hourly Averages (WD)

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

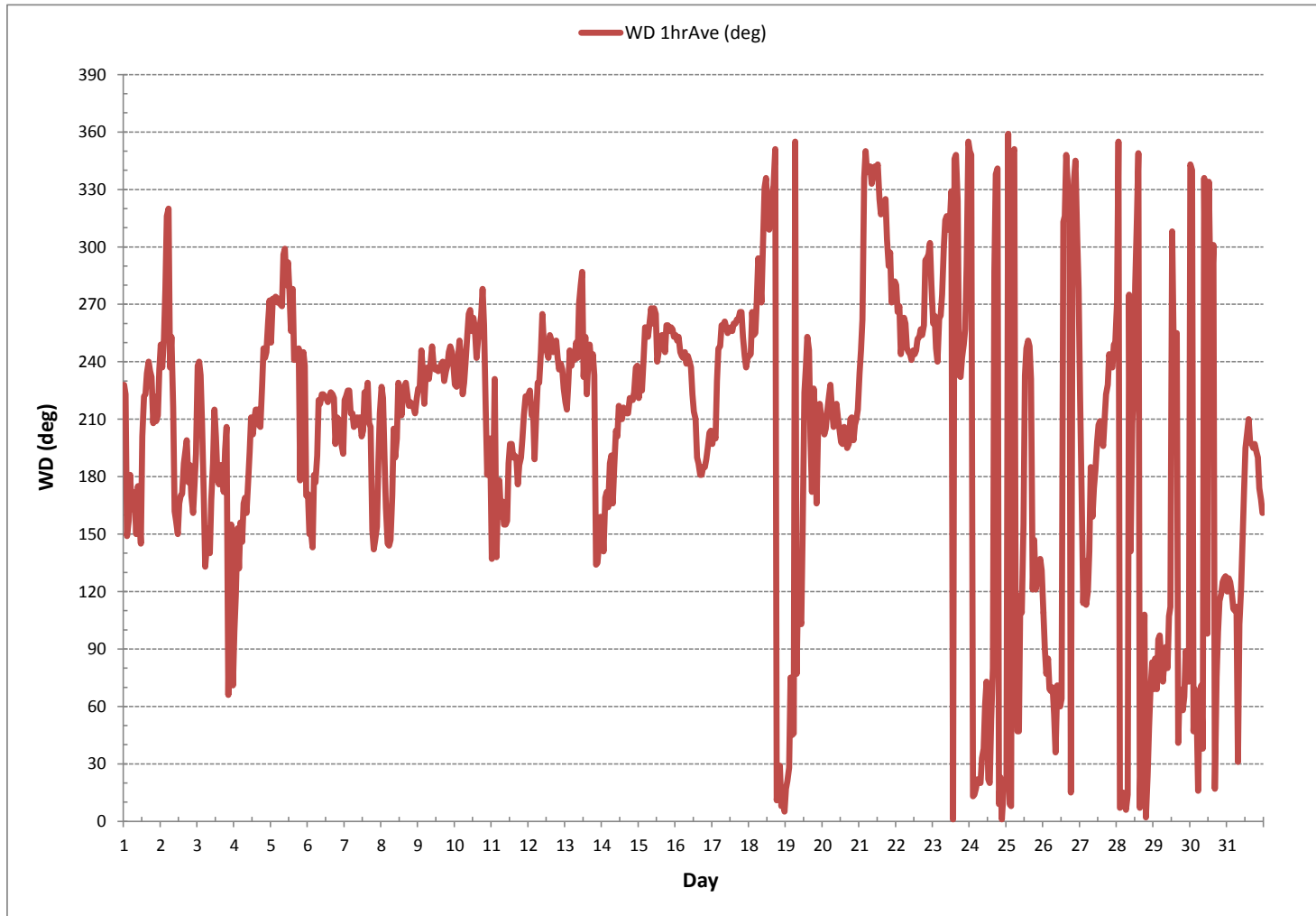
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	744	hrs
STANDARD DEVIATION:	79		AMD OPERATION UPTIME:	100.0	%
			MONTHLY AVERAGE:	231	(SW)

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY



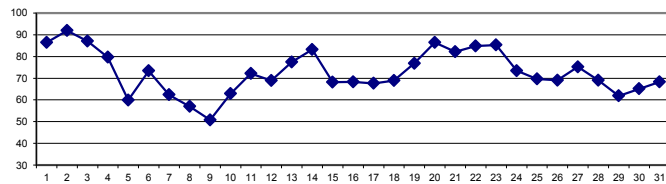
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	75	72	79	86	84	84	84	90	90	83	80	75	70	82	94	95	96	96	96	95	92	91	91	94	70	96	86	24
2	94	94	94	94	94	93	93	94	94	93	93	93	92	92	90	89	86	86	88	92	93	92	91	86	94	92	87	24
3	90	89	89	88	89	88	88	88	88	88	88	87	84	84	84	83	84	86	87	87	87	88	87	88	83	90	87	24
4	87	87	89	89	89	89	90	89	88	85	82	75	74	71	73	73	75	77	75	72	73	73	71	66	66	90	80	24
5	67	68	67	66	62	61	61	60	55	55	52	47	45	46	40	48	57	59	61	68	78	69	70	76	40	78	60	24
6	83	81	79	82	80	78	76	75	74	74	74	72	72	71	69	69	69	70	73	70	67	67	67	69	67	83	73	24
7	63	65	62	61	60	60	57	58	58	59	55	52	53	54	55	56	62	66	72	75	76	77	77	63	52	77	62	24
8	60	60	66	73	77	76	72	70	60	59	53	51	50	49	51	49	50	51	50	49	48	48	47	47	47	77	57	24
9	47	49	49	49	48	50	52	53	53	50	48	47	47	50	49	52	53	52	54	55	54	53	52	53	47	55	51	24
10	51	55	53	50	60	65	65	63	63	63	64	61	57	60	61	61	64	62	63	75	78	77	74	50	78	63	24	
11	81	82	74	83	85	84	83	84	85	88	82	68	57	54	53	58	63	66	68	68	67	65	67	66	53	88	72	24
12	67	68	68	67	71	71	70	69	70	71	70	63	64	64	61	64	68	68	67	70	73	75	77	77	61	77	69	24
13	77	77	80	84	86	86	86	84	86	78	61	55	61	60	55	63	73	80	79	82	88	91	93	93	55	93	77	24
14	93	94	94	94	93	91	91	92	87	83	79	75	74	73	74	73	74	76	75	75	78	81	85	73	94	83	24	
15	83	78	77	75	74	74	74	73	73	74	72	70	65	60	57	57	59	63	61	60	63	66	65	63	57	83	68	24
16	63	67	70	72	75	76	76	75	76	78	74	70	67	66	67	67	65	63	62	59	58	60	65	69	58	78	68	24
17	74	70	69	68	69	69	69	71	71	71	71	70	68	64	62	61	61	64	66	66	68	67	67	67	61	74	68	24
18	64	63	60	62	61	59	62	64	69	72	77	75	73	72	70	72	74	71	70	73	75	73	71	71	59	77	69	24
19	70	71	72	74	75	75	80	85	84	83	73	67	68	72	64	74	81	79	75	81	87	90	91	64	91	77	24	
20	91	91	91	91	92	92	92	91	91	90	90	90	90	88	86	88	86	88	82	79	78	75	72	72	72	92	86	24
21	74	73	74	77	80	83	84	85	88	89	89	88	87	85	83	83	82	81	82	82	81	81	80	81	73	89	82	24
22	84	87	87	91	88	86	85	87	85	83	81	80	77	78	85	89	90	91	89	82	81	81	85	84	77	91	85	24
23	84	84	84	85	90	91	91	90	89	90	90	89	89	85	76	64	79	85	86	85	85	85	84	86	64	91	85	24
24	87	85	81	81	78	78	73	72	72	74	72	65	50	47	55	72	77	79	79	79	77	78	76	76	47	87	73	24
25	77	77	76	75	73	71	71	69	68	67	66	59	56	64	69	69	73	70	72	71	71	69	67	56	77	70	24	
26	68	66	65	65	65	66	66	66	65	66	67	66	68	66	70	72	73	73	74	74	75	76	74	65	76	69	24	
27	70	69	68	67	67	68	72	71	72	74	75	74	75	76	77	78	80	81	81	82	81	82	82	82	67	82	75	24
28	82	81	78	77	75	74	74	73	71	69	69	69	65	58	55	54	66	68	68	67	66	67	66	64	54	82	69	24
29	64	63	62	62	61	61	61	60	60	60	58	52	51	62	61	62	63	65	66	66	66	65	66	67	51	67	62	24
30	66	65	65	67	65	64	66	68	66	65	64	56	51	50	63	62	67	67	69	72	72	71	71	50	72	65	24	
31	71	70	70	71	70	71	69	68	68	67	68	64	62	61	62	63	67	68	69	70	72	73	72	72	61	73	68	24
HOURLY MAX	94	94	94	94	94	93	93	94	94	93	93	93	92	92	94	95	96	96	96	95	93	92	93	94				
HOURLY AVG	74	74	74	75	75	75	75	75	75	74	72	69	67	67	67	68	71	73	73	73	74	74	74	74				

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

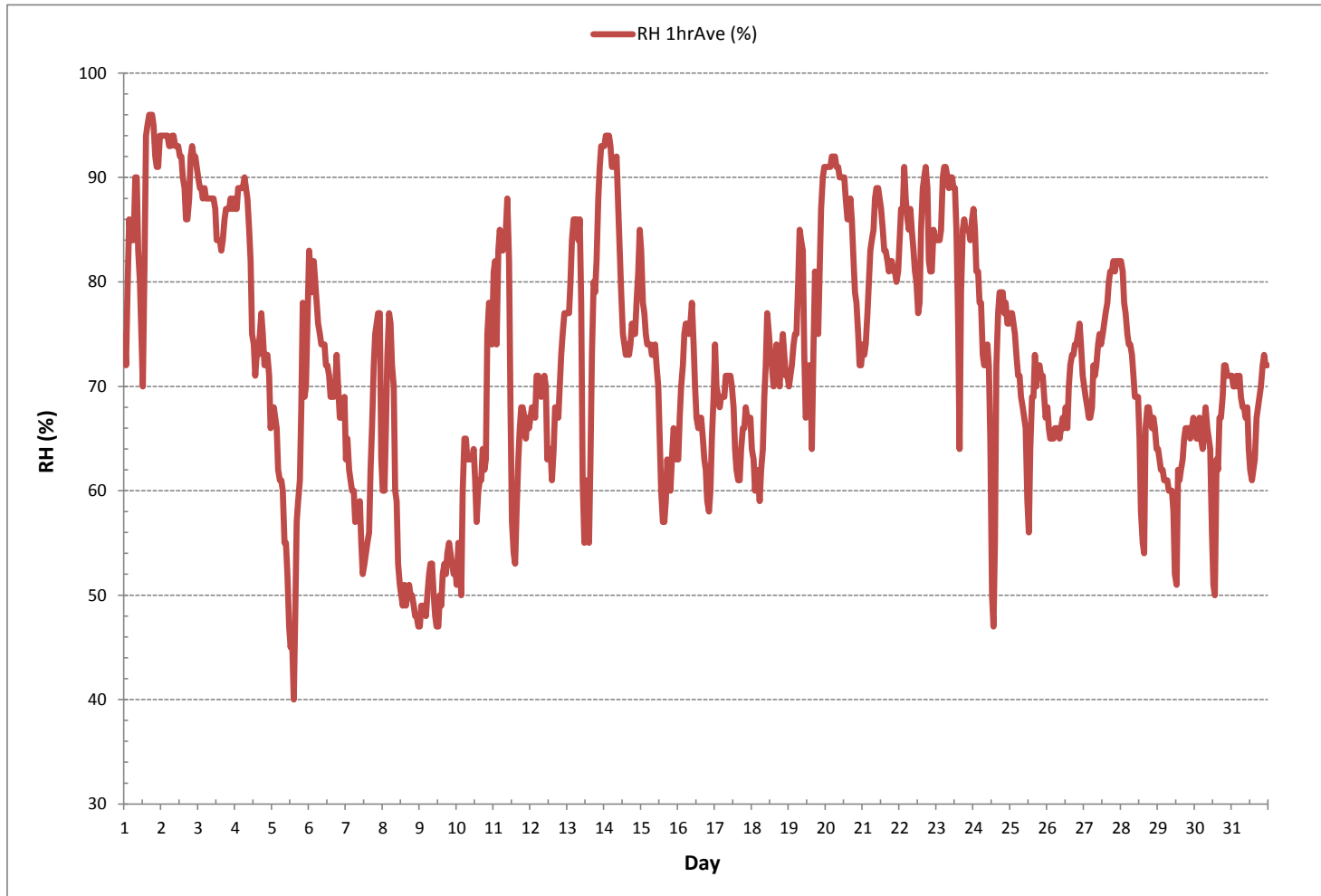
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	40	%	@ HOUR	14	ON DAY	5
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	16	ON DAY	1
MAXIMUM 24-HR AVERAGE:	92	%			ON DAY	2
OPERATIONAL TIME:						744 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	12					MONTHLY AVERAGE: 73 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



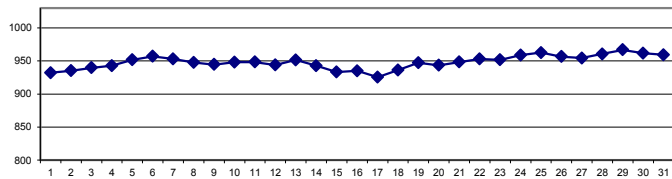
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	933	933	933	933	933	933	932	932	932	932	931	931	931	931	931	931	931	932	932	932	932	932	932	932	932	931	933	932	24	
2	933	933	933	934	934	935	935	935	935	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	935	933	936	24	
3	935	936	936	937	937	937	938	938	938	939	939	939	939	939	940	940	941	942	942	942	942	943	944	945	945	935	945	940	24	
4	945	946	946	946	946	945	945	944	944	944	943	943	942	942	942	941	941	940	940	940	940	940	941	941	940	940	946	943	24	
5	942	942	942	943	944	945	946	947	948	950	951	952	953	954	955	955	956	957	958	958	959	960	960	960	960	942	960	952	24	
6	960	960	960	960	959	959	958	958	958	957	957	957	957	957	956	956	956	956	956	955	955	955	954	954	954	954	960	957	24	
7	954	954	954	954	954	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	952	952	952	952	952	952	952	24	
8	951	951	951	950	950	949	949	948	948	948	948	948	948	947	947	947	947	946	946	945	945	945	945	945	945	945	945	948	24	
9	945	945	945	945	945	944	944	944	944	944	944	944	944	944	944	944	944	945	945	945	945	945	945	945	945	944	945	945	24	
10	945	945	945	944	944	943	943	943	944	945	947	948	949	949	950	951	951	952	952	952	952	952	952	952	952	943	952	948	24	
11	952	952	952	952	952	952	952	952	951	950	950	949	948	947	947	947	946	945	945	944	943	943	943	942	942	942	942	952	948	24
12	942	941	941	940	940	940	940	940	941	942	943	944	945	946	946	947	947	947	947	947	947	947	947	947	947	940	947	944	24	
13	947	947	948	948	948	949	949	949	949	950	951	952	953	953	954	954	954	954	955	954	955	954	954	953	947	955	951	24		
14	952	952	951	950	950	948	948	947	946	945	944	943	942	941	940	939	938	937	936	936	936	935	934	934	934	934	934	934	24	
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16	936	937	937	938	938	938	939	939	939	939	938	938	937	937	936	934	933	932	931	930	929	928	927	927	927	927	939	935	24	
17	925	924	924	924	923	923	923	924	924	924	924	925	925	925	926	926	926	926	927	927	927	927	927	927	927	923	927	925	24	
18	928	928	928	929	929	930	931	931	932	934	935	936	936	937	938	938	939	940	941	942	943	944	945	946	928	946	936	24		
19	947	947	947	948	948	948	948	949	949	949	949	948	948	947	947	946	947	947	947	946	946	946	946	946	946	946	946	947	24	
20	946	945	945	945	945	945	945	945	945	945	945	944	944	944	942	942	943	942	942	942	942	942	941	941	941	941	941	944	24	
21	941	941	941	942	943	944	945	946	947	948	949	949	950	950	951	951	952	952	953	953	953	953	953	954	941	954	948	24		
22	954	954	954	954	954	954	954	954	954	954	953	953	953	953	952	952	952	952	952	952	952	952	952	952	952	952	954	953	24	
23	952	952	952	951	950	950	949	949	949	949	950	949	950	951	951	952	954	954	955	954	954	954	954	954	949	949	955	952	24	
24	955	955	957	957	958	959	959	960	960	961	961	960	959	959	958	959	959	959	959	959	959	959	959	960	961	955	961	959	24	
25	961	961	962	963	963	963	964	964	964	965	964	963	962	962	962	962	963	963	963	962	962	961	961	960	960	960	965	963	24	
26	960	959	959	958	958	957	957	956	957	956	956	955	955	954	955	955	955	956	956	956	956	956	956	957	954	960	956	24		
27	957	957	957	957	957	956	956	956	955	955	955	954	954	953	953	953	953	953	953	952	952	952	952	952	952	952	952	952	24	
28	953	954	956	957	958	959	959	960	961	962	961	962	961	960	960	960	961	962	963	964	964	965	965	966	953	966	961	24		
29	966	967	967	968	969	969	969	969	970	970	968	967	967	966	966	966	966	966	966	965	964	964	963	963	963	963	970	967	24	
30	962	962	962	961	961	962	962	961	961	962	962	961	961	960	961	962	962	962	963	962	962	961	961	961	960	960	963	962	24	
31	961	960	960	960	960	960	960	960	960	960	960	959	959	959	959	959	959	959	959	958	958	957	957	956	956	956	961	959	24	
HOURLY MAX	966	967	967	968	969	969	969	969	970	970	968	967	967	966	966	966	966	966	966	965	964	965	965	966						
HOURLY AVG	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948	949	948	948	948	948						

STATUS FLAG CODES

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

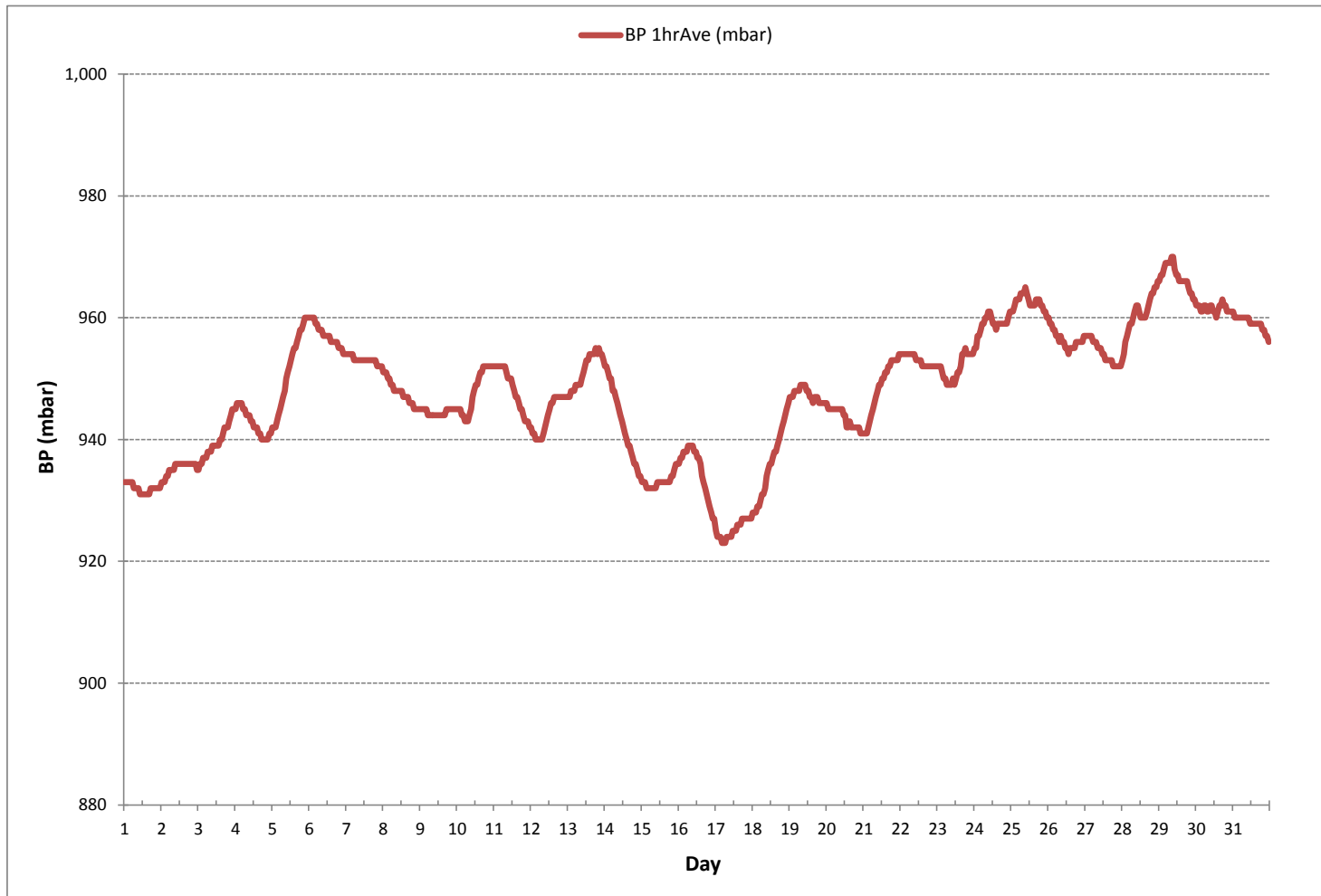
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	923 mbar	@ HOUR	4	ON DAY	17
MAXIMUM 1-HR AVERAGE:	970 mbar	@ HOUR	8	ON DAY	29
MAXIMUM 24-HR AVERAGE:	967 mbar			ON DAY	29
OPERATIONAL TIME:					744 hrs
AMD OPERATION UPTIME:					100.0 %
STANDARD DEVIATION:	10	MONTHLY AVERAGE:			948 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



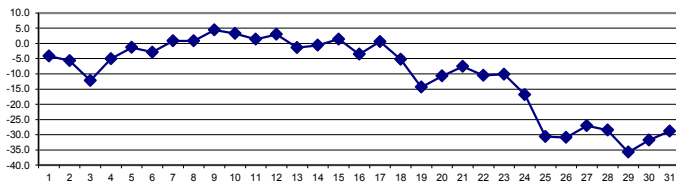
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	-3.9	-2.7	-5.1	-6.8	-5.9	-5.8	-6.8	-8.4	-8.7	-6.6	-5.4	-4.1	-2.6	-2.4	-1.5	-1.1	-1.2	-1.5	-2.1	-2.9	-3.3	-3.8	-3.7	-3.4	-8.7	-1.1	-4.2	24	
2	-3.2	-3.1	-2.9	-3.1	-3.5	-3.6	-4.8	-6.3	-6.1	-6.3	-5.5	-5.0	-4.5	-4.2	-4.1	-4.6	-5.2	-5.6	-6.0	-7.7	-9.4	-10.5	-10.6	-11.0	-11.0	-2.9	-5.7	24	
3	-10.9	-12.4	-13.4	-13.5	-13.0	-13.2	-13.9	-13.6	-13.3	-12.9	-11.6	-10.6	-10.8	-10.1	-9.5	-9.4	-9.5	-10.3	-10.6	-11.2	-13.8	-16.0	-15.5	-14.1	-16.0	-9.4	-12.2	24	
4	-13.1	-13.1	-12.1	-11.4	-10.5	-9.6	-8.9	-8.4	-8.2	-7.6	-6.5	-4.4	-3.8	-2.7	-2.6	-2.0	-1.6	-1.2	-0.3	0.8	0.7	0.8	1.1	2.1	-13.1	2.1	-5.1	24	
5	1.4	0.9	0.7	0.2	0.5	0.3	0.3	-0.2	0.2	0.4	0.7	2.0	2.2	1.7	2.7	2.7	2.2	-1.1	-3.0	-4.3	-6.4	-8.2	-6.7	-6.9	-9.0	-9.0	2.7	-1.4	24
6	-10.8	-10.5	-9.2	-9.1	-7.7	-6.9	-5.8	-4.5	-3.0	-1.9	-1.5	-0.8	-0.4	0.2	0.6	0.7	0.7	0.3	-0.8	0.0	0.9	0.5	0.2	-0.7	-10.8	0.9	-2.9	24	
7	0.9	0.3	1.3	1.5	1.4	1.4	1.9	1.7	2.0	1.9	3.0	3.8	3.6	3.7	3.4	2.9	0.9	-0.3	-1.8	-2.6	-3.4	-4.0	-4.1	-0.4	-4.1	3.8	0.8	24	
8	0.8	0.5	-1.5	-3.8	-5.1	-5.2	-4.7	-4.4	-1.9	-1.5	0.8	2.6	3.5	3.7	3.1	3.6	3.3	3.1	3.3	3.4	3.9	4.3	4.4	4.4	-5.2	4.4	0.9	24	
9	4.4	3.8	4.2	4.3	4.3	3.6	3.4	3.2	3.4	4.5	5.1	5.3	5.3	5.2	5.5	5.0	4.8	5.1	4.7	4.3	4.0	4.1	4.1	3.2	3.2	5.5	4.4	24	
10	3.6	3.1	3.6	5.2	5.1	4.3	3.2	3.4	4.7	4.9	5.2	4.7	4.9	5.5	4.7	4.3	4.0	3.3	3.0	1.9	-1.1	-2.0	-1.6	-0.8	-2.0	5.5	3.2	24	
11	-2.6	-2.5	-0.4	-2.8	-3.1	-2.9	-2.8	-2.6	-1.9	-1.4	0.0	2.7	4.3	5.1	5.2	4.5	4.1	3.1	3.2	3.6	4.3	5.3	5.0	5.4	-3.1	5.4	1.4	24	
12	5.1	4.7	4.5	4.5	3.3	3.3	3.4	3.6	3.4	3.0	2.7	4.0	3.9	3.7	4.1	3.5	2.1	2.1	2.3	1.6	0.9	0.7	0.5	0.5	0.5	5.1	3.0	24	
13	0.8	0.8	-0.1	-1.2	-1.9	-2.2	-2.3	-2.0	-2.9	-2.0	2.2	3.6	2.5	2.6	3.5	1.0	-1.4	-2.8	-2.6	-3.6	-6.0	-7.2	-6.6	-6.1	-7.2	3.6	-1.4	24	
14	-6.0	-6.2	-6.3	-5.8	-5.9	-4.9	-4.6	-4.3	-4.7	-4.6	-2.0	-1.1	-0.2	1.6	2.0	2.4	2.4	2.8	3.2	3.7	4.1	4.0	3.7	3.6	3.4	-6.3	4.1	-0.6	24
15	3.4	3.6	3.4	3.4	3.3	3.1	2.8	2.7	2.4	2.0	2.0	2.3	1.9	1.9	1.8	1.3	0.4	-0.5	-0.4	-0.6	-1.1	-1.7	-1.8	-1.8	-1.8	3.6	1.4	24	
16	-2.2	-3.3	-4.2	-4.9	-5.3	-5.5	-6.0	-6.0	-6.2	-6.1	-5.1	-3.9	-3.3	-3.0	-3.5	-3.5	-2.9	-2.7	-2.5	-2.0	-1.6	-1.4	-0.7	-0.1	-6.2	-0.1	-3.6	24	
17	0.0	0.8	1.0	1.4	1.1	1.1	1.2	0.9	1.2	1.5	1.5	1.8	1.8	2.2	2.2	2.1	1.4	0.7	0.0	-0.6	-1.0	-1.9	-2.8	-3.2	-3.2	2.2	0.6	24	
18	-3.1	-2.9	-2.9	-3.4	-3.6	-3.5	-3.4	-3.6	-3.9	-3.5	-3.3	-3.3	-3.8	-4.0	-4.3	-4.7	-5.4	-6.1	-6.5	-8.1	-9.3	-10.1	-10.9	-11.9	-11.9	-2.9	-5.2	24	
19	-12.4	-12.7	-12.8	-13.3	-13.2	-13.3	-15.3	-17.5	-19.0	-19.7	-16.8	-14.2	-12.7	-13.4	-13.1	-11.5	-14.7	-16.9	-15.8	-14.0	-14.1	-13.4	-12.6	-12.5	-19.7	-11.5	-14.4	24	
20	-12.4	-12.1	-11.3	-10.9	-10.5	-10.3	-10.3	-10.9	-11.5	-11.2	-11.3	-11.5	-11.0	-10.1	-10.1	-10.6	-11.5	-11.3	-10.8	-10.6	-10.9	-9.5	-8.5	-8.2	-12.4	-8.2	-10.7	24	
21	-7.8	-7.1	-7.0	-7.9	-8.5	-9.2	-8.7	-8.6	-8.8	-8.7	-8.3	-7.7	-7.2	-6.9	-6.8	-6.7	-6.6	-6.5	-6.6	-6.6	-6.6	-7.3	-7.4	-7.7	-9.2	-6.5	-7.6	24	
22	-8.8	-10.3	-11.1	-12.7	-12.3	-12.0	-11.9	-12.5	-12.6	-12.0	-12.1	-11.5	-10.8	-10.1	-9.6	-9.6	-9.6	-9.4	-8.5	-8.3	-8.2	-8.1	-8.1	-8.1	-12.7	-8.1	-10.5	24	
23	-9.5	-9.5	-9.7	-9.7	-9.5	-9.2	-8.5	-7.8	-7.8	-8.0	-7.7	-7.4	-7.1	-7.8	-8.0	-8.4	-13.2	-17.3	-18.8	-15.4	-12.0	-11.0	-10.3	-10.0	-18.8	-7.1	-10.2	24	
24	-10.6	-10.8	-12.3	-13.5	-14.3	-15.1	-16.6	-17.5	-18.2	-20.6	-20.8	-18.0	-13.7	-12.7	-15.1	-18.3	-18.8	-18.9	-18.9	-18.9	-18.9	-19.2	-20.2	-22.5	-22.5	-10.6	-16.9	24	
25	-24.5	-26.7	-29.4	-30.6	-31.1	-32.7	-33.2	-34.0	-35.1	-35.5	-31.3	-27.0	-22.8	-24.7	-25.8	-26.1	-29.4	-32.6	-32.9	-32.7	-33.2	-33.3	-34.5	-35.1	-35.5	-22.8	-30.6	24	
26	-35.4	-36.0	-36.5	-36.6	-36.3	-36.5	-36.6	-36.5	-36.5	-32.5	-27.9	-26.0	-23.1	-24.0	-24.1	-25.0	-26.7	-26.6	-26.7	-27.0	-27.8	-29.9	-32.1	-36.6	-32.1	-36.6	-23.1	-30.9	24
27	-32.6	-33.4	-34.2	-35.1	-35.5	-35.0	-32.8	-32.3	-31.9	-30.2	-28.1	-26.0	-25.0	-23.9	-22.8	-21.8	-21.0	-21.1	-21.2	-21.2	-21.1	-20.8	-21.0	-20.7	-35.5	-20.7	-27.0	24	
28	-20.0	-20.4	-21.9	-23.9	-25.3	-26.4	-27.6	-28.7	-30.9	-33.1	-30.6	-27.1	-24.6	-23.3	-22.4	-22.6	-28.5	-32.5	-34.2	-34.9	-35.9	-36.1	-36.0	-37.3	-37.3	-20.0	-28.5	24	
29	-38.0	-38.4	-39.0	-39.5	-39.8	-39.8	-39.8	-39.8	-39.9	-39.9	-37.5	-31.6	-27.2	-28.7	-28.4	-28.9	-32.1	-35.2	-35.3	-35.3	-35.7	-36.4	-36.1	-35.8	-39.9	-27.2	-35.8	24	
30	-35.5	-37.2	-37.5	-35.3	-36.3	-37.5	-36.4	-34.6	-34.8	-36.6	-33.0	-28.9	-23.8	-22.8	-26.2	-26.7	-30.2	-33.4	-33.2	-31.4	-27.8	-27.6	-28.1	-28.3	-37.5	-22.8	-31.8	24	
31	-28.7	-28.1	-27.9	-28.3	-30.1	-30.3	-31.9	-33.3	-33.8	-34.1	-30.6	-26.3	-24.7	-24.8	-25.2	-25.7	-27.2	-28.1	-28.5	-29.1	-29.1	-29.6	-29.1	-27.0	-34.1	-24.7	-28.8	24	
HOURLY MAX	5.1	4.7	4.5	5.2	5.1	4.3	3.4	3.6	4.7	4.9	5.2	5.3	5.3	5.5	5.5	5.0	4.8	5.1	4.7	4.3	4.3	5.3	5.0	5.4					
HOURLY AVG	-10.1	-10.4	-10.6	-11.1	-11.3	-11.4	-11.5	-11.7	-11.7	-11.6	-10.2	-8.6	-7.5	-7.2	-7.2	-7.6	-8.8	-9.8	-10.0	-10.0	-10.3	-10.5	-10.6	-10.6					

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

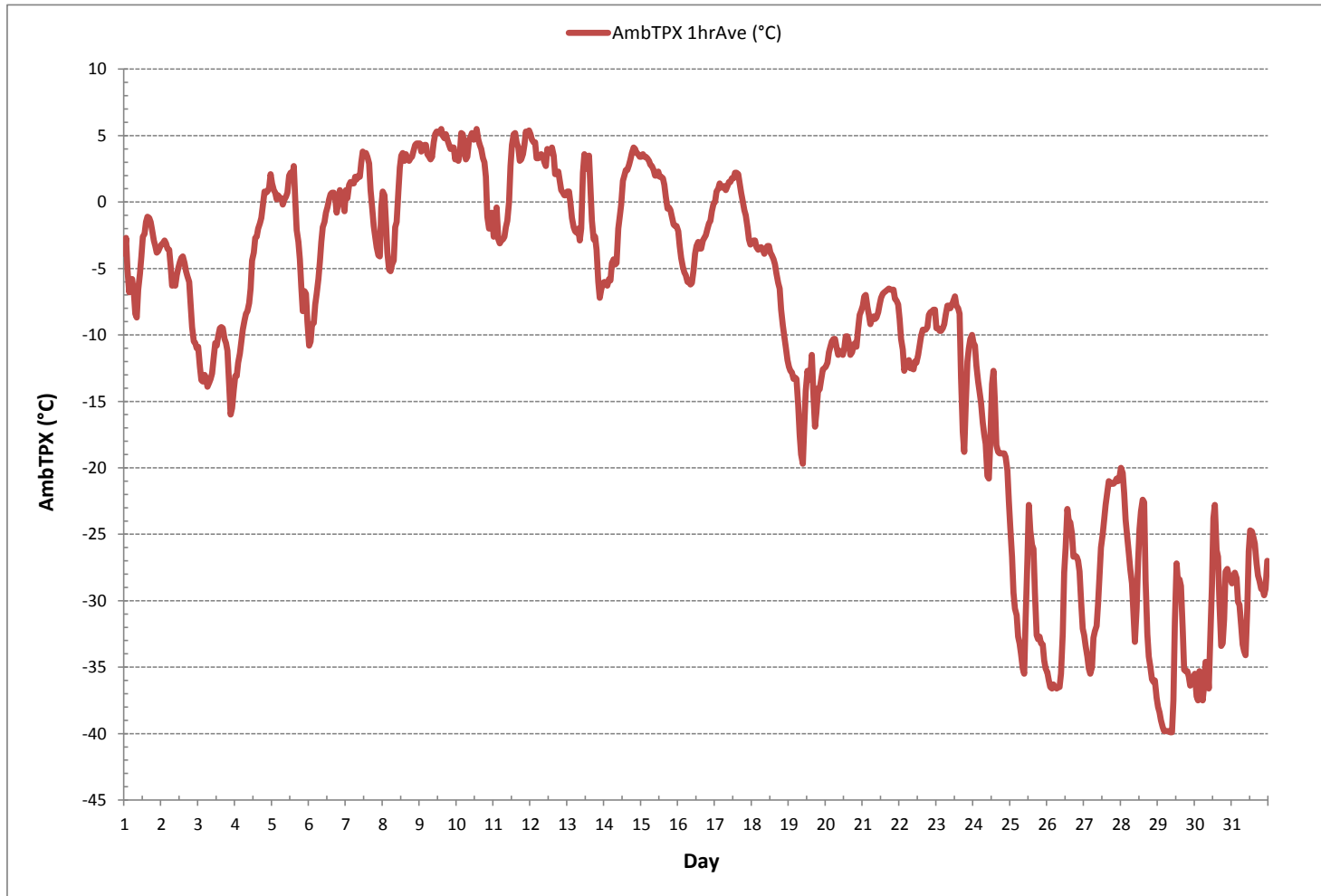
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-39.9 °C	@ HOUR	8	ON DAY	29
MAXIMUM 1-HR AVERAGE:	5.5 °C	@ HOUR	14	ON DAY	9
MAXIMUM 24-HR AVERAGE:	4.4 °C			ON DAY	9
OPERATIONAL TIME:				744	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	12.7			MONTHLY AVERAGE:	-10.0 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE



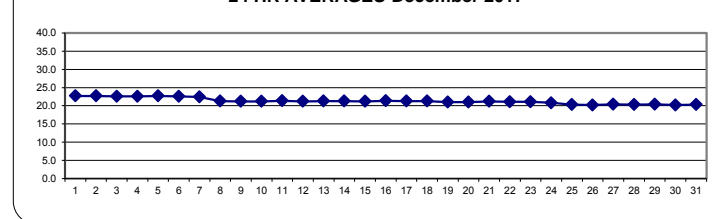
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.		
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.			
DAY																														
1	22.7	22.5	22.8	22.5	22.8	22.6	22.6	22.6	22.6	22.6	22.7	22.7	22.7	22.8	22.6	22.6	22.7	22.7	22.6	22.8	22.7	22.7	22.7	22.6	22.6	22.5	22.5	22.8	22.7	24
2	22.8	22.7	22.7	22.7	22.7	22.8	22.6	22.7	22.7	22.6	22.7	22.7	22.7	22.7	22.6	22.8	22.8	22.7	22.5	22.7	22.7	22.6	22.6	22.6	22.5	22.8	22.7	22.7	22.7	24
3	22.6	22.6	22.6	22.6	22.6	22.5	22.5	22.6	22.7	22.6	22.7	22.6	22.6	22.6	22.6	22.6	22.5	22.6	22.6	22.6	22.6	22.5	22.5	22.5	22.7	22.5	22.7	22.6	22.6	24
4	22.6	22.7	22.6	22.5	22.5	22.6	22.8	22.6	22.8	22.7	22.6	22.6	22.5	22.6	22.6	22.5	22.7	22.4	22.8	22.6	22.7	22.7	22.7	22.6	22.6	22.4	22.8	22.6	22.6	24
5	22.9	22.5	22.8	22.7	22.6	22.7	22.8	22.6	22.6	22.7	22.8	22.5	22.5	22.7	22.9	22.7	22.6	22.7	22.8	22.6	22.7	22.6	22.7	22.6	22.6	22.5	22.9	22.7	22.7	24
6	22.6	22.6	22.6	22.8	22.6	22.7	22.7	22.5	22.6	22.5	22.5	22.4	22.6	22.7	22.7	22.6	22.8	22.5	22.8	22.1	22.4	22.5	22.6	22.7	22.1	22.8	22.6	22.6	22.6	24
7	22.6	22.6	22.7	22.7	23.0	23.0	22.8	22.9	22.3	22.9	24.1	23.5	22.9	22.6	23.1	23.0	22.1	21.5	20.9	21.1	21.2	21.3	21.2	21.3	20.9	24.1	22.4	22.4	24	
8	21.2	21.3	21.4	21.2	21.4	21.3	21.2	21.2	21.5	21.3	21.3	21.2	20.9	21.4	21.1	21.0	21.3	21.5	21.3	21.3	21.4	21.3	21.3	21.3	20.9	21.5	21.3	21.4	24	
9	21.3	21.2	21.4	21.2	21.4	21.2	21.1	21.4	21.5	21.2	21.2	21.2	21.0	20.9	20.9	21.0	20.9	21.5	21.3	21.2	21.0	21.4	21.0	21.3	20.9	21.5	21.2	21.2	24	
10	21.3	21.0	21.3	21.5	21.0	21.4	21.2	21.3	21.4	21.0	21.2	21.2	21.1	21.1	21.4	21.3	21.1	21.0	21.3	21.3	21.2	21.4	21.3	21.5	21.0	21.5	21.2	21.2	24	
11	21.4	21.3	21.4	21.5	21.4	21.2	21.5	21.5	21.3	21.5	21.4	21.2	21.2	21.4	21.7	21.8	21.8	21.6	21.2	21.2	21.3	21.3	21.3	21.2	21.2	21.8	21.4	21.4	24	
12	21.2	21.3	21.0	21.4	21.1	21.3	21.1	21.3	21.3	21.1	21.0	21.0	21.2	21.2	21.3	21.3	21.1	21.3	21.3	21.4	21.4	21.4	21.3	21.5	21.0	21.5	21.2	21.2	24	
13	21.5	21.3	21.2	21.4	21.3	21.4	21.4	21.3	21.3	21.4	21.3	21.2	21.1	21.1	21.5	21.6	21.3	21.4	21.4	21.4	21.3	21.4	21.5	21.2	21.4	21.1	21.6	21.3	21.2	24
14	21.2	21.4	21.2	21.4	21.2	21.4	21.2	21.4	21.2	21.4	21.3	21.3	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.1	21.3	21.1	21.4	21.3	21.1	21.4	21.3	21.1	21.4	24
15	21.1	21.4	21.3	21.3	21.1	21.1	21.4	21.2	21.3	21.2	21.3	21.2	21.3	21.2	21.2	21.3	21.1	21.3	21.3	21.3	21.3	21.2	21.3	21.2	21.3	21.1	21.4	21.2	21.2	24
16	21.3	21.5	21.3	21.3	21.4	21.2	21.5	21.2	21.4	21.3	21.4	21.3	21.3	21.3	21.4	21.5	21.4	21.4	21.4	21.4	21.4	21.3	21.5	21.3	21.4	21.2	21.5	21.4	21.4	24
17	21.4	21.4	21.4	21.5	21.2	21.3	21.5	21.2	21.3	21.2	21.2	21.4	21.1	21.3	21.2	21.3	21.3	21.3	21.2	21.2	21.6	21.3	21.3	21.3	21.1	21.6	21.3	21.3	21.4	24
18	21.3	21.4	21.4	21.5	21.3	21.3	21.2	21.3	21.1	21.4	21.2	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.3	21.2	21.2	21.3	21.1	21.1	21.1	21.1	21.5	21.3	21.3	24
19	21.0	21.1	21.2	21.1	21.0	21.1	21.2	20.8	21.1	20.8	20.9	20.9	21.0	21.0	21.2	21.1	21.1	21.1	21.2	20.8	21.1	20.9	21.2	21.0	20.8	21.2	21.0	21.2	21.0	24
20	20.9	21.2	20.9	21.1	21.0	20.9	20.9	20.8	21.0	20.9	20.9	21.0	21.0	21.1	21.3	21.2	21.1	21.1	21.0	21.0	21.1	21.2	21.2	21.2	20.9	21.3	21.0	21.0	21.0	24
21	21.2	21.2	21.2	21.4	21.3	21.3	21.2	21.3	21.1	21.2	21.1	21.1	21.2	21.3	21.2	21.3	21.2	21.1	21.3	21.2	21.4	21.2	21.3	21.1	21.1	21.4	21.2	21.2	21.2	24
22	21.3	21.2	21.1	21.2	21.1	21.0	21.2	21.0	21.1	21.0	21.1	20.9	21.1	21.2	21.0	21.2	21.2	20.9	21.2	21.1	20.9	21.1	21.1	21.1	20.9	21.3	21.1	21.1	21.1	24
23	21.1	20.9	21.2	21.2	21.2	21.2	21.2	20.9	21.1	20.9	21.0	21.1	21.0	21.1	21.1	21.0	21.2	21.1	21.0	21.0	20.9	21.0	21.1	21.1	21.0	20.9	21.2	21.1	21.1	24
24	20.9	21.1	20.9	21.0	20.9	21.1	20.7	20.9	20.9	20.6	20.8	20.7	20.7	20.8	20.9	20.9	20.9	20.7	20.8	20.9	20.6	20.7	20.7	20.6	20.6	21.1	20.8	21.0	21.0	24
25	20.6	20.6	20.7	20.2	20.4	20.3	20.1	20.1	20.1	20.1	20.1	20.2	20.2	20.3	20.4	20.6	20.3	20.3	20.2	20.3	20.0	20.2	20.1	19.8	19.8	20.7	20.3	20.3	21.0	24
26	20.1	20.2	20.0	20.1	20.0	20.1	20.0	20.1	20.1	19.9	20.1	20.0	20.4	20.4	20.3	20.4	20.5	20.5	20.4	20.4	20.3	20.5	20.2	19.9	20.5	20.2	19.9	20.5	20.2	24
27	20.4	20.0	20.3	20.0	20.2	20.2	20.2	20.1	20.0	20.4	20.3	20.3	20.3	20.3	20.6	20.6	20.6	20.7	20.7	20.6	20.6	20.6	20.6	20.6	20.0	20.7	20.4	20.4	24	
28	20.6	20.6	20.4	20.4	20.5	20.2	20.4	20.5	20.1	20.4	20.1	20.4	20.1	20.3	20.5	20.4	20.5	20.3	17.7	20.5	20.4	20.5	20.2	17.7	20.6	20.3	20.3	21.0	24	
29	20.4	20.6	20.4	20.4	20.4	20.5	20.3	20.4	20.4	20.2	20.1	20.3	20.8	21.0	20.8	20.9	21.0	20.1	20.0	20.0	19.9	20.1	20.1	19.9	20.1	19.9	21.0	20.4	21.0	24
30	20.1	20.0	20.1	20.1	20.1	20.0	19.8	20.1	20.1	20.0	20.2	20.3	20.2	20.3	20.4	20.5	20.4	20.4	20.4	20.2	20.3	20.4	20.3	20.3	19.8	20.5	20.2	21.0	24	
31	20.4	20.3	20.4	20.4	20.5	20.2	20.3	20.2	20.1	20.2	20.3	20.2	20.3	20.4	20.5	20.4	20.2	20.2	20.5	20.4	20.3	20.3	20.4	20.1	20.5	20.3	20.3	21.0	24	
HOURLY MAX	22.9	22.7	22.8	22.8	23.0	23.0	22.8	22.9	22.8	22.9	24.1	23.5	22.9	22.8	23.1	23.0	22.8	22.8	22.8	22.8	22.8	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	24
HOURLY AVG	21.4	21.3	21.4	21.4	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.4	21.4	21.4	21.3	21.3	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	24

STATUS FLAG CODES

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

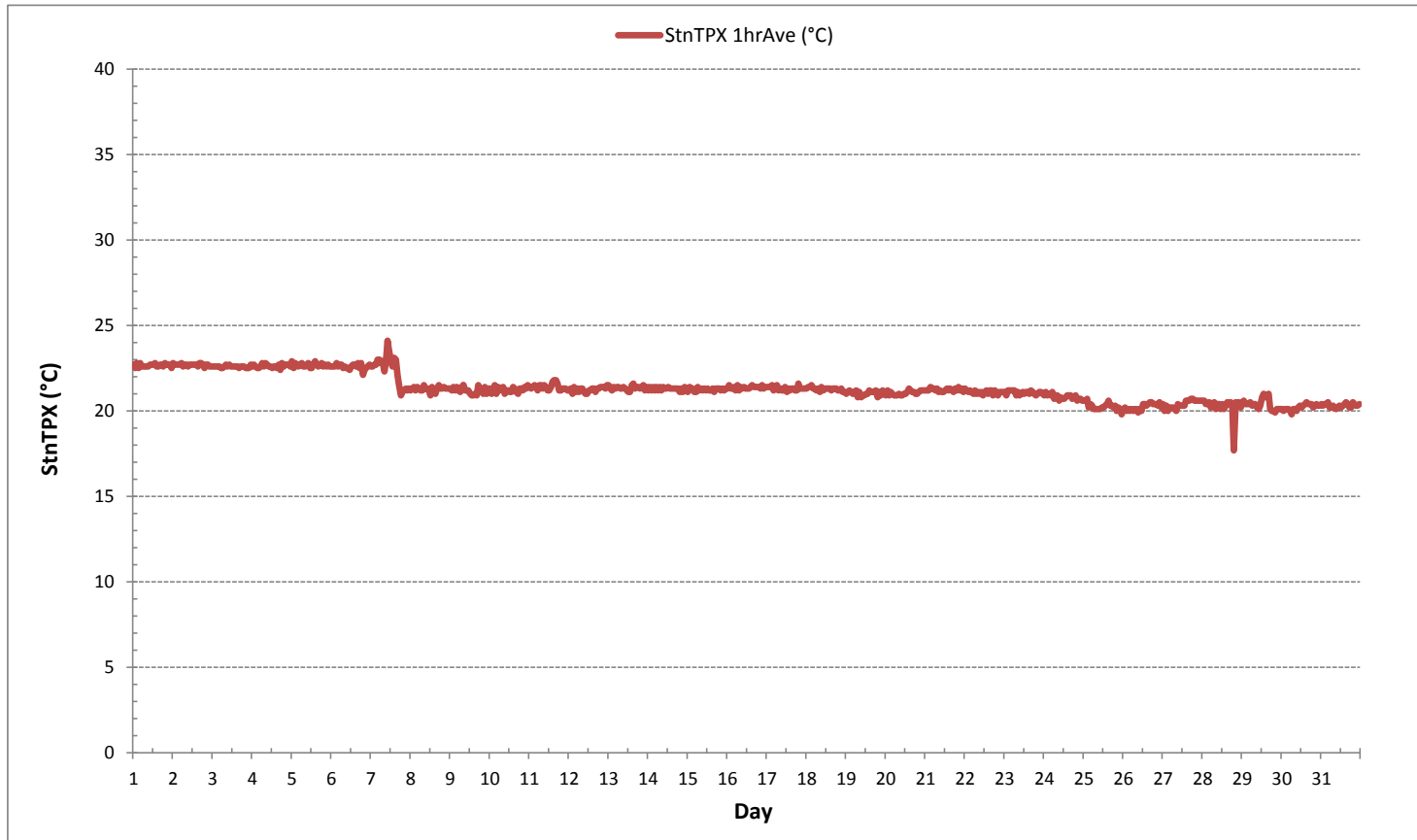
24 HR AVERAGES December 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	17.7 °C	@ HOUR	19	ON DAY	28
MAXIMUM 1-HR AVERAGE:	24.1 °C	@ HOUR	10	ON DAY	7
MAXIMUM 24-HR AVERAGE:	22.7 °C			ON DAY	1
OPERATIONAL TIME:					744 hrs
AMD OPERATION UPTIME:					100.0 %
STANDARD DEVIATION:	0.8	MONTHLY AVERAGE:			21.3 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A Sulphur Dioxide Analyzer Calibration

Date:	December 7, 2017	Barometer/B.P./units:	n/a	953	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	842b	Weather Conditions:	Mix of sun and clouds		
Parameter:	Sulphur Dioxide	Calibration Purpose:	shut down		
Start Time 24 hr. (mst):	9:08	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	11:14	Cal Gas Expiry Date:	May 18, 2021		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		

Analyzer:	
ID# or Serial Number:	838
Last Calibration Date:	November 23, 2017
Previous C.F.:	0.999
Range ppb:	500
As Found C.F.:	0.972
New C.F.:	n/a

Calibration Standards:	Standard Calibration Points for Ranges								
Low Flow Meter ID/Expiry Date: Defender Low 153358 expires January 19, 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 High 152571 expires January 19, 2018									
Calibrator ID/Expiry Date: API id# 830 expires February 14, 2018									
Cal Gas Cylinder I.D. #: EY000715									
Cal Gas Conc. (ppm): 25.5									

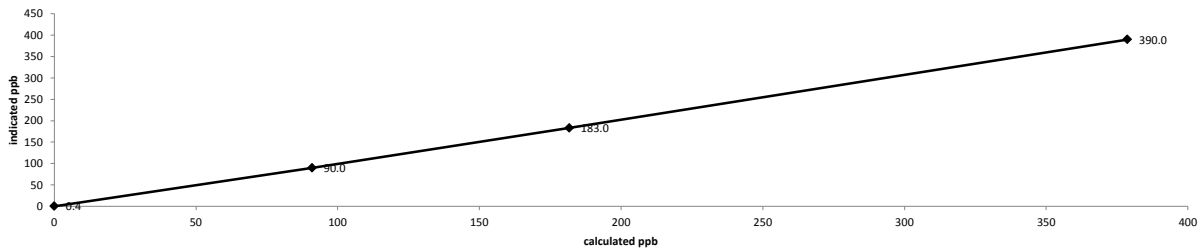
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
	Diluent	Cal Gas	Total			
as found zero	5004	0.00	5004	0.0	0.4	n/a
as found high	4919	74.14	4993	378.6	390.0	0.972
mid	4945	35.49	4980	181.7	183.0	0.995
low	4979	17.83	4997	91.0	90.0	1.015
Average C.F.=						0.994

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.969		0.90-1.10
b (Intercept as % of full scale)=	0.42%		± 3% F.S.
% change in C.F. from last cal=	2.72%		± 10%

API 100A Sulphur Dioxide Analyzer Calibration



As found:	As left:
Slope: 0.972	Slope: n/a
Offset: 19.4	Offset: n/a
Hvps: 710	Hvps: n/a
Dcps: 2545	Dcps: n/a
Rcell Temp: 49.8	Rcell Temp: n/a
Box Temp: 29.9	Box Temp: n/a
Pmt Temp: 14.9	Pmt Temp: n/a
Izs Temp: 60.1	Izs Temp: n/a
Pres: 26.9	Pres: n/a
Samp Fl: 645	Samp Fl: n/a
Pmt: 56.1	Pmt: n/a
Uv Lamp: 1989	Uv Lamp: n/a
Lamp Ratio: 101.5	Lamp Ratio: n/a
Expected Value: 221.0	Expected Value: n/a

Comments:

The manifold blower was found to be working normally.

BP measurement taken from station sensor.
A shutdown calibration was performed to replace Analyzer 838 due to a PMT TEMP alarm.



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	December 7, 2017	Barometer/B.P./units:	n/a	953	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name:	842b	Weather Conditions:	Mix of sun and clouds		
Parameter:	Sulphur Dioxide	Calibration Purpose:	Installation		
Start Time 24 hr. (mst):	11:55	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	15:05	Cal Gas Expiry Date:	May 18, 2021		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		

Analyzer: ID# or Serial Number: 835033373 Last Calibration Date: n/a Previous C.F.: n/a	Range ppb: 500 As Found C.F.: n/a New C.F.: 0.999
---	---

Calibration Standards: Low Flow Meter ID/Expiry Date: Defender Low 153358 expires January 19, 2018 High Flow Meter ID/Expiry Date: Defender High 152571 expires January 19, 2018 Calibrator ID/Expiry Date: API id# 830 expires February 14, 2018 Cal Gas Cylinder I.D. #: EY000715 Cal Gas Conc. (ppm): 25.5	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <tr><td>Point</td><td>ppb</td></tr> <tr><td>High</td><td>380</td></tr> <tr><td>Mid</td><td>180</td></tr> <tr><td>Low</td><td>90</td></tr> </table>	Point	ppb	High	380	Mid	180	Low	90
Point	ppb								
High	380								
Mid	180								
Low	90								

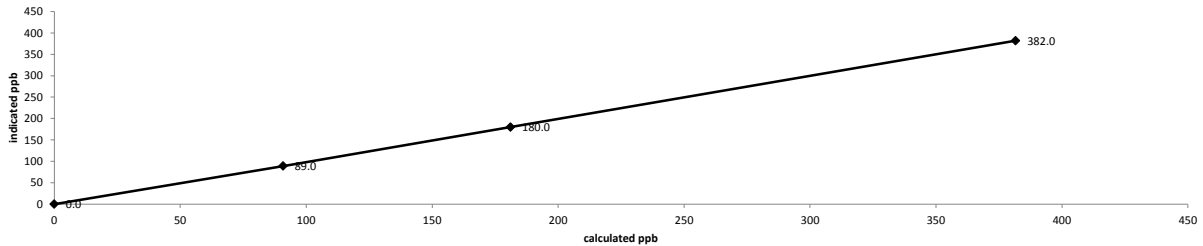
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
adjusted zero	4983	0.00	4983	0.0	0.0	n/a
adjusted high	4909	74.58	4984	381.6	382.0	0.999
mid	4941	35.34	4976	181.1	180.0	1.006
low	4964	17.75	4982	90.8	89.0	1.021
calibrator zero	4983	0.00	4983	0.0	0.0	n/a
Average C.F. =						1.009

Linear Regression/Calibration Results:

	LIMITS
Correlation Coefficient = 1.000	> or = 0.995
Slope = 0.997	0.95-1.05
b (Intercept as % of full scale) = 0.21%	± 3% F.S.
% change in C.F. from last cal = n/a	n/a

Thermo 43i Sulphur Dioxide Analyzer Calibration



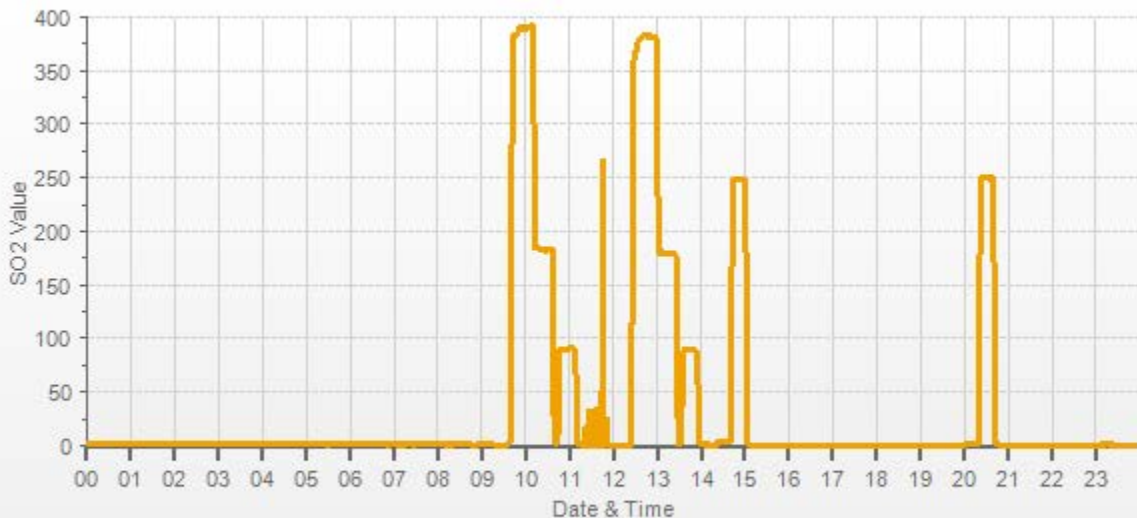
As found: Bkg: 13.6 Coef: 1.034 Pmt: -621.6 Flash: 877 Internal: 27.3 Chamber: 45.0 Perm Oven Gas: 44.98 Perm Oven Heater: 43.90 Pressure: 684.7 Sample Flow: 0.449 Lamp Intensity: 82 Averaging Time: 120 Expected Value: 221.0	As left: Bkg: 13.4 Coef: 1.018 Pmt: -621.2 Flash: 878 Internal: 27.2 Chamber: 45.1 Perm Oven Gas: 45.00 Perm Oven Heater: 44.08 Pressure: 684.7 Sample Flow: 0.449 Lamp Intensity: 82 Averaging Time: 120 Expected Value: 248.0
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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.

BP measurement taken from station sensor.

Analyzer 838 was replaced with Analyzer 835033373; Analyzer 838 was sent for repair.

SO2[ppb] Station: PRAMP_842 Daily: 17/12/07 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date: December 7, 2017	Barometer/B.P./units: n/a	953	millibars
Company/Airshed: PRAMP	Thermometer/Station Temp: F.S. 160459244 expires May 18, 2018	23	°C
Location/Station Name: 842b	Weather Conditions: Mainly sunny		
Parameter: Total Reduced Sulphur	Calibration Purpose: routine monthly		
Start Time 24 hr. (mst): 14:10	Performed By/Reviewer: Chris Wesson	Rob Fisher	
End Time 24 hr. (mst): 18:13	Cal Gas Expiry Date: May 16, 2020		
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): CD Nova CDN-101 #553		

Analyzer ID# or Serial Number: 1162460023	Range ppb: 100	
Last Calibration Date: November 7, 2017	As Found C.F.: 0.958	
Previous C.F.: 1.000	New C.F.: 0.999	

Calibration Standards: Low Flow Meter ID/Expiry Date: Defender Low 153358 expires January 19, 2018 High Flow Meter ID/Expiry Date: Defender High 152571 expires January 19, 2018 Calibrator ID/Expiry Date: API id# 830 expires February 14, 2018 Cal Gas Cylinder I.D. #: LL19420 Cal Gas Conc. (ppm): 10.2	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <tr><th>Point</th><th>ppb</th></tr> <tr><td>High</td><td>78</td></tr> <tr><td>Mid</td><td>38</td></tr> <tr><td>Low</td><td>19</td></tr> </table>	Point	ppb	High	78	Mid	38	Low	19	SO2 Scrubber Check (10 minutes): Start/End Time 24 hr.: 14:56 / 15:06 SO2 Analyzer Range: 500 Target Concentration (ppb): 380 As Found Zero: 0.0 Analyzer Response (ppb): 0.0 Zero Corrected Result (ppb): 0.0
Point	ppb									
High	78									
Mid	38									
Low	19									

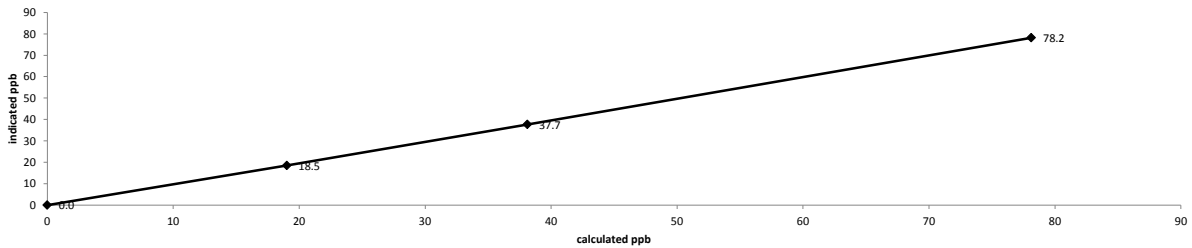
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7480	0.00	7480	0.0	-0.1	n/a
as found high	7415	57.23	7472	78.1	81.5	0.958
adjusted zero	480	0.00	480	0.0	0.0	n/a
adjusted high	7415	57.23	7472	78.1	78.2	0.999
mid	7444	27.92	7472	38.1	37.7	1.011
low	7458	13.93	7472	19.0	18.5	1.028
calibrator zero	7480	0.00	7480	0.0	0.1	n/a
Average C.F. =						1.013

Linear Regression/Calibration Results:

LIMITS	
Correlation Coefficient = 1.000	> or = 0.995
Slope = 0.997	0.95-1.05
b (Intercept as % of full scale) = 0.31%	± 3% F.S.
% change in C.F. from last cal = 4.21%	± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

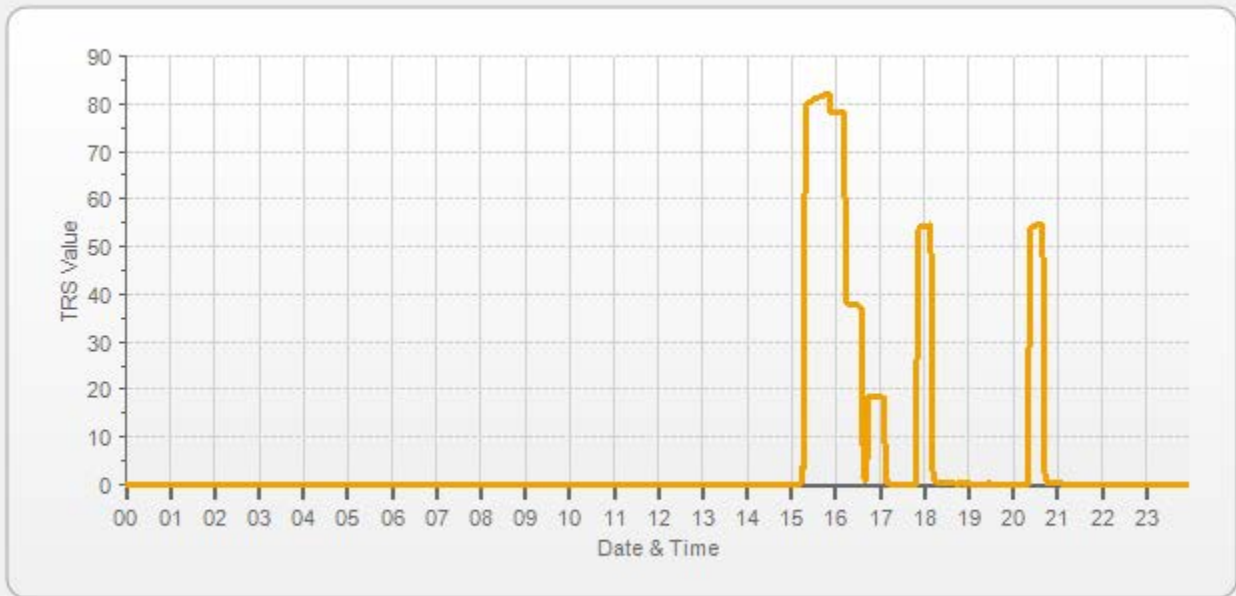


As found: Bkg: 2.76 Coef: 0.852 Pmt: -725.2 Flash: 980 Internal: 31.1 Chamber: 45.0 Perm Oven Gas: 45.00 Perm Oven Heater: 44.11 Pressure: 671.7 Sample Flow: 0.408 Lamp Intensity: 90 Converter: 850 Converter Set: 850 Averaging Time: 120 Expected Value: 55.4	As left: Bkg: 2.59 Coef: 0.811 Pmt: -725.6 Flash: 982 Internal: 29.9 Chamber: 45.0 Perm Oven Gas: 45.00 Perm Oven Heater: 44.11 Pressure: 672.3 Sample Flow: 0.410 Lamp Intensity: 89 Converter: 850 Converter Set: 850 Averaging Time: 120 Expected Value: 54.5
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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.

BP measurement taken from station sensor.



— TRS[ppb]



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	December 29, 2017	Barometer/B.P./units:	Environment Canada Website	28.77	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Data Acquisition Unit	20	°C
Location/Station Name:	842b	Weather Conditions:	Mainly sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	post repair		
Start Time 24 hr. (mst):	14:57	Performed By/Reviewer:	Raja Abid	Rob Fisher	
End Time 24 hr. (mst):	18:06	Cal Gas Expiry Date:	December 1, 2018		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD NOVA-CDN 101 # 553		

Analyzer:		ID# or Serial Number:	1162460023	Range ppb:	100
		Last Calibration Date:		As Found C.F.:	n/a
		Previous C.F.:		New C.F.:	1.000

Calibration Standards: Low Flow Meter ID/Expiry Date: Defender 530 Low # 162020 expires November 22, 2018 High Flow Meter ID/Expiry Date: Defender 530 High #148943 expires November 21, 2018 Calibrator ID/Expiry Date: Envionics id# 4760 expires February 15, 2018 Cal Gas Cylinder I.D. #: BLM 001927 Cal Gas Conc. (ppm): 10.3	Standard Calibration Points for Ranges <table border="1"> <tr><td>Point</td><td>ppb</td></tr> <tr><td>High</td><td>78</td></tr> <tr><td>Mid</td><td>38</td></tr> <tr><td>Low</td><td>19</td></tr> </table>	Point	ppb	High	78	Mid	38	Low	19	SO2 Scrubber Check (10 minutes): Start/End Time 24 hr.: 15:23/15:33 SO2 Analyzer Range: 500 Target Concentration (ppb): 380 As Found Zero: 0.0 Analyzer Response: (ppb): 0.0 Zero Corrected Result (ppb): 0.0
Point	ppb									
High	78									
Mid	38									
Low	19									

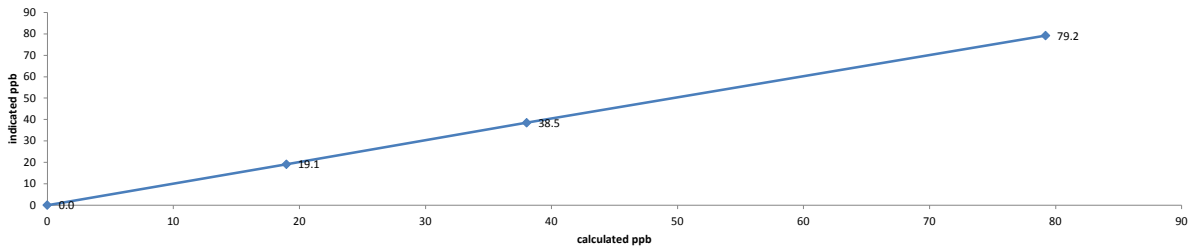
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Point	Calibrator Flow Rates (cc/min)			Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
	Diluent	Cal Gas	Total			
adjusted zero	7547	0.00	7547	0.0	0.0	n/a
adjusted high	7521	58.29	7579	79.2	79.2	1.000
mid	7583	28.11	7611	38.0	38.5	0.988
low	7606	14.04	7620	19.0	19.1	0.993
calibrator zero	7547	0.00	7547	0.0	0.0	n/a
Average C.F.=						0.994

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)=	-0.15%		± 3% F.S.
% change in C.F. from last cal=	n/a		n/a

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



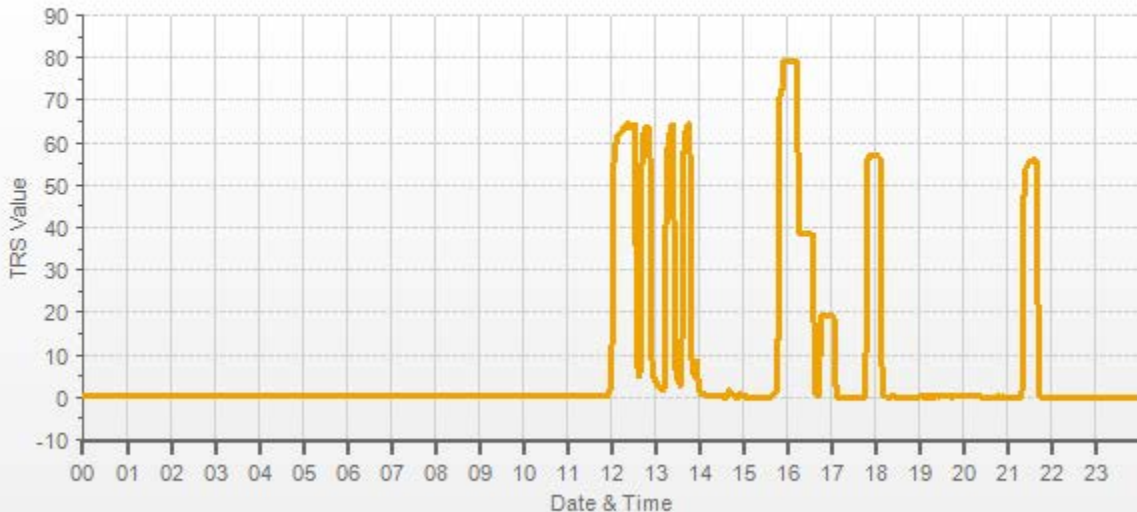
As found:		As left:	
Bkg:	2.57	Bkg:	3.13
Coef:	0.811	Coef:	0.880
Pmt:	-725.6	Pmt:	-725.6
Flash:	992	Flash:	992
Internal:	29.5	Internal:	29.2
Chamber:	44.9	Chamber:	45.0
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.10	Perm Oven Heater:	44.10
Pressure:	679.7	Pressure:	682.1
Sample Flow:	0.415	Sample Flow:	0.415
Lamp Intensity:	89	Lamp Intensity:	88
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	54.4	Expected Value:	56.8

Comments: The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.

The SO2 Scrubber beads were renewed. A leak check passed with and with out filter.

TRS[ppb] Station: PRAMP_842 Daily: 17/12/29 Type: AVG 1 Min. [1 Min.]

— TRS[ppb]



TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: December 7, 2017	Barometer/B.P./units: n/a	953	millibars
Company/Airshed: PRAMP	Thermometer/Station Temp: F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name: 842b	Weather Conditions: Mix of sun and clouds		
Parameter: CH4 / NMHC / THC	Calibration Purpose: shut down		
Start/End Time 24 hr. (mst): 09:08 / 11:18	Performed By/Reviewer: Chris Wesson		Rob Fisher
Calibration Method: Gas Dilution	Cal Gas Expiry Date: November 25, 2023		

Analyzer:			
ID# or Serial Number: 1505664392	Correction Factors:		
Measured Flow: 1.2 L/min	Previous C.F.:	As Found C.F.:	New C.F.:
Last Calibration Date: November 23, 2017	CH ₄ = 0.998	0.992	n/a
Range ppm: 20 CH4/20 NMHC/40 THC	NMHC = 0.998	0.965	n/a
	THC = 0.998	0.978	n/a

Calibration Standards:																			
Low Flow Meter ID/Expiry Date: Defender Low 153358 expires January 19, 2018	Standard Calibration Points for Analyzer Range of 20/20/40 ppm <table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th>Point</th> <th>CH4</th> <th>NMHC</th> <th>THC</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>13.00</td> <td>13.00</td> <td>26.00</td> </tr> <tr> <td>Mid</td> <td>7.00</td> <td>7.00</td> <td>14.00</td> </tr> <tr> <td>Low</td> <td>3.00</td> <td>3.00</td> <td>6.00</td> </tr> </tbody> </table>			Point	CH4	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00
Point				CH4	NMHC	THC													
High				13.00	13.00	26.00													
Mid				7.00	7.00	14.00													
Low				3.00	3.00	6.00													
High Flow Meter ID/Expiry Date: Defender High 152571 expires January 19, 2018																			
Calibrator ID/Expiry Date: Sabio id# 17100415 expires May 16, 2018																			
Cal Gas Cylinder I.D. #: LL86139																			
CH4 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 CH4 equivalent																			

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

Point	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:		
	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
as found zero	2485	0.00	2485	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
as found high	2429	60.76	2490	14.62	14.16	28.78	14.74	14.68	29.43	0.992	0.965	0.978
mid	2467	30.56	2498	7.33	7.10	14.43	7.41	7.42	14.84	0.989	0.957	0.973
low	2483	15.84	2499	3.80	3.68	7.47	3.83	3.88	7.72	0.991	0.948	0.969
Average C.F. =										0.991	0.956	0.973

Linear Regression/Calibration Results:				
Correlation Coefficient =	1.000	1.000	1.000	LIMITS > or = 0.995 0.90-1.10 ± 3% F.S. ± 10%
Slope =	1.008	1.036	1.022	
b (Intercept as % of full scale) =	0.02%	0.19%	0.13%	
% change in C.F. from last cal =	0.63%	3.35%	1.99%	

As Left Instrument Diagnostics:			
Interface Board Voltages:	Bias Supply: -294.3	Calibration History cnt'd:	NM Peak Area: 81073
Temperatures:	Detector Oven: 175.0	Crucial Settings:	Methane Start: n/a
	Filter: 175.0		Methane End: n/a
Cylinder Pressures/reg.:	Column Oven: 75.0	Run History>1:	Backflush: n/a
	Internal: 35.4		NMHV Start: n/a
	Carrier: 2000 50		NMHC End: n/a
	Fuel: 2000 50		Date: 07Dec2017
Internal Pressures:	Span Gas: 900 15	Time: 14:48	CH ₄ PK HT: 0
	Zero Air Generator: 50	CH ₄ RT: 13.2	CH ₄ Baseline: -146
	Carrier: 31.1	CH ₄ LOD: 5	CH ₄ SD: 1
FID Status:	Fuel: 47.7	CH ₄ CONC: 0.00	NM PK HT: 0
	Air: 23.7	NM Peak Area: 0	NM CONC: 0.00
	Status: LIT	NM Base Start: -136	NM Base End: -120
Flame and Power Stats:	Counts: 33745	NM LOD: 21	NM Start IDX: 28
	Flame: 391.2	NM End IDX: 79	NM Max Slope: 1.5e+00
	Det Base: 175.1	NM Min Slope: -2.2e-01	NM PT Count: 0
	Det Power On: 23Nov2017@12:46	Expected Values:	Previous CH ₄ : 8.8
Calibration History:	Flameouts: 230	Previous NMHC: 10.1	Previous THC: 18.9
	Det Oven at Start: 143.0	New CH ₄ : 8.80	New NMHC: 10.10
	Col Oven at Start: 32.4	New THC: 18.90	
	Time: 23Nov2017@16:33		
	Type: SPAN		
	Status: GOOD		
	Check/Adjust: ADJUST		

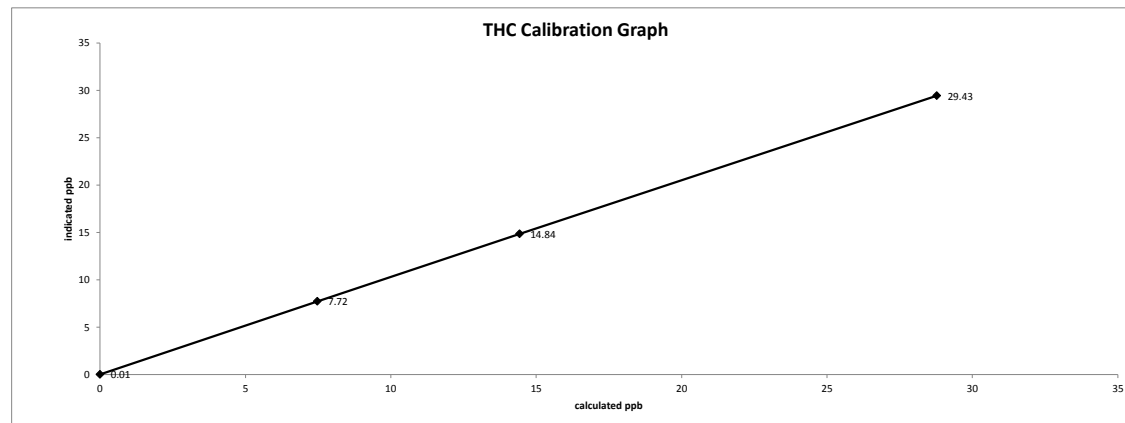
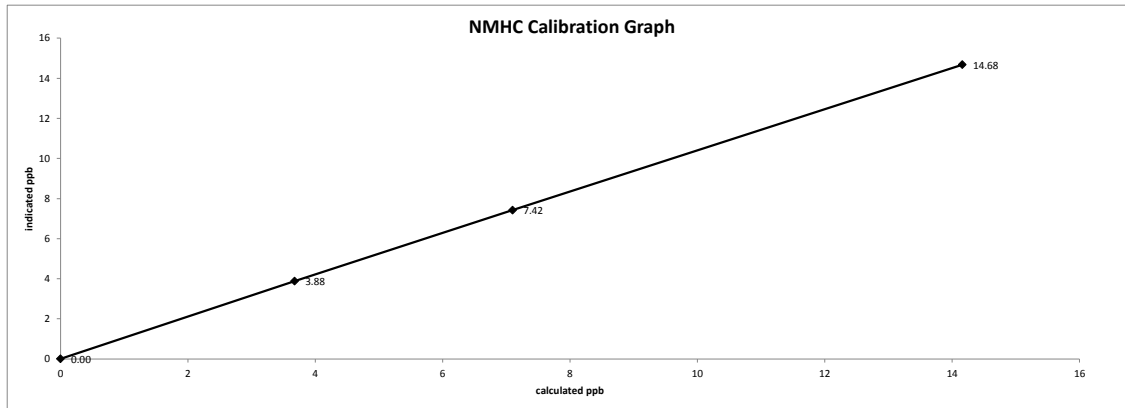
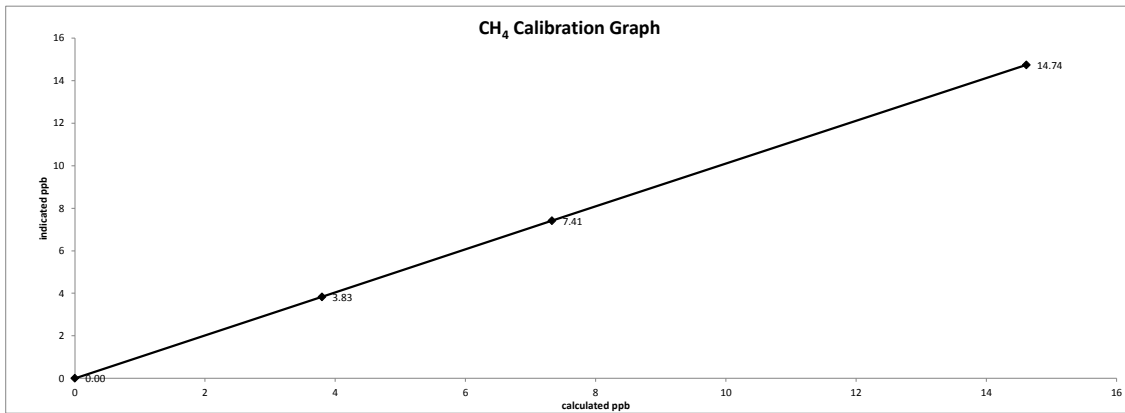
Comments:

The manifold blower was found to be working normally.

Analyzer 1505664392 was shutdown to replace the zero air generator.

Date: December 7, 2017
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 09:08 / 11:18
Calibration Purpose: shut down
Calibration Method: Gas Dilution





Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: December 7, 2017	Barometer/B.P./units: n/a	953	millibars
Company/Airshed: PRAMP	Thermometer/Station Temp: F.S. 160459244 expires May 18, 2018	22	°C
Location/Station Name: 842b	Weather Conditions: Mix of sun and clouds		
Parameter: CH4 / NMHC / THC	Calibration Purpose: post repair		
Start/End Time 24 hr. (mst): 12:25 / 15:54	Performed By/Reviewer: Chris Wesson / Rob Fisher		
Calibration Method: Gas Dilution	Cal Gas Expiry Date: November 25, 2023		

Analyzer:	ID# or Serial Number: 1505664392	Correction Factors:		
Measured Flow: 1.2 L/min	Last Calibration Date: November 23, 2017	Previous C.F.:	As Found C.F.:	New C.F.:
Range ppm: 20 CH4/20 NMHC/40 THC		CH ₄ = n/a	n/a	0.999
		NMHC = n/a	n/a	0.998
		THC = n/a	n/a	0.999

Calibration Standards:

Low Flow Meter ID/Expiry Date: Defender Low 153358 expires January 19, 2018
 High Flow Meter ID/Expiry Date: Defender High 152571 expires January 19, 2018
 Calibrator ID/Expiry Date: Sabio id# 17100415 expires May 16, 2018
 Cal Gas Cylinder I.D. #: LL86139
 CH₄ Cylinder Conc.: 599.0 211.0 =C₂H₆ Cylinder Conc.
 CH₄ expressed as C₂H₆: 580.3 1179.3 =total CH₄ equivalent

Point	CH4	NMHC	THC
High	13.00	13.00	26.00
Mid	7.00	7.00	14.00
Low	3.00	3.00	6.00

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

Point	Calibrator Flow Rates (cc/min)			Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
adjusted zero	2500	0.00	2500	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
adjusted high	2440	60.72	2501	14.54	14.09	28.63	14.55	14.12	28.68	0.999	0.998	0.999
mid	2472	30.50	2502	7.30	7.07	14.37	7.31	7.12	14.44	0.999	0.993	0.996
low	2489	15.82	2505	3.78	3.67	7.45	3.77	3.68	7.46	1.004	0.996	1.000
calibrator zero	2500	0.00	2500	0.00	0.00	0.00	0.00	0.00	0.01	n/a	n/a	n/a
										Average C.F. =		
										1.001 0.996 0.998		

Linear Regression/Calibration Results:

	CH ₄	NMHC	THC	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	1.002	1.002	0.95-1.05
b (Intercept as % of full scale) =	-0.03%	0.04%	0.03%	± 3% F.S.
% change in C.F. from last cal =	n/a	n/a	n/a	n/a

As Left Instrument Diagnostics:

Interface Board Voltages:	Bias Supply: -294.3	Calibration History cnt'd:	NM Peak Area: 73957
Temperatures:	Detector Oven: 175.0	Crucial Settings:	Methane Start: n/a
	Filter: 175.0		Methane End: n/a
	Column Oven: 75.0		Backflush: n/a
	Internal: 35.5		NMHV Start: n/a
Cylinder Pressures/reg.:	Carrier: 2000 50	Run History>1:	NMHC End: n/a
	Fuel: 2000 50		Date: 07Dec2017
	Span Gas: 900 15		Time: 14:48
	Zero Air Generator: 50		CH ₄ PK HT: 0
Internal Pressures:	Carrier: 31.1		CH ₄ RT: 13.2
	Fuel: 47.7		CH ₄ Baseline: -146
	Air: 23.7		CH ₄ LOD: 5
FID Status:	Status: LIT		CH ₄ SD: 1
	Counts: 37554		CH ₄ CONC: 0.00
	Flame: 391.3		NM PK HT: 0
	Det Base: 175.1		NM Peak Area: 0
Flame and Power Stats:	Last Power On: 23Nov2017@12:46		NM CONC: 0.00
	Flameouts: 229		NM Base Start: -136
	Det Oven at Start: 143.0		NM Base End: -120
	Col Oven at Start: 32.4		NM LOD: 21
Calibration History:	Time: 07Dec2017@13:35	Expected Values:	NM Start IDX: 28
	Type: SPAN		NM End IDX: 79
	Status: GOOD		NM Max Slope: 1.5e+00
	Check/Adjust: ADJUST		NM Min Slope: -2.2e-01
	CH ₄ Span Conc: 14.54		NM PT Count: 0
	CH ₄ SP Ratio: 0.000732		Previous CH ₄ : 8.8
	CH ₄ RT: 12.4		Previous NMHC: 10.1
	CH ₄ PK IDX: 22		Previous THC: 18.9
	CH ₄ PK HT: 19860		New CH ₄ : 8.96
	NM Span Conc: 14.09		New NMHC: 10.01
	NM SP Ratio: 0.000174		New THC: 18.98

Comments:

The analyzer sample inlet filter was changed.

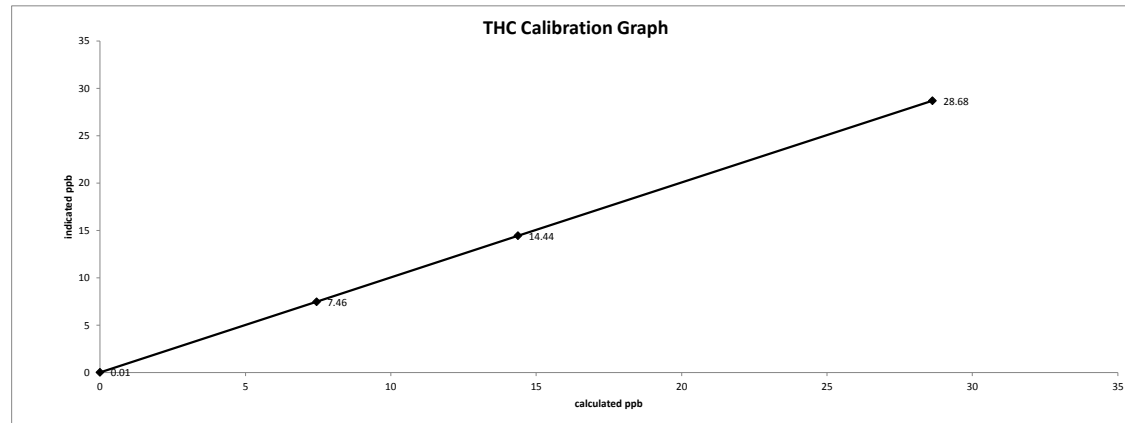
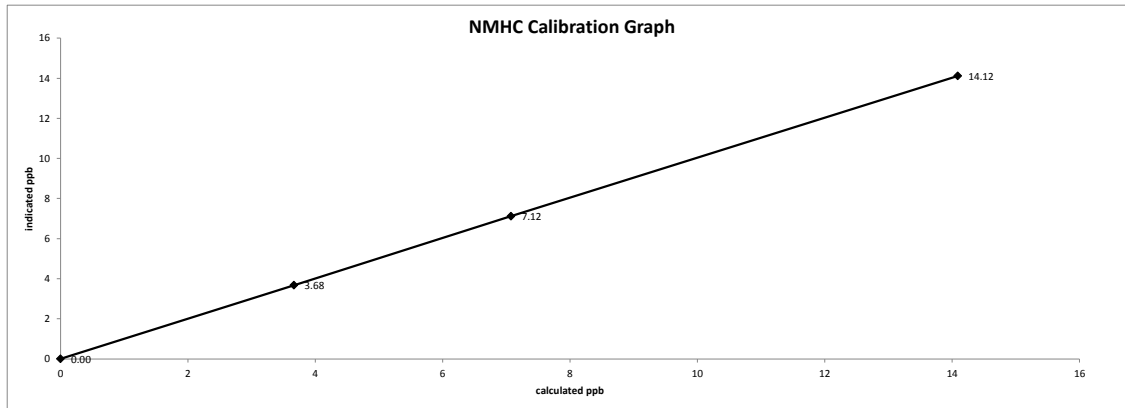
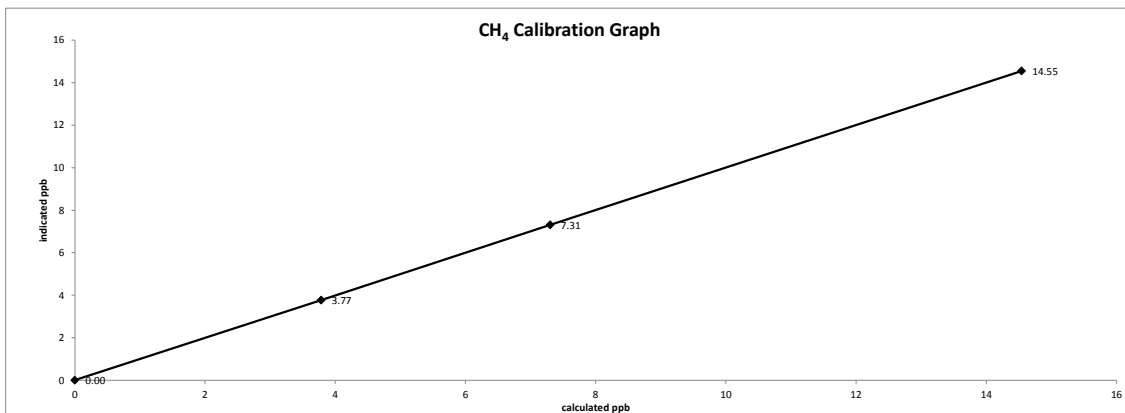
The analyzer cooling fan filter(s) were cleaned.

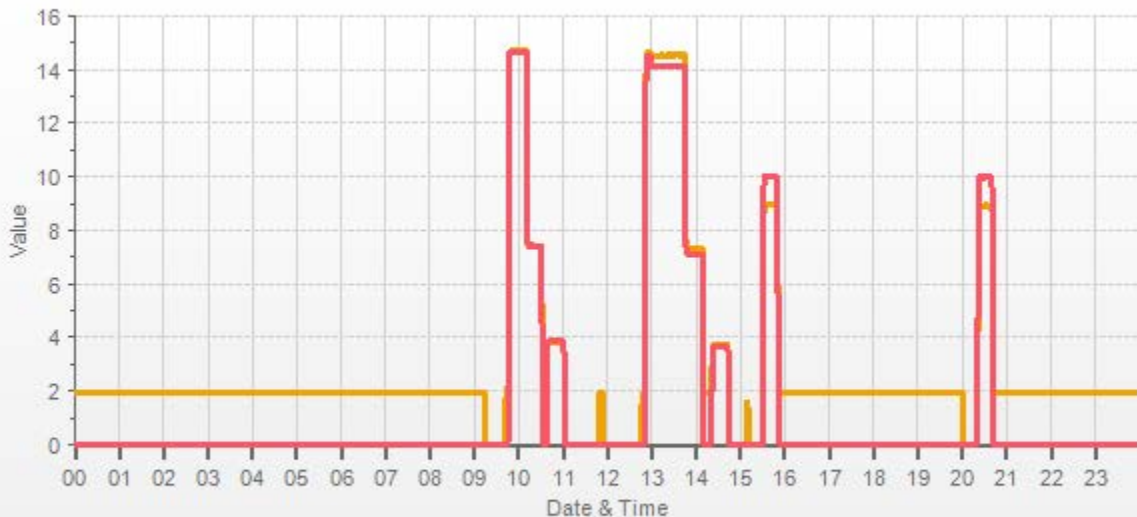
The manifold blower was found to be working normally.

A post-repair calibration was performed for Analyzer 1505664392 following the replacement of the zero air generator.

Date: December 7, 2017
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 12:25 / 15:54
Calibration Purpose: post repair
Calibration Method: Gas Dilution





CH4[ppm] NMHC[ppm]

WIND SYSTEM

Meteorological Sensor Audit/Calibration						
Location Information						
Company:	PRAMP	Performed By:	Chris Wesson			
Audit Location:	842b	Reviewed By:	Tom Bourque			
Audit Date:	August 30, 2017	Start /EndTime (mst):	10:50 / 11:20			
Calibration Purpose:	installation	Weather Conditions:	Cloudy/Overcast			
Wind Sensor Information						
Sensor ID Data:			Sensor Outputs:			
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1V			
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200kmh			
Serial #:	124638	Direction Voltage Output Range:	0-1V			
Previous Cal/Audit Date:	n/a or unknown	Direction Unit Output Range:	0-360°			
Wind Calibrator Information						
Calibrator Make/ Model:	RM Young	Serial #:	CA 4039			
Maxxam Unit ID #:	n/a	Certification Date:	February 24, 2017			
Wind Speed Audit Data ^{**}+/- 2% of the average correction factor is the limit^{**}						
RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor		
0	0	0.1	0.1	-		
1000	18.4	18.4	18.5	1.000		
2000	36.9	36.7	36.7	1.004		
3000	55.3	55.1	55.1	1.004		
4000	73.7	73.4	73.4	1.004		
5000	92.2	91.8	91.8	1.004		
6000	110.6	110.2	110.2	1.003		
7000	129.0	128.6	128.6	1.003		
8000	147.4	147.1	147.0	1.003		
9000	165.9	165.5	165.5	1.002		
10000	184.3	184.2	184.1	1.001		
The audit meets AMD requirements.			Average Correction Factor=	1.003		
Wind Direction Audit Data ^{**}+/- 5° of the absolute average degrees difference for all points is the limit^{**}						
Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	353	0.5	2.0	1.3
30	330	28	329	2.0	1.0	1.5
60	300	59	299	1.0	1.0	1.0
90	270	89	269	1.0	1.0	1.0
120	240	118	239	2.0	1.0	1.5
150	210	149	209	1.0	1.0	1.0
180	180	178	179	2.0	1.0	1.5
210	150	208	150	2.0	0.0	1.0
240	120	238	119	2.0	1.0	1.5
270	90	268	89	2.0	1.0	1.5
300	60	298	59	2.0	1.0	1.5
330	30	328	29	2.0	1.5	1.8
355	0	353	0	2.0	0.4	1.2
The audit meets AMD requirements.			Average Absolute Degrees Difference=			1.3
Comments:						

CALIBRATORS

Company: Maxxam **Operator:** Mike

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

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)

<u>SO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9986	0.90-1.10
b (Intercept % of FS)=	0.0477	± 3% F.S.

AENV Standards		SO₂ Analyzer	
Audit Calibrator		Make/Model	<u>Themro 43i</u>
Make/Model	<u>R&R MFC 201</u>	Serial/AMU Number	<u>1623</u>
Serial/AMU Number	<u>1690</u>	Last Calibration Date	<u>January 31, 2017</u>
SO ₂		Full Scale (ppm)	<u>1.0</u>
SRM Gas Cylinder No.	<u>CAL016625</u>	Expiry Date	<u>January 5, 2019</u>
Cylinder Conc. (ppm)	<u>98.07</u>		

COMMENTS: Analyzer verified prior to audit

Auditor: Shea Beaton Date: February 14, 2017
 Operator Signature: [Signature] Location: McIntyre Center Edmonton

Company Maxxam Operator: Mike

Calibrator:				Flow Measurement Device:			
Make/Model	<u>Environics 6100</u>			Make/Model	<u>Bios Defender 530</u>		
Serial Number	<u>4760</u>			Serial Number	<u>Hi148944 Lo 152019</u>		
Last Verification Date	<u>February 1, 2016</u>			Temperature (°C)	<u>24.6</u>		
NO Cylinder S/N	<u>EY0000597</u>			Barometric Pressure	<u>687.5mmHg</u>		
NO [PPM]	<u>49.0</u>	NOx [PPM]	<u>49.0</u>				
Expiry Date	<u>December 8, 2019</u>						

Dilution Flow (sccm)			
Pt. #1	<u>4890</u>	Pt. #2	<u>4936</u>
Pt. #3	<u>4958</u>		
Gas Flow (sccm)			
Pt. #1	<u>79.6</u>	Pt. #2	<u>38.9</u>
Pt. #3	<u>19.4</u>		

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
4951	0.0	0.0000	0.0000	-0.0001	0.0001	0.0000	Limit ± 10%	
4970	79.6	0.7848	0.7848	0.7925	-0.0006	0.7920	1%	1%
4975	38.9	0.3831	0.3831	0.3858	0.0000	0.3857	1%	1%
4977	19.4	0.1910	0.1910	0.1924	0.0001	0.1925	1%	1%
Absolute Average Percent Difference							1%	1%

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

NO		LIMITS		NOx	
Correlation=	1.0000	≥ 0.990		Correlation=	1.0000
m (Slope)=	1.0100	0.90-1.10		m (Slope)=	1.0092
b (Intercept % of FS)=	-0.0467	± 3% F.S.		b (Intercept % of FS)=	-0.0290

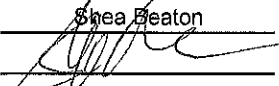
Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
4970	0.000	0.0000	0.7922	-0.0001	0.7922	NO ₂	% Diff. Limit
4970	0.500	0.5272	0.2650	0.5241	0.7890	-1%	± 10%
4970	0.275	0.2916	0.5006	0.2901	0.7907	0%	± 10%
4970	0.100	0.1056	0.6866	0.1048	0.7913	-1%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

NO₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9945	0.90-1.10
b (Intercept % of FS)=	-0.0100	± 3% F.S.

AENV Standards		NOx Analyzer	
Audit Calibrator		Make/Model	<u>Thermo 42i</u>
Make/Model	<u>Thermo 146i</u>	Serial/AMU Number	<u>1868</u>
Serial/AMU Number	<u>1809</u>	Last Calibration Date	<u>February 13, 2017</u>
SRM Gas Cylinder No.	<u>CAL018140</u>	Full Scale (ppm)	<u>1.0</u>
Cylinder Conc. (ppm)	<u>48.79</u>	Cylinder Gas Expiry Date	<u>March 28, 2019</u>

COMMENTS: Gas has >50ppm SO2

Auditor: Shea Beaton
Operator Signature: 

Date: February 15, 2017
Location: McIntyre Center Edmonton

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

COMMENTS: Contains 50.4 ppm SO₂.

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: May 16, 2017
Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-142CGA

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

Cylinder #: EY0000715 Concentration PPM: 25.5 Tolerance(%): 2 Certified By: Praxair

Expiry Date: May 18, 2021

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: July 27, 2017
 Gas Type: SO2 Conc. 98.07
 Cylinder Number: CAL016625
 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 43C Serial/AMU Number: 1623

Instrument Settings: Zero: 9.7 Span: 1.023 Range: 1.0

Last Calibration: Date: July 27/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.01593	62.782	25.3
5010	79.8	0.403	0.01593	62.782	25.3
5011	40.0	0.198	0.00798	125.275	24.8
5010	19.9	0.097	0.00397	251.759	24.4
Average Cylinder Concentration:					24.8

Previous Stated Concentration PPM: 25.5

Percent variance from Stated: 3

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

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

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

Auditor: Al Clark
 Operator Signature: *Al Clark*

Date: July 27, 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: Janaury 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	0.0020	5000.0	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

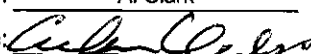
Percent variance from Stated: 2

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: 

Date: July 27, 2017

Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-109CGA

Company: Maxxam Operator's Name: Chris Wesson
 Cylinder #: BLM001927 Concentration PPM: 10.3 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: February 2, 2016
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015584

Flow Measurement Device:

Make/Model: Bios DC-2
 Serial Number: Bios D
 Temp. °C: 24.5
 B.P. 702mmHg

Reference Analyzer:

Make/Model: Thermo 450i Serial/AMU Number: 1980
 Instrument Settings: Zero: 15.3 Span: 1.126 Range: 0.1
 Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5025	0.0	0.000	0.00748	283.417	10.4
5058	37.84	0.078	0.00748	133.668	10.4
5059	17.85	0.036	0.00353	283.417	10.3
5031	9.15	0.019	0.00182	549.836	10.2
Average Cylinder Concentration:					10.3

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 0.1

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

Auditor: Shea Beaton
 Operator Signature: [Signature]

Date: February 2, 2016
 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	CH4	C3H8			CH4	C3H8
2583	0.00	0.00	0.00	0.02145	46.621	597	213
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

	CH4	C3H8
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: _____
 <=5% Outside Manufacturer Tolerance. Use manufacturers concentration C3H8 manufacturers tolerance 1.1%
 > 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder

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

***APPENDIX III
REPORT CERTIFICATION FORM***

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Three Creeks 842b 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.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

Jan 22, 2018





Report Issued Date (dd-mm-yyyy)

APPENDIX IV
DATA VALIDATION CERTIFICATION FORM



Validation Certificate Form

Client: <u>Peace River Area Monitoring Program Committee</u>	Project #: <u>8449-2017-12-80-C</u>
Site: <u>Three Creeks 842b Station</u>	Contact: <u>Karla Reesor</u>

Level 0 Preliminary Verification	<u></u>	Date <u>Jan 15, 2018</u>
Level 1 Primary Validation	<u></u>	Date <u>Jan 15, 2018</u>
Level 2 Final Validation	<u></u>	Date <u>Jan 22, 2018</u>
Level 3 Independent Data Review	<u></u>	Date <u>Jan 23, 2018</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

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