



MAXXAM ANALYTICS
#1 2080 39 Ave. NE, Calgary, AB
T2E 6P7

maxxam.ca
Toll Free 800-386-7247
Fax 403-219-3673

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

JOB #: 8449-2018-08-80-C

August 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: September 17, 2018

Prepared by:

Wunmi Adekanmbi, M.Sc., EPt, PMP
Project Team Lead, Customer Service, Air Services

Reviewed by:

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

SUMMARY

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

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

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

Station Upgrade: A station upgrade was implemented between July 30 and August 3. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Downtime ranging from twenty-two to fifty-seven hours were recorded across parameters, in the August monitoring period, due to activities surrounding the upgrade.

TRS: Six hours of downtime were incurred between August 12 and August 14 due to additional quality checks performed to address a biased low drift in span response.

THC/CH₄/NMHC:

- The channels were placed offline on August 10, during an HVAC maintenance event, incurring three hours of downtime.
- The fuel (H₂) and span gas cylinders were replaced on August 23. An additional zero-span check was performed afterwards as a quality check, incurring one hour of downtime.
- Four hours of downtime were incurred on August 30 due to corrective activities, performed to address a zero-span system malfunction.

The summary of results is presented on the following pages.

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

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee						MAXIMUM VALUES							OPERATIONAL TIME (%)
Three Creeks 842b Station						1-HOUR					24-HOUR		
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
	1-hr	24-hr	1-hr	24-hr									
SO ₂ (ppb)	172	48	0	0	0	1	4	13	11.4	NW	1	13	94.6
TRS (ppb)	-	-	-	-	0.38	2.05	11	6	2.7	E	0.75	5	91.5
THC (ppm)	-	-	-	-	1.99	2.21	20	1	2	E	2.06	20	91.3
CH ₄ (ppm)	-	-	-	-	1.99	2.21	20	1	2	E	2.06	20	91.3
NMHC (ppm)	-	-	-	-	0.00	0.00	3	13	12.7	W	0.00	3	91.3
RELATIVE HUMIDITY (%)	-	-	-	-	70	96	24	3	7.2	NW	90	1	97.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	940	955	20	0	1.4	E	959	19	97.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	14.7	27.7	22	15	17	W	20.0	9	97.0
STATION TEMPERATURE (°C)	-	-	-	-	23.4	30.3	7	3	0.8	SW	25.7	5	97.0
VECTOR WS (kph)	-	-	-	-	4.8	23.6	13	14	-	NW	14.5	13	94.1
VECTOR WD (sec)	-	-	-	-	224 (SW)	-	-	-	-	-	-	-	94.1

SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY

Three Creeks 842b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2018	August

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	94.6	0.001 ppm		0	0.001 ppm	0
TRS	91.5	0.002 ppm		-	0.001 ppm	-
THC	91.3	2.21 ppm		-	2.06 ppm	-
CH ₄	91.3	2.21 ppm		-	2.06 ppm	-
NMHC	91.3	0.00 ppm		-	0.00 ppm	-
RH	97.0	96 %		-	90 %	-
BP	97.0	955 mb		-	959 mb	-
Ambient TPX	97.0	27.7 °C		-	20.0 °C	-
Station TPX	97.0	30.3 °C		-	25.7 °C	-
Wind Speed	94.1	23.6 kph		-	14.5 kph	-
Wind Direction	94.1	-		-	-	-

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.

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
SUMMARY	2
MONTHLY CONTINUOUS DATA SUMMARY REPORT	3
SOUR GAS SUMMARY REPORT	4
EXCEEDANCE SUMMARY REPORT	5
TABLE OF CONTENTS	6
 1.0 Discussion	 8
.....	
2.0 Project Personnel	12
.....	
3.0 Plant Monthly Required AMD Summary	12
.....	
4.0 Calculations and Results	12
.....	
5.0 Methods and Procedures	13
.....	
Appendix I	16
Continuous Monitoring Data Results	16
.....	
Sulphur Dioxide	17
Total Reduced Sulphur	23
Total Hydrocarbon	29
Methane	35
Non-Methane Hydrocarbon	41
Wind Speed	47
Wind Direction	52
Relative Humidity	56
Barometric Pressure	59
Ambient Temperature	62
Station Temperature	65
Appendix II	68
Equipment Calibration Results	68
.....	
Sulphur Dioxide	69
Total Reduced Sulphur	72
Total Hydrocarbon	77
Wind System	81
Meteorological Systems Check	85

	Calibrators	87
	Calibration Gases	92
Appendix III	Maximum Instantaneous Data	97
Appendix IV	Report Certification Form	110
Appendix V	Data Validation Certification Form	112

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 94.6%, equivalent to forty hours of downtime.
- Following a successful shut-down calibration on July 30, a station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 2, following a successful installation calibration. Forty hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- Due to programming complications arising from the data logger upgrade, the automated daily zero-span check, scheduled for hour 10:00 on August 4, was not executed. The issue was resolved later that day and a successful zero-span check was completed on August 5. Baseline corrections for August 4 were performed incrementally using daily zero results for August 3 and August 5, which were both valid.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 91.5%, equivalent to sixty-three hours of downtime.
- Following a successful shut-down calibration on July 30, a station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 3, following a successful installation calibration. Fifty-seven hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- Due to programming complications arising from the data logger upgrade, the automated daily zero-span check, scheduled for hour 10:00 on August 4, was not executed. The issue was resolved later that day and a successful zero-span check was completed on August 5. Baseline corrections for August 4 were performed using the post-calibration zero response for August 3 and the daily zero result for August 5, which were both valid.
- The analyzer started drifting towards the lower acceptance limit on August 11. Subsequent scheduled and additional span response checks conducted between August 12 and August 14 yielded similar results. This prompted a site visit on August 14 where a repeat calibration was successfully completed. The expected span value was updated on August 15. Six hours of downtime were incurred due to the additional quality checks.

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

- Operational time for the monitoring period was 91.3%, equivalent to sixty-five hours of downtime.
- Following a successful shut-down calibration on July 30, a station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 3, following a successful installation calibration. Fifty-seven hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- Due to programming complications arising from the data logger upgrade, the automated daily zero-span check, scheduled for hour 10:00 on August 4, was not executed. The issue was resolved later that day and a successful zero-span check was completed on August 5. Baseline corrections for August 4 were performed using the post-calibration zero response for August 3 and the daily zero result for August 5, which were both valid.
- The channels were placed offline on August 10, during an HVAC maintenance event, incurring three hours of downtime.
- The fuel (H₂) and span gas cylinders were replaced on August 23. An additional zero-span check was performed afterwards as a quality check, incurring one hour of downtime.

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

- The automated daily zero check, scheduled for hour 07:00 on August 30, did not properly execute. A successful zero check was performed manually at hour 08:00. A site visit was immediately scheduled to investigate the zero-span system. Troubleshooting revealed a loose orifice. The orifice was tightened and secured, and gas pressures were verified to optimize flow. As the issue was isolated to the zero-span system, data quality was not impacted. However, four hours of downtime were incurred due to the corrective actions performed.
- 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 94.1%, equivalent to forty-four hours of downtime.
- A station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 2. Forty-four hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- An anemometer sensor check was conducted on August 3. The result was satisfactory.
- The routine annual wind system audit was conducted on August 22. The as-found audit met the AMD's audit requirements. However, the wind system was not operating within performance specifications. Adjustments were therefore made on the wind direction and the audit was repeated. The as-left state of the wind system currently meets its performance specifications.
- 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 97.0%, equivalent to twenty-two hours of downtime.
- A station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed in the later hours of August 1. Twenty-two hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- A humidity sensor check was conducted on August 3. The result was satisfactory.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 97.0%, equivalent to twenty-two hours of downtime.
- A station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed in the later hours of August 1. Twenty-two hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- A pressure sensor check was conducted on August 3. The result was satisfactory.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 97.0%, equivalent to twenty-two hours of downtime.
- A station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed in the later hours of August 1. Twenty-two hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- A temperature sensor check was conducted on August 3. The result was satisfactory.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 97.0%, equivalent to twenty-two hours of downtime.
- A station upgrade was implemented. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed in the later hours of August 1. Twenty-two hours of data were lost in the August monitoring period as a result of activities surrounding this upgrade.
- On August 10, maintenance was conducted on the HVAC system, to address an instability in station temperature.

2.0 Project Personnel

Karla Reesor was the contact for Peace River Area Monitoring Program Committee and the Maxxam field technicians were Michael Espiritu and Christopher Wesson.

3.0 Plant Monthly Required AMD Summary

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

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

4.0 Calculations and Results

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

A valid daily zero-span check was not recorded on August 4. The subsequent response check was performed on August 5. When a valid daily zero-span test is not performed within 25 hours of the previous one, it is Maxxam's standard practice to report this as an AMD contravention. In this circumstance, PRAMP requested adherence to the guidance provided in the Air Monitoring Directive FAQs – Chapter 7: Ambient Calibration, which qualifies this instance as acceptable.

5.0 Methods and Procedures

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

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

Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer

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

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

Wind System - RM Young Unit

Relative Humidity - RM Young Unit

Barometric Pressure - Met One Unit

Ambient Temperature - RM Young Unit

Datalogger - Envidas Ultimate

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

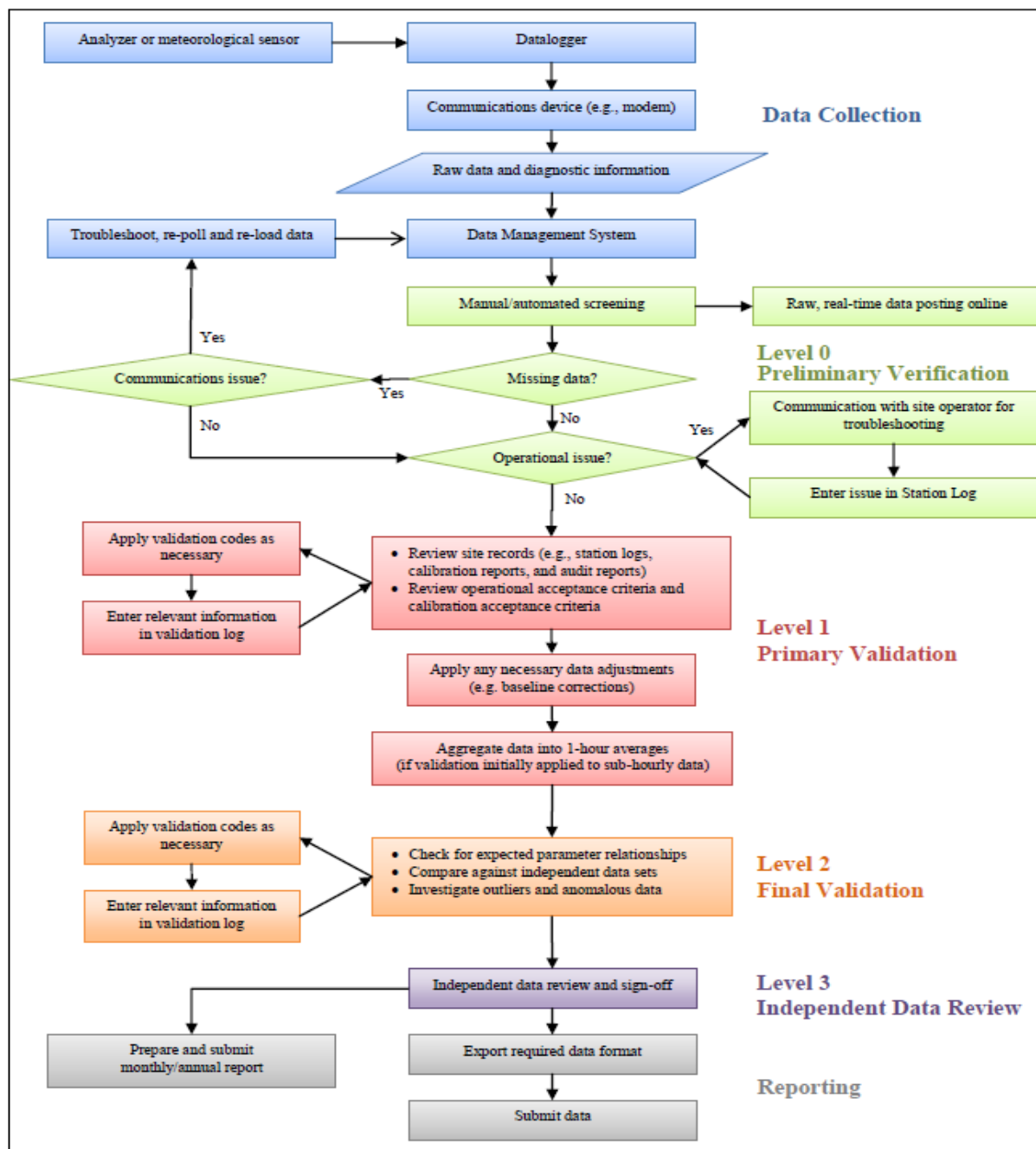
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

STATUS FLAG CODES

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

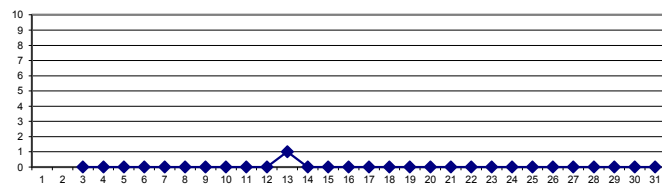
OBJECTIVE LIMIT:

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

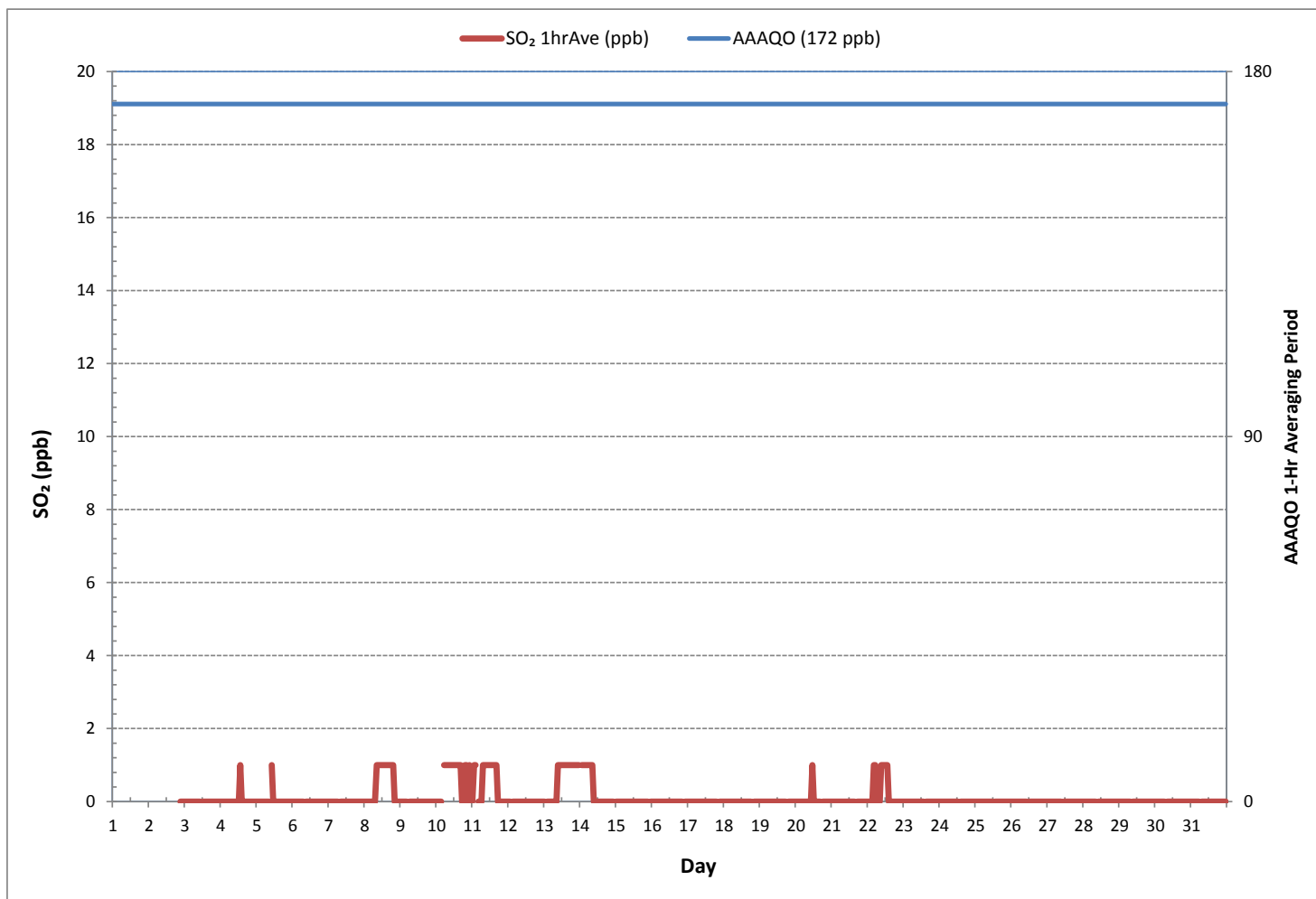
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	72
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 21 ON DAY 2
MAXIMUM 1-HR AVERAGE:	1 ppb @ HOUR 13 ON DAY 4
MAXIMUM 24-HR AVERAGE:	1 ppb ON DAY 13
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	704 hrs
AMD OPERATION UPTIME:	94.6 %
STANDARD DEVIATION:	0
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES August 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



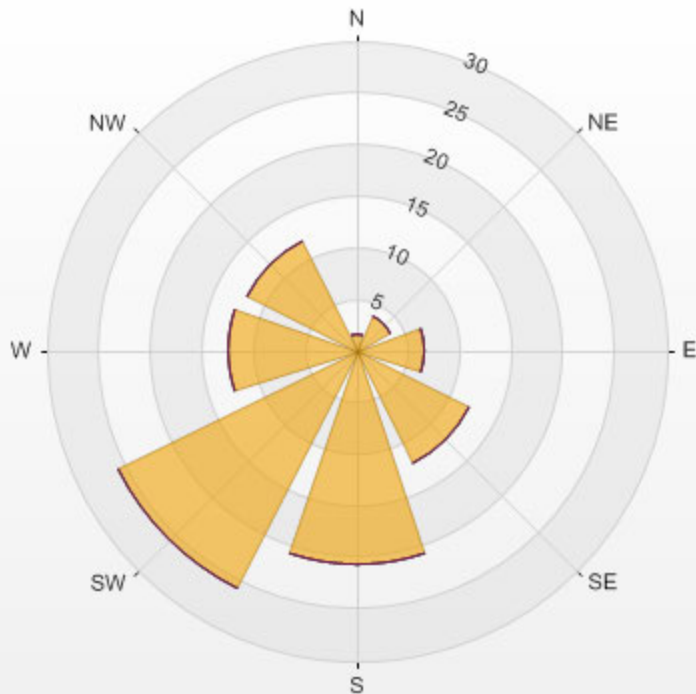
Wind: PRAMP_842
Poll.: PRAMP_842-SO₂[ppb]
Monthly: 18/08
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.09%

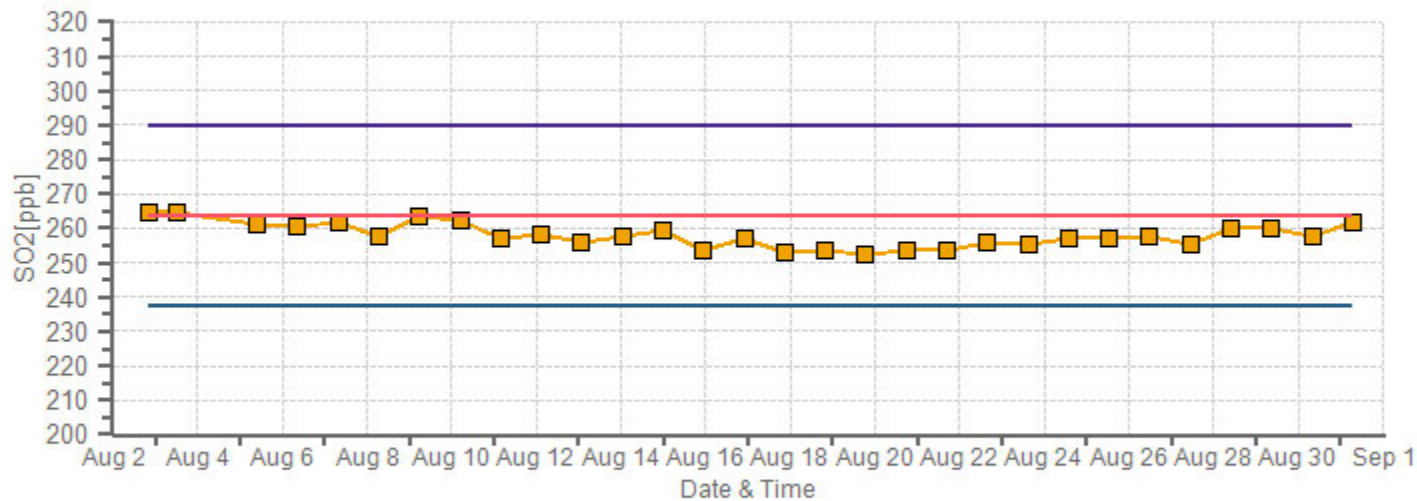
Calm Avg: 0.17 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	1.7	0.0	0.0	0.0	0.0	1.7
NE	3.7	0.0	0.0	0.0	0.0	3.7
E	6.6	0.0	0.0	0.0	0.0	6.6
SE	12.1	0.0	0.0	0.0	0.0	12.1
S	20.7	0.0	0.0	0.0	0.0	20.7
SW	25.8	0.0	0.0	0.0	0.0	25.8
W	12.4	0.0	0.0	0.0	0.0	12.4
NW	12.0	0.0	0.0	0.0	0.0	12.0
Summary	94.9	0.0	0.0	0.0	0.0	94.9

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 5.09% Calm Poll Avg: 0.17[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 18/08 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR

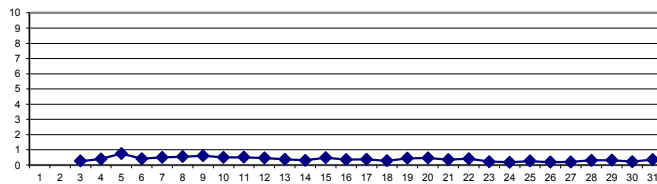
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	0.52	0.28	0.13	0.08	0.08	0.14	0.22	0.31	0.48	0.38	0.08	0.52	0.26	15
4	0.33	0.42	0.74	0.56	0.44	0.53	0.73	0.27	0.11	0.00	0.37	0.37	0.35	0.38	0.30	0.29	0.28	0.26	0.28	0.31	0.33	0.45	0.50	0.98	0.00	0.98	0.40	24
5	1.04	1.05	1.78	1.90	1.96	1.62	1.48	0.85	0.63	S	0.31	0.39	0.36	0.37	0.30	0.28	0.27	0.28	0.32	0.32	0.35	0.34	0.43	0.52	0.27	1.96	0.75	24
6	0.63	0.60	0.67	0.52	0.69	0.92	0.50	0.43	S	0.41	0.33	0.29	0.27	0.22	0.21	0.30	0.28	0.29	0.28	0.26	0.26	0.44	0.39	0.33	0.21	0.92	0.41	24
7	0.42	0.59	0.60	0.66	1.07	1.39	1.09	S	0.39	0.50	0.41	0.34	0.28	0.28	0.30	0.26	0.27	0.29	0.33	0.34	0.39	0.38	0.34	0.45	0.26	1.39	0.50	24
8	0.36	0.53	0.58	1.15	1.30	1.56	S	0.78	0.47	0.42	0.38	0.37	0.37	0.39	0.39	0.37	0.36	0.37	0.35	0.37	0.41	0.41	0.40	0.57	0.35	1.56	0.55	24
9	0.72	0.63	0.60	0.96	0.94	S	1.19	1.16	0.59	0.50	0.50	0.45	0.48	0.52	0.45	0.41	0.40	0.43	0.41	0.42	0.48	0.49	0.59	0.57	0.40	1.19	0.60	24
10	0.58	0.58	0.65	0.78	S	1.23	0.87	0.63	0.58	0.63	0.50	0.43	0.44	0.37	0.28	0.26	0.27	0.28	0.34	0.39	0.43	0.39	0.37	0.30	0.26	1.23	0.50	24
11	0.32	0.41	0.58	S	0.76	1.50	2.05	1.25	0.48	0.60	0.26	0.16	0.15	0.15	0.17	0.14	0.13	0.12	0.14	0.21	0.28	0.54	0.62	0.66	0.12	2.05	0.51	24
12	0.38	0.48	S	1.04	1.06	1.24	1.77	S1	0.55	0.27	0.28	0.28	0.27	0.27	0.24	0.21	0.18	0.17	0.19	0.35	0.25	0.26	0.29	0.35	0.17	1.77	0.47	23
13	0.34	S	0.57	0.37	0.51	0.45	0.66	0.97	0.86	0.40	0.18	0.16	0.16	0.16	0.17	0.18	0.19	0.21	0.25	0.29	0.35	0.37	0.41	0.42	0.16	0.97	0.38	24
14	S	0.44	0.42	0.42	0.44	0.58	0.78	C1	C1	C1	C1	C1	0.20	0.21	0.20	0.18	0.17	0.17	0.19	0.22	0.20	0.22	0.29	S	0.17	0.78	0.31	19
15	0.39	0.47	0.63	0.77	0.85	1.09	1.43	0.76	0.50	0.41	0.36	0.30	0.24	0.25	0.23	0.23	0.23	0.21	0.22	0.29	0.33	0.36	S	0.41	0.21	1.43	0.48	24
16	0.36	0.51	0.49	0.38	0.39	0.39	0.67	0.52	0.34	0.30	0.42	0.39	0.29	0.25	0.20	0.22	0.21	0.22	0.26	0.31	0.33	S	0.40	0.47	0.20	0.67	0.36	24
17	0.42	0.38	0.36	0.43	0.78	0.89	1.07	0.49	0.42	0.42	0.34	0.29	0.27	0.25	0.23	0.19	0.16	0.16	0.18	0.17	S	0.31	0.32	0.29	0.16	1.07	0.38	24
18	0.30	0.31	0.26	0.26	0.42	0.48	0.49	0.45	0.30	0.25	0.24	0.21	0.19	0.18	0.14	0.15	0.16	0.15	0.16	S	0.29	0.28	0.34	0.37	0.14	0.49	0.28	24
19	0.41	0.46	0.82	0.93	0.75	0.79	0.56	1.19	0.72	0.29	0.25	0.23	0.20	0.19	0.17	0.15	0.17	0.18	S	0.36	0.36	0.30	0.31	0.36	0.15	1.19	0.44	24
20	0.39	0.39	0.48	0.77	0.97	0.89	1.09	1.18	0.63	0.44	0.76	0.33	0.24	0.20	0.21	0.22	0.20	S	0.20	0.21	0.19	0.19	0.25	0.28	0.19	1.18	0.47	24
21	0.33	0.37	0.46	0.54	0.63	0.67	0.64	0.71	0.34	0.27	0.29	0.25	0.24	0.23	0.20	0.19	S	0.20	0.22	0.25	0.28	0.29	0.31	0.27	0.19	0.71	0.36	24
22	0.29	0.31	0.33	0.33	0.36	0.40	0.48	0.54	0.53	0.56	0.59	0.54	0.46	0.40	0.31	S	0.28	0.29	0.33	0.44	0.52	0.40	0.39	0.25	0.25	0.59	0.41	24
23	0.21	0.20	0.21	0.28	0.25	0.22	0.24	0.26	0.25	0.25	0.25	0.23	0.24	0.25	S	0.24	0.21	0.18	0.17	0.15	0.21	0.20	0.22	0.22	0.15	0.28	0.22	24
24	0.22	0.26	0.24	0.22	0.22	0.24	0.24	0.20	0.19	0.18	0.16	0.14	0.13	S	0.13	0.14	0.13	0.15	0.14	0.15	0.16	0.16	0.18	0.21	0.13	0.26	0.18	24
25	0.20	0.21	0.22	0.18	0.21	0.28	0.17	0.24	0.21	0.19	0.18	0.20	S	0.26	0.26	0.27	0.28	0.29	0.30	0.34	0.27	0.32	0.40	0.47	0.17	0.47	0.26	24
26	0.37	0.26	0.25	0.26	0.25	0.20	0.20	0.19	0.16	0.13	0.12	S	0.19	0.19	0.19	0.19	0.19	0.17	0.15	0.15	0.14	0.15	0.13	0.16	0.12	0.37	0.19	24
27	0.14	0.13	0.17	0.18	0.16	0.14	0.19	0.22	0.22	0.20	S	0.22	0.23	0.23	0.23	0.22	0.22	0.22	0.22	0.20	0.21	0.21	0.23	0.26	0.13	0.26	0.20	24
28	0.32	0.36	0.36	0.37	0.32	0.43	0.38	0.41	0.30	S	0.26	0.23	0.23	0.22	0.23	0.25	0.26	0.28	0.33	0.33	0.34	0.25	0.32	0.31	0.22	0.43	0.31	24
29	0.32	0.37	0.42	0.48	0.42	0.39	0.38	0.34	S	0.28	0.26	0.24	0.23	0.21	0.22	0.24	0.23	0.27	0.24	0.24	0.25	0.34	0.57	0.49	0.21	0.57	0.32	24
30	0.47	0.42	0.35	0.29	0.23	0.16	0.18	S	0.22	0.20	0.17	0.17	0.18	0.19	0.17	0.16	0.22	0.21	0.21	0.22	0.19	0.16	0.14	0.19	0.14	0.47	0.22	24
31	0.26	0.66	0.76	0.59	0.68	0.52	S	0.63	0.27	0.22	0.22	0.24	0.23	0.22	0.21	0.20	0.24	0.26	0.26	0.32	0.31	0.19	0.23	0.26	0.19	0.76	0.35	24
HOURLY MAX	1.04	1.05	1.78	1.90	1.96	1.62	2.05	1.25	0.86	0.63	0.76	0.54	0.48	0.52	0.52	0.41	0.40	0.43	0.41	0.44	0.52	0.54	0.62	0.98				
HOURLY AVG	0.39	0.44	0.52	0.58	0.63	0.71	0.75	0.61	0.41	0.33	0.32	0.29	0.26	0.26	0.25	0.23	0.23	0.23	0.24	0.28	0.30	0.31	0.35	0.39				

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

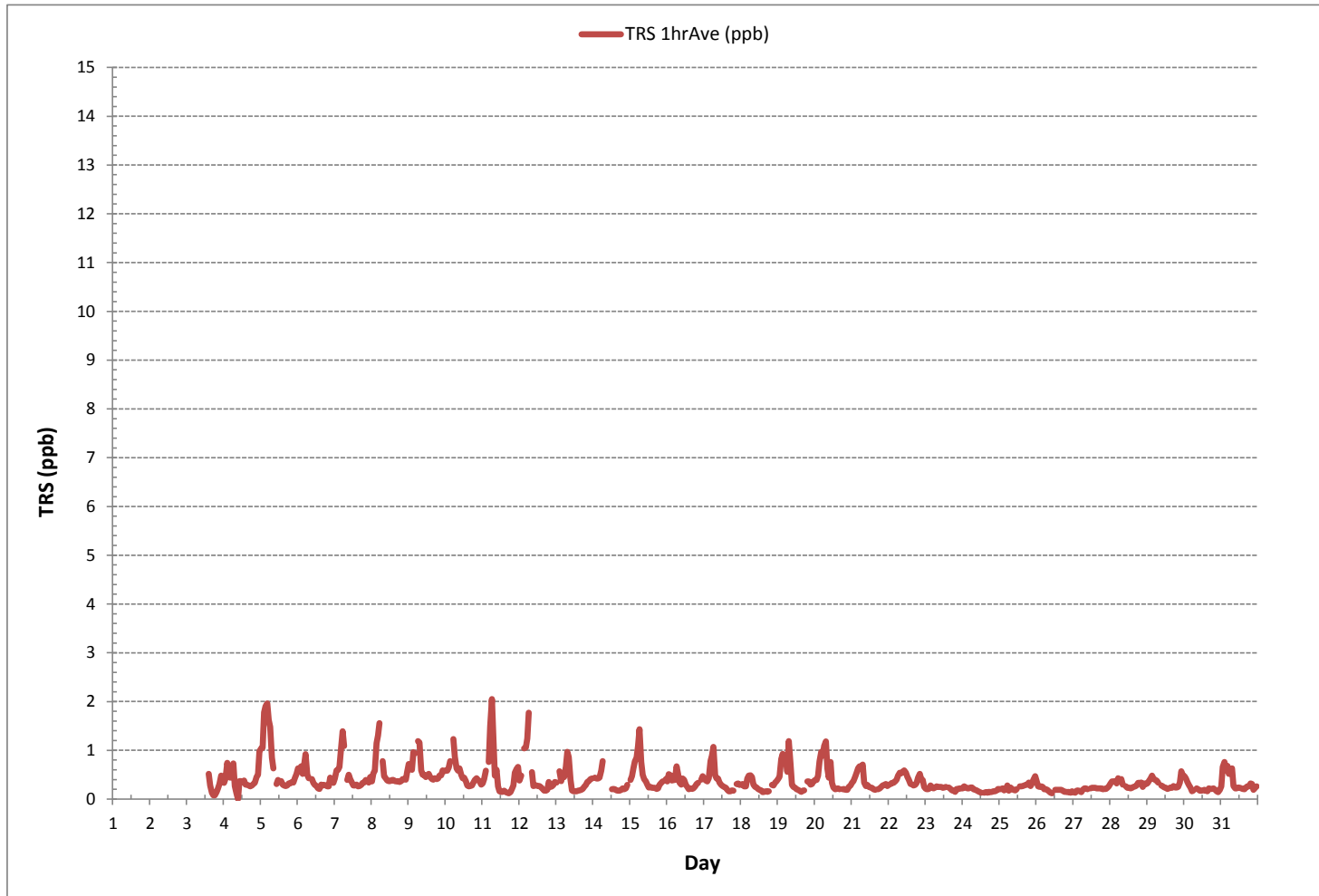
24 HR AVERAGES August 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	647				
MINIMUM 1-HR AVERAGE:	0.00	ppb @ HOUR	9	ON DAY	4
MAXIMUM 1-HR AVERAGE:	2.05	ppb @ HOUR	6	ON DAY	11
MAXIMUM 24-HR AVERAGE:	0.75	ppb		ON DAY	5
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	681	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	91.5	%
STANDARD DEVIATION:	0.27		MONTHLY AVERAGE:	0.38	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-TRS[ppb]
Monthly: 18/08
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

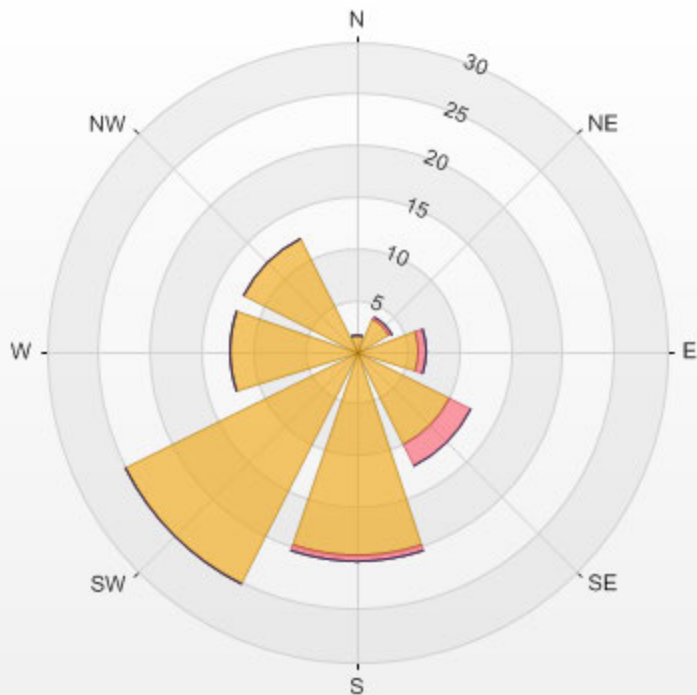
Calm: 5.26%

Calm Avg: 0.49 [ppb]

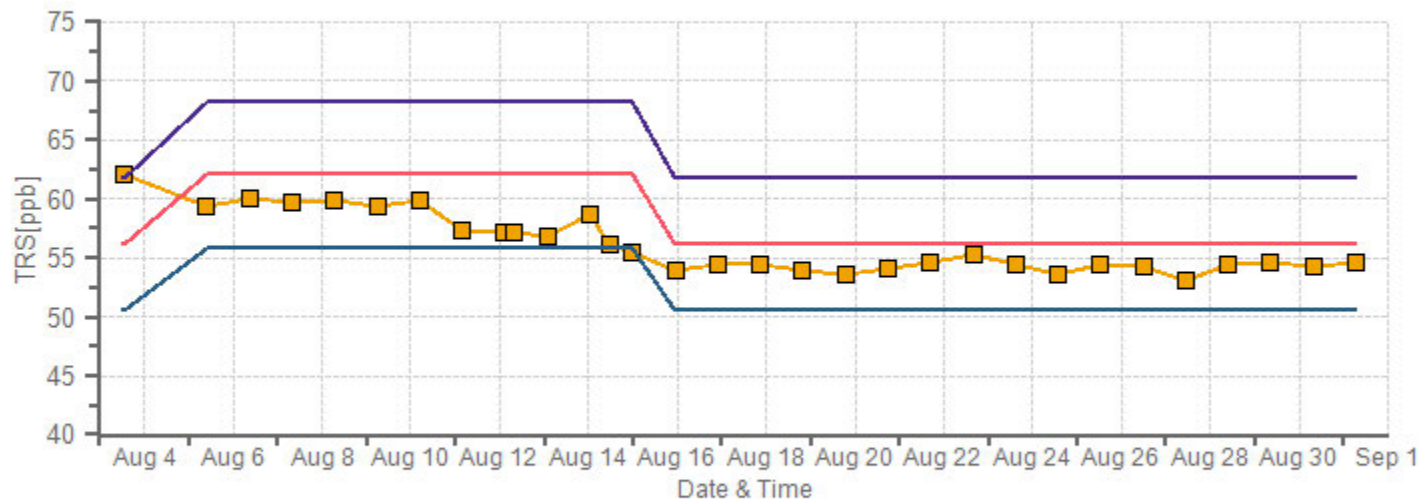
Direction	0-1	1-3	3-10	>10.0	Total
N	1.7	0.0	0.0	0.0	1.7
NE	3.6	0.3	0.0	0.0	3.9
E	6.0	0.8	0.0	0.0	6.8
SE	10.1	2.3	0.0	0.0	12.4
S	19.7	0.6	0.0	0.0	20.3
SW	25.1	0.0	0.0	0.0	25.1
W	12.2	0.0	0.0	0.0	12.2
NW	12.4	0.0	0.0	0.0	12.4
Summary	90.7	4.0	0.0	0.0	94.7

%	Icon	Classes (ppb)
91		0-1
4		1-3
0		3-10
0		>10.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 5.26% Calm Poll Avg: 0.49[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/08 Type: Span



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

TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

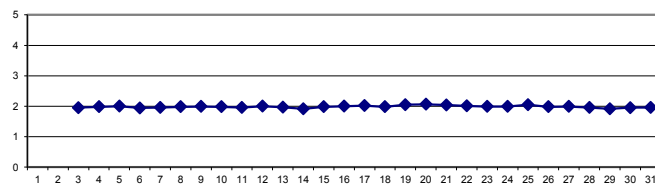
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	1.94	1.95	1.94	1.92	1.91	1.93	1.94	1.95	1.96	2.01	1.96	1.91	2.01	1.95	15
4	1.98	2.00	2.04	2.05	2.05	2.05	2.14	2.00	1.98	1.95	1.94	1.94	1.93	1.93	1.92	1.92	1.93	1.93	1.92	1.95	1.97	2.01	2.00	2.03	1.92	2.14	1.98	24
5	2.11	2.19	2.12	2.08	2.11	2.14	2.10	2.04	2.01	S	1.94	1.93	1.91	1.92	1.91	1.92	1.93	1.93	1.94	1.92	1.93	1.92	1.94	1.96	1.91	2.19	2.00	24
6	1.99	2.00	2.01	2.01	2.02	2.05	1.98	1.95	S	1.94	1.93	1.91	1.91	1.89	1.88	1.90	1.90	1.90	1.89	1.89	1.89	1.94	1.95	1.93	1.88	2.05	1.94	24
7	1.97	2.04	2.05	2.03	2.03	2.04	2.04	S	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.90	1.91	1.92	1.92	1.96	1.94	1.97	1.99	2.04	1.90	2.05	1.96	24
8	1.99	2.01	2.04	2.03	2.04	2.07	S	1.99	1.96	1.95	1.93	1.92	1.92	1.94	1.96	1.94	1.95	1.96	1.97	1.95	1.96	1.97	1.99	2.05	1.92	2.07	1.98	24
9	2.04	2.02	2.00	2.04	2.04	S	2.04	2.05	2.01	1.98	1.98	1.96	1.97	1.98	1.96	1.96	1.96	1.97	1.98	1.96	1.96	1.97	1.99	2.04	1.96	2.05	1.99	24
10	2.01	2.02	2.08	2.10	S	2.19	2.13	2.08	Y	Y	Y	1.96	1.96	1.94	1.90	1.90	1.90	1.89	1.92	1.92	1.92	1.94	1.91	1.91	1.89	2.19	1.98	21
11	1.91	1.92	1.93	S	1.96	2.00	2.00	1.99	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.98	2.04	2.08	2.09	1.91	2.09	1.96	24
12	2.03	2.03	S	2.11	2.13	2.15	2.17	2.16	2.02	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.96	1.95	1.94	1.96	1.96	1.94	2.17	2.00	24
13	1.98	S	2.00	1.98	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.97	1.97	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.93	1.92	1.92	2.00	1.97	24
14	S	1.95	1.94	1.95	1.96	2.00	2.01	1.99	1.93	1.93	1.91	1.91	1.88	1.88	1.87	1.87	1.86	1.86	1.87	1.86	1.87	1.89	S	1.86	2.01	1.91	24	
15	1.92	1.97	2.05	2.14	2.04	2.01	2.14	2.04	1.96	1.93	1.93	1.92	1.91	1.91	1.92	1.92	1.92	1.92	1.91	1.93	1.95	1.99	S	2.13	1.91	2.14	1.98	24
16	2.09	2.08	2.06	2.01	1.98	2.02	2.06	2.03	1.97	1.96	1.98	1.99	1.99	1.97	1.95	1.96	1.94	1.96	1.99	2.00	2.02	S	2.03	2.03	1.94	2.09	2.00	24
17	2.04	2.02	2.03	2.05	2.09	2.10	2.12	2.08	2.05	2.04	2.02	2.00	1.99	1.99	1.98	1.96	1.94	1.95	1.95	1.95	S	1.97	2.07	2.00	1.94	2.12	2.02	24
18	1.96	1.97	1.96	1.96	2.02	2.00	1.99	2.00	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	S	2.00	2.01	2.01	2.04	1.96	2.04	1.98	24
19	2.08	2.05	2.09	2.13	2.10	2.10	2.16	2.18	2.13	2.01	1.99	1.98	1.97	1.96	1.96	1.97	1.97	1.97	S	2.02	2.02	2.06	2.09	2.17	1.96	2.18	2.05	24
20	2.20	2.21	2.14	2.14	2.13	2.12	2.14	2.15	2.08	2.05	2.03	2.01	1.99	1.98	1.98	1.99	1.99	S	1.99	1.99	2.00	2.01	2.03	2.04	1.98	2.21	2.06	24
21	2.06	2.06	2.08	2.09	2.11	2.12	2.11	2.13	2.08	2.05	2.06	2.03	2.01	2.00	2.00	1.98	S	1.97	1.97	1.99	1.98	1.99	2.00	1.98	1.97	2.13	2.04	24
22	1.98	1.99	1.99	2.01	2.02	2.02	2.06	2.08	2.07	2.08	2.07	2.05	2.02	2.00	1.95	S	1.92	1.93	1.94	2.01	2.08	2.02	2.00	2.01	1.92	2.08	2.01	24
23	2.00	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.98	2.00	2.00	1.99	1.98	1.99	S	S1	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.99	1.98	2.00	1.99	23
24	1.98	1.98	1.99	1.99	1.98	1.99	1.99	1.98	1.98	1.97	1.96	1.96	1.97	S	1.96	1.96	1.96	1.96	2.00	2.02	2.07	2.04	2.06	2.10	1.96	2.10	1.99	24
25	2.18	2.18	2.12	2.16	2.14	2.09	2.16	2.04	2.01	2.01	2.02	1.99	S	1.99	1.99	2.01	2.02	2.01	2.01	2.04	2.04	2.00	2.00	1.99	1.99	2.18	2.05	24
26	2.01	2.01	2.00	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.98	S	1.98	1.98	1.96	1.97	1.97	1.98	1.96	1.96	2.00	1.96	1.97	1.97	1.96	2.01	1.98	24
27	1.98	1.98	2.00	2.00	2.00	1.99	2.01	2.02	1.99	2.00	S	1.99	1.98	1.99	1.98	1.97	1.96	1.97	1.98	1.97	1.98	1.99	2.00	2.00	1.96	2.02	1.99	24
28	2.00	2.00	2.01	2.03	2.04	2.02	2.06	2.05	1.98	S	1.95	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.94	1.93	1.90	1.90	1.91	1.92	1.90	2.06	1.96	24
29	1.92	1.92	1.90	1.91	1.92	1.92	1.92	1.95	S	1.92	1.91	1.91	1.90	1.90	1.90	1.89	1.88	1.88	1.88	1.89	1.90	1.93	1.95	1.93	1.88	1.95	1.91	24
30	1.94	1.95	1.94	1.95	1.95	1.93	1.93	S	S1	1.94	1.93	1.94	1.94	Y	Y	Y	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.99	1.93	1.99	1.95	20
31	2.03	2.03	2.02	2.01	2.01	2.00	S	1.99	1.98	1.98	1.96	1.96	1.96	1.94	1.92	1.92	1.93	1.94	1.92	1.93	1.94	1.92	1.92	1.94	1.92	2.03	1.96	24
HOURLY MAX	2.20	2.21	2.14	2.16	2.14	2.19	2.17	2.18	2.13	2.08	2.07	2.05	2.02	2.00	2.00	2.01	2.02	2.01	2.01	2.04	2.08	2.06	2.09	2.17				
HOURLY AVG	2.01	2.02	2.02	2.04	2.03	2.04	2.05	2.04	2.00	1.98	1.97	1.96	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.97	1.99	2.00				

STATUS FLAG CODES

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

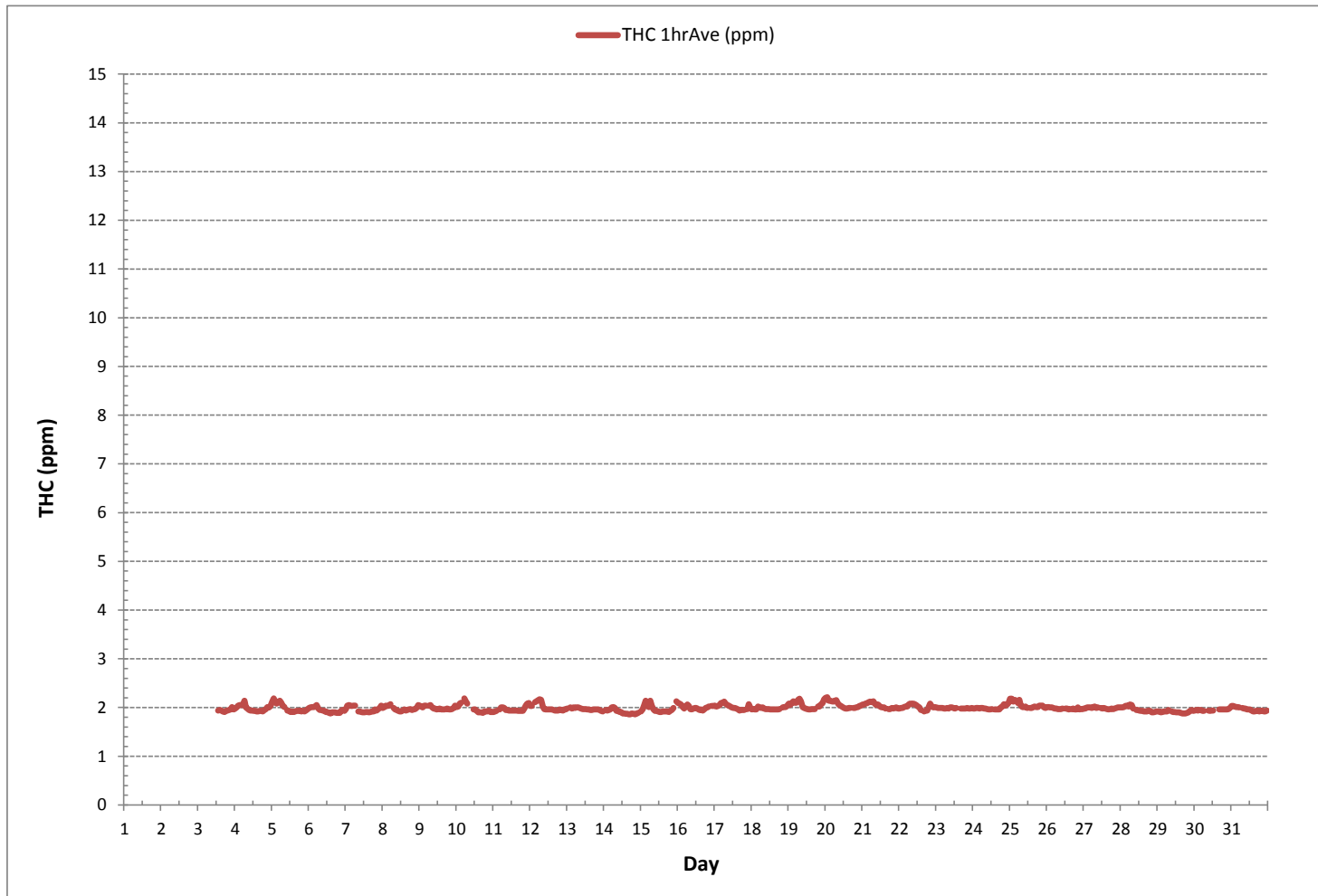
24 HR AVERAGES August 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	647			
MINIMUM 1-HR AVERAGE:	1.86	ppm @ HOUR	16	ON DAY 14
MAXIMUM 1-HR AVERAGE:	2.21	ppm @ HOUR	1	ON DAY 20
MAXIMUM 24-HR AVERAGE:	2.06	ppm		ON DAY 20
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	679 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.3 %
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	1.99 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



Wind: PRAMP_842
Poll.: PRAMP_842-THC55[ppm]
Monthly: 18/08
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

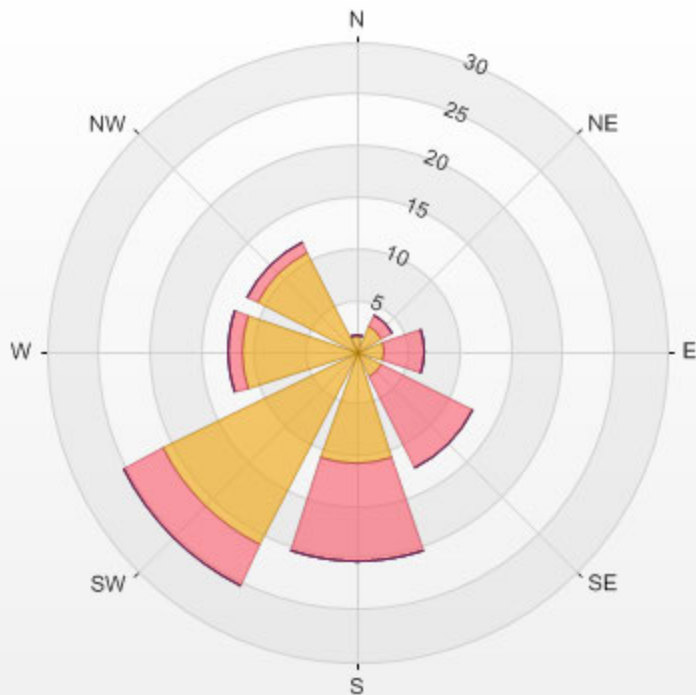
Calm: 5.27%

Calm Avg: 2.05 [ppm]

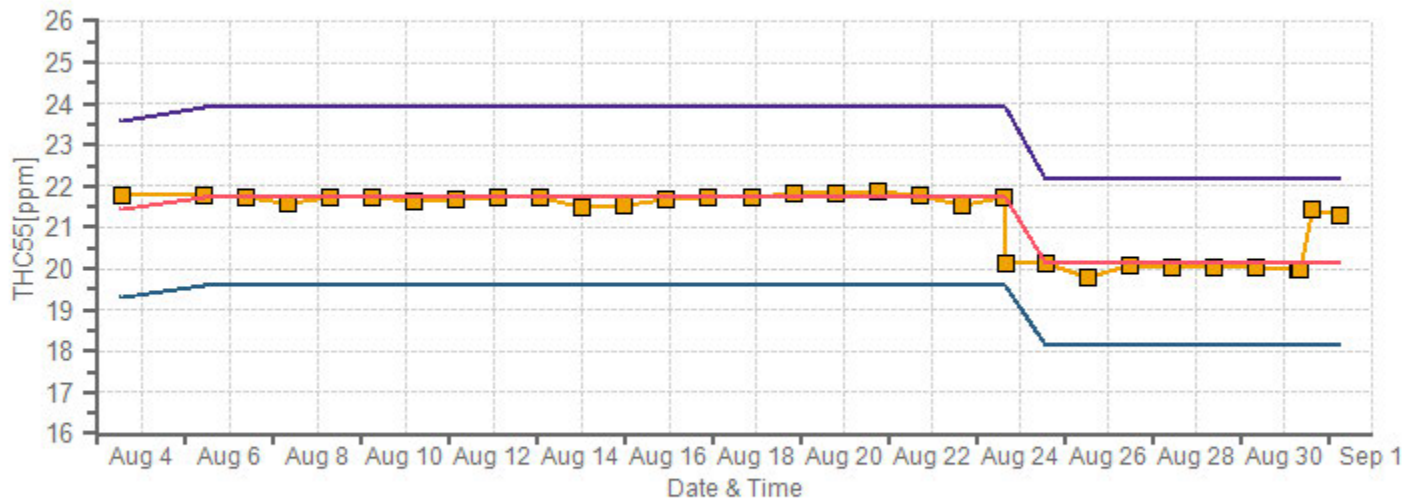
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	1.6	0.2	0.0	0.0	0.0	1.7
NE	2.8	1.1	0.0	0.0	0.0	3.9
E	2.8	3.9	0.0	0.0	0.0	6.7
SE	2.6	9.9	0.0	0.0	0.0	12.6
S	10.9	9.5	0.0	0.0	0.0	20.3
SW	20.9	4.3	0.0	0.0	0.0	25.3
W	11.2	1.2	0.0	0.0	0.0	12.4
NW	10.7	1.2	0.0	0.0	0.0	11.9
Summary	63.4	31.3	0.0	0.0	0.0	94.7

%	Icon	Classes (ppm)
63		0-2
31		2-3
0		3-5
0		5-10
0		>10.0

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 5.27% Calm Poll Avg: 2.05[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/08 Type: Span



Span Meas Span Ref Span Low Span High

METHANE

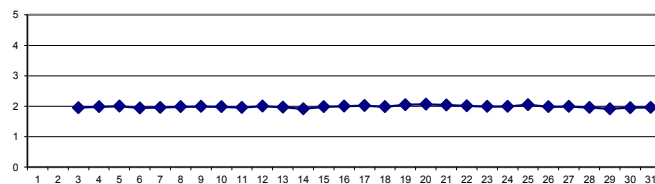
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	1.94	1.94	1.94	1.92	1.91	1.93	1.94	1.95	1.96	2.01	1.96	1.91	2.01	1.95	15
4	1.98	2.00	2.04	2.05	2.05	2.05	2.14	2.00	1.98	1.95	1.94	1.94	1.93	1.93	1.92	1.92	1.93	1.93	1.92	1.95	1.97	2.01	2.00	2.03	1.92	2.14	1.98	24
5	2.11	2.19	2.12	2.08	2.11	2.14	2.10	2.04	2.01	S	1.94	1.93	1.91	1.92	1.91	1.92	1.93	1.93	1.94	1.92	1.93	1.92	1.94	1.96	1.91	2.19	2.00	24
6	1.99	2.00	2.01	2.01	2.02	2.05	1.98	1.95	S	1.94	1.93	1.91	1.91	1.89	1.88	1.90	1.90	1.90	1.89	1.89	1.89	1.94	1.95	1.93	1.88	2.05	1.94	24
7	1.97	2.04	2.05	2.03	2.03	2.04	2.04	S	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.90	1.91	1.92	1.92	1.96	1.94	1.97	1.99	2.04	1.90	2.05	1.96	24
8	1.99	2.01	2.04	2.03	2.04	2.07	S	1.99	1.96	1.95	1.93	1.92	1.92	1.94	1.96	1.94	1.95	1.96	1.97	1.95	1.96	1.97	1.99	2.05	1.92	2.07	1.98	24
9	2.04	2.02	2.00	2.04	2.04	S	2.04	2.05	2.01	1.98	1.98	1.96	1.97	1.98	1.96	1.96	1.96	1.97	1.98	1.96	1.96	1.97	1.99	2.04	1.96	2.05	1.99	24
10	2.01	2.02	2.08	2.10	S	2.19	2.13	2.08	Y	Y	Y	1.96	1.96	1.94	1.90	1.90	1.90	1.89	1.92	1.92	1.92	1.94	1.91	1.91	1.89	2.19	1.98	21
11	1.91	1.92	1.93	S	1.96	2.00	2.00	1.99	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.93	1.98	2.04	2.08	2.09	1.91	2.09	1.96	24
12	2.03	2.03	S	2.11	2.13	2.15	2.17	2.16	2.02	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.94	1.94	1.94	1.96	1.95	1.94	1.96	1.96	1.94	2.17	2.00	24
13	1.98	S	2.00	1.98	2.00	1.99	2.00	2.00	1.99	1.98	1.97	1.97	1.97	1.96	1.96	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.93	1.92	1.92	2.00	1.97	24
14	S	1.95	1.94	1.95	1.96	2.00	2.01	1.99	1.93	1.93	1.91	1.91	1.88	1.88	1.87	1.87	1.86	1.86	1.88	1.87	1.86	1.87	1.89	S	1.86	2.01	1.91	24
15	1.92	1.97	2.05	2.14	2.04	2.01	2.14	2.04	1.96	1.93	1.93	1.92	1.91	1.91	1.92	1.92	1.92	1.92	1.91	1.93	1.95	1.99	S	2.13	1.91	2.14	1.98	24
16	2.09	2.08	2.06	2.01	1.98	2.02	2.06	2.03	1.97	1.96	1.98	1.99	1.99	1.97	1.95	1.96	1.94	1.96	1.99	2.00	2.02	S	2.03	2.03	1.94	2.09	2.00	24
17	2.04	2.02	2.03	2.05	2.09	2.10	2.12	2.08	2.05	2.04	2.02	2.00	1.99	1.99	1.98	1.96	1.94	1.95	1.95	1.95	S	1.97	2.07	2.00	1.94	2.12	2.02	24
18	1.96	1.97	1.96	1.96	2.02	2.00	1.99	2.00	1.98	1.97	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.96	1.97	S	2.00	2.01	2.01	2.04	1.96	2.04	1.98	24
19	2.08	2.05	2.09	2.13	2.10	2.10	2.16	2.18	2.13	2.01	1.99	1.98	1.97	1.96	1.96	1.97	1.97	1.97	S	2.02	2.02	2.06	2.09	2.17	1.96	2.18	2.05	24
20	2.20	2.21	2.14	2.14	2.13	2.12	2.14	2.15	2.08	2.05	2.03	2.01	1.99	1.98	1.98	1.99	1.99	S	1.99	1.99	2.00	2.01	2.03	2.04	1.98	2.21	2.06	24
21	2.06	2.06	2.08	2.09	2.11	2.12	2.11	2.13	2.08	2.05	2.06	2.03	2.01	2.00	2.00	1.98	S	1.97	1.97	1.99	1.98	1.99	2.00	1.98	1.97	2.13	2.04	24
22	1.98	1.99	1.99	2.01	2.02	2.02	2.06	2.08	2.07	2.08	2.07	2.05	2.02	2.00	1.95	S	1.92	1.93	1.94	2.01	2.08	2.02	2.00	2.01	1.92	2.08	2.01	24
23	2.00	1.99	1.99	1.99	1.99	1.98	1.98	1.99	1.98	2.00	2.00	1.99	1.98	1.99	S	S1	1.98	1.98	1.98	1.98	1.99	1.98	1.98	1.99	1.98	2.00	1.99	23
24	1.98	1.98	1.99	1.99	1.98	1.99	1.99	1.98	1.98	1.97	1.96	1.96	1.97	S	1.96	1.96	1.96	1.96	2.00	2.02	2.07	2.04	2.06	2.10	1.96	2.10	1.99	24
25	2.18	2.18	2.12	2.16	2.14	2.09	2.16	2.04	2.01	2.01	2.02	1.99	S	1.99	1.99	2.01	2.02	2.01	2.01	2.04	2.04	2.00	2.00	1.99	1.99	2.18	2.05	24
26	2.01	2.01	2.00	2.00	1.99	1.98	1.98	1.97	1.97	1.97	1.98	S	1.98	1.98	1.96	1.97	1.97	1.98	1.96	1.96	2.00	1.96	1.97	1.97	1.96	2.01	1.98	24
27	1.98	1.98	2.00	2.00	2.00	1.99	2.01	2.02	1.99	2.00	S	1.99	1.98	1.99	1.98	1.97	1.96	1.97	1.98	1.97	1.98	1.99	2.00	2.00	1.96	2.02	1.99	24
28	2.00	2.00	2.01	2.03	2.04	2.02	2.06	2.05	1.98	S	1.95	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.94	1.93	1.90	1.90	1.91	1.92	1.90	2.06	1.96	24
29	1.92	1.92	1.90	1.91	1.92	1.92	1.92	1.95	S	1.92	1.91	1.91	1.90	1.90	1.90	1.89	1.88	1.88	1.88	1.89	1.90	1.93	1.95	1.93	1.88	1.95	1.91	24
30	1.94	1.95	1.94	1.95	1.95	1.93	1.93	S	S1	1.94	1.93	1.94	1.94	Y	Y	Y	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.99	1.93	1.99	1.95	20
31	2.03	2.03	2.02	2.01	2.01	2.00	S	1.99	1.98	1.98	1.96	1.96	1.96	1.94	1.92	1.92	1.93	1.94	1.92	1.93	1.94	1.92	1.92	1.94	1.92	2.03	1.96	24
HOURLY MAX	2.20	2.21	2.14	2.16	2.14	2.19	2.17	2.18	2.13	2.08	2.07	2.05	2.02	2.00	2.00	2.01	2.02	2.01	2.01	2.04	2.08	2.06	2.09	2.17				
HOURLY AVG	2.01	2.02	2.02	2.04	2.03	2.04	2.05	2.04	2.00	1.98	1.97	1.96	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.96	1.97	1.97	1.99	2.00				

STATUS FLAG CODES

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

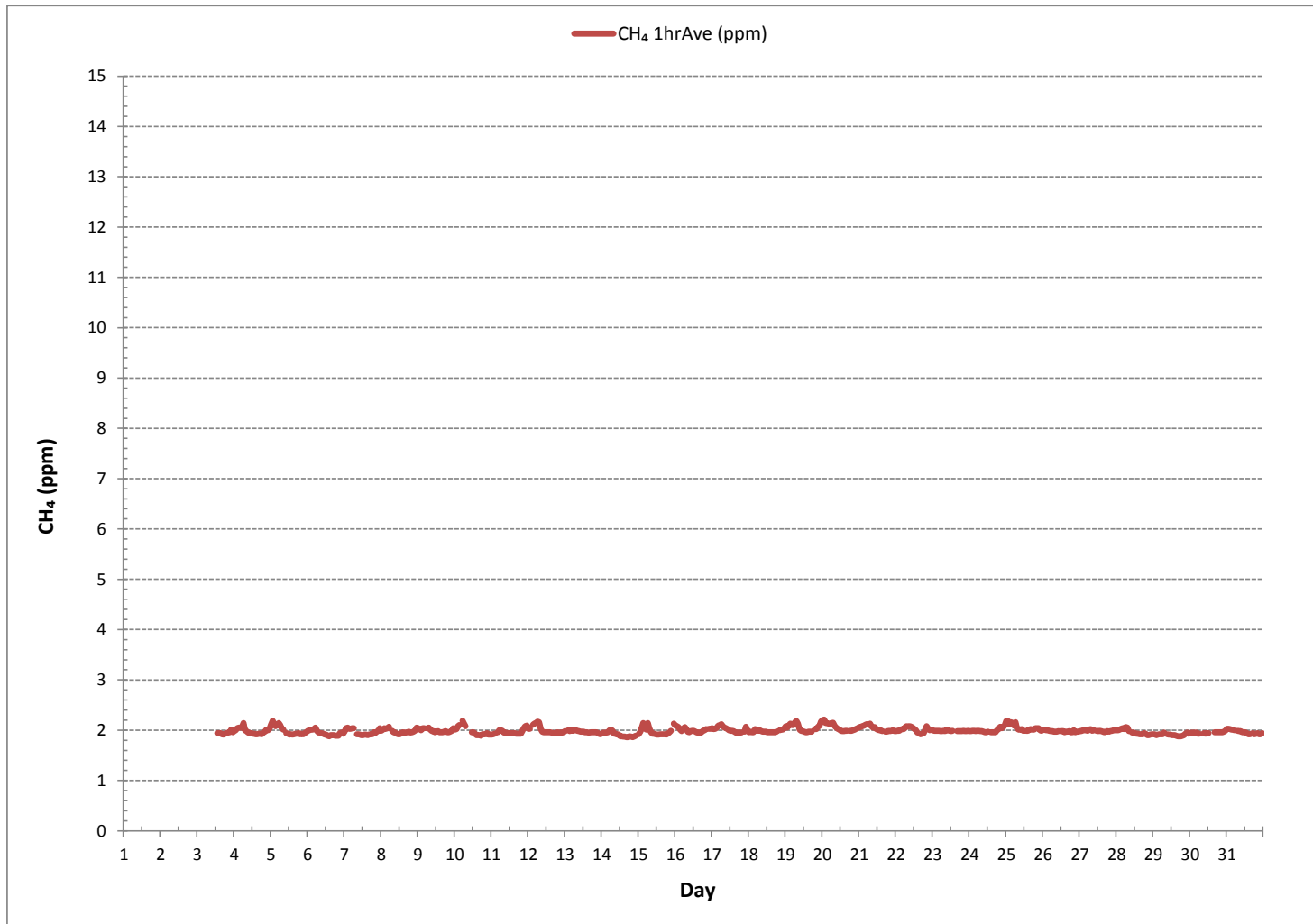
24 HR AVERAGES August 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	647			
MINIMUM 1-HR AVERAGE:	1.86	ppm @ HOUR	16	ON DAY 14
MAXIMUM 1-HR AVERAGE:	2.21	ppm @ HOUR	1	ON DAY 20
MAXIMUM 24-HR AVERAGE:	2.06	ppm		ON DAY 20
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	679 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.3 %
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	1.99 ppm

METHANE Hourly Averages (CH₄ ppm)



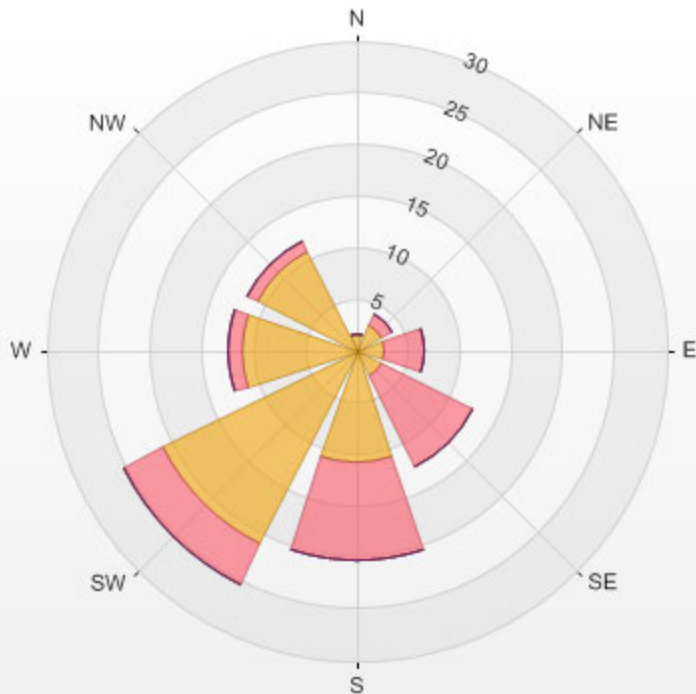
Wind: PRAMP_842
Poll.: PRAMP_842-CH₄[ppm]
Monthly: 18/08
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.27%

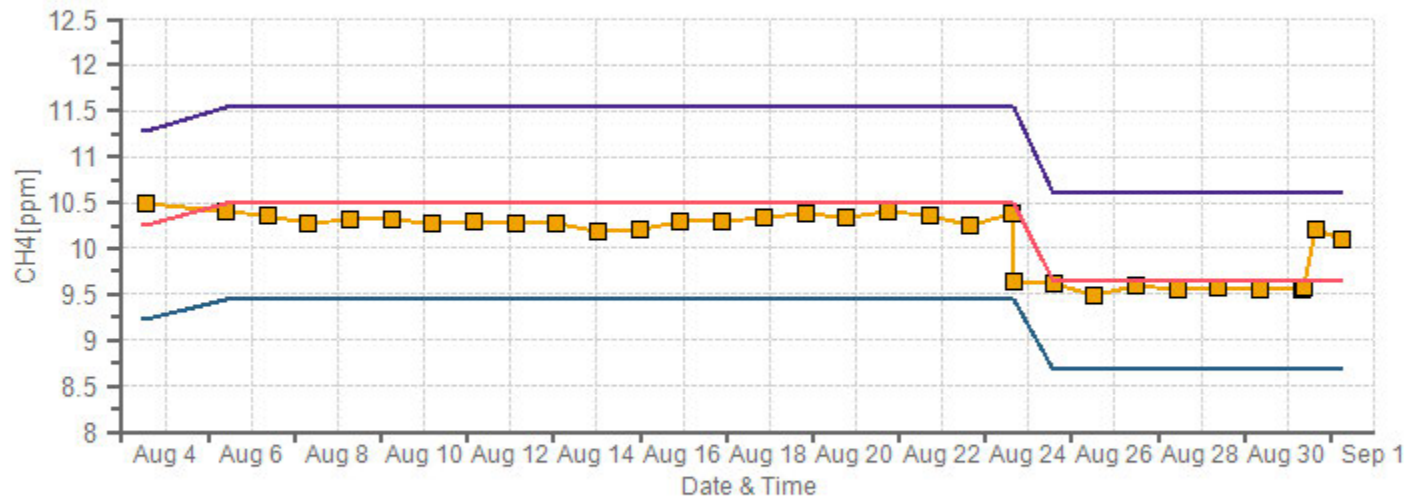
Calm Avg: 2.05 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	1.6	0.2	0.0	0.0	0.0	1.7
NE	2.8	1.1	0.0	0.0	0.0	3.9
E	2.8	3.9	0.0	0.0	0.0	6.7
SE	2.6	9.9	0.0	0.0	0.0	12.6
S	10.9	9.5	0.0	0.0	0.0	20.3
SW	20.9	4.3	0.0	0.0	0.0	25.3
W	11.2	1.2	0.0	0.0	0.0	12.4
NW	10.7	1.2	0.0	0.0	0.0	11.9
Summary	63.4	31.3	0.0	0.0	0.0	94.7

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 5.27% Calm Poll Avg: 2.05[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/08 Type: Span



Span Meas Span Ref Span Low Span High

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

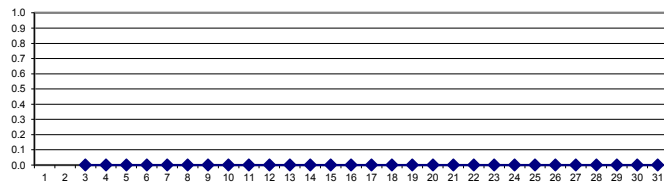
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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

STATUS FLAG CODES

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

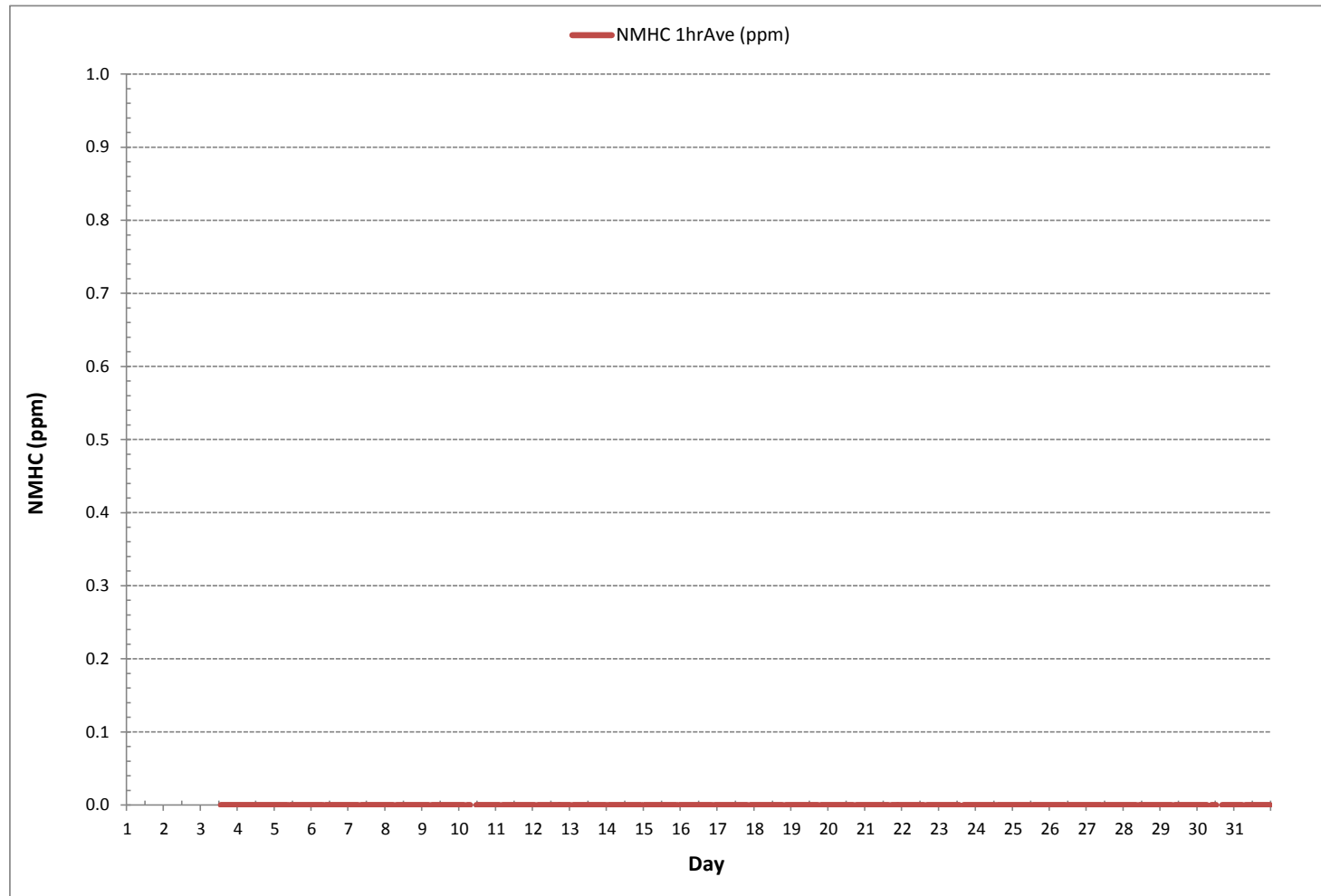
24 HR AVERAGES August 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	13	ON DAY 3
MAXIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	13	ON DAY 3
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 3
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	679	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	91.3	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



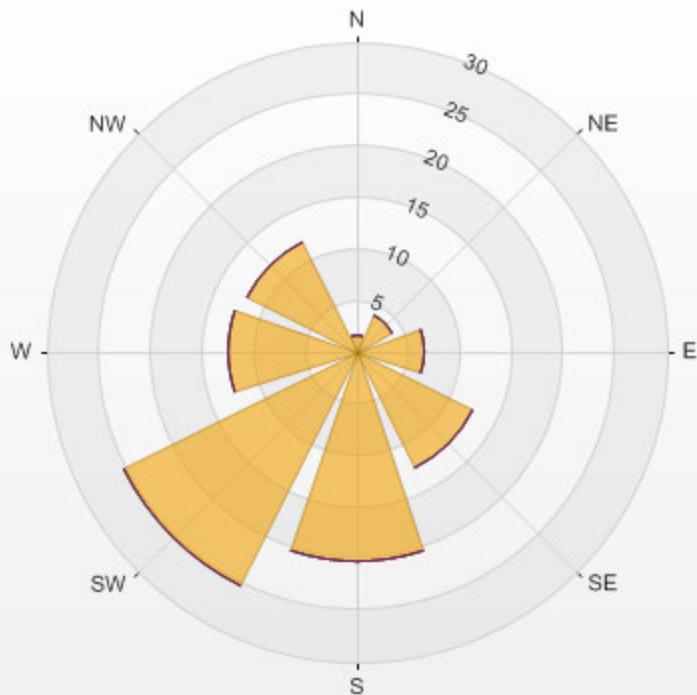
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 18/08
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.27%

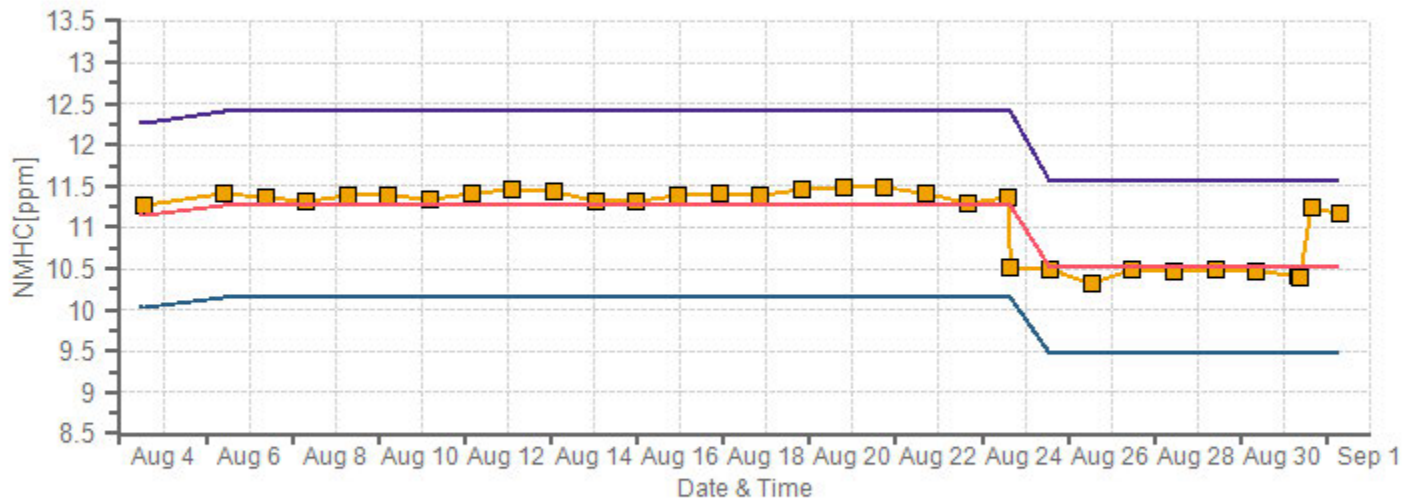
Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	1.7	0.0	0.0	0.0	0.0	1.7
NE	3.9	0.0	0.0	0.0	0.0	3.9
E	6.7	0.0	0.0	0.0	0.0	6.7
SE	12.6	0.0	0.0	0.0	0.0	12.6
S	20.3	0.0	0.0	0.0	0.0	20.3
SW	25.3	0.0	0.0	0.0	0.0	25.3
W	12.4	0.0	0.0	0.0	0.0	12.4
NW	11.9	0.0	0.0	0.0	0.0	11.9
Summary	94.7	0.0	0.0	0.0	0.0	94.7

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 5.27% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/08 Type: Span



Span Meas Span Ref Span Low Span High

WIND SPEED



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

WIND SPEED Hourly Averages (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	5.6	6.8	6.2	4
3	6.0	5.9	7.6	7.8	5.0	4.5	8.2	10.8	12.0	11.9	11.5	12.9	12.7	12.7	14.8	11.6	15.9	5.2	8.4	7.8	5.0	2.9	3.5	2.8	2.8	15.9	7.2	24
4	1.5	2.1	2.5	0.8	0.8	1.5	0.7	2.8	5.9	3.3	5.3	6.7	8.3	11.4	11.1	11.3	10.1	8.2	4.0	1.6	3.2	3.1	0.7	2.5	0.7	11.4	3.0	24
5	1.9	4.1	2.6	2.4	3.0	4.0	5.6	6.9	8.3	8.8	11.0	13.2	13.3	13.5	13.8	13.8	14.2	14.1	9.0	8.4	9.8	8.0	8.9	7.8	1.9	14.2	7.6	24
6	8.2	8.2	4.2	7.3	8.7	9.2	10.6	11.1	12.2	13.3	16.0	17.3	18.4	16.8	15.5	13.6	14.4	11.2	10.1	8.6	7.3	5.9	2.4	5.6	2.4	18.4	9.7	24
7	4.9	2.7	2.5	0.8	2.6	2.6	2.8	3.7	7.9	7.8	8.7	7.5	8.8	11.8	10.9	8.5	6.4	3.6	4.3	4.6	4.0	3.2	1.9	2.2	0.8	11.8	4.5	24
8	3.3	1.2	2.1	3.2	5.9	4.0	4.5	7.3	8.7	11.1	13.9	14.8	13.7	16.9	14.8	16.6	15.4	16.0	15.6	12.0	10.4	5.9	5.5	6.2	1.2	16.9	9.0	24
9	5.4	8.5	7.9	6.2	7.7	8.5	4.6	4.6	7.6	7.3	8.3	10.3	10.9	12.8	14.8	15.6	10.7	7.9	8.1	7.5	9.4	11.1	10.1	12.2	4.6	15.6	7.9	24
10	11.3	4.3	7.0	6.3	4.3	3.6	3.3	7.3	7.0	9.7	13.9	13.2	16.4	19.6	19.5	19.3	11.9	9.1	5.4	8.8	6.0	4.0	7.4	4.8	3.3	19.6	7.1	24
11	5.1	4.5	3.7	3.5	3.7	2.0	2.7	3.2	6.0	5.0	7.5	6.1	9.1	9.6	7.3	5.7	6.5	7.0	5.2	3.1	3.4	2.9	3.2	3.2	2.0	9.6	3.1	24
12	5.1	2.2	3.6	3.4	1.3	1.2	1.9	1.8	4.2	4.8	9.0	7.8	7.4	7.0	8.0	10.4	12.1	11.7	12.1	9.3	8.7	9.2	9.3	7.9	1.2	12.1	4.4	24
13	9.5	9.0	8.4	11.2	10.2	10.8	13.0	13.4	16.0	18.0	19.4	21.3	21.0	21.5	23.6	23.1	18.6	15.4	12.1	12.1	11.8	11.6	12.1	11.0	8.4	23.6	14.5	24
14	11.8	8.6	9.4	10.0	6.9	4.7	4.2	6.2	7.1	11.0	15.3	17.5	18.9	19.8	19.8	22.5	19.8	18.3	10.7	12.1	14.3	12.8	7.8	7.0	4.2	22.5	11.4	24
15	4.5	1.0	0.8	1.0	2.8	2.7	2.0	4.1	8.6	10.4	11.8	13.0	10.0	10.1	9.4	8.5	9.0	5.3	3.3	1.8	2.0	2.2	2.9	5.2	0.8	13.0	1.9	24
16	5.7	6.1	6.3	8.8	10.6	7.0	6.5	7.7	13.6	13.9	18.8	16.1	12.5	13.4	14.2	12.0	12.5	12.2	12.2	9.8	6.4	6.8	6.5	5.3	5.3	18.8	8.7	24
17	7.3	6.7	7.2	7.3	9.1	5.8	6.1	8.6	10.6	10.4	10.9	12.7	14.7	18.3	19.7	19.1	20.0	13.8	13.1	11.2	7.2	4.6	5.8	3.4	3.4	20.0	8.8	24
18	6.0	12.4	11.9	4.5	5.3	6.3	6.6	8.4	12.5	16.0	16.0	20.3	16.9	17.8	15.4	13.1	10.5	12.6	9.4	4.7	3.2	1.9	1.7	1.6	1.6	20.3	7.5	24
19	1.6	2.4	1.7	1.2	1.8	1.9	1.0	1.2	2.5	5.6	7.5	7.3	8.6	8.9	11.2	11.0	9.1	8.3	3.2	0.5	0.7	0.4	1.2	1.4	0.4	11.2	2.7	24
20	1.4	1.8	3.2	3.2	3.3	3.3	3.6	3.9	7.0	8.7	11.7	12.1	15.2	19.3	17.7	16.6	16.5	13.3	11.2	9.1	9.3	8.4	7.1	6.6	1.4	19.3	7.4	24
21	4.7	4.6	5.0	5.8	4.2	3.8	5.0	5.0	6.0	7.3	9.4	11.3	14.0	14.6	14.2	14.1	12.9	13.7	12.4	10.5	11.7	8.5	5.8	13.2	3.8	14.6	8.5	24
22	13.9	13.8	12.1	9.4	12.7	10.2	7.0	9.9	10.6	12.6	13.0	16.0	15.1	18.2	17.9	17.4	15.2	C	C	13.0	9.1	6.2	6.8	9.0	6.2	18.2	8.8	24
23	9.0	8.6	6.8	7.5	6.5	8.9	8.4	6.4	7.8	4.8	4.3	5.5	6.1	6.2	5.5	4.6	7.4	7.2	7.9	5.5	9.2	7.7	6.9	7.4	4.3	9.2	3.2	24
24	7.7	9.9	6.8	7.2	8.3	9.2	8.7	8.6	7.3	8.7	9.4	9.2	7.9	7.8	3.8	0.5	1.9	4.0	3.8	3.5	4.1	4.6	6.5	7.8	0.5	9.9	3.7	24
25	6.8	6.4	6.4	6.0	5.1	4.7	5.3	4.6	4.7	4.9	5.9	5.8	7.4	6.6	9.6	9.7	5.8	4.1	3.6	3.5	7.6	7.7	6.0	3.8	3.5	9.7	4.9	24
26	4.1	5.6	6.6	9.9	8.9	8.2	9.2	10.0	9.6	8.8	7.5	7.8	6.7	7.7	8.2	8.8	8.2	5.5	4.0	2.6	2.5	4.4	4.4	5.0	2.5	10.0	4.4	24
27	4.4	5.1	3.9	2.0	1.1	2.4	3.0	4.8	8.3	7.2	9.1	11.2	11.5	15.3	15.6	17.2	13.8	10.8	10.6	10.4	11.5	9.9	7.8	6.7	1.1	17.2	7.3	24
28	5.9	4.1	2.0	2.3	2.6	2.9	1.5	3.8	7.2	7.1	8.7	8.1	7.3	7.0	4.8	4.3	9.1	8.6	4.8	10.5	6.0	6.3	7.8	9.2	1.5	10.5	3.8	24
29	7.5	7.6	9.0	6.0	8.4	8.2	10.4	9.8	12.2	10.0	12.1	14.5	13.6	17.6	12.9	11.7	8.0	5.5	4.5	7.9	3.2	4.9	4.0	3.4	3.2	17.6	7.2	24
30	5.2	6.2	6.8	7.6	8.5	6.4	7.0	10.9	8.5	11.3	12.5	10.9	12.7	9.8	9.2	11.0	9.2	5.0	1.7	4.5	5.1	1.3	1.1	1.1	1.1	12.7	6.4	24
31	2.4	3.5	5.7	7.4	8.3	11.0	14.0	11.4	12.6	14.7	15.8	18.0	18.5	21.7	22.5	22.4	20.2	20.9	16.4	15.5	15.2	4.6	8.8	5.0	2.4	22.5	11.0	24
HOURLY MAX	13.9	13.8	12.1	11.2	12.7	11.0	14.0	13.4	16.0	18.0	19.4	21.3	21.0	21.7	23.6	23.1	20.2	20.9	16.4	15.5	15.2	12.8	12.1	13.2				

STATUS FLAG CODES

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

LAST CALIBRATION:

August 22, 2018

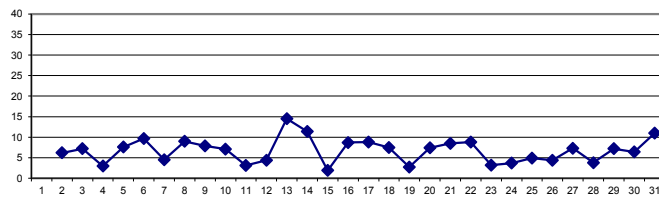
DECLINATION :

MAGNETIC DECLINATION 15 DEGREE EAST

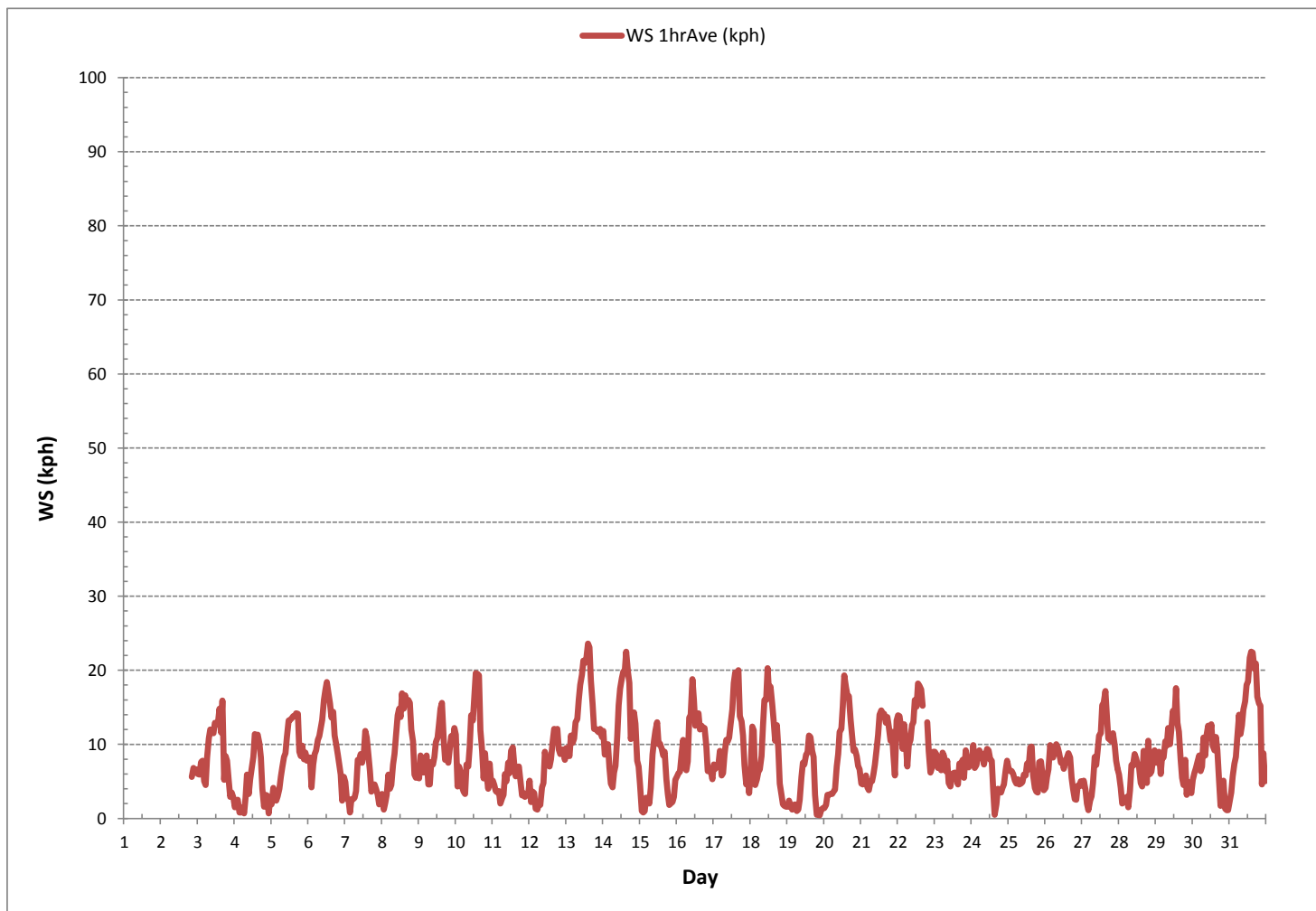
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	698				
MINIMUM 1-HR AVERAGE	0.4	kph	@ HOUR	21	ON DAY 19
MAXIMUM 1-HR AVERAGE:	23.6	kph	@ HOUR	14	ON DAY 13
MAXIMUM 24-HR AVERAGE:	14.5	kph			ON DAY 13
MONTHLY CALIBRATION TIME:	2	hrs	OPERATIONAL TIME:	700	hrs
STANDARD DEVIATION:	4.7		AMD OPERATION UPTIME:	94.1	%
			MONTHLY AVERAGE:	4.8	kph

24 HR AVERAGES August 2018



WIND SPEED Hourly Averages (WS kph)



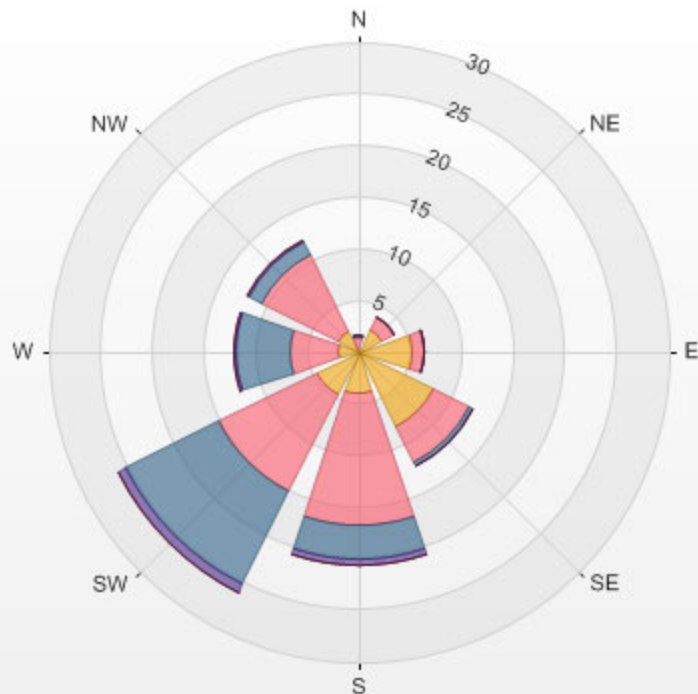
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/08
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 4.87%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	0.3	1.2	0.1	0.0	0.0	0.0	1.6
NE	2.4	1.4	0.0	0.0	0.0	0.0	3.9
E	5.2	1.3	0.0	0.0	0.0	0.0	6.5
SE	8.2	3.9	0.3	0.0	0.0	0.0	12.3
S	4.2	12.6	3.3	0.6	0.0	0.0	20.6
SW	4.6	10.6	10.0	0.9	0.0	0.0	26.1
W	2.0	4.7	5.2	0.3	0.0	0.0	12.2
NW	2.2	8.5	1.3	0.1	0.0	0.0	12.0
Summary	29.0	44.1	20.2	1.9	0.0	0.0	95.2

%	Icon	Classes (kph)
29		1.8-6.0
44		6.0-12.0
20		12.0-20.0
2		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_842 2018/08/01 00:00 - 2018/08/31 23:00 Calm: 4.87% Calm Wind Avg Speed: 1.14(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

WIND DIRECTION Hourly Averages (WD)

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

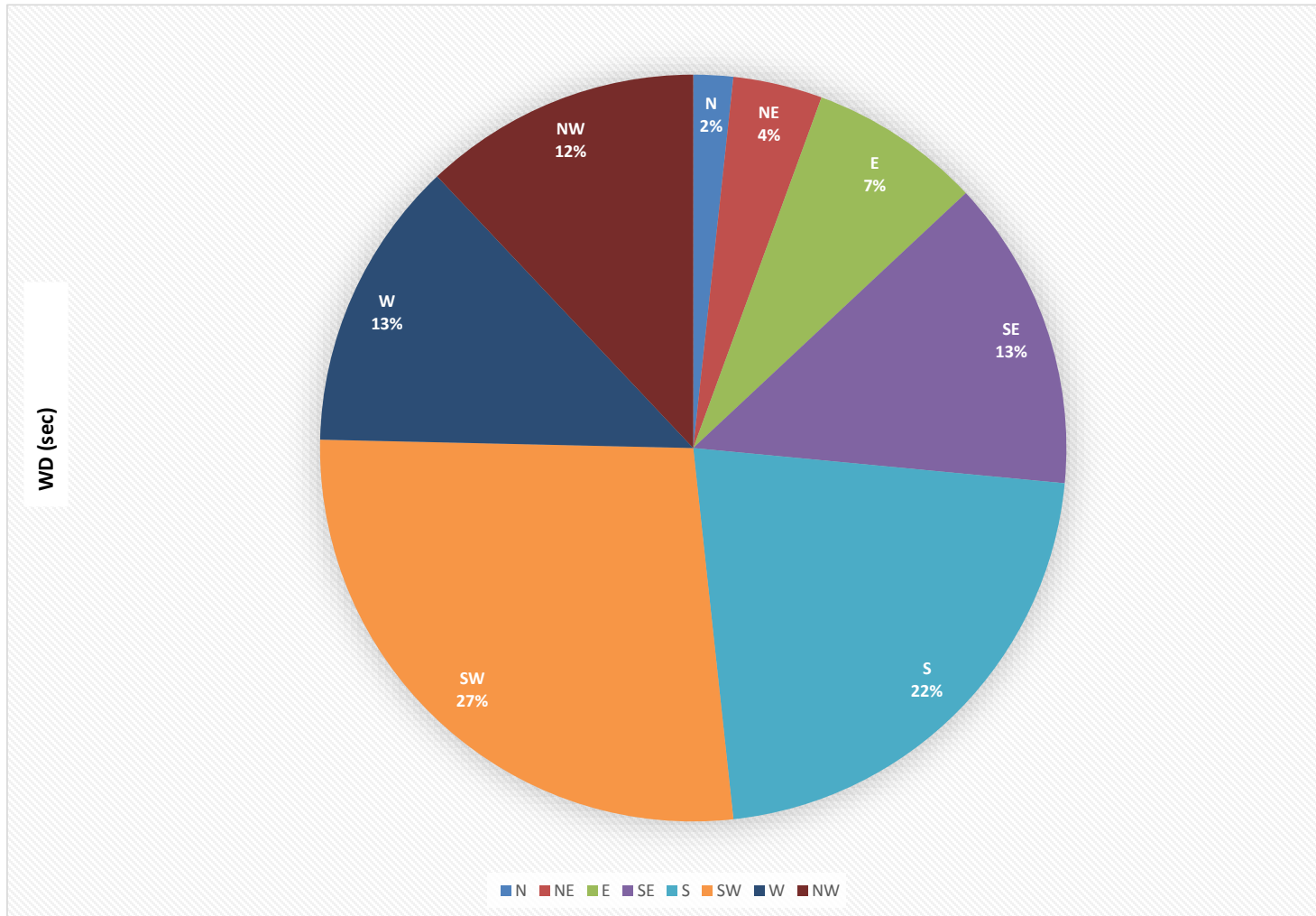
STATUS FLAG CODES

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

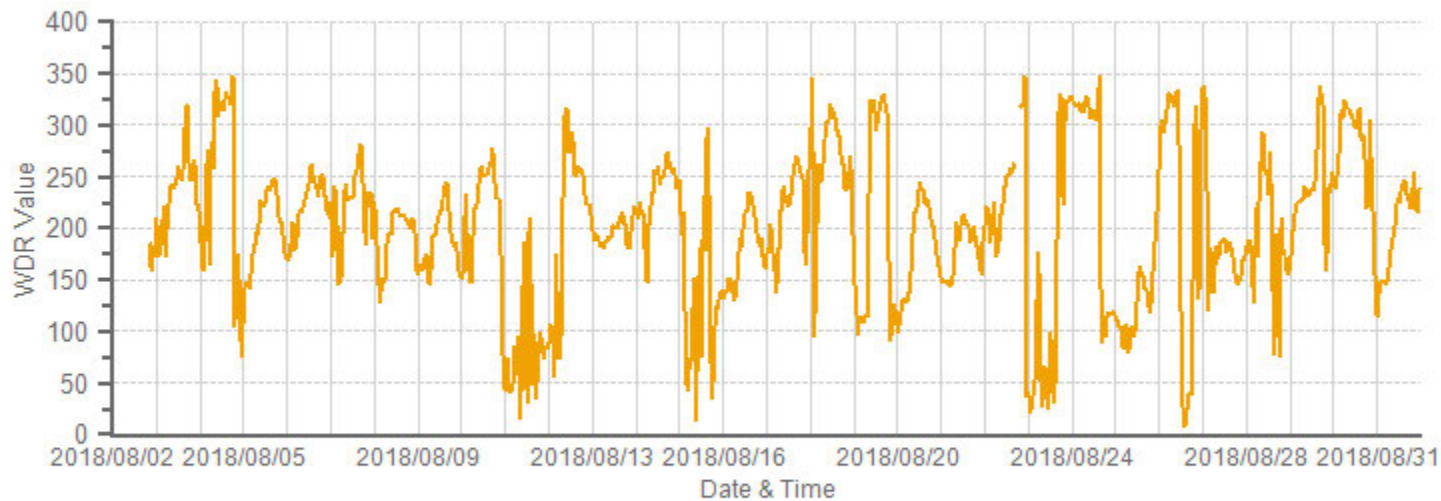
LAST CALIBRATION:	August 22, 2018
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	2	hrs	OPERATIONAL TIME:	700	hrs
STANDARD DEVIATION:	73		AMD OPERATION UPTIME:	94.1	%
			MONTHLY AVERAGE:	224 (SW)	

WIND DIRECTION Hourly Averages (WD)



WDR[degwdr] Station: PRAMP_842 Monthly: 18/08 Type: AVG 1 Hr. [1 Hr.]



— WDR[degwdr]

RELATIVE HUMIDITY

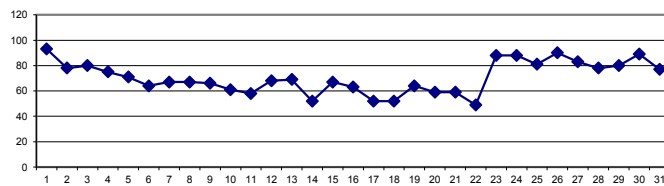
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	92	93	92	93	93	2
2	93	93	94	94	94	94	92	89	81	79	71	71	67	62	60	60	59	60	62	68	73	79	84	85	59	94	78	24
3	84	88	89	85	85	87	83	78	73	69	65	62	59	58	59	70	85	84	87	90	91	92	93	94	58	94	80	24
4	94	94	94	93	94	94	94	88	82	70	63	58	50	52	54	49	48	51	61	70	75	83	88	92	48	94	75	24
5	93	93	93	93	93	92	90	86	77	71	66	61	57	53	50	49	49	49	54	61	67	68	73	75	49	93	71	24
6	79	80	81	83	83	83	75	71	69	65	57	54	51	46	48	49	48	56	57	55	59	64	68	66	46	83	64	24
7	67	77	75	81	76	79	78	72	65	62	59	56	55	53	53	52	53	55	66	71	71	77	81	80	52	81	67	24
8	79	85	87	88	87	86	84	73	63	58	54	50	48	51	50	48	50	52	56	59	68	70	73	80	48	88	67	24
9	83	80	76	79	78	75	78	78	73	68	65	61	60	56	47	42	43	49	54	60	67	64	69	68	42	83	66	24
10	67	71	76	74	82	85	77	68	64	61	52	51	49	43	38	38	42	46	56	62	66	68	60	63	38	85	61	24
11	65	70	78	83	86	90	85	66	60	51	46	40	37	36	33	37	39	38	39	49	60	73	71	71	33	90	58	24
12	65	73	80	82	87	90	90	84	74	65	64	60	57	53	51	48	50	50	54	61	71	75	77	80	48	90	68	24
13	83	84	90	91	92	92	90	86	77	67	62	54	51	49	49	45	49	52	56	64	71	72	70	70	45	92	69	24
14	70	70	70	68	71	79	80	67	57	51	43	40	34	33	33	30	31	31	41	44	44	48	56	63	30	80	52	24
15	66	78	84	88	84	87	87	77	71	60	60	55	46	47	45	44	46	45	50	66	78	84	85	78	44	88	67	24
16	80	78	80	77	80	83	83	79	70	60	59	55	55	50	32	34	33	40	48	56	62	67	72	78	32	83	63	24
17	78	78	76	80	82	85	84	72	60	51	40	35	32	28	24	21	20	24	30	33	39	47	66	57	20	85	52	24
18	57	52	53	62	82	79	76	65	52	43	40	35	32	30	29	29	30	34	40	50	56	68	69	80	29	82	52	24
19	80	83	85	87	90	92	92	84	72	52	43	39	35	31	28	28	30	33	44	68	80	85	85	88	28	92	64	24
20	90	91	91	87	87	86	84	82	72	59	52	44	37	31	32	32	30	32	36	44	46	52	61	64	30	91	59	24
21	71	74	78	81	85	87	85	83	75	67	63	51	44	38	35	32	33	32	37	46	53	58	63	56	32	87	59	24
22	57	54	55	55	52	51	60	59	54	46	40	33	30	28	25	24	25	32	41	53	72	77	80	80	24	80	49	24
23	82	81	80	81	81	83	90	91	87	86	85	85	86	85	85	87	90	93	94	94	94	95	95	95	80	95	88	24
24	95	95	95	96	96	96	96	96	96	96	95	92	87	83	79	73	73	71	75	80	86	88	90	90	71	96	88	24
25	91	91	91	91	91	92	88	88	85	80	75	68	64	71	68	68	66	70	75	80	83	87	90	92	64	92	81	24
26	93	94	94	95	95	94	94	94	93	93	93	90	88	87	87	85	83	83	79	84	89	90	91	93	79	95	90	24
27	93	94	93	94	94	94	94	95	94	91	86	85	82	75	67	65	67	68	73	76	78	78	80	83	65	95	83	24
28	84	85	89	90	93	94	94	89	77	72	68	58	53	49	53	59	55	68	88	88	91	91	91	92	49	94	78	24
29	93	91	90	90	90	90	87	84	80	78	76	70	66	57	60	58	68	69	73	84	92	93	93	93	57	93	80	24
30	94	94	94	94	94	94	94	94	93	92	90	88	83	80	76	72	80	87	89	91	89	91	93	93	72	94	89	24
31	95	95	95	95	96	95	93	90	86	81	73	67	68	61	54	52	54	54	59	64	70	88	86	87	52	96	77	24
HOURLY MAX	95	95	95	96	96	96	96	96	96	96	95	92	88	87	87	87	90	93	94	94	94	95	95	95				
HOURLY AVG	81	82	84	85	86	87	86	81	74	68	64	59	55	53	50	49	51	54	59	66	71	76	79	80				

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

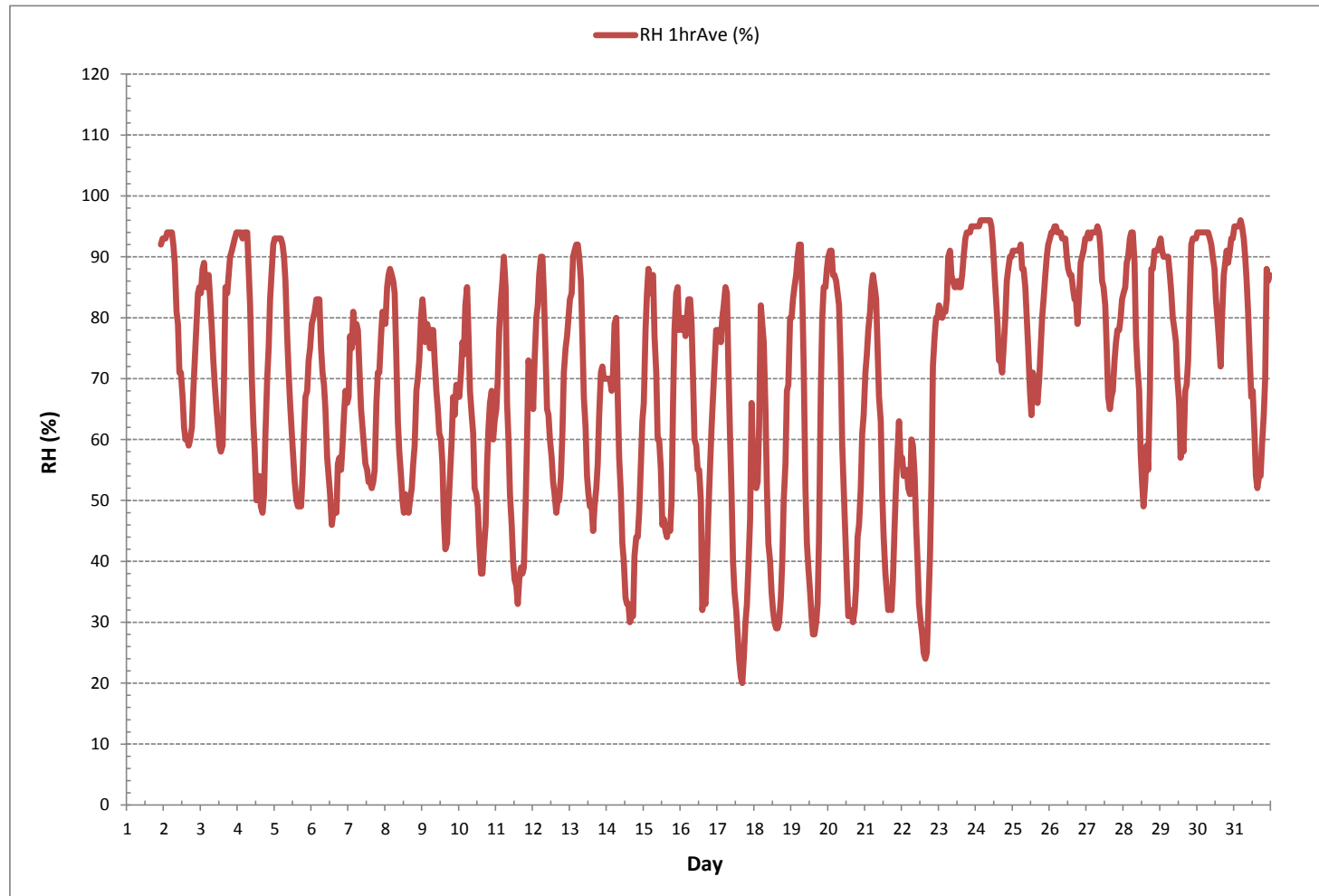
24 HR AVERAGES August 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	20	%	@ HOUR	16	ON DAY	17
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	3	ON DAY	24
MAXIMUM 24-HR AVERAGE:	90	%			ON DAY	1
OPERATIONAL TIME:						722 hrs
AMD OPERATION UPTIME:						97.0 %
STANDARD DEVIATION:	19		MONTHLY AVERAGE:			70 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE

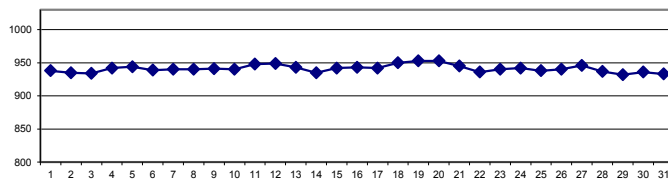
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	938	938	938	938	938	2
2	938	938	938	937	937	937	937	937	936	936	936	936	935	935	935	934	934	934	933	933	933	933	933	933	933	933	938	935	24
3	932	932	932	932	932	932	932	932	933	933	933	933	933	933	933	934	936	936	936	937	938	939	939	939	939	932	939	934	24
4	939	939	939	940	940	940	941	941	941	941	942	942	942	942	942	943	943	943	943	943	944	944	944	945	945	939	945	942	24
5	945	945	945	945	945	945	945	945	945	945	945	944	944	944	944	943	943	942	942	942	942	942	942	941	941	941	945	944	24
6	941	941	941	941	940	940	940	939	939	939	938	938	938	938	938	938	937	937	937	938	938	938	938	938	937	941	939	24	
7	938	938	938	938	939	939	939	939	940	940	940	940	940	940	940	940	940	940	940	940	940	940	941	941	941	938	941	940	24
8	941	941	941	941	941	941	941	941	941	941	940	940	940	940	940	939	939	938	938	938	939	939	940	940	938	941	940	24	
9	940	940	941	940	941	941	941	941	942	941	941	941	941	941	941	941	941	940	940	940	940	940	940	940	939	939	942	941	24
10	939	939	939	939	939	939	939	940	940	940	940	940	940	940	940	940	939	939	939	940	941	941	942	944	939	944	940	24	
11	945	945	946	947	947	947	948	949	949	949	949	949	949	949	948	948	948	948	947	947	948	948	948	949	945	949	948	24	
12	948	949	948	948	949	949	950	950	950	950	950	950	949	949	949	949	949	949	949	949	949	949	949	949	948	950	949	24	
13	949	949	948	948	948	947	947	947	946	945	945	944	943	942	941	940	940	939	938	938	937	937	936	936	936	936	949	943	24
14	936	936	936	936	936	936	936	936	936	936	935	935	934	934	934	933	933	933	933	933	934	934	934	935	933	936	935	24	
15	936	936	937	937	938	938	939	940	940	941	942	942	943	943	944	944	944	944	944	944	944	945	945	945	945	936	945	942	24
16	945	945	945	945	945	945	945	945	945	944	944	943	943	942	942	942	942	941	941	942	942	942	942	943	941	945	943	24	
17	943	942	942	943	943	943	943	943	943	942	942	942	942	942	941	941	941	941	941	942	942	943	943	944	941	944	942	24	
18	944	946	947	948	949	949	950	951	951	952	952	952	952	952	951	951	951	951	950	950	951	951	951	951	944	952	950	24	
19	951	951	951	952	952	952	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	954	954	954	951	954	953	24	
20	955	955	955	955	955	955	955	955	955	955	954	954	953	953	952	951	950	950	949	949	949	949	949	949	949	955	953	24	
21	948	948	948	948	948	948	947	947	947	947	947	946	945	945	945	944	943	942	941	940	940	940	939	939	939	948	945	24	
22	938	938	937	937	937	936	937	936	936	936	936	935	935	935	935	934	934	934	934	934	936	936	937	937	934	938	936	24	
23	938	938	938	938	939	940	940	940	940	940	940	940	940	940	941	940	941	941	941	941	942	942	942	941	938	942	940	24	
24	941	941	941	942	942	942	942	942	943	943	943	943	943	943	943	943	943	942	942	942	942	942	941	941	941	943	942	24	
25	940	940	940	939	939	939	939	939	939	939	939	938	938	938	938	938	938	938	938	937	937	937	936	936	936	940	938	24	
26	936	936	936	936	936	936	936	936	936	937	938	938	939	940	941	942	942	943	944	945	946	947	947	948	936	948	940	24	
27	948	949	949	949	949	949	949	949	949	949	948	947	946	946	945	944	943	942	942	941	940	940	940	939	939	949	946	24	
28	939	939	938	938	938	938	938	938	938	938	938	938	938	937	937	936	936	935	935	935	935	935	934	934	934	939	937	24	
29	934	933	933	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	932	933	933	933	933	933	932	934	932	24	
30	933	933	933	933	933	933	934	934	935	935	936	936	936	936	936	936	937	937	937	938	938	938	938	938	933	938	936	24	
31	938	937	936	936	935	935	934	934	934	933	933	932	932	932	931	931	931	931	930	930	931	931	931	932	930	938	933	24	
HOURLY MAX	955	955	955	955	955	955	955	955	955	955	954	954	953	953	953	953	953	953	953	953	953	954	954	954					
HOURLY AVG	941	941	941	941	941	941	942	942	942	942	942	941	941	941	941	941	941	941	941	940	940	941	941	941	941				

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

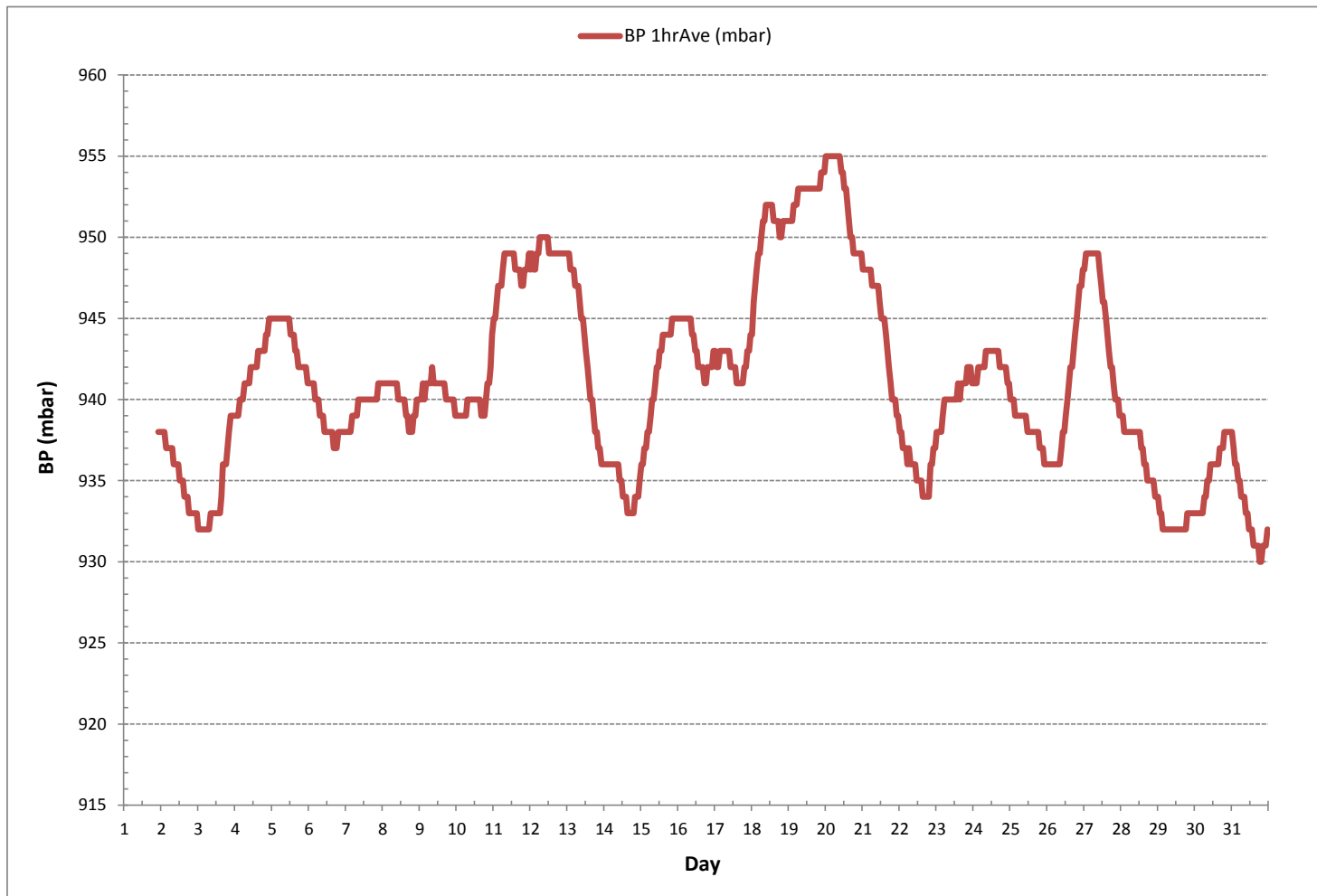
24 HR AVERAGES August 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	930	mbar	@ HOUR	18	ON DAY	31
MAXIMUM 1-HR AVERAGE:	955	mbar	@ HOUR	0	ON DAY	20
MAXIMUM 24-HR AVERAGE:	959	mbar			ON DAY	19
OPERATIONAL TIME:						722 hrs
AMD OPERATION UPTIME:						97.0 %
STANDARD DEVIATION:	6				MONTHLY AVERAGE:	940 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

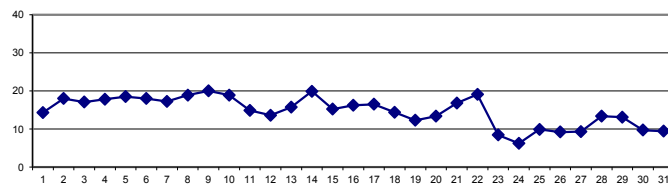
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	14.6	14.0	14.0	14.6	14.3	2
2	14.4	13.9	13.2	12.5	12.0	11.9	12.7	14.5	17.3	18.3	20.5	21.1	21.6	22.6	22.5	22.9	22.9	22.9	22.5	21.0	19.3	17.7	16.7	16.1	11.9	22.9	18.0	24	
3	15.9	14.4	13.7	13.8	13.5	12.7	14.0	15.8	17.6	19.1	20.5	21.6	22.7	23.6	23.8	20.9	15.6	16.2	16.7	16.1	16.0	15.7	15.3	15.2	12.7	23.8	17.1	24	
4	14.8	14.7	14.6	14.3	13.3	13.5	13.5	16.3	17.3	19.0	20.7	21.6	22.5	22.6	22.5	22.6	22.6	22.5	21.2	19.1	17.4	15.2	13.8	12.7	12.7	22.6	17.8	24	
5	11.8	12.2	11.9	11.7	11.5	11.6	12.7	14.6	16.9	19.2	20.7	21.8	22.8	23.6	24.1	24.5	24.5	24.4	23.9	22.4	20.8	19.7	18.3	17.3	11.5	24.5	18.5	24	
6	16.4	15.8	15.1	14.3	13.8	13.3	15.1	16.2	17.1	18.6	20.7	22.1	22.8	21.8	21.2	20.8	21.5	20.7	20.6	19.7	18.0	16.3	15.5	15.6	13.3	22.8	18.0	24	
7	15.0	12.9	12.5	11.7	12.2	11.7	12.1	14.2	16.0	17.3	18.8	20.1	20.7	21.5	21.8	22.6	22.7	23.0	21.3	19.8	18.7	16.5	14.8	14.3	11.7	23.0	17.2	24	
8	14.4	12.7	12.0	11.0	11.1	10.9	12.1	15.8	18.4	20.1	21.3	22.6	24.0	24.1	24.4	24.5	24.6	24.3	23.6	22.5	21.3	20.4	19.1	17.4	10.9	24.6	18.9	24	
9	16.0	15.5	15.2	14.3	14.1	14.6	14.1	14.5	16.8	19.0	20.1	21.2	22.5	24.1	26.2	26.6	26.6	26.0	24.9	23.4	21.9	21.9	20.5	19.9	14.1	26.6	20.0	24	
10	19.0	18.0	16.9	17.4	15.7	15.1	16.0	16.6	17.3	18.5	19.6	20.2	21.4	23.0	23.6	23.5	23.5	22.8	21.3	19.5	17.9	15.9	16.3	14.9	14.9	23.6	18.9	24	
11	13.9	12.4	10.6	8.9	7.9	7.0	8.8	13.8	15.2	17.2	18.3	19.3	19.6	20.1	20.8	20.1	19.6	19.6	18.8	16.8	14.4	12.1	11.8	11.5	7.0	20.8	14.9	24	
12	12.3	11.2	10.6	10.2	9.0	8.6	8.9	10.5	13.0	14.6	15.1	16.0	16.6	17.5	17.8	18.4	18.2	17.8	16.9	15.6	13.2	12.1	11.6	10.8	8.6	18.4	13.6	24	
13	10.5	9.6	8.5	9.0	8.3	8.3	9.0	10.5	12.7	14.7	16.4	18.3	19.6	20.5	21.3	22.0	21.6	21.6	21.4	20.1	19.0	18.5	18.0	17.0	8.3	22.0	15.7	24	
14	16.4	16.2	15.6	15.5	14.3	12.4	12.4	15.5	17.8	20.0	22.0	23.2	24.5	25.4	25.5	26.3	26.5	26.0	23.4	21.9	21.2	20.2	18.2	16.2	12.4	26.5	19.9	24	
15	15.1	12.9	11.8	11.1	12.0	11.2	11.0	15.0	15.4	16.2	15.8	16.7	18.8	19.3	19.2	19.6	19.7	19.3	18.9	16.8	14.1	11.9	10.9	11.4	10.9	19.7	15.2	24	
16	10.7	10.6	9.9	10.2	10.0	9.9	10.4	13.0	16.1	18.0	18.7	19.5	20.0	21.2	22.5	22.9	23.0	22.5	21.3	18.8	16.7	15.8	14.5	13.2	9.9	23.0	16.2	24	
17	13.2	13.0	12.9	11.4	10.0	8.8	9.0	11.8	14.4	16.9	19.2	20.7	22.0	22.5	23.3	23.6	23.6	23.1	21.5	19.6	17.4	15.2	11.3	12.7	8.8	23.6	16.5	24	
18	12.3	14.0	13.3	11.9	9.0	8.9	9.5	11.4	13.6	15.3	16.5	17.4	18.7	19.2	19.8	20.0	19.8	18.9	17.8	15.3	13.2	11.1	10.4	8.5	8.5	20.0	14.4	24	
19	7.9	7.2	7.0	6.6	5.4	4.8	4.8	8.2	11.6	14.3	16.2	17.9	18.9	20.2	20.5	20.4	19.9	19.6	17.7	14.0	10.7	8.6	7.4	6.4	4.8	20.5	12.3	24	
20	5.5	4.8	5.0	5.2	4.9	4.7	5.1	7.2	10.8	14.0	16.1	18.4	20.0	20.7	21.1	21.6	21.4	21.1	19.9	17.6	16.1	14.8	12.8	12.3	4.7	21.6	13.4	24	
21	10.6	10.2	9.5	8.9	8.1	7.7	8.5	10.2	13.2	15.6	17.5	20.4	22.4	23.8	24.3	25.0	24.9	24.8	23.6	21.3	19.7	18.2	16.6	18.1	7.7	25.0	16.8	24	
22	17.8	17.3	15.7	14.4	14.3	14.1	12.4	13.6	15.9	18.7	21.5	23.5	25.2	26.3	27.4	27.7	27.4	26.8	24.3	20.5	15.7	13.4	12.5	12.4	12.4	27.7	19.1	24	
23	11.3	10.7	10.4	10.5	10.4	9.6	8.2	8.8	8.9	8.9	9.0	9.0	8.7	8.6	8.7	8.5	7.8	7.0	6.7	6.5	6.2	5.5	5.4	5.1	5.1	11.3	8.4	24	
24	5.0	4.7	4.6	4.6	4.5	4.5	4.5	4.6	4.8	4.8	5.2	5.7	6.4	7.1	7.9	8.9	9.4	10.0	9.7	8.5	6.9	5.9	5.1	5.0	4.5	10.0	6.2	24	
25	4.5	4.2	4.4	4.6	4.3	4.8	6.1	6.7	8.0	9.4	11.2	12.8	13.7	13.4	14.0	14.2	14.7	14.3	13.7	12.8	12.4	12.0	11.4	11.0	4.2	14.7	9.9	24	
26	10.7	10.3	10.1	10.0	9.7	9.4	9.2	9.2	9.0	8.8	9.0	9.9	9.7	9.6	9.8	9.3	9.0	9.2	9.3	8.9	8.2	7.8	7.2	6.9	6.9	10.7	9.2	24	
27	6.7	6.7	6.6	6.3	5.8	5.5	5.4	5.5	6.3	7.2	8.5	9.0	10.0	11.4	12.9	13.2	13.1	13.4	12.9	12.1	11.6	11.6	11.4	11.1	5.4	13.4	9.3	24	
28	11.0	10.6	9.8	9.0	7.4	7.2	7.3	10.4	12.8	14.0	15.2	17.0	18.3	19.7	19.1	18.7	19.1	17.3	14.9	14.0	12.5	12.1	11.7	11.8	7.2	19.7	13.4	24	
29	11.8	12.3	12.4	11.8	11.4	10.7	10.8	11.4	12.5	13.3	14.5	15.7	16.2	17.5	17.1	17.1	15.0	15.7	14.8	11.9	10.5	9.9	9.8	9.5	9.5	17.5	13.1	24	
30	9.4	9.7	10.0	9.9	9.6	9.0	9.1	9.0	8.9	9.4	9.6	10.2	10.9	10.9	11.5	12.6	11.6	10.4	10.4	10.2	9.5	8.5	7.3	5.3	5.3	12.6	9.7	24	
31	4.1	3.9	3.8	3.5	3.7	4.4	5.1	6.6	8.4	10.1	11.6	12.6	12.8	14.1	15.1	14.8	14.8	14.5	13.6	12.7	11.7	8.6	8.4	7.5	3.5	15.1	9.4	24	
HOURLY MAX	19.0	18.0	16.9	17.4	15.7	15.1	16.0	16.6	18.4	20.1	22.0	23.5	25.2	26.3	27.4	27.7	27.4	26.8	24.9	23.4	21.9	21.9	20.5	19.9					
HOURLY AVG	11.9	11.4	10.9	10.5	9.9	9.6	9.9	11.7	13.5	15.0	16.3	17.5	18.5	19.2	19.7	19.8	19.5	19.2	18.3	16.6	15.1	13.8	12.9	12.3					

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

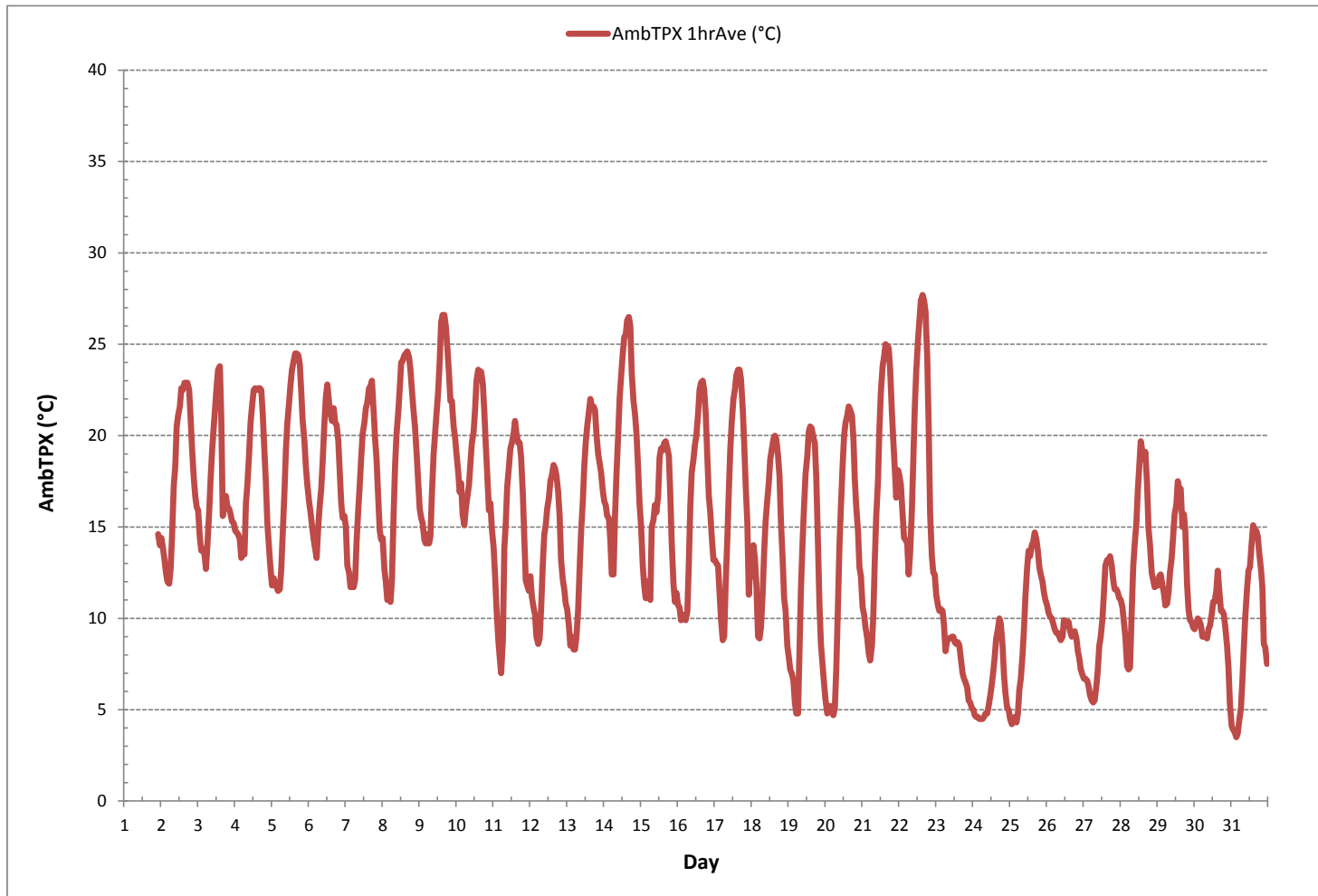
24 HR AVERAGES August 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	3.5	°C	@ HOUR	#####	ON DAY	31
MAXIMUM 1-HR AVERAGE:	27.7	°C	@ HOUR	15	ON DAY	22
MAXIMUM 24-HR AVERAGE:	20.0	°C			ON DAY	9
OPERATIONAL TIME:					722	hrs
AMD OPERATION UPTIME:					97.0	%
STANDARD DEVIATION:	5.6				MONTHLY AVERAGE:	14.7 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

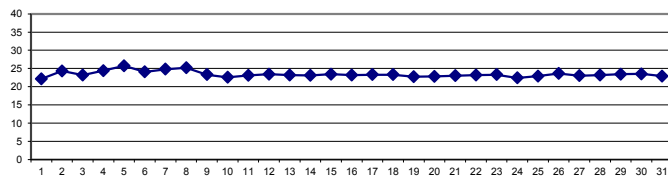
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	22.1	22.1	22.1	22.1	2
2	22.1	22.0	22.1	22.3	22.1	22.3	22.4	22.6	23.2	23.1	23.5	24.7	24.8	25.3	26.8	28.1	28.3	28.7	29.5	28.7	26.1	23.2	21.5	20.3	20.3	29.5	24.3	24	
3	19.9	20.1	20.1	20.1	20.2	20.1	20.4	21.1	22.1	22.5	24.1	26.3	27.5	27.8	27.3	26.8	25.8	23.6	23.8	22.3	22.4	23.3	23.8	24.1	24.4	19.9	27.8	23.2	24
4	25.1	25.1	25.1	25.6	26.9	26.6	24.9	22.0	22.2	22.3	22.8	23.2	23.5	23.6	23.8	24.0	24.1	24.1	23.3	21.6	22.6	26.3	28.0	28.9	21.6	28.9	24.4	24	
5	29.7	29.6	29.6	29.9	29.8	29.6	24.0	21.7	22.1	22.5	23.5	24.3	24.7	25.1	25.7	26.2	26.5	26.3	26.0	25.3	23.3	23.0	24.2	25.0	21.7	29.9	25.7	24	
6	25.6	26.0	27.0	28.0	27.6	28.0	22.8	21.9	21.9	22.0	22.2	23.4	24.0	23.3	22.2	21.7	21.7	21.7	21.6	23.6	26.5	26.6	26.9	21.6	28.0	24.1	24		
7	27.8	29.0	30.2	30.3	28.5	28.8	26.4	21.4	21.7	22.0	22.2	22.9	23.2	23.6	23.6	24.0	23.7	23.5	23.7	22.5	22.3	22.0	24.4	26.9	21.4	30.3	24.8	24	
8	26.7	28.0	28.6	29.3	29.3	29.1	23.2	22.9	23.1	23.1	23.6	24.1	24.8	25.3	25.7	26.0	26.2	26.0	25.2	24.6	22.8	22.4	22.2	21.9	21.9	29.3	25.2	24	
9	21.8	21.8	21.8	21.7	21.7	21.7	21.8	21.9	22.1	22.8	22.6	22.7	23.2	24.3	25.7	26.3	26.6	26.8	26.3	24.7	22.5	22.4	22.4	22.4	21.7	26.8	23.3	24	
10	22.3	22.2	21.8	21.9	21.9	21.7	21.8	21.9	22.4	22.8	21.7	22.7	23.1	23.0	22.9	22.9	23.0	23.0	23.1	23.3	23.5	23.5	23.6	23.4	21.7	23.6	22.6	24	
11	23.6	23.8	23.6	23.2	22.6	21.9	22.4	22.8	22.6	22.7	22.5	22.6	22.8	23.0	23.0	22.9	23.0	23.1	23.3	23.3	23.5	23.6	23.6	23.9	21.9	23.9	23.1	24	
12	23.6	23.4	23.8	23.6	23.7	23.7	23.8	23.6	23.3	23.2	23.0	23.2	23.0	23.0	23.0	23.0	23.0	23.0	23.2	23.2	23.4	23.6	23.7	24.1	24.0	23.0	24.1	23.4	24
13	23.8	23.6	23.3	23.0	22.8	22.6	22.7	23.4	23.1	23.1	23.1	23.1	23.1	23.2	23.2	23.1	23.1	23.1	23.1	23.4	23.4	23.4	23.4	23.6	22.6	23.8	23.2	24	
14	23.5	23.6	23.6	23.6	23.5	23.7	23.6	23.1	22.5	22.2	22.0	22.2	22.5	22.8	22.7	22.8	22.8	22.8	22.9	23.1	23.4	23.5	23.4	23.5	23.4	22.0	23.7	23.1	24
15	23.7	23.5	23.6	23.6	23.6	23.6	23.6	23.2	23.2	23.1	23.1	23.2	23.1	23.1	23.1	23.1	23.1	23.1	23.4	23.4	23.6	23.7	23.9	23.8	23.1	23.9	23.4	24	
16	23.5	23.4	23.1	22.9	22.8	22.8	23.0	23.2	23.0	23.2	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.2	23.2	23.6	23.7	23.4	23.7	22.8	23.7	23.2	24	
17	23.7	23.7	24.0	23.9	23.6	23.2	22.9	23.4	22.8	22.6	22.5	22.7	22.9	23.0	23.0	23.0	23.0	23.0	23.1	23.4	23.7	23.6	24.1	23.6	22.5	24.1	23.3	24	
18	23.7	23.7	23.7	23.7	23.8	23.4	23.1	23.3	23.0	22.8	22.8	23.0	23.0	23.2	23.2	23.1	23.1	23.2	23.4	23.6	23.7	23.7	23.3	23.0	22.8	23.8	23.3	24	
19	22.4	21.9	22.0	21.8	22.0	22.2	22.0	22.2	23.0	22.9	22.8	22.9	23.0	23.1	23.1	23.0	23.1	23.3	23.4	23.5	24.0	23.5	22.7	22.0	21.8	24.0	22.7	24	
20	22.1	22.1	22.2	22.1	22.1	22.3	22.0	22.0	23.0	23.1	23.0	23.0	22.9	23.0	23.0	23.0	23.0	23.0	23.2	23.3	23.5	23.6	23.5	23.8	23.5	22.0	23.8	22.8	24
21	23.5	23.2	22.8	22.5	22.2	21.8	22.1	22.9	23.3	23.0	23.2	23.0	23.0	23.0	23.0	22.9	22.9	23.0	23.0	23.3	23.4	23.4	23.6	23.6	21.8	23.6	23.0	24	
22	23.4	23.5	23.6	23.6	23.7	23.7	23.6	23.4	23.2	22.9	22.7	22.7	22.7	22.8	22.7	22.8	22.7	22.9	22.6	23.1	23.4	23.7	23.5	23.6	22.6	23.7	23.2	24	
23	23.8	23.7	23.6	23.5	23.6	23.9	23.9	23.8	23.9	23.6	23.5	23.6	23.6	23.9	23.3	22.1	23.2	23.2	23.0	22.8	22.6	22.2	22.0	21.7	21.7	23.9	23.3	24	
24	21.8	21.8	21.8	21.9	21.8	21.9	21.9	21.8	21.7	21.8	21.9	22.1	22.7	23.6	23.6	23.4	23.3	23.5	23.5	23.5	23.1	22.3	21.8	21.9	21.7	23.6	22.4	24	
25	21.9	22.0	22.1	22.0	21.9	22.0	22.0	22.0	22.6	23.6	23.3	23.3	23.3	23.3	23.5	23.4	23.3	23.5	23.4	23.5	23.6	23.5	23.6	23.7	21.9	23.7	22.9	24	
26	23.6	23.6	23.6	23.9	23.6	23.8	23.9	23.8	23.6	23.8	23.6	23.6	23.5	23.6	23.5	23.5	23.5	23.4	23.5	23.5	23.6	24.0	23.9	23.7	23.4	23.0	24.0	23.6	24
27	22.6	22.2	22.1	22.0	21.8	21.9	21.8	22.0	22.4	23.1	23.6	23.6	23.5	23.5	23.5	23.5	23.4	23.5	23.5	23.7	23.6	23.6	23.6	23.6	21.8	23.7	23.0	24	
28	23.7	23.9	24.0	23.8	23.1	22.4	22.1	23.0	22.7	22.8	22.8	22.7	22.9	23.0	22.9	23.2	23.2	23.3	23.5	23.5	23.4	23.6	23.6	23.6	22.1	24.0	23.2	24	
29	23.6	23.7	23.4	23.5	23.7	23.7	23.9	23.2	22.8	22.8	22.6	22.8	23.1	23.0	23.0	23.2	23.4	23.4	23.4	23.7	23.5	23.8	23.8	23.9	22.6	23.9	23.4	24	
30	23.8	23.8	24.0	23.4	23.6	23.5	23.4	23.5	23.5	23.8	23.6	23.6	23.4	23.2	22.5	23.4	23.4	23.6	23.4	23.5	23.9	23.9	23.6	22.6	22.5	24.0	23.5	24	
31	22.0	22.1	22.2	22.1	22.2	22.1	22.0	22.0	23.1	22.9	23.1	23.0	23.3	23.2	23.2	23.4	23.3	23.5	23.6	23.7	23.6	23.8	23.6	23.1	22.0	23.8	22.9	24	
HOURLY MAX	29.7	29.6	30.2	30.3	29.8	29.6	26.4	23.8	23.9	24.1	26.3	27.5	27.8	27.3	26.8	28.1	28.3	28.7	29.5	28.7	26.1	26.5	28.0	28.9					
HOURLY AVG	23.6	23.7	23.7	23.8	23.7	23.6	22.9	22.6	22.8	22.9	23.0	23.3	23.4	23.6	23.6	23.7	23.7	23.7	23.7	23.6	23.5	23.6	23.6	23.6					

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

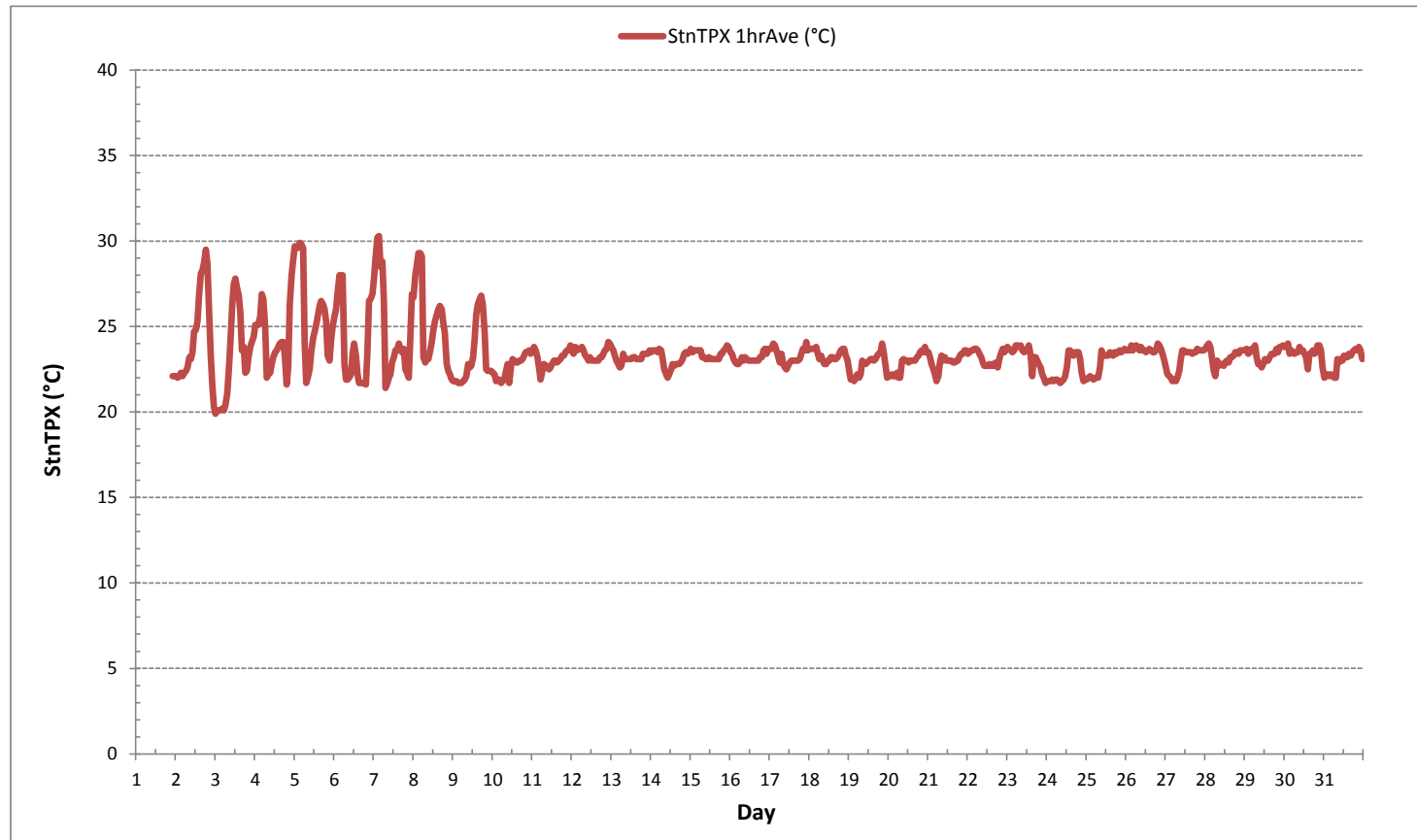
24 HR AVERAGES August 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	19.9	°C	@ HOUR	0	ON DAY	3
MAXIMUM 1-HR AVERAGE:	30.3	°C	@ HOUR	3	ON DAY	7
MAXIMUM 24-HR AVERAGE:	25.7	°C			ON DAY	5
OPERATIONAL TIME:	722	hrs				
AMD OPERATION UPTIME:	97.0	%				
STANDARD DEVIATION:	1.5		MONTHLY AVERAGE:	23.4	°C	

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	August 2, 2018	Barometer/B.P./units:	F.S. 10528 expires January 15, 2019	699.06	mmHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 10528 expires January 15, 2019	25	°C
Location/Station Name:	842b	Weather Conditions:	Mix of sun and clouds		
Parameter:	Sulphur Dioxide	Calibration Purpose:	Installation		
Start Time 24 hr. (mst):	16:30	Performed By/Reviewer:	Michael Espiritu	Rob Fisher	
End Time 24 hr. (mst):	20:13	Cal Gas Expiry Date:	December 8, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	835033373	Maxxam	Range ppb:	500	
Last Calibration Date:	n/a		As Found C.F.:	n/a	
Previous C.F.:	n/a		New C.F.:	0.999	

Calibration Standards:
Low Flow Meter ID/Expiry Date: Definer Low 129069 expires February 16, 2019
High Flow Meter ID/Expiry Date: Definer High 128686 expires February 16, 2019
Calibrator ID/Expiry Date: Sabio id# 42531101(0911) expires March 1, 2019
Cal Gas Cylinder I.D. #: EY0000769
Cal Gas Conc. (ppm): 50.5

Standard Calibration Points for Ranges

Point	ppb
High	380
Mid	180
Low	90

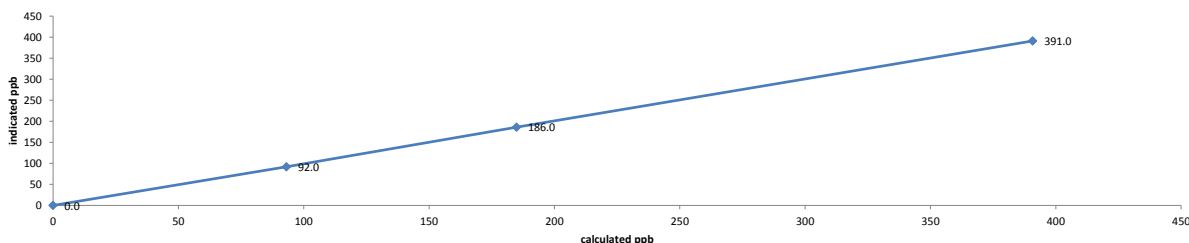
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
adjusted zero	5022	0.00	5022	0.0	0.0	n/a
adjusted high	5001	39.00	5040	390.8	391.0	0.999
mid	5011	18.41	5029	184.9	186.0	0.994
low	5052	9.33	5061	93.1	92.0	1.012
calibrator zero	5022	0.00	5022	0.0	0.0	n/a
Average C.F. =						1.002

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.998		0.95-1.05
b (Intercept as % of full scale) =	0.05%		± 3% F.S.
% change in C.F. from last cal =	n/a		n/a

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Bkg:	n/a	Bkg:	14
Coef:	n/a	Coef:	1.012
Pmt:	n/a	Pmt:	-622.3 v
Flash:	n/a	Flash:	882 v
Internal:	n/a	Internal:	31.5 °C
Chamber:	n/a	Chamber:	45 °C
Perm Oven Gas:	n/a	Perm Oven Gas:	45 °C
Perm Oven Heater:	n/a	Perm Oven Heater:	44.1 °C
Pressure:	n/a	Pressure:	671.4 mmHg
Sample Flow:	n/a	Sample Flow:	408 Lpm
Lamp Intensity:	n/a	Lamp Intensity:	81 %
Converter:	n/a	Converter:	n/a
Converter Set:	n/a	Converter Set:	n/a
Averaging Time:	n/a	Averaging Time:	120 sec.
Expected Value:	n/a	Expected Value:	247.0

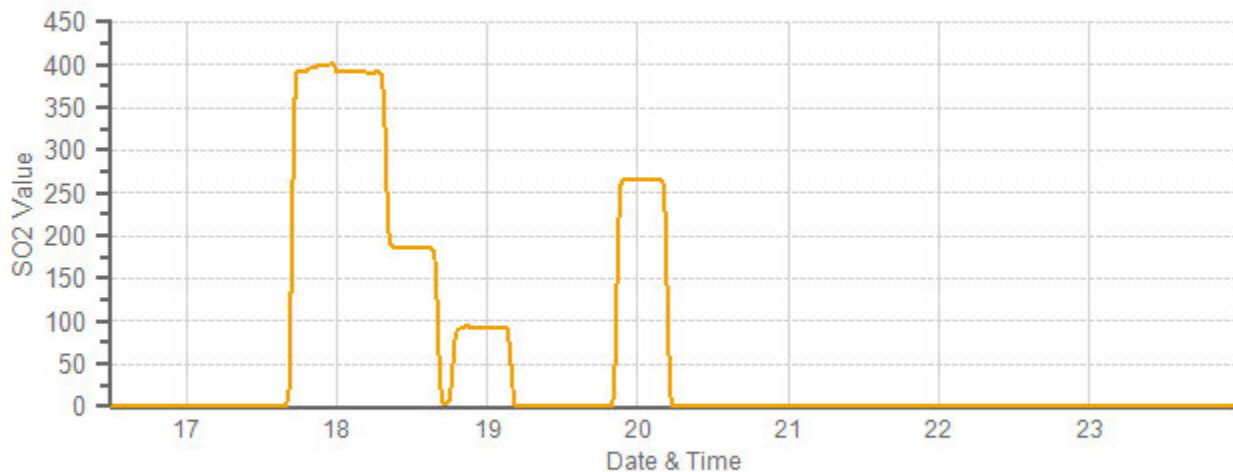
Comments:

The analyzer sample inlet filter was changed.

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

SO2[ppb] Station: PRAMP_842 Periodically: 2018/08/02 16:30-2018/08/02 23:59 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

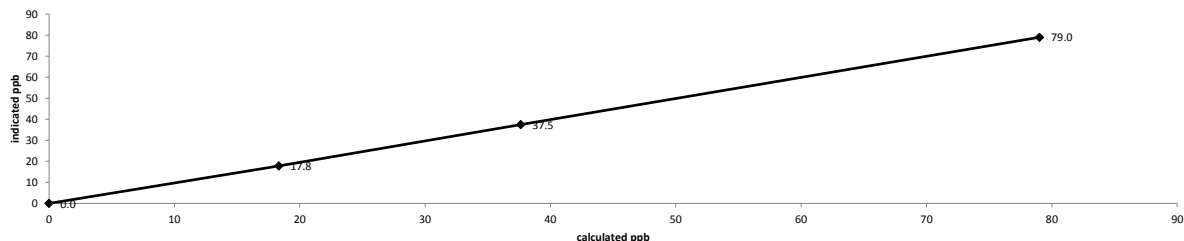
Date:	August 3, 2018	Barometer/B.P./units:	Brunton 05490 expires December 11, 2018	931	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160459244 expires June 19, 2020	24	°C
Location/Station Name:	842b	Weather Conditions:	Sunny		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	Installation		
Start Time 24 hr. (mst):	9:30	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	13:25	Cal Gas Expiry Date:	November 7, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	n/a	As Found C.F.:	n/a		
Previous C.F.:	n/a	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Defender Low 152020 expires November 22, 2018	Start/End Time 24 hr.:	10:04 / 10:14
High Flow Meter ID/Expiry Date:	Defender High 148943 expires November 21, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	API id# 829 expires January 31, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119432	As Found Zero:	0.0
Cal Gas Conc. (ppm):	10.3	Analyzer Response: (ppb):	0.0
		Zero Corrected Result (ppb):	0.0

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015						
Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
adjusted zero	7558	0.00	7558	0.0	0.0	n/a
adjusted high	7453	57.73	7511	79.0	79.0	1.000
mid	7503	27.57	7531	37.6	37.5	1.003
low	7506	13.41	7519	18.3	17.8	1.030
calibrator zero	7558	0.00	7558	0.0	0.2	n/a
Average C.F.:						1.011

Linear Regression/Calibration Results:		LIMITS
Correlation Coefficient =	1.000	> or = 0.995
Slope =	0.998	0.95-1.05
b (Intercept as % of full scale)=	0.24%	± 3% F.S.
% change in C.F. from last cal=	n/a	n/a

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

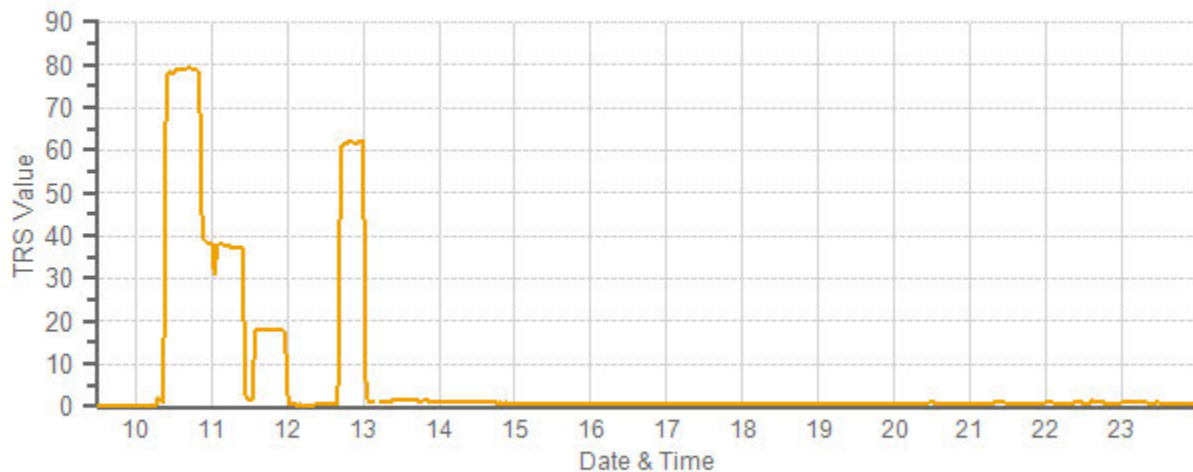


As found:		As left:	
Bkg:	2.65	Bkg:	2.68
Coef:	0.872	Coef:	0.886
Pmt:	-720.4	Pmt:	-720.4
Flash:	971	Flash:	970
Internal:	32.2	Internal:	35.2
Chamber:	44.8	Chamber:	45.1
Perm Oven Gas:	45.01	Perm Oven Gas:	45.00
Perm Oven Heater:	44.12	Perm Oven Heater:	44.14
Pressure:	658.5	Pressure:	657.9
Sample Flow:	0.403	Sample Flow:	0.402
Lamp Intensity:	88	Lamp Intensity:	88
Converter:	850	Converter:	850
Converter Set:	850	Converter Set:	850
Averaging Time:	120	Averaging Time:	120
Expected Value:	56.2	Expected Value:	62.0

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

The daily Daily IZS started at 11:01 during the mid-point; the mid-point was restarted.

TRS[ppb] Station: PRAMP_842 Periodically: 2018/08/03 09:30-2018/08/03 23:59 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	August 14, 2018	Barometer/B.P./units:	F.S. 10528 expires January 15, 2019	700.56	mmHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 10528 expires January 15, 2019	23.7	°C
Location/Station Name:	842b	Weather Conditions:	Smoke		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	repeat		
Start Time 24 hr. (mst):	7:27	Performed By/Reviewer:	Michael Espiritu	Rob Fisher	
End Time 24 hr. (mst):	11:15	Cal Gas Expiry Date:	October 20, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD Nova CDN-101/ 553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	August 3, 2018	As Found C.F.:	0.948		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):	
Low Flow Meter ID/Expiry Date:	Definer Low 129069 expires February 16, 2019	Start/End Time 24 hr.:	7:55 - 8:15
High Flow Meter ID/Expiry Date:	Definer High 128686 expires February 16, 2019	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	API ID# 831 expires March 1, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	EY0000918	As Found Zero:	0.0
Cal Gas Conc. (ppm):	9.7	Analyzer Response (ppb):	0.0
		Zero Corrected Result (ppb):	0.0

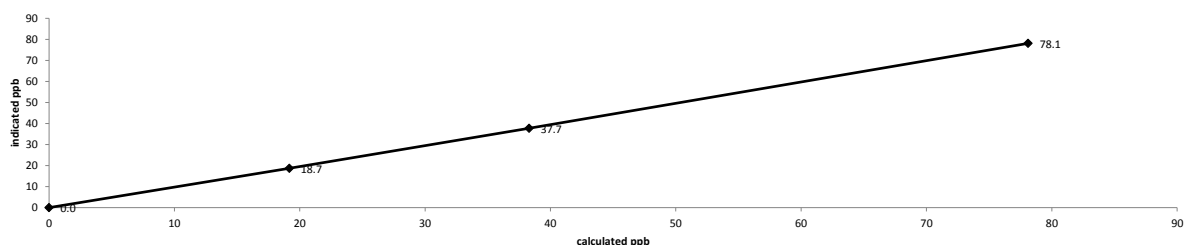
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7500	0.00	7500	0.0	0.0	n/a
as found high	7514	61.00	7575	78.1	82.4	0.948
adjusted zero	7500	0.00	7500	0.0	0.0	n/a
adjusted high	7514	61.00	7575	78.1	78.1	1.000
mid	7556	29.95	7586	38.3	37.7	1.016
low	7576	15.00	7591	19.2	18.7	1.025
calibrator zero	7500	0.00	7500	0.0	0.0	n/a
Average C.F. =						1.014

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.999		0.95-1.05
b (Intercept as % of full scale) =	0.31%		± 3% F.S.
% change in C.F. from last cal =	5.20%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:	As left:
Bkg: 2.69	Bkg: 2.54
Coef: .806	Coef: .833
Pmt: -720.4 v	Pmt: -720.4 v
Flash: 973 v	Flash: 973 v
Internal: 32.3 °C	Internal: 30.3 °C
Chamber: 45 °C	Chamber: 44.9 °C
Perm Oven Gas: 45 °C	Perm Oven Gas: 45 °C
Perm Oven Heater: 44.11 °C	Perm Oven Heater: 44.11 °C
Pressure: 660 mmHg	Pressure: 659.7 mmHg
Sample Flow: .403 lpm	Sample Flow: .403 lpm
Lamp Intensity: 88 %	Lamp Intensity: 89 %
Converter: 850 °C	Converter: 850 °C
Converter Set: 850 °C	Converter Set: 850 °C
Averaging Time: 120 sec.	Averaging Time: 120 sec.
Expected Value: 62.0	Expected Value: 56.2

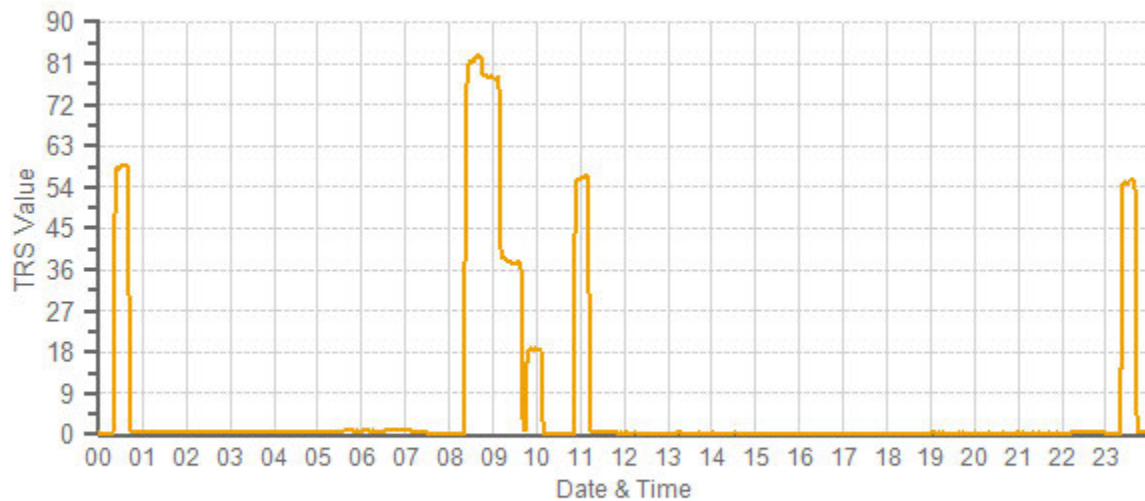
Comments:

The manifold blower was found to be working normally.

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

A repeat calibratin was performed due to a drift in the daily span.

TRS[ppb] Station: PRAMP_842 Daily: 18/08/14 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON

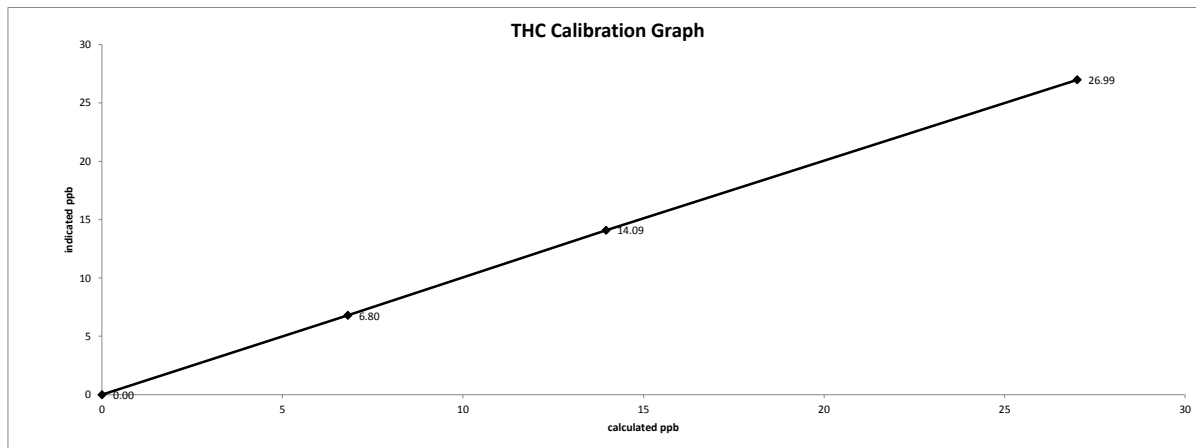
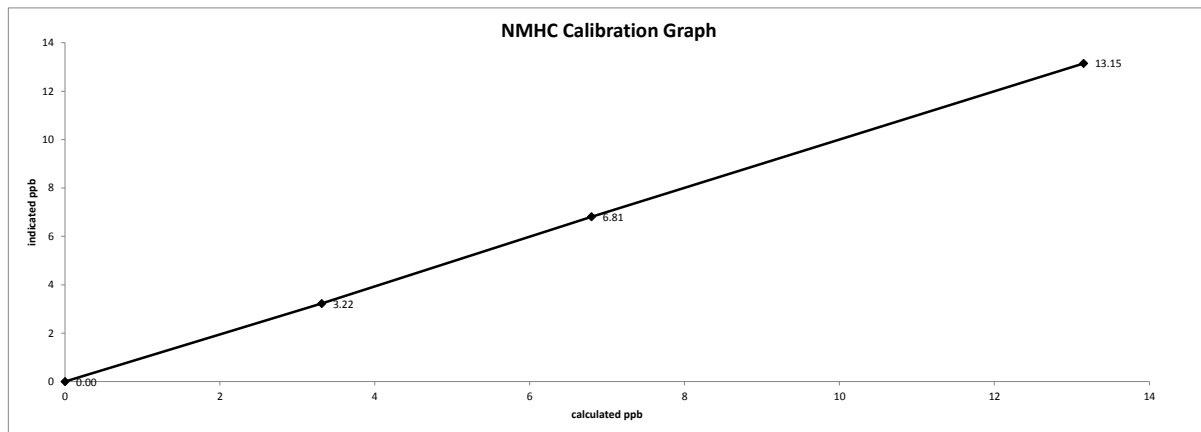
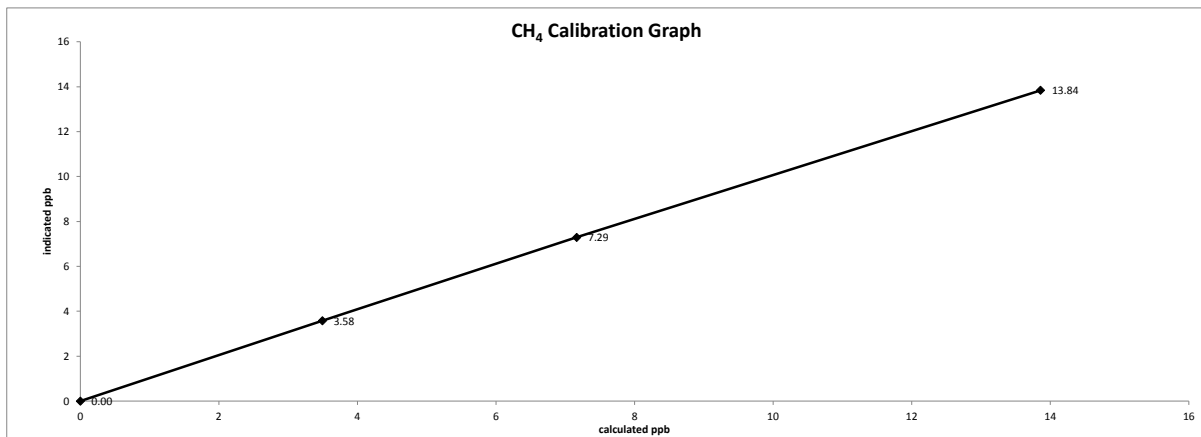


Thermo 55i Methane/Non-Methane Analyzer Calibration

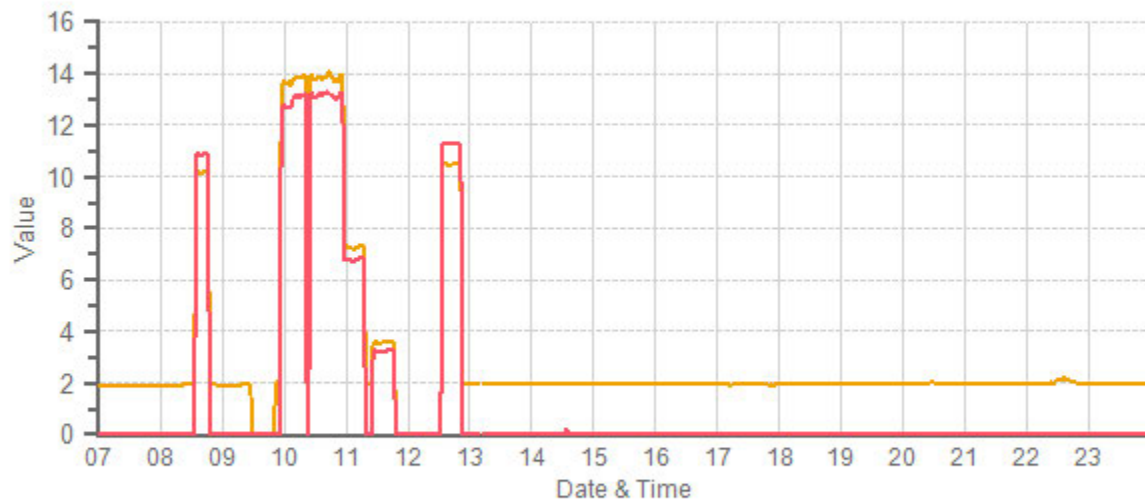
Date: August 3, 2018		Barometer/B.P./units: Brunton 05490 expires December 11, 2018 931 millibars										
Company/Airshed: PRAMP		Thermometer/Station Temp: F.S. 160459244 expires June 19, 2020 24 °C										
Location/Station Name: 842b		Weather Conditions: Sunny										
Parameter: CH ₄ / NMHC / THC		Calibration Purpose: installation										
Start/End Time 24 hr. (mst): 09:28 / 12:56		Performed By/Reviewer: Chris Wesson Rob Fisher										
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025										
Analyzer:												
Serial Number/Owner: 1433563261 Maxxam		Correction Factors:										
Measured Flow: 1.1 L/min		CH₄ = Previous C.F.: n/a As Found C.F.: n/a New C.F.: 1.002										
Last Calibration Date: n/a		NMHC = n/a n/a 1.000										
Range ppm: 20 CH ₄ /20 NMHC/40 THC		THC = n/a n/a 1.001										
Calibration Standards:												
Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018		Standard Calibration Points for Analyzer Range of 20/20/40 ppm										
High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018												
Calibrator ID/Expiry Date: API id# 830 expires January 31, 2019												
Cal Gas Cylinder I.D. # : LL107207												
CH₄ Cylinder Conc. = 600.0 207.0 =C ₃ H ₈ Cylinder Conc.												
CH₄ expressed as C₃H₈ = 569.3 1169.3 =total CH ₄ equivalent												
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015												
Calibrator Flow Rates (cc/min)												
Point	Diluent	Cal Gas	Total Flow	Calculated CH₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
										CH₄	NMHC	THC
adjusted zero	2516	0.00	2516	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2490	58.89	2549	13.86	13.15	27.01	13.84	13.15	26.99	1.002	1.000	1.001
mid	2459	29.73	2489	7.17	6.80	13.96	7.29	6.81	14.09	0.983	0.998	0.991
low	2485	14.56	2500	3.49	3.31	6.81	3.58	3.22	6.80	0.976	1.029	1.001
calibrator zero	2516	0.00	2516	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F. =										0.987	1.009	0.998
Linear Regression/Calibration Results:												
				CH₄	NMHC	THC	LIMITS					
Correlation Coefficient =				1.000	1.000	1.000	> or = 0.995					
Slope =				0.998	1.003	1.000	0.95-1.05					
b (Intercept as % of full scale) =				0.31%	-0.18%	0.06%	± 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: -302.0		Calibration History cnt'd:		NM Peak Area: 83120						
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: 37.0				NMHV Start: n/a						
Cylinder Pressures/reg.:		Carrier: 1800 50				NMHC End: n/a						
		Fuel: 1100 50				Run History>1:						
		Span Gas: 600 12				Date: 03Aug2018						
		Zero Air Generator: 50				Time: 12:03						
Internal Pressures:		Carrier: 31.7				CH₄ PK HT: 0						
		Fuel: 37.6				CH₄ RT: 8.0						
		Air: 34.3				CH₄ Baseline: 261						
FID Status:		Status: LIT				CH₄ LOD: 17						
		Counts: 25500				CH₄ SD: 5						
		Flame: 353.2				CH₄ CONC: 0.00						
		Det Base: 175.0				NM PK HT: 0						
Flame and Power Stats:		Last Power On: 31Jul2018@18:54				NM Peak Area: 0						
		Flameouts: 5				NM CONC: 0.00						
		Det Oven at Start: 39.1				NM Base Start: 211						
		Col Oven at Start: 71.2				NM Base End: 215						
Calibration History:		Time: 03Aug2018@10:50				NM LOD: 24						
		Type: Span				NM Start IDX: 61						
		Status: Good				NM End IDX: 40						
		Check/Adjust: Adjust				NM Max Slope: 1.3e01						
		CH₄ Span Conc: 13.86				NM Min Slope: -7.4e-01						
		CH₄ SP Ratio: 0.000778				NM PT Count: 0						
		CH₄ RT: 13.6				Previous CH₄: 10.26						
		CH₄ PK IDX: 28				Previous NMHC: 11.15						
		CH₄ PK HT: 17811				Previous THC: 21.42						
		NM Span Conc: 13.15				New CH₄: 10.48						
		NM SP Ratio: 0.000158				New NMHC: 11.27						
						New THC: 21.75						
Comments:												
The analyzer sample inlet filter was changed.												
The oxygen purifiers were replaced.												
The manifold blower was found to be working normally.												
The Adjusted High was resorted at 10:21 due to a calibrator setting error.												

Date: August 3, 2018
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 09:28 / 12:56
Calibration Purpose: installation
Calibration Method: Gas Dilution



Station: PRAMP_842 Periodically: 2018/08/03 07:00-2018/08/03 23:59 Type: AVG 1 Min. [1 Min.]



— CH4[ppm] — NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	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:



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Rob Fisher
Audit Date:	August 22, 2018	Start/End Time (mst):	16:54 / 17:37
Calibration Purpose:	routine annual	Weather Conditions:	Smoke

Wind Sensor Information

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

Wind Calibrator Information

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

Wind Speed Audit Data

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

Wind Direction Audit Data

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	355	350	5.0	5.0	5.0
30	330	26	325	4.0	5.0	4.5
60	300	57	295	3.0	5.0	4.0
90	270	88	265	2.0	5.0	3.5
120	240	118	236	2.0	4.0	3.0
150	210	148	206	2.0	4.0	3.0
180	180	179	176	1.0	4.0	2.5
210	150	206	146	4.0	4.0	4.0
240	120	236	116	4.0	4.0	4.0
270	90	265	86	5.0	4.0	4.5
300	60	297	55	3.0	5.0	4.0
330	30	327	26	3.0	4.0	3.5
355	0	352	355	3.0	5.0	4.0
The audit meets AMD requirements.			Average Absolute Degrees Difference=		3.8	

Comments:

AMD's audit criteria met. Instrument operating outside performance specifications. Wind direction adjustment required.



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Rob Fisher
Audit Date:	August 22, 2018	Start/End Time (mst):	17:50 / 18:21
Calibration Purpose:	routine annual	Weather Conditions:	Smoke

Wind Sensor Information

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

Wind Calibrator Information

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

Wind Speed Audit Data

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

Wind Direction Audit Data

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	355	1.0	0.0	0.5
30	330	30	330	0.0	0.0	0.0
60	300	60	300	0.0	0.0	0.0
90	270	91	270	-1.0	0.0	0.5
120	240	120	240	0.0	0.0	0.0
150	210	151	211	-1.0	-1.0	1.0
180	180	180	181	0.0	-1.0	0.5
210	150	210	151	0.0	-1.0	0.5
240	120	240	121	0.0	-1.0	0.5
270	90	270	90	0.0	0.0	0.0
300	60	300	60	0.0	0.0	0.0
330	30	330	30	0.0	0.0	0.0
355	0	355	1	0.0	1.0	0.5
The audit meets AMD requirements.			Average Absolute Degrees Difference=		0.3	

Comments:

Wind Speed data copied from as-found. Wind Direction was adjusted.

METEOROLOGICAL SYSTEMS CHECK



Meteorological System Checklist

Date:	August 3, 2018		
Technician:	Chris Wesson		
Reviewer:	Rob Fisher		
Station:	PRAMP 842b		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Campbell	HMP	C2608
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	Campbell	HMP	C2608
Anemometer:	RM Young	05305VK	124638
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	July 3, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	F.S. 160459244 expires June 19, 2020		
Reference Temperature (°C):	23.0		
Station - Ambient Temperature (°C):	22.6		
Temperature Difference (°C):	0.4		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	July 3, 2018		
Reference Barometer ID:	Brunton 05490 expires December 11, 2018		
Reference Pressure - Units/Reading:	mbar	931.8	
Station Pressure - Units/Reading:	mbar	933.5	
Pressure Tolerance +/- 15% of error:	792 - 1072	-0.18%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	July 3, 2018		
Reference Hygrometer ID:	F.S. id# 160459244 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	62.10		
Station Hygrometer % RH- Reading:	60.80		
RH Tolerance +/- 15% of difference:	52.79 - 71.42	2.1%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	July 3, 2018	Previous check date:	July 3, 2018
Wind Speed Observed (kph):	10-20	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	14	Wind Direction on Data Logger:	W

CALIBRATORS

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-552A

Company: Maxxam		Operator: Chris W	
Calibrator:		Flow Measurement Device:	
Make/Model	Sabio 2010	Make/Model	Mesa Defender 530
Serial Number	042531101	Serial Number	L-153351 H-152571
Last Verification Date	February 2017	Temperature (°C)	23.0 C
NO Cylinder S/N	EY0000715	Barometric Pressure	702 mmHg
NO [PPM]	50.7	NOx [PPM]	50.8
Expiry Date	May 2021		

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5000	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	Limit ± 10%	
5036	79.3	0.7984	0.7999	0.7836	0.0001	0.7838	-2%	-2%
5006	38.2	0.3869	0.3876	0.3800	0.0002	0.3822	-2%	-1%
4989	19.3	0.1961	0.1965	0.1949	-0.0006	0.1943	-1%	-1%
Absolute Average Percent Difference							1%	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)= 0.9805	0.90-1.10	m (Slope)= 0.9794
b (Intercept % of FS)= 0.1026	± 3% F.S.	b (Intercept % of FS)= 0.1200

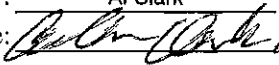
Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
5036	0.000	0.0000	0.7907	0.0003	0.7910	NO ₂	% Diff. Limit
5036	0.475	0.4834	0.3073	0.4772	0.7845	-1%	± 10%
5036	0.275	0.2796	0.5111	0.2778	0.7889	-1%	± 10%
5036	0.100	0.1005	0.6902	0.1017	0.7919	1%	± 10%
Absolute Average Percent Difference						0%	± 10%

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

NO₂	LIMITS	
Correlation= 1.0000	≥ 0.995	
m (Slope)= 0.9854	0.90-1.10	
b (Intercept % of FS)= 0.1523	± 3% F.S.	

AENV Standards	NOx Analyzer
Audit Calibrator	
Make/Model	Teco 146i
Serial/AMU Number	AMU 1809
SRM Gas Cylinder No.	APEX1170572
Cylinder Conc. (ppm)	49.99
	Make/Model
	Teco 42i
	Serial/AMU Number
	AMU 1868
	Last Calibration Date
	March 1, 2018
	Full Scale (ppm)
	1.0
	Cylinder Gas Expiry Date
	November 2020

COMMENTS: Cylinder contains 25 ppm SO₂.

Auditor: Al Clark
Operator Signature: 
Date: March 1, 2018
Location: McIntyre Center Edmonton

Company Maxxam Operator: Christopher

Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>Mesa 530+</u>
Serial Number	<u>829</u>	Serial Number	<u>H-156312 L-156151</u>
Last Verification Date	<u>January 2017</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>EY0000715</u>	Barometric Pressure	<u>N/A</u>
NO [PPM]	<u>50.7</u>	NOx [PPM]	<u>50.8</u>
Expiry Date	<u>May 2020</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
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4950	79.8	0.787	0.788	0.783	-0.001	0.781	-1%	-1%
4958	37.2	0.380	0.381	0.378	-0.001	0.377	-1%	-1%
4960	18.5	0.189	0.189	0.188	-0.001	0.187	-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)=	0.9949	0.90-1.10	m (Slope)=	0.9912
b (Intercept % of FS)=	-0.0030	± 3% F.S.	b (Intercept % of FS)=	-0.0257

Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4950	0.000	0.000	0.776	0.000	0.776	NO ₂	% Diff. Limit
4950	0.500	0.476	0.300	0.474	0.775	0%	± 10%
4950	0.290	0.277	0.499	0.278	0.778	0%	± 10%
4950	0.095	0.090	0.686	0.093	0.779	3%	± 10%
Absolute Average Percent Difference						1%	± 10%

LINEAR REGRESSION ANALYSIS

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

NO ₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9938	0.90-1.10
b (Intercept % of FS)=	0.1802	± 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>APEX1170572</u>	Last Calibration Date	<u>January 31, 2018</u>
Cylinder Conc. (ppm)	<u>49.99</u>	Full Scale (ppm)	<u>1.0</u>
		Cylinder Gas Expiry Date	<u>November 2020</u>

COMMENTS:

Auditor: Al Clark
Operator Signature: [Signature]

Date: January 31, 2018
Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Chris W

Calibrator:

Make/Model	API 700
Serial Number	831
Last Verification Date	February 2017
SO ₂ Cylinder Conc.	47.9
SO ₂ Cylinder S/N	LL108015
Expiry Date	October 2020

Flow Measurement Device:

Make/Model	Mesa Defender 530
Serial Number	L-153351 H-152571
Temperature (°C)	23.0 C
Barometric Pressure	702 mmHg

Flow Measurements

Pt. No. 1 82.6 Pt. No. 2 40.1 Pt. No. 3 20.0

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
5022	0.788	0.789	0%	± 10%
5018	0.383	0.385	1%	± 10%
5029	0.190	0.191	1%	± 10%
Absolute Average Percent Difference			0%	± 10%

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

SO₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0011	0.90-1.10
b (Intercept % of FS)=	0.0617	± 3% F.S.

AENV Standards
Audit Calibrator

Make/Model	Sabio 2010
Serial/AMU Number	AMU 2092
SO ₂	
SRM Gas Cylinder No.	CAL016625
Cylinder Conc. (ppm)	98.07

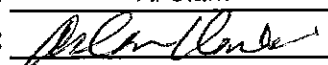
SO₂ Analyzer

Make/Model	Teco 43C
Serial/AMU Number	AMU 1623
Last Calibration Date	March 1, 2018
Full Scale (ppm)	1.0
Expiry Date	February 2019

COMMENTS:

Auditor: Al Clark

Date: March 1, 2018

Operator Signature: 

Location: McIntyre Center Edmonton

Calibrator Performance Audit

Sulphur Dioxide (by Cylinder Dilution)

File No. 2018-519A

Company: Maxxam

Operator: Christopher

Calibrator:		Flow Measurement Device:	
Make/Model	API 700	Make/Model	Mesa 530+
Serial Number	830	Serial Number	H-156312 L-156151
Last Verification Date	February 2017	Temperature (°C)	N/A
SO ₂ Cylinder Conc.	47.9	Barometric Pressure	N/A
SO ₂ Cylinder S/N	LL108015		
Expiry Date	October 2020		

Flow Measurements

Pt. No. 1 80.0 Pt. No. 2 38.1 Pt. No. 3 19.4

Calibrator Flow (sccm)	Calculated Concentration (ppm)	Indicated Concentration (ppm)	% Difference	
			vs Audit Gas	% Diff. Limit
Zero Air	0.000	0.000		
4998	0.767	0.779	2%	± 10%
\$4,999	0.365	0.368	1%	± 10%
\$5,003	0.186	0.184	-1%	± 10%
Absolute Average Percent Difference			0%	± 10%

LINEAR REGRESSION ANALYSIS

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

	SO ₂	LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	1.0175	0.90-1.10
b (Intercept % of FS)=	-0.2528	± 3% F.S.

AENV Standards

Audit Calibrator

Make/Model	Sabio 2010
Serial/AMU Number	AMU 2092
SO ₂	
SRM Gas Cylinder No.	CAL016625
Cylinder Conc. (ppm)	98.07

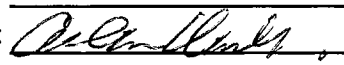
SO₂ Analyzer

Make/Model	Teco 43C
Serial/AMU Number	AMU 1623
Last Calibration Date	January 31, 2018
Full Scale (ppm)	1.0
Expiry Date	January 2019

COMMENTS:

Auditor: Al Clark

Date: January 31, 2018

Operator Signature: 

Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-436CGA

Company: Maxxam **Operator's Name:** Chris
Cylinder #: EY0000769 **Concentration PPM:** 50.5 **Tolerance(%)** 1.6 **Certified By:** Praxair
Expiry Date: December 8, 2019

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 50.5

Percent variance from Stated: 0.2

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

Auditor: Shea Beaton
Operator Signature: _____

Date: January 26, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-137CGA

Company: Maxxam Operator's Name: Raja Abid Ashraf
Cylinder #: LL119432 Concentration PPM: 10.3 Tolerance(%) 2 Certified By: Praxair
Expiry Date: May 16, 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: July 27, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 L-132702
Temp. °C: 22.0 C
B.P. 700 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 21.9 Span: 1.069 Range: 0.1
Last Calibration: Date: July 27, 2017 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000			
5117	38.9	0.0595	0.00760	131.542	7.8
5103	18.4		0.00361	277.337	0.0
5097	9.4		0.00184	542.234	0.0
Average Cylinder Concentration:					2.6

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 75

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

< =5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐ Do not use. _____

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

Auditor: Al Clark

Date: July 27, 2017

Operator Signature: *Al Clark*

Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-491CGA

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

Cylinder #: EY0000918 Concentration PPM: 9.70 Tolerance(%) 2 Certified By: Praxair

Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: Sabio 2010
Serial Number: AMU 2092
Last Verification Date: December 18, 2017
Gas Type: H2S Conc. 20.43
Cylinder Number: CAL015272
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp. °C: 22.1 C
B.P. 694 mmHg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
Instrument Settings: Zero: 22.3 Span: 1.090 Range: 0.1
Last Calibration: Date: Dec18/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000			
5121	39.8	0.0741	0.00777	128.668	9.53
5104	20.1	0.0375	0.00394	253.930	9.52
5109	10.6	0.0196	0.00207	481.981	9.45
Average Cylinder Concentration:					9.50

Previous Stated Concentration PPM: 9.70

Percent variance from Stated: 2

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 18, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-484CGA

Company: Maxxam Operators name: Mike
Cylinder #: LL107207 Conc CH₄ (PPM) 600/207 Tolerance (%) 2 Certified By: Praxair
Expiry Date: October 2025

Reference Calibrator and Gas:

Make/Model R&R MFC 201
Serial Number AMU 1690
Last Verification Date December 13, 2017
Gas Type CH₄ Conc. 990.4
Cylinder Number 5604875 Expiry Date July 2021
Gas Type C₃H₈ Conc. 246.5
Cylinder Number XF003845B Expiry Date July 2022

Flow Measurement Device:

Make/Model Mesa Definer 220
Serial Number H-133034 / L-132702
Temp. °C 23.1 C
B.P. 707 mmHg

Reference Analyzer:

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

Calibrator Flows (sccm)		Indicated Conc. (ppm)		Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration	
Dilution	Gas	CH ₄	C ₃ H ₈			CH ₄	C ₃ H ₈
3500	0.0	0.00	0.00				
3618	80.4	13.28	12.77	0.02	45.00	598	209
3547	39.8	6.71	6.47	0.01	89.12	598	210
3560	19.8	3.35	3.26	0.01	179.80	602	213
Average Cylinder Concentration:						599	211

CH₄ **C₃H₈**
Previous Stated Concentration PPM: 600 207
Percent variance from Stated: 0 2

Cylinder gas tolerances based on CH₄ only

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

Auditor: Al Clark Date: December 13, 2017
Operator Signature: Location: McIntyre Center Edmonton

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

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

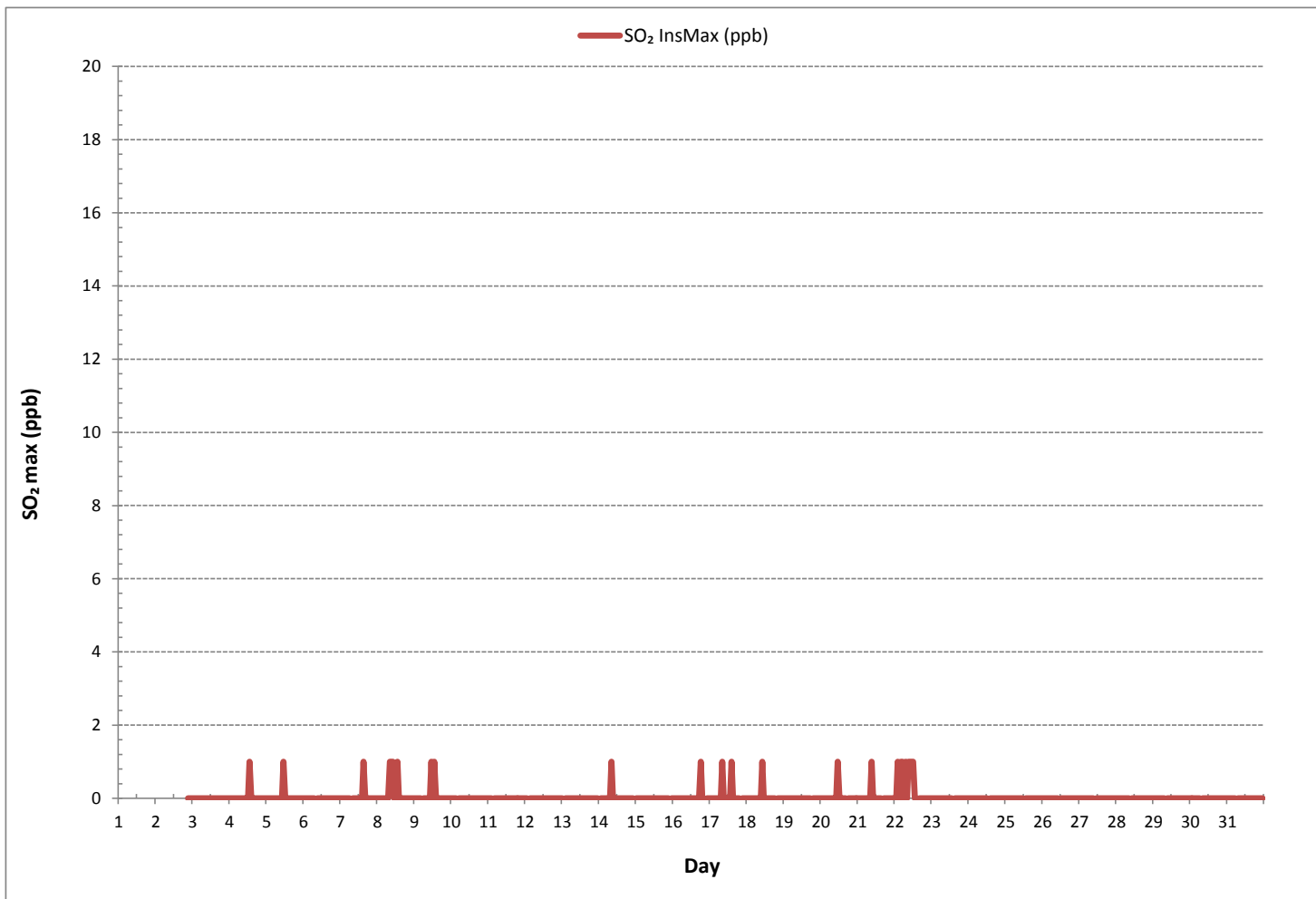
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	24
MAXIMUM INSTANTANEOUS VALUE:	1 ppb @ HOUR 13 ON DAY 4
IZS CALIBRATION TIME:	28 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0
OPERATIONAL TIME:	704 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	C	1.12	0.74	0.63	0.47	0.54	0.58	0.84	0.83	1.54	0.90	0.47	1.54	0.82	15
4	0.88	0.91	1.41	1.08	0.97	1.43	1.62	0.90	0.53	0.39	0.41	0.37	0.36	0.37	0.32	0.29	0.30	0.26	0.28	0.31	0.35	0.55	0.52	1.62	0.26	1.62	0.69	24
5	1.79	1.51	2.17	2.37	2.67	2.31	2.06	0.94	0.70	S	0.39	0.38	0.37	0.36	0.34	0.26	0.26	0.26	0.34	0.29	0.35	0.32	0.45	0.61	0.26	2.67	0.94	24
6	0.68	0.61	0.82	0.53	0.99	1.13	0.64	0.42	S	0.42	0.32	0.29	0.28	0.22	0.22	0.35	0.33	0.31	0.31	0.53	0.32	0.66	0.48	0.34	0.22	1.13	0.49	24
7	0.82	1.15	0.89	0.99	1.68	1.71	1.49	S	0.44	0.57	0.43	0.37	0.31	0.29	0.34	0.28	0.29	0.29	0.33	0.38	0.43	0.44	0.41	0.62	0.28	1.71	0.65	24
8	0.42	0.90	0.87	1.61	1.57	2.18	S	1.44	0.56	0.41	0.40	0.33	0.32	0.33	0.33	0.31	0.30	0.32	0.30	0.30	0.36	0.35	0.34	0.51	0.30	2.18	0.64	24
9	0.65	0.55	0.52	0.93	0.91	S	1.13	1.11	0.50	0.42	0.41	0.35	0.40	0.42	0.35	0.31	0.31	0.33	0.32	0.33	0.37	0.39	0.48	0.46	0.31	1.13	0.52	24
10	0.46	0.47	0.56	0.69	S	1.15	0.79	0.55	0.49	0.54	0.42	0.37	0.39	0.32	0.23	0.22	0.24	0.25	0.32	0.38	0.42	0.42	0.38	0.33	0.22	1.15	0.45	24
11	0.36	0.47	0.68	S	0.96	1.84	2.36	1.35	0.52	0.65	0.31	0.20	0.19	0.19	0.22	0.19	0.18	0.17	0.18	0.26	0.35	0.63	0.71	0.78	0.17	2.36	0.60	24
12	0.45	0.55	S	1.16	1.23	1.45	1.97	S1	0.66	0.35	0.37	0.37	0.34	0.34	0.32	0.31	0.28	0.25	0.27	0.42	0.33	0.32	0.36	0.42	0.25	1.97	0.57	23
13	0.42	S	0.66	0.43	0.59	0.52	0.73	1.04	0.93	0.46	0.23	0.21	0.21	0.21	0.22	0.24	0.23	0.25	0.29	0.33	0.41	0.42	0.44	0.46	0.21	1.04	0.43	24
14	S	0.49	0.46	0.45	0.48	0.62	0.82	C1	C1	C1	C1	C1	0.24	0.24	0.24	0.22	0.20	0.20	0.22	0.25	0.24	0.26	0.34	S	0.20	0.82	0.35	19
15	0.43	0.56	0.72	0.87	1.06	1.24	1.53	0.82	0.53	0.45	0.40	0.34	0.27	0.28	0.28	0.26	0.28	0.25	0.26	0.33	0.38	0.40	S	0.45	0.25	1.53	0.54	24
16	0.40	0.56	0.53	0.42	0.43	0.43	0.72	0.58	0.38	0.34	0.47	0.44	0.33	0.28	0.23	0.25	0.23	0.25	0.29	0.34	0.37	S	0.43	0.50	0.23	0.72	0.40	24
17	0.45	0.41	0.38	0.48	0.84	0.99	1.15	0.52	0.45	0.44	0.37	0.32	0.30	0.27	0.26	0.23	0.19	0.18	0.22	0.19	S	0.34	0.36	0.33	0.18	1.15	0.42	24
18	0.34	0.35	0.29	0.30	0.49	0.54	0.56	0.51	0.36	0.30	0.31	0.28	0.25	0.25	0.22	0.23	0.23	0.23	0.25	S	0.38	0.38	0.44	0.47	0.22	0.56	0.35	24
19	0.51	0.54	0.93	1.12	0.85	0.88	0.66	1.35	0.84	0.36	0.32	0.29	0.26	0.24	0.23	0.21	0.22	0.24	S	0.41	0.40	0.35	0.36	0.41	0.21	1.35	0.52	24
20	0.42	0.44	0.53	0.83	1.05	0.95	1.14	1.24	0.65	0.48	0.80	0.37	0.26	0.22	0.23	0.24	0.22	S	0.22	0.23	0.20	0.20	0.27	0.29	0.20	1.24	0.50	24
21	0.35	0.39	0.48	0.58	0.67	0.70	0.67	0.75	0.38	0.30	0.31	0.28	0.28	0.26	0.23	0.20	S	0.23	0.25	0.28	0.30	0.32	0.34	0.29	0.20	0.75	0.38	24
22	0.31	0.33	0.35	0.34	0.41	0.46	0.63	0.60	0.60	0.59	0.65	0.60	0.54	0.44	0.41	S	0.33	0.32	0.41	0.61	0.61	0.46	0.48	0.27	0.27	0.65	0.47	24
23	0.22	0.22	0.24	0.31	0.27	0.24	0.27	0.29	0.27	0.27	0.28	0.27	0.27	0.28	S	0.27	0.24	0.22	0.22	0.20	0.27	0.25	0.27	0.26	0.20	0.31	0.26	24
24	0.27	0.31	0.30	0.28	0.27	0.34	0.33	0.28	0.28	0.28	0.27	0.23	0.23	S	0.23	0.25	0.22	0.29	0.27	0.27	0.27	0.25	0.24	0.29	0.22	0.34	0.27	24
25	0.29	0.31	0.32	0.32	0.44	0.39	0.20	0.28	0.25	0.22	0.21	0.25	S	0.29	0.28	0.30	0.31	0.32	0.33	0.38	0.30	0.35	0.42	0.50	0.20	0.50	0.32	24
26	0.40	0.28	0.27	0.29	0.26	0.22	0.22	0.22	0.18	0.15	0.14	S	0.20	0.20	0.22	0.20	0.22	0.19	0.16	0.17	0.16	0.17	0.14	0.17	0.14	0.40	0.21	24
27	0.16	0.14	0.17	0.20	0.17	0.15	0.20	0.23	0.22	0.22	S	0.22	0.24	0.23	0.23	0.22	0.22	0.22	0.22	0.21	0.22	0.22	0.24	0.27	0.14	0.27	0.21	24
28	0.33	0.37	0.38	0.37	0.35	0.47	0.42	0.43	0.32	S	0.28	0.25	0.25	0.23	0.24	0.26	0.28	0.29	0.34	0.34	0.37	0.27	0.34	0.33	0.23	0.47	0.33	24
29	0.35	0.39	0.44	0.51	0.44	0.41	0.39	0.35	S	0.30	0.28	0.25	0.25	0.23	0.23	0.24	0.23	0.27	0.26	0.24	0.25	0.34	0.58	0.50	0.23	0.58	0.34	24
30	0.48	0.42	0.35	0.28	0.21	0.15	0.17	S	0.20	0.18	0.16	0.15	0.16	0.18	0.15	0.16	0.21	0.21	0.20	0.20	0.18	0.14	0.13	0.18	0.13	0.48	0.21	24
31	0.29	0.68	0.77	0.59	0.68	0.53	S	0.63	0.26	0.23	0.22	0.24	0.24	0.22	0.22	0.21	0.24	0.27	0.26	0.33	0.33	0.20	0.24	0.34	0.20	0.77	0.36	24
HOURLY MAX	1.79	1.51	2.17	2.37	2.67	2.31	2.36	1.44	0.93	0.65	0.80	0.60	0.54	0.44	1.12	0.74	0.63	0.47	0.54	0.61	0.84	0.83	1.54	1.62				
HOURLY AVG	0.48	0.53	0.61	0.68	0.78	0.87	0.88	0.70	0.46	0.37	0.35	0.31	0.29	0.27	0.29	0.27	0.27	0.26	0.28	0.32	0.35	0.37	0.42	0.46				

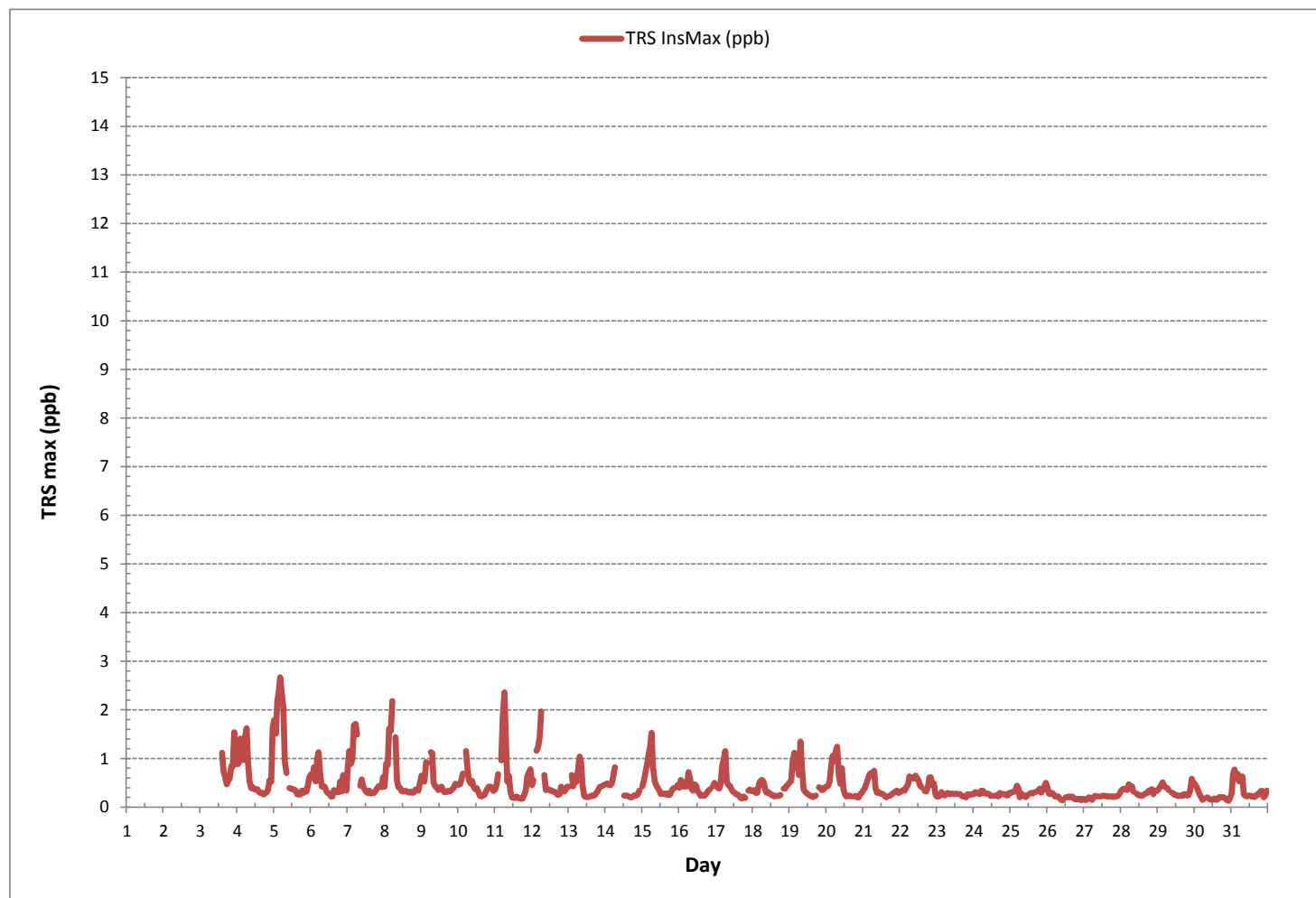
STATUS FLAG CODES

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:	648				
MAXIMUM INSTANTANEOUS VALUE:	2.67	ppb	@ HOUR	4	ON DAY 5
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	681	hrs
MONTHLY CALIBRATION TIME:	5	hrs			
STANDARD DEVIATION:	0.35				

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





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

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	1.95	2.24	1.95	1.97	1.95	1.95	1.97	1.99	1.98	2.24	2.00	1.95	2.24	2.02	15
4	2.03	2.03	2.11	2.09	2.10	2.15	2.35	2.04	2.01	1.96	1.96	1.95	1.96	1.94	1.95	1.96	1.94	1.96	1.94	2.02	2.03	2.14	2.07	2.08	1.94	2.35	2.03	24
5	2.28	2.29	2.15	2.12	2.17	2.18	2.17	2.06	2.03	S	1.96	1.95	1.93	1.95	1.93	1.93	1.94	1.95	1.96	1.94	1.94	1.95	1.99	1.98	1.93	2.29	2.03	24
6	2.02	2.03	2.04	2.05	2.07	2.08	2.03	1.97	S	1.96	1.95	1.93	1.92	1.91	1.91	1.92	1.92	1.92	1.91	1.91	1.92	1.99	2.00	1.97	1.91	2.08	1.97	24
7	2.02	2.23	2.23	2.07	2.05	2.06	2.07	S	1.95	1.95	1.93	1.93	1.92	1.94	1.95	1.92	1.92	1.94	1.94	1.99	2.02	2.10	2.06	2.11	1.92	2.23	2.01	24
8	2.03	2.10	2.11	2.07	2.07	2.10	S	2.05	1.98	1.97	1.95	1.93	1.93	1.95	1.96	1.95	1.96	1.97	1.97	1.96	1.97	1.98	2.00	2.08	1.93	2.11	2.00	24
9	2.05	2.03	2.01	2.05	2.05	S	2.05	2.07	2.02	1.99	1.99	1.97	1.98	1.99	1.98	1.97	1.96	1.98	1.99	1.97	1.97	1.98	2.00	2.05	1.96	2.07	2.00	24
10	2.01	2.04	2.10	2.12	S	2.21	2.16	2.10	Y	Y	Y	1.97	1.97	1.95	1.91	1.91	1.91	1.90	1.93	1.93	1.94	1.96	1.92	1.92	1.90	2.21	1.99	21
11	1.92	1.93	1.94	S	1.98	2.02	2.02	2.00	1.96	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	2.00	2.05	2.10	2.11	1.92	2.11	1.98	24
12	2.04	2.04	S	2.12	2.15	2.17	2.19	2.18	2.04	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.95	1.95	1.95	1.97	1.96	1.95	1.97	1.97	1.95	2.19	2.02	24
13	1.99	S	2.01	1.99	2.01	2.00	2.00	2.01	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.95	1.96	1.96	1.97	1.96	1.96	1.96	1.94	1.93	1.93	2.01	1.98	24
14	S	1.96	1.95	1.96	1.97	2.02	2.03	2.00	1.94	1.94	1.92	1.92	1.89	1.89	1.88	1.87	1.87	1.87	1.89	1.88	1.87	1.88	1.91	S	1.87	2.03	1.92	24
15	1.93	1.99	2.10	2.19	2.06	2.03	2.17	2.06	1.97	1.94	1.94	1.93	1.92	1.92	1.92	1.92	1.93	1.93	1.92	1.94	1.96	2.00	S	2.15	1.92	2.19	1.99	24
16	2.11	2.09	2.09	2.03	1.99	2.03	2.07	2.03	1.97	1.96	1.98	2.00	2.00	1.98	1.96	1.97	1.95	1.97	2.00	2.00	2.03	S	2.04	2.04	1.95	2.11	2.01	24
17	2.05	2.04	2.04	2.07	2.11	2.11	2.14	2.08	2.06	2.05	2.03	2.01	2.00	2.00	1.99	1.97	1.95	1.95	1.96	1.96	S	1.98	2.12	2.03	1.95	2.14	2.03	24
18	1.97	1.97	1.97	1.97	2.05	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.96	1.97	1.97	1.97	1.98	S	2.02	2.02	2.03	2.07	1.96	2.07	1.99	24
19	2.10	2.06	2.10	2.17	2.12	2.11	2.18	2.21	2.15	2.02	1.99	1.98	1.98	1.97	1.97	1.98	1.97	1.98	S	2.05	2.03	2.10	2.12	2.19	1.97	2.21	2.07	24
20	2.22	2.23	2.15	2.14	2.14	2.13	2.14	2.16	2.10	2.05	2.04	2.02	2.00	1.99	1.99	2.00	2.00	S	2.00	2.00	2.01	2.02	2.05	2.05	1.99	2.23	2.07	24
21	2.06	2.08	2.09	2.10	2.12	2.14	2.11	2.14	2.09	2.06	2.07	2.04	2.02	2.01	2.01	1.99	S	1.97	1.97	1.99	2.00	2.00	2.01	1.99	1.97	2.14	2.05	24
22	1.99	2.00	2.00	2.02	2.03	2.04	2.09	2.10	2.10	2.10	2.10	2.08	2.04	2.02	1.97	S	1.94	1.98	1.99	2.11	2.11	2.05	2.04	2.02	1.94	2.11	2.04	24
23	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.01	2.00	2.00	1.99	1.99	S	S1	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.98	1.98	2.01	1.99	23
24	1.99	1.99	2.00	1.99	1.99	2.01	2.00	2.00	1.99	1.99	1.98	1.98	1.98	S	1.99	1.97	1.99	1.97	2.08	2.07	2.11	2.06	2.10	2.13	1.97	2.13	2.01	24
25	2.22	2.22	2.18	2.21	2.21	2.15	2.18	2.05	2.02	2.02	2.02	2.00	S	2.00	2.00	2.02	2.02	2.02	2.02	2.05	2.05	2.04	2.01	2.00	2.00	2.22	2.07	24
26	2.02	2.02	2.01	2.01	2.00	1.98	2.00	1.98	1.98	1.98	1.98	S	1.99	1.98	1.97	1.97	1.98	1.98	1.97	1.97	2.01	1.97	1.97	1.98	1.97	2.02	1.99	24
27	1.99	1.99	2.00	2.01	2.01	2.00	2.02	2.03	2.00	2.00	S	1.99	1.99	2.00	1.98	1.98	1.97	1.98	1.98	1.98	1.99	2.00	2.00	2.01	1.97	2.03	2.00	24
28	2.01	2.00	2.02	2.04	2.06	2.04	2.11	2.06	1.98	S	1.96	1.96	1.95	1.94	1.93	1.93	1.93	1.95	1.94	1.91	1.91	1.92	1.93	1.91	1.91	2.11	1.97	24
29	1.94	1.92	1.91	1.92	1.92	1.93	1.92	1.97	S	1.93	1.92	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.92	1.96	1.97	1.94	1.90	1.97	1.92	24
30	1.96	1.98	1.95	1.96	1.96	1.94	1.95	S	S1	1.96	1.96	1.96	1.96	Y	Y	Y	1.96	1.96	1.96	1.97	1.97	1.96	1.98	2.01	1.94	2.01	1.96	20
31	2.06	2.04	2.03	2.02	2.02	2.01	S	1.99	1.98	1.98	1.97	1.97	1.97	1.94	1.93	1.92	1.94	1.95	1.93	1.94	1.95	1.94	1.93	1.98	1.92	2.06	1.97	24
HOURLY MAX	2.28	2.29	2.23	2.21	2.21	2.21	2.35	2.21	2.15	2.10	2.10	2.08	2.04	2.02	2.24	2.02	2.02	2.02	2.02	2.08	2.11	2.11	2.14	2.24	2.19			
HOURLY AVG	2.04	2.05	2.05	2.06	2.05	2.06	2.08	2.05	2.01	1.99	1.98	1.97	1.97	1.96	1.97	1.95	1.95	1.95	1.96	1.97	1.99	2.00	2.02	2.03				

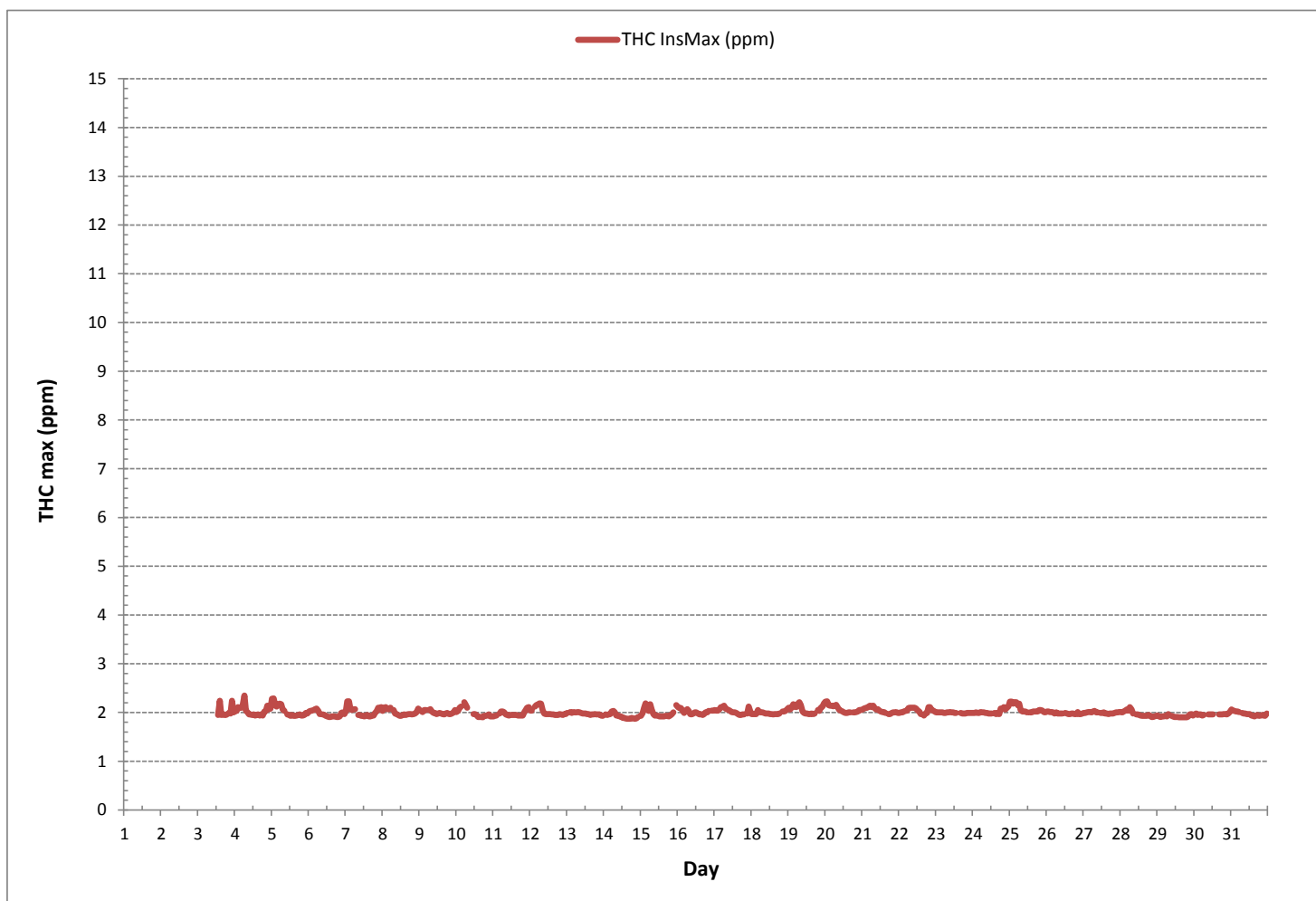
STATUS FLAG CODES

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:		647						
MAXIMUM INSTANTANEOUS VALUE:		2.35	ppm	@ HOUR	6	ON DAY	4	
IZS CALIBRATION TIME:		28	hrs	OPERATIONAL TIME:			679	hrs
MONTHLY CALIBRATION TIME:		4	hrs					
STANDARD DEVIATION:		0.07						

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	1.95	1.96	1.95	1.97	1.95	1.95	1.97	1.99	1.98	2.24	2.00	1.95	2.24	1.99	15
4	2.03	2.03	2.11	2.09	2.10	2.15	2.35	2.04	2.01	1.96	1.96	1.95	1.96	1.94	1.95	1.96	1.94	1.96	1.94	2.02	2.03	2.14	2.07	2.08	1.94	2.35	2.03	24
5	2.28	2.29	2.15	2.12	2.17	2.18	2.17	2.06	2.03	S	1.96	1.95	1.93	1.95	1.93	1.93	1.94	1.95	1.96	1.94	1.94	1.95	1.99	1.98	1.93	2.29	2.03	24
6	2.02	2.03	2.04	2.05	2.07	2.08	2.03	1.97	S	1.96	1.95	1.93	1.92	1.91	1.91	1.92	1.92	1.92	1.91	1.91	1.92	1.99	2.00	1.97	1.91	2.08	1.97	24
7	2.02	2.23	2.23	2.07	2.05	2.06	2.07	S	1.95	1.95	1.93	1.93	1.92	1.94	1.95	1.92	1.92	1.94	1.94	1.99	2.02	2.10	2.06	2.11	1.92	2.23	2.01	24
8	2.03	2.10	2.11	2.07	2.07	2.10	S	2.05	1.98	1.97	1.95	1.93	1.93	1.95	1.96	1.95	1.96	1.97	1.97	1.96	1.97	1.98	2.00	2.08	1.93	2.11	2.00	24
9	2.05	2.03	2.01	2.05	2.05	S	2.05	2.07	2.02	1.99	1.99	1.97	1.98	1.99	1.98	1.97	1.96	1.98	1.99	1.97	1.97	1.98	2.00	2.05	1.96	2.07	2.00	24
10	2.01	2.04	2.10	2.12	S	2.21	2.16	2.10	Y	Y	Y	1.97	1.97	1.95	1.91	1.91	1.91	1.90	1.93	1.93	1.94	1.96	1.92	1.92	1.90	2.21	1.99	21
11	1.92	1.93	1.94	S	1.98	2.02	2.02	2.00	1.96	1.95	1.94	1.95	1.95	1.95	1.95	1.95	1.94	1.94	1.94	1.94	2.00	2.05	2.10	2.11	1.92	2.11	1.98	24
12	2.04	2.04	S	2.12	2.15	2.17	2.19	2.18	2.04	1.98	1.97	1.97	1.97	1.97	1.96	1.96	1.95	1.95	1.95	1.97	1.96	1.95	1.97	1.97	1.95	2.19	2.02	24
13	1.99	S	2.01	1.99	2.01	2.00	2.00	2.01	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.95	1.96	1.96	1.97	1.96	1.96	1.96	1.94	1.93	1.93	2.01	1.98	24
14	S	1.96	1.95	1.96	1.97	2.02	2.03	2.00	1.94	1.94	1.92	1.92	1.89	1.89	1.88	1.87	1.87	1.87	1.89	1.88	1.87	1.88	1.91	S	1.87	2.03	1.92	24
15	1.93	1.99	2.10	2.19	2.06	2.03	2.17	2.06	1.97	1.94	1.94	1.93	1.92	1.92	1.92	1.93	1.93	1.92	1.94	1.96	2.00	S	2.15	1.92	2.19	1.99	24	
16	2.11	2.09	2.09	2.03	1.99	2.03	2.07	2.03	1.97	1.96	1.98	2.00	2.00	1.98	1.96	1.97	1.95	1.97	2.00	2.00	2.03	S	2.04	2.04	1.95	2.11	2.01	24
17	2.05	2.04	2.04	2.07	2.11	2.11	2.14	2.08	2.06	2.05	2.03	2.01	2.00	2.00	1.99	1.97	1.95	1.95	1.96	1.96	S	1.98	2.12	2.03	1.95	2.14	2.03	24
18	1.97	1.97	1.97	1.97	2.05	2.01	2.00	2.00	1.99	1.98	1.98	1.98	1.97	1.97	1.96	1.97	1.97	1.97	1.98	S	2.02	2.02	2.03	2.07	1.96	2.07	1.99	24
19	2.10	2.06	2.10	2.17	2.12	2.11	2.18	2.21	2.15	2.02	1.99	1.98	1.98	1.97	1.97	1.98	1.97	1.98	S	2.05	2.03	2.10	2.13	2.19	1.97	2.21	2.07	24
20	2.22	2.23	2.15	2.14	2.14	2.13	2.14	2.16	2.10	2.05	2.04	2.02	2.00	1.99	1.99	2.00	2.00	S	2.00	2.00	2.01	2.02	2.05	2.05	1.99	2.23	2.07	24
21	2.06	2.08	2.09	2.10	2.12	2.14	2.11	2.14	2.09	2.06	2.07	2.04	2.02	2.01	2.01	1.99	S	1.97	1.97	1.99	2.00	2.00	2.01	1.99	1.97	2.14	2.05	24
22	1.99	2.00	2.00	2.02	2.03	2.04	2.09	2.10	2.10	2.10	2.10	2.08	2.04	2.02	1.97	S	1.94	1.98	1.99	2.11	2.11	2.05	2.04	2.02	1.94	2.11	2.04	24
23	2.00	2.00	2.00	2.00	2.00	1.99	1.99	2.00	2.00	2.01	2.00	2.00	1.99	1.99	S	S1	1.99	1.98	1.98	1.98	1.99	1.99	1.99	1.99	1.98	2.01	1.99	23
24	1.99	1.99	2.00	1.99	1.99	2.01	2.00	2.00	1.99	1.99	1.98	1.98	1.98	S	1.99	1.97	1.99	1.97	2.08	2.07	2.11	2.06	2.10	2.13	1.97	2.13	2.01	24
25	2.22	2.22	2.18	2.21	2.21	2.15	2.18	2.05	2.02	2.02	2.02	2.00	S	2.00	2.00	2.02	2.02	2.02	2.02	2.05	2.05	2.04	2.01	2.00	2.00	2.22	2.07	24
26	2.02	2.02	2.01	2.01	2.00	1.98	2.00	1.98	1.98	1.98	1.98	S	1.99	1.98	1.97	1.97	1.98	1.98	1.97	1.97	2.01	1.97	1.97	1.98	1.97	2.02	1.99	24
27	1.99	1.99	2.00	2.01	2.01	2.00	2.02	2.03	2.00	2.00	S	1.99	1.99	2.00	1.98	1.98	1.97	1.98	1.98	1.98	1.99	2.00	2.00	2.01	1.97	2.03	2.00	24
28	2.01	2.00	2.02	2.04	2.06	2.04	2.11	2.06	1.98	S	1.96	1.96	1.95	1.94	1.93	1.93	1.93	1.93	1.95	1.94	1.91	1.91	1.92	1.93	1.91	2.11	1.97	24
29	1.94	1.92	1.91	1.92	1.92	1.93	1.92	1.97	S	1.93	1.92	1.91	1.91	1.91	1.90	1.90	1.90	1.90	1.90	1.90	1.92	1.96	1.97	1.94	1.90	1.97	1.92	24
30	1.96	1.98	1.95	1.96	1.96	1.94	1.95	S	S1	1.96	1.96	1.96	1.96	Y	Y	Y	1.96	1.96	1.96	1.97	1.97	1.96	1.98	2.01	1.94	2.01	1.96	20
31	2.06	2.04	2.03	2.02	2.02	2.01	S	1.99	1.98	1.98	1.97	1.97	1.97	1.94	1.93	1.92	1.94	1.95	1.93	1.94	1.95	1.94	1.93	1.98	1.92	2.06	1.97	24
HOURLY MAX	2.28	2.29	2.23	2.21	2.21	2.21	2.35	2.21	2.15	2.10	2.10	2.08	2.04	2.02	2.01	2.02	2.02	2.02	2.08	2.11	2.11	2.14	2.24	2.19				
HOURLY AVG	2.04	2.05	2.05	2.06	2.05	2.06	2.08	2.05	2.01	1.99	1.98	1.97	1.97	1.96	1.95	1.95	1.95	1.95	1.96	1.97	1.99	2.00	2.02	2.03				

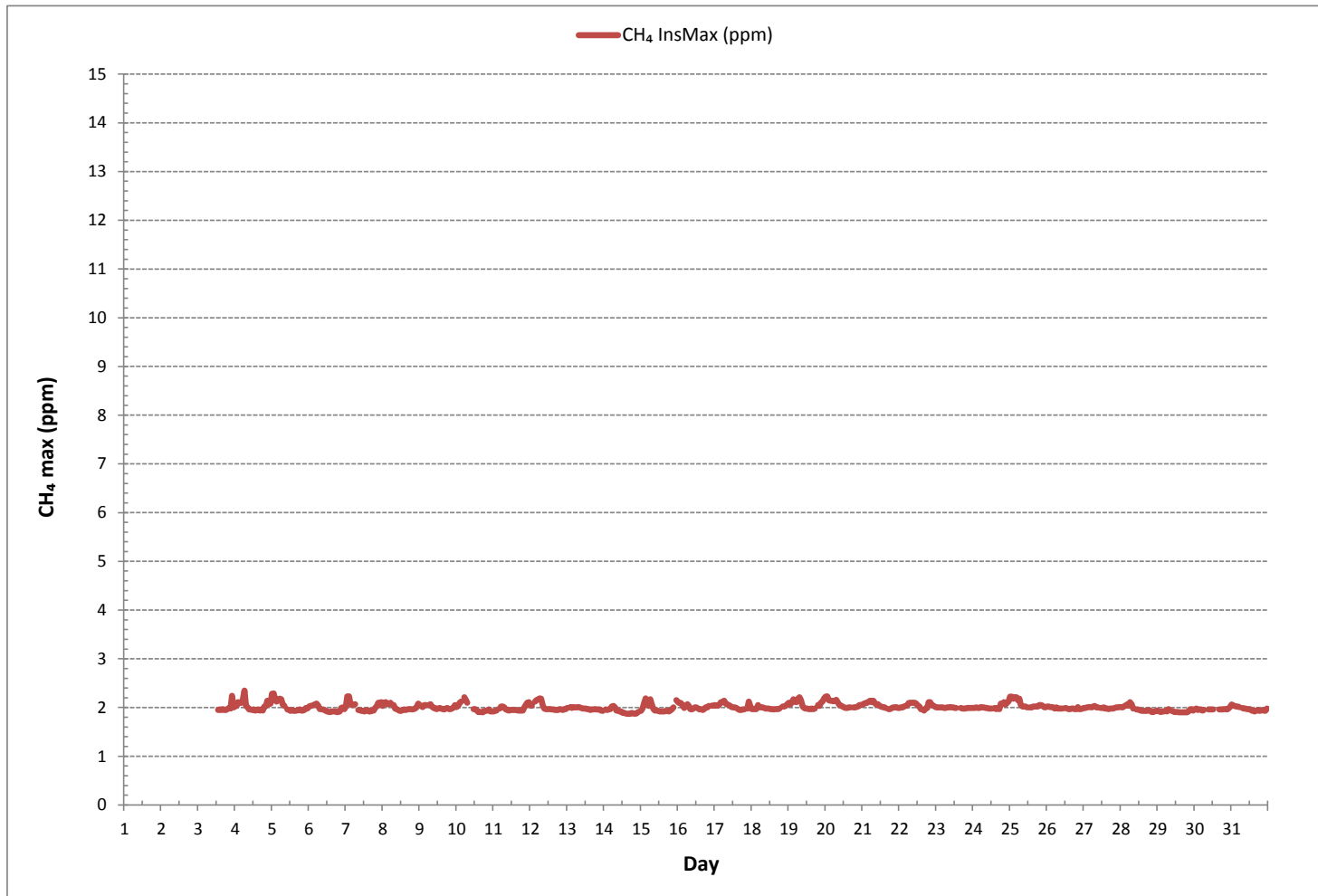
STATUS FLAG CODES

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:	647				
MAXIMUM INSTANTANEOUS VALUE:	2.35	ppm	@ HOUR	6	ON DAY 4
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	679	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.07				

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0	
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0	
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.03	15
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
5	0.00	0.00	0.00	0.00	0.00	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
6	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
7	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
8	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
9	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
10	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	Y	Y	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21
11	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
12	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
13	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
14	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	24
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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
23	0.00	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	S1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23
24	0.00	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
25	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	0.00	24
26	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
27	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
28	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
29	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
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	S1	0.00	0.00	0.00	0.00	Y	Y	Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20
31	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
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

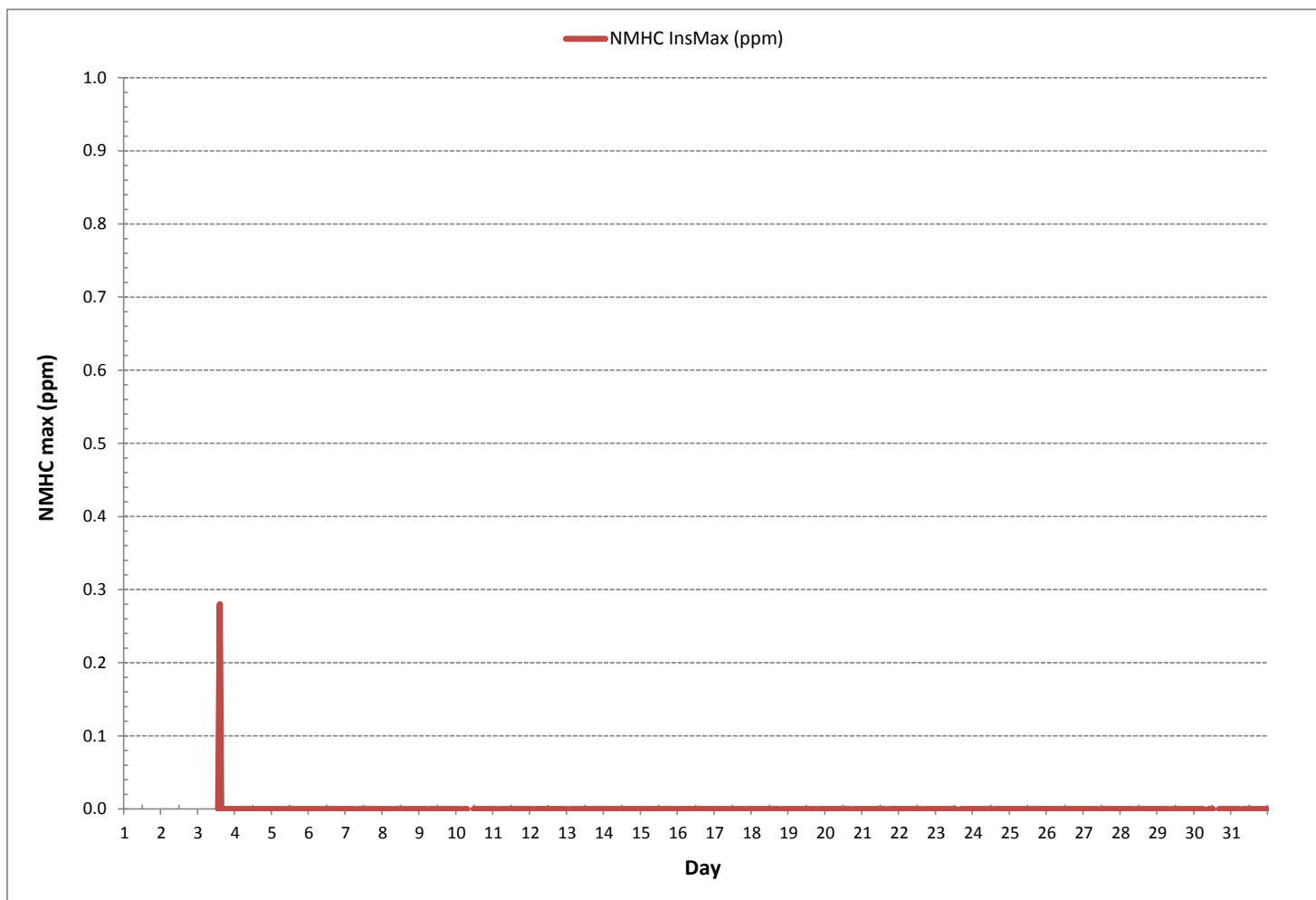
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	1				
MAXIMUM INSTANTANEOUS VALUE:	0.28	ppm	@ HOUR	14	ON DAY 3
IZS CALIBRATION TIME:	28	hrs	OPERATIONAL TIME:	679	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.01				

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - August 2018

WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.				
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.					
DAY																																
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	0				
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10.0	11.2	11.4	13.6	10.0	13.6	11.6	4
3	14.6	12.0	15.8	15.0	12.6	9.6	18.0	19.0	19.8	19.8	20.2	25.0	23.2	27.2	26.6	48.2	51.8	17.0	16.2	16.2	9.6	8.8	10.0	7.4	7.4	51.8	19.3	24				
4	4.6	3.6	5.2	4.0	3.4	4.6	4.2	5.8	12.8	12.0	13.2	15.4	19.8	23.8	25.0	26.0	20.8	16.4	11.2	8.8	9.2	9.2	4.6	7.0	3.4	26.0	11.3	24				
5	6.4	8.0	6.0	6.6	7.2	8.8	11.2	11.0	14.0	18.0	22.6	24.6	21.8	25.2	27.8	26.0	27.8	28.4	22.8	15.8	18.8	20.8	16.6	12.4	6.0	28.4	17.0	24				
6	15.2	15.6	11.8	13.6	15.0	17.4	22.4	20.2	25.0	25.8	29.6	35.8	40.2	37.2	35.0	26.2	28.0	22.8	21.8	17.2	15.6	10.6	8.6	14.4	8.6	40.2	21.9	24				
7	13.2	8.0	8.8	5.6	7.8	6.8	4.6	8.6	17.4	15.2	17.2	14.4	18.0	21.6	23.8	18.0	15.8	12.2	11.2	7.6	9.2	7.8	6.2	6.2	4.6	23.8	11.9	24				
8	8.0	5.6	5.6	6.4	10.0	10.6	9.0	15.6	17.0	22.6	24.4	23.4	23.1	26.6	23.3	25.0	25.2	24.4	24.6	18.7	17.0	10.7	9.7	8.7	5.6	26.6	16.5	24				
9	8.2	11.2	10.8	8.1	10.7	12.0	6.3	7.0	10.8	10.6	12.6	16.3	17.7	20.1	25.2	27.0	17.7	12.3	11.2	11.0	13.8	16.6	14.8	18.4	6.3	27.0	13.8	24				
10	17.0	8.4	10.3	9.2	6.0	5.9	5.9	11.4	11.4	15.4	22.0	22.2	27.0	30.4	32.0	32.1	19.7	15.4	9.0	14.2	9.6	7.2	14.1	8.5	5.9	32.1	15.2	24				
11	8.6	7.8	6.6	6.1	6.2	3.0	3.9	5.5	10.6	10.2	14.2	14.3	18.4	18.5	14.6	11.4	12.2	14.8	11.4	6.0	6.5	5.0	6.3	7.2	3.0	18.5	9.6	24				
12	10.2	5.8	5.9	5.4	2.3	2.7	3.5	3.5	7.0	9.0	13.5	13.6	12.7	13.0	13.7	17.6	20.7	18.7	19.0	15.2	12.6	13.6	14.2	13.0	2.3	20.7	11.1	24				
13	14.1	12.9	13.6	17.6	15.2	16.1	19.8	20.0	25.5	27.9	30.4	33.5	33.6	34.0	36.3	37.7	29.2	25.0	19.2	17.6	17.9	18.7	19.1	17.2	12.9	37.7	23.0	24				
14	18.1	13.4	14.5	14.3	11.4	6.8	6.0	8.9	10.6	16.4	23.9	26.9	29.9	32.2	33.0	37.2	33.4	31.5	17.4	19.2	22.6	19.7	12.4	10.7	6.0	37.2	19.6	24				
15	7.2	2.1	1.8	2.0	4.7	3.8	3.5	7.6	15.3	21.1	23.2	26.0	19.5	19.3	17.7	16.0	15.0	9.2	5.7	2.9	3.7	3.5	5.8	8.6	1.8	26.0	10.2	24				
16	9.5	10.0	9.6	13.0	15.6	11.1	11.4	13.0	19.6	22.2	30.2	24.9	20.6	21.6	23.4	19.4	19.6	20.2	19.4	14.7	10.5	11.4	9.0	7.9	7.9	30.2	16.2	24				
17	11.5	10.0	12.5	9.8	11.8	8.6	8.8	11.8	15.8	15.1	16.8	19.5	23.8	29.2	33.2	33.0	33.8	23.4	22.0	18.7	11.3	9.9	8.5	5.9	5.9	33.8	16.9	24				
18	9.7	26.3	24.6	9.0	7.2	9.8	9.9	14.5	23.1	27.9	27.0	34.3	29.6	32.2	27.2	22.3	17.7	21.5	14.8	6.5	4.6	4.0	4.4	3.4	3.4	34.3	17.1	24				
19	3.2	3.7	3.3	2.2	2.7	3.1	2.2	2.3	4.8	9.7	12.9	13.5	15.8	17.7	20.3	20.2	16.0	13.5	5.7	1.3	1.4	0.8	1.9	2.4	0.8	20.3	7.5	24				
20	2.2	2.5	4.3	4.7	5.0	4.8	5.6	5.8	10.2	12.8	16.9	19.7	25.2	30.9	28.5	25.9	26.1	21.0	16.4	13.1	13.0	11.1	9.5	9.0	2.2	30.9	13.5	24				
21	7.6	6.6	6.5	7.4	6.0	5.6	7.0	6.8	9.0	10.6	13.4	16.3	20.6	22.4	22.7	21.1	19.8	21.9	19.8	15.2	17.0	12.9	9.6	21.8	5.6	22.7	13.7	24				
22	23.7	23.4	19.3	14.5	24.2	24.2	16.2	18.6	19.0	21.8	25.0	27.4	28.6	33.0	33.4	31.2	31.0	C	C	26.2	24.6	17.6	13.8	16.4	13.8	33.4	23.3	24				
23	16.8	18.3	13.7	16.5	12.9	16.7	16.3	13.5	17.1	11.1	8.1	10.2	11.1	11.5	10.2	9.5	12.5	12.7	13.4	10.4	14.7	12.9	12.7	13.6	8.1	18.3	13.2	24				
24	13.6	16.9	13.2	13.6	14.6	18.2	17.2	18.4	18.2	19.4	19.6	17.6	16.6	16.0	14.6	8.6	9.0	12.4	8.4	9.2	9.0	10.8	13.2	14.8	8.4	19.6	14.3	24				
25	13.0	12.2	13.0	14.4	10.8	13.4	10.6	8.4	9.6	9.0	11.7	11.4	12.4	10.3	15.3	15.3	10.5	6.5	6.4	6.3	11.4	11.8	9.2	5.8	5.8	15.3	10.8	24				
26	5.9	8.4	10.5	16.8	15.3	16.0	17.8	18.1	17.5	16.2	13.7	14.4	13.1	16.6	15.0	17.3	17.2	11.0	9.3	3.9	4.1	8.6	8.2	8.2	3.9	18.1	12.6	24				
27	8.2	9.0	7.1	3.7	2.0	4.6	5.7	7.6	12.5	11.6	13.7	17.3	17.2	24.4	25.9	26.9	21.4	17.2	15.8	15.5	17.4	15.2	12.0	9.6	2.0	26.9	13.4	24				
28	8.0	6.0	3.5	4.0	4.0	4.5	2.9	5.8	11.6	11.9	14.1	14.7	13.9	13.0	7.4	7.4	15.9	15.4	7.9	18.5	9.4	9.4	11.4	13.2	2.9	18.5	9.7	24				
29	11.5	13.0	13.4	9.3	13.0	12.7	15.8	15.7	18.9	15.0	19.8	23.5	22.9	28.4	20.1	20.4	15.0	10.4	8.1	13.9	5.2	6.9	6.0	5.3	5.2	28.4	14.3	24				
30	7.6	9.6	9.9	12.7	15.3	11.7	13.0	19.2	15.5	19.6	21.4	18.1	20.4	17.2	16.6	18.1	15.0	8.0	3.3	6.0	9.4	2.3	2.1	2.0	2.0	21.4	12.3	24				
31	3.8	5.1	7.8	10.5	12.6	16.2	20.6	18.0	20.1	23.3	25.0	29.7	30.2	36.6	38.7	37.2	31.8	33.7	26.7	24.1	25.8	7.1	13.6	13.0	3.8	38.7	21.3	24				
HOURLY MAX	23.7	26.3	24.6	17.6	24.2	24.2	22.4	20.2	25.5	27.9	30.4	35.8	40.2	37.2	38.7	48.2	51.8	33.7	26.7	26.2	25.8	20.8	19.1	21.8								

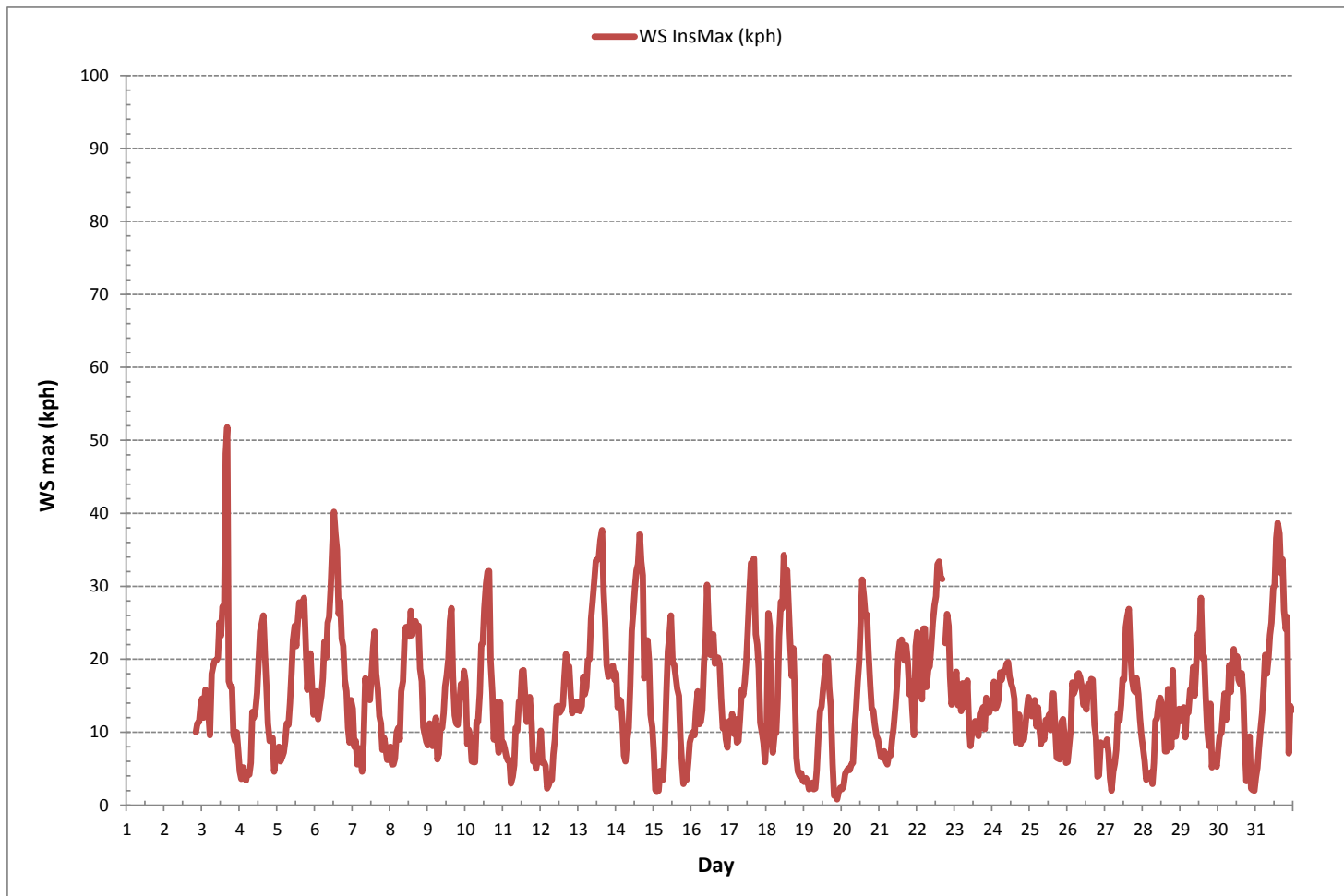
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	51.8	kph	@ HOUR	16	ON DAY	3
OPERATIONAL TIME:	700 hrs					

WIND SPEED Instantaneous Maximum (WS kph)

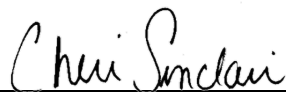


APPENDIX IV
REPORT CERTIFICATION FORM

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
YES	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Three Creeks 842b Station
Name of the Representative of the Person Responsible	Position / Title of the Representative of the Person Responsible
Mike Bisaga / Lily Lin	Technical Program Managers
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
☒ Yes ☐ No	
Name of External Person Certifying the Report	Position / Title of External Person Certifying the Report
Cheri Sinclair	Supervisor, Customer Service, Air Services
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
Maxxam Analytics, A Bureau Veritas Group Company	B.Sc.

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



Signature of the External Person Certifying the Report

17-Sep-2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-08-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Chris Simclaire

Date 12 - Sep - 2018

Level 1 Primary Validation

Chris Simclaire

Date 12 - Sep - 2018

Level 2 Final Validation

Chris Simclaire

Date 14 - Sep - 2018

Level 3 Independent Data Review

Chris Simclaire

Date 17 - Sep - 2018

Post-Final Validation

NA

Date NA

Notes

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