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

JOB #: 8449-2018-07-80-C

July 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **August 23, 2018**

Prepared by:

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SUMMARY

In July 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.

Canister System: A canister event was recorded on July 26 at 07:30, at an initial concentration of 0.31 ppm. The sample was processed for analysis as outlined in the PRAMP Chain of Custody.

Station Upgrade: A station upgrade was implemented between July 30 and July 31. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Downtime ranging from sixteen to thirty-five hours were recorded across parameters, in the July monitoring period, due to activities surrounding the upgrade.

THC/CH₄/NMHC:

- The analyzer flamed out on July 1 as the fuel gas (H₂) was depleted. Forty hours of downtime were recorded between July 1 and July 2 due to this issue and the corrective actions performed to address it.
- Following the canister event on July 26, an additional zero-span check was triggered as a quality check, incurring one hour of downtime.

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	5	8	14.4	S	0	1	95.3
TRS (ppb)	-	-	-	-	0.27	1.19	25	5	2.3	ESE	0.46	28	95.3
THC (ppm)	-	-	-	-	1.95	2.24	25	5	2.3	ESE	2.05	26	92.1
CH ₄ (ppm)	-	-	-	-	1.95	2.24	25	5	2.3	ESE	2.04	26	92.1
NMHC (ppm)	-	-	-	-	0.00	0.09	26	7	2.3	S	0.00	1	92.1
RELATIVE HUMIDITY (%)	-	-	-	-	72	95	8	5	9.8	S	90	20	97.8
BAROMETRIC PRESSURE (millibar)	-	-	-	-	946	957	23	7	5.5	NNW	956	23	97.8
AMBIENT TEMPERATURE (°C)	-	-	-	-	15.9	26.6	28	15	15.0	SSW	20.9	28	97.8
STATION TEMPERATURE (°C)	-	-	-	-	21.6	24.1	3	11	10.4	N	22.1	30	97.8
VECTOR WS (kph)	-	-	-	-	3.2	22.0	16	16	-	WSW	13.7	16	97.8
VECTOR WD (sec)	-	-	-	-	259 (WSW)	-	-	-	-	-	-	-	97.8

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	July

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	95.3	0.001 ppm		0	0.000 ppm	0
TRS	95.3	0.001 ppm		-	0.000 ppm	-
THC	92.1	2.24 ppm		-	2.05 ppm	-
CH ₄	92.1	2.24 ppm		-	2.04 ppm	-
NMHC	92.1	0.09 ppm		-	0.00 ppm	-
RH	97.8	95 %		-	90 %	-
BP	97.8	957 mb		-	956 mb	-
Ambient TPX	97.8	26.6 °C		-	20.9 °C	-
Station TPX	97.8	24.1 °C		-	22.1 °C	-
Wind Speed	97.8	22.0 kph		-	13.7 kph	-
Wind Direction	97.8	-		-	-	-

SIGNATURE OF COMPANY REPRESENTATIVE

FOR ALBERTA ENVIRONMENT USE ONLY

Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

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

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

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

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

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

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

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

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

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

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

SULPHUR DIOXIDE (SO₂)

- Operational time for the monitoring period was 95.3%, equivalent to thirty-five hours of downtime.
- The routine monthly calibration was performed on July 3.
- 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. Thirty-five hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 95.3%, equivalent to thirty-five hours of downtime.
- The routine monthly calibration was performed on July 3.
- 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. Thirty-five hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

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

- Operational time for the monitoring period was 92.1%, equivalent to fifty-nine hours of downtime.
 - The fuel gas (H₂) was depleted on July 1, causing the analyzer to flame out. This prompted a site visit on July 2 where the gas was replaced and the analyzer was relit. Two consecutive repeat zero-span checks were run afterwards to enhance the stability of the zero-span system. Forty hours of downtime were recorded due to this event.
 - The routine monthly calibration was performed on July 3.
 - Following a successful shut-down calibration on July 31, 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. Eighteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.
 - 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. A canister event was recorded on July 26 at 07:30, at an initial concentration of 0.31 ppm. The sample was processed for analysis as outlined in the PRAMP Chain of Custody. As a quality check, an additional zero-span check was triggered after the canister was replaced, incurring one hour of downtime.
- A trigger test was performed during the routine monthly calibration on July 4 to assess the effectiveness of the canister system; no deficiencies were found.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 97.8%, equivalent to sixteen hours of downtime.
- An anemometer sensor check was conducted on July 3. The result was satisfactory.
- A station upgrade was implemented this month. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 1. Sixteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.
- 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 97.8%, equivalent to sixteen hours of downtime.
- A humidity sensor check was conducted on July 3. The result was satisfactory.
- A station upgrade was implemented this month. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 1. Sixteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 97.8%, equivalent to sixteen hours of downtime.
- A pressure sensor check was conducted on July 3. The result was satisfactory.
- A station upgrade was implemented this month. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 1. Sixteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 97.8%, equivalent to sixteen hours of downtime.
- A temperature sensor check was conducted on July 3. The result was satisfactory.
- A station upgrade was implemented this month. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 1. Sixteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 97.8%, equivalent to sixteen hours of downtime.
- A station upgrade was implemented this month. The trailer was replaced and the Ultimate data logger was installed to replace the resident ESC 8832. Monitoring activity resumed on August 1. Sixteen hours of data were lost in the July monitoring period as a result of activities surrounding this upgrade.

2.0 Project Personnel

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

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 - ESC 8832

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

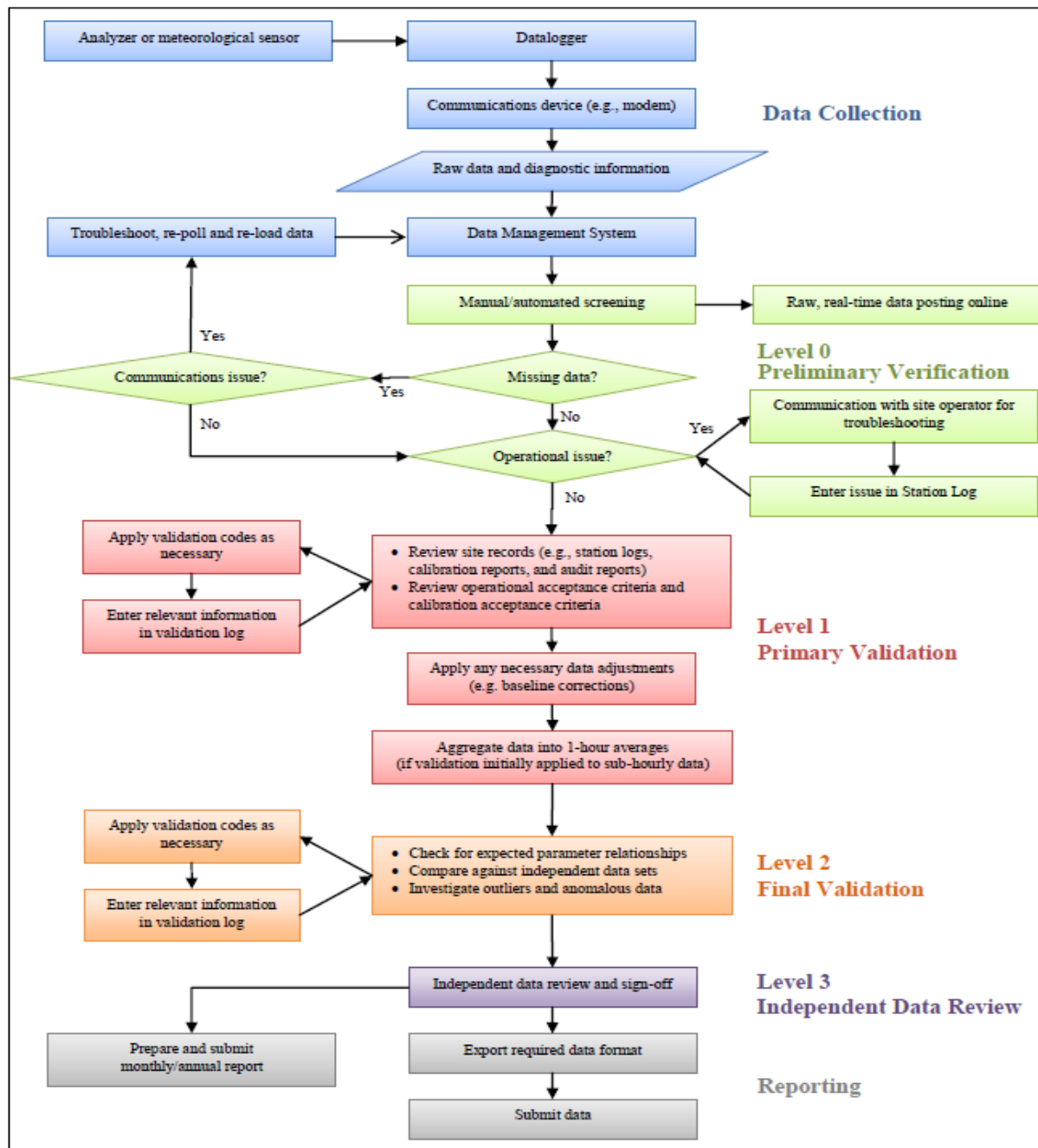
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

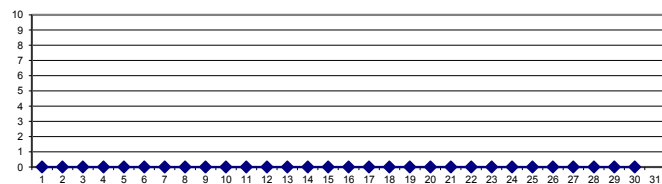
OBJECTIVE LIMIT:

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

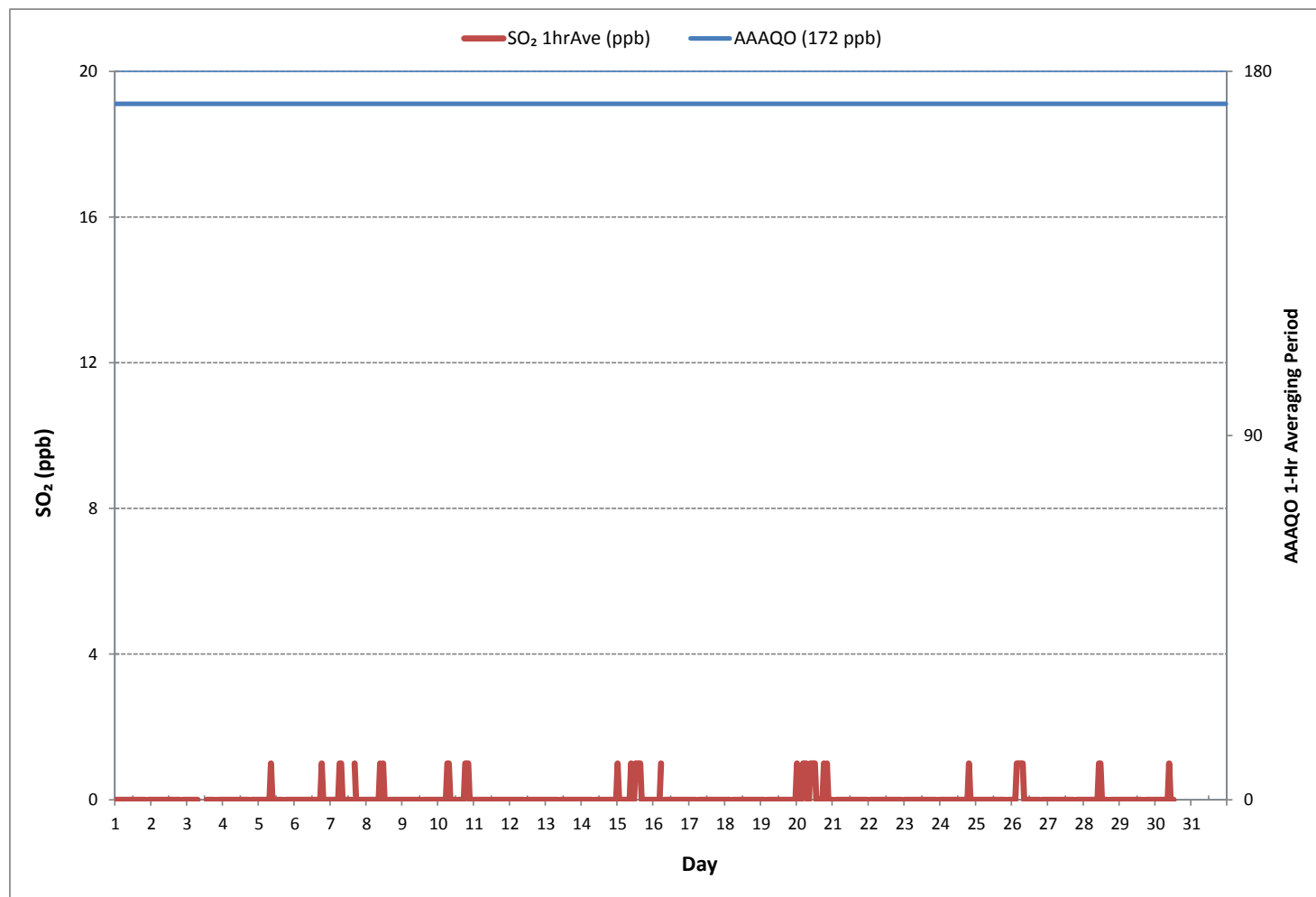
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0
NUMBER OF 24-HR EXCEEDANCES:	0
NUMBER OF NON-ZERO READINGS:	38
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR 0 ON DAY 1
MAXIMUM 1-HR AVERAGE:	1 ppb @ HOUR 8 ON DAY 5
MAXIMUM 24-HR AVERAGE:	0 ppb ON DAY 1
IZS CALIBRATION TIME:	30 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	709 hrs
AMD OPERATION UPTIME:	95.3 %
STANDARD DEVIATION:	0
MONTHLY AVERAGE:	0 ppb

24 HR AVERAGES July 2018



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-SO₂ [ppb]
Monthly: 18/07
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

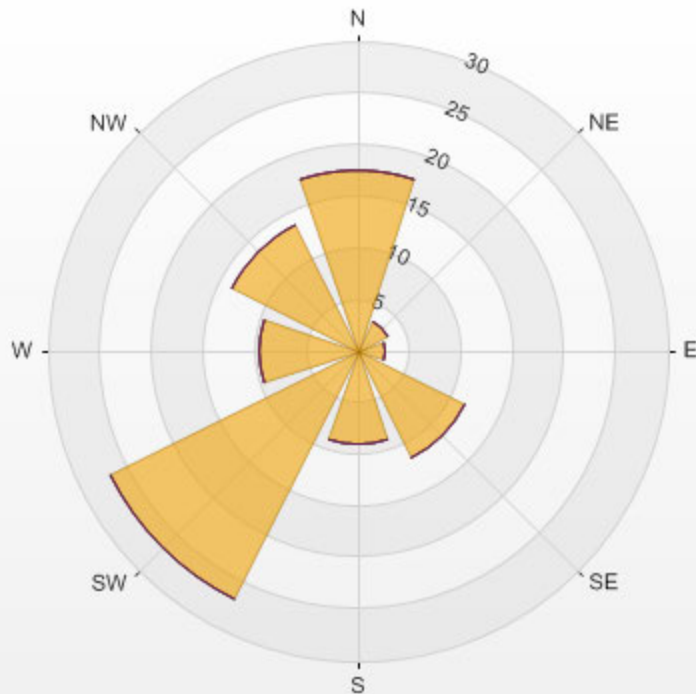
Calm: 5.79%

Calm Avg: 0.11 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	17.5	0.0	0.0	0.0	0.0	17.5
NE	3.3	0.0	0.0	0.0	0.0	3.3
E	2.7	0.0	0.0	0.0	0.0	2.7
SE	11.6	0.0	0.0	0.0	0.0	11.6
S	9.1	0.0	0.0	0.0	0.0	9.1
SW	26.9	0.0	0.0	0.0	0.0	26.9
W	9.6	0.0	0.0	0.0	0.0	9.6
NW	13.7	0.0	0.0	0.0	0.0	13.7
Summary	94.2	0.0	0.0	0.0	0.0	94.2

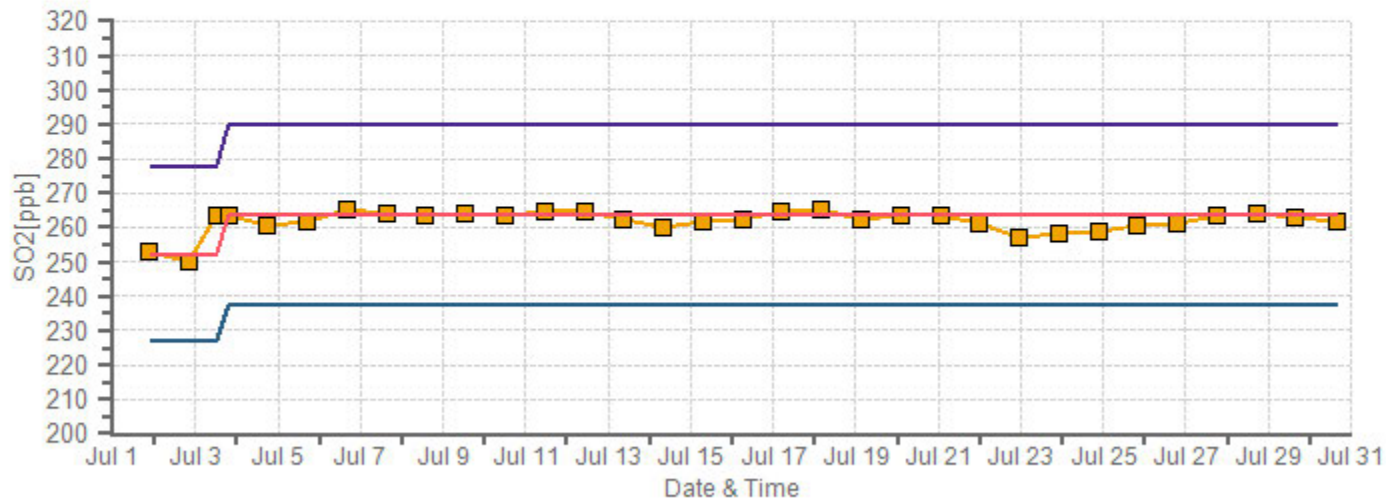
%	Icon	Classes (ppb)
94		0-3
0		3-10
0		10-85
0		85-170
0		>170.0

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 5.79% Calm Poll Avg: 0.11[ppb]



SO₂[ppb] Calibration: PRAMP_842 Monthly: 18/07 Type: Span

Span Meas Span Ref Span Low Span High



TOTAL REDUCED SULPHUR

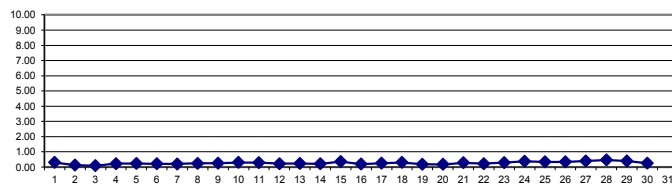
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

	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 START (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.48	0.42	0.53	0.55	0.60	0.54	0.47	0.37	0.33	0.29	0.24	0.25	0.22	0.19	0.18	0.16	0.16	0.14	0.13	0.19	0.19	S	0.20	0.18	0.13	0.60	0.30	24	
2	0.15	0.15	0.15	0.14	0.15	0.16	0.17	0.15	0.13	0.14	0.11	0.10	0.10	0.12	0.10	0.09	0.10	0.10	0.09	0.09	S	0.08	0.06	0.04	0.04	0.17	0.12	24	
3	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	C	0.14	0.09	0.09	0.11	0.12	0.15	S	0.16	0.18	0.17	0.18	0.00	0.18	0.08	24	
4	0.25	0.33	0.24	0.24	0.23	0.22	0.23	0.23	0.24	0.23	0.21	0.18	0.16	0.16	0.15	0.15	0.17	0.15	S	0.17	0.19	0.27	0.30	0.30	0.15	0.33	0.22	24	
5	0.33	0.31	0.26	0.34	0.31	0.37	0.31	0.24	0.21	0.18	0.17	0.15	0.14	0.14	0.16	0.15	0.16	S	0.18	0.20	0.22	0.28	0.31	0.26	0.14	0.37	0.23	24	
6	0.23	0.23	0.21	0.24	0.32	0.31	0.49	0.31	0.26	0.21	0.21	0.19	0.18	0.15	0.15	0.16	S	0.16	0.15	0.15	0.15	0.14	0.14	0.19	0.14	0.49	0.21	24	
7	0.20	0.23	0.30	0.17	0.24	0.24	0.19	0.25	0.48	0.24	0.21	0.19	0.16	0.13	0.13	S	0.16	0.12	0.12	0.14	0.17	0.15	0.17	0.15	0.12	0.48	0.20	24	
8	0.20	0.27	0.23	0.44	0.66	0.45	0.32	0.18	0.20	0.17	0.16	0.16	0.18	0.15	S	0.15	0.15	0.14	0.14	0.14	0.20	0.20	0.28	0.28	0.14	0.66	0.24	24	
9	0.30	0.33	0.34	0.38	0.42	0.40	0.27	0.18	0.18	0.17	0.16	0.16	0.17	S	0.16	0.15	0.15	0.14	0.16	0.18	0.23	0.31	0.37	0.36	0.14	0.42	0.25	24	
10	0.37	0.41	0.49	0.57	0.62	0.73	0.49	0.25	0.24	0.20	0.20	0.18	S	0.17	0.18	0.16	0.16	0.15	0.15	0.16	0.18	0.19	0.32	0.37	0.15	0.73	0.30	24	
11	0.46	0.59	0.58	0.64	0.73	0.49	0.24	0.21	0.22	0.21	0.20	S	0.17	0.18	0.18	0.16	0.16	0.17	0.17	0.20	0.18	0.17	0.19	0.20	0.16	0.73	0.29	24	
12	0.17	0.18	0.18	0.18	0.22	0.19	0.23	0.27	0.26	0.25	S	0.23	0.23	0.20	0.18	0.18	0.16	0.14	0.16	0.18	0.19	0.31	0.38	0.36	0.14	0.38	0.22	24	
13	0.33	0.13	0.13	0.16	0.41	0.60	0.35	0.29	0.19	S	0.15	0.14	0.14	0.14	0.13	0.14	0.14	0.15	0.18	0.18	0.12	0.15	0.42	0.51	0.12	0.60	0.23	24	
14	0.29	0.25	0.19	0.18	0.18	0.21	0.31	0.28	S	0.17	0.13	0.13	0.14	0.12	0.13	0.12	0.13	0.13	0.14	0.14	0.26	0.41	0.29	0.45	0.12	0.45	0.21	24	
15	0.56	0.59	0.52	0.65	0.54	0.72	0.61	S	0.54	0.48	0.35	0.20	0.18	0.19	0.17	0.16	0.15	0.16	0.17	0.22	0.31	0.30	0.33	0.29	0.15	0.72	0.36	24	
16	0.26	0.23	0.26	0.26	0.35	0.23	S	0.22	0.21	0.22	0.20	0.14	0.14	0.14	0.16	0.17	0.15	0.16	0.15	0.15	0.16	0.17	0.17	0.18	0.14	0.35	0.19	24	
17	0.19	0.24	0.27	0.24	0.42	S	0.37	0.28	0.24	0.21	0.20	0.18	0.19	0.20	0.19	0.19	0.17	0.16	0.17	0.18	0.29	0.39	0.34	0.53	0.16	0.53	0.25	24	
18	0.45	0.36	0.48	0.39	S	0.35	0.33	0.47	0.29	0.26	0.27	0.24	0.21	0.18	0.15	0.19	0.19	0.21	0.20	0.27	0.27	0.28	0.35	0.54	0.15	0.54	0.30	24	
19	0.32	0.36	0.39	S	0.58	0.46	0.28	0.23	0.19	0.14	0.15	0.12	0.09	0.06	0.04	0.03	0.00	0.00	0.00	0.19	0.22	0.22	0.00	0.02	0.00	0.58	0.18	24	
20	0.00	0.02	S	0.12	0.27	0.56	0.24	0.15	0.17	0.15	0.14	0.10	0.09	0.08	0.06	0.13	0.39	0.18	0.14	0.13	0.14	0.17	0.15	0.23	0.00	0.56	0.17	24	
21	0.32	S	0.38	0.30	0.38	0.52	0.34	0.34	0.32	0.27	0.22	0.23	0.20	0.20	0.21	0.22	0.23	0.20	0.20	0.20	0.19	0.24	0.27	0.38	0.19	0.52	0.28	24	
22	S	0.43	0.27	0.29	0.40	0.22	0.22	0.23	0.22	0.20	0.21	0.19	0.19	0.19	0.17	0.19	0.17	0.19	0.17	0.19	0.18	0.20	0.20	S	0.17	0.43	0.22	24	
23	0.24	0.25	0.30	0.56	0.75	0.36	0.32	0.29	0.21	0.21	0.18	0.19	0.17	0.17	0.18	0.16	0.16	0.16	0.18	0.19	0.23	0.32	S	0.91	0.16	0.91	0.29	24	
24	0.54	0.31	0.63	0.78	0.77	0.84	0.80	0.69	0.33	0.23	0.20	0.18	0.20	0.18	0.18	0.18	0.19	0.19	0.19	0.20	0.25	S	0.28	0.32	0.18	0.84	0.38	24	
25	0.58	0.47	0.30	0.33	0.58	1.19	0.92	0.49	0.30	0.20	0.17	0.17	0.17	0.17	0.18	0.18	0.17	0.17	0.15	0.15	S	0.27	0.24	0.32	0.15	1.19	0.34	24	
26	0.42	0.56	0.51	0.41	0.52	0.59	0.47	0.42	0.26	0.21	0.21	0.22	0.22	0.21	0.22	0.20	0.21	0.23	0.26	S	0.29	0.36	0.41	0.39	0.20	0.59	0.34	24	
27	0.42	0.44	0.65	0.62	0.72	0.59	0.43	0.34	0.32	0.31	0.31	0.29	0.26	0.25	0.24	0.24	0.23	0.23	S	0.35	0.43	0.48	0.49	0.57	0.23	0.72	0.40	24	
28	0.60	0.65	0.73	0.76	0.68	1.06	0.87	0.55	0.29	0.27	0.30	0.26	0.23	0.25	0.26	0.26	0.24	S	0.25	0.27	0.31	0.45	0.50	0.54	0.23	1.06	0.46	24	
29	0.60	0.71	0.72	0.86	0.72	0.41	0.32	0.28	0.30	0.27	0.27	0.28	0.28	0.32	0.31	0.29	S	0.26	0.27	0.34	0.35	0.33	0.38	0.42	0.26	0.86	0.40	24	
30	0.60	0.38	0.40	0.21	0.15	0.21	0.35	0.54	0.21	0.12	0.04	0.00	0.00	C1	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	0.00	0.60	0.25	13
31	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
HOURLY MAX	0.60	0.71	0.73	0.86	0.77	1.19	0.92	0.69	0.54	0.48	0.35	0.29	0.28	0.32	0.31	0.29	0.39	0.26	0.27	0.35	0.43	0.48	0.50	0.91					
HOURLY AVG	0.34	0.34	0.37	0.38	0.45	0.46	0.38	0.30	0.26	0.22	0.20	0.18	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.19	0.22	0.26	0.28	0.34					

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

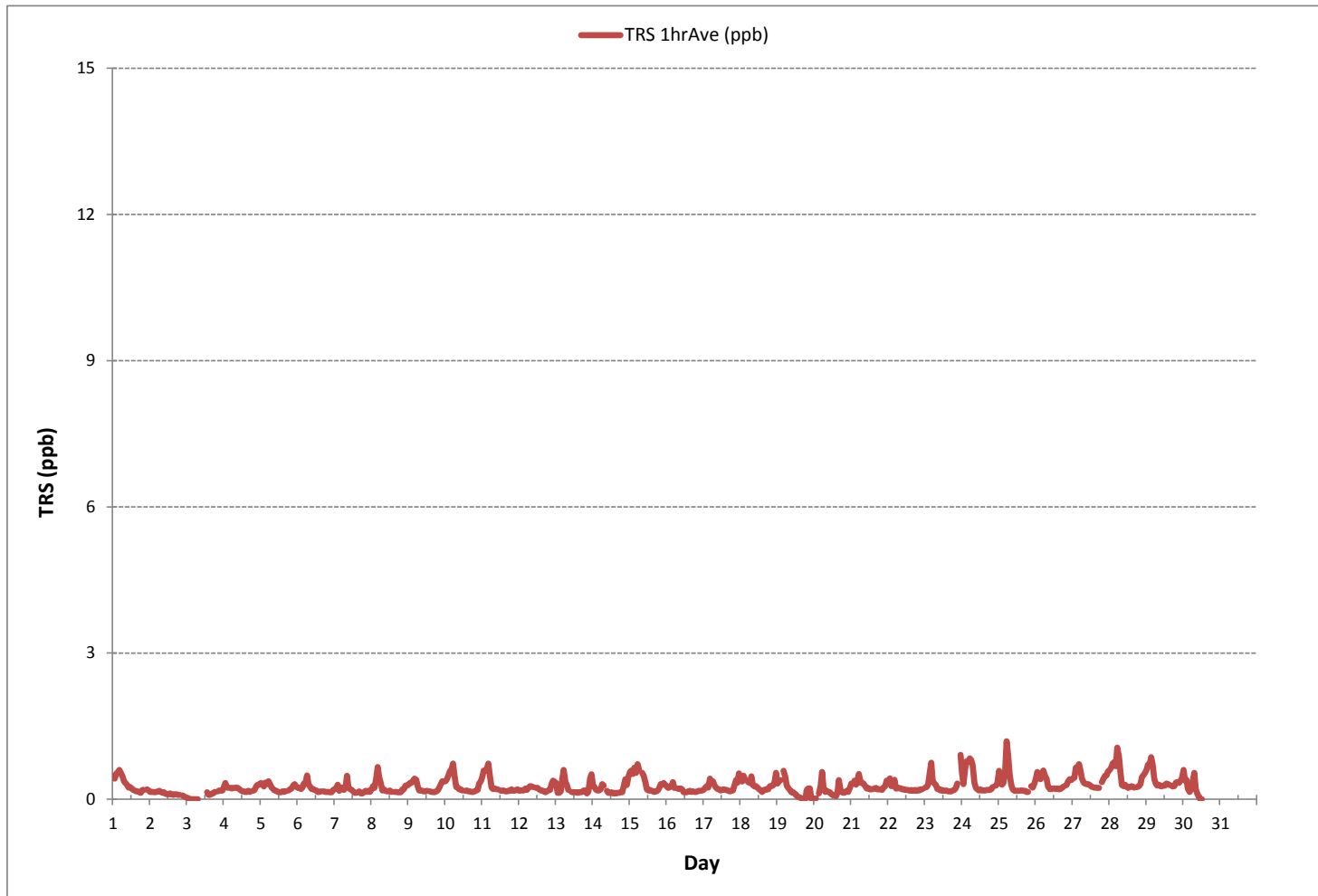
24 HR AVERAGES July 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	661			
MINIMUM 1-HR AVERAGE:	0.00	ppb @ HOUR	2	ON DAY 3
MAXIMUM 1-HR AVERAGE:	1.19	ppb @ HOUR	5	ON DAY 25
MAXIMUM 24-HR AVERAGE:	0.46	ppb		ON DAY 28
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	709 hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	95.3 %
STANDARD DEVIATION:	0.16		MONTHLY AVERAGE:	0.27 ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-TRS [ppb]
Monthly: 18/07
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 5.79%

Calm Avg: 0.41 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	17.5	0.0	0.0	0.0	17.5
NE	3.3	0.0	0.0	0.0	3.3
E	2.5	0.2	0.0	0.0	2.7
SE	11.4	0.2	0.0	0.0	11.6
S	9.1	0.0	0.0	0.0	9.1
SW	26.9	0.0	0.0	0.0	26.9
W	9.6	0.0	0.0	0.0	9.6
NW	13.7	0.0	0.0	0.0	13.7
Summary	93.9	0.3	0.0	0.0	94.2

% Icon Classes (ppb)

94

0-1

0

1-3

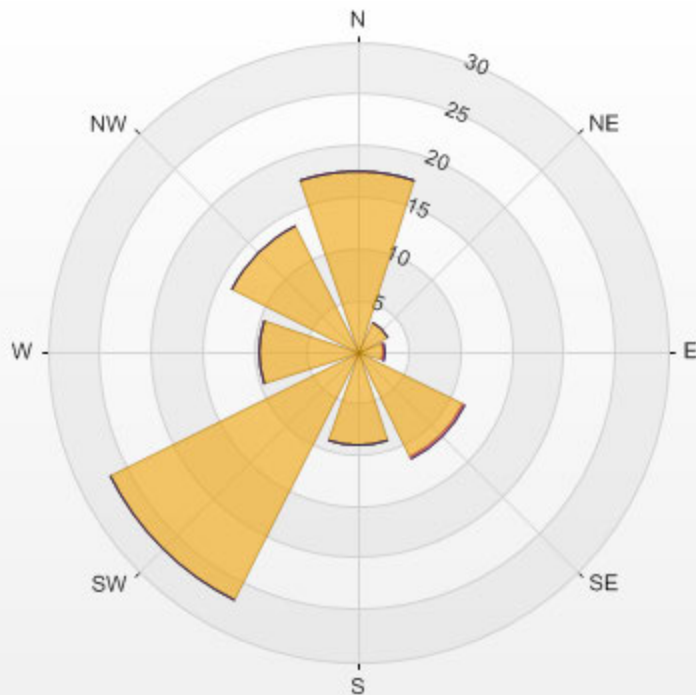
0

3-10

0

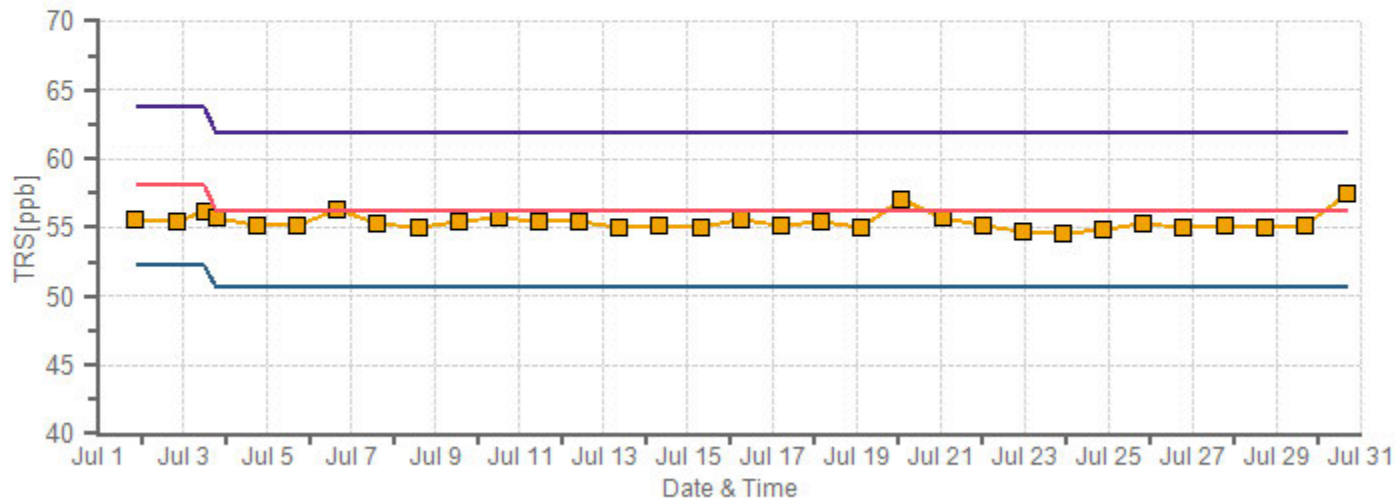
>10.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 5.79% Calm Poll Avg: 0.41[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/07 Type: Span

Span Meas Span Ref Span Low Span High



TOTAL HYDROCARBON

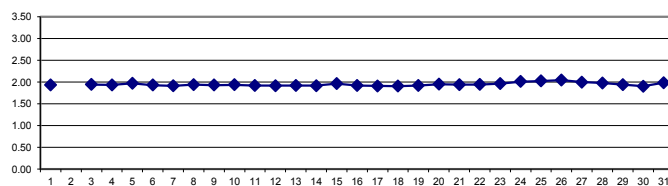
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.94	1.92	1.92	1.93	1.94	1.95	1.95	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.92	1.95	1.94	7	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1
3	1.93	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.95	C	C	C	C	1.93	1.93	1.92	1.93	1.92	1.93	S	1.94	1.92	1.96	1.94	24	
4	1.94	1.94	1.95	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.92	1.92	1.93	1.93	1.93	1.92	1.93	S	1.92	1.93	1.94	1.94	1.94	1.92	1.95	1.93	24	
5	1.96	1.98	2.00	2.01	2.01	2.03	2.02	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.94	S	1.95	1.95	1.96	1.97	1.99	2.02	1.94	2.03	1.97	24	
6	1.99	1.99	1.98	1.98	1.98	1.94	1.95	1.96	1.96	1.94	1.95	1.94	1.93	1.91	1.90	1.89	S	1.88	1.89	1.88	1.89	1.89	1.89	1.90	1.88	1.99	1.93	24	
7	1.91	1.90	1.90	1.89	1.89	1.89	1.89	1.90	1.92	1.92	1.92	1.93	1.92	1.92	1.92	S	1.93	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.89	1.93	1.91	24	
8	1.94	1.94	1.95	1.97	1.98	1.98	1.97	1.96	1.95	1.93	1.92	1.92	1.93	1.93	S	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.94	1.94	1.92	1.98	1.94	24	
9	1.95	1.96	1.95	1.95	1.95	1.96	1.95	1.94	1.93	1.92	1.92	1.92	1.92	S	1.91	1.91	1.90	1.91	1.92	1.90	1.91	1.93	1.94	1.94	1.90	1.96	1.93	24	
10	1.94	1.94	1.95	1.97	1.97	1.97	1.96	1.94	1.95	1.94	1.95	1.96	S	1.93	1.92	1.92	1.92	1.90	1.90	1.90	1.91	1.91	1.92	1.94	1.90	1.97	1.94	24	
11	1.95	1.96	1.97	1.96	1.96	1.94	1.92	1.91	1.91	1.91	1.91	S	1.92	1.91	1.91	1.91	1.91	1.90	1.90	1.91	1.92	1.91	1.90	1.91	1.92	1.90	1.97	1.92	24
12	1.91	1.90	1.92	1.91	1.92	1.93	1.93	1.93	1.92	1.92	S	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.91	1.91	1.90	1.91	1.95	1.96	1.90	1.96	1.92	24
13	1.94	1.90	1.92	1.92	1.95	1.96	1.94	1.92	1.91	S	1.91	1.91	1.92	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.91	1.92	1.94	1.93	1.90	1.96	1.92	24	
14	1.92	1.91	1.91	1.91	1.91	1.89	1.92	1.92	S	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.93	1.95	1.94	1.98	1.89	1.98	1.92	24
15	2.04	2.01	1.99	2.01	2.00	2.03	2.02	S	1.95	1.96	1.95	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.93	1.94	1.96	1.97	1.97	1.92	2.04	1.96	24
16	1.95	1.97	1.99	1.98	1.97	1.95	S	1.94	1.94	1.94	1.93	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.88	1.89	1.89	1.89	1.88	1.88	1.99	1.92	24	
17	1.89	1.90	1.90	1.91	1.93	S	1.93	1.91	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.89	1.92	1.93	1.95	2.00	1.89	2.00	1.91	24
18	2.02	1.98	1.98	1.92	S	1.89	1.90	1.91	1.90	1.89	1.90	1.89	1.89	1.88	1.87	1.89	1.88	1.88	1.88	1.92	1.91	1.90	1.90	1.92	1.87	2.02	1.91	24	
19	1.91	1.92	1.92	S	1.94	1.95	1.93	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.92	1.91	1.92	1.93	1.94	1.91	1.95	1.92	24
20	1.94	1.94	S	1.95	1.96	1.97	1.98	1.98	1.98	1.97	1.97	1.96	1.96	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.93	1.98	1.95	24	
21	1.94	S	1.93	1.93	1.93	1.96	1.96	1.96	1.95	1.94	1.92	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.93	1.93	1.93	1.94	1.94	1.95	1.92	1.96	1.94	24
22	S	1.96	1.95	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.93	1.94	1.94	1.94	S	1.93	1.96	1.94	24	
23	1.95	1.95	1.99	2.01	2.02	1.98	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.96	1.97	1.99	S	2.05	1.94	2.05	1.96	24	
24	2.03	1.99	2.05	2.10	2.12	2.19	2.18	2.11	2.03	1.99	1.96	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.98	S	1.99	2.03	1.94	2.19	2.01	24	
25	2.13	2.13	2.08	2.10	2.15	2.24	2.23	2.11	2.00	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.95	1.95	1.96	S	1.98	2.00	2.04	1.94	2.24	2.03	24	
26	2.14	2.20	2.21	2.16	2.24	2.19	2.16	2.19	2.00	1.96	1.97	S1	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.93	S	1.96	1.99	2.00	2.00	1.93	2.24	2.05	23
27	2.01	2.03	2.06	2.07	2.06	2.07	2.06	2.04	2.02	2.00	1.98	1.97	1.95	1.94	1.93	1.93	1.93	1.92	S	1.96	1.98	2.00	2.02	2.02	1.92	2.07	2.00	24	
28	2.02	2.02	2.06	2.09	2.08	2.10	2.10	2.06	1.98	1.96	1.95	1.93	1.92	1.89	1.89	1.90	1.89	S	1.89	1.90	1.92	1.96	1.97	1.98	1.89	2.10	1.98	24	
29	1.98	2.01	2.00	2.03	2.04	1.96	1.92	1.90	1.90	1.91	1.90	1.90	1.90	1.89	1.89	1.89	S	1.88	1.88	1.94	1.95	1.94	2.02	2.02	1.88	2.04	1.94	24	
30	2.07	2.03	1.88	1.87	1.87	1.87	1.88	1.90	1.88	1.87	1.89	1.89	1.89	1.88	1.87	S	1.88	1.89	1.89	1.89	1.91	1.91	1.91	1.93	1.87	2.07	1.90	24	
31	1.97	1.94	1.95	2.00	2.01	2.03	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.94	2.03	1.98	6	
HOURLY MAX	2.14	2.20	2.21	2.16	2.24	2.24	2.23	2.19	2.03	2.00	1.98	1.97	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.98	2.00	2.02	2.05				
HOURLY AVG	1.97	1.97	1.97	1.98	1.99	1.99	1.98	1.97	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.94	1.95	1.96				

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

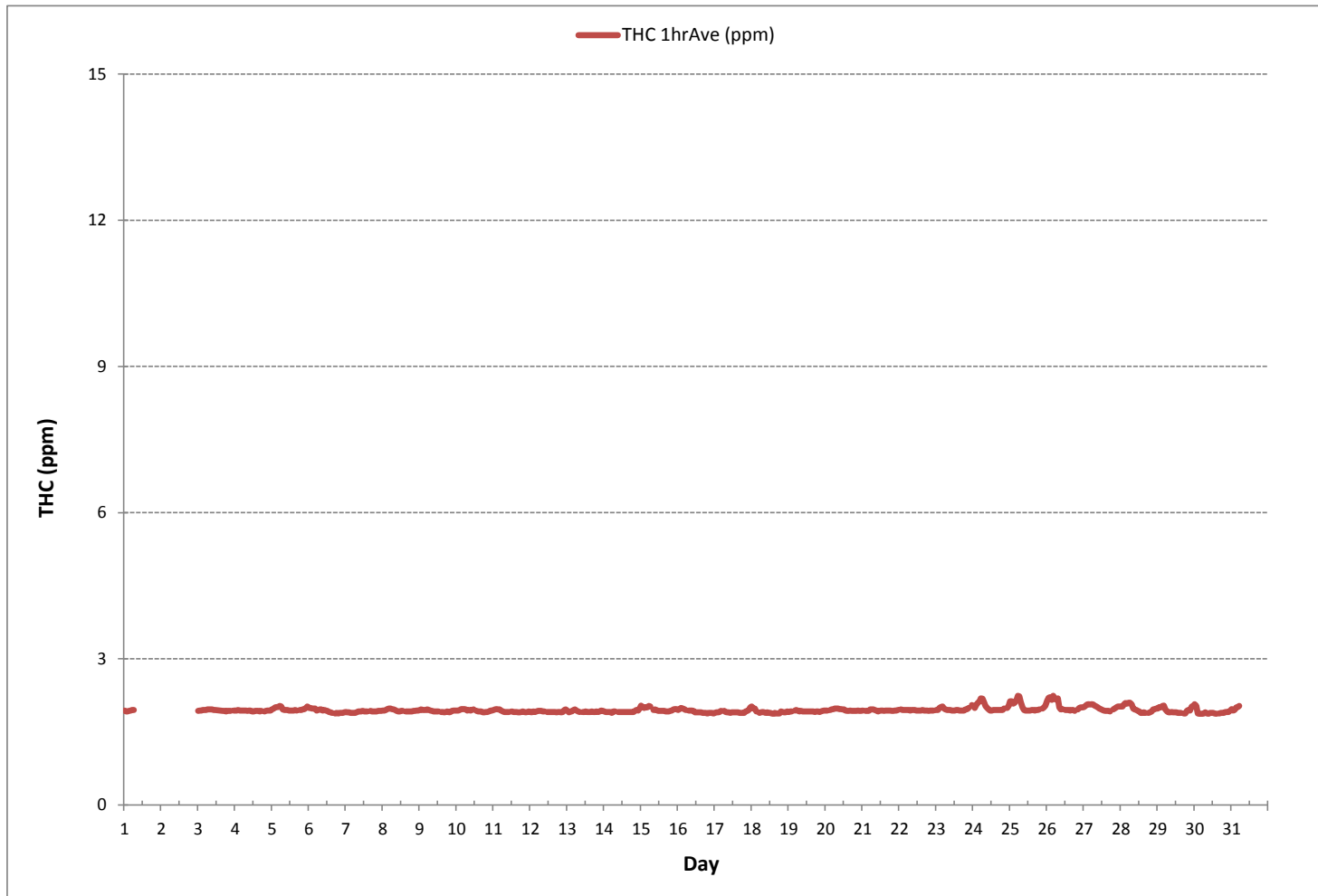
24 HR AVERAGES July 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	651			
MINIMUM 1-HR AVERAGE:	1.87	ppm @ HOUR	14	ON DAY 18
MAXIMUM 1-HR AVERAGE:	2.24	ppm @ HOUR	5	ON DAY 25
MAXIMUM 24-HR AVERAGE:	2.05	ppm		ON DAY 26
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	685 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	92.1 %
STANDARD DEVIATION:	0.06		MONTHLY AVERAGE:	1.95 ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



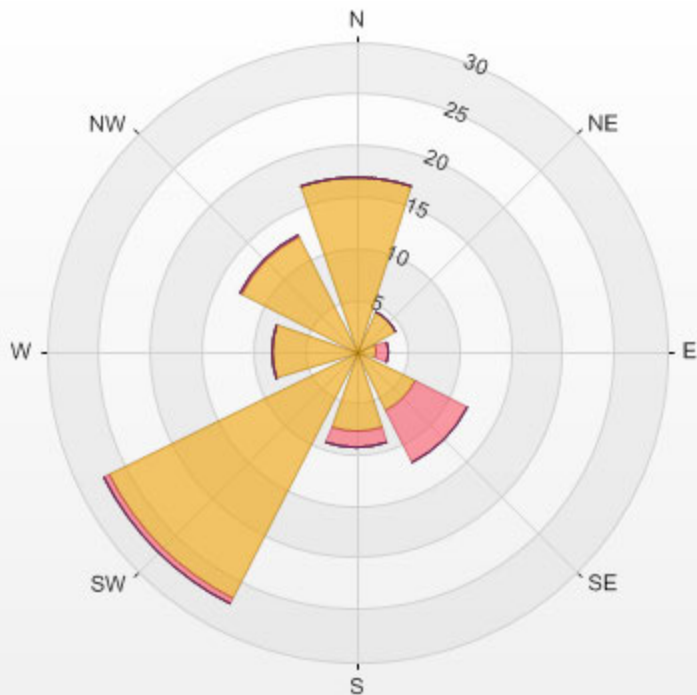
Wind: PRAMP_842
Poll.: PRAMP_842-THC55 [ppm]
Monthly: 18/07
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.14%

Calm Avg: 1.98 [ppm]

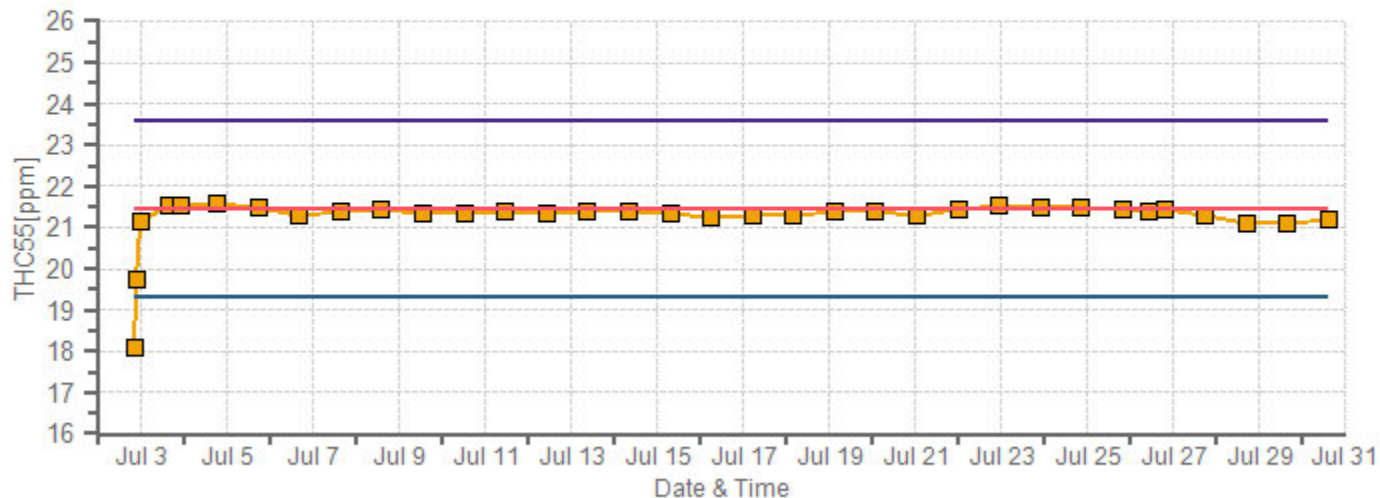
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.9	0.0	0.0	0.0	0.0	16.9
NE	4.3	0.0	0.0	0.0	0.0	4.3
E	2.0	1.1	0.0	0.0	0.0	3.1
SE	6.5	5.5	0.0	0.0	0.0	12.0
S	7.7	1.7	0.0	0.0	0.0	9.4
SW	26.7	0.6	0.0	0.0	0.0	27.3
W	8.1	0.2	0.0	0.0	0.0	8.3
NW	12.4	0.2	0.0	0.0	0.0	12.6
Summary	84.6	9.2	0.0	0.0	0.0	93.9

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 6.14% Calm Poll Avg: 1.98[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/07 Type: Span

Span Meas Span Ref Span Low Span High



METHANE

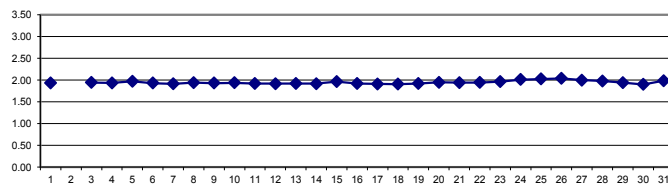
METHANE Hourly Averages (CH₄ ppm)

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	1.94	1.92	1.92	1.93	1.94	1.95	1.95	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.92	1.95	1.94	7	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1	
3	1.93	1.94	1.94	1.95	1.95	1.95	1.96	1.96	1.96	1.96	1.95	1.95	C	C	C	C	1.93	1.93	1.92	1.93	1.93	1.93	S	1.94	1.92	1.96	1.94	24	
4	1.94	1.94	1.95	1.94	1.94	1.94	1.94	1.94	1.93	1.94	1.94	1.92	1.92	1.93	1.93	1.93	1.92	1.93	S	1.92	1.93	1.94	1.94	1.94	1.92	1.95	1.93	24	
5	1.96	1.98	2.00	2.01	2.01	2.03	2.02	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.94	S	1.95	1.95	1.96	1.97	1.99	2.02	1.94	2.03	1.97	24	
6	1.99	1.99	1.98	1.98	1.98	1.94	1.95	1.96	1.96	1.94	1.95	1.94	1.93	1.91	1.90	1.89	S	1.88	1.89	1.88	1.89	1.89	1.89	1.90	1.88	1.99	1.93	24	
7	1.91	1.90	1.90	1.89	1.89	1.89	1.89	1.90	1.92	1.92	1.92	1.93	1.92	1.92	1.92	S	1.93	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.89	1.93	1.91	24	
8	1.94	1.94	1.95	1.97	1.98	1.98	1.97	1.96	1.95	1.93	1.92	1.92	1.93	1.93	S	1.92	1.92	1.92	1.92	1.92	1.93	1.93	1.94	1.94	1.92	1.98	1.94	24	
9	1.95	1.96	1.95	1.95	1.95	1.96	1.95	1.94	1.93	1.92	1.92	1.92	1.92	S	1.91	1.91	1.90	1.91	1.92	1.90	1.91	1.93	1.94	1.94	1.90	1.96	1.93	24	
10	1.94	1.94	1.95	1.97	1.97	1.97	1.96	1.94	1.95	1.94	1.95	1.96	S	1.93	1.92	1.92	1.92	1.90	1.90	1.91	1.91	1.92	1.94	1.94	1.90	1.97	1.94	24	
11	1.95	1.96	1.97	1.96	1.96	1.94	1.92	1.91	1.91	1.91	1.91	S	1.92	1.91	1.91	1.91	1.90	1.90	1.91	1.92	1.91	1.90	1.91	1.92	1.90	1.97	1.92	24	
12	1.91	1.90	1.92	1.91	1.92	1.93	1.93	1.93	1.92	1.92	S	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.91	1.90	1.91	1.95	1.96	1.90	1.96	1.92	24	
13	1.94	1.90	1.92	1.92	1.95	1.96	1.94	1.92	1.91	S	1.91	1.91	1.92	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.91	1.92	1.94	1.93	1.90	1.96	1.92	24	
14	1.92	1.91	1.91	1.91	1.91	1.89	1.92	1.92	S	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.91	1.93	1.95	1.94	1.98	1.89	1.98	1.92	24
15	2.04	2.01	1.99	2.01	2.00	2.03	2.02	S	1.95	1.96	1.95	1.93	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.93	1.94	1.96	1.97	1.97	1.92	2.04	1.96	24	
16	1.95	1.97	1.99	1.98	1.97	1.95	S	1.94	1.94	1.94	1.93	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.88	1.89	1.89	1.89	1.88	1.88	1.99	1.92	24	
17	1.89	1.90	1.90	1.91	1.93	S	1.93	1.91	1.90	1.90	1.89	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.89	1.89	1.92	1.93	1.95	2.00	1.89	2.00	1.91	24	
18	2.01	1.98	1.97	1.92	S	1.89	1.90	1.91	1.90	1.89	1.90	1.89	1.89	1.88	1.87	1.89	1.88	1.88	1.88	1.92	1.91	1.90	1.90	1.92	1.87	2.01	1.91	24	
19	1.91	1.92	1.92	S	1.94	1.95	1.93	1.92	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.92	1.91	1.92	1.93	1.94	1.91	1.95	1.92	24
20	1.94	1.94	S	1.95	1.96	1.97	1.98	1.98	1.98	1.97	1.97	1.96	1.96	1.94	1.93	1.93	1.94	1.92	1.93	1.93	1.93	1.94	1.93	1.93	1.92	1.98	1.95	24	
21	1.94	S	1.93	1.93	1.93	1.96	1.96	1.96	1.95	1.94	1.92	1.93	1.94	1.94	1.93	1.94	1.94	1.94	1.94	1.93	1.93	1.94	1.94	1.95	1.92	1.96	1.94	24	
22	S	1.96	1.95	1.95	1.95	1.95	1.95	1.94	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.95	1.94	1.94	1.94	1.93	1.94	1.94	1.94	S	1.93	1.96	1.94	24	
23	1.95	1.95	1.99	2.01	2.02	1.98	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.96	1.97	1.98	S	2.05	1.94	2.05	1.96	24	
24	2.03	1.99	2.05	2.10	2.12	2.19	2.18	2.11	2.03	1.99	1.96	1.94	1.94	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.98	S	1.99	2.03	1.94	2.19	2.01	24	
25	2.13	2.13	2.08	2.10	2.15	2.24	2.23	2.11	2.00	1.95	1.94	1.94	1.94	1.94	1.95	1.95	1.94	1.95	1.95	1.96	S	1.98	2.00	2.04	1.94	2.24	2.03	24	
26	2.14	2.20	2.21	2.16	2.24	2.19	2.16	2.10	1.99	1.96	1.97	S1	1.95	1.95	1.95	1.94	1.95	1.95	1.93	S	1.96	1.99	2.00	2.00	1.93	2.24	2.04	23	
27	2.01	2.03	2.06	2.07	2.06	2.07	2.06	2.04	2.02	2.00	1.98	1.97	1.95	1.94	1.93	1.93	1.93	1.92	S	1.96	1.98	2.00	2.02	2.02	1.92	2.07	2.00	24	
28	2.02	2.02	2.06	2.09	2.08	2.10	2.10	2.06	1.98	1.96	1.95	1.93	1.92	1.89	1.89	1.90	1.89	S	1.89	1.90	1.92	1.96	1.97	1.98	1.89	2.10	1.98	24	
29	1.98	2.01	2.00	2.03	2.04	1.96	1.92	1.90	1.90	1.91	1.90	1.90	1.90	1.89	1.89	1.89	S	1.88	1.88	1.93	1.95	1.94	1.98	2.02	1.88	2.04	1.94	24	
30	2.06	2.03	1.88	1.87	1.87	1.87	1.88	1.90	1.88	1.87	1.89	1.89	1.89	1.88	1.87	S	1.88	1.89	1.88	1.89	1.91	1.91	1.91	1.93	1.87	2.06	1.90	24	
31	1.97	1.94	1.95	2.00	2.01	2.03	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.94	2.03	1.98	6	
HOURLY MAX	2.14	2.20	2.21	2.16	2.24	2.24	2.23	2.11	2.03	2.00	1.98	1.97	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	1.98	2.00	2.02	2.05					
HOURLY AVG	1.97	1.97	1.97	1.98	1.99	1.99	1.98	1.96	1.95	1.94	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.91	1.92	1.92	1.93	1.94	1.95	1.96					

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

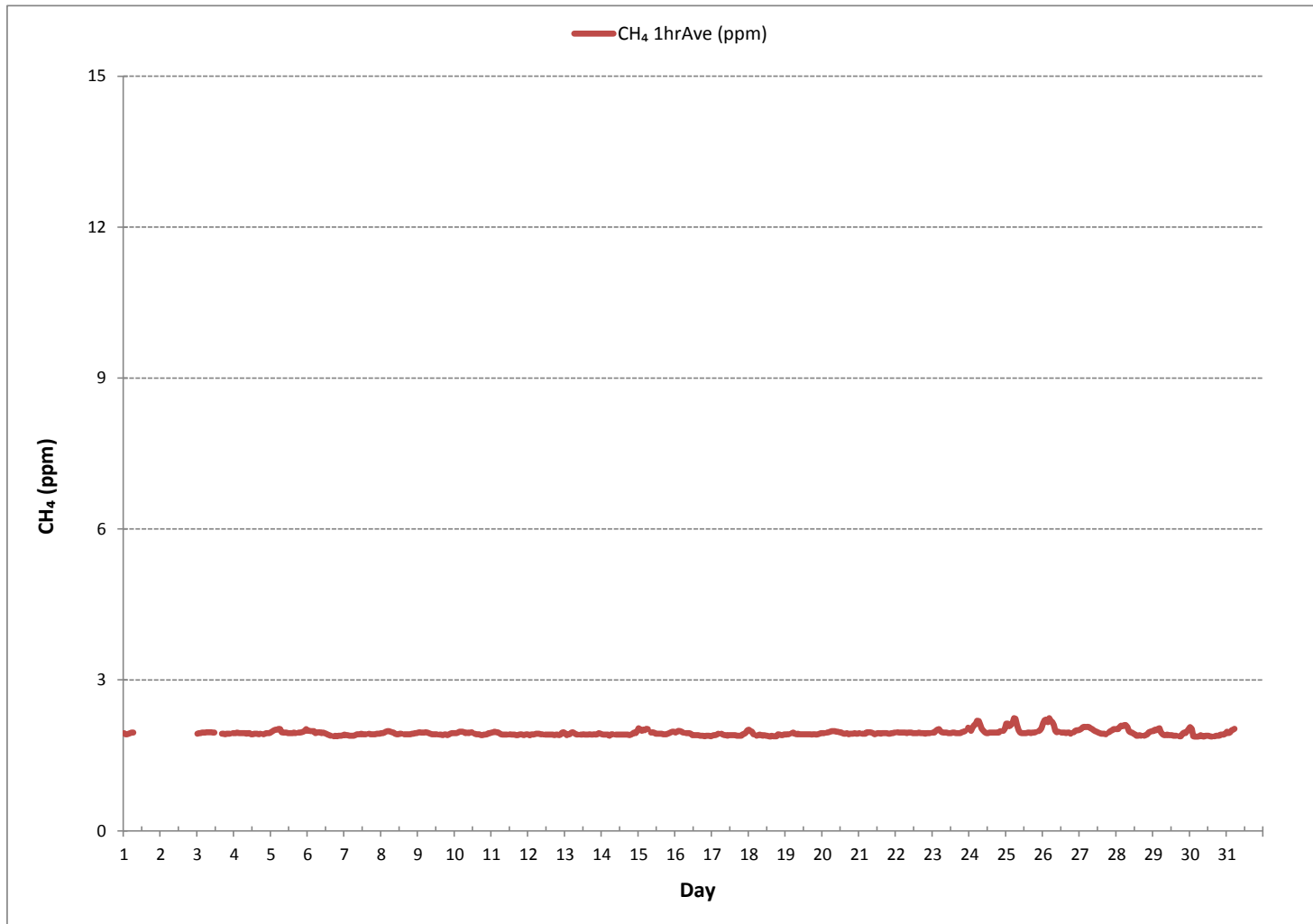
24 HR AVERAGES July 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	651			
MINIMUM 1-HR AVERAGE:	1.87	ppm @ HOUR	14	ON DAY 18
MAXIMUM 1-HR AVERAGE:	2.24	ppm @ HOUR	5	ON DAY 25
MAXIMUM 24-HR AVERAGE:	2.04	ppm		ON DAY 26
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	685 hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	92.1 %
STANDARD DEVIATION:	0.05		MONTHLY AVERAGE:	1.95 ppm

METHANE Hourly Averages (CH₄ ppm)



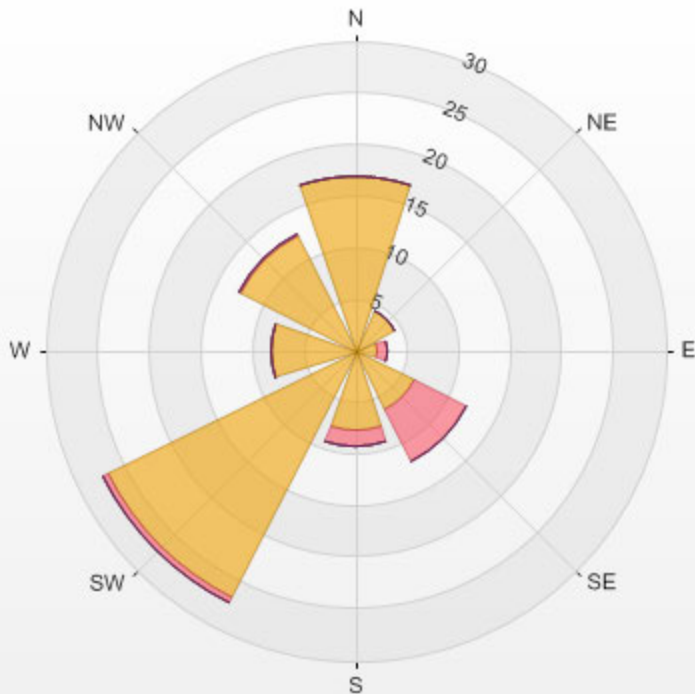
Wind: PRAMP_842
Poll.: PRAMP_842-CH4 [ppm]
Monthly: 18/07
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.14%

Calm Avg: 1.98 [ppm]

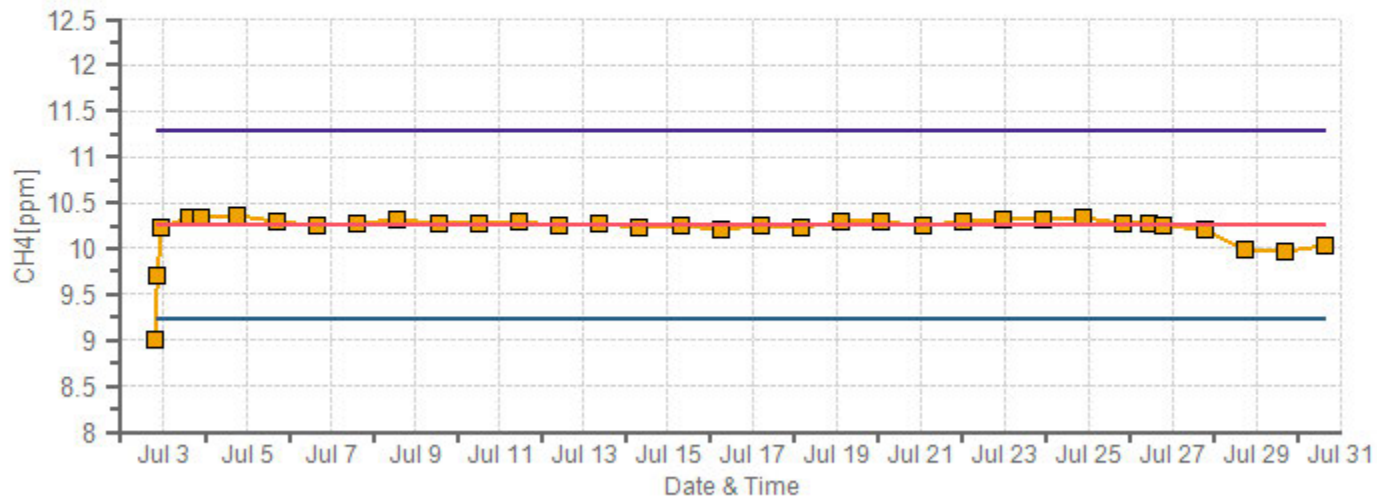
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	16.9	0.0	0.0	0.0	0.0	16.9
NE	4.3	0.0	0.0	0.0	0.0	4.3
E	2.2	0.9	0.0	0.0	0.0	3.1
SE	6.5	5.5	0.0	0.0	0.0	12.0
S	7.7	1.7	0.0	0.0	0.0	9.4
SW	26.7	0.6	0.0	0.0	0.0	27.3
W	8.1	0.2	0.0	0.0	0.0	8.3
NW	12.4	0.2	0.0	0.0	0.0	12.6
Summary	84.8	9.1	0.0	0.0	0.0	93.8

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 6.14% Calm Poll Avg: 1.98[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 18/07 Type: Span

Span Meas Span Ref Span Low Span High



NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 2018

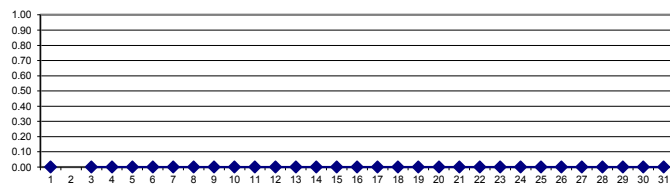
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	7	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1	
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24		
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
16	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
17	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
18	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
19	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
20	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
21	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	24	
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	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	0.09	0.01	0.00	0.00	\$1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	23
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.01	0.01	0.00	0.04	0.00	0.00	0.04	0.00	24	
30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24	
31	0.00	0.00	0.00	0.00	0.00	0.00	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.00	0.00	0.00	6	
HOURLY MAX	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.04	0.00					
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

STATUS FLAG CODES

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

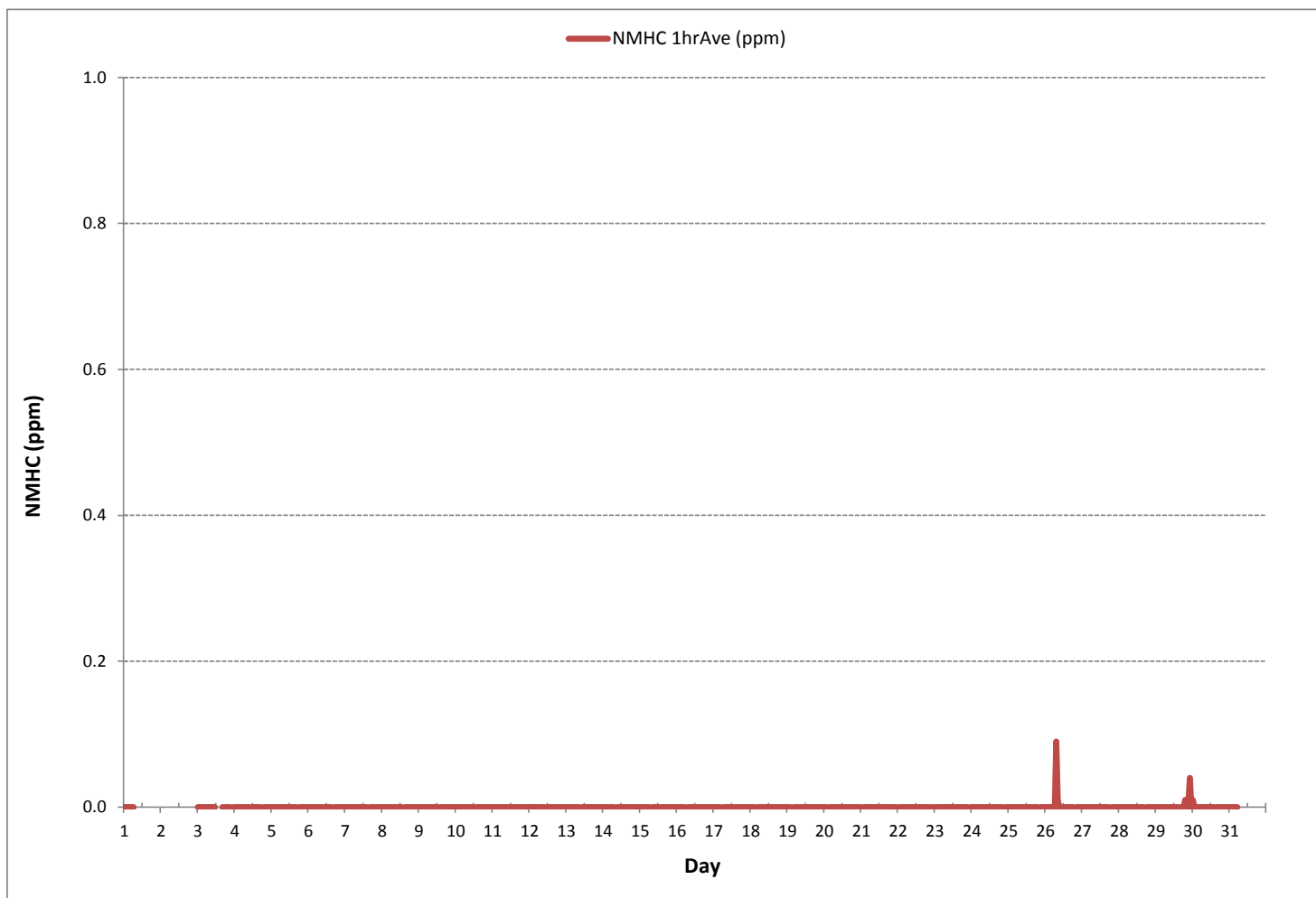
24 HR AVERAGES July 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	6				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.09	ppm	@ HOUR	7	ON DAY 26
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	685	hrs
MONTHLY CALIBRATION TIME:	4	hrs	AMD OPERATION UPTIME:	92.1	%
STANDARD DEVIATION:	0.00		MONTHLY AVERAGE:	0.00	ppm

NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)



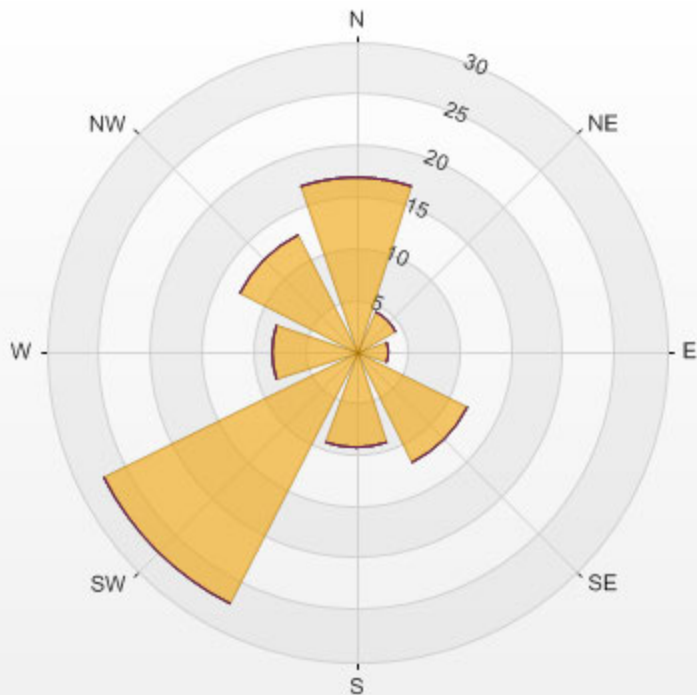
Wind: PRAMP_842
Poll.: PRAMP_842-NMHC[ppm]
Monthly: 18/07
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 6.14%

Calm Avg: 0.00 [ppm]

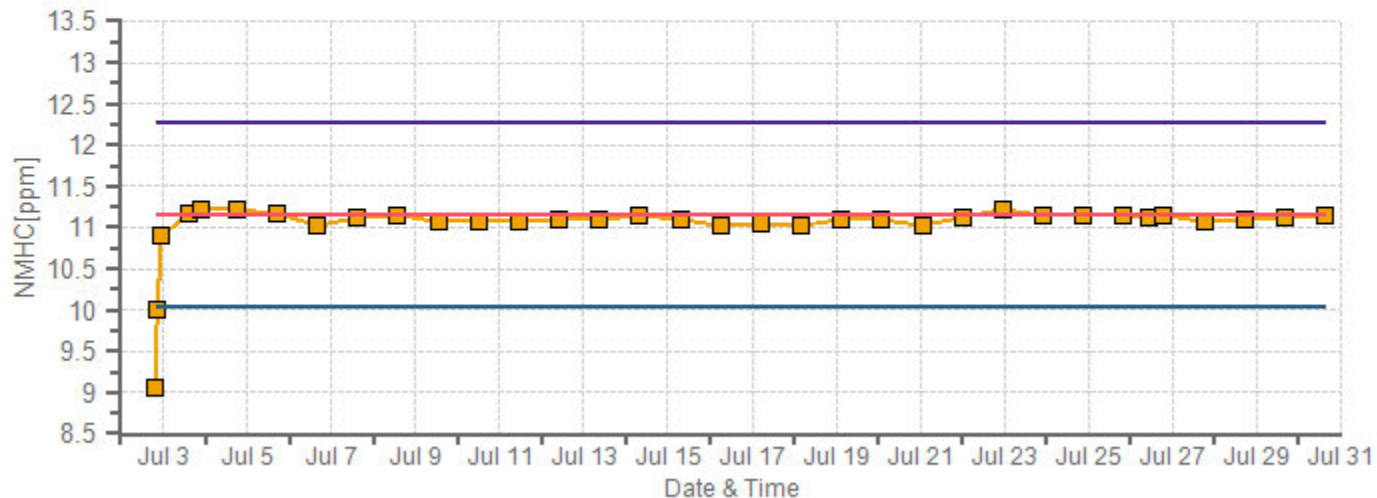
Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	16.9	0.0	0.0	0.0	0.0	16.9
NE	4.3	0.0	0.0	0.0	0.0	4.3
E	3.1	0.0	0.0	0.0	0.0	3.1
SE	12.0	0.0	0.0	0.0	0.0	12.0
S	9.4	0.0	0.0	0.0	0.0	9.4
SW	27.3	0.0	0.0	0.0	0.0	27.3
W	8.3	0.0	0.0	0.0	0.0	8.3
NW	12.6	0.0	0.0	0.0	0.0	12.6
Summary	93.9	0.0	0.0	0.0	0.0	93.9

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 6.14% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/07 Type: Span

Span Meas Span Ref Span Low Span High



WIND SPEED

WIND SPEED Hourly Averages (WS kph)

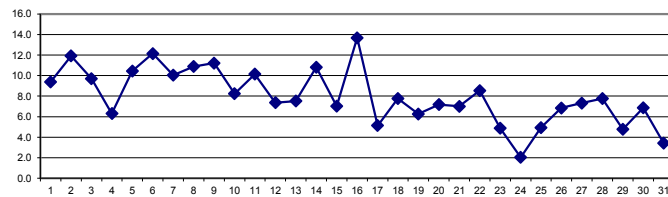
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	6.3	6.7	5.6	5.0	5.4	6.5	7.7	8.9	12.7	13.6	13.5	15.0	16.5	12.4	14.1	16.3	9.6	12.7	9.5	5.4	5.0	4.8	6.4	5.8	4.8	16.5	9.4	24
2	8.6	9.3	9.9	9.8	9.4	9.7	10.4	12.4	13.6	14.5	12.6	12.0	12.0	13.5	17.4	14.1	15.8	13.9	14.8	12.3	10.5	9.6	9.9	9.9	8.6	17.4	11.9	24
3	10.1	8.3	8.1	8.8	9.9	9.7	11.0	11.2	11.0	11.8	11.2	10.4	8.1	9.6	10.7	14.6	13.5	13.3	13.3	10.7	5.9	3.8	3.5	4.4	3.5	14.6	9.7	24
4	3.4	3.9	4.2	3.1	4.5	3.7	5.5	5.2	5.6	7.2	9.8	11.3	9.2	9.8	8.5	5.8	4.4	5.5	6.5	6.3	7.4	7.7	6.0	6.7	3.1	11.3	6.3	24
5	6.8	6.7	6.3	6.3	7.1	5.8	8.3	9.8	14.4	11.4	13.0	16.5	17.4	14.9	16.0	15.4	15.7	15.8	13.9	7.1	4.4	4.6	6.3	7.0	4.4	17.4	10.5	24
6	7.8	10.2	5.5	6.8	8.9	1.1	6.8	4.6	13.1	14.2	10.9	16.4	15.9	17.0	18.8	17.6	18.3	16.1	18.4	12.4	13.7	12.4	12.9	11.7	1.1	18.8	12.1	24
7	13.0	9.5	8.6	10.6	9.5	7.7	8.4	6.7	10.5	13.3	11.8	12.1	11.8	10.6	10.1	9.5	9.1	9.2	9.4	11.1	10.9	10.6	7.9	9.4	6.7	13.3	10.1	24
8	6.4	7.8	8.5	7.4	7.6	9.8	9.2	13.5	15.3	15.6	15.3	14.5	15.6	16.7	14.5	13.9	13.3	10.9	8.7	7.0	6.0	5.5	8.6	9.5	5.5	16.7	10.9	24
9	7.8	7.6	8.4	6.7	7.3	7.8	10.6	13.6	14.2	15.4	16.1	16.4	18.1	19.9	20.7	17.8	16.1	12.1	9.7	8.1	6.3	1.9	3.5	3.0	1.9	20.7	11.2	24
10	4.3	5.8	5.0	3.5	2.8	4.4	5.8	7.2	10.0	12.6	14.3	13.6	11.8	12.3	11.7	13.6	12.1	10.2	11.4	7.7	6.7	5.4	2.9	2.5	2.5	14.3	8.2	24
11	3.8	4.1	2.5	4.9	3.9	4.7	7.9	9.8	9.5	11.0	11.1	9.7	12.2	13.2	16.8	19.1	17.5	15.5	17.1	10.0	9.9	11.5	9.2	8.4	2.5	19.1	10.1	24
12	9.5	8.3	9.4	9.1	6.4	8.9	8.5	9.5	8.3	8.5	9.2	6.0	8.4	8.7	4.6	5.5	7.6	11.0	8.2	6.5	3.7	2.2	2.5	6.1	2.2	11.0	7.4	24
13	4.7	9.2	7.7	10.0	4.3	2.1	5.6	6.4	8.1	9.5	7.7	10.6	12.3	10.2	10.0	8.0	7.6	4.6	5.2	4.6	9.4	9.4	7.1	6.1	2.1	12.3	7.5	24
14	8.1	10.9	11.6	13.3	13.2	11.5	12.3	13.8	12.6	12.1	20.6	21.5	20.9	17.6	14.0	11.3	8.0	9.6	7.4	3.6	0.5	0.9	1.9	2.6	0.5	21.5	10.8	24
15	2.7	4.0	5.5	5.0	4.2	3.9	6.5	7.3	10.3	10.0	11.0	12.5	13.5	13.5	12.0	8.6	6.9	10.1	4.9	1.0	0.3	2.1	4.6	8.3	0.3	13.5	7.0	24
16	10.5	10.1	5.1	5.1	6.0	10.7	9.2	10.9	13.5	14.9	14.2	16.8	13.9	15.8	20.3	21.8	22.0	21.1	21.7	17.0	15.3	11.6	10.6	10.1	5.1	22.0	13.7	24
17	9.2	7.2	6.5	5.8	1.5	1.0	2.9	7.3	5.0	4.0	6.6	7.3	8.6	3.5	4.4	5.9	10.6	7.2	6.5	3.4	0.8	1.3	2.8	3.8	0.8	10.6	5.1	24
18	6.1	6.4	4.9	5.6	7.7	7.6	3.6	3.4	8.4	8.8	12.2	12.4	11.3	14.5	11.4	11.0	11.0	11.0	10.2	1.8	4.9	5.8	1.6	5.0	1.6	14.5	7.8	24
19	5.2	2.5	3.4	2.6	2.7	1.6	3.2	5.0	6.4	6.2	7.8	8.4	7.8	8.5	9.1	9.0	11.0	8.9	7.2	6.4	8.0	7.2	6.7	5.5	1.6	11.0	6.3	24
20	3.5	3.2	3.9	8.3	7.1	9.4	7.0	1.5	4.8	6.8	6.9	9.3	7.3	10.5	10.0	2.3	6.8	10.1	8.4	7.3	9.1	6.9	13.0	8.8	1.5	13.0	7.2	24
21	5.3	4.7	5.2	5.9	4.6	5.0	3.2	3.9	4.0	5.5	4.5	8.7	9.4	11.2	11.8	10.3	10.5	7.6	9.7	10.6	10.3	6.2	5.3	4.8	3.2	11.8	7.0	24
22	5.4	5.1	8.1	7.9	8.9	10.0	8.3	9.9	10.3	10.2	10.4	9.4	12.2	12.2	12.8	12.7	10.3	8.5	7.2	6.2	6.6	3.7	3.8	4.6	3.7	12.8	8.5	24
23	5.8	5.6	1.6	0.9	0.9	2.6	4.0	5.5	7.3	10.5	13.4	11.6	8.5	7.7	6.8	5.2	4.1	5.7	4.3	3.2	1.0	0.4	0.1	0.4	0.1	13.4	4.9	24
24	0.4	1.3	0.3	2.1	1.8	0.9	1.5	1.8	2.2	2.3	4.3	5.7	4.6	3.7	1.4	1.0	2.4	0.3	0.9	2.5	0.4	1.9	1.9	3.2	0.3	5.7	2.0	24
25	2.8	2.4	3.0	3.1	2.8	2.3	3.0	2.2	5.6	5.9	6.4	9.5	11.1	10.3	7.8	9.2	8.8	8.1	7.1	2.5	0.9	1.0	1.1	1.4	0.9	11.1	4.9	24
26	2.3	2.3	5.5	3.2	1.9	3.3	4.5	2.3	7.1	10.0	11.5	11.7	12.0	11.7	10.9	10.3	9.8	9.4	8.3	6.1	6.3	3.8	5.1	5.0	1.9	12.0	6.8	24
27	5.3	4.0	3.8	4.4	6.4	3.8	5.7	8.2	9.8	9.8	10.5	9.8	12.2	12.1	11.8	12.0	11.4	10.3	8.2	6.0	2.8	1.9	3.7	1.8	1.8	12.2	7.3	24
28	2.4	3.2	2.9	4.6	3.7	4.5	4.8	4.8	6.5	8.9	10.1	11.7	13.0	11.3	13.5	15.0	12.8	10.3	9.5	7.2	7.7	5.6	6.1	6.1	2.4	15.0	7.8	24
29	6.3	5.0	5.1	1.3	2.7	8.7	9.5	8.6	6.7	7.9	3.9	1.5	3.3	9.7	8.3	7.5	6.0	4.2	1.0	0.6	0.7	1.7	1.9	2.1	0.6	9.7	4.8	24
30	1.2	10.6	7.9	7.9	3.1	7.7	5.8	0.6	10.0	7.0	8.2	10.9	10.9	9.5	10.4	7.7	9.1	10.4	7.0	4.3	3.1	4.1	3.5	4.1	0.6	10.9	6.9	24
31	3.8	5.2	3.7	3.1	2.6	1.7	3.0	4.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.7	5.2	3.4	8
HOURLY MAX	13.0	10.9	11.6	13.3	13.2	11.5	12.3	13.8	15.3	15.6	20.6	21.5	20.9	19.9	20.7	21.8	22.0	21.1	21.7	17.0	15.3	12.4	13.0	11.7				

STATUS FLAG CODES

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

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

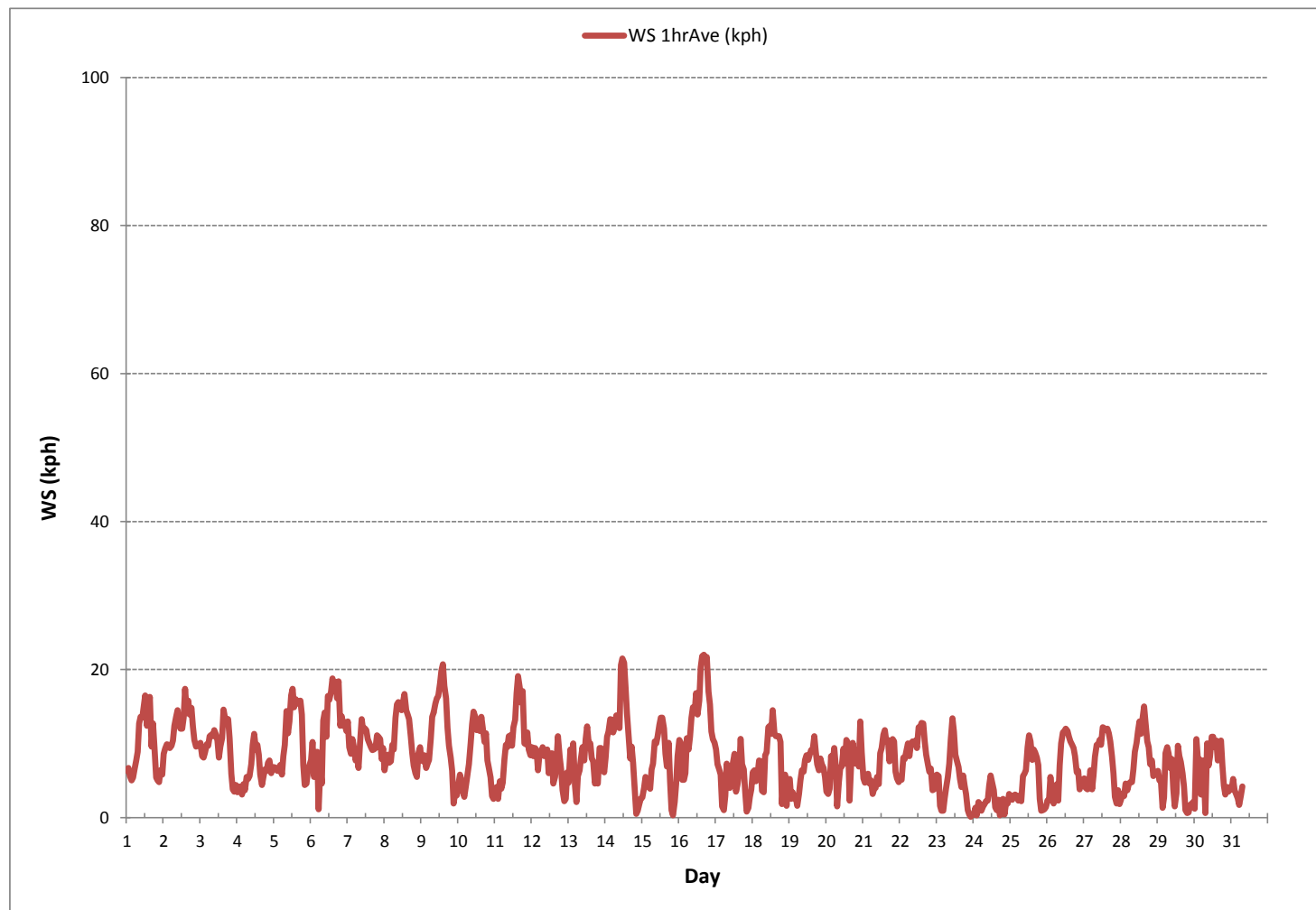
24 HR AVERAGES July 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	728				
MINIMUM 1-HR AVERAGE	0.1	kph	@ HOUR	22	ON DAY 23
MAXIMUM 1-HR AVERAGE:	22.0	kph	@ HOUR	16	ON DAY 16
MAXIMUM 24-HR AVERAGE:	13.7	kph			ON DAY 16
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	728	hrs
STANDARD DEVIATION:	4.4		AMD OPERATION UPTIME:	97.8	%
			MONTHLY AVERAGE:	3.2	kph

WIND SPEED Hourly Averages (WS kph)



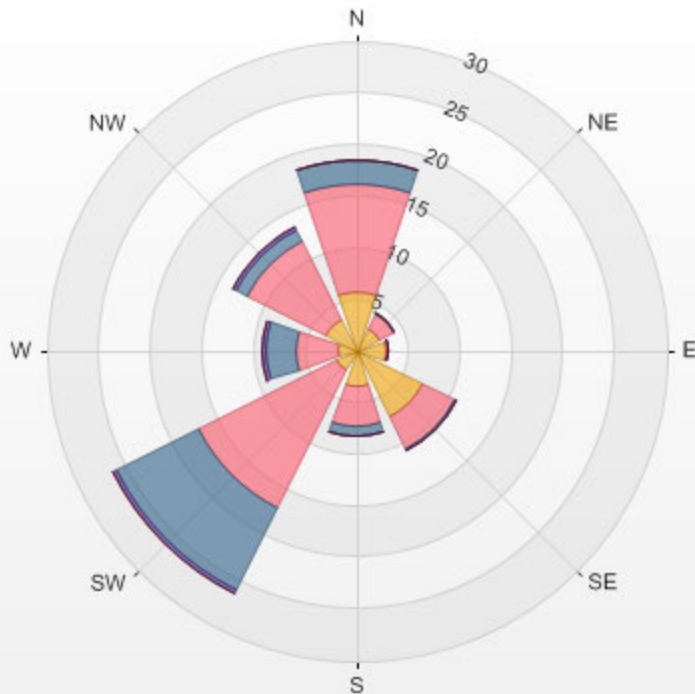
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/07
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 5.91%

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	5.8	10.4	2.3	0.0	0.0	0.0	18.6
NE	2.5	1.5	0.1	0.0	0.0	0.0	4.1
E	2.9	0.3	0.0	0.0	0.0	0.0	3.2
SE	7.1	3.6	0.1	0.0	0.0	0.0	10.9
S	3.4	4.0	1.0	0.0	0.0	0.0	8.4
SW	2.2	14.8	8.9	0.4	0.0	0.0	26.4
W	1.8	4.1	2.9	0.4	0.0	0.0	9.2
NW	3.4	8.5	1.1	0.4	0.0	0.0	13.5
Summary	29.1	47.3	16.5	1.2	0.0	0.0	94.1

%	Icon	Classes (kph)	%	Icon	Classes (kph)	%	Icon	Classes (kph)	%	Icon	Classes (kph)	%	Icon	Classes (kph)
29		1.8-6.0	47		6.0-12.0	16		12.0-20.0	1		20.0-29.0	0		29.0-39.0
												0		>39.0

PRAMP_842 2018/07/01 00:00 - 2018/07/31 23:00 Calm: 5.91% Calm Wind Avg Speed: 1.00(kph)



WIND DIRECTION



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

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

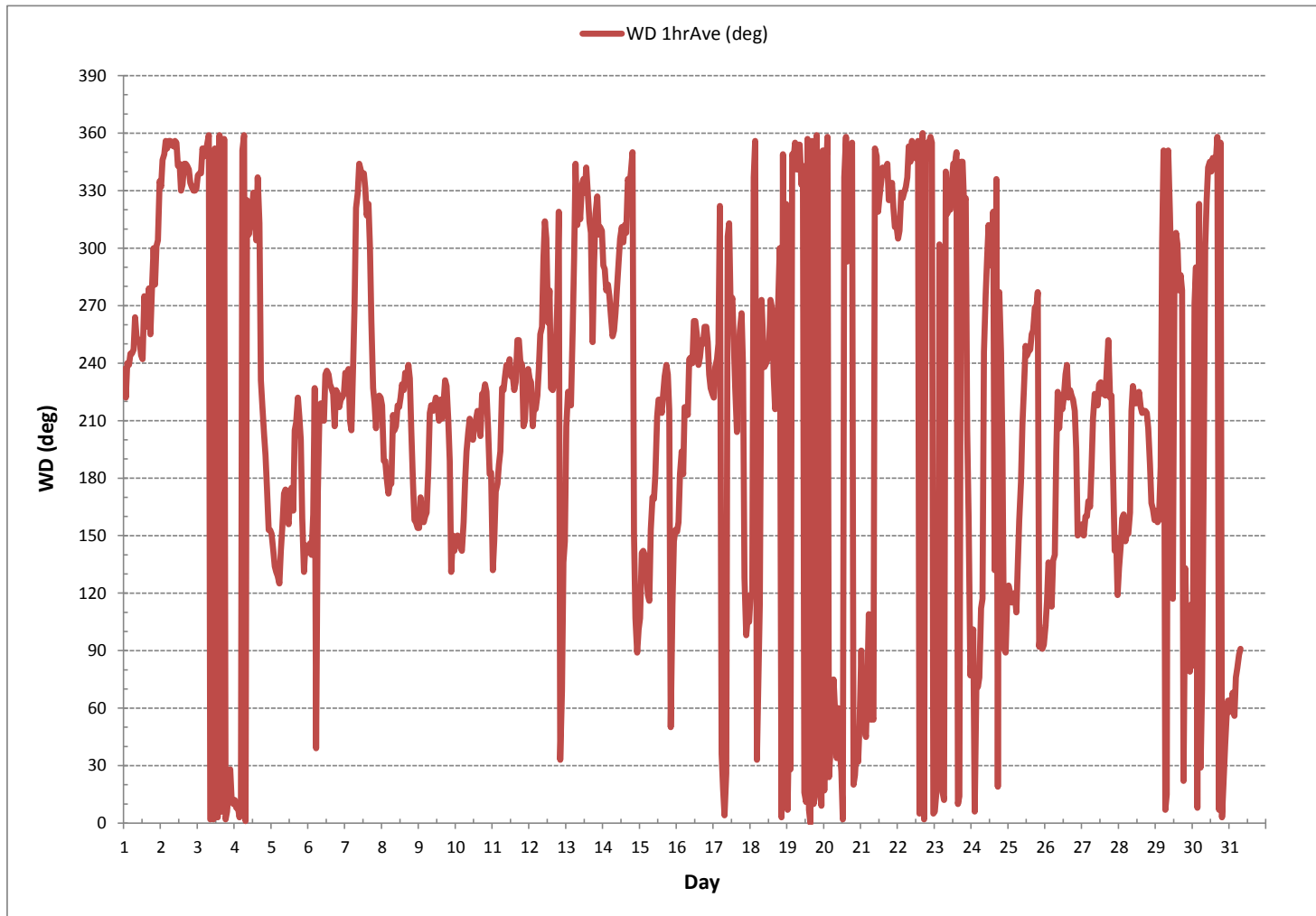
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	728	hrs
STANDARD DEVIATION:	101		AMD OPERATION UPTIME:	97.8	%
			MONTHLY AVERAGE:	259 (WSW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY

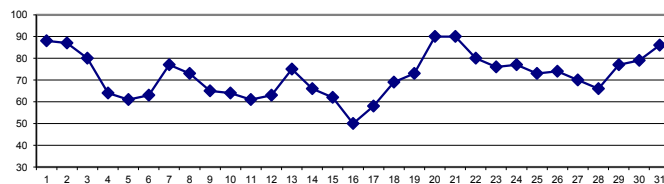
RELATIVE HUMIDITY Hourly Averages (RH %)

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

STATUS FLAG CODES

C	- MONTHLY CALIBRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT CALIBRATION	R	- RECOVERY
Y	- MAINTENANCE	X	- MACHINE MALFUNCTION
S	- DAILY ZERO/SPAN CHECK	G	- OUT FOR REPAIR
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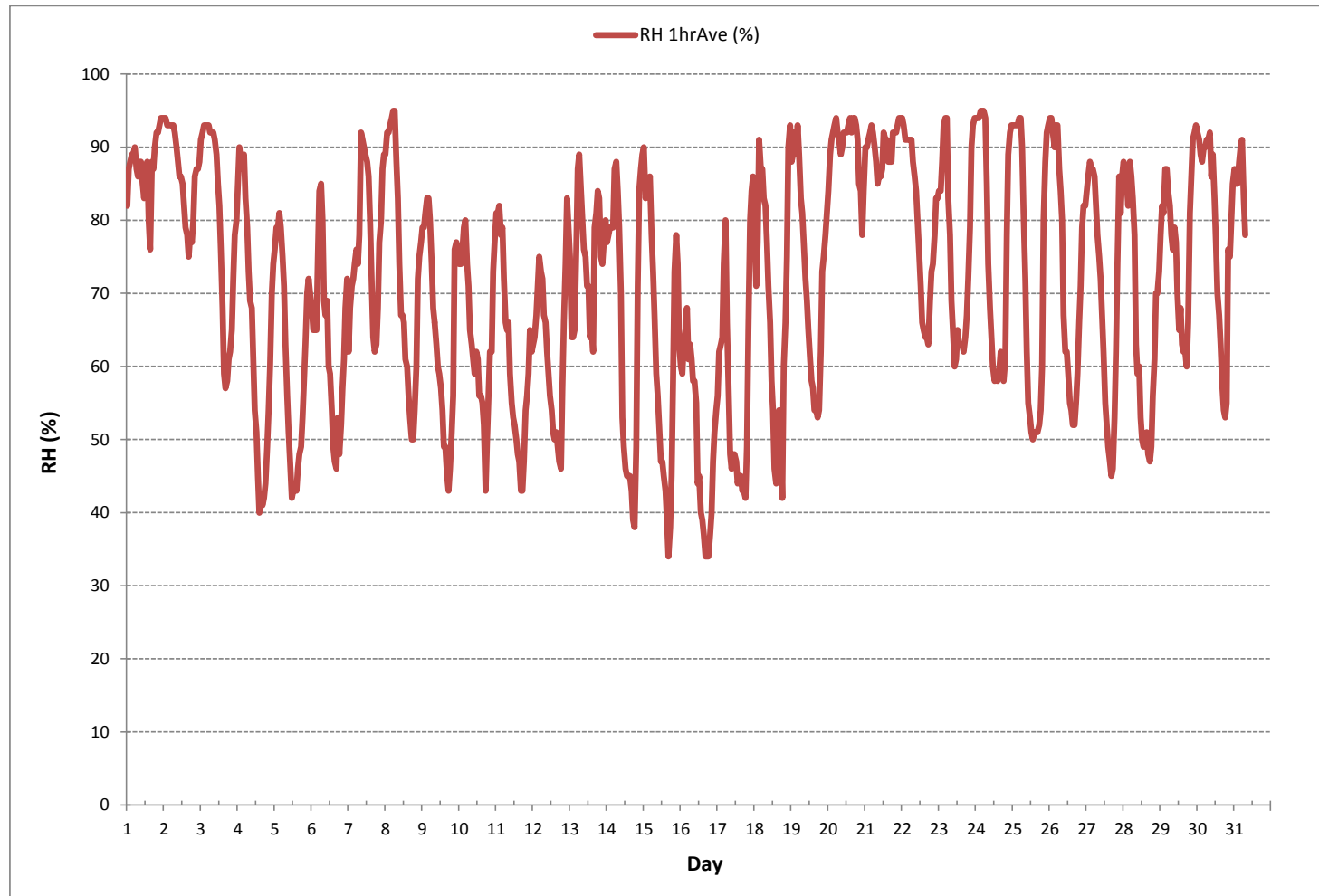
24 HR AVERAGES July 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	34	%	@ HOUR	16	ON DAY	15
MAXIMUM 1-HR AVERAGE:	95	%	@ HOUR	5	ON DAY	8
MAXIMUM 24-HR AVERAGE:	90	%			ON DAY	20
OPERATIONAL TIME:						728 hrs
AMD OPERATION UPTIME:						97.8 %
STANDARD DEVIATION:	16		MONTHLY AVERAGE:			72 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE

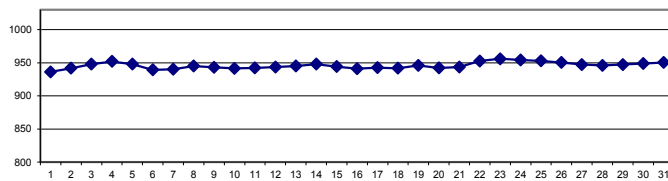
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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

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

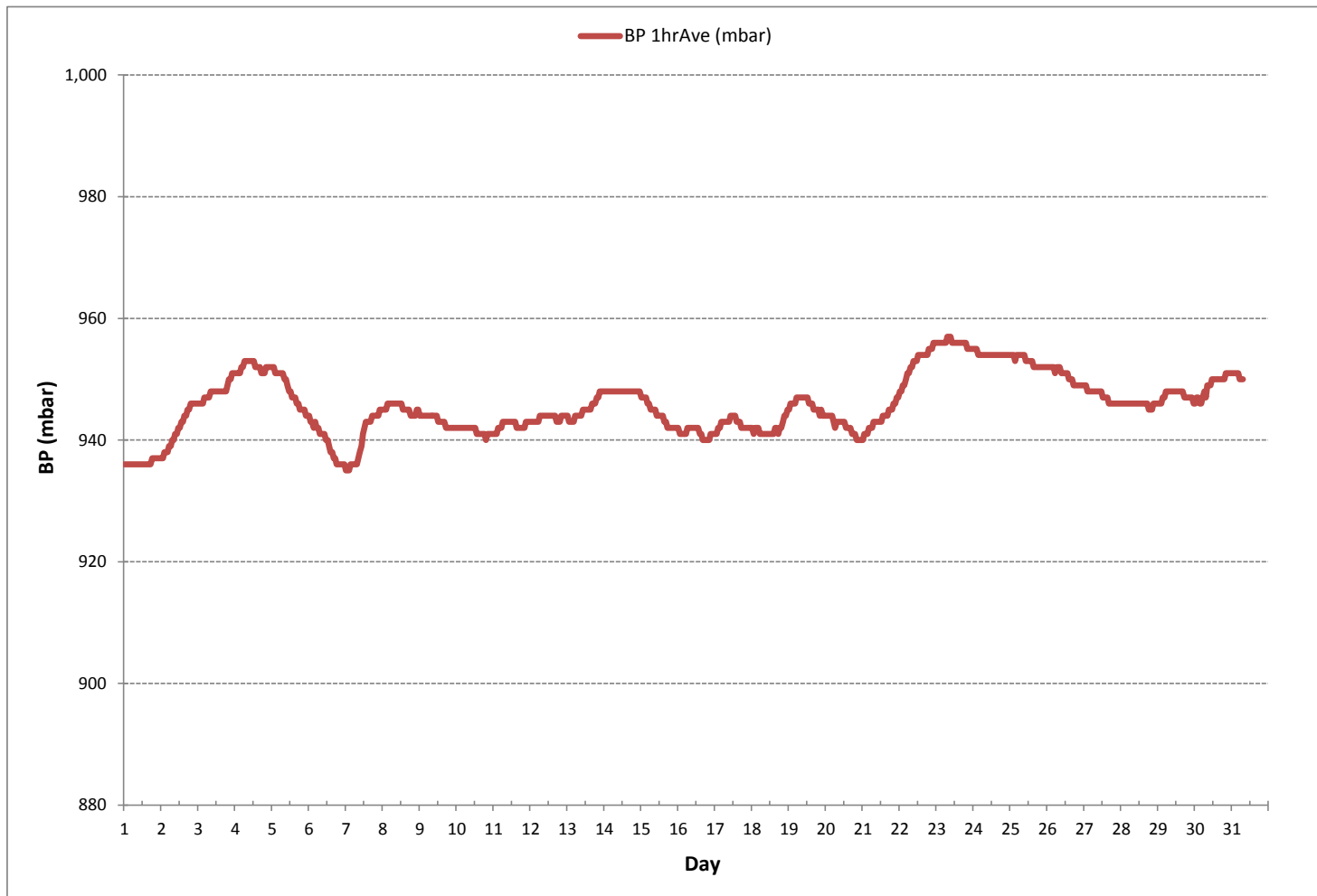
24 HR AVERAGES July 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	935	mbar	@ HOUR	0	ON DAY	7
MAXIMUM 1-HR AVERAGE:	957	mbar	@ HOUR	7	ON DAY	23
MAXIMUM 24-HR AVERAGE:	956	mbar			ON DAY	23
OPERATIONAL TIME:						728 hrs
AMD OPERATION UPTIME:						97.8 %
STANDARD DEVIATION:	5					MONTHLY AVERAGE: 946 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 2018

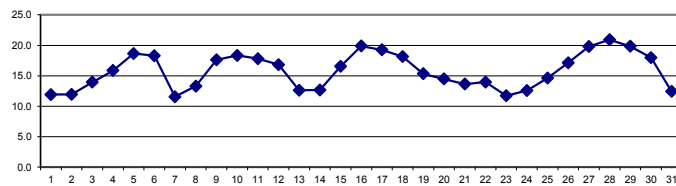
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	11.1	10.0	9.4	9.3	9.8	10.1	11.1	11.3	11.4	11.8	12.6	13.1	12.9	12.9	14.5	15.1	12.7	13.4	12.8	12.0	12.4	12.1	12.0	11.9	9.3	15.1	11.9	24
2	11.8	11.7	11.4	11.3	11.3	11.4	11.4	11.4	11.5	11.7	11.8	12.1	12.3	13.1	12.9	12.9	13.2	12.5	12.4	12.0	11.6	11.5	11.5	11.5	11.3	13.2	11.9	24
3	11.2	11.1	11.1	11.2	11.2	11.3	11.4	11.6	11.8	12.2	12.8	13.9	14.4	15.2	17.0	18.3	18.7	18.3	17.8	17.7	16.7	14.7	12.8	12.2	11.1	18.7	13.9	24
4	10.8	9.7	10.0	10.0	9.3	10.6	11.9	14.0	15.6	16.5	17.6	18.3	19.0	19.6	20.1	20.5	20.9	21.0	20.6	20.1	18.9	17.1	14.6	13.5	9.3	21.0	15.8	24
5	12.7	11.7	11.4	11.0	11.4	12.3	14.3	17.4	19.4	20.4	21.8	22.6	23.0	23.3	23.6	23.9	23.6	23.3	22.8	22.0	20.7	19.3	18.1	17.7	11.0	23.9	18.7	24
6	16.9	16.9	16.4	16.2	15.3	15.0	15.3	16.7	19.1	18.7	18.0	20.1	20.4	21.6	22.8	23.2	22.4	19.7	20.9	19.4	17.6	16.8	15.2	14.3	14.3	23.2	18.3	24
7	14.6	13.1	12.5	12.4	12.3	12.6	13.2	13.2	11.4	10.2	9.4	9.2	9.2	9.1	10.3	11.7	12.9	13.2	13.3	12.9	12.1	10.8	9.1	8.2	8.2	14.6	11.5	24
8	7.5	6.5	6.3	5.6	4.8	5.1	6.8	9.1	10.5	12.5	14.2	15.6	16.6	17.5	18.5	19.2	19.5	19.9	20.0	19.5	18.4	15.7	15.1	14.3	4.8	20.0	13.3	24
9	13.3	12.8	12.0	11.0	10.6	11.3	13.2	14.8	16.3	17.7	18.7	19.9	20.8	21.6	22.2	22.8	23.3	23.7	23.4	22.6	21.2	17.6	15.9	15.6	10.6	23.7	17.6	24
10	14.9	14.4	13.8	12.8	12.5	13.9	15.8	17.2	17.7	18.8	19.8	19.6	20.0	21.4	22.2	22.3	23.1	23.9	23.3	22.2	20.3	18.7	16.2	15.0	12.5	23.9	18.3	24
11	13.7	13.1	12.2	12.2	11.3	12.7	15.1	16.0	16.4	18.3	19.4	20.5	21.4	22.3	22.8	23.1	23.3	23.1	21.2	20.1	19.3	18.2	16.3	15.3	11.3	23.3	17.8	24
12	14.5	14.0	13.2	12.6	11.5	12.3	13.7	15.2	16.2	17.3	17.9	18.9	19.6	19.6	20.2	20.5	21.3	21.0	21.3	19.9	18.4	16.3	14.2	13.9	11.5	21.3	16.8	24
13	14.0	14.7	14.1	13.6	11.0	10.8	12.4	12.8	13.0	13.5	13.4	13.7	13.6	14.2	14.3	14.6	12.1	12.9	12.5	12.3	11.9	10.4	8.7	8.0	8.0	14.7	12.6	24
14	8.5	8.3	8.2	8.1	8.0	7.4	7.7	8.6	9.6	11.7	14.5	15.9	16.8	17.5	17.4	17.4	18.3	18.5	18.7	17.5	15.3	11.7	9.5	8.6	7.4	18.7	12.7	24
15	7.2	8.1	8.0	7.5	7.6	9.2	11.6	14.2	16.3	17.9	19.6	20.6	21.1	21.7	22.1	23.0	23.7	23.3	22.8	22.4	18.9	16.5	16.2	17.5	7.2	23.7	16.5	24
16	17.6	17.4	16.7	16.2	14.9	15.4	15.3	15.9	17.2	17.9	19.3	20.5	21.4	22.6	23.6	24.2	25.1	25.4	25.1	24.2	22.9	20.7	19.3	18.4	14.9	25.4	19.9	24
17	17.8	16.3	16.1	15.6	13.5	12.7	16.9	18.2	19.6	20.7	21.0	21.6	21.9	22.7	22.7	23.5	23.6	23.9	24.0	23.4	21.2	16.9	14.8	13.4	12.7	24.0	19.3	24
18	14.7	16.1	15.8	14.4	14.0	13.7	14.5	15.6	16.9	18.8	20.4	21.3	22.4	23.3	22.3	21.3	21.6	22.8	22.5	19.8	18.6	16.6	14.4	13.8	13.7	23.3	18.2	24
19	14.2	13.0	11.7	10.7	9.5	10.3	11.9	12.7	13.7	15.1	16.0	16.8	17.4	18.3	19.1	19.3	19.2	19.2	19.0	17.9	16.5	15.8	15.4	14.7	9.5	19.3	15.3	24
20	14.3	13.7	13.5	13.4	13.2	13.1	13.2	13.5	14.2	14.0	13.8	14.0	14.3	14.5	14.6	14.6	14.2	14.9	15.7	16.2	16.7	16.2	16.2	15.4	13.1	16.7	14.5	24
21	14.4	13.9	13.6	13.0	12.4	12.4	12.9	13.5	13.9	13.9	14.0	14.4	13.8	13.5	13.6	14.2	14.0	14.2	14.0	14.2	14.0	13.7	13.1	12.3	12.3	14.4	13.6	24
22	12.0	11.8	12.4	12.0	11.3	11.5	11.9	12.5	12.8	13.3	14.1	15.1	15.9	16.3	16.8	16.8	16.9	17.0	16.3	15.6	14.6	13.5	12.5	12.2	11.3	17.0	14.0	24
23	11.9	11.5	9.7	7.5	6.4	7.3	10.0	11.1	12.7	13.6	14.2	14.2	13.7	13.8	13.9	13.8	14.5	14.2	13.7	13.3	12.6	10.2	9.0	8.3	6.4	14.5	11.7	24
24	7.6	7.3	6.3	6.1	6.0	6.9	9.0	10.7	12.7	14.2	15.0	15.4	16.2	16.7	17.0	17.0	16.8	17.4	17.9	17.5	15.6	12.1	10.4	9.2	6.0	17.9	12.5	24
25	8.8	8.9	8.6	7.9	6.8	7.0	9.7	12.7	14.9	16.7	18.1	18.8	19.3	19.9	20.3	20.6	20.6	20.5	20.0	19.2	16.1	13.3	11.6	10.6	6.8	20.6	14.6	24
26	9.5	9.0	9.8	9.9	8.5	8.6	11.5	14.0	16.1	18.9	20.3	21.2	22.0	22.7	23.2	23.5	23.7	23.7	23.2	21.3	19.5	17.6	16.7	16.3	8.5	23.7	17.1	24
27	15.0	14.5	13.7	13.4	13.1	13.4	15.1	16.8	18.4	20.0	21.7	23.2	24.3	25.1	25.7	26.0	26.3	26.3	25.5	24.0	21.2	18.2	17.7	16.7	13.1	26.3	19.8	24
28	15.9	15.5	15.2	15.3	14.2	14.1	15.1	17.4	20.5	21.6	22.8	24.3	25.4	26.2	26.5	26.6	26.6	26.5	25.9	24.7	22.7	20.6	19.5	18.4	14.1	26.6	20.9	24
29	17.6	16.5	16.6	15.4	15.4	16.8	17.4	18.1	18.8	18.7	19.5	21.9	23.7	24.1	24.8	24.8	24.2	24.5	24.2	21.8	20.3	18.1	16.8	15.8	15.4	24.8	19.8	24
30	15.1	16.2	16.7	16.6	15.9	15.9	15.4	15.7	15.9	17.5	17.7	18.7	19.6	21.0	20.9	21.7	22.1	22.2	21.8	21.5	18.0	16.5	14.8	13.5	13.5	22.2	18.0	24
31	12.4	12.3	11.8	11.5	11.1	11.0	13.5	15.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	11.0	15.6	12.4	8
HOURLY MAX	17.8	17.4	16.7	16.6	15.9	16.8	17.4	18.2	20.5	21.6	22.8	24.3	25.4	26.2	26.5	26.6	26.6	26.5	25.9	24.7	22.9	20.7	19.5	18.4				
HOURLY AVG	13.0	12.6	12.2	11.7	11.1	11.5	12.8	14.1	15.2	16.1	17.0	17.8	18.4	19.0	19.5	19.9	19.9	20.0	19.8	18.9	17.5	15.6	14.3	13.6				

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

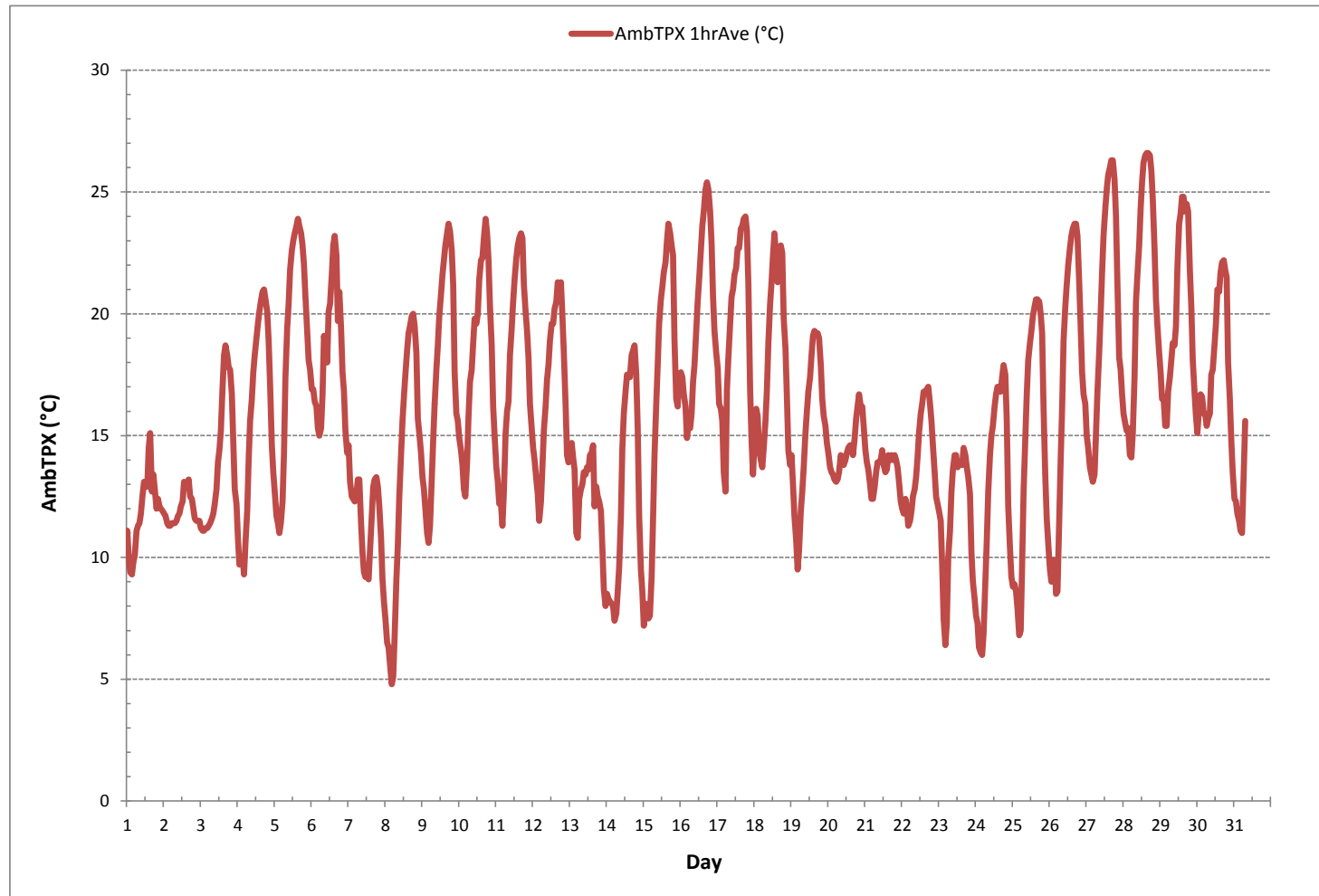
24 HR AVERAGES July 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	4.8	°C	@ HOUR	4	ON DAY	8
MAXIMUM 1-HR AVERAGE:	26.6	°C	@ HOUR	15	ON DAY	28
MAXIMUM 24-HR AVERAGE:	20.9	°C			ON DAY	28
OPERATIONAL TIME:					728	hrs
AMD OPERATION UPTIME:					97.8	%
STANDARD DEVIATION:	4.6		MONTHLY AVERAGE:		15.9	°C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

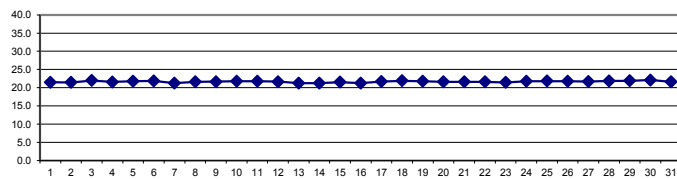
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	21.5	21.1	21.4	21.2	21.5	21.2	21.1	21.2	21.2	20.9	21.1	21.5	21.6	21.7	21.6	21.8	21.9	21.9	21.9	21.7	21.7	21.5	21.2	21.8	20.9	21.9	21.5	24
2	21.4	21.7	21.7	21.5	21.8	21.2	21.7	21.8	21.4	21.9	21.4	21.4	21.4	21.6	21.8	21.6	21.8	21.7	21.1	20.2	21.3	21.0	21.2	21.2	20.2	21.9	21.5	24
3	21.2	21.2	21.2	21.2	21.2	21.2	21.2	21.1	21.4	20.3	23.1	24.1	23.1	22.8	22.5	22.6	22.4	22.6	22.9	22.5	22.4	21.9	21.7	21.3	20.3	24.1	22.0	24
4	21.3	21.3	21.6	21.1	21.8	21.3	21.2	21.3	21.2	21.3	21.3	21.4	21.8	21.8	21.7	21.7	21.6	21.4	22.1	22.2	22.5	22.2	21.3	21.3	21.1	22.5	21.6	24
5	20.8	21.2	21.0	21.1	21.2	20.9	21.2	21.4	21.2	21.5	22.1	22.3	22.1	22.2	22.2	21.9	22.4	22.1	22.2	22.2	22.5	22.2	22.1	22.0	20.8	22.5	21.8	24
6	22.0	21.8	21.4	21.1	21.1	21.5	21.4	21.7	21.9	21.7	22.0	21.9	22.3	22.4	22.2	22.4	22.4	22.5	22.4	22.4	21.9	21.4	21.6	21.4	21.1	22.5	21.9	24
7	21.2	21.3	21.0	21.2	21.1	20.8	21.1	21.3	21.1	21.5	21.6	21.2	21.3	21.4	21.3	21.5	21.2	21.0	21.1	21.1	21.2	21.0	21.1	21.4	20.8	21.6	21.2	24
8	20.9	21.3	21.5	21.5	21.4	21.4	21.6	21.2	20.7	20.8	21.3	21.0	21.0	21.3	21.8	22.2	22.3	22.1	22.0	22.6	22.7	21.9	21.9	21.6	20.7	22.7	21.6	24
9	21.0	21.4	20.8	21.0	21.3	20.9	21.0	20.9	21.1	20.9	21.2	21.7	22.1	22.0	22.0	22.2	22.4	22.2	22.1	22.5	22.2	22.4	22.3	21.8	20.8	22.5	21.6	24
10	21.3	21.6	21.4	21.0	21.2	21.3	21.4	21.7	21.2	21.4	21.6	21.8	22.1	22.4	22.2	22.2	22.3	22.3	22.2	22.5	22.2	22.1	21.9	21.6	21.0	22.5	21.8	24
11	21.8	21.4	21.1	21.2	21.3	21.5	21.2	21.0	21.3	21.0	21.5	22.2	22.1	22.1	22.2	22.1	22.3	22.0	22.6	22.2	22.7	22.3	21.6	21.4	21.0	22.7	21.8	24
12	21.1	21.2	21.1	21.1	21.2	21.3	21.1	21.1	21.3	21.2	21.6	21.9	21.9	22.1	21.8	22.0	22.1	22.3	22.1	22.1	22.5	22.2	21.7	21.5	21.1	22.5	21.6	24
13	21.3	20.9	21.0	21.2	21.1	21.3	21.2	21.0	21.1	21.4	21.5	21.4	21.1	21.2	21.1	21.2	21.5	21.6	21.4	21.3	20.9	21.6	20.8	20.8	20.8	21.6	21.2	24
14	21.6	21.0	21.4	20.9	21.1	21.5	20.6	21.1	21.2	20.9	20.8	21.0	21.1	21.1	21.3	21.3	21.5	21.4	21.4	21.6	21.5	21.4	21.3	21.3	20.6	21.6	21.2	24
15	20.9	21.7	21.9	22.0	21.0	21.6	21.3	21.2	20.8	20.9	21.5	21.4	21.4	21.4	21.5	21.4	21.1	21.2	21.8	22.2	22.6	22.2	22.1	21.9	20.8	22.6	21.5	24
16	21.7	21.3	21.2	21.5	21.5	21.1	21.3	21.5	20.9	21.0	21.3	21.2	21.1	21.0	21.1	21.2	21.0	21.1	21.1	21.1	21.1	21.6	21.4	21.3	20.9	21.7	21.2	24
17	21.4	21.5	21.3	21.1	21.3	21.0	21.2	21.0	21.2	21.2	21.3	21.5	21.7	22.0	22.1	21.9	22.1	22.0	21.8	22.4	22.1	22.2	22.3	22.0	21.0	22.4	21.7	24
18	21.3	21.2	21.6	21.3	21.5	21.5	21.3	21.3	21.6	21.6	22.2	22.2	22.3	22.1	22.2	22.4	22.3	22.4	22.0	22.6	22.5	21.9	22.0	21.8	21.2	22.6	21.9	24
19	21.7	21.5	21.6	21.5	21.3	21.6	21.4	21.4	21.7	21.4	21.5	21.7	22.2	22.1	22.1	22.5	22.1	22.3	22.2	22.3	22.0	21.4	21.6	21.6	21.3	22.5	21.8	24
20	21.5	21.4	21.5	21.3	21.7	21.8	21.4	21.3	21.6	21.5	21.8	21.5	21.4	22.0	21.5	21.4	21.9	21.7	21.7	21.9	21.9	21.8	21.8	21.7	21.3	22.0	21.6	24
21	21.7	21.6	21.5	21.7	21.8	21.3	21.6	21.1	21.2	21.5	21.6	21.6	21.7	21.6	21.9	21.5	21.6	21.6	21.8	21.7	22.0	21.6	21.7	21.3	21.1	22.0	21.6	24
22	21.5	21.5	21.4	21.5	21.4	21.3	21.2	21.5	21.5	21.5	21.4	21.7	21.7	21.6	21.7	21.9	22.2	22.3	22.1	21.5	21.6	21.4	21.5	21.1	21.1	22.3	21.6	24
23	21.4	21.3	21.2	22.1	22.2	22.1	21.6	21.2	21.4	21.5	21.6	21.1	21.3	21.2	21.3	21.4	21.3	21.2	21.6	21.6	21.3	21.1	21.3	21.6	21.1	22.2	21.5	24
24	22.2	21.2	21.8	21.9	22.0	22.2	21.5	21.0	21.4	21.4	20.9	21.0	21.4	21.7	22.1	22.2	22.0	21.9	22.2	22.5	22.5	21.9	21.3	21.4	20.9	22.5	21.7	24
25	21.2	22.0	21.1	21.9	22.0	22.1	21.5	21.1	21.2	21.0	21.3	21.8	21.9	21.9	21.9	22.4	22.3	22.0	22.4	22.6	22.4	22.2	21.5	21.7	21.0	22.6	21.8	24
26	21.4	21.2	21.6	21.6	21.5	21.7	21.5	21.1	21.5	21.4	22.2	22.2	22.1	21.9	22.2	21.5	21.4	21.8	22.3	22.1	22.4	22.0	22.2	22.1	21.1	22.4	21.8	24
27	21.7	21.8	21.6	21.7	21.4	21.3	21.5	21.4	22.0	21.9	22.1	22.2	21.6	21.3	21.5	21.5	21.4	21.4	21.4	21.4	22.2	22.3	22.3	21.8	21.3	22.3	21.7	24
28	22.0	22.0	22.1	22.2	21.9	21.7	21.7	21.7	22.0	22.3	21.9	21.4	21.5	21.6	21.6	21.5	21.4	21.5	21.5	21.4	22.1	22.1	22.4	22.2	21.4	22.4	21.8	24
29	21.9	22.1	21.9	22.0	22.0	22.0	21.8	21.8	22.2	22.4	22.1	21.9	21.3	21.3	21.6	21.7	21.6	21.4	21.7	22.1	22.2	22.2	22.0	21.9	21.3	22.4	21.9	24
30	21.9	21.9	21.9	22.0	22.1	22.1	21.9	21.8	21.8	22.0	22.4	22.2	22.4	21.7	22.1	22.1	22.0	22.1	22.5	22.5	22.4	22.3	22.1	22.0	21.7	22.5	22.1	24
31	21.6	21.7	21.1	21.5	21.4	21.6	21.5	22.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	21.1	22.6	21.6	8
HOURLY MAX	22.2	22.1	22.1	22.2	22.2	22.2	21.9	22.6	22.2	22.4	23.1	24.1	23.1	22.8	22.5	22.6	22.4	22.6	22.9	22.6	22.7	22.4	22.4	22.2				
HOURLY AVG	21.5	21.5	21.4	21.5	21.5	21.5	21.4	21.3	21.4	21.4	21.6	21.7	21.7	21.8	21.8	21.8	21.9	21.8	21.9	22.0	22.1	21.8	21.7	21.6				

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

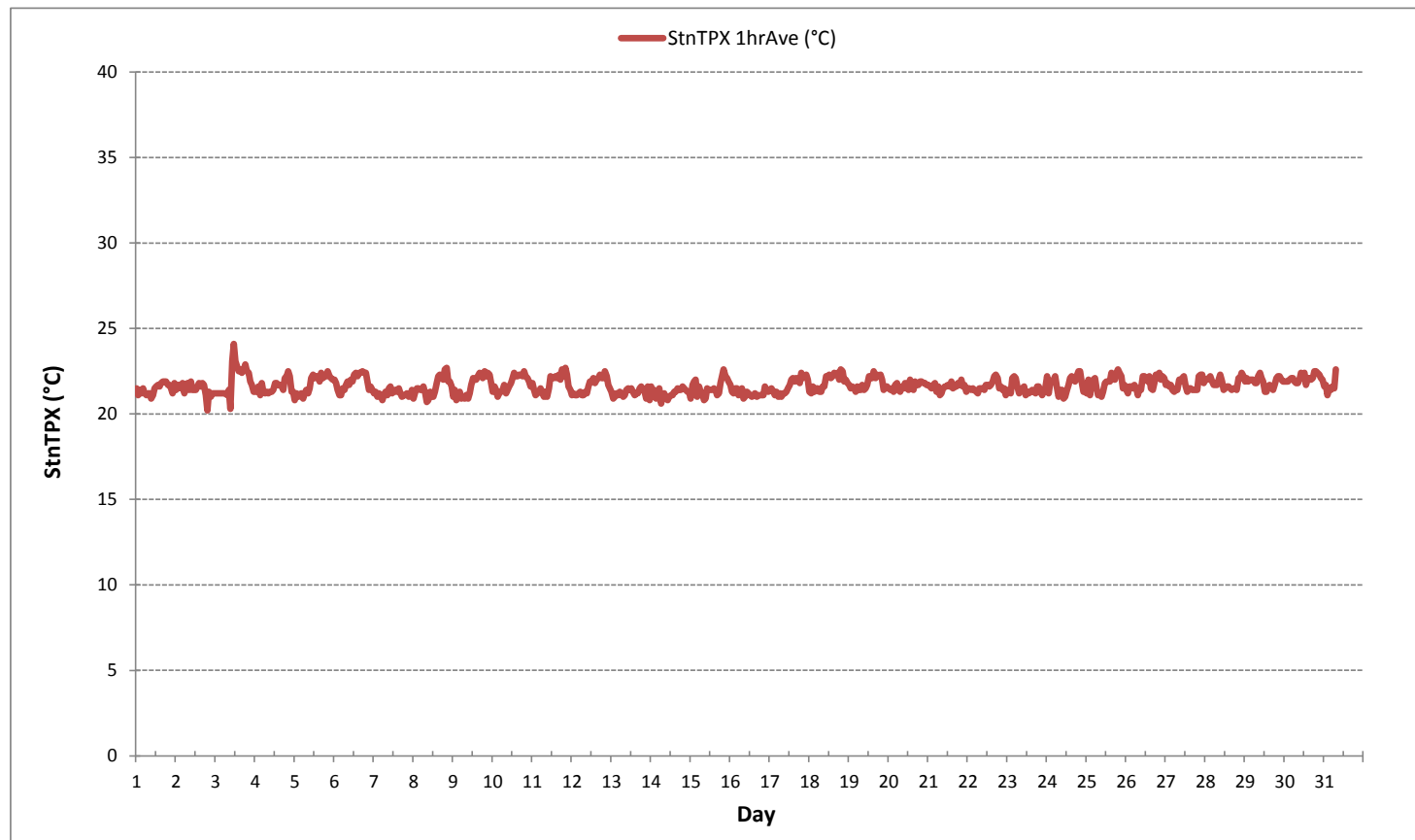
24 HR AVERAGES July 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	20.2	°C	@ HOUR	19	ON DAY	2
MAXIMUM 1-HR AVERAGE:	24.1	°C	@ HOUR	11	ON DAY	3
MAXIMUM 24-HR AVERAGE:	22.1	°C			ON DAY	30
OPERATIONAL TIME:						728 hrs
AMD OPERATION UPTIME:						97.8 %
STANDARD DEVIATION:	0.5		MONTHLY AVERAGE:			21.6 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	July 3, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.92	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	20.7	°C
Location/Station Name:	842B	Weather Conditions:	Moderate rain		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:25	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	12:46	Cal Gas Expiry Date:	December 2, 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:	June 16, 2018	As Found C.F.:	1.059		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018
Calibrator ID/Expiry Date: Enviroconics id# 1991 expires March 15, 2019
Cal Gas Cylinder I.D. #: LL119329
Cal Gas Conc. (ppm): 50.1

Standard Calibration Points for Ranges	
Point	ppb
High	380
Mid	180
Low	90

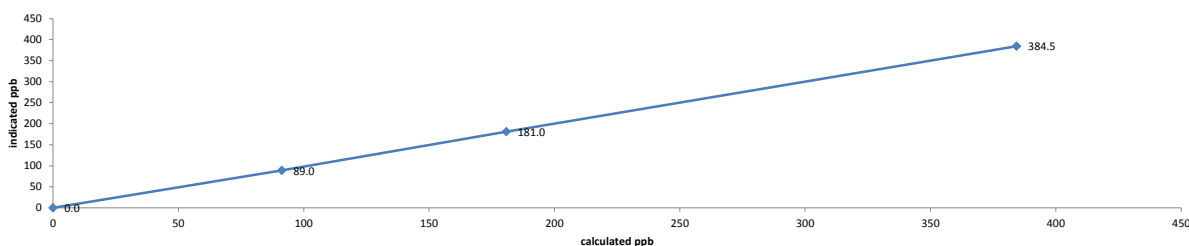
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6016	0.00	6016	0.0	0.0	n/a
as found high	5954	46.03	6000	384.4	363.0	1.059
adjusted zero	6016	0.00	6016	0.0	0.0	n/a
adjusted high	5954	46.03	6000	384.4	384.5	1.000
mid	5991	21.70	6013	180.8	181.0	0.999
low	5990	10.93	6001	91.3	89.0	1.025
calibrator zero	6001	0.00	6001	0.0	0.1	n/a
Average C.F. =						1.008

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.997		0.95-1.05
b (Intercept as % of full scale) =	0.18%		± 3% F.S.
% change in C.F. from last cal =	-5.88%		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Bkg:	13.7	Bkg:	14.4
Coef:	0.993	Coef:	1.048
Pmt:	-622	Pmt:	-622
Flash:	885	Flash:	883
Internal:	25.8	Internal:	26.8
Chamber:	45.0	Chamber:	45.0
Perm Oven Gas:	45.0	Perm Oven Gas:	45.0
Perm Oven Heater:	44.07	Perm Oven Heater:	44.08
Pressure:	679.9	Pressure:	680.5
Sample Flow:	0.439	Sample Flow:	0.439
Lamp Intensity:	81	Lamp Intensity:	81
Averaging Time:	120	Averaging Time:	120
Expected Value:	252.0	Expected Value:	263.5

Comments:

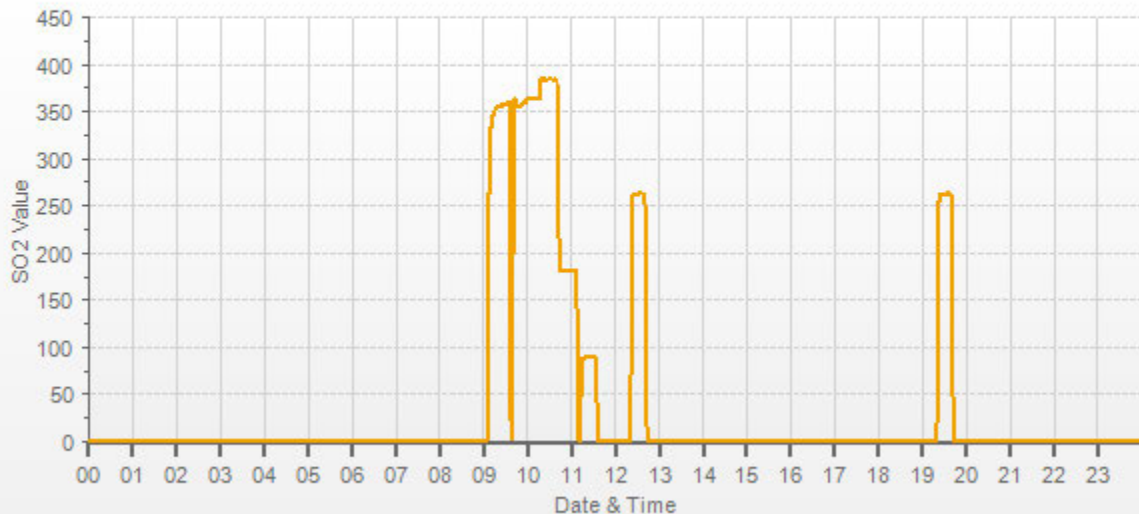
The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.

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

The regulator was repurged prior to measuring the As Found High Point.

SO2 [ppb] Station: PRAMP_842 Daily: 18/07/03 Type: AVG 1 Min. [1 Min.]

— SO2 [ppb]





Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	July 30, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.00	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	21.87	°C
Location/Station Name:	842B	Weather Conditions:	A few clouds and light rain showers		
Parameter:	Sulphur Dioxide	Calibration Purpose:	shut down		
Start Time 24 hr. (mst):	13:22	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	16:43	Cal Gas Expiry Date:	May 23, 2019		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	835033373 Maxxam	Range ppb:	500		
Last Calibration Date:	July 3, 2018	As Found C.F.:	0.956		
Previous C.F.:	1.000	New C.F.:	n/a		

Calibration Standards:	Standard Calibration Points for Ranges	
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	Point	ppb
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018	High	380
Calibrator ID/Expiry Date: API id# 831 expires March 1, 2019	Mid	180
Cal Gas Cylinder I.D. #: LL119513	Low	90
Cal Gas Conc. (ppm): 50.6		

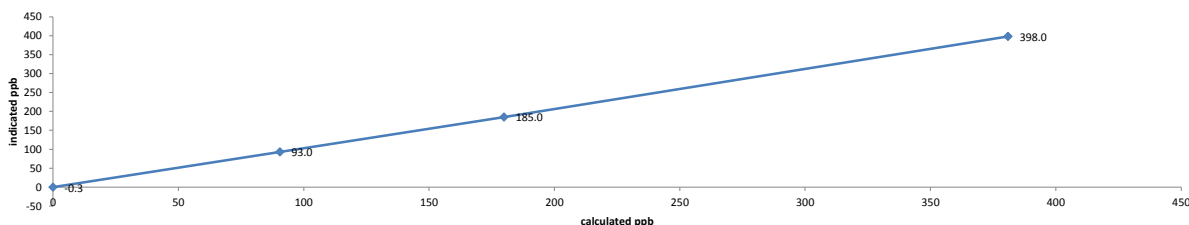
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6067	0.00	6067	0.0	-0.3	n/a
as found high	6028	45.73	6074	381.0	398.0	0.956
mid	6033	21.53	6055	179.9	185.0	0.971
low	6047	10.84	6058	90.5	93.0	0.970
Average C.F. =						0.966

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS
Slope =	0.956	> or = 0.995
b (Intercept as % of full scale) =	0.28%	0.90-1.10
% change in C.F. from last cal =	4.35%	± 3% F.S.
		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration



As found:		As left:	
Bkg:	14.4	Bkg:	n/a
Coef:	1.048	Coef:	n/a
Pmt:	-622	Pmt:	n/a
Flash:	881	Flash:	n/a
Internal:	26.5	Internal:	n/a
Chamber:	45.0	Chamber:	n/a
Perm Oven Gas:	45.0	Perm Oven Gas:	n/a
Perm Oven Heater:	44.08	Perm Oven Heater:	n/a
Pressure:	687.7	Pressure:	n/a
Sample Flow:	0.441	Sample Flow:	n/a
Lamp Intensity:	82	Lamp Intensity:	n/a
Averaging Time:	120	Averaging Time:	n/a
Expected Value:	263.5	Expected Value:	n/a

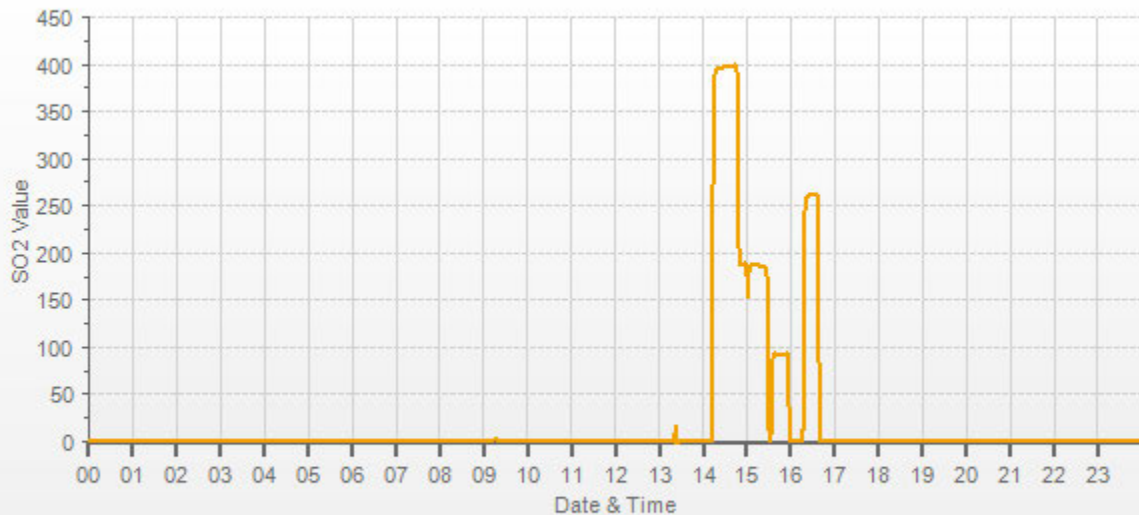
Comments:

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

The Z/S automatically triggered during the mid-point. The mid point was restarted.

SO2 [ppb] Station: PRAMP_842 Daily: 18/07/30 Type: AVG 1 Min. [1 Min.]



— SO2 [ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	July 3, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.92	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	20.7	°C
Location/Station Name:	842B	Weather Conditions:	Moderate rain		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:25	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	12:46	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD-NOVA CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	June 16, 2018	As Found C.F.:	0.999		
Previous C.F.:	0.998	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 156151 expires October 2, 2018	Start/End Time 24 hr.:	09:13/09:23
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	SO2 Analyzer Range:	500
Calibrator ID/Expiry Date:	API id# 627 expires January 31, 2019	Target Concentration (ppb):	380
Cal Gas Cylinder I.D. #:	LL119500	As Found Zero:	0.0
Cal Gas Conc. (ppm):	9.8	Analyzer Response (ppb):	0.0
		Zero Corrected Result (ppb):	0.0

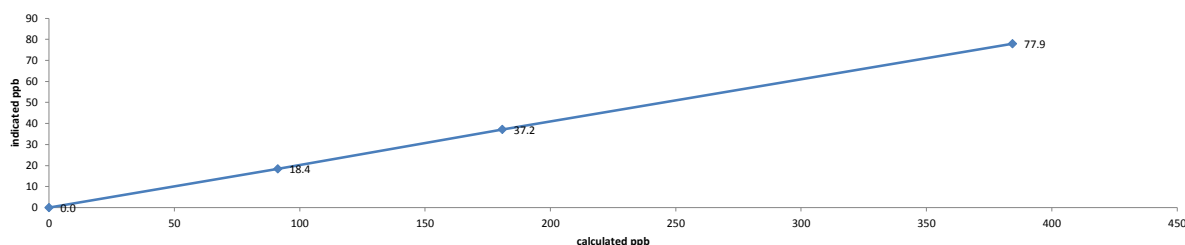
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7602	0.00	7602	0.0	-0.1	n/a
as found high	7532	60.35	7592	77.9	77.9	0.999
adjusted zero	7602	0.00	7602	0.0	0.0	n/a
adjusted high	7532	60.35	7592	77.9	77.9	1.000
mid	7536	29.38	7565	38.1	37.2	1.023
low	7547	14.73	7562	19.1	18.4	1.037
calibrator zero	7562	0.00	7562	0.0	0.1	n/a
Average C.F.:						1.020

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)=	0.46%		± 3% F.S.
% change in C.F. from last cal=	-0.06%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



As found:	As left:
Bkg: 2.61	Bkg: 2.47
Coef: 0.872	Coef: 0.872
Pmt: -720.1	Pmt: -720.8
Flash: 971	Flash: 971
Internal: 32.6	Internal: 31.0
Chamber: 45.0	Chamber: 45.0
Perm Oven Gas: 45.0	Perm Oven Gas: 45.0
Perm Oven Heater: 44.11	Perm Oven Heater: 44.11
Pressure: 667.2	Pressure: 667.5
Sample Flow: 0.407	Sample Flow: 0.408
Lamp Intensity: 87	Lamp Intensity: 87
Converter: 850	Converter: 850
Converter Set: 850	Converter Set: 850
Averaging Time: 120	Averaging Time: 120
Expected Value: 58.0	Expected Value: 56.2

Comments:

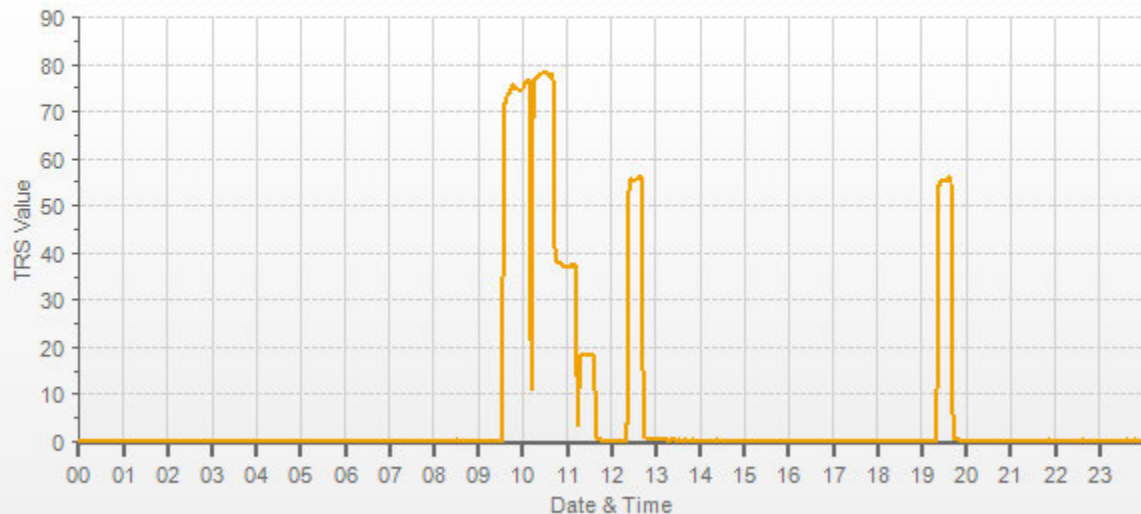
The analyzer sample inlet filter was changed. The analyzer cooling fan filter(s) were cleaned. The manifold blower was found to be working normally.

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

The regulator was repurged prior to measuring the As Found High Point.

TRS [ppb] Station: PRAMP_842 Daily: 18/07/03 Type: AVG 1 Min. [1 Min.]

— TRS [ppb]





Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	July 30, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.00	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	21.87	°C
Location/Station Name:	842B	Weather Conditions:	A few clouds and light rain showers		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	shut down		
Start Time 24 hr. (mst):	13:22	Performed By/Reviewer:	Limin Li	Rob Fisher	
End Time 24 hr. (mst):	17:06	Cal Gas Expiry Date:	August 23, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD-NOVA CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	July 3, 2018	As Found C.F.:	1.017		
Previous C.F.:	1.000	New C.F.:	n/a		

Calibration Standards:	Standard Calibration Points for Ranges
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018	
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018	
Calibrator ID/Expiry Date: EnviroNics id# 1991 expires March 15, 2019	
Cal Gas Cylinder I.D. #: LL119500	
Cal Gas Conc. (ppm): 9.8	

Point	ppb
High	78
Mid	38
Low	19

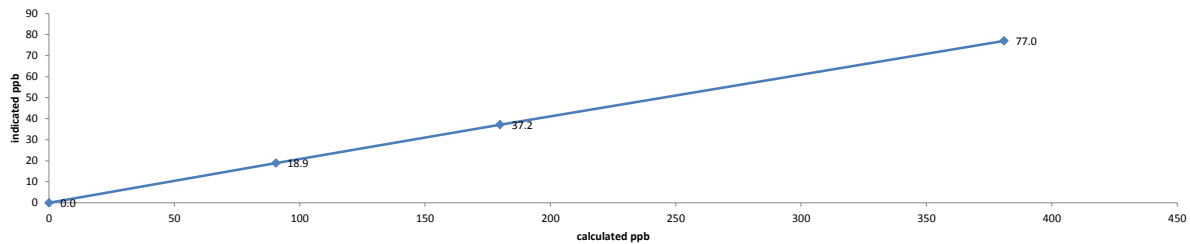
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	Concentration (ppb):		
as found zero	7521	0.00	7521	0.0	0.0	n/a
as found high	7469	60.19	7529	78.3	77.0	1.017
mid	7488	29.33	7517	38.2	37.2	1.028
low	7500	14.66	7515	19.1	18.9	1.012
Average C.F. =						1.019

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.018		0.90-1.10
b (Intercept as % of full scale) =	0.04%		± 3% F.S.
% change in C.F. from last cal =	-1.75%		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



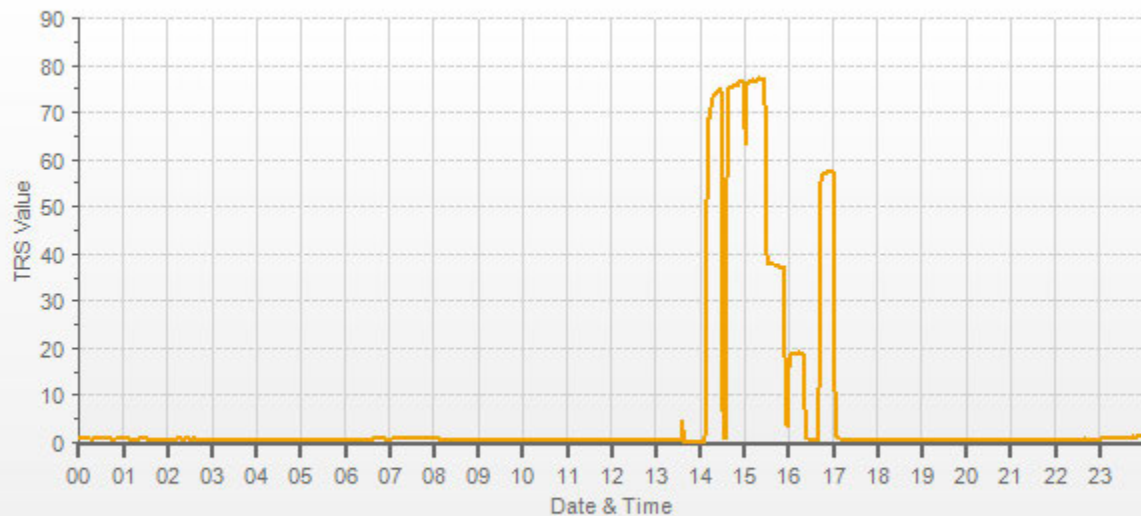
As found:		As left:	
Bkg:	2.47	Bkg:	n/a
Coef:	0.872	Coef:	n/a
Pmt:	-720.8	Pmt:	n/a
Flash:	971	Flash:	n/a
Internal:	31.0	Internal:	n/a
Chamber:	45.0	Chamber:	n/a
Perm Oven Gas:	45.0	Perm Oven Gas:	n/a
Perm Oven Heater:	44.11	Perm Oven Heater:	n/a
Pressure:	667.5	Pressure:	n/a
Sample Flow:	0.408	Sample Flow:	n/a
Lamp Intensity:	87	Lamp Intensity:	n/a
Converter:	850	Converter:	n/a
Converter Set:	850	Converter Set:	n/a
Averaging Time:	120	Averaging Time:	n/a
Expected Value:	56.2	Expected Value:	n/a

Comments: The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

The regulator was repurged and the As Found High point was repeated. The Z/S automatically triggered during the As-Found High point. The As-Found High point was restarted.

TRS [ppb] Station: PRAMP_842 Daily: 18/07/30 Type: AVG 1 Min. [1 Min.]



— TRS [ppb]

TOTAL HYDROCARBON

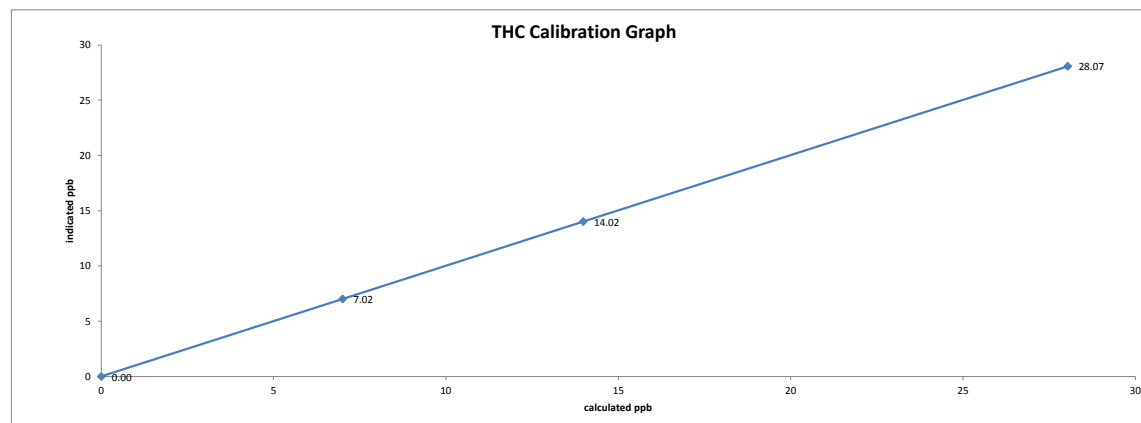
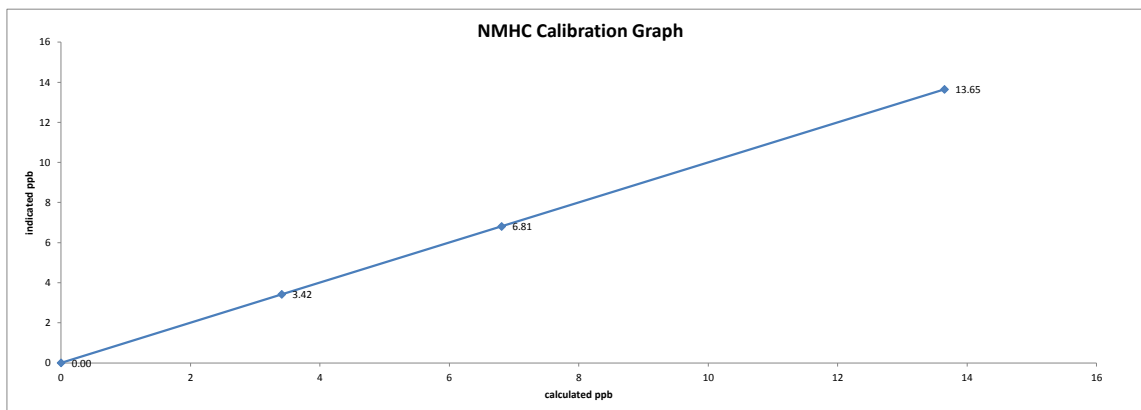
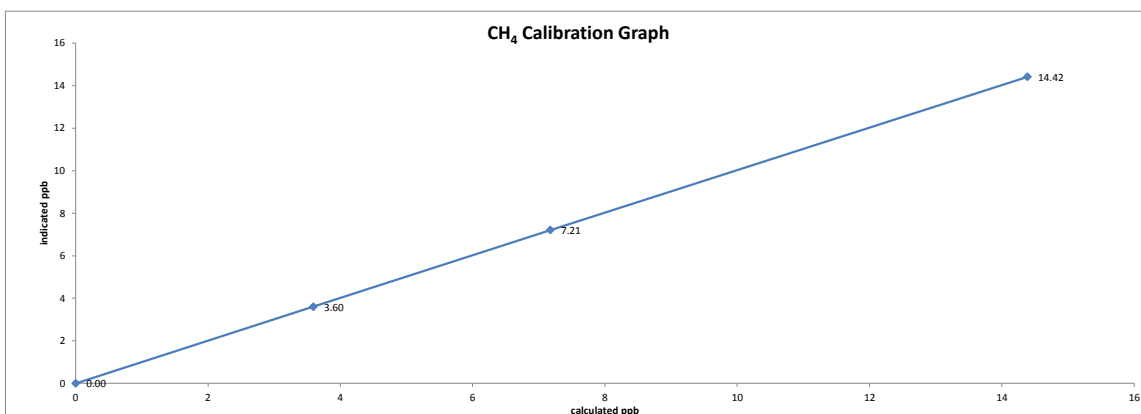


Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: July 3, 2018		Barometer/B.P./units: Brunton 05535 expires December 15, 2018		27.94	inHg																
Company/Airshed: PRAMP		Thermometer/Station Temp: F.S. 160348895 expires June 19, 2020		22.7	°C																
Location/Station Name: 842B		Weather Conditions: Moderate rain																			
Parameter: CH ₄ / NMHC / THC		Calibration Purpose: routine monthly																			
Start/End Time 24 hr. (mst): 12:00/16:00		Performed By/Reviewer: Limin Li		Rob Fisher																	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025																			
Analyzer:																					
Serial Number/Owner: 1433563261 Maxxam		Correction Factors:																			
Measured Flow: 1114 SCCM		Previous C.F.:		As Found C.F.:																	
Last Calibration Date: June 28, 2018		CH₄ = 1.000		0.997																	
Range ppm: 20 CH ₄ /20 NMHC/40 THC		NMHC = 1.000		0.996																	
		THC = 1.000		0.996																	
Calibration Standards:																					
Low Flow Meter ID/Expiry Date: Defender Low 156151 expires October 2, 2018		Standard Calibration Points for Analyzer Range of 20/20/40 ppm																			
High Flow Meter ID/Expiry Date: Defender High 156312 expires December 13, 2018		<table border="1"><thead><tr><th>Point</th><th>CH₄</th><th>NMHC</th><th>THC</th></tr></thead><tbody><tr><td>High</td><td>13.00</td><td>13.00</td><td>26.00</td></tr><tr><td>Mid</td><td>7.00</td><td>7.00</td><td>14.00</td></tr><tr><td>Low</td><td>3.00</td><td>3.00</td><td>6.00</td></tr></tbody></table>				Point	CH ₄	NMHC	THC	High	13.00	13.00	26.00	Mid	7.00	7.00	14.00	Low	3.00	3.00	6.00
Point	CH ₄	NMHC	THC																		
High	13.00	13.00	26.00																		
Mid	7.00	7.00	14.00																		
Low	3.00	3.00	6.00																		
Calibrator ID/Expiry Date: Envirotronics id# 1991 expires March 15, 2019																					
Cal Gas Cylinder I.D. #: LL168404																					
CH₄ Cylinder Conc.: 597.0 206.0 =C ₃ H ₈ Cylinder Conc.																					
CH₄ expressed as C₃H₈: 566.5 1163.5 =total CH ₄ equivalent																					
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015																					
Calibrator Flow Rates (cc/min)																					
Point	Diluent	Cal Gas	Total Flow	Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:											
as found zero	2513	0.00	2513	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
as found high	2455	60.63	2516	14.39	13.65	28.04	14.43	13.71	28.14	0.997	0.996	0.996									
adjusted zero	2513	0.00	2513	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
adjusted high	2455	60.63	2516	14.39	13.65	28.04	14.42	13.65	28.07	0.998	1.000	0.999									
mid	2487	30.25	2517	7.17	6.81	13.98	7.21	6.81	14.02	0.995	1.000	0.997									
low	2497	15.12	2512	3.59	3.41	7.00	3.60	3.42	7.02	0.998	0.997	0.998									
calibrator zero	2513	0.00	2513	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
Average C.F. =										0.997	0.999	0.998									
Linear Regression/Calibration Results:						LIMITS															
Correlation Coefficient = 1.000						> or = 0.995															
Slope = 1.003						0.95-1.05															
b (Intercept as % of full scale) = 0.01%						± 3% F.S.															
% change in C.F. from last cal = 0.30%						± 10%															
As Left Instrument Diagnostics:																					
Interface Board Voltages:		Bias Supply: -299.8		Calibration History cnt'd:		NM Peak Area: n/a															
Temperatures:		Detector Oven: 175		Crucial Settings:		Methane Start: 8															
		Filter: 175				Methane End: 16															
		Column Oven: 75				Backflush: 18															
		Internal: 31.8				NMHV Start: 26															
Cylinder Pressures/reg.:		Carrier: 750 50		Run History>1:		NMHC End: 56															
		Fuel: 2000 55				Date: 03Jul18															
		Span Gas: 1100 18				Time: 10:00															
		Zero Air Generator: 50				CH₄ PK HT: 2553															
Internal Pressures:		Carrier: 31.7				CH₄ RT: 13.6															
		Fuel: 37.6				CH₄ Baseline: 395															
		Air: 34.3				CH₄ LOD: 185															
FID Status:		Status: LIT				CH₄ SD: 61															
		Counts: 26671				CH₄ CONC: 1.95															
		Flame: 257.9				NM PK HT: 0															
		Det Base: 175				NM Peak Area: 0															
Flame and Power Stats:		Last Power On: 02JUL18 19:00				NM CONC: 0.00															
		Flameouts: 1				NM Base Start: 360															
		Det Oven at Start: 162.0				NM Base End: 365															
		Col Oven at Start: 73.3				NM LOD: 17															
Calibration History:		Time: n/a				NM Start IDX: 24															
		Type: n/a				NM End IDX: 67															
		Status: n/a				NM Max Slope: 9.7e-01															
		Check/Adjust: n/a				NM Min Slope: -5.9e-01															
		CH₄ Span Conc: n/a				NM PT Count: 0															
		CH₄ SP Ratio: n/a				Previous CH₄: 10.26															
		CH₄ RT: n/a				Previous NMHC: 11.15															
		CH₄ PK IDX: n/a				Previous THC: 21.42															
		CH₄ PK HT: n/a				New CH₄: 10.26															
		NM Span Conc: n/a				New NMHC: 11.15															
		NM SP Ratio: n/a				New THC: 21.42															
Comments:																					
The analyzer sample inlet filter was changed.																					
A new hydrogen cylinder was installed.																					
No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.																					
The analyzer cooling fan filter(s) were cleaned.																					
The manifold blower was found to be working normally.																					
The H2 gas was changed on July 02.																					

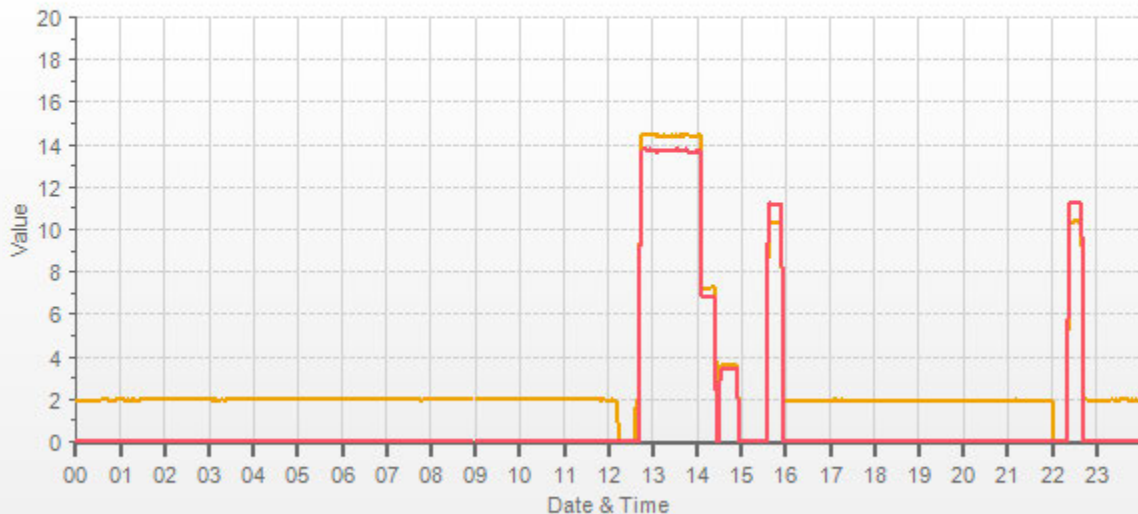
Date: July 3, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 12:00/16:00
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution



Station: PRAMP_842 Daily: 18/07/03 Type: AVG 1 Min. [1 Min.]

CH4 [ppm] NMHC[ppm]





Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	July 31, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	28.01	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	22.45	°C
Location/Station Name:	842B	Weather Conditions:	Mainly sunny		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	shut down		
Start/End Time 24 hr. (mst):	06:35/08:15	Performed By/Reviewer:	Limin Li	Rob Fisher	
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	October 18, 2025		

Analyzer:		Correction Factors:			
Serial Number/Owner:	1433563261 Maxxam	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow:	1114 SCCM	CH ₄ =	0.998	1.036	n/a
Last Calibration Date:	July 3, 2018	NMHC =	1.000	1.005	n/a
Range ppm:	20 CH4/20 NMHC/40 THC	THC =	0.999	1.021	n/a

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Point	CH4	NMHC	THC
High Flow Meter ID/Expiry Date:	Defender High 156312 expires December 13, 2018	High	13.00	13.00	26.00
Calibrator ID/Expiry Date:	API id# 831 expires March 1, 2019	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. #:	LL168404	Low	3.00	3.00	6.00
CH4 Cylinder Conc.:	597.0	=C ₃ H ₈ Cylinder Conc.			
CH ₄ expressed as C ₃ H ₈ =	566.5	=total CH4 equivalent			

ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015											
Calibrator Flow Rates (cc/min)				Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:	
Point	Diluent	Cal Gas	Total Flow							CH ₄	NMHC
as found zero	2528	0.00	2528	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a
as found high	2471	61.34	2532	14.46	13.72	28.19	13.96	13.65	27.61	1.036	1.005
mid	2505	30.68	2536	7.22	6.85	14.08	7.01	6.82	13.83	1.030	1.005
low	2521	15.35	2536	3.61	3.43	7.04	3.51	3.39	6.90	1.029	1.011
Average C.F. =										1.032	1.007

Linear Regression/Calibration Results:				LIMITS	
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995	
Slope =	0.965	0.995	0.980	0.90-1.10	
b (Intercept as % of full scale) =	0.08%	-0.04%	0.02%	± 3% F.S.	
% change in C.F. from last cal =	-3.81%	-0.54%	-2.19%	± 10%	

As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-300.8	Calibration History cnt'd:	NM Peak Area:	n/a						
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8						
	Filter:	175		Methane End:	16						
	Column Oven:	75		Backflush:	18						
	Internal:	34.1		NMHV Start:	26						
Cylinder Pressures/reg.:	Carrier:	2100	50	NMHC End:	56						
	Fuel:	1200	55	Date:	30Jul18						
	Span Gas:	650	18	Time:	16:14						
	Zero Air Generator:	50		CH ₄ PK HT:	2465						
Internal Pressures:	Carrier:	31.7		CH ₄ RT:	13.6						
	Fuel:	37.6		CH ₄ Baseline:	139						
	Air:	34.3		CH ₄ LOD:	228						
FID Status:	Status:	LIT		CH ₄ SD:	76						
	Counts:	25229		CH ₄ CONC:	1.88						
	Flame:	351.7		NM PK HT:	0						
	Det Base:	175		NM Peak Area:	0						
Flame and Power Stats:	Last Power On:	20JUL18 02:10		NM CONC:	0.00						
	Flameouts:	1		NM Base Start:	84						
	Det Oven at Start:	174.3		NM Base End:	80						
	Col Oven at Start:	75.0		NM LOD:	13						
Calibration History:	Time:	n/a		NM Start IDX:	23						
	Type:	n/a		NM End IDX:	63						
	Status:	n/a		NM Max Slope:	1.1e+00						
	Check/Adjust:	n/a		NM Min Slope:	-8.2e-01						
	CH ₄ Span Conc:	n/a		NM PT Count:	0						
	CH ₄ SP Ratio:	n/a		Previous CH ₄ :	10.26						
	CH ₄ RT:	n/a		Previous NMHC:	11.15						
	CH ₄ PK IDX:	n/a		Previous THC:	21.42						
	CH ₄ PK HT:	n/a		New CH ₄ :	n/a						
	NM Span Conc:	n/a		New NMHC:	n/a						
	NM SP Ratio:	n/a		New THC:	n/a						

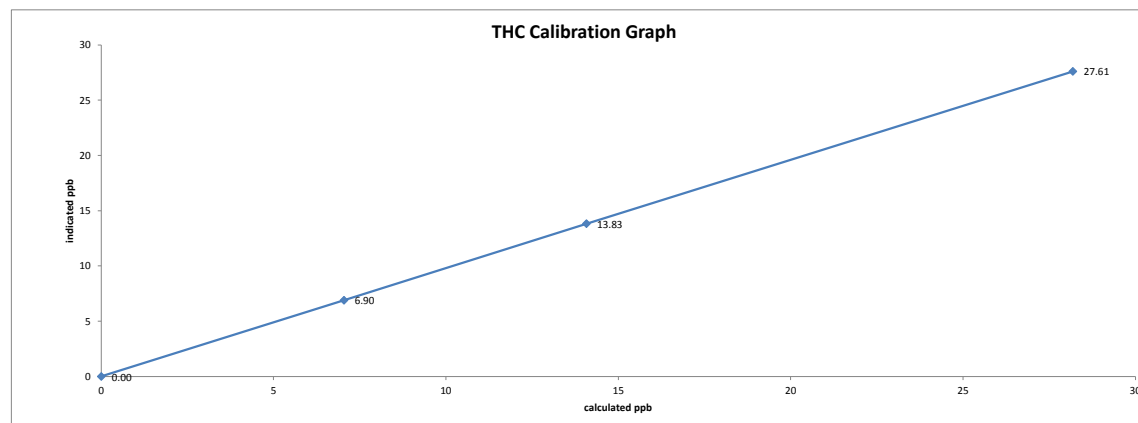
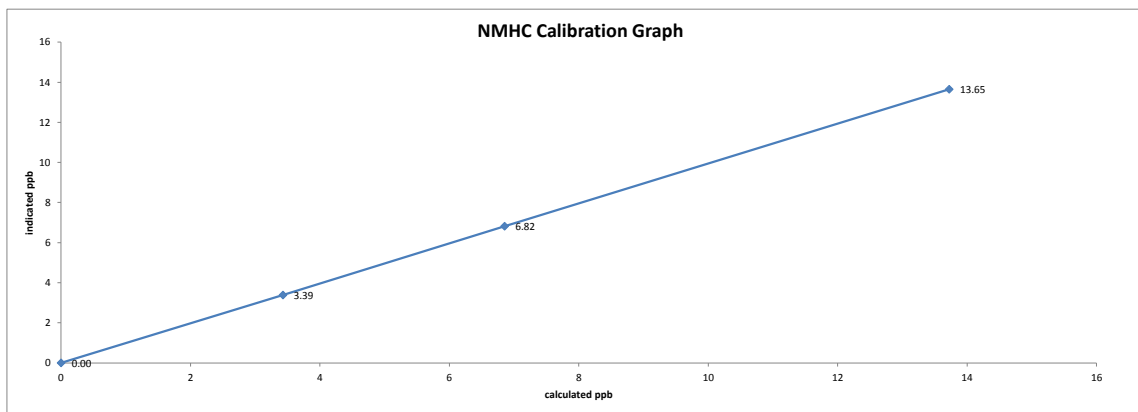
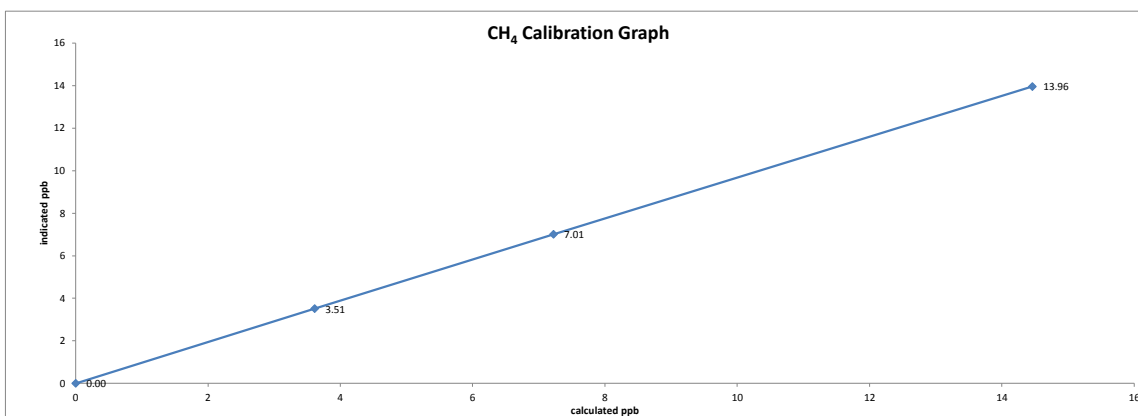
Comments:

The analyzer cooling fan filter(s) were cleaned.

The manifold blower was found to be working normally.

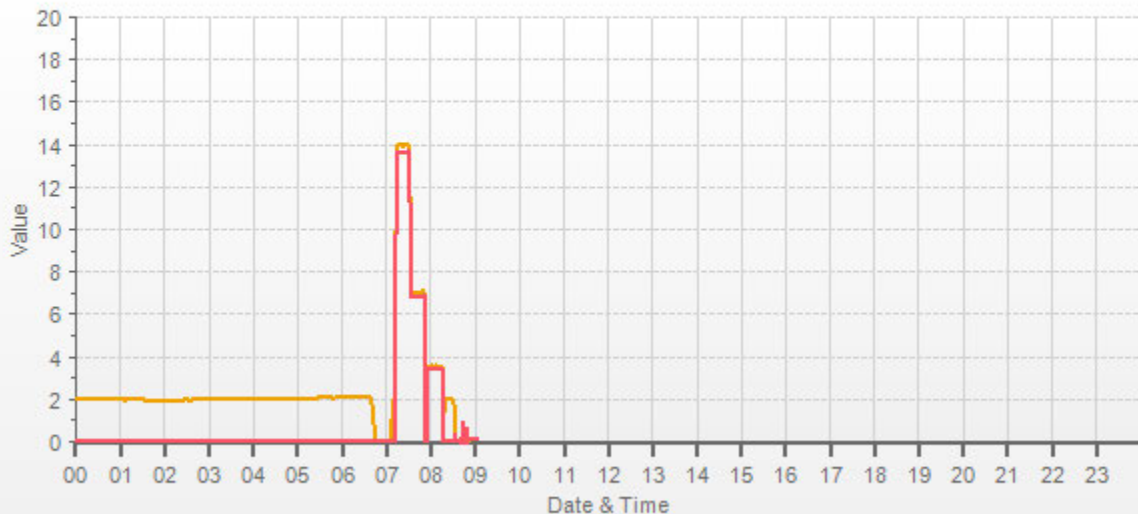
Date: July 31, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 06:35/08:15
Calibration Purpose: shut down
Calibration Method: Gas Dilution



Station: PRAMP_842 Daily: 18/07/31 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 SYSTEMS CHECK



Meteorological System Checklist

Date:	July 3, 2018		
Technician:	Limin Li		
Reviewer:	Rob Fisher		
Station:	PRAMP 842B		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Campbell Scientific	HMP45C	C2608
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	Campbell Scientific	HMP45C	C2608
Anemometer:	RM Young	05305VK	124638
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	June 4, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	F.S. 160348895 expires June 19, 2020		
Reference Temperature (°C):	13.6		
Station - Ambient Temperature (°C):	12.9		
Temperature Difference (°C):	0.7		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	June 4, 2018		
Reference Barometer ID:	Brunton 05535 expires December 15, 2018		
Reference Pressure - Units/Reading:	mbar	946.2	
Station Pressure - Units/Reading:	mbar	948.1	
Pressure Tolerance +/- 15% of error:	804 - 1088	-0.20%	
RELATIVE HUMIDITY (HYGROMETER) SENSOR CHECK			
Previous check date:	June 4, 2018		
Reference Hygrometer ID:	F.S. id# 160348895 expires June 19, 2020		
Reference Hygrometer % RH- Reading:	89.10		
Station Hygrometer % RH- Reading:	88.40		
Tolerance +/- 15% of difference:	75.74 - 102.47	0.8%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	June 4, 2018	Previous check date:	June 4, 2018
Wind Speed Observed (kph):	10	Wind Direction Observed:	N
Wind speed on Data Logger (kph):	10	Wind Direction on Data Logger:	N
Correction Factor: Tolerance +/-2%:	1.000	Wind Direction Pass/Fail?:	Pass

CALIBRATORS

Company: <u>Maxxam</u>		Operator: <u>Chris W</u>	
Calibrator: Make/Model <u>EnviroNics 2000</u> Serial Number <u>1991</u> Last Verification Date <u>March 2017</u> NO Cylinder S/N <u>LL108015</u> NO [PPM] <u>52.2</u> NOx [PPM] <u>52.3</u> Expiry Date <u>Oct 2020</u>		Flow Measurement Device: Make/Model <u>Mesa Defender 530</u> Serial Number <u>L-153351 H-152571</u> Temperature (°C) <u>25.0 C</u> Barometric Pressure <u>695 mmHg</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%	
4988	75.1	0.786	0.787	0.785	-0.002	0.783	0%	-1%
4988	36.5	0.382	0.383	0.382	0.001	0.383	0%	0%
4988	18.3	0.192	0.192	0.190	0.000	0.190	-1%	-1%
Absolute Average Percent Difference							0%	1%

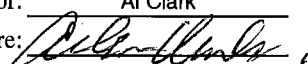
LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)
NO		LIMITS		NOx
Correlation=	1.0000	≥ 0.990		Correlation= 1.0000
m (Slope)=	0.9996	0.90-1.10		m (Slope)= 0.9956
b (Intercept % of FS)=	-0.0599	± 3% F.S.		b (Intercept % of FS)= -0.0005

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

LINEAR REGRESSION ANALYSIS				$y=mx+b$ (where x=calculated concentration, y=indicated concentration)
NO₂		LIMITS		
Correlation=	1.0000	≥ 0.995		
m (Slope)=	0.9885	0.90-1.10		
b (Intercept % of FS)=	-0.0567	± 3% F.S.		

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

COMMENTS: Cylinder contains 47.9 ppm SO₂.

Auditor: Al Clark
 Operator Signature: 

Date: March 15, 2018
 Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Chris W

Calibrator:		Flow Measurement Device:	
Make/Model	API 700	Make/Model	Mesa Defender 530
Serial Number	831	Serial Number	L-153351 H-152571
Last Verification Date	February 2017	Temperature (°C)	23.0 C
SO ₂ Cylinder Conc.	47.9	Barometric Pressure	702 mmHg
SO ₂ Cylinder S/N	LL108015		
Expiry Date	October 2020		

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)

SO ₂		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

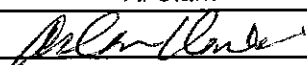
Make/Model	Sabio 2010
Serial/AMU Number	AMU 2092
SO ₂	
SRM Gas Cylinder No.	CAL016625
Cylinder Conc. (ppm)	98.07

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

Operator Signature: 

Date: March 1, 2018

Location: McIntyre Center Edmonton

Calibrator Performance Audit

Oxides Of Nitrogen

File No. 2018-521A

Company: Maxxam Operator: Christopher

Calibrator:				Flow Measurement Device:			
Make/Model	<u>API 700</u>			Make/Model	<u>Mesa 530+</u>		
Serial Number	<u>627</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%	
4972	77.0	0.785	0.787	0.782	-0.001	0.781	0%	-1%
4979	37.4	0.381	0.382	0.377	0.000	0.377	-1%	-1%
4970	18.7	0.191	0.191	0.188	0.000		-2%	-100%
Absolute Average Percent Difference							1%	34%

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)=	0.9969	0.90-1.10	m (Slope)=	0.9924
b (Intercept % of FS)=	-0.1435	± 3% F.S.	b (Intercept % of FS)=	-0.0716

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
4972	0.000	0.000	0.778	-0.001	0.777	NO ₂	% Diff. Limit
4972	0.500	0.492	0.286	0.488	0.774	-1%	± 10%
4972	0.280	0.278	0.500	0.276	0.776	0%	± 10%
4972	0.095	0.092	0.686	0.091	0.777	0%	± 10%
Absolute Average Percent Difference						0%	± 10%

LINEAR REGRESSION ANALYSIS

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

NO ₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9937	0.90-1.10
b (Intercept % of FS)=	-0.0647	± 3% F.S.

AENV Standards		NO_x Analyzer	
Audit Calibrator		Make/Model <u>Teco 42i</u>	
Make/Model	<u>Teco 146i</u>	Serial/AMU Number	<u>AMU 1868</u>
Serial/AMU Number	<u>AMU 1809</u>	Last Calibration Date	<u>January 31, 2018</u>
SRM Gas Cylinder No.	<u>APEX1170572</u>	Full Scale (ppm)	<u>1.0</u>
Cylinder Conc. (ppm)	<u>49.99</u>	Cylinder Gas Expiry Date	<u>November 2020</u>

COMMENTS:

Auditor: Al Clark Date: January 31, 2018
Operator Signature: [Signature] Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-111CGA

Company: Maxxam Operator's Name: Chris Wesson
Cylinder #: LL119329 Concentration PPM: 50.1 Tolerance(%) 2 Certified By: Air Liquide

Reference Calibrator and Gas:

Make/Model: Thermo146i
Serial Number: 1809
Last Verification Date: February 2, 2016
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625

Flow Measurement Device:

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

Reference Analyzer:

Make/Model: Thermo 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 8.7 Span: 1.027 Range: 1.0
Last Calibration: Date: 1-Feb-16 C.F. 1.000 Done By: SB

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
4960	0.0	0.000			
4959	79.09	0.791	0.01595	62.701	49.6
4950	39.44	0.394	0.00797	125.507	49.4
4942	19.44	0.194	0.00393	254.218	49.3
Average Cylinder Concentration:					49.5

Previous Stated Concentration PPM: 50.1

Percent variance from Stated: 1.3

Meets Manufacturer Tolerance. Use manufacturers stated concentration ☒ COMMENTS: SO2/NO blend 50.3ppm NO
<=5% Outside Manufacturer Tolerance. Use manufacturers concentration ☐
> 5% Outside Manufacturer Tolerance. **DO NOT USE** this cylinder ☐

Auditor: Shea Beaton
Operator Signature: [Signature]

Date: February 2, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2016-086CGA

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 50.6

Percent variance from Stated: 1.1

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

Auditor: Al Clark
Operator Signature: [Signature]

Date: June 17, 2016
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-213CGA

Company: Maxxam **Operator's Name:** C. Wesson

Cylinder #: LL119500 **Concentration PPM:** 9.8 **Tolerance(%)** 2 **Certified By:** Praxair

Expiry Date: August 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201

Serial Number: AMU 1690

Last Verification Date: September 22, 2017

Gas Type: H2S **Conc.** 20.43

Cylinder Number: CAL015272

Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220

Serial Number: H-133034 L-132702

Temp. °C: 23.5 C

B.P. 705 mmhg

Reference Analyzer:

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

Instrument Settings: **Zero:** 22.4 **Span:** 1.091 **Range:** 0.1

Last Calibration: **Date:** Sep 22/17 **C.F.** 1.000 **Done By:** Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	~~0.00772~~	~~129.468~~	~~9.5~~
5114	39.5	0.0734	0.00772	129.468	9.5
5096	18.5	0.0345	0.00363	275.459	9.5
5089	9.5	0.0178	0.00187	535.684	9.5

Average Cylinder Concentration: **9.5**

Previous Stated Concentration PPM: 9.8

Percent variance from Stated: 3

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

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

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

Auditor: Al Clark

Operator Signature: *Al Clark*

Date: September 22, 2017

Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-488CGA

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

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

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

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

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

Cylinder gas tolerances based on CH₄ only

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

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

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 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	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	24
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24
3	0	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	24
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	0	0	0	0	1	0	24
5	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	1	0	24
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	2	0	0	0	0	0	0	0	2	0	24
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	24
8	0	0	0	0	0	0	0	0	0	1	1	0	0	0	S	1	0	0	0	0	0	0	0	0	0	0	1	0	24
9	0	0	0	0	0	1	0	0	1	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	1	0	24
10	0	0	0	0	0	1	1	2	1	0	0	0	S	0	0	0	1	0	1	1	1	1	0	0	0	2	0	24	
11	0	0	0	0	0	0	0	0	0	0	0	S	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
12	0	0	0	0	0	0	0	1	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
13	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	24	
14	1	0	0	0	0	0	0	0	S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
15	0	0	0	0	0	0	0	S	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
16	0	0	0	0	0	1	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
17	0	0	1	0	0	S	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	24	
18	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	
19	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	
20	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	
21	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	
22	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	24	
23	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	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	S	0	0	0	1	0	24	
25	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	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	0	0	0	0	0	0	0	24	
27	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	S	0	0	0	0	0	0	1	0	24	
28	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	S	0	0	0	0	0	0	0	1	0	24	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	1	1	0	0	0	0	0	0	1	0	24	
30	0	0	0	0	0	1	0	0	1	3	0	0	0	C1	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	0	3	0	13
31	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	
HOURLY MAX	1	0	1	0	0	1	1	2	1	3	1	1	1	1	0	1	1	1	2	1	1	1	0	1					
HOURLY AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

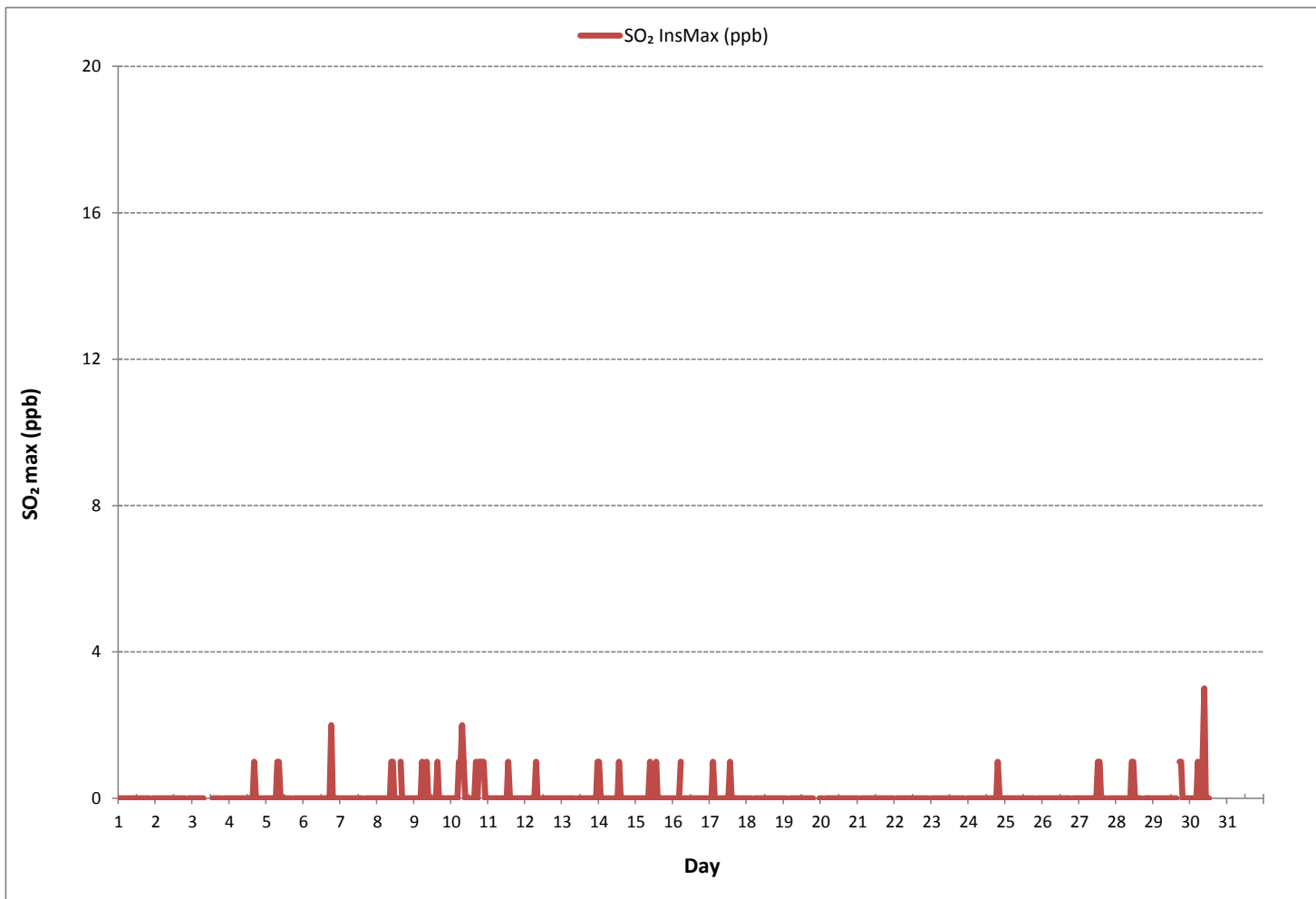
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	39
MAXIMUM INSTANTANEOUS VALUE:	3 ppb @ HOUR 9 ON DAY 30
IZS CALIBRATION TIME:	30 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0
OPERATIONAL TIME:	709 hrs

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 2018

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

	HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
	HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																														
1		0.49	0.41	0.67	0.67	0.67	0.59	0.49	0.36	0.30	0.28	0.20	0.25	0.22	0.15	0.15	0.12	0.15	0.09	0.09	0.23	0.20	\$	0.20	0.15	0.09	0.67	0.31	24	
2		0.12	0.12	0.09	0.09	0.12	0.15	0.12	0.15	0.12	0.12	0.09	0.09	0.07	0.09	0.09	0.07	0.09	0.07	0.05	0.07	\$	0.09	0.09	0.07	0.05	0.15	0.10	24	
3		0.07	0.12	0.08	0.09	0.12	0.12	0.15	0.12	C	C	C	C	C	0.39	0.30	0.22	0.23	0.25	0.20	\$	0.25	0.28	0.28	0.28	0.07	0.39	0.20	24	
4		0.83	1.38	0.38	0.33	0.33	0.28	0.33	0.33	0.33	0.30	0.30	0.25	0.28	0.25	0.25	0.23	0.28	0.25	\$	0.25	0.28	0.38	0.43	0.36	0.23	1.38	0.37	24	
5		0.41	0.43	0.38	0.54	0.36	0.54	0.41	0.33	0.28	0.25	0.22	0.22	0.22	0.22	0.25	0.22	0.25	\$	0.25	0.30	0.28	0.36	0.38	0.38	0.22	0.54	0.33	24	
6		0.30	0.28	0.28	0.38	0.62	0.49	1.01	0.46	0.33	0.28	0.30	0.28	0.30	0.20	0.22	0.25	\$	0.22	0.22	0.22	0.25	0.28	0.23	0.30	0.20	1.01	0.33	24	
7		0.30	0.36	0.62	0.28	0.39	0.38	0.30	0.38	1.14	0.36	0.30	0.33	0.25	0.25	0.25	\$	0.28	0.23	0.23	0.25	0.28	0.25	0.28	0.25	0.23	1.14	0.35	24	
8		0.67	0.67	0.36	0.83	0.81	0.57	0.43	0.30	0.30	0.30	0.22	0.25	0.28	0.25	\$	0.25	0.25	0.22	0.25	0.23	0.33	0.28	0.46	0.36	0.22	0.83	0.39	24	
9		0.41	0.46	0.46	0.49	0.54	0.51	0.41	0.28	0.25	0.25	0.25	0.28	0.25	\$	0.23	0.23	0.25	0.22	0.25	0.28	0.41	0.43	0.59	0.43	0.22	0.59	0.35	24	
10		0.49	0.65	0.62	0.88	0.80	0.95	0.94	0.36	0.33	0.30	0.30	0.28	\$	0.25	0.28	0.28	0.25	0.25	0.23	0.28	0.30	0.36	0.49	1.16	0.23	1.16	0.48	24	
11		0.62	0.70	0.75	1.22	1.06	1.03	0.43	0.33	0.28	0.28	0.28	\$	0.28	0.25	0.25	0.25	0.25	0.28	0.30	0.33	0.28	0.28	0.36	0.38	0.25	1.22	0.46	24	
12		0.30	0.36	0.33	0.54	0.62	0.38	0.36	0.38	0.36	0.38	\$	0.38	0.33	0.33	0.33	0.28	0.28	0.28	0.28	0.30	1.01	0.80	0.54	0.28	1.01	0.41	24		
13		0.70	0.30	0.33	0.33	1.32	1.04	0.64	0.44	0.33	\$	0.28	0.25	0.28	0.28	0.25	0.33	0.30	0.28	0.30	0.30	0.28	0.30	0.91	0.83	0.25	1.32	0.46	24	
14		0.51	0.47	0.33	0.30	0.30	0.39	0.49	0.51	\$	0.36	0.28	0.28	0.28	0.33	0.28	0.28	0.25	0.25	0.30	0.28	0.68	1.09	0.49	0.67	0.25	1.09	0.41	24	
15		1.14	0.86	0.83	0.93	0.81	0.98	0.78	\$	0.72	0.60	0.54	0.33	0.28	0.30	0.28	0.25	0.25	0.28	0.28	0.33	0.46	0.43	0.46	0.41	0.25	1.14	0.54	24	
16		0.41	0.38	0.41	0.36	0.67	0.43	\$	0.30	0.30	0.33	0.33	0.30	0.25	0.23	0.28	0.28	0.26	0.25	0.25	0.23	0.28	0.28	0.30	0.28	0.23	0.67	0.32	24	
17		0.30	0.41	0.38	0.36	1.01	\$	0.54	0.41	0.43	0.30	0.30	0.28	0.30	0.33	0.30	0.28	0.26	0.25	0.28	0.28	0.44	0.72	0.62	1.11	0.25	1.11	0.43	24	
18		0.72	0.51	0.88	0.68	\$	0.49	0.46	1.22	0.41	0.38	0.36	0.36	0.28	0.28	0.23	0.28	0.26	0.28	0.46	0.43	0.41	0.59	0.54	1.06	0.23	1.22	0.50	24	
19		0.41	0.43	0.72	\$	1.22	1.46	0.46	0.41	0.36	0.36	0.36	0.33	0.33	0.28	0.30	0.28	0.25	0.25	0.30	0.28	0.30	0.30	0.44	0.44	0.25	1.46	0.45	24	
20		0.36	0.56	\$	0.59	0.67	1.03	0.98	0.49	0.49	0.49	0.43	0.38	0.33	0.33	0.30	0.51	0.70	0.49	0.33	0.30	0.30	0.41	0.28	0.38	0.28	1.03	0.48	24	
21		0.49	\$	0.54	0.41	0.56	0.70	0.51	0.49	0.43	0.41	0.30	0.30	0.33	0.30	0.28	0.28	0.33	0.30	0.28	0.28	0.25	0.33	0.33	0.56	0.25	0.70	0.39	24	
22		\$	0.67	0.47	0.44	0.77	0.28	0.30	0.31	0.30	0.28	0.30	0.28	0.28	0.28	0.28	0.28	0.26	0.28	0.28	0.28	0.28	0.28	0.30	\$	0.26	0.77	0.34	24	
23		0.36	0.39	0.51	1.17	1.06	0.56	0.43	0.49	0.36	0.33	0.25	0.28	0.28	0.25	0.25	0.28	0.28	0.25	0.28	0.28	0.47	0.51	\$	3.97	0.25	3.97	0.58	24	
24		1.24	0.54	1.49	2.77	1.03	1.38	1.09	1.06	0.54	0.33	0.30	0.30	0.33	0.28	0.30	0.28	0.30	0.30	0.30	0.30	0.41	\$	0.44	0.51	0.28	2.77	0.69	24	
25		0.83	0.64	0.44	0.54	0.83	1.64	1.30	0.83	0.41	0.33	0.30	0.30	0.28	0.33	0.30	0.30	0.30	0.36	0.33	0.30	\$	0.51	0.41	0.51	0.28	1.64	0.54	24	
26		0.70	0.98	0.83	0.62	0.80	0.93	0.83	0.64	0.41	0.33	0.30	0.36	0.36	0.33	0.33	0.30	0.33	0.38	0.38	\$	0.41	0.54	0.51	0.51	0.30	0.98	0.53	24	
27		0.64	0.56	0.95	0.98	1.06	0.77	0.62	0.43	0.41	0.43	0.41	0.36	0.38	0.36	0.33	0.30	0.33	0.33	\$	0.41	0.64	0.64	0.62	0.67	0.30	1.06	0.55	24	
28		0.77	0.91	1.06	1.11	0.96	1.38	1.19	0.83	0.46	0.41	0.44	0.38	0.36	0.41	0.41	0.41	0.36	\$	0.41	0.41	0.54	1.03	0.93	0.75	0.36	1.38	0.69	24	
29		0.83	1.59	0.95	1.88	1.14	0.59	0.46	0.44	0.44	0.41	0.41	0.43	0.46	0.46	0.49	0.44	\$	0.43	0.46	0.59	0.62	0.62	0.75	0.83	0.41	1.88	0.68	24	
30		1.11	0.91	1.38	0.62	0.51	0.56	0.98	1.04	0.78	0.54	0.46	0.41	0.43	C1	C1	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	0.41	1.38	0.75	13
31		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	
HOURLY MAX		1.24	1.59	1.49	2.77	1.32	1.64	1.30	1.22	1.14	0.60	0.54	0.43	0.46	0.46	0.49	0.51	0.70	0.49	0.46	0.59	0.68	1.09	0.93	3.97					
HOURLY AVG		0.57	0.59	0.60	0.70	0.73	0.71	0.60	0.49	0.41	0.35	0.31	0.30	0.30	0.29	0.28	0.28	0.28	0.27	0.28	0.30	0.37	0.47	0.46	0.65					

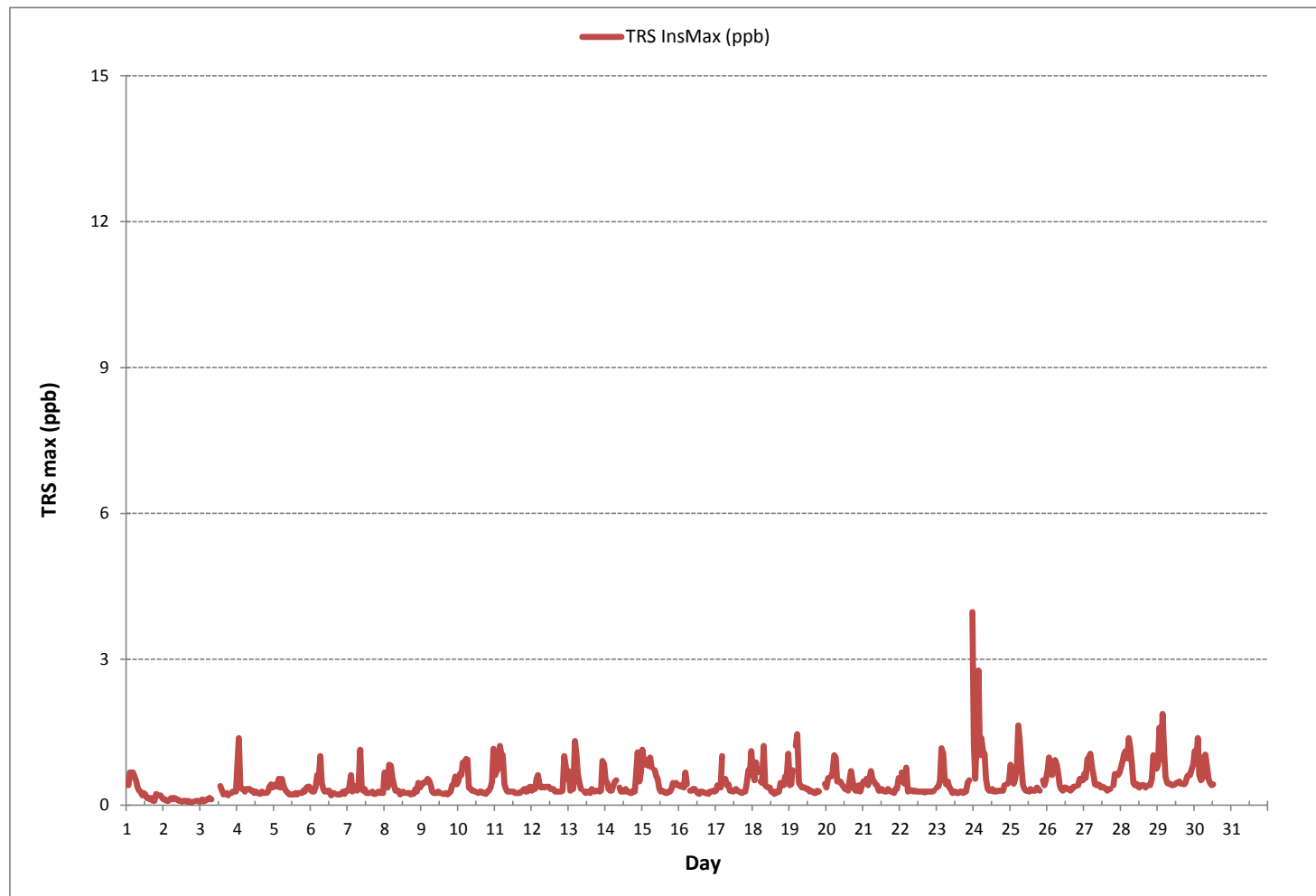
STATUS FLAG CODES

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:	674					
MAXIMUM INSTANTANEOUS VALUE:	3.97	ppb	@ HOUR	23	ON DAY	23
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	709	hrs	
MONTHLY CALIBRATION TIME:	5	hrs				
STANDARD DEVIATION:	0.31					

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





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

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.96	1.93	1.94	1.94	1.95	1.98	1.99	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.93	1.99	1.96	7	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1	
3	1.95	1.96	1.95	1.96	1.97	1.97	1.97	1.97	1.98	1.97	1.97	1.97	C	C	C	C	1.96	1.94	1.94	1.94	1.95	1.94	S	1.96	1.94	1.98	1.96	24	
4	1.97	1.97	1.96	1.95	1.96	1.95	1.95	1.96	1.95	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.96	1.95	1.96	1.94	1.97	1.95	24	
5	1.97	2.02	2.02	2.06	2.02	2.08	2.08	1.98	1.97	1.96	1.96	1.95	1.95	1.95	1.96	1.96	1.96	1.96	S	1.96	1.97	1.98	1.98	2.01	2.04	1.95	2.08	1.99	24
6	2.01	2.02	2.00	2.00	2.00	1.97	1.97	1.98	1.98	1.95	1.96	1.95	1.94	1.92	1.92	1.91	S	1.90	1.91	1.91	1.91	1.91	1.91	1.93	1.90	2.02	1.95	24	
7	1.94	1.95	1.95	1.95	1.90	1.92	1.90	1.92	1.94	1.94	1.94	1.94	1.93	1.94	1.94	S	1.94	1.94	1.94	1.94	1.94	1.93	1.95	1.94	1.94	1.90	1.95	1.94	24
8	1.97	1.96	1.97	1.98	1.99	1.99	1.99	1.97	1.97	1.95	1.93	1.94	1.94	1.94	S	1.95	1.94	1.94	1.94	1.93	1.97	1.94	1.95	1.95	1.93	1.99	1.96	24	
9	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.95	1.94	1.93	1.94	1.93	1.93	S	1.93	1.93	1.92	1.92	1.94	1.92	1.96	1.98	1.97	1.95	1.92	1.98	1.95	24	
10	1.97	1.97	1.97	1.98	1.99	1.98	1.99	1.95	1.96	1.95	1.97	1.98	S	1.95	1.94	1.94	1.93	1.92	1.93	1.92	1.93	1.94	1.96	2.00	1.92	2.00	1.96	24	
11	1.96	1.98	1.99	1.98	1.98	1.96	1.95	1.93	1.93	1.93	1.93	S	1.93	1.93	1.92	1.92	1.92	1.92	1.94	1.96	1.96	1.92	1.93	1.94	1.92	1.99	1.94	24	
12	1.94	1.92	1.93	1.93	1.95	1.94	1.94	1.96	1.94	1.94	S	1.93	1.92	1.92	1.93	1.93	1.93	1.92	1.92	1.93	1.92	1.96	2.00	1.97	1.92	2.00	1.94	24	
13	1.97	1.92	1.93	1.95	2.01	2.00	1.96	1.93	1.93	S	1.92	1.92	1.93	1.92	1.92	1.93	1.93	1.93	1.93	1.94	1.93	1.93	1.97	1.97	1.92	2.01	1.94	24	
14	1.94	1.93	1.92	1.93	1.92	1.94	1.95	1.94	S	1.93	1.93	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.93	1.93	2.00	2.05	1.97	2.04	1.92	2.05	1.94	24	
15	2.18	2.14	2.06	2.04	2.05	2.04	2.03	S	1.97	1.97	1.96	1.95	1.94	1.94	1.94	1.94	1.93	1.93	1.95	1.95	1.98	2.02	2.00	1.98	1.93	2.18	2.00	24	
16	1.97	1.99	2.00	2.00	2.02	1.98	S	1.95	1.95	1.96	1.94	1.92	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.92	1.92	1.90	1.90	2.02	1.94	24	
17	1.91	1.92	1.92	1.92	1.96	S	1.95	1.92	1.91	1.91	1.91	1.91	1.91	1.92	1.91	1.92	1.91	1.90	1.90	1.92	1.99	1.95	2.02	2.03	1.90	2.03	1.93	24	
18	2.10	2.01	2.12	1.95	S	1.91	1.92	1.94	1.92	1.91	1.92	1.91	1.91	1.90	1.89	1.91	1.89	1.90	1.91	2.00	1.98	1.93	1.92	2.02	1.89	2.12	1.95	24	
19	1.92	1.94	1.95	S	1.98	2.03	2.03	1.93	1.94	1.94	1.93	1.93	1.94	1.94	1.93	1.93	1.93	1.92	1.93	1.93	1.93	1.93	1.95	1.95	1.92	2.03	1.94	24	
20	1.95	1.99	S	1.97	1.97	1.98	1.99	2.00	2.00	1.99	1.98	1.98	1.97	1.97	1.94	1.95	1.97	1.94	1.95	1.95	1.94	1.95	1.95	1.94	1.94	2.00	1.97	24	
21	1.96	S	1.95	1.94	1.94	1.97	1.98	1.96	1.96	1.96	1.94	1.95	1.96	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.94	1.95	1.96	1.97	1.94	1.98	1.95	24	
22	S	1.98	1.96	1.96	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.96	S	1.95	1.98	1.96	24	
23	1.96	1.97	2.31	2.07	2.06	2.01	1.98	1.98	1.96	1.97	1.95	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.96	1.98	2.02	2.03	S	2.18	1.95	2.31	2.00	24
24	2.17	2.04	2.22	2.20	2.19	2.25	2.24	2.15	2.11	2.01	1.97	1.95	1.96	1.96	1.96	1.96	1.97	1.97	1.96	1.97	2.02	S	2.02	2.07	1.95	2.25	2.06	24	
25	2.21	2.21	2.14	2.14	2.21	2.30	2.34	2.21	2.04	1.97	1.96	1.96	1.96	1.95	1.96	1.96	1.96	1.96	1.97	1.97	S	2.02	2.03	2.07	1.95	2.34	2.07	24	
26	2.20	2.35	2.32	2.23	2.35	2.22	2.20	2.73	2.20	1.98	S1	S1	1.97	1.96	1.96	1.95	1.97	1.96	1.95	S	2.00	2.03	2.01	2.01	1.95	2.73	2.12	22	
27	2.03	2.05	2.11	2.10	2.10	2.09	2.08	2.06	2.03	2.01	2.00	1.98	1.97	1.95	1.94	1.95	1.94	1.94	S	1.98	2.02	2.06	2.05	2.03	1.94	2.11	2.02	24	
28	2.06	2.06	2.13	2.12	2.10	2.12	2.13	2.11	2.02	1.97	1.97	1.94	1.94	1.93	1.93	1.92	1.93	S	1.91	1.94	1.96	2.14	2.05	2.01	1.91	2.14	2.02	24	
29	2.01	2.10	2.03	2.15	2.25	1.98	1.94	1.92	1.92	1.93	1.93	1.92	1.94	1.93	1.90	1.93	S	1.91	1.90	2.13	2.12	2.02	2.24	2.15	1.90	2.25	2.01	24	
30	2.25	2.18	1.91	1.89	1.93	1.89	1.90	1.92	1.91	1.91	1.91	1.92	1.91	1.91	1.87	S	1.90	1.91	1.90	1.91	1.94	1.93	1.94	1.95	1.87	2.25	1.94	24	
31	2.01	1.98	1.97	2.03	2.04	2.08	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.97	2.08	2.02	6	
HOURLY MAX	2.25	2.35	2.32	2.23	2.35	2.30	2.34	2.73	2.20	2.01	2.00	1.98	1.97	1.97	1.96	1.97	1.97	1.97	1.97	2.13	2.12	2.14	2.24	2.18					
HOURLY AVG	2.01	2.01	2.02	2.01	2.03	2.02	2.01	2.01	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.94	1.94	1.93	1.93	1.95	1.97	1.97	1.98	2.00					

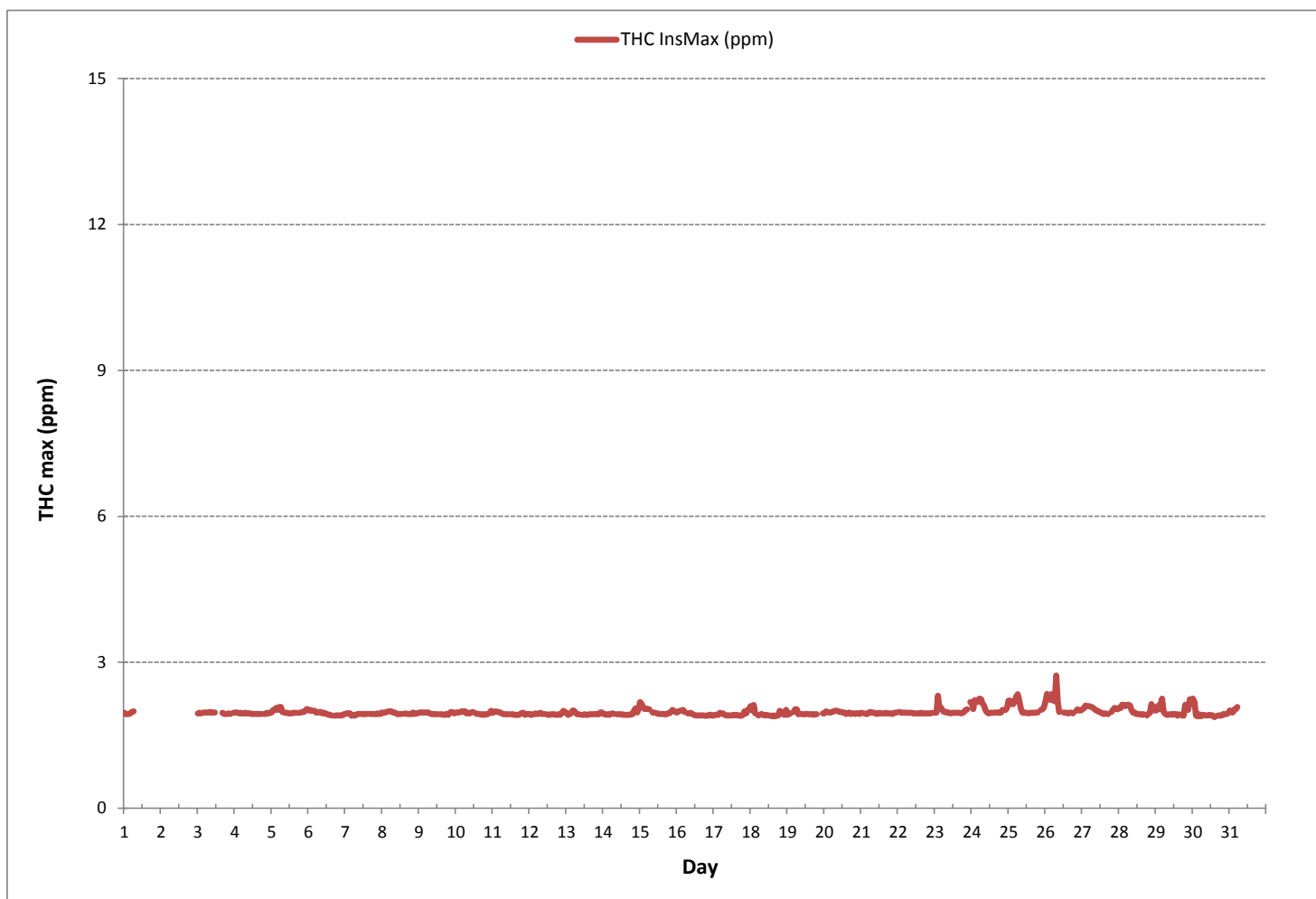
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	650				
MAXIMUM INSTANTANEOUS VALUE:	2.73	ppm	@ HOUR	7	ON DAY 26
IZS CALIBRATION TIME:	30	hrs	OPERATIONAL TIME:	684	hrs
MONTHLY CALIBRATION TIME:	4	hrs			
STANDARD DEVIATION:	0.08				

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 2018

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.95	1.92	1.93	1.94	1.95	1.98	1.99	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.92	1.99	1.95	7	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1
3	1.95	1.96	1.95	1.96	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	C	C	C	C	1.96	1.94	1.94	1.94	1.95	1.94	S	1.96	1.94	1.97	1.96	24	
4	1.97	1.97	1.96	1.95	1.96	1.95	1.96	1.96	1.94	1.95	1.95	1.94	1.94	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.96	1.95	1.96	1.94	1.97	1.95	24	
5	1.97	2.03	2.03	2.05	2.02	2.07	2.07	1.98	1.97	1.97	1.97	1.95	1.95	1.95	1.96	1.96	1.96	S	1.97	1.97	1.98	1.99	2.01	2.04	1.95	2.07	1.99	24	
6	2.01	2.02	2.00	2.00	2.00	1.97	1.98	1.98	1.98	1.95	1.96	1.95	1.94	1.92	1.92	1.91	S	1.90	1.91	1.90	1.91	1.90	1.90	1.92	1.90	2.02	1.95	24	
7	1.94	1.94	1.94	1.94	1.90	1.92	1.90	1.92	1.94	1.94	1.93	1.94	1.93	1.93	1.94	S	1.94	1.94	1.94	1.94	1.94	1.93	1.95	1.94	1.94	1.90	1.95	1.93	24
8	1.97	1.96	1.97	1.99	1.99	1.99	1.99	1.97	1.97	1.94	1.93	1.94	1.94	1.94	S	1.94	1.93	1.94	1.94	1.93	1.98	1.94	1.95	1.95	1.93	1.99	1.96	24	
9	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.95	1.94	1.93	1.93	1.93	1.93	S	1.93	1.92	1.92	1.92	1.94	1.91	1.95	1.98	1.97	1.95	1.91	1.98	1.95	24	
10	1.97	1.97	1.97	1.98	1.99	1.99	1.99	1.95	1.96	1.95	1.98	1.98	S	1.95	1.94	1.94	1.93	1.91	1.93	1.92	1.93	1.94	1.97	2.00	1.91	2.00	1.96	24	
11	1.97	1.98	1.99	1.98	1.98	1.96	1.94	1.93	1.93	1.92	1.93	S	1.93	1.93	1.92	1.92	1.91	1.92	1.93	1.97	1.95	1.92	1.93	1.94	1.91	1.99	1.94	24	
12	1.94	1.92	1.93	1.92	1.95	1.94	1.94	1.96	1.94	1.94	S	1.92	1.92	1.92	1.92	1.93	1.92	1.92	1.92	1.92	1.93	1.92	1.96	2.00	1.97	1.92	2.00	1.94	24
13	1.98	1.92	1.93	1.95	2.01	2.00	1.96	1.93	1.93	S	1.92	1.92	1.93	1.92	1.92	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.97	1.96	1.92	2.01	1.94	24	
14	1.93	1.93	1.92	1.93	1.92	1.94	1.95	1.94	S	1.92	1.93	1.93	1.92	1.92	1.92	1.92	1.92	1.92	1.91	1.93	2.01	2.04	1.97	2.04	1.91	2.04	1.94	24	
15	2.18	2.13	2.05	2.04	2.05	2.05	2.03	S	1.97	1.97	1.96	1.94	1.94	1.94	1.94	1.94	1.93	1.93	1.95	1.95	1.98	2.02	2.00	1.98	1.93	2.18	1.99	24	
16	1.97	1.99	2.01	2.00	2.02	1.98	S	1.95	1.95	1.96	1.94	1.91	1.91	1.91	1.91	1.91	1.91	1.90	1.90	1.90	1.89	1.92	1.92	1.89	1.89	2.02	1.94	24	
17	1.90	1.92	1.91	1.92	1.95	S	1.95	1.92	1.91	1.91	1.91	1.91	1.90	1.92	1.91	1.91	1.91	1.90	1.90	1.92	2.00	1.95	2.03	2.03	1.90	2.03	1.93	24	
18	2.10	2.01	2.11	1.95	S	1.91	1.92	1.94	1.91	1.90	1.91	1.91	1.90	1.89	1.89	1.91	1.89	1.90	1.90	2.00	1.99	1.93	1.92	2.03	1.89	2.11	1.94	24	
19	1.92	1.93	1.95	S	1.98	2.03	2.03	1.93	1.94	1.94	1.93	1.93	1.94	1.93	1.93	1.93	1.93	1.92	1.93	1.93	1.92	1.93	1.94	1.95	1.92	2.03	1.94	24	
20	1.95	1.99	S	1.97	1.97	1.99	2.00	2.00	2.00	1.99	1.98	1.98	1.97	1.97	1.94	1.95	1.97	1.94	1.95	1.94	1.94	1.95	1.95	1.94	1.94	2.00	1.97	24	
21	1.95	S	1.94	1.94	1.94	1.97	1.98	1.97	1.96	1.95	1.94	1.95	1.95	1.94	1.95	1.96	1.95	1.95	1.95	1.95	1.94	1.95	1.96	1.98	1.94	1.98	1.95	24	
22	S	1.98	1.95	1.97	1.97	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.95	1.95	1.95	1.96	1.95	1.95	1.95	1.95	1.95	1.95	1.97	S	1.95	1.98	1.96	24	
23	1.96	1.97	2.30	2.06	2.05	2.01	1.98	1.97	1.96	1.97	1.95	1.96	1.95	1.96	1.96	1.96	1.96	1.95	1.96	1.99	2.02	2.03	S	2.17	1.95	2.30	2.00	24	
24	2.17	2.05	2.22	2.19	2.19	2.26	2.24	2.15	2.10	2.02	1.97	1.95	1.96	1.97	1.97	1.97	1.97	1.96	1.97	1.97	2.02	S	2.03	2.07	1.95	2.26	2.06	24	
25	2.21	2.21	2.14	2.14	2.21	2.29	2.33	2.21	2.05	1.97	1.95	1.96	1.95	1.95	1.97	1.96	1.96	1.96	1.97	1.97	S	2.02	2.04	2.06	1.95	2.33	2.06	24	
26	2.20	2.35	2.31	2.24	2.35	2.22	2.20	2.15	2.04	1.98	S1	S1	1.97	1.96	1.96	1.95	1.97	1.97	1.94	S	2.00	2.04	2.01	2.01	1.94	2.35	2.09	22	
27	2.03	2.05	2.10	2.10	2.09	2.09	2.07	2.06	2.04	2.02	2.00	1.99	1.97	1.95	1.94	1.94	1.94	1.93	S	1.98	2.02	2.05	2.05	2.04	1.93	2.10	2.02	24	
28	2.05	2.05	2.12	2.11	2.10	2.12	2.12	2.11	2.03	1.97	1.96	1.94	1.93	1.93	1.93	1.92	1.93	S	1.91	1.94	1.96	2.13	2.05	2.01	1.91	2.13	2.01	24	
29	2.01	2.09	2.04	2.15	2.25	1.99	1.94	1.92	1.92	1.92	1.92	1.92	1.94	1.93	1.90	1.92	S	1.91	1.89	2.13	2.10	2.02	2.02	2.06	1.89	2.25	2.00	24	
30	2.10	2.16	1.90	1.89	1.92	1.89	1.89	1.91	1.91	1.90	1.91	1.92	1.90	1.91	1.88	S	1.90	1.91	1.90	1.90	1.94	1.93	1.94	1.95	1.88	2.16	1.93	24	
31	2.01	1.98	1.98	2.03	2.04	2.07	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.98	2.07	2.02	6	
HOURLY MAX	2.21	2.35	2.31	2.24	2.35	2.29	2.33	2.21	2.10	2.02	2.00	1.99	1.97	1.97	1.97	1.97	1.97	1.97	1.97	2.13	2.10	2.13	2.05	2.17					
HOURLY AVG	2.01	2.01	2.02	2.01	2.02	2.02	2.01	1.98	1.97	1.95	1.95	1.94	1.94	1.94	1.93	1.94	1.94	1.93	1.93	1.95	1.96	1.97	1.98	1.99					

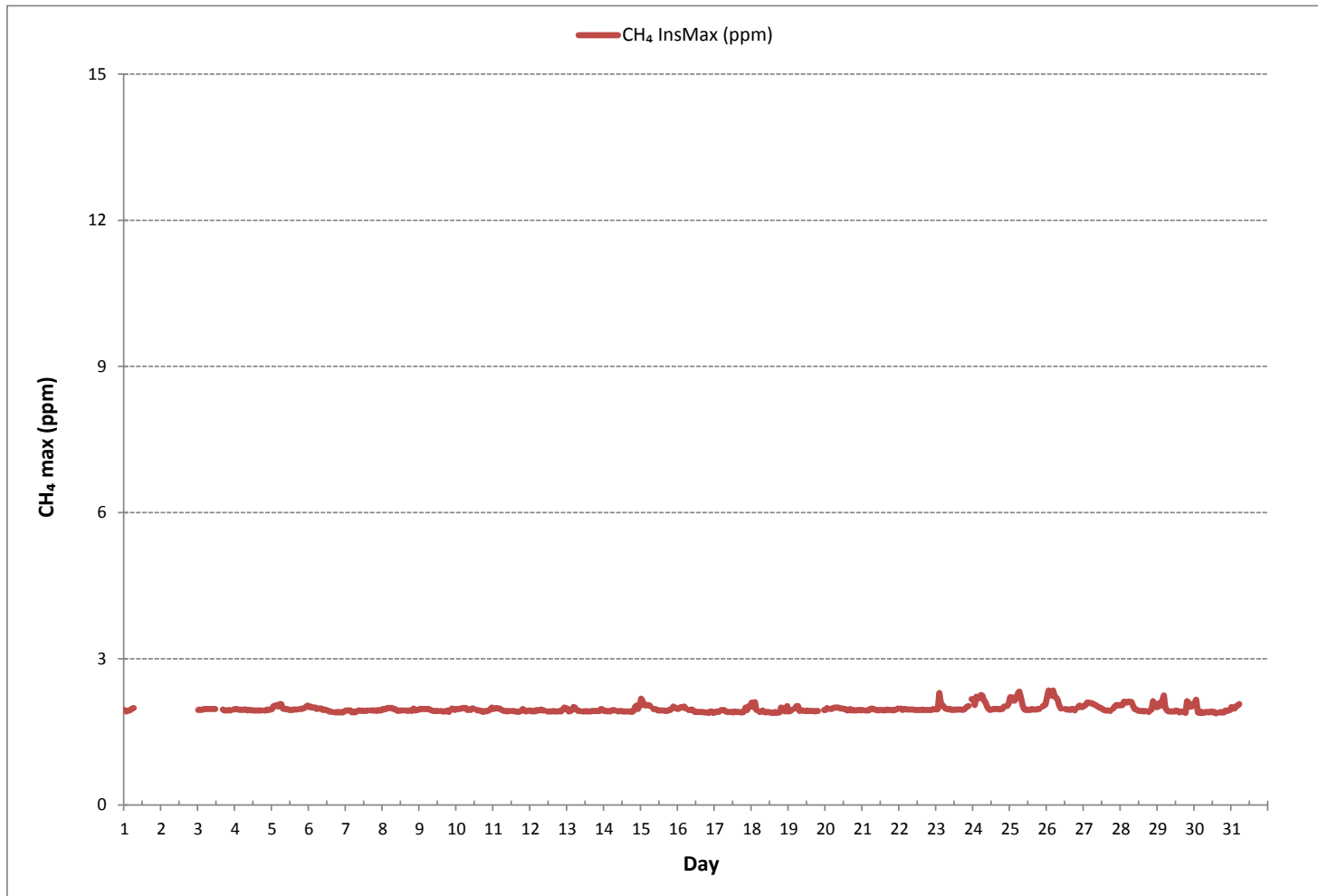
STATUS FLAG CODES

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:	650
MAXIMUM INSTANTANEOUS VALUE:	2.35 ppm @ HOUR 1 ON DAY 26
IZS CALIBRATION TIME:	30 hrs
MONTHLY CALIBRATION TIME:	4 hrs
STANDARD DEVIATION:	0.07
OPERATIONAL TIME:	684 hrs

METHANE MAX Instantaneous Maximum (CH₄ ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 2018

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	7
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S1	S1	S1	X	S	-	-	-	1
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24	
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	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	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	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
16	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
17	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
18	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	24	
19	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
20	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
21	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	0.02	0.00	0.02	24	
22	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	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	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	
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	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	
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	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	
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.17	0.00	S1	S1	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	22	
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24	
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.11	0.15	0.00	0.26	0.13	0.00	0.26	0.03	24	
30	0.19	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.01	24
31	0.00	0.00	0.00	0.00	0.00	0.00	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.00	0.00	0.00	6
HOURLY MAX	0.19	0.13	0.00	0.00	0.00	0.00	0.00	0.64	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.15	0.01	0.26	0.13				
HOURLY AVG	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01				

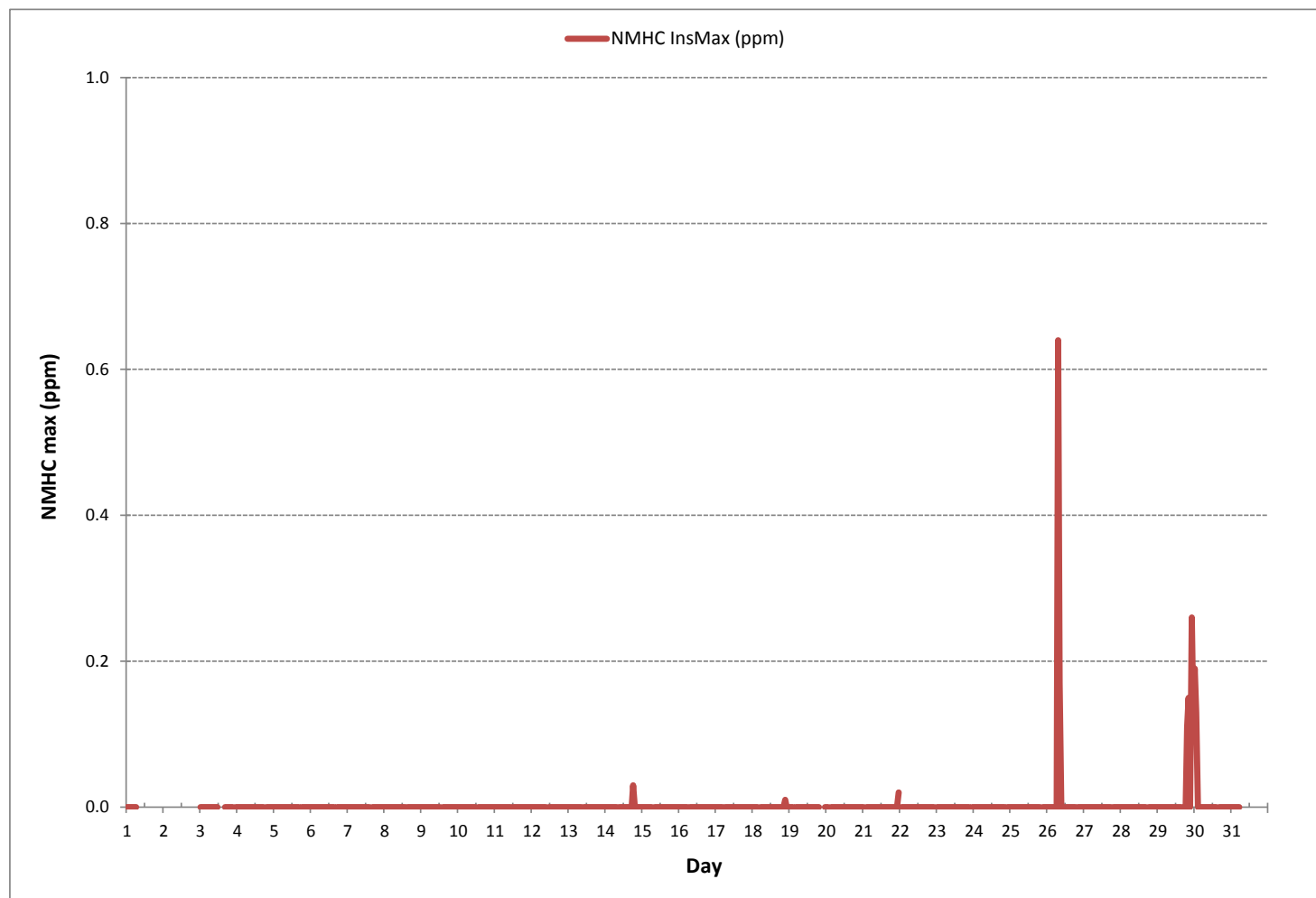
STATUS FLAG CODES

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:	11
MAXIMUM INSTANTANEOUS VALUE:	0.64 ppm @ HOUR 7 ON DAY 26
IZS CALIBRATION TIME:	30 hrs
MONTHLY CALIBRATION TIME:	4 hrs
STANDARD DEVIATION:	0.03
OPERATIONAL TIME:	684 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - July 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	13.7	11.9	9.9	12.1	11.3	11.3	15.7	15.2	20.7	24.0	25.3	28.8	32.3	30.0	30.7	32.9	30.7	25.4	26.0	14.6	14.2	10.2	14.7	14.8	9.9	32.9	19.9	24
2	25.5	24.0	24.7	21.0	26.1	25.9	30.7	28.4	37.8	35.1	33.4	33.0	32.5	30.2	36.4	31.6	37.6	36.6	35.8	28.7	25.6	21.1	24.3	24.8	21.0	37.8	29.6	24
3	23.3	18.2	19.4	26.9	24.0	24.6	29.3	28.0	24.5	27.3	25.1	27.9	24.7	26.9	34.2	35.7	31.3	34.4	31.5	27.8	17.1	10.7	9.0	8.8	8.8	35.7	24.6	24
4	9.3	10.2	8.7	10.2	14.2	10.0	15.4	11.5	11.7	15.5	23.6	22.3	25.3	23.7	22.4	19.3	13.6	14.0	14.1	13.2	12.6	11.6	11.3	11.5	8.7	25.3	14.8	24
5	12.9	13.3	13.1	13.3	13.0	12.3	16.9	21.4	24.7	25.7	26.2	31.9	34.4	32.6	32.6	31.8	31.3	28.2	26.4	17.4	9.7	10.4	10.2	16.2	9.7	34.4	21.1	24
6	15.2	18.7	16.2	16.0	31.6	19.1	20.8	16.2	24.0	26.9	21.6	30.5	29.0	34.9	34.9	35.8	41.3	40.7	36.0	24.9	25.1	23.2	23.4	25.4	15.2	41.3	26.3	24
7	26.3	20.5	15.5	19.2	20.3	16.1	18.3	15.5	38.3	31.6	29.3	32.5	28.3	25.3	24.6	23.0	22.0	19.5	16.7	20.9	20.2	19.3	16.5	14.9	14.9	38.3	22.3	24
8	15.9	14.5	14.6	11.7	14.0	17.8	18.8	24.4	30.4	26.8	26.8	26.9	30.0	30.7	30.9	28.3	26.5	22.2	18.0	13.2	10.4	10.4	14.2	15.7	10.4	30.9	20.5	24
9	13.6	14.9	13.7	18.6	12.7	15.5	20.9	28.5	24.5	26.2	31.5	28.7	32.5	38.2	37.5	33.3	30.6	22.8	24.1	14.5	11.8	4.3	8.9	9.5	4.3	38.2	21.6	24
10	11.4	13.9	11.0	13.0	8.6	9.6	10.1	14.6	21.6	29.2	29.2	23.7	22.8	22.7	20.2	24.2	24.4	22.0	21.5	14.4	12.7	13.0	8.8	4.9	4.9	29.2	17.0	24
11	7.7	6.8	7.7	8.3	8.2	12.1	17.5	18.8	19.0	20.3	21.5	20.6	23.0	28.5	33.0	35.0	31.7	33.7	36.7	26.1	17.8	19.6	19.4	14.0	6.8	36.7	20.3	24
12	18.4	18.5	18.8	20.6	16.0	18.0	14.9	16.2	15.8	19.4	19.3	18.1	20.6	23.0	19.8	12.5	19.7	21.8	19.5	33.3	10.8	8.7	8.8	12.0	8.7	33.3	17.7	24
13	18.3	18.7	15.6	20.0	12.5	8.0	14.4	12.4	16.6	19.3	19.4	25.5	24.9	25.0	24.7	16.9	42.1	13.6	15.8	16.8	22.7	21.9	16.0	13.9	8.0	42.1	19.0	24
14	20.0	30.7	31.4	28.8	26.4	22.5	22.3	30.3	25.1	27.6	43.2	48.2	43.9	40.1	31.5	26.5	22.5	22.6	20.7	13.5	3.3	2.5	6.4	6.1	2.5	48.2	24.8	24
15	9.0	9.4	10.3	9.5	8.6	10.9	13.5	16.8	18.1	18.5	22.6	26.0	24.9	26.5	26.1	21.2	18.1	21.4	13.7	4.7	2.1	9.3	11.3	16.4	2.1	26.5	15.4	24
16	19.1	17.7	10.6	14.3	10.3	21.8	20.0	19.9	26.2	25.4	27.7	36.3	24.7	38.4	40.6	38.8	46.3	40.4	49.5	35.7	30.4	21.5	19.1	17.7	10.3	49.5	27.2	24
17	19.9	17.6	13.2	11.0	13.6	7.3	9.3	16.8	14.2	11.2	16.6	17.4	18.5	16.9	23.1	25.0	23.6	15.4	15.2	9.9	3.5	4.7	6.2	11.0	3.5	25.0	14.2	24
18	11.1	13.1	34.4	20.8	18.8	20.1	13.7	12.7	18.0	15.6	21.9	25.0	26.1	31.1	30.7	22.8	23.6	23.9	19.9	9.3	14.8	18.7	9.8	12.4	9.3	34.4	19.5	24
19	12.2	7.4	8.5	10.2	10.2	6.2	9.6	12.3	18.3	17.5	25.6	20.6	20.8	25.0	28.1	21.9	24.6	19.3	21.7	16.8	17.3	14.1	14.2	13.8	6.2	28.1	16.5	24
20	12.9	14.0	13.7	18.8	20.9	20.9	21.7	20.0	17.2	17.8	19.8	21.2	19.1	23.9	24.1	28.3	15.2	22.7	21.7	17.6	25.7	28.7	35.5	33.4	12.9	35.5	21.5	24
21	21.4	17.5	14.4	14.5	17.8	12.3	12.2	11.3	11.9	12.6	10.2	18.5	22.3	24.0	27.4	26.3	24.8	21.1	22.3	24.5	26.4	15.1	9.9	9.7	9.7	27.4	17.9	24
22	11.0	14.2	18.1	17.9	20.2	22.0	21.0	27.9	25.3	25.7	24.5	22.6	32.2	30.0	32.9	33.6	23.9	19.8	18.4	16.2	16.0	9.0	8.4	11.3	8.4	33.6	20.9	24
23	12.1	12.8	5.4	8.6	6.2	10.0	12.4	11.1	16.1	23.0	29.5	29.9	22.6	20.7	16.5	12.8	9.3	14.9	10.0	6.9	4.9	2.6	1.7	2.6	1.7	29.9	12.6	24
24	2.2	4.1	3.8	6.8	6.3	3.0	4.3	5.2	6.5	7.8	14.2	14.8	12.7	13.4	18.2	8.8	7.0	8.4	6.3	5.2	3.0	5.8	4.7	7.2	2.2	18.2	7.5	24
25	6.1	6.8	5.8	6.5	5.4	5.3	6.9	8.8	11.0	13.2	14.1	18.1	20.8	20.0	17.5	19.4	23.2	15.8	13.9	6.9	2.5	3.2	3.1	2.9	2.5	23.2	10.7	24
26	6.3	6.9	10.0	7.1	5.1	8.9	9.6	8.4	15.2	19.6	21.1	22.2	22.5	22.3	22.3	18.7	17.1	18.6	14.7	9.9	12.8	8.4	15.3	10.7	5.1	22.5	13.9	24
27	10.3	7.7	9.0	8.6	10.7	9.3	11.5	15.6	17.6	17.9	18.8	20.0	22.0	22.8	20.6	21.3	20.7	20.0	15.7	11.3	8.0	6.1	8.8	4.0	4.0	22.8	14.1	24
28	11.4	7.9	7.9	11.8	7.9	10.1	10.2	9.2	14.0	16.0	18.4	20.5	21.7	20.7	26.9	25.7	22.9	17.7	18.5	12.3	11.7	9.6	8.7	8.8	7.9	26.9	14.6	24
29	9.3	8.9	9.2	4.7	18.3	23.1	23.9	23.1	18.1	24.3	13.0	11.8	17.5	19.9	19.9	12.7	12.1	9.3	5.1	2.7	4.0	4.7	4.0	6.4	2.7	24.3	12.8	24
30	3.4	63.5	42.3	21.6	18.0	27.0	22.2	15.7	21.8	19.2	19.7	28.8	23.9	23.5	24.4	19.1	21.7	23.4	20.7	13.0	7.3	10.2	7.8	7.9	3.4	63.5	21.1	24
31	7.2	9.5	8.6	9.4	9.3	6.4	10.2	10.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	6.4	10.2	8.9	8
HOURLY MAX	26.3	63.5	42.3	28.8	31.6	27.0	30.7	30.3	38.3	35.1	43.2	48.2	43.9	40.1	40.6	38.8	46.3	40.7	49.5	35.7	30.4	28.7	35.5	33.4				
HOURLY AVG	13.4	15.3	14.4	14.3	14.4	14.4	16.1	17.0	20.1	21.3	23.1	25.1	25.2	26.4	27.1	24.8	24.6	22.3	21.0	16.1	13.5	12.0	12.0	12.3				

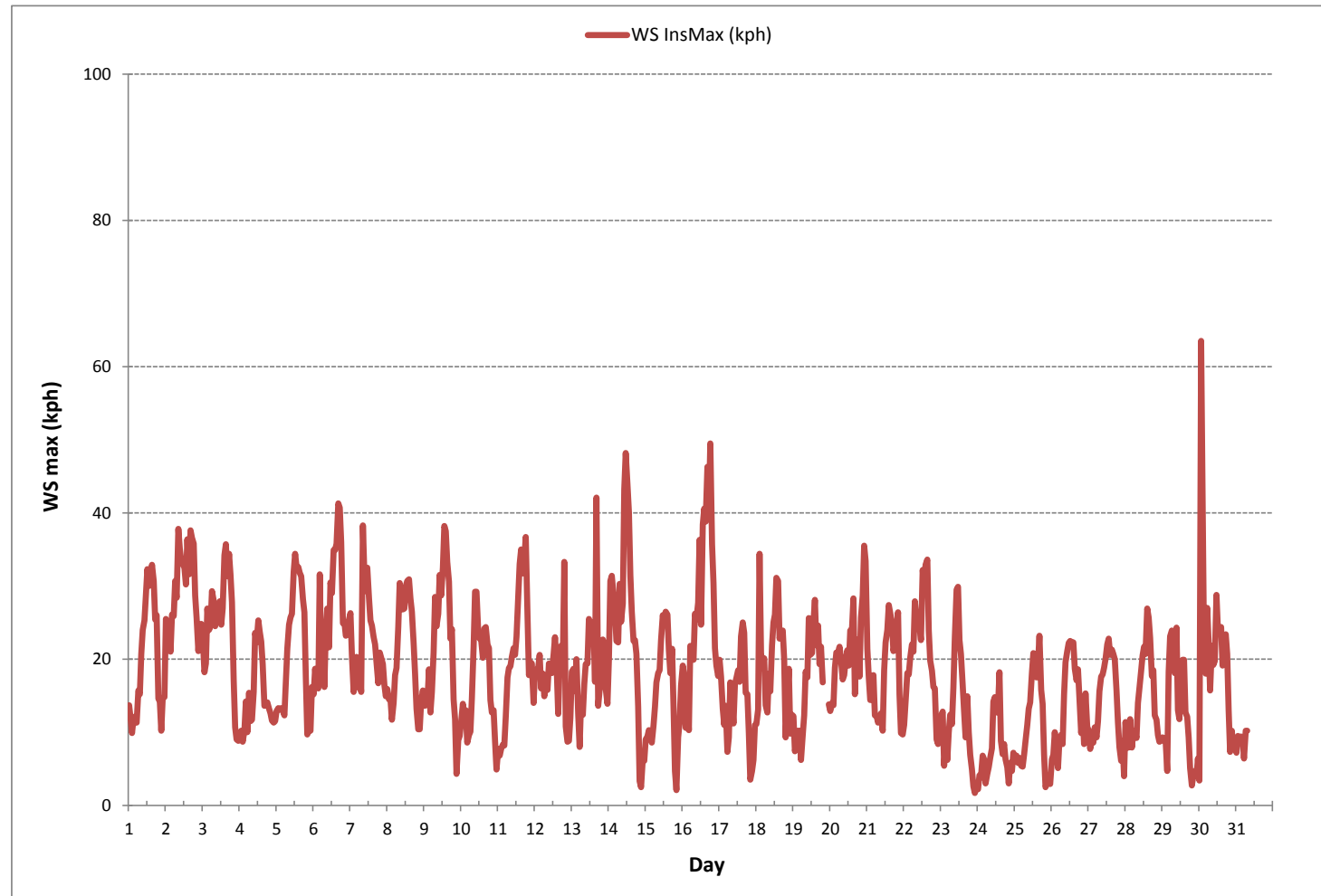
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	63.5	kph	@ HOUR	1	ON DAY	30
OPERATIONAL TIME:	728	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

23 - Aug. - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-07-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Carla Reesor

Date 15 - Aug. - 2018

Level 1 Primary Validation

Carla Reesor

Date 15 - Aug. - 2018

Level 2 Final Validation

Carla Reesor

Date 23- Aug. - 2018

Level 3 Independent Data Review

Cheri Sinclair

Date 23- Aug. - 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.