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

JOB #: 8449-2018-06-80-C

June 2018

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Attention: LILY LIN

DATE: **July 19, 2018**

Prepared by:

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

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

Reviewed by:

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

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

SUMMARY

In June 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, with the exception of THC/CH₄/NMHC (9.2%), were above the 90% requirement.

Non-Conformance: The 90% operational time requirement was not met for THC/CH₄/NMHC this month. This contravention was reported to AEP under reference number: 339130. Two major events contributed to the downtime.

- The fuel gas (H₂) was depleted on June 1 and was replaced on June 2. However, the analyzer failed to properly recover due to a hardware failure. The analyzer (Thermo 55i, s/n:1505664392) was removed and a replacement analyzer (Thermo 55i, s/n:1433563261) was installed on June 3. A successful installation calibration was performed on June 4. Seventy-six hours of downtime were incurred due to this event.
- A calibration attempt on June 27 did not meet Maxxam's internal stability requirement. Column conditioning was run overnight and a successful post-repair calibration was completed on June 28. Data was discarded back to the last valid multi-point calibration, which was on June 4. 578 hours of downtime were recorded due to this event.

Power Failure: Two power events occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00, incurring nine hours of downtime on all parameters.

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	2	0	3.1	ESE	0	1	98.8
TRS (ppb)	-	-	-	-	0.22	1.32	23	3	1.3	SW	0.46	30	98.8
THC (ppm)	-	-	-	-	1.93	2.00	1	1	6.4	SE	1.99	1	9.2
CH ₄ (ppm)	-	-	-	-	1.93	2.00	1	1	6.4	SE	1.99	1	9.2
NMHC (ppm)	-	-	-	-	0.00	0.00	1	0	7	SE	0.00	1	9.2
RELATIVE HUMIDITY (%)	-	-	-	-	65	96	5	1	6.7	WSW	90	12	98.8
BAROMETRIC PRESSURE (millibar)	-	-	-	-	938	948	16	5	1.3	ESE	946	16	98.8
AMBIENT TEMPERATURE (°C)	-	-	-	-	14.4	31.6	20	16	5.9	W	24.9	20	98.8
STATION TEMPERATURE (°C)	-	-	-	-	23.6	25.4	23	20	7.5	SW	24.5	22	98.8
VECTOR WS (kph)	-	-	-	-	4.6	30.5	25	14	-	SW	19.5	26	98.8
VECTOR WD (sec)	-	-	-	-	244 (WSW)	-	-	-	-	-	-	-	98.8

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	June

CONTINUOUS AMBIENT MONITORING						
PARAMETER	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE	
		MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES	NO. READINGS > REGULATION
SO ₂	98.8	0.001 ppm		0	0.000 ppm	0
TRS	98.8	0.001 ppm		-	0.000 ppm	-
THC	9.2	2.00 ppm		-	1.99 ppm	-
CH ₄	9.2	2.00 ppm		-	1.99 ppm	-
NMHC	9.2	0.00 ppm		-	0.00 ppm	-
RH	98.8	96 %		-	90 %	-
BP	98.8	948 mb		-	946 mb	-
Ambient TPX	98.8	31.6 °C		-	24.9 °C	-
Station TPX	98.8	25.4 °C		-	24.5 °C	-
Wind Speed	98.8	30.5 kph		-	19.5 kph	-
Wind Direction	98.8	-		-	-	-

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 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.
- The routine monthly calibration was performed on June 4.
- The analyzer failed the daily span check on June 27 as the zero-span system required more time to recover from the power failure. The daily span result on June 28 was within acceptance limits. This event did not impact data quality.
- One instance of maximum instantaneous data was invalidated on June 26 at hour 00:00 as the data was considered an anomalous spike. The corresponding anomalous minute data at 00:14-00:17 were discarded as well.

TOTAL REDUCED SULPHUR (TRS)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.
- The routine monthly calibration was performed on June 4.
- The analyzer failed the daily span check on June 27 as the zero-span system required more time to recover from the power failure. The daily span result on June 28 was within acceptance limits. This event did not impact data quality.
- One instance of maximum instantaneous data was invalidated on June 26 at hour 00:00 as the data was considered an anomalous spike. The corresponding anomalous minute data at 00:14-00:17 were discarded as well.

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

- Operational time for the monitoring period was 9.2%, equivalent to 654 hours of downtime.
- The fuel gas (H₂) was depleted on June 1. The gas cylinder was replaced and the analyzer was restarted by client site contacts on June 2. However, the analyzer failed to properly recover due to a hardware failure. The analyzer (Thermo 55i, s/n:1505664392) was removed and a replacement analyzer (Thermo 55i, s/n:1433563261) was mobilized and installed onsite on June 3 by a Maxxam technician. The analyzer was left offline to stabilize overnight and an installation calibration was completed on June 4. Seventy-six hours of downtime were incurred due to this event.
- On June 26, a low trending drift in recorded concentrations was observed, prompting a site visit on June 27, where a shut-down calibration was attempted. The calibration was, however, unsuccessful as Maxxam's internal stability requirement was not met for the Methane component at high-point. The Nitrogen purifier and the actuator were replaced. Column conditioning was run overnight and a successful post-repair calibration was completed on June 28. Data was discarded back to the last valid multi-point calibration, which was on June 4. 578 hours of downtime were recorded due to this event.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month. A training on the canister system was conducted for client site contacts during the site visit on June 4.
- The 90% operational time requirement was not met this month. This contravention was reported to AEP under reference number: 339130.

WIND SPEED (WS) and WIND DIRECTION (WD)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.
- An anemometer sensor check was conducted on June 4. The result was satisfactory.
- Wind data is reported as vector wind speed and vector wind direction. Wind direction is defined as the direction from which the wind is blowing from and is measured in degrees from true north.

RELATIVE HUMIDITY (RH)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.

BAROMETRIC PRESSURE (BP)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.
- A pressure sensor audit was conducted on June 4. The result was satisfactory.

AMBIENT TEMPERATURE (AmbTPX)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.
- A temperature sensor audit was conducted on June 4. The result was satisfactory.

STATION TEMPERATURE (StnTPX)

- Operational time for the monitoring period was 98.8%, equivalent to nine hours of downtime. These were incurred due to two power events that occurred on June 4, at hours 04:00-07:00, and June 27, at hours 02:00-06:00.

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

The operational time for all continuous ambient air analyzers, meteorological systems and data acquisition systems, with the exception of THC/CH₄/NMHC (9.2%), were above the 90% requirement. This contravention was reported to AEP under reference number: 339130.

4.0 Calculations and Results

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

5.0 Methods and Procedures

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

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

Maxxam AIR SOP-00013: RM Young Wind Monitor Calibration

Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - Thermo 43i UV Fluorescent Analyzer

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

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

Wind System - RM Young Unit

Relative Humidity - Campbell Unit

Barometric Pressure - Met One Unit

Ambient Temperature - Campbell 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

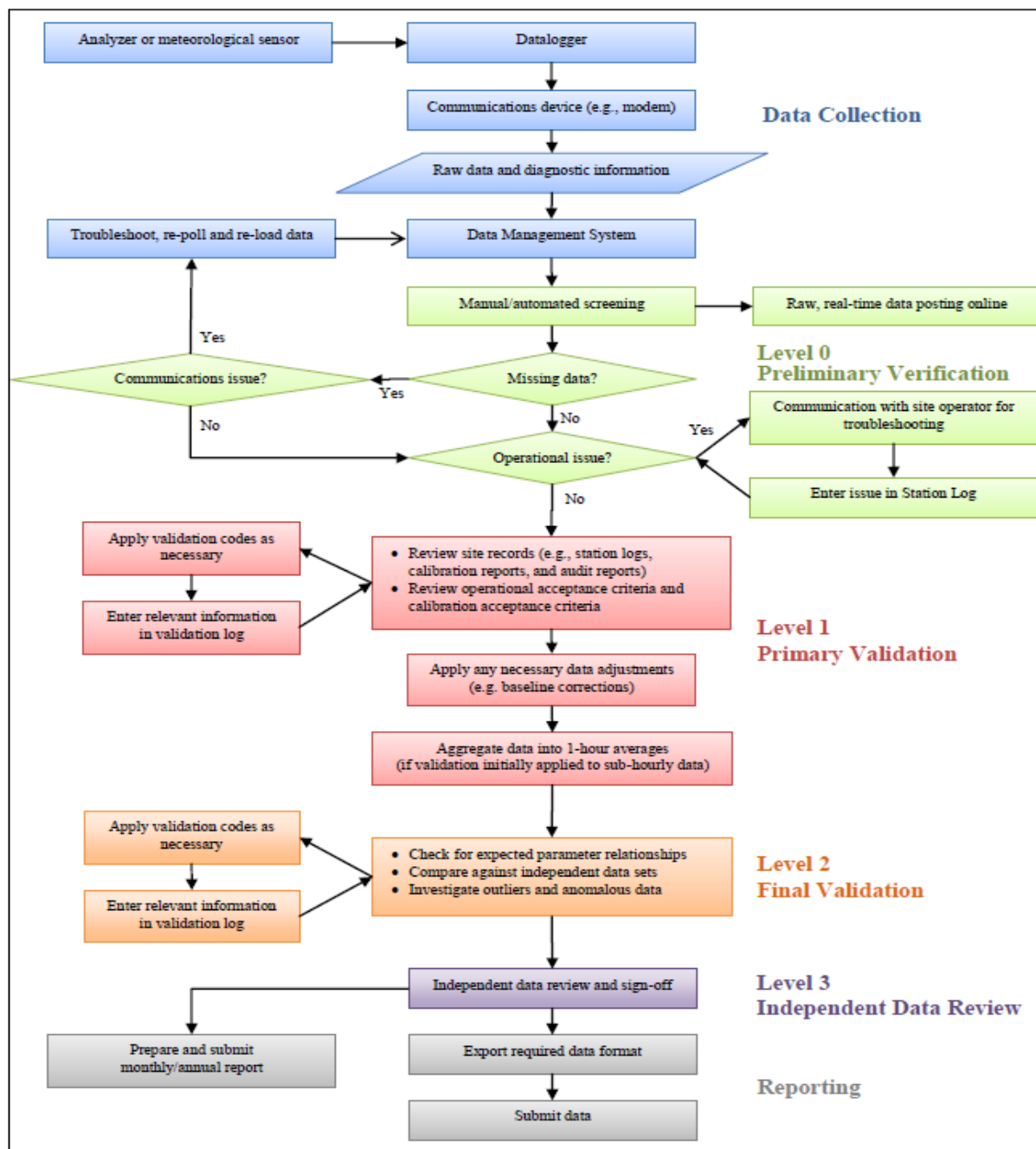
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

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

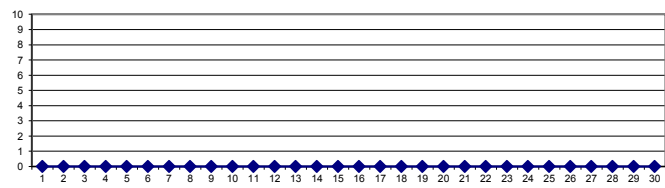
SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

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

STATUS FLAG CODES

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

24 HR AVERAGES June 2018



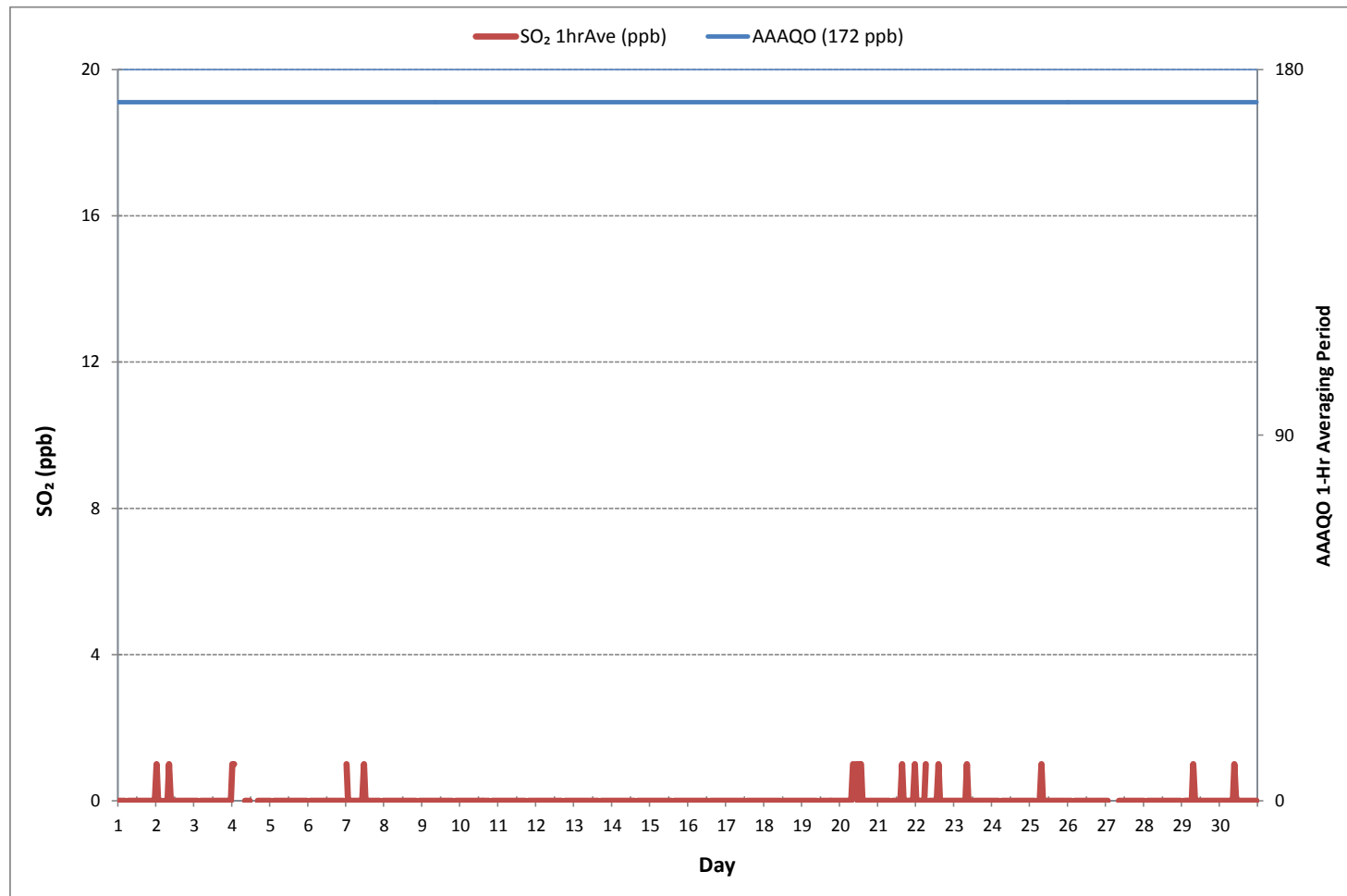
OBJECTIVE LIMIT:

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

NUMBER OF 1-HR EXCEEDANCES:		0	
NUMBER OF 24-HR EXCEEDANCES:		0	
NUMBER OF NON-ZERO READINGS:		18	
MINIMUM 1-HR AVERAGE:	0 ppb @ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	1 ppb @ HOUR	0	ON DAY 2
MAXIMUM 24-HR AVERAGE:	0 ppb		ON DAY 1
IZS CALIBRATION TIME:	32 hrs	OPERATIONAL TIME:	711 hrs
MONTHLY CALIBRATION TIME:	4 hrs	AMD OPERATION UPTIME:	98.8 %
STANDARD DEVIATION:	0	MONTHLY AVERAGE:	0 ppb

SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-SO₂[ppb]
Monthly: 18/06
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

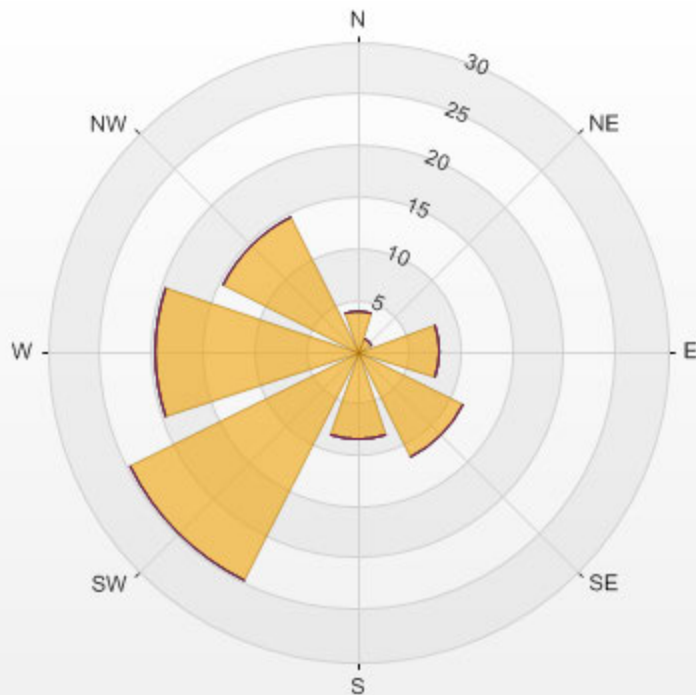
Calm: 7.56%

Calm Avg: 0.08 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	4.0	0.0	0.0	0.0	0.0	4.0
NE	1.5	0.0	0.0	0.0	0.0	1.5
E	8.0	0.0	0.0	0.0	0.0	8.0
SE	11.4	0.0	0.0	0.0	0.0	11.4
S	8.4	0.0	0.0	0.0	0.0	8.4
SW	24.7	0.0	0.0	0.0	0.0	24.7
W	19.7	0.0	0.0	0.0	0.0	19.7
NW	14.7	0.0	0.0	0.0	0.0	14.7
Summary	92.4	0.0	0.0	0.0	0.0	92.4

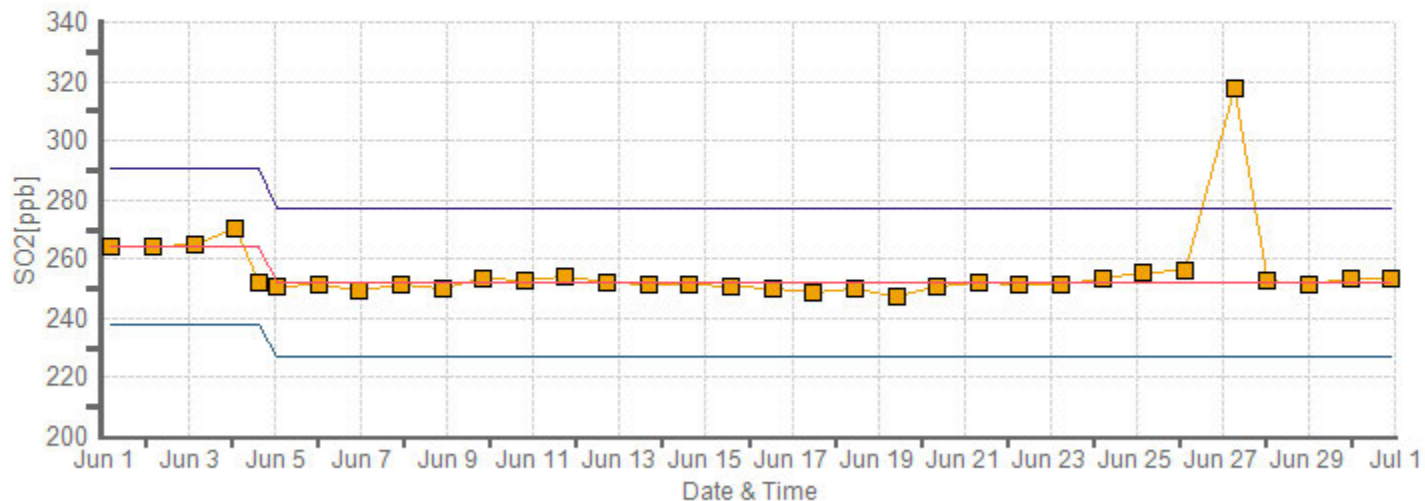
%	Icon	Classes (ppb)
92		0-3
0		3-10
0		10-85
0		85-170
0		>170.0

PRAMP_842 Poll.: PRAMP_842-SO2[ppb] 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 7.56% Calm Poll Avg: 0.08[ppb]



SO₂[ppb] Calibration: PRAMP_842 Monthly: 18/06 Type: Span

Span Meas Span Ref Span Low Span High



TOTAL REDUCED SULPHUR

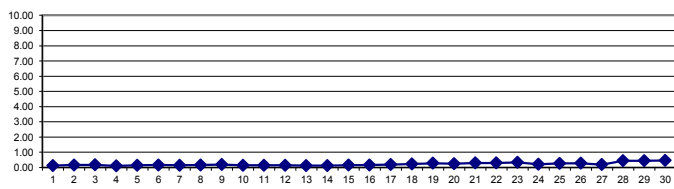
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 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	0.11	0.12	0.12	0.14	0.13	S	0.19	0.13	0.12	0.12	0.11	0.12	0.12	0.12	0.11	0.11	0.10	0.11	0.10	0.13	0.13	0.12	0.14	0.14	0.10	0.10	0.19	0.12	24
2	0.14	0.15	0.14	0.15	S	0.21	0.24	0.21	0.20	0.18	0.15	0.14	0.13	0.12	0.12	0.13	0.14	0.10	0.12	0.12	0.12	0.21	0.37	0.19	0.10	0.10	0.37	0.16	24
3	0.17	0.21	0.19	S	0.30	0.46	0.32	0.23	0.18	0.17	0.15	0.15	0.14	0.14	0.14	0.13	0.13	0.12	0.12	0.15	0.11	0.14	0.11	0.11	0.11	0.11	0.46	0.18	24
4	0.12	0.14	S	0.17	P	P	P	P	0.12	C	C	C	C	C	C	0.13	0.11	0.10	0.09	0.10	0.11	0.10	0.10	0.09	0.11	0.09	0.17	0.11	20
5	0.12	S	0.16	0.14	0.19	0.16	0.16	0.14	0.13	0.13	0.13	0.14	0.14	0.14	0.13	0.13	0.14	0.13	0.12	0.13	0.13	0.15	0.14	0.13	0.12	0.19	0.14	24	
6	S	0.16	0.15	0.15	0.16	0.16	0.17	0.18	0.16	0.14	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.15	0.14	0.15	0.16	0.19	0.22	S	0.14	0.22	0.16	24	
7	0.21	0.17	0.18	0.21	0.25	0.17	0.15	0.15	0.15	0.14	0.13	0.13	0.12	0.10	0.11	0.10	0.10	0.09	0.09	0.08	0.09	0.10	S	0.13	0.08	0.25	0.14	24	
8	0.16	0.17	0.21	0.18	0.20	0.22	0.19	0.19	0.18	0.16	0.14	0.14	0.13	0.14	0.14	0.13	0.14	0.15	0.16	0.16	0.17	S	0.16	0.17	0.13	0.22	0.16	24	
9	0.19	0.18	0.21	0.20	0.28	0.24	0.27	0.23	0.22	0.22	0.21	0.21	0.18	0.19	0.19	0.17	0.16	0.15	0.15	0.16	S	0.15	0.16	0.16	0.15	0.28	0.19	24	
10	0.15	0.19	0.19	0.20	0.17	0.24	0.24	0.16	0.16	0.16	0.14	0.11	0.11	0.09	0.08	0.09	0.09	0.09	0.10	S	0.12	0.11	0.12	0.13	0.08	0.24	0.14	24	
11	0.13	0.12	0.11	0.13	0.15	0.17	0.16	0.16	0.16	0.14	0.12	0.14	0.15	0.12	0.13	0.13	0.14	0.14	S	0.14	0.13	0.14	0.12	0.13	0.11	0.17	0.14	24	
12	0.16	0.17	0.14	0.13	0.18	0.17	0.20	0.14	0.14	0.13	0.12	0.14	0.13	0.14	0.13	0.15	0.11	S	0.15	0.13	0.13	0.12	0.14	0.16	0.11	0.20	0.14	24	
13	0.13	0.11	0.12	0.13	0.13	0.13	0.13	0.12	0.11	0.13	0.16	0.13	0.12	0.12	0.12	0.12	S	0.18	0.14	0.12	0.14	0.11	0.10	0.10	0.10	0.18	0.13	24	
14	0.11	0.11	0.09	0.11	0.11	0.13	0.16	0.15	0.14	0.14	0.13	0.14	0.13	0.12	0.13	S	0.13	0.12	0.12	0.11	0.12	0.15	0.14	0.14	0.09	0.16	0.13	24	
15	0.12	0.14	0.13	0.16	0.15	0.27	0.18	0.14	0.15	0.15	0.14	0.13	0.14	0.13	S	0.15	0.14	0.13	0.13	0.14	0.13	0.17	0.18	0.18	0.12	0.27	0.15	24	
16	0.18	0.20	0.18	0.16	0.19	0.21	0.19	0.18	0.20	0.18	0.16	0.15	0.14	S	0.16	0.14	0.14	0.13	0.13	0.14	0.15	0.16	0.16	0.18	0.13	0.21	0.17	24	
17	0.17	0.19	0.20	0.22	0.21	0.22	0.19	0.17	0.18	0.19	0.18	0.17	S	0.19	0.15	0.13	0.15	0.17	0.14	0.18	0.22	0.27	0.31	0.28	0.13	0.31	0.19	24	
18	0.30	0.23	0.18	0.20	0.21	0.23	0.24	0.23	0.19	0.20	0.19	S	0.14	0.14	0.13	0.13	0.13	0.14	0.14	0.16	0.42	0.42	0.39	0.36	0.13	0.42	0.22	24	
19	0.29	0.31	0.28	0.31	0.29	0.35	0.46	0.37	0.25	0.19	S	0.19	0.16	0.15	0.13	0.13	0.15	0.14	0.16	0.26	0.60	0.45	0.43	0.38	0.13	0.60	0.28	24	
20	0.27	0.33	0.30	0.36	0.42	0.44	0.35	0.26	0.28	S	0.25	0.19	0.18	0.15	0.13	0.12	0.11	0.12	0.15	0.26	0.23	0.22	0.23	0.22	0.11	0.44	0.24	24	
21	0.28	0.31	0.33	0.40	0.49	0.62	0.65	0.40	S	0.24	0.26	0.24	0.25	0.21	0.22	0.20	0.17	0.14	0.17	0.21	0.31	0.19	0.21	0.24	0.14	0.65	0.29	24	
22	0.25	0.25	0.28	0.51	0.41	0.36	0.30	S	0.32	0.29	0.23	0.22	0.19	0.21	0.18	0.17	0.17	0.17	0.21	0.33	0.50	0.45	0.46	0.32	0.17	0.51	0.29	24	
23	0.27	0.42	0.56	1.32	1.16	0.67	S	0.33	0.42	0.25	0.18	0.19	0.14	0.13	0.13	0.11	0.11	0.10	0.12	0.17	0.20	0.20	0.17	0.29	0.10	1.32	0.33	24	
24	0.36	0.27	0.47	0.16	0.36	S	0.19	0.19	0.18	0.17	0.17	0.14	0.12	0.13	0.13	0.15	0.14	0.14	0.13	0.15	0.22	0.31	0.32	0.24	0.12	0.47	0.21	24	
25	0.28	0.33	0.42	0.46	S	0.64	0.60	0.40	0.34	0.25	0.26	0.35	0.23	0.21	0.17	0.14	0.13	0.14	0.13	0.15	0.13	0.15	0.14	0.16	0.13	0.64	0.27	24	
26	0.13	0.32	0.69	S	0.87	0.90	0.22	0.19	0.18	0.17	0.18	0.18	0.18	0.16	0.17	0.15	0.16	0.16	0.17	0.20	0.19	0.22	0.22	0.32	0.13	0.90	0.28	24	
27	0.33	0.12	P	P	P	P	P	P	S	0.16	0.14	0.12	0.13	0.10	0.12	0.12	0.11	0.12	0.11	0.15	0.26	0.28	0.30	0.33	0.35	0.10	0.35	0.19	19
28	0.40	S	0.76	0.75	1.08	0.86	0.52	0.43	0.32	0.27	0.23	0.37	0.41	0.23	0.25	0.26	0.21	0.33	0.33	0.35	0.37	0.40	0.44	0.51	0.21	1.08	0.44	24	
29	S	0.75	0.47	0.52	0.62	0.50	0.59	0.56	0.50	0.46	0.47	0.38	0.34	0.32	0.32	0.35	0.34	0.32	0.38	0.33	0.32	0.42	0.40	S	0.32	0.75	0.44	24	
30	0.49	0.57	0.46	0.67	1.05	1.03	0.57	0.48	0.45	0.41	0.34	0.33	0.31	0.30	0.30	0.30	0.29	0.30	0.32	0.32	0.33	0.37	S	0.53	0.29	1.05	0.46	24	
HOURLY MAX	0.49	0.75	0.76	1.32	1.16	1.03	0.65	0.56	0.50	0.46	0.47	0.38	0.41	0.32	0.32	0.35	0.34	0.33	0.38	0.35	0.60	0.45	0.46	0.53					
HOURLY AVG	0.22	0.24	0.28	0.31	0.38	0.38	0.29	0.24	0.22	0.20	0.19	0.19	0.17	0.16	0.16	0.15	0.15	0.15	0.16	0.18	0.22	0.22	0.23	0.23					

STATUS FLAG CODES

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

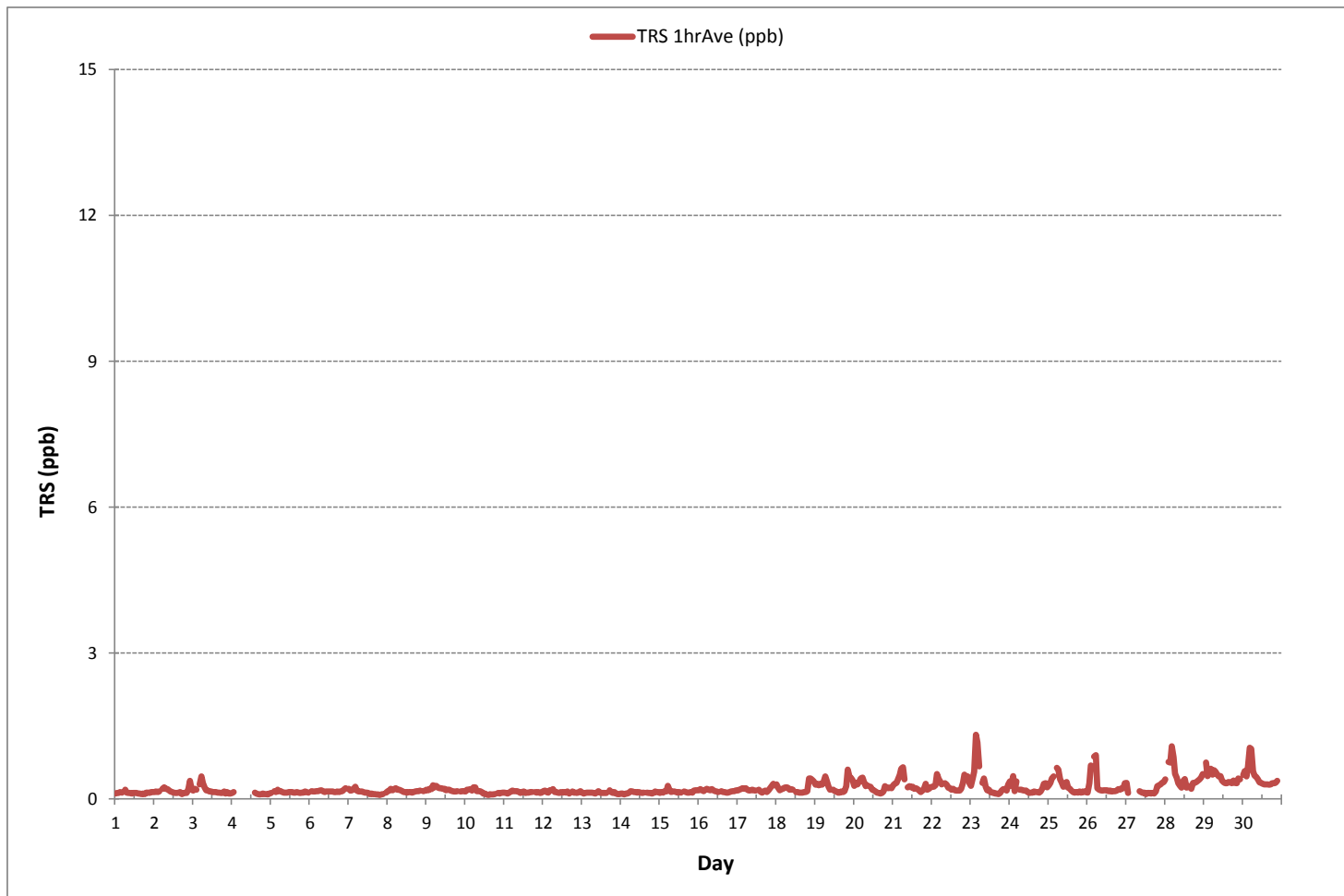
24 HR AVERAGES June 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	674				
MINIMUM 1-HR AVERAGE:	0.08	ppb	@ HOUR	19	ON DAY 7
MAXIMUM 1-HR AVERAGE:	1.32	ppb	@ HOUR	3	ON DAY 23
MAXIMUM 24-HR AVERAGE:	0.46	ppb			ON DAY 30
IZS SRATION TIME:	32	hrs	OPERATIONAL TIME:	711	hrs
MONTHLY SRATION TIME:	5	hrs	AMD OPERATION UPTIME:	98.8	%
STANDARD DEVIATION:	0.15		MONTHLY AVERAGE:	0.22	ppb

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)



Wind: PRAMP_842
Poll.: PRAMP_842-TRS [ppb]
Monthly: 18/06
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

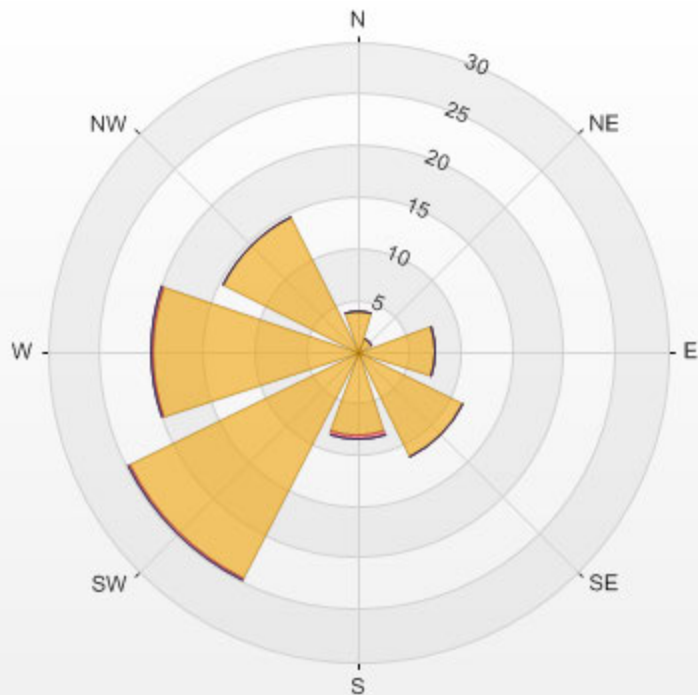
Calm: 7.57%

Calm Avg:

Direction	0-1	1-3	3-10	>10.0	Total
N	4.0	0.0	0.0	0.0	4.0
NE	1.5	0.0	0.0	0.0	1.5
E	7.6	0.0	0.0	0.0	7.6
SE	11.4	0.0	0.0	0.0	11.4
S	8.2	0.3	0.0	0.0	8.5
SW	24.6	0.2	0.0	0.0	24.8
W	19.9	0.2	0.0	0.0	20.0
NW	14.7	0.0	0.0	0.0	14.7
Summary	91.8	0.6	0.0	0.0	92.4

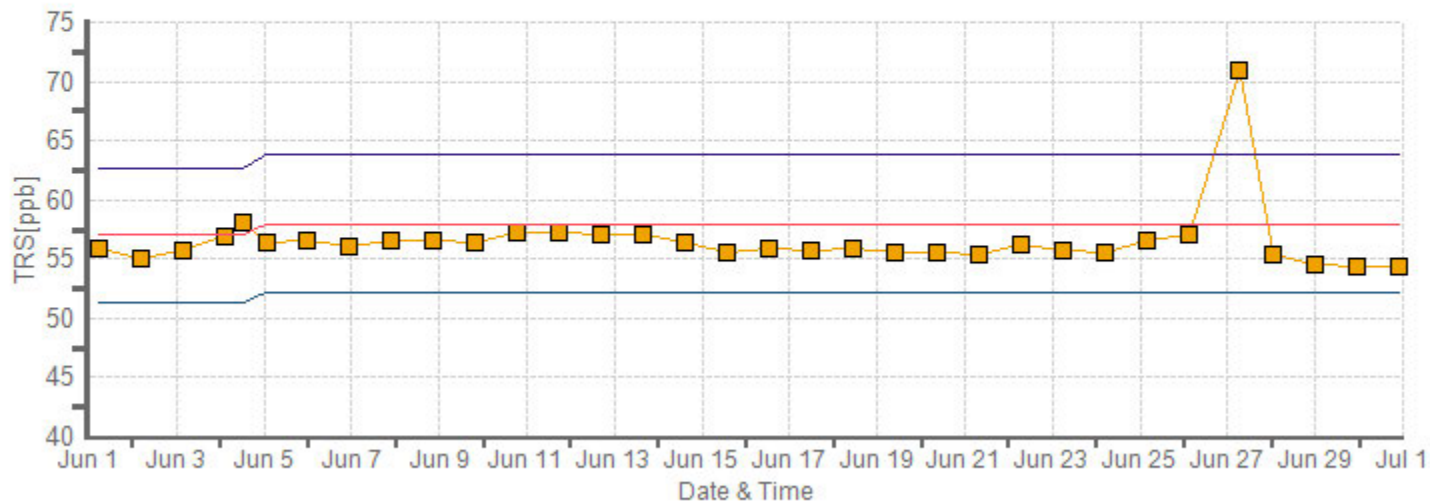
%	Icon	Classes (ppb)
92		0-1
1		1-3
0		3-10
0		>10.0

PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 7.57% Calm Poll Avg: 0.26[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 18/06 Type: Span

Span Meas Span Ref Span Low Span High



TOTAL HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - June 2018

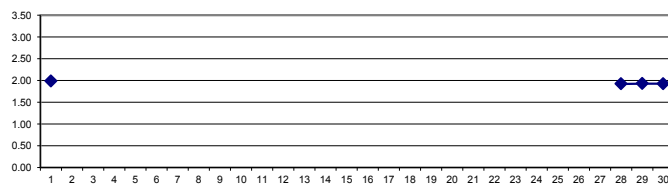
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY 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	1.99	2.00	2.00	1.99	1.97	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.97	2.00	1.99	6
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
4	X	X	X	X	P	P	P	P	C	C	C	C	C	X	X	X	X	X	X	X	X	X	X	X	-	-	-	5
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
8	X	X	X	X	X	X	X	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	-	-	-	-
10	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
18	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
19	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
28	X	X	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	1.92	1.92	1.93	1.92	1.92	1.93	1.93	1.92	1.93	1.92	7
29	S	1.95	1.93	1.94	1.94	1.94	1.95	1.94	1.94	1.95	1.95	1.96	1.94	1.92	1.91	1.92	1.92	1.91	1.91	1.92	1.92	1.93	1.93	S	1.91	1.96	1.93	24
30	1.93	1.94	1.92	1.93	1.97	1.96	1.94	1.94	1.94	1.94	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.92	S	1.94	1.90	1.97	1.93	24
HOURLY MAX	1.99	2.00	2.00	1.99	1.97	1.96	1.95	1.94	1.95	1.95	1.96	1.94	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.94				
HOURLY AVG	1.96	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.95	1.95	1.95	1.93	1.92	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.92	1.92	1.93	1.94				

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

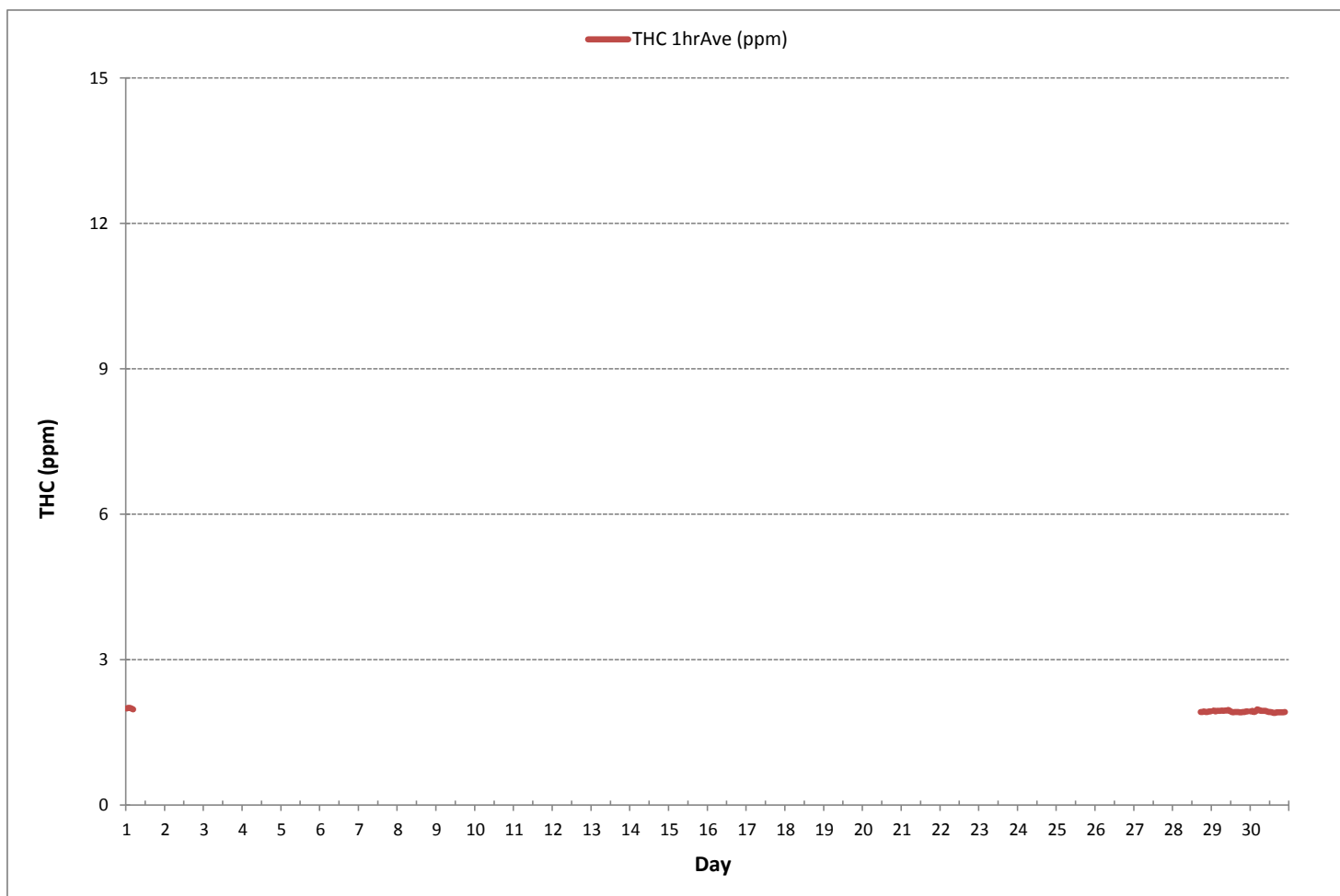
24 HR AVERAGES June 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	57				
MINIMUM 1-HR AVERAGE:	1.90	ppm	@ HOUR	14	ON DAY 30
MAXIMUM 1-HR AVERAGE:	2.00	ppm	@ HOUR	1	ON DAY 1
MAXIMUM 24-HR AVERAGE:	1.99	ppm			ON DAY 1
IZS CALIBRATION TIME:	4	hrs	OPERATIONAL TIME:	66	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	9.2	%
STANDARD DEVIATION:	0.02		MONTHLY AVERAGE:	1.93	ppm

TOTAL HYDROCARBONS Hourly Averages (THC ppm)



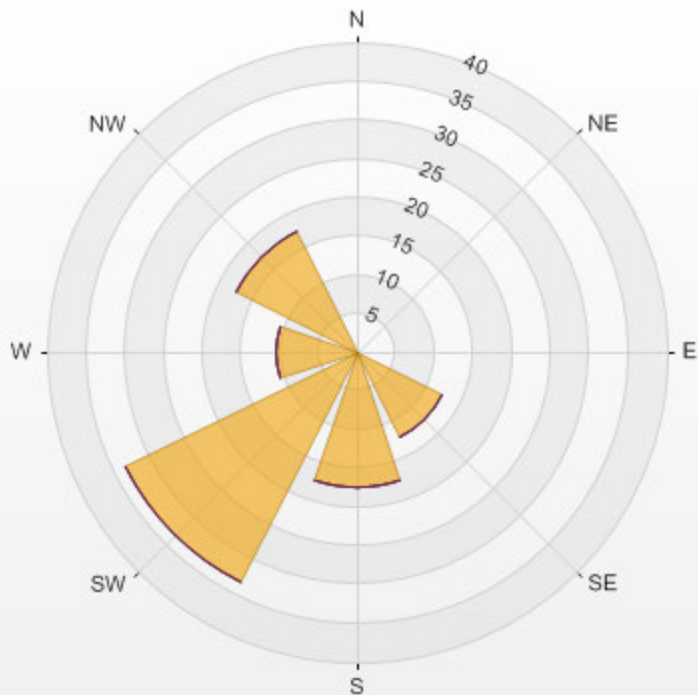
Wind: PRAMP_842
Poll.: PRAMP_842-THC55 [ppm]
Monthly: 18/06
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 8.77%

Calm Avg: 1.93 [ppm]

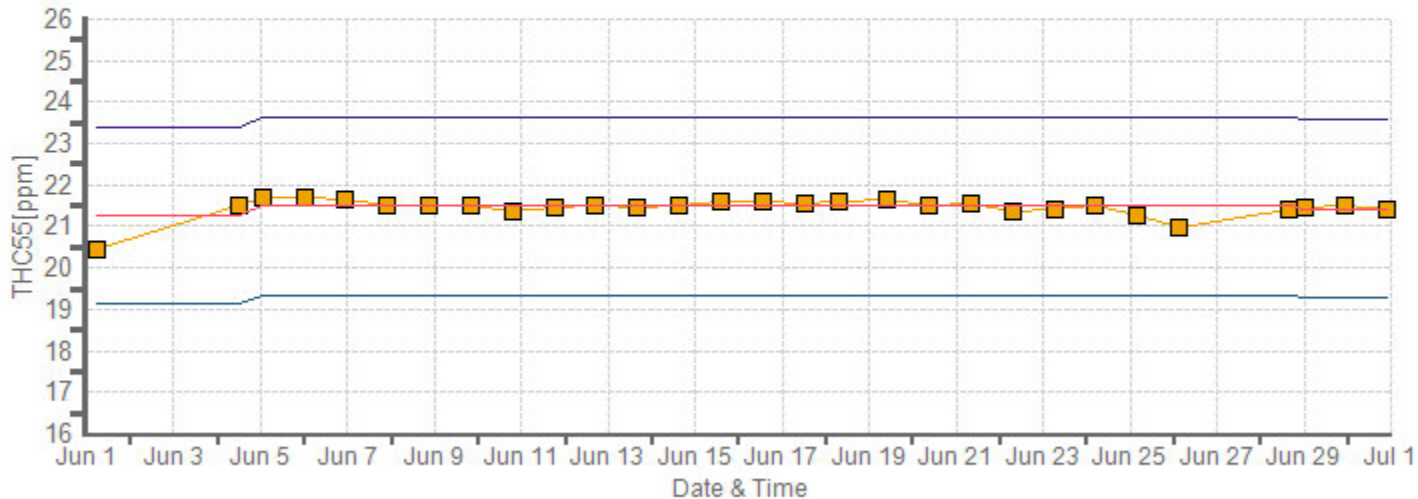
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0
SE	12.3	0.0	0.0	0.0	0.0	12.3
S	17.5	0.0	0.0	0.0	0.0	17.5
SW	33.3	0.0	0.0	0.0	0.0	33.3
W	10.5	0.0	0.0	0.0	0.0	10.5
NW	17.5	0.0	0.0	0.0	0.0	17.5
Summary	91.2	0.0	0.0	0.0	0.0	91.2

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 8.77% Calm Poll Avg: 1.93[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 18/06 Type: Span

Span Meas Span Ref Span Low Span High



METHANE



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

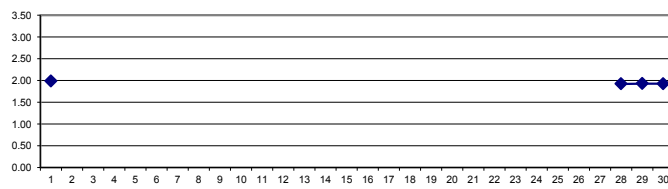
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	1.99	2.00	2.00	1.99	1.97	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.97	2.00	1.99	6
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
4	X	X	X	X	P	P	P	P	C	C	C	C	C	X	X	X	X	X	X	X	X	X	X	X	-	-	-	5
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
8	X	X	X	X	X	X	X	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	-	-	-	-
10	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
18	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
19	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
28	X	X	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	1.92	1.92	1.93	1.92	1.92	1.93	1.93	1.92	1.93	1.92	7
29	S	1.95	1.93	1.94	1.94	1.94	1.95	1.94	1.95	1.95	1.96	1.94	1.92	1.91	1.92	1.92	1.91	1.91	1.91	1.92	1.92	1.93	1.93	S	1.91	1.96	1.93	24
30	1.93	1.94	1.92	1.93	1.97	1.96	1.94	1.94	1.94	1.94	1.93	1.92	1.92	1.91	1.90	1.90	1.91	1.91	1.91	1.91	1.91	1.92	S	1.94	1.90	1.97	1.93	24
HOURLY MAX	1.99	2.00	2.00	1.99	1.97	1.96	1.95	1.94	1.95	1.95	1.96	1.94	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.93	1.92	1.93	1.93	1.94			
HOURLY AVG	1.96	1.96	1.95	1.95	1.96	1.95	1.95	1.94	1.95	1.95	1.95	1.93	1.92	1.91	1.91	1.91	1.92	1.91	1.91	1.92	1.92	1.92	1.93	1.94				

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

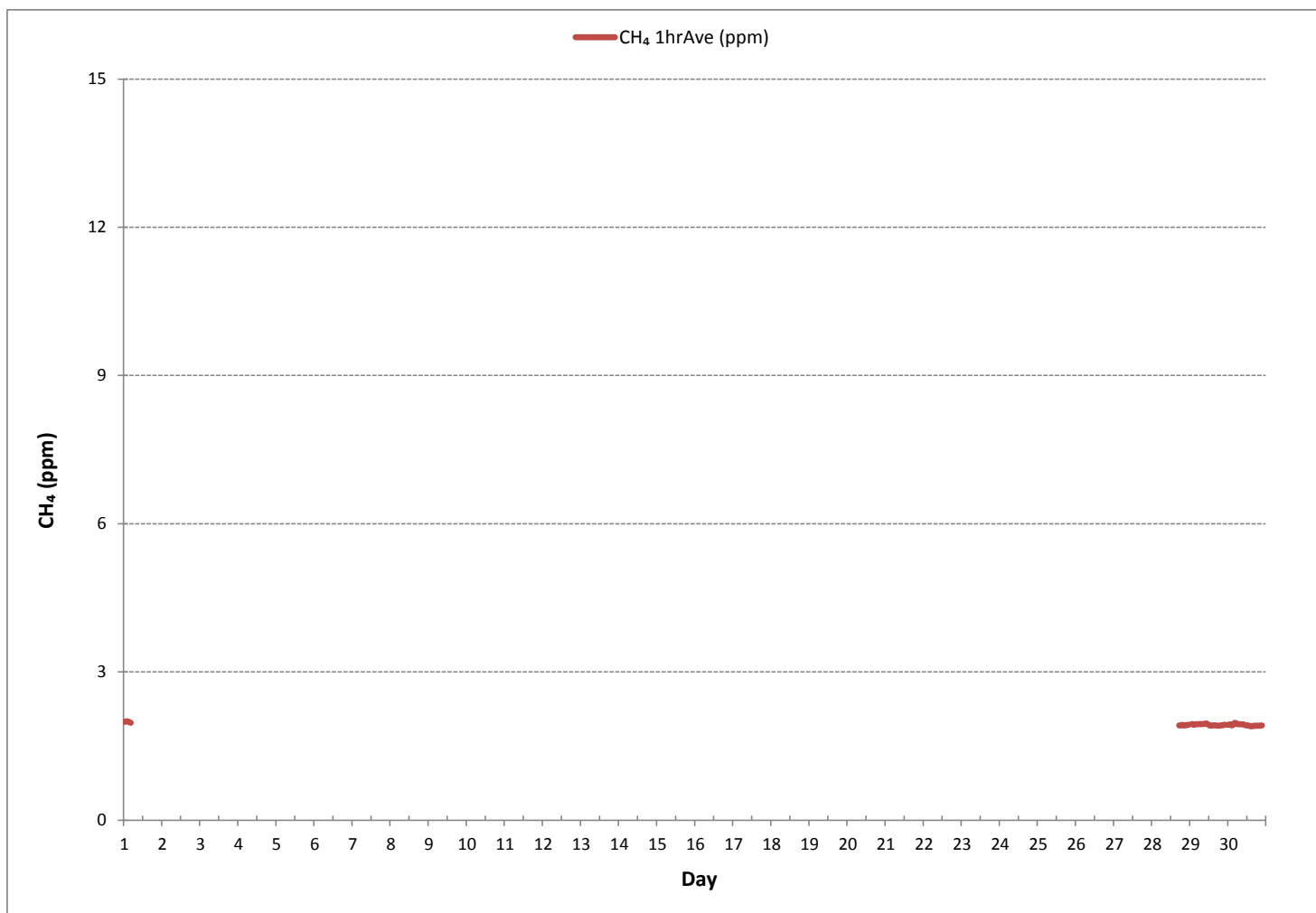
24 HR AVERAGES June 2018



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	57			
MINIMUM 1-HR AVERAGE:	1.90	ppm @ HOUR	14	ON DAY 30
MAXIMUM 1-HR AVERAGE:	2.00	ppm @ HOUR	1	ON DAY 1
MAXIMUM 24-HR AVERAGE:	1.99	ppm		ON DAY 1
IZS CALIBRATION TIME:	4	hrs	OPERATIONAL TIME:	66 hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	9.2 %
STANDARD DEVIATION:	0.02		MONTHLY AVERAGE:	1.93 ppm

METHANE Hourly Averages (CH₄ ppm)



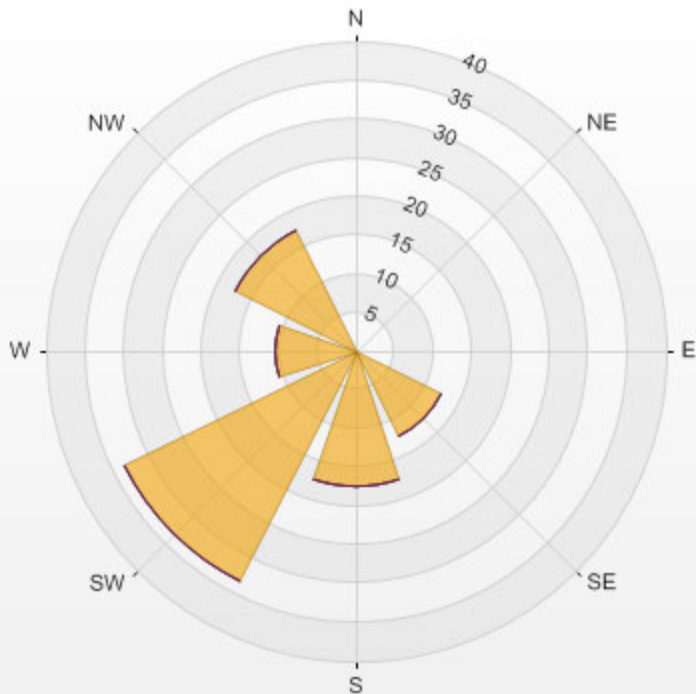
Wind: PRAMP_842
Poll.: PRAMP_842-CH₄[ppm]
Monthly: 18/06
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

Calm: 8.77%

Calm Avg: 1.93 [ppm]

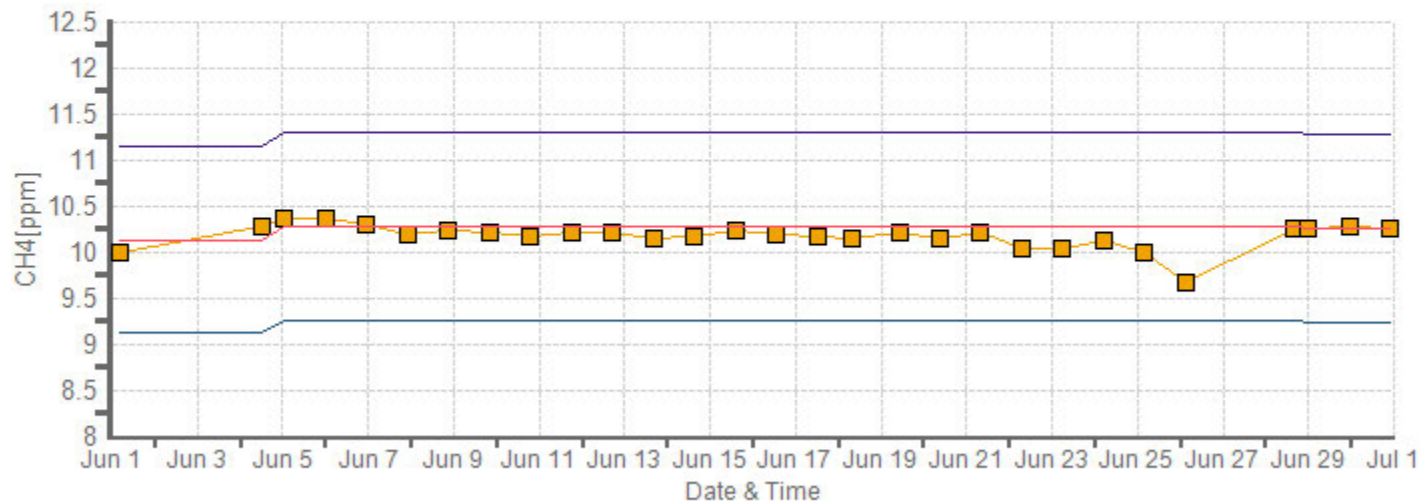
Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0
SE	12.3	0.0	0.0	0.0	0.0	12.3
S	17.5	0.0	0.0	0.0	0.0	17.5
SW	33.3	0.0	0.0	0.0	0.0	33.3
W	10.5	0.0	0.0	0.0	0.0	10.5
NW	17.5	0.0	0.0	0.0	0.0	17.5
Summary	91.2	0.0	0.0	0.0	0.0	91.2

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 8.77% Calm Poll Avg: 1.93[ppm]



CH₄[ppm] Calibration: PRAMP_842 Monthly: 18/06 Type: Span

Span Meas Span Ref Span Low Span High



NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - June 2018

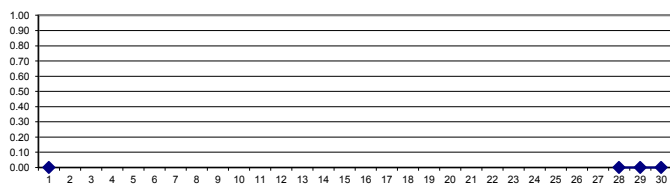
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

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 MIN.	DAILY MAX.	24-HR AVG.	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59				
DAY 1	0.00	0.00	0.00	0.00	0.00	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.00	0.00	0.00	6
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
4	X	X	X	X	P	P	P	P	C	C	C	C	C	X	X	X	X	X	X	X	X	X	X	X	-	-	-	5
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
8	X	X	X	X	X	X	X	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	-	-	-	-
10	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
18	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
19	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
28	X	X	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7
29	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
HOURLY AVG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

STATUS FLAG CODES

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

24 HR AVERAGES June 2018

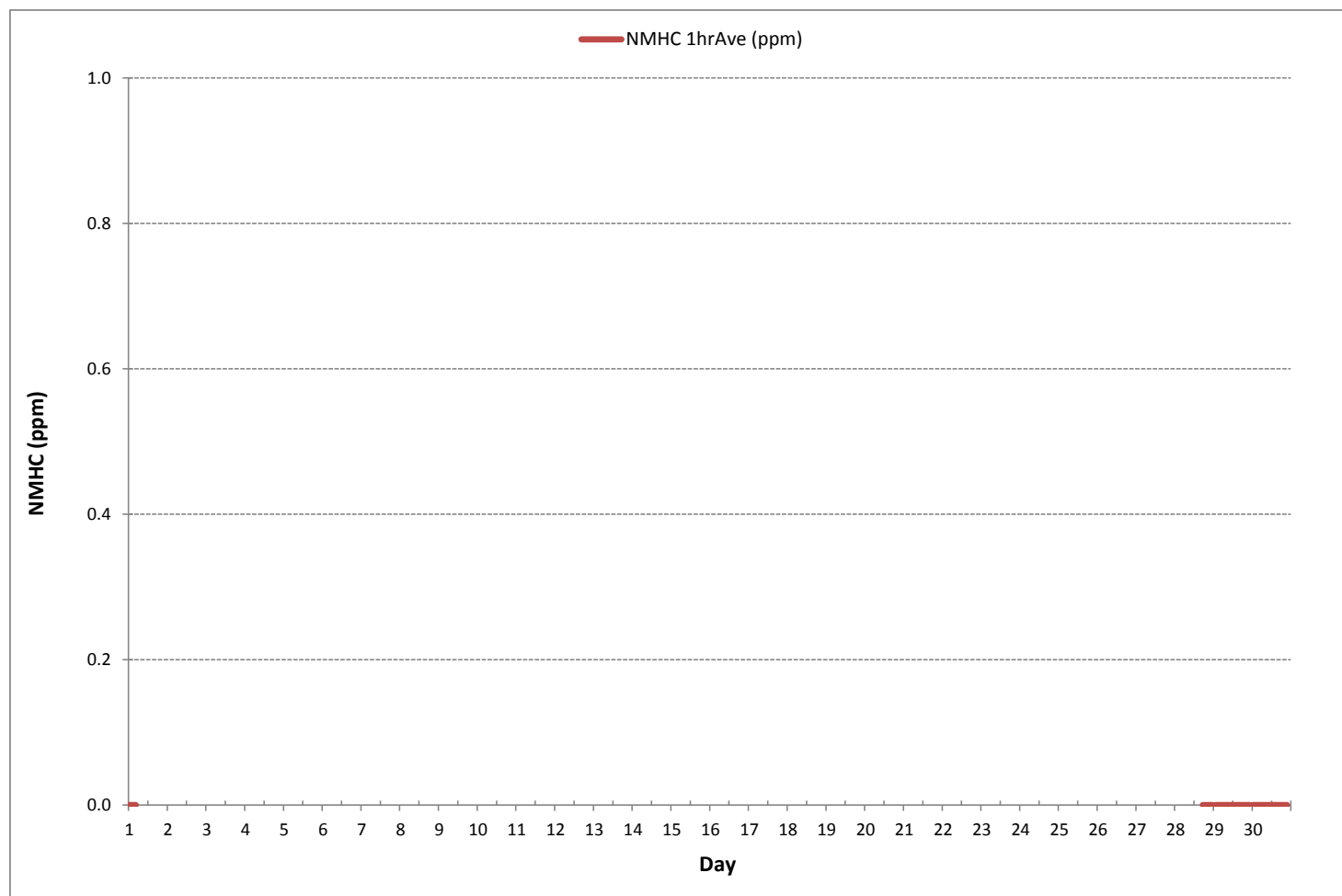


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR	0	ON DAY 1
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY 1
IZS CALIBRATION TIME:	4	hrs	OPERATIONAL TIME:	66	hrs
MONTHLY CALIBRATION TIME:	5	hrs	AMD OPERATION UPTIME:	9.2	%
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: 18/06
Type: PollutionRose
Direction: Blowing From (Wind Frequency)
Based On 1 Hr.

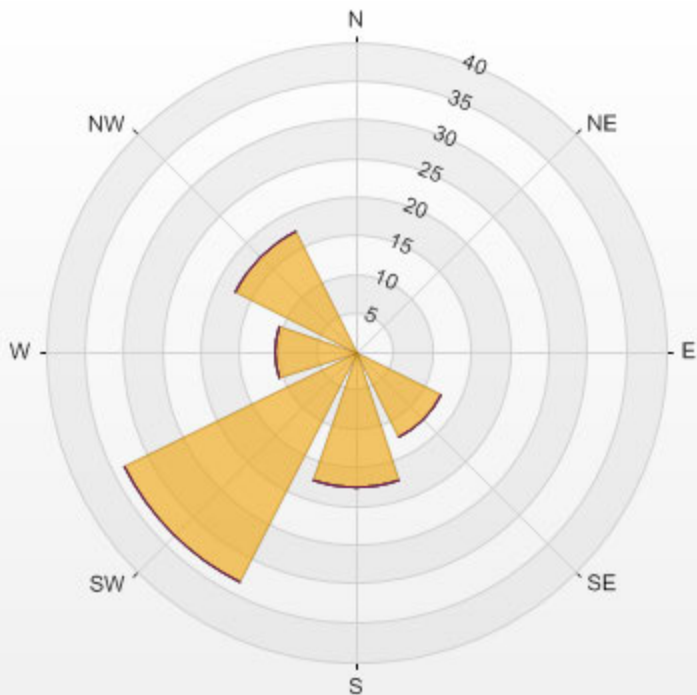
Calm: 8.77%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0
SE	12.3	0.0	0.0	0.0	0.0	12.3
S	17.5	0.0	0.0	0.0	0.0	17.5
SW	33.3	0.0	0.0	0.0	0.0	33.3
W	10.5	0.0	0.0	0.0	0.0	10.5
NW	17.5	0.0	0.0	0.0	0.0	17.5
Summary	91.2	0.0	0.0	0.0	0.0	91.2

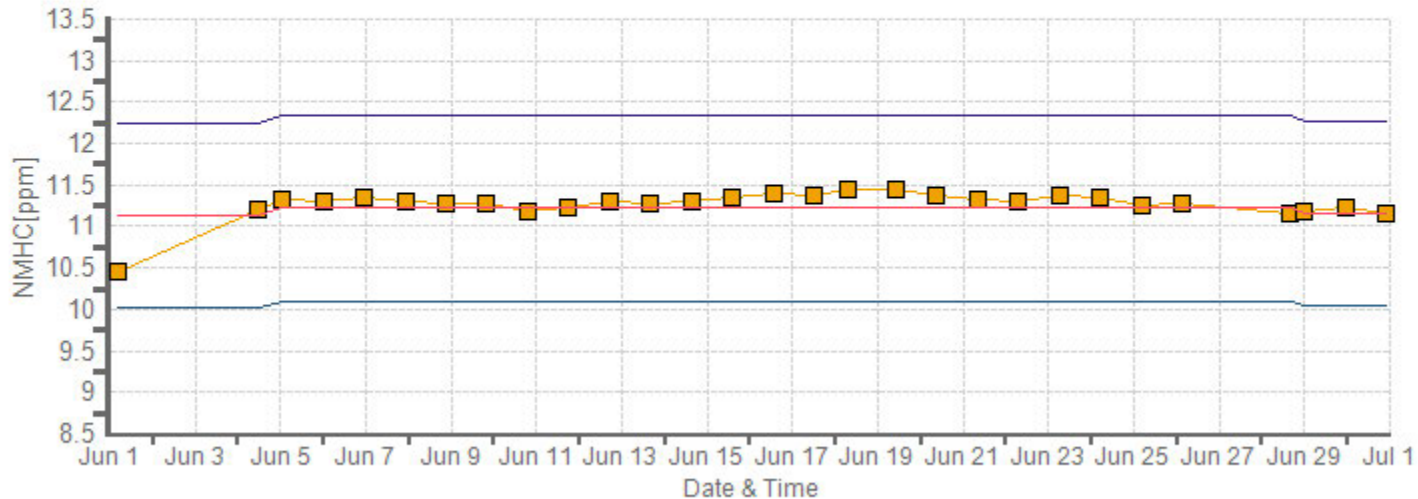
% Icon	Classes (ppm)	91	0-0.1	0	0.1-0.3	0	0.3-1	0	1-2	0	>2.0

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 8.77% Calm Poll Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 18/06 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 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	7.0	6.4	6.8	4.9	4.1	2.6	3.3	6.2	14.2	13.8	18.0	16.6	16.6	15.2	16.7	11.0	10.9	9.5	8.2	7.4	0.8	0.2	1.8	3.1	0.2	18.0	8.2	24
2	3.1	3.9	4.6	4.2	4.3	2.2	10.6	11.1	7.6	11.4	13.9	14.0	18.0	18.8	21.3	19.0	17.8	20.3	21.0	16.2	13.8	7.3	3.7	4.4	2.2	21.3	9.5	24
3	2.9	3.9	2.6	2.4	3.6	4.3	3.7	3.7	1.3	2.6	3.4	6.4	3.9	6.4	3.8	5.0	1.6	6.6	7.3	6.9	8.1	11.5	12.3	13.8	1.3	13.8	2.7	24
4	11.9	8.5	11.2	13.7	P	P	P	P	11.4	12.1	10.7	10.6	4.3	17.4	17.1	16.2	14.8	11.5	11.0	9.4	7.7	4.9	6.5	4.5	4.3	17.4	2.1	20
5	5.4	6.7	6.0	9.4	9.7	11.4	11.0	10.4	12.4	13.6	13.0	15.0	13.1	9.4	8.0	2.5	1.8	1.8	1.9	1.6	3.1	2.7	2.7	5.4	1.6	15.0	5.1	24
6	6.7	5.3	5.0	3.2	4.4	2.8	6.6	8.4	12.2	17.1	19.7	18.9	18.1	18.5	19.1	19.8	19.1	18.3	15.0	9.3	2.8	1.9	4.5	6.5	1.9	19.8	7.8	24
7	5.3	6.1	6.3	5.7	5.0	4.7	6.0	4.9	4.9	6.0	3.8	5.1	6.1	9.7	10.9	11.5	8.5	4.4	3.2	8.4	6.9	4.8	4.0	2.0	2.0	11.5	3.9	24
8	0.8	2.1	1.9	1.5	2.2	3.2	4.0	8.2	6.4	9.5	8.5	7.3	5.3	5.0	4.7	3.9	2.8	4.0	6.9	4.9	8.0	6.9	6.7	8.4	0.8	9.5	4.0	24
9	7.3	2.4	1.3	5.6	7.6	4.5	3.5	2.5	5.9	6.8	7.2	9.0	10.7	9.0	13.2	6.5	2.9	7.1	7.6	2.6	1.6	2.8	0.7	0.2	0.2	13.2	2.9	24
10	2.1	3.7	6.3	5.8	2.6	2.9	6.8	8.1	8.8	7.7	5.9	8.2	10.0	12.9	13.5	9.8	8.6	6.4	6.7	7.8	8.3	4.8	1.7	4.9	1.7	13.5	5.5	24
11	15.2	11.7	8.0	14.3	16.1	15.0	11.5	14.7	14.3	23.9	22.3	22.5	21.3	26.0	23.4	20.5	17.1	18.3	19.8	23.4	19.6	18.6	16.6	16.4	8.0	26.0	17.5	24
12	18.3	17.6	15.5	18.4	18.0	17.0	15.7	18.3	14.9	12.0	17.9	12.7	12.7	14.8	12.4	13.8	12.3	8.2	4.4	4.9	2.4	3.9	3.4	7.5	2.4	18.4	11.8	24
13	7.5	4.1	2.7	5.2	7.4	7.8	6.3	7.0	2.7	1.1	7.0	9.3	12.0	10.6	9.1	10.3	10.4	11.8	9.4	8.2	6.1	5.9	6.3	7.5	1.1	12.0	6.1	24
14	2.6	1.2	1.1	1.2	0.6	0.6	1.0	3.4	5.0	7.6	8.4	8.0	7.4	8.3	7.5	7.9	8.1	10.8	9.4	8.8	7.0	2.4	1.5	2.0	0.6	10.8	4.4	24
15	1.8	1.7	1.3	5.0	2.2	4.8	7.0	6.0	7.7	8.2	8.9	12.0	10.8	10.6	11.3	11.4	10.5	12.5	14.7	5.0	3.8	1.2	0.6	0.2	0.2	14.7	3.4	24
16	0.9	0.3	1.2	0.9	1.5	1.3	1.9	7.5	8.7	8.7	8.3	8.8	7.4	6.7	9.3	10.5	9.1	9.1	10.2	9.0	8.3	8.8	10.0	9.8	0.3	10.5	5.6	24
17	10.4	4.9	2.6	4.5	9.6	13.7	13.9	12.6	10.0	9.6	11.1	13.7	13.5	13.3	11.0	11.9	6.7	8.7	4.5	1.9	0.3	1.0	3.3	4.2	0.3	13.9	6.5	24
18	2.4	2.5	3.6	3.2	2.3	2.3	3.4	1.6	3.7	4.6	6.7	5.6	7.3	6.4	6.8	7.3	8.2	7.8	6.6	3.7	0.6	1.0	2.7	3.1	0.6	8.2	2.6	24
19	4.0	3.9	8.6	3.6	2.7	1.8	5.2	6.5	5.8	9.4	10.0	10.9	11.0	11.9	13.0	10.0	9.8	9.5	6.0	2.9	0.6	1.8	1.8	5.4	0.6	13.0	4.9	24
20	10.3	8.8	9.8	4.3	4.1	5.4	5.3	7.9	9.5	7.2	8.9	8.6	8.5	6.7	6.3	7.2	5.9	5.9	6.4	4.4	10.3	7.2	7.1	7.3	4.1	10.3	4.9	24
21	0.6	0.5	3.1	2.5	3.6	3.8	3.7	3.2	4.5	1.9	5.3	7.7	8.8	8.3	7.0	1.0	5.0	7.5	3.6	2.9	2.1	4.5	5.8	4.9	0.5	8.8	0.8	24
22	5.7	5.9	6.5	8.9	9.1	8.6	8.6	5.8	9.2	13.0	13.9	15.2	17.2	17.0	15.8	13.0	9.2	3.2	5.8	6.6	5.7	3.6	6.0	5.2	3.2	17.2	6.2	24
23	4.0	5.9	2.3	1.3	2.0	1.1	2.8	4.7	5.4	6.1	9.3	7.9	8.7	11.9	15.2	15.2	12.4	12.8	10.1	7.2	7.5	5.0	2.7	2.4	1.1	15.2	6.3	24
24	5.9	8.0	6.3	10.2	7.8	8.0	10.9	11.3	12.7	12.3	12.7	15.8	12.6	12.9	10.3	8.0	7.4	4.5	2.6	2.7	4.1	4.8	5.8	8.7	2.6	15.8	6.3	24
25	9.4	9.8	9.4	9.3	6.5	8.7	9.1	7.9	8.9	9.7	16.8	17.1	24.0	27.0	30.5	29.1	28.5	27.5	21.6	20.3	15.2	14.6	22.2	19.0	6.5	30.5	10.8	24
26	18.3	19.2	20.2	20.7	21.0	18.3	22.1	25.6	25.3	26.2	25.8	25.6	24.5	23.6	22.4	23.0	19.8	20.1	16.3	15.6	15.2	18.7	15.5	15.0	15.0	26.2	19.5	24
27	15.0	12.6	P	P	P	P	P	13.7	14.9	12.7	16.8	15.5	15.4	12.6	9.8	16.9	14.4	11.7	11.9	12.4	12.0	8.7	2.9	3.8	2.9	16.9	12.0	19
28	3.9	6.1	6.0	5.5	4.7	3.8	6.0	8.6	10.6	9.8	10.2	6.5	1.3	13.5	16.8	14.8	9.4	8.0	1.7	3.6	0.3	1.8	2.7	3.5	0.3	16.8	5.8	24
29	4.1	3.4	1.0	2.7	3.0	6.2	3.8	3.6	4.1	3.6	1.3	1.9	5.7	5.4	4.5	5.5	10.7	6.4	6.7	7.3	4.6	2.8	5.6	6.8	1.0	10.7	3.1	24
30	7.5	7.1	6.4	6.3	5.1	7.0	9.0	11.4	12.5	16.3	15.9	17.4	15.9	17.5	20.3	18.3	22.9	17.0	20.0	8.5	2.4	6.2	7.1	9.2	2.4	22.9	10.6	24
HOURLY MAX	18.3	19.2	20.2	20.7	21.0	18.3	22.1	25.6	25.3	26.2	25.8	25.6	24.5	27.0	30.5	29.1	28.5	27.5	21.6	23.4	19.6	18.7	22.2	19.0				

STATUS FLAG CODES

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

LAST CALIBRATION:

August 30, 2017

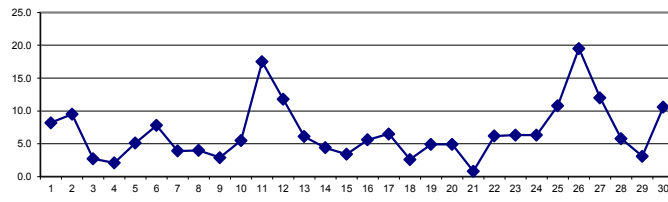
DECLINATION:

MAGNETIC DECLINATION 15 DEGREE EAST

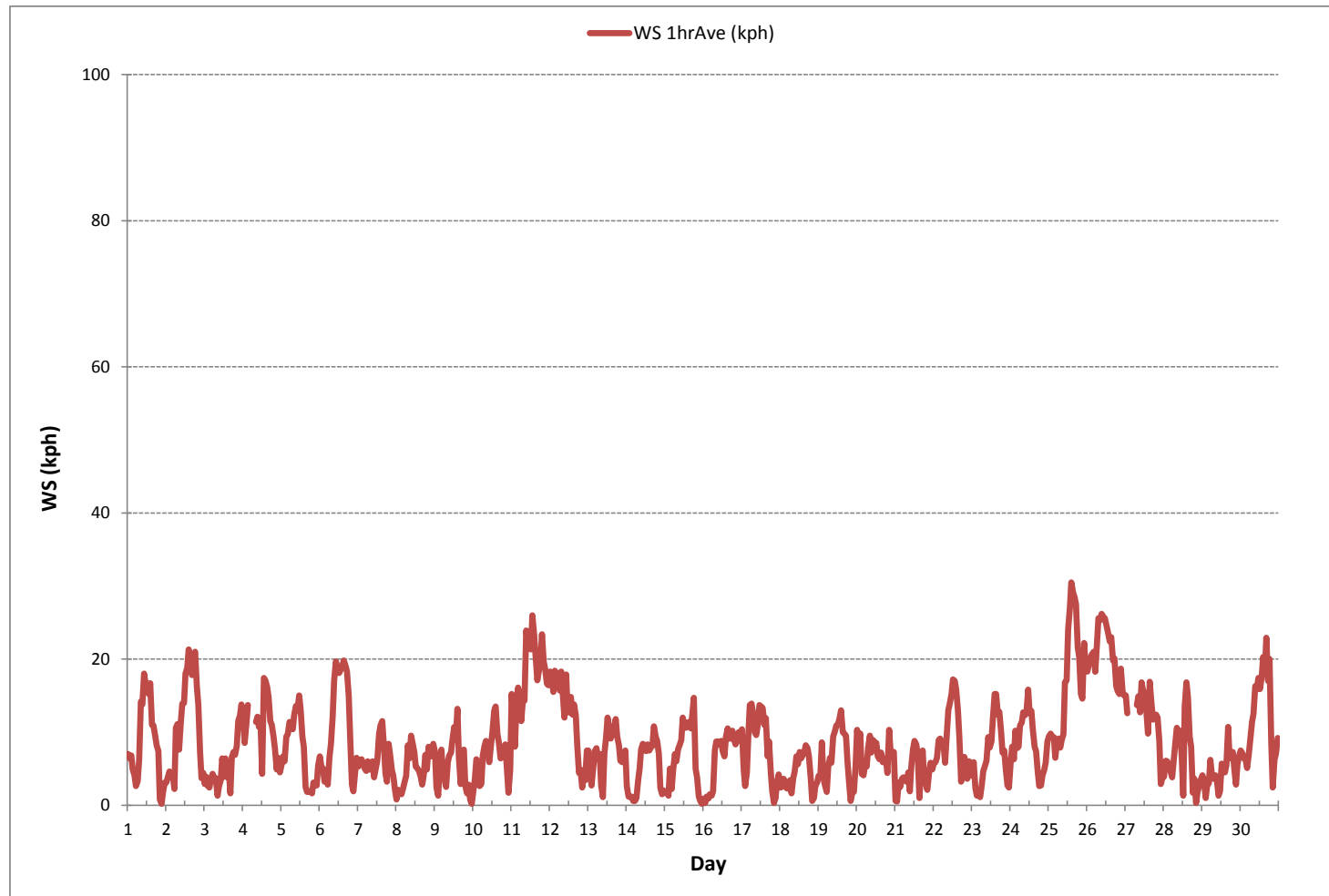
MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:		711				
MINIMUM 1-HR AVERAGE	0.2	kph	@ HOUR	21	ON DAY	1
MAXIMUM 1-HR AVERAGE:	30.5	kph	@ HOUR	14	ON DAY	25
MAXIMUM 24-HR AVERAGE:	19.5	kph			ON DAY	26
MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:			711 hrs
			AMD OPERATION UPTIME:			98.8 %
STANDARD DEVIATION:	5.8		MONTHLY AVERAGE:			4.6 kph

24 HR AVERAGES June 2018



WIND SPEED Hourly Averages (WS kph)



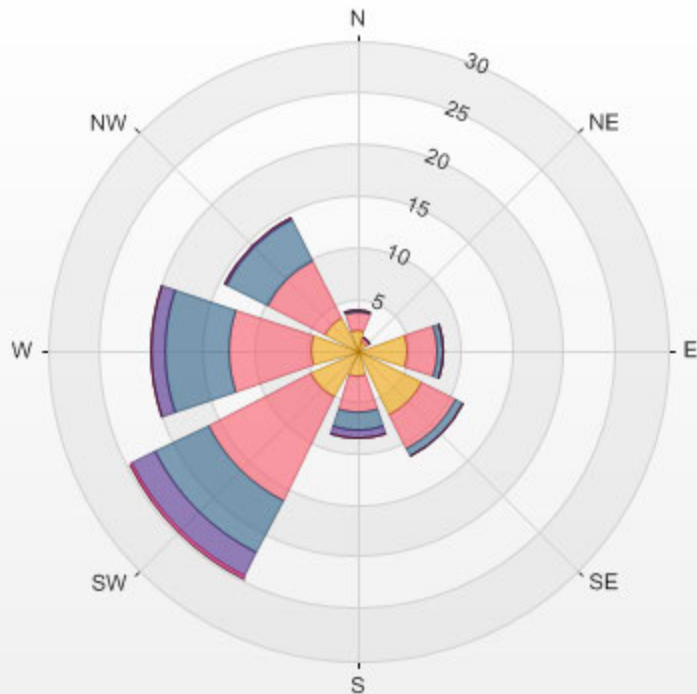
Wind: PRAMP_842
 Monitor: WSP [kph]
 Monthly: 18/06
 Type: WindRose
 Direction: Blowing From (Wind Frequency)
 Based On 1 Hr.

Calm: 7.31%

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	2.0	1.8	0.1	0.0	0.0	0.0	3.9
NE	1.0	0.4	0.0	0.0	0.0	0.0	1.4
E	4.8	3.0	0.6	0.0	0.0	0.0	8.3
SE	7.0	3.7	0.7	0.0	0.0	0.0	11.4
S	2.5	3.4	1.8	0.7	0.0	0.0	8.4
SW	5.1	11.1	5.8	2.5	0.3	0.0	24.8
W	4.5	8.0	6.2	1.4	0.0	0.0	20.1
NW	3.7	6.1	4.5	0.1	0.0	0.0	14.4
Summary	30.5	37.4	19.7	4.8	0.3	0.0	92.7

%	Icon	Classes (kph)
31		1.8-6.0
37		6.0-12.0
20		12.0-20.0
5		20.0-29.0
0		29.0-39.0
0		>39.0

PRAMP_842 2018/06/01 00:00 - 2018/06/30 23:00 Calm: 7.31% Calm Wind Avg Speed: 1.09(kph)



WIND DIRECTION



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

WIND DIRECTION Hourly Averages (WD)

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

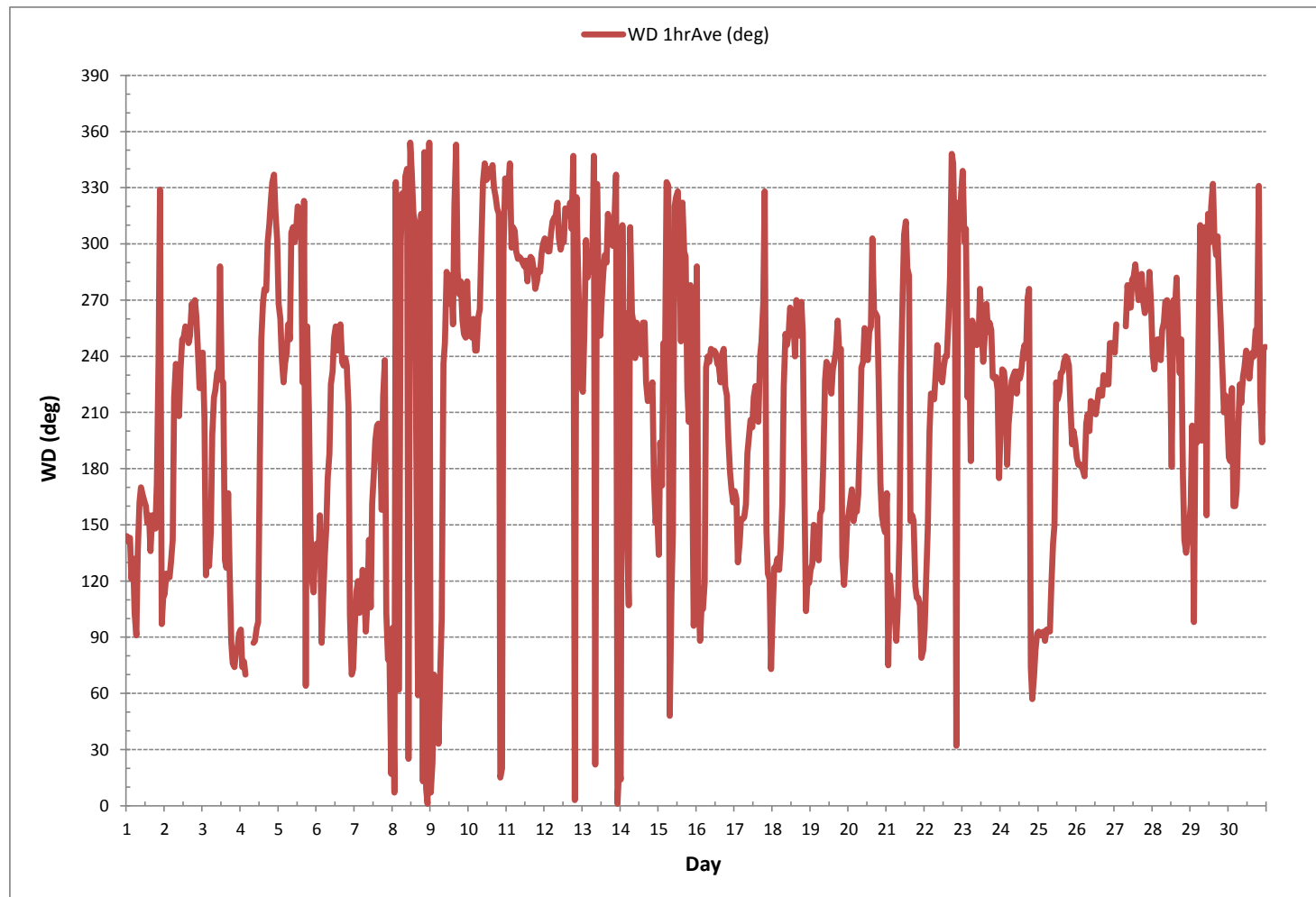
STATUS FLAG CODES

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

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

MONTHLY CALIBRATION TIME:	0	hrs	OPERATIONAL TIME:	711	hrs
STANDARD DEVIATION:	79		AMD OPERATION UPTIME:	98.8	%
			MONTHLY AVERAGE:	244 (WSW)	

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - June 2018

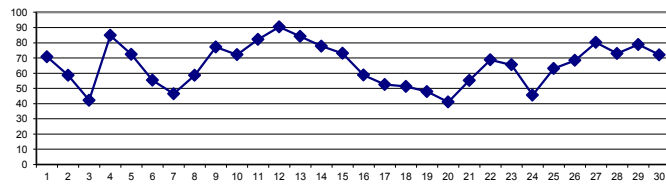
RELATIVE HUMIDITY Hourly Averages (RH %)

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

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 June 2018

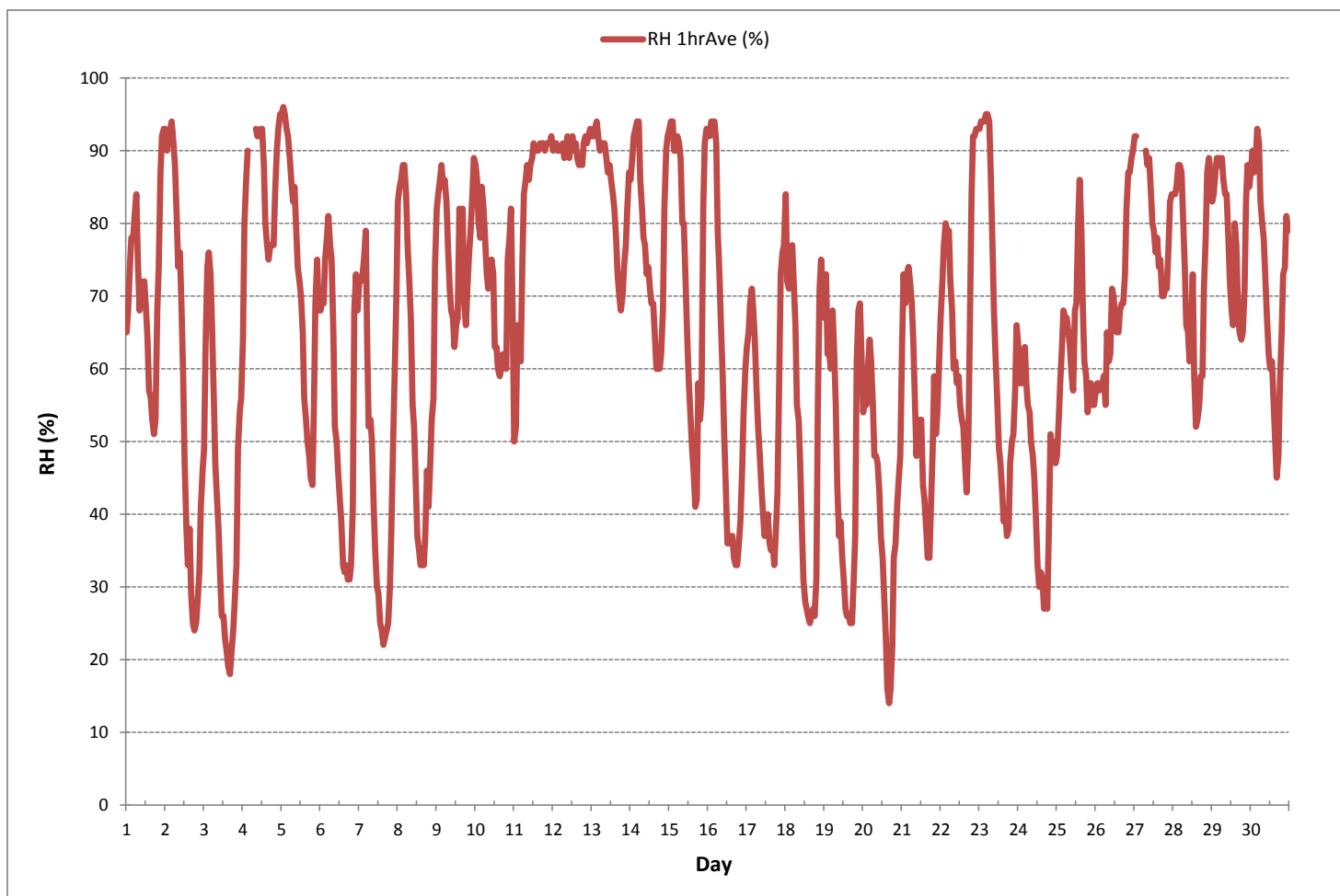


MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	14	%	@ HOUR	16	ON DAY	20
MAXIMUM 1-HR AVERAGE:	96	%	@ HOUR	1	ON DAY	5
MAXIMUM 24-HR AVERAGE:	90	%			ON DAY	12

OPERATIONAL TIME:	711	hrs
AMD OPERATION UPTIME:	98.8	%
STANDARD DEVIATION:	20	
MONTHLY AVERAGE:	65	%

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - June 2018

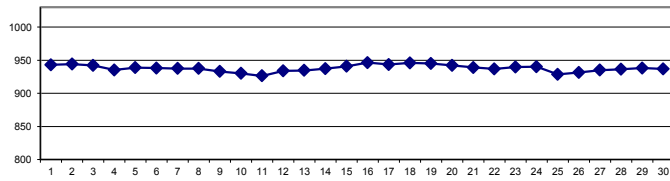
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	943	943	943	943	943	943	943	943	943	943	944	943	943	943	943	943	943	943	942	942	943	943	943	943	942	944	943	24	
2	943	943	943	943	944	944	945	945	945	945	946	945	945	944	944	944	944	944	944	945	945	945	945	945	943	946	944	24	
3	945	945	945	945	945	945	945	945	945	945	944	943	943	942	941	941	940	940	939	939	938	938	938	937	937	945	942	24	
4	937	937	936	936	P	P	P	P	933	933	933	933	933	933	934	935	936	936	936	936	936	937	937	937	938	933	938	935	20
5	938	938	938	938	938	938	938	938	939	939	940	940	940	940	940	940	940	939	939	939	939	939	939	939	938	940	939	24	
6	939	938	938	938	938	938	938	939	938	938	938	938	938	938	938	938	938	938	938	938	938	939	939	939	938	939	938	24	
7	939	939	939	939	939	939	939	938	938	938	938	937	937	937	936	936	936	936	936	937	937	937	937	937	936	939	938	24	
8	937	937	937	937	937	938	938	938	939	939	939	938	938	938	938	938	937	937	937	937	937	937	937	937	937	939	938	24	
9	936	937	937	935	934	934	933	933	933	932	932	932	932	932	933	933	932	933	932	933	932	932	932	932	932	937	933	24	
10	932	931	932	932	932	932	932	932	931	931	931	931	931	930	930	929	929	929	929	928	928	928	928	927	927	932	930	24	
11	926	926	926	925	925	925	924	924	924	924	925	925	925	925	926	927	927	928	928	929	930	930	930	931	924	931	926	24	
12	931	931	931	932	932	933	933	933	933	933	934	934	935	935	936	936	936	935	935	935	935	935	935	934	934	931	936	934	24
13	934	933	933	933	934	933	933	934	934	935	934	935	935	935	935	935	935	935	935	936	936	936	936	937	933	937	935	24	
14	937	937	937	937	938	938	938	938	938	938	938	938	938	938	938	937	937	937	937	937	937	937	937	937	937	937	938	937	24
15	937	937	938	938	938	939	939	939	940	940	941	941	941	941	941	941	941	942	943	943	944	945	945	946	937	946	941	24	
16	946	946	947	947	947	948	948	948	948	948	948	948	947	946	946	946	946	945	945	945	945	945	945	945	945	948	946	24	
17	944	944	944	944	944	944	944	944	943	943	943	943	943	943	943	943	943	943	943	943	943	943	944	944	943	944	943	24	
18	944	945	945	945	946	946	946	947	947	947	947	947	947	946	946	946	946	946	946	946	946	946	946	946	944	947	946	24	
19	946	946	946	946	946	946	946	946	946	946	946	946	946	945	945	945	944	944	944	944	944	944	944	944	944	946	945	24	
20	944	944	944	944	944	944	944	943	943	943	943	943	943	942	941	941	940	940	940	940	940	940	940	940	940	944	942	24	
21	940	940	940	940	940	940	940	940	940	940	939	939	940	939	939	938	938	938	938	938	938	938	938	938	938	940	939	24	
22	938	937	937	937	937	937	937	937	937	937	937	937	936	936	936	936	935	936	936	936	937	937	937	938	938	935	938	937	24
23	938	938	939	939	939	940	940	940	940	940	940	940	940	940	940	939	939	939	939	940	940	940	940	940	940	938	940	940	24
24	941	941	941	941	942	942	942	942	942	942	942	942	941	941	941	940	940	939	938	938	938	938	937	937	936	936	942	940	24
25	935	934	933	932	932	931	930	929	928	928	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	927	935	929	24
26	930	931	931	931	931	931	930	931	931	931	931	931	931	932	932	933	933	933	933	933	932	933	933	933	930	933	932	24	
27	933	933	P	P	P	P	P	934	934	934	934	934	935	935	936	936	936	936	936	936	936	936	936	936	936	933	936	935	19
28	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	936	937	937	937	937	937	937	937	937	936	937	936	24	
29	937	937	937	937	937	937	938	938	938	938	938	938	938	938	938	939	939	939	939	939	939	939	939	939	937	939	938	24	
30	939	939	939	939	938	938	938	938	938	937	937	937	936	936	935	935	935	935	935	935	935	935	935	935	935	935	939	937	24
HOURLY MAX	946	946	947	947	947	948	948	948	948	948	948	948	947	946	946	946	946	946	946	946	946	946	946	946					
HOURLY AVG	938	938	938	938	938	939	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938					

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

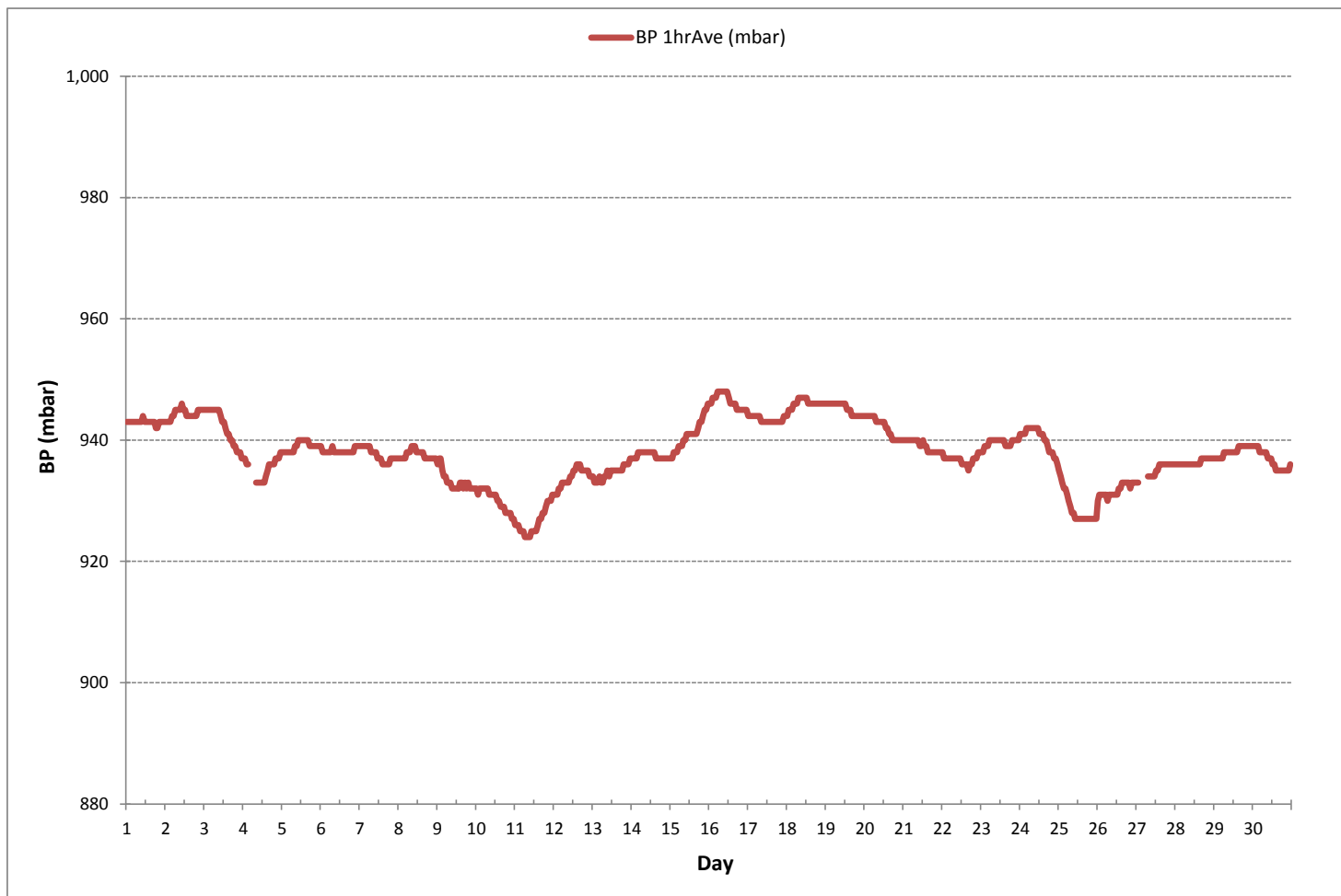
24 HR AVERAGES June 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	924	mbar	@ HOUR	6	ON DAY	11
MAXIMUM 1-HR AVERAGE:	948	mbar	@ HOUR	5	ON DAY	16
MAXIMUM 24-HR AVERAGE:	946	mbar			ON DAY	16
OPERATIONAL TIME:					711	hrs
AMD OPERATION UPTIME:					98.8	%
STANDARD DEVIATION:	5				MONTHLY AVERAGE:	938 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - June 2018

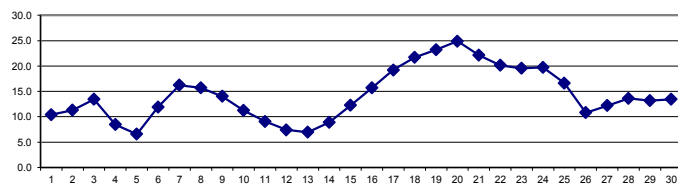
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

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	8.9	8.5	8.5	8.1	8.0	7.9	7.9	9.9	11.1	10.8	11.1	11.2	11.8	12.5	13.3	13.8	14.5	14.9	14.4	12.2	11.3	8.0	6.2	5.0	5.0	14.9	10.4	24
2	5.2	5.6	5.5	4.8	4.6	6.4	8.4	9.0	9.8	10.3	11.2	13.0	14.9	16.1	17.0	15.7	17.0	17.5	17.2	16.6	15.1	12.3	9.5	8.6	4.6	17.5	11.3	24
3	8.1	5.3	3.2	1.8	2.4	4.0	7.5	10.8	13.8	15.2	16.4	17.5	17.9	19.0	19.8	19.9	20.5	20.1	19.6	18.4	17.1	15.8	14.8	14.0	1.8	20.5	13.5	24
4	12.6	10.2	8.6	7.5	P	P	P	P	7.1	7.2	7.2	7.4	8.2	9.6	10.5	10.4	10.6	10.3	10.1	9.6	7.6	5.6	4.7	4.2	4.2	12.6	8.5	20
5	3.7	3.6	3.8	3.3	2.8	3.2	3.7	4.4	4.2	4.6	5.2	6.1	6.3	7.3	8.7	9.5	10.4	11.2	12.3	12.3	10.8	7.9	5.9	6.6	2.8	12.3	6.6	24
6	6.5	6.7	6.9	6.5	6.4	6.6	7.5	8.7	11.1	13.3	14.3	14.3	15.0	16.2	17.1	17.0	16.8	17.2	17.1	16.6	15.8	11.0	8.5	8.5	6.4	17.2	11.9	24
7	7.5	7.1	6.3	5.5	4.8	9.0	12.8	13.8	15.1	17.5	19.7	21.7	22.8	23.5	23.7	24.5	23.9	23.8	23.1	21.1	18.9	16.6	14.6	12.4	4.8	24.5	16.2	24
8	9.6	9.4	8.7	8.3	8.3	9.9	11.4	11.7	13.2	15.7	16.8	19.1	20.6	21.4	22.2	22.1	22.4	21.6	19.9	20.9	18.8	16.4	15.8	13.3	8.3	22.4	15.7	24
9	12.2	11.8	11.2	10.6	10.9	11.3	12.4	14.1	15.7	16.4	16.9	17.6	17.8	17.8	14.8	14.9	14.4	16.0	16.2	16.0	14.8	12.1	10.7	9.9	9.9	17.8	14.0	24
10	9.5	9.0	9.7	9.6	7.8	8.6	9.4	10.5	11.1	11.5	11.9	12.6	13.2	13.3	13.8	13.8	13.9	13.7	13.8	13.2	10.2	9.8	9.1	10.5	7.8	13.9	11.2	24
11	12.2	12.0	10.2	10.6	10.6	9.1	8.2	8.2	8.3	8.5	8.3	8.3	8.2	8.2	8.3	8.2	8.5	8.8	9.0	9.1	8.9	8.8	8.7	8.5	8.2	12.2	9.1	24
12	8.0	7.7	7.7	7.5	7.4	7.4	7.3	7.0	7.1	7.5	7.4	7.6	7.3	7.0	7.8	8.2	8.4	8.2	7.2	6.8	6.7	6.5	6.6	6.5	6.5	8.4	7.4	24
13	6.6	6.6	6.4	6.4	6.3	6.3	6.2	4.8	4.4	5.0	5.8	6.8	7.1	7.4	7.6	8.4	9.2	9.6	9.3	9.2	8.5	7.4	6.7	5.1	4.4	9.6	7.0	24
14	4.7	4.3	3.7	3.5	3.2	3.6	4.9	5.6	6.1	7.3	8.4	8.8	9.7	11.1	12.1	13.5	14.6	14.7	15.2	15.0	14.1	11.3	9.6	8.6	3.2	15.2	8.9	24
15	7.2	7.4	7.0	8.4	8.2	8.1	7.7	8.5	11.0	11.1	12.3	13.9	15.4	16.9	17.7	18.1	19.1	18.8	15.1	16.4	16.3	11.7	9.4	8.4	7.0	19.1	12.3	24
16	8.5	7.7	6.8	5.8	5.4	7.8	11.3	12.9	14.5	16.2	18.0	19.2	20.2	21.1	21.4	21.7	22.2	22.5	22.3	21.7	20.3	18.2	16.2	14.9	5.4	22.5	15.7	24
17	14.0	13.1	12.2	11.2	11.4	12.4	14.6	16.7	19.0	20.8	22.2	23.2	23.8	23.7	24.2	24.3	24.8	25.2	24.9	25.1	22.8	19.0	17.0	15.6	11.2	25.2	19.2	24
18	14.1	14.4	13.9	13.1	12.9	14.8	17.2	20.4	21.8	23.5	25.1	26.7	27.4	27.9	28.3	28.6	28.5	28.4	28.4	27.9	24.2	19.6	17.3	16.5	12.9	28.6	21.7	24
19	16.7	15.7	16.6	16.2	16.3	15.8	17.4	20.1	23.1	24.6	25.5	27.1	28.1	28.9	29.5	29.8	29.9	29.9	29.4	29.1	26.1	21.5	19.5	19.7	15.7	29.9	23.2	24
20	20.4	19.8	19.1	17.4	16.2	17.5	19.9	22.1	23.1	24.6	26.4	27.9	29.0	29.9	30.8	31.3	31.6	31.5	30.7	29.2	27.1	25.2	23.9	22.8	16.2	31.6	24.9	24
21	19.7	17.1	16.7	16.0	15.8	16.8	18.6	19.6	21.7	23.6	23.6	24.3	24.7	26.4	26.6	27.5	27.2	27.1	26.0	24.6	22.6	23.1	22.0	20.6	15.8	27.5	22.2	24
22	19.4	18.3	17.1	16.6	16.2	16.4	18.3	20.0	21.8	21.8	22.7	23.1	23.9	24.2	24.4	24.9	25.3	24.2	21.4	17.7	16.6	16.7	16.5	16.1	16.1	25.3	20.2	24
23	15.8	15.7	15.2	14.2	14.3	14.7	15.8	16.8	18.0	19.6	20.6	21.6	22.3	23.1	23.9	24.5	24.5	24.8	24.7	23.9	22.2	19.8	17.6	15.4	14.2	24.8	19.5	24
24	15.2	15.9	15.3	14.9	13.6	14.4	15.7	17.2	18.4	19.7	20.8	22.1	22.7	23.6	23.8	24.3	25.0	24.5	25.2	23.3	20.8	19.7	18.6	19.2	13.6	25.2	19.7	24
25	18.8	17.9	17.5	17.0	16.7	17.6	18.2	19.2	20.8	22.5	23.3	21.1	19.0	14.9	12.6	12.8	13.8	14.1	14.5	15.1	14.3	13.2	12.7	11.8	11.8	23.3	16.6	24
26	11.1	10.7	11.1	10.9	10.6	10.3	11.1	10.1	10.5	10.6	9.9	10.2	10.8	11.5	12.1	11.6	12.1	12.1	11.5	10.8	10.2	10.1	9.8	9.7	9.7	12.1	10.8	24
27	9.6	9.6	P	P	P	P	P	10.6	10.4	10.5	11.5	11.9	11.9	12.5	12.7	13.7	13.6	14.0	14.4	14.2	14.0	12.9	12.0	11.9	9.6	14.4	12.2	19
28	11.7	11.4	10.6	9.7	9.2	9.7	11.5	12.6	14.1	14.9	16.2	15.4	15.4	17.1	16.7	15.9	16.1	16.2	16.6	15.9	14.9	12.6	11.6	11.2	9.2	17.1	13.6	24
29	11.4	11.4	11.1	10.8	10.7	11.0	11.1	11.7	12.3	12.8	14.3	15.7	15.9	16.3	14.4	14.6	15.9	14.9	15.6	15.5	14.5	12.0	11.3	11.3	10.7	16.3	13.2	24
30	10.4	9.5	9.6	8.2	7.3	8.9	11.2	12.7	13.3	14.7	15.9	17.2	17.1	17.2	17.6	18.2	17.7	17.4	15.4	14.1	13.2	12.5	11.8	11.9	7.3	18.2	13.5	24
HOURLY MAX	20.4	19.8	19.1	17.4	16.7	17.6	19.9	22.1	23.1	24.6	26.4	27.9	29.0	29.9	30.8	31.3	31.6	31.5	30.7	29.2	27.1	25.2	23.9	22.8				
HOURLY AVG	11.3	10.8	10.4	9.8	9.6	10.3	11.7	12.8	13.7	14.7	15.6	16.4	17.0	17.5	17.8	18.0	18.4	18.4	18.1	17.4	16.0	13.9	12.6	12.0				

STATUS FLAG CODES

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

24 HR AVERAGES June 2018



MONTHLY SUMMARY

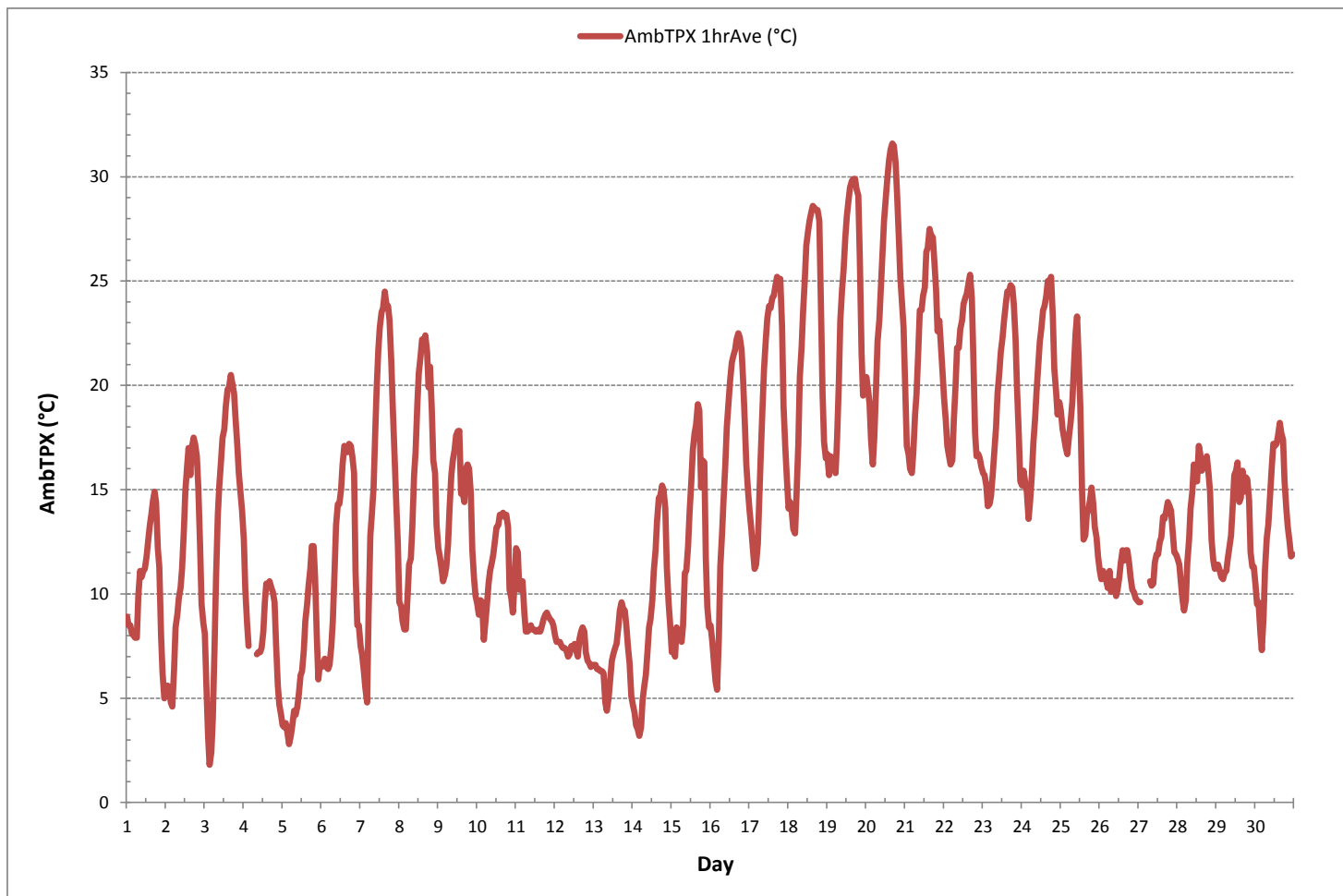
MINIMUM 1-HR AVERAGE:	1.8	°C	@ HOUR	3	ON DAY	3
MAXIMUM 1-HR AVERAGE:	31.6	°C	@ HOUR	16	ON DAY	20
MAXIMUM 24-HR AVERAGE:	24.9	°C			ON DAY	20

OPERATIONAL TIME: 711 hrs

AMD OPERATION UPTIME: 98.8 %

STANDARD DEVIATION: 6.3 MONTHLY AVERAGE: 14.4 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE

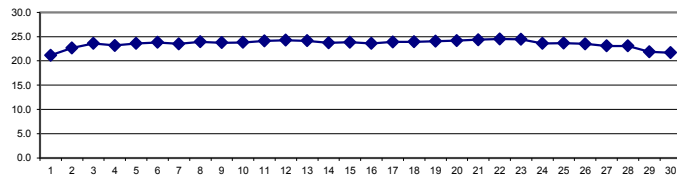
STATION TEMPERATURE Hourly Averages (StnTPX °C)

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	21.1	21.4	21.3	21.4	21.4	21.3	21.3	21.2	21.1	21.1	21.1	20.9	21.0	21.0	21.0	21.0	20.7	20.8	21.0	21.1	21.0	21.2	21.2	21.4	20.7	21.4	21.1	24
2	21.6	21.3	21.6	21.5	21.4	21.5	21.3	21.2	21.3	23.0	23.4	23.3	23.6	23.2	23.1	23.2	23.2	23.6	23.7	23.9	23.7	23.5	23.5	23.6	21.2	23.9	22.7	24
3	24.1	24.2	23.9	23.6	23.0	22.8	23.3	23.6	23.4	23.4	23.5	23.8	24.2	24.2	24.2	24.2	23.7	23.8	24.2	23.4	22.6	22.5	22.9	23.3	22.5	24.2	23.6	24
4	23.4	23.6	23.4	24.3	P	P	P	P	21.2	21.1	21.8	22.8	23.4	22.9	21.9	23.2	22.9	23.1	23.7	23.7	23.8	24.3	24.4	24.3	21.1	24.4	23.2	20
5	24.2	24.1	23.9	23.5	23.2	22.9	22.9	22.9	23.0	23.1	23.4	23.9	24.6	24.1	23.7	23.8	23.8	23.2	23.1	23.2	23.6	23.7	24.1	24.3	22.9	24.6	23.6	24
6	24.5	24.5	24.6	24.5	24.4	24.5	24.6	23.7	23.9	23.4	23.3	23.4	23.5	23.5	23.1	23.1	23.6	23.5	23.6	23.5	23.4	23.8	23.5	24.1	23.1	24.6	23.8	24
7	23.6	23.9	23.8	23.7	23.5	23.6	23.8	23.5	23.4	23.6	23.3	23.3	23.4	23.3	23.1	23.1	23.1	23.4	23.9	23.7	23.2	23.7	23.6	23.3	23.1	23.9	23.5	24
8	24.0	23.9	24.0	24.4	24.5	23.7	23.8	23.9	23.7	23.6	23.7	23.3	23.7	24.2	23.8	23.6	23.9	24.2	24.3	24.5	24.3	23.5	23.7	23.7	23.3	24.5	23.9	24
9	23.8	23.7	23.6	23.8	24.1	23.7	23.7	23.6	23.8	23.9	23.5	23.8	23.5	23.6	24.0	23.8	23.7	23.9	23.8	23.8	23.9	23.4	23.7	23.9	23.4	24.1	23.8	24
10	23.8	23.8	24.4	23.4	24.2	24.5	23.5	23.7	23.8	23.7	23.9	23.6	23.8	23.6	23.6	23.7	23.4	23.4	23.6	23.9	23.7	24.4	23.5	24.3	23.4	24.5	23.8	24
11	23.5	24.4	23.7	24.3	24.6	24.7	23.6	24.3	24.5	24.5	23.4	23.8	23.9	23.9	23.9	23.9	24.2	24.4	23.6	23.9	24.1	24.2	24.3	24.4	23.4	24.7	24.1	24
12	24.3	24.2	24.3	24.2	24.1	24.0	24.1	24.0	23.9	24.0	24.1	24.1	24.3	24.3	24.2	24.3	24.5	23.9	24.5	24.7	24.7	24.7	24.7	24.6	23.9	24.7	24.3	24
13	24.5	24.5	24.5	24.5	24.4	24.3	24.2	24.1	24.0	24.0	24.2	23.8	24.2	23.8	24.3	24.0	24.0	23.7	24.0	23.9	23.9	23.7	24.4	24.5	23.7	24.5	24.1	24
14	24.5	24.3	24.1	23.9	23.7	23.5	23.5	23.8	24.2	23.9	23.8	23.6	23.9	23.3	23.3	23.7	23.4	23.8	23.6	23.5	23.5	23.2	23.7	23.7	23.2	24.5	23.7	24
15	24.0	23.9	23.8	23.9	24.1	24.3	24.4	23.8	23.8	23.7	23.7	23.5	23.7	23.2	23.5	23.7	24.3	24.2	23.9	23.4	23.6	23.7	23.6	24.3	23.2	24.4	23.8	24
16	23.4	23.9	23.9	23.7	23.4	23.4	23.6	23.5	23.2	23.6	23.2	23.3	23.7	23.8	23.8	23.5	23.6	23.5	23.4	23.9	24.2	23.9	23.7	23.3	23.2	24.2	23.6	24
17	23.4	23.6	23.9	23.4	23.9	23.8	23.6	23.3	23.2	23.2	23.7	23.7	23.8	24.1	24.0	23.8	24.0	23.8	23.8	25.0	25.2	24.8	24.5	24.2	23.2	25.2	23.9	24
18	23.6	23.7	23.7	23.6	23.9	23.5	23.6	23.6	23.8	24.6	24.4	24.1	23.4	23.4	23.4	23.5	23.6	23.7	23.7	23.9	25.3	25.0	24.6	24.5	23.4	25.3	23.9	24
19	24.1	23.7	23.8	23.4	23.9	23.3	23.8	23.9	23.8	24.1	24.4	24.2	24.3	23.9	23.5	23.5	23.7	23.7	24.3	24.5	25.0	25.0	24.7	24.7	23.3	25.0	24.1	24
20	24.5	24.2	24.0	23.7	23.8	23.4	23.8	23.5	23.9	24.7	24.7	24.5	24.7	24.5	23.9	23.7	23.9	23.8	23.7	24.4	24.6	25.1	24.9	24.4	23.4	25.1	24.2	24
21	24.0	24.1	23.8	23.8	23.5	23.8	23.7	24.1	23.8	24.0	24.5	24.8	24.9	24.8	24.9	24.6	24.8	24.9	24.8	24.8	25.0	24.6	24.2	24.3	23.5	25.0	24.4	24
22	24.4	24.5	24.2	23.8	23.9	23.8	23.9	24.0	24.3	24.8	24.9	24.8	24.7	24.6	24.7	24.9	25.1	24.6	25.1	24.6	24.9	24.8	24.4	24.5	23.8	25.1	24.5	24
23	24.5	24.1	24.1	24.1	23.8	23.6	24.1	24.1	24.2	24.5	24.2	24.5	24.9	24.7	24.6	24.6	24.8	24.7	24.7	25.1	25.4	25.0	24.2	23.8	23.6	25.4	24.4	24
24	23.8	23.4	23.6	23.6	23.6	23.9	23.2	23.5	23.5	23.4	23.7	23.7	23.5	23.3	23.4	23.5	23.1	23.4	23.4	23.8	24.4	24.1	23.9	23.7	23.1	24.4	23.6	24
25	23.8	23.7	23.6	23.6	23.6	23.4	23.5	23.8	24.0	24.0	24.3	24.5	24.4	24.0	23.6	23.2	23.1	23.2	23.1	23.4	23.4	23.5	23.5	23.3	23.1	24.5	23.6	24
26	24.2	24.3	23.9	24.0	24.4	23.3	23.6	23.3	24.0	23.0	23.5	23.7	23.3	23.2	23.2	23.1	23.2	23.1	23.1	23.1	23.7	23.3	23.2	23.6	23.0	24.4	23.5	24
27	23.8	23.1	P	P	P	P	P	20.8	21.9	22.5	23.1	23.7	23.1	23.5	23.6	23.0	23.3	22.4	22.7	23.2	23.4	23.7	24.1	23.7	20.8	24.1	23.1	19
28	23.8	24.0	23.9	24.0	24.1	24.5	23.6	23.9	23.8	23.8	23.5	24.2	23.9	21.6	21.6	22.1	21.8	22.5	22.6	22.4	22.2	21.9	22.1	21.9	21.6	24.5	23.1	24
29	21.6	21.4	21.3	21.6	21.3	21.1	21.8	21.4	21.7	21.8	21.7	21.9	22.1	22.3	22.2	21.9	22.5	22.3	22.4	22.9	22.2	21.8	22.0	22.0	21.1	22.9	21.9	24
30	21.5	21.3	21.5	21.5	21.5	21.6	21.3	21.5	21.4	21.2	21.3	21.8	22.1	22.2	22.1	22.1	22.2	22.0	22.2	21.8	21.5	21.4	21.8	21.8	21.2	22.2	21.7	24
HOURLY MAX	24.5	24.5	24.6	24.5	24.6	24.7	24.6	24.3	24.5	24.8	24.9	24.8	24.9	24.8	24.9	24.9	25.1	24.9	25.1	25.1	25.4	25.1	24.9	24.7				
HOURLY AVG	23.6	23.6	23.6	23.5	23.5	23.4	23.4	23.3	23.3	23.4	23.5	23.6	23.7	23.5	23.4	23.4	23.5	23.5	23.6	23.7	23.8	23.7	23.7	23.7				

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

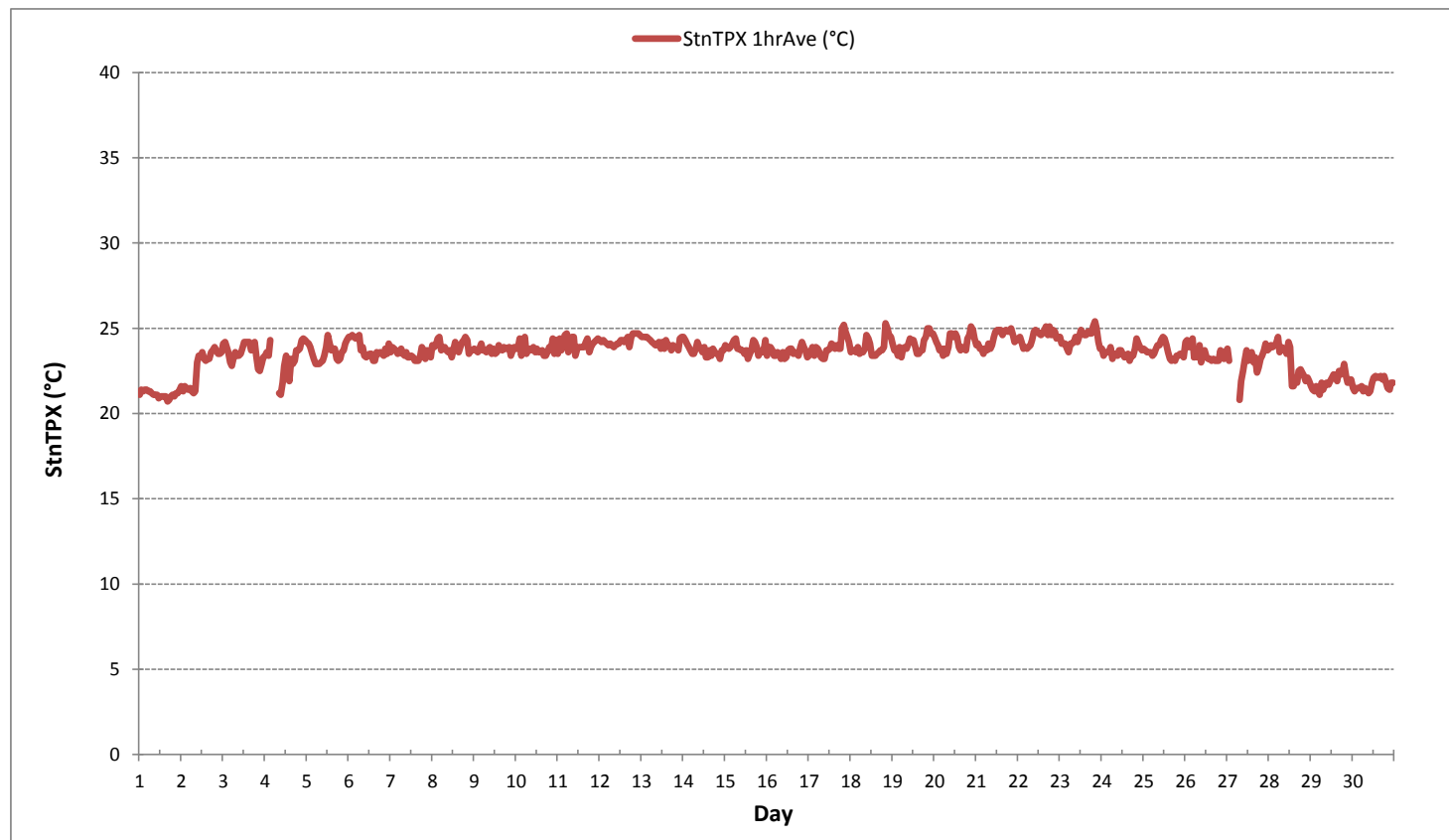
24 HR AVERAGES June 2018



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	20.7	°C	@ HOUR	16	ON DAY	1
MAXIMUM 1-HR AVERAGE:	25.4	°C	@ HOUR	20	ON DAY	23
MAXIMUM 24-HR AVERAGE:	24.5	°C			ON DAY	22
OPERATIONAL TIME:						711 hrs
AMD OPERATION UPTIME:						98.8 %
STANDARD DEVIATION:	0.9		MONTHLY AVERAGE:			23.6 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



Thermo 43i Sulphur Dioxide Analyzer Calibration

Date:	June 4, 2018	Barometer/B.P./units:	Brunton 05490 expires December 11, 2018	932	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Brunton 05490 expires December 11, 2018	22	°C
Location/Station Name:	842b	Weather Conditions:	Moderate rain		
Parameter:	Sulphur Dioxide	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	11:47	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	15:34	Cal Gas Expiry Date:	October 24, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	n/a		
Analyzer:					
Serial Number/Owner:	83503373 Maxxam	Range ppb:	500		
Last Calibration Date:	May 8, 2018	As Found C.F.:	0.937		
Previous C.F.:	1.000	New C.F.:	1.000		

Calibration Standards:
Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018
High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018
Calibrator ID/Expiry Date: API id# 829 expires January 31, 2019
Cal Gas Cylinder I.D. #: LL108015
Cal Gas Conc. (ppm): 47.9

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

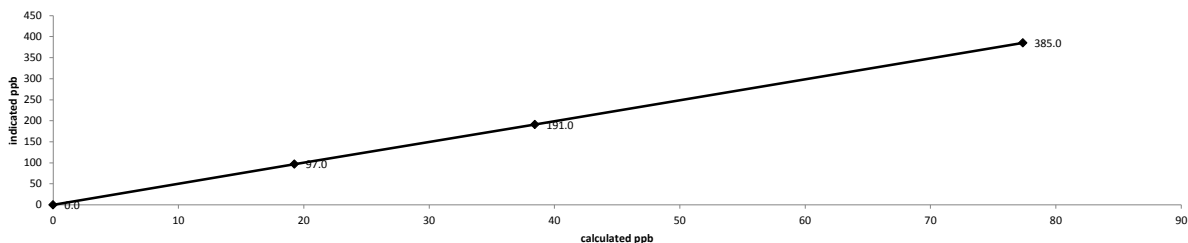
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	6012	0.00	6012	0.0	0.0	n/a
as found high	5935	48.09	5983	385.0	411.0	0.937
adjusted zero	6012	0.00	6012	0.0	0.0	n/a
adjusted high	5935	48.09	5983	385.0	385.0	1.000
mid	5974	24.06	5998	192.2	191.0	1.006
low	5974	12.10	5986	96.8	97.0	0.998
calibrator zero	6012	0.00	6012	0.0	0.0	n/a
Average C.F. =						1.001

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS
Slope =	1.001	> or = 0.995
b (Intercept as % of full scale) =	0.03%	0.95-1.05
% change in C.F. from last cal =	6.32%	± 3% F.S.
		± 10%

Thermo 43i Sulphur Dioxide Analyzer Calibration



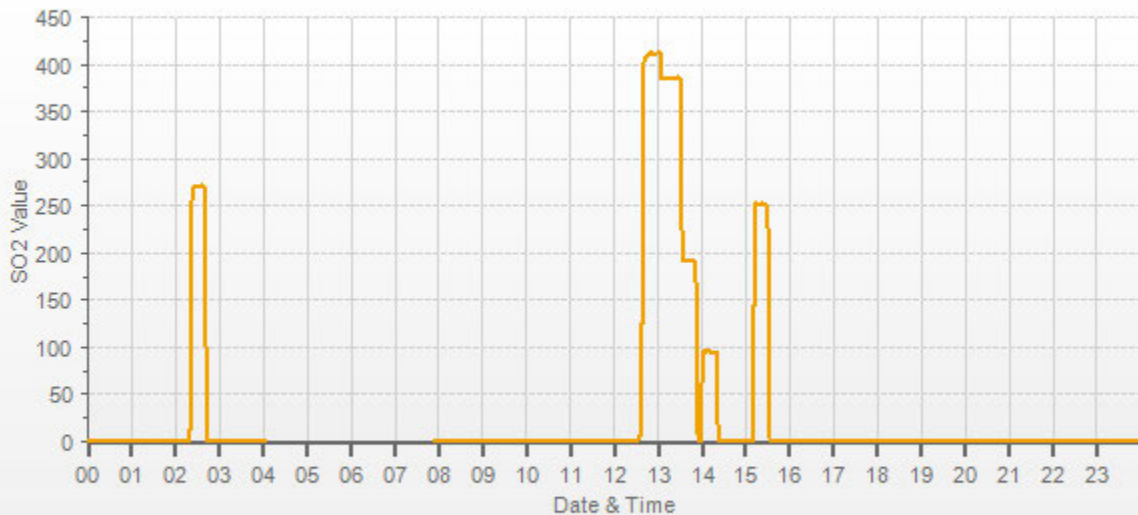
As found:		As left:	
Bkg:	14.8	Bkg:	13.8
Coef:	1.068	Coef:	0.993
Pmt:	-621.6	Pmt:	-621.2
Flash:	885	Flash:	884
Internal:	27.8	Internal:	27.2
Chamber:	44.9	Chamber:	44.9
Perm Oven Gas:	45.00	Perm Oven Gas:	45.00
Perm Oven Heater:	44.08	Perm Oven Heater:	44.08
Pressure:	671.4	Pressure:	672.3
Sample Flow:	0.438	Sample Flow:	0.438
Lamp Intensity:	81	Lamp Intensity:	82
Averaging Time:	120	Averaging Time:	120
Expected Value:	264.0	Expected Value:	252.0

Comments:

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

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

SO2[ppb] Station: PRAMP_842 Daily: 18/06/04 Type: AVG 1 Min. [1 Min.]



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration

Date:	June 4, 2018	Barometer/B.P./units:	Brunton 05490 expires December 11, 2018	932	millibars
Company/Airshed:	PRAMP	Thermometer/Station Temp:	Brunton 05490 expires December 11, 2018	22	°C
Location/Station Name:	842b	Weather Conditions:	Moderate rain		
Parameter:	Total Reduced Sulphur	Calibration Purpose:	routine monthly		
Start Time 24 hr. (mst):	8:48	Performed By/Reviewer:	Chris Wesson	Rob Fisher	
End Time 24 hr. (mst):	13:17	Cal Gas Expiry Date:	November 7, 2020		
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	CD-Nova CDN-101 #553		
Analyzer:					
Serial Number/Owner:	1162460023 Maxxam	Range ppb:	100		
Last Calibration Date:	May 8, 2018	As Found C.F.:	0.995		
Previous C.F.:	1.000	New C.F.:	0.998		

Calibration Standards:	Standard Calibration Points for Ranges	SO2 Scrubber Check (10 minutes):								
Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018	<table><tr><th>Point</th><th>ppb</th></tr><tr><td>High</td><td>78</td></tr><tr><td>Mid</td><td>38</td></tr><tr><td>Low</td><td>19</td></tr></table>	Point	ppb	High	78	Mid	38	Low	19	Start/End Time 24 hr.: 09:26/09:36
Point	ppb									
High	78									
Mid	38									
Low	19									
High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018		SO2 Analyzer Range: 500								
Calibrator ID/Expiry Date: API id# 829 expires January 31, 2019		Target Concentration (ppb): 380								
Cal Gas Cylinder I.D. #: LL119432		As Found Zero: 0.0								
Cal Gas Conc. (ppm): 10.3		Analyzer Response: (ppb): 0.0								
		Zero Corrected Result (ppb): 0.0								

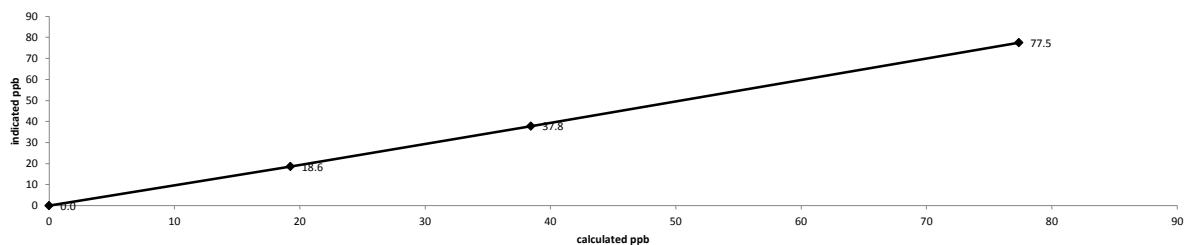
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration (ppb):	Indicated Concentration (ppb):	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total			
as found zero	7521	0.00	7521	0.0	0.0	n/a
as found high	7431	56.35	7487	77.4	77.8	0.995
adjusted zero	7521	0.00	7521	0.0	0.0	n/a
adjusted high	7431	56.35	7487	77.4	77.5	0.998
mid	7478	28.07	7506	38.4	37.8	1.017
low	7480	14.03	7494	19.2	18.6	1.035
calibrator zero	7521	0.00	7521	0.0	0.0	n/a
Average C.F. =						1.017

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS
Slope =	0.996	> or = 0.995
b (Intercept as % of full scale) =	0.42%	0.95-1.05
% change in C.F. from last cal =	0.55%	± 3% F.S.
		± 10%

Thermo 431-TLE Total Reduced Sulphur Analyzer Calibration



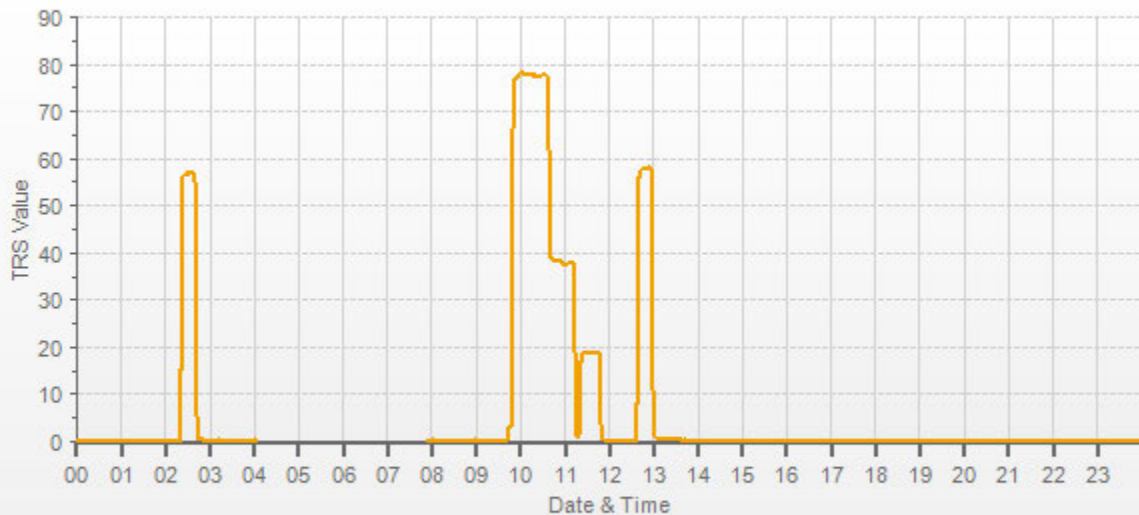
As found:	As left:
Bkg: 2.68	Bkg: 2.63
Coef: 0.886	Coef: 0.872
Pmt: -720.4	Pmt: -720.8
Flash: 976	Flash: 973
Internal: 30.6	Internal: 31.8
Chamber: 44.9	Chamber: 44.9
Perm Oven Gas: 45.00	Perm Oven Gas: 45.01
Perm Oven Heater: 44.11	Perm Oven Heater: 44.12
Pressure: 659.7	Pressure: 659.1
Sample Flow: 0.402	Sample Flow: 0.403
Lamp Intensity: 87	Lamp Intensity: 89
Converter: 850	Converter: 850
Converter Set: 850	Converter Set: 850
Averaging Time: 120	Averaging Time: 120
Expected Value: 57.0	Expected Value: 58.0

Comments:

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

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

TRS[ppb] Station: PRAMP_842 Daily: 18/06/04 Type: AVG 1 Min. [1 Min.]



— TRS[ppb]

TOTAL HYDROCARBON

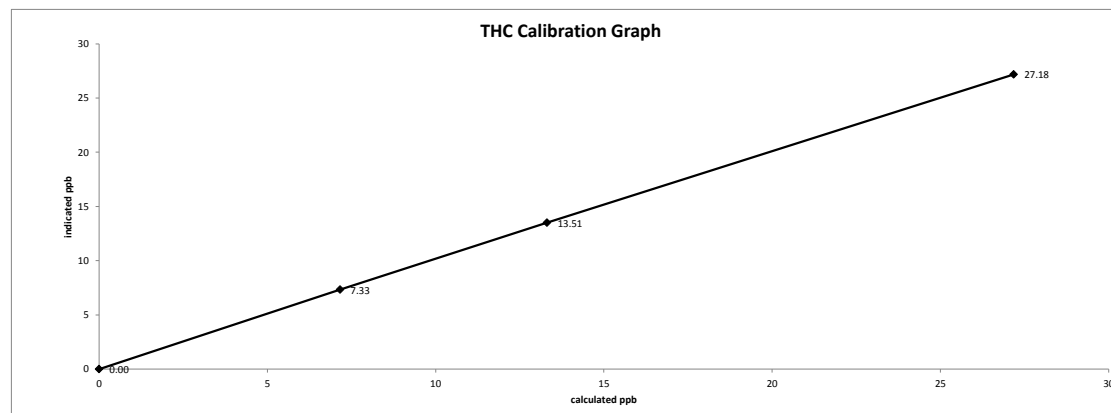
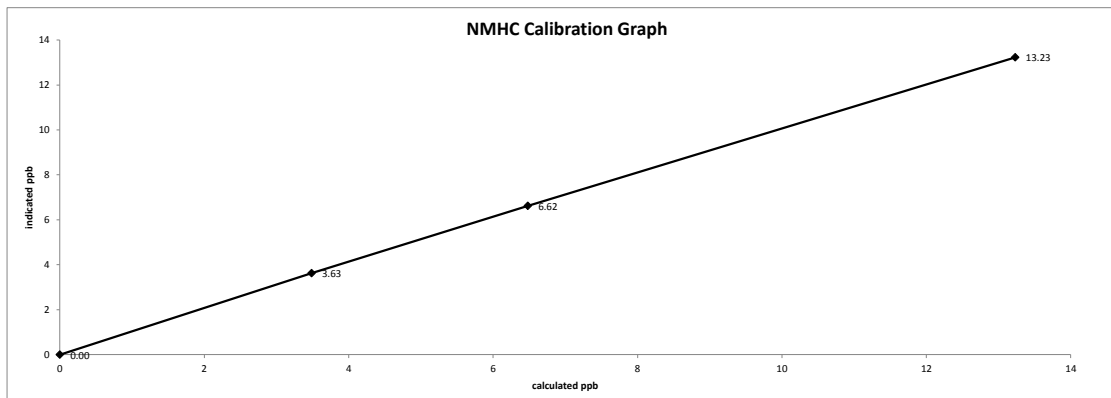
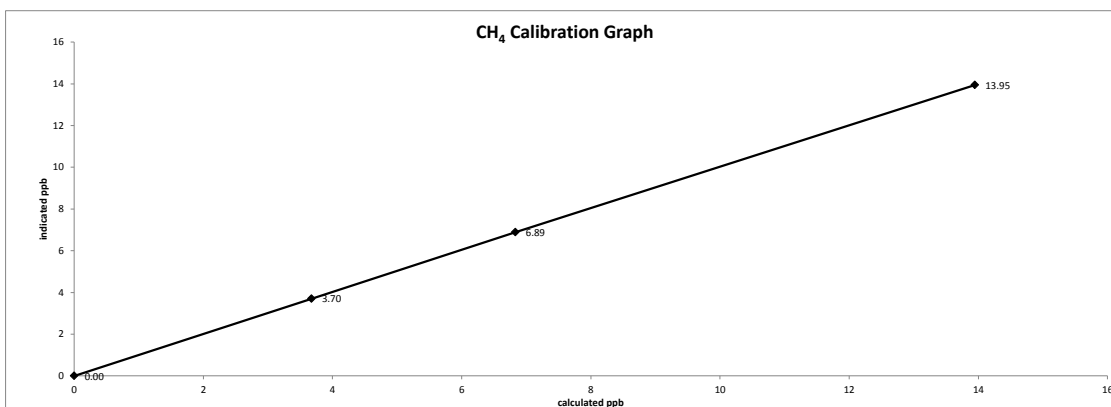


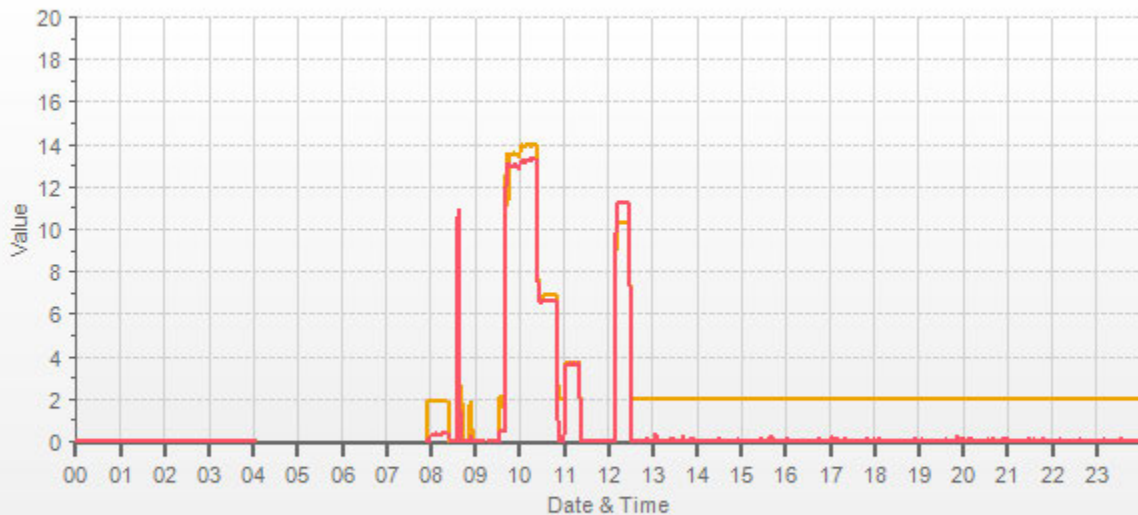
Thermo 55i Methane/Non-Methane Analyzer Calibration

Date: June 4, 2018		Barometer/B.P./units: Brunton 05490 expires December 11, 2018		932	millibars																
Company/Airshed: PRAMP		Thermometer/Station Temp: Brunton 05490 expires December 11, 2018		22	°C																
Location/Station Name: 842b		Weather Conditions: Moderate rain																			
Parameter: CH ₄ / NMHC / THC		Calibration Purpose: installation																			
Start/End Time 24 hr. (mst): 08:48 / 12:33		Performed By/Reviewer: Chris Wesson		Rob Fisher																	
Calibration Method: Gas Dilution		Cal Gas Expiry Date: October 18, 2025																			
Analyzer:																					
Serial Number/Owner: 1433563261 Maxxam		Correction Factors:																			
Measured Flow: 1.12 L/min		Previous C.F.: n/a		As Found C.F.: n/a																	
Last Calibration Date: n/a		CH₄ = n/a		New C.F.: 1.000																	
Range ppm: 20 CH ₄ /20 NMHC/40 THC		NMHC = n/a		1.000																	
		THC = n/a		1.000																	
Calibration Standards:																					
Low Flow Meter ID/Expiry Date: Defender Low 152020 expires November 22, 2018		Standard Calibration Points for Analyzer Range of 20/20/40 ppm																			
High Flow Meter ID/Expiry Date: Defender High 148943 expires November 21, 2018		<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: API id# 830 expires January 31, 2019																					
Cal Gas Cylinder I.D. #: LL107207																					
CH₄ Cylinder Conc. = 600.0 207.0 =C ₃ H ₈ Cylinder Conc.																					
CH₄ expressed as C₃H₈ = 569.3 1169.3 =total CH ₄ equivalent																					
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015																					
Calibrator Flow Rates (cc/min)																					
Point	Diluent	Cal Gas	Total Flow	Calculated CH₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:											
										CH₄	NMHC	THC									
adjusted zero	2524	0.00	2524	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
adjusted high	2474	58.87	2533	13.95	13.23	27.18	13.95	13.23	27.18	1.000	1.000	1.000									
mid	2495	28.73	2524	6.83	6.48	13.31	6.89	6.62	13.51	0.991	0.979	0.985									
low	2501	15.41	2516	3.67	3.49	7.16	3.70	3.63	7.33	0.993	0.960	0.977									
calibrator zero	2524	0.00	2524	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a									
Average C.F. =										0.995	0.980	0.987									
Linear Regression/Calibration Results:																					
Correlation Coefficient = 1.000						CH₄	NMHC	THC	LIMITS												
Slope = 1.000						1.000	0.997	0.999	> or = 0.995												
b (Intercept as % of full scale) = 0.11%						0.43%	0.27%	0.95-1.05													
% change in C.F. from last cal = n/a						n/a	n/a	n/a	± 3% F.S.												
As Left Instrument Diagnostics:																					
Interface Board Voltages:			Bias Supply: -300.9			Calibration History cnt'd:			NM Peak Area: 85836												
Temperatures:			Detector Oven: 175.1			Crucial Settings:			Methane Start: 8.0												
			Filter: 175.1						Methane End: 16.0												
			Column Oven: 75.0						Backflush: 18.0												
			Internal: 34.3						NMHV Start: 26.0												
Cylinder Pressures/reg.:			Carrier: 1500 50						NMHC End: 56.0												
			Fuel: 2000 50						Date: 04Jun2018												
			Span Gas: 1700 18			Run History>1:			Time: 11:35												
			Zero Air Generator: 50						CH₄ PK HT: 0												
Internal Pressures:			Carrier: 31.7						CH₄ RT: 12.8												
			Fuel: 37.6						CH₄ Baseline: 2134												
			Air: 34.3						CH₄ LOD: 34												
FID Status:			Status: LIT						CH₄ SD: 11												
			Counts: 25743						CH₄ CONC: 0.00												
			Flame: 348.7						NM PK HT: 0												
			Det Base: 175.0						NM Peak Area: 0												
Flame and Power Stats:			Last Power On: 03JUN2018@19:20						NM CONC: 0.00												
			Flameouts: 1						NM Base Start: 2052												
			Det Oven at Start: 22.6						NM Base End: 2127												
			Col Oven at Start: 24.6						NM LOD: 8												
Calibration History:			Time: 04Jun2018@10:01						NM Start IDX: 23												
			Type: Span						NM End IDX: 85												
			Status: Good						NM Max Slope: 2.5e+00												
			Check/Adjust: Adjust						NM Min Slope: -7.1e-02												
			CH₄ Span Conc: 13.95						NM PT Count: 0												
			CH₄ SP Ratio: 0.000737			Expected Values:			Previous CH₄: 10.14												
			CH₄ RT: 13.2						Previous NMHC: 11.13												
			CH₄ PK IDX: 26						Previous THC: 21.27												
			CH₄ PK HT: 18931						New CH₄: 10.28												
			NM Span Conc: 13.23						New NMHC: 11.22												
			NM SP Ratio: 0.000154						New THC: 21.50												
Comments:																					
The analyzer sample inlet filter was changed.																					
A column conditioning was performed.																					
The analyzer cooling fan filter(s) were cleaned.																					
The manifold blower was found to be working normally.																					
Analyzer #1505664392 was removed due to a hardware failed. Analyzer #1433563261 was installed.																					

Date: June 4, 2018
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 08:48 / 12:33
Calibration Purpose: Installation
Calibration Method: Gas Dilution





— CH4[ppm] — NMHC[ppm]



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	June 28, 2018	Barometer/B.P./units:	Brunton 05535 expires December 15, 2018	27.58	inHg
Company/Airshed:	PRAMP	Thermometer/Station Temp:	F.S. 160348895 expires June 19, 2020	23.3	°C
Location/Station Name:	842B	Weather Conditions:	Light rain/scattered showers		
Parameter:	CH4 / NMHC / THC	Calibration Purpose:	post repair		
Start/End Time 24 hr. (mst):	12:50/16:47	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:	1103 sccm	CH ₄ =	1.000	n/a	1.000
Last Calibration Date:	June 2, 2018	NMHC =	1.000	n/a	1.000
Range ppm:	20 CH4/20 NMHC/40 THC	THC =	1.000	n/a	1.000

Calibration Standards:		Standard Calibration Points for Analyzer Range of 20/20/40 ppm			
Low Flow Meter ID/Expiry Date:	Defender Low 156151 expires October 2, 2018	Point	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:	EnviroNics id# 1991 expires March 15, 2019	Mid	7.00	7.00	14.00
Cal Gas Cylinder I.D. # :	LL168404	Low	3.00	3.00	6.00
CH4 Cylinder Conc. =	597.0 206.0 =C ₂ H ₆ Cylinder Conc.				
CH ₄ expressed as C ₂ H ₆ =	566.5 1163.5 =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	THC
adjusted zero	2712	0.00	2712	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2648	65.43	2713	14.40	13.66	28.06	14.40	13.66	28.06	1.000	1.000	1.000
mid	2678	32.71	2711	7.20	6.84	14.04	7.20	6.81	14.01	1.000	1.004	1.002
low	2697	16.36	2713	3.60	3.42	7.02	3.61	3.43	7.04	0.997	0.996	0.997
calibrator zero	2713	0.00	2713	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
Average C.F. =									0.999	1.000	1.000	

Linear Regression/Calibration Results:				LIMITS		
Correlation Coefficient =	CH ₄	NMHC	THC	> or = 0.995		
Slope =	1.000	0.999	1.000	0.95-1.05		
b (Intercept as % of full scale) =	0.01%	0.00%	0.01%	± 3% F.S.		
% change in C.F. from last cal =	n/a	n/a	n/a	n/a		

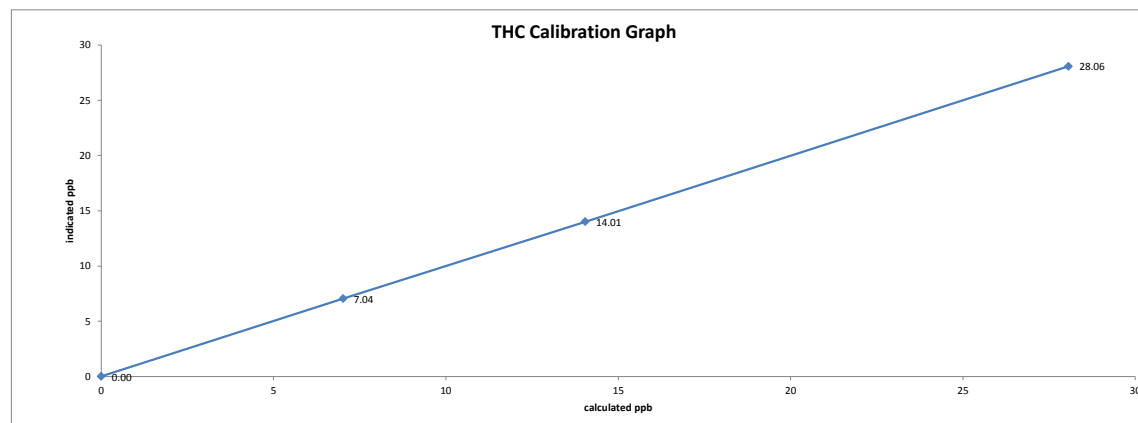
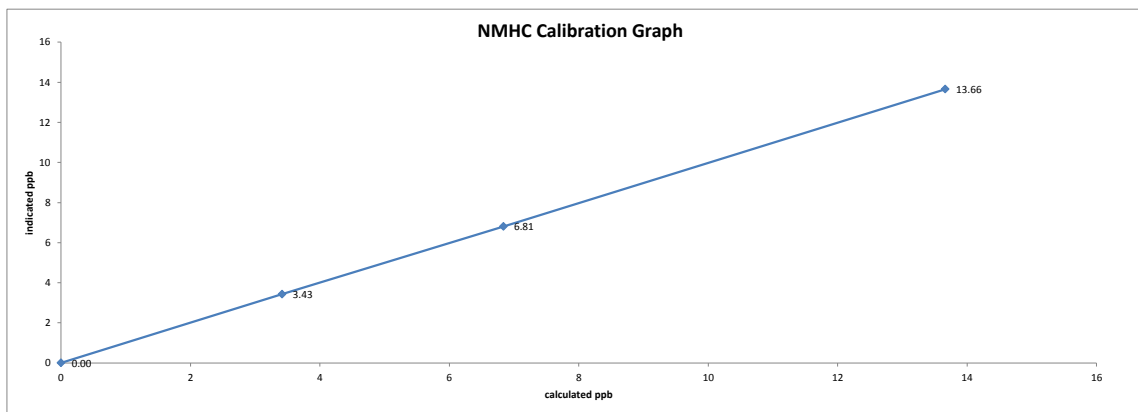
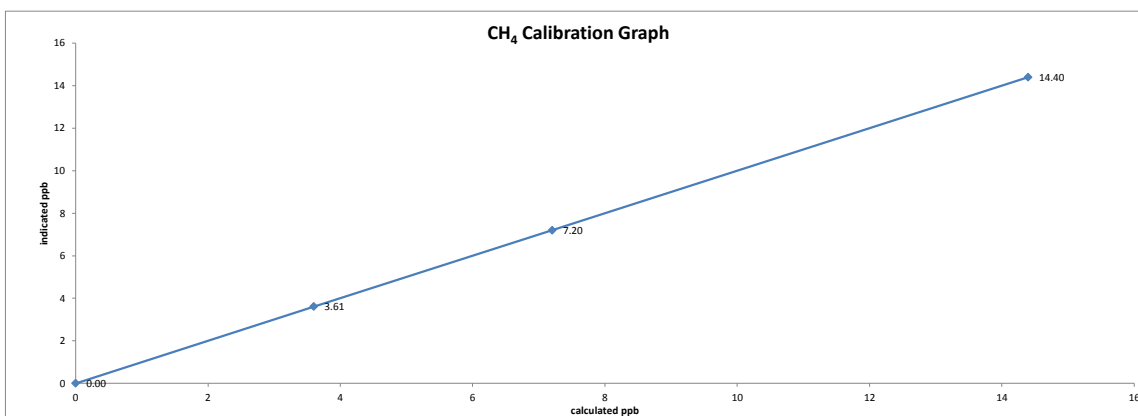
As Left Instrument Diagnostics:											
Interface Board Voltages:	Bias Supply:	-301.0	Calibration History cnt'd:	NM Peak Area:	88900						
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8						
	Filter:	175.0		Methane End:	16						
	Column Oven:	75.0		Backflush:	18						
	Internal:	36.8		NMHV Start:	26						
Cylinder Pressures/reg.:	Carrier:	1000 50		NMHC End:	56						
	Fuel:	1700 50	Run History>1:	Date:	28JUN2018						
	Span Gas:	1200 18		Time:	15:25						
	Zero Air Generator:	50		CH ₄ PK HT:	4739						
Internal Pressures:	Carrier:	31.7		CH ₄ RT:	13.4						
	Fuel:	37.6		CH ₄ Baseline:	43						
	Air:	34.3		CH ₄ LOD:	224						
FID Status:	Status:	LIT		CH ₄ SD:	74						
	Counts:	24407		CH ₄ CONC:	3.62						
	Flame:	359.0		NM PK HT:	701						
	Det Base:	175		NM Peak Area:	22277						
Flame and Power Stats:	Last Power On:	27JUN2018 18:05:53		NM CONC:	3.42						
	Flameouts:	3		NM Base Start:	1						
	Det Oven at Start:	169.8		NM Base End:	21						
	Col Oven at Start:	75.1		NM LOD:	7						
Calibration History:	Time:	28JUN18 14:16		NM Start IDX:	4						
	Type:	SPAN		NM End IDX:	92						
	Status:	GOOD		NM Max Slope:	3.8e+01						
	Check/Adjust:	ADJUST		NM Min Slope:	-2.7e+01						
	CH ₄ Span Conc:	14.4	Expected Values:	NM PT Count:	83						
	CH ₄ SP Ratio:	0.000764		Previous CH4:	10.08						
	CH ₄ RT:	13.4		Previous NMHC:	10.95						
	CH ₄ PK IDX:	27		Previous THC:	21.04						
	CH ₄ PK HT:	18848		New CH4:	10.23						
	NM Span Conc:	13.66		New NMHC:	11.21						
	NM SP Ratio:	0.000154		New THC:	21.44						

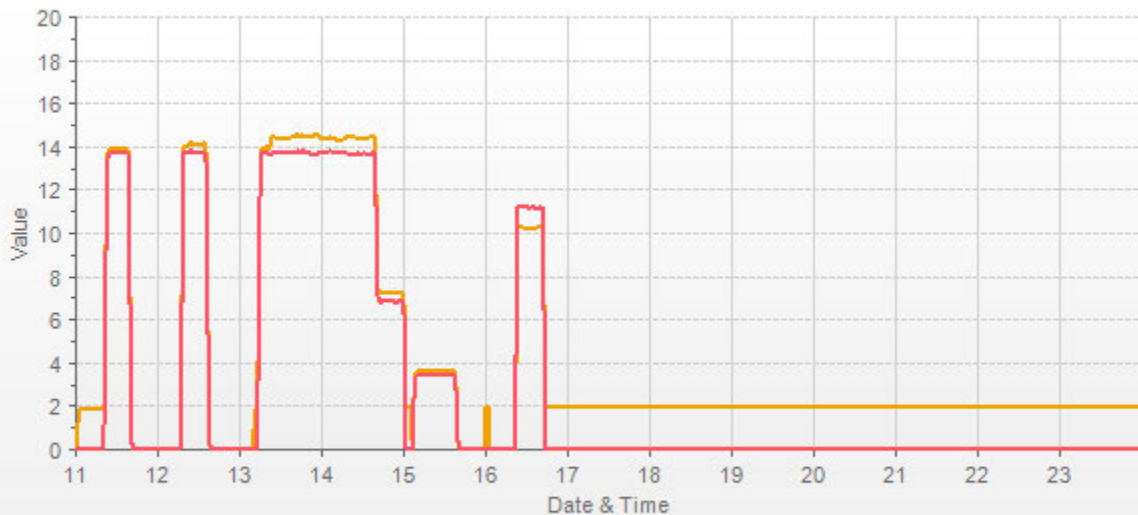
Comments:

Performed column conditioning overnight. The N2 purifier and actuator was changed. The zero chromatogram was enabled to perform a zero calibration.

Date: June 28, 2018
Company/Airshed: PRAMP
Location/Station Name: 842B

Start/End Time 24 hr. (mst): 12:50/16:47
Calibration Purpose: post repair
Calibration Method: Gas Dilution





CH4[ppm] NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Tom Bourque
Audit Date:	August 30, 2017	Start /EndTime (mst):	10:50 / 11:20
Calibration Purpose:	installation	Weather Conditions:	Cloudy/Overcast

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1V
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200kmh
Serial #:	124638	Direction Voltage Output Range:	0-1V
Previous Cal/Audit Date:	n/a or unknown	Direction Unit Output Range:	0-360°

Wind Calibrator Information

Calibrator Make/ Model:	RM Young	Serial #:	CA 4039
Maxxam Unit ID #:	n/a	Certification Date:	February 24, 2017

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.1	0.1	-
1000	18.4	18.4	18.5	1.000
2000	36.9	36.7	36.7	1.004
3000	55.3	55.1	55.1	1.004
4000	73.7	73.4	73.4	1.004
5000	92.2	91.8	91.8	1.004
6000	110.6	110.2	110.2	1.003
7000	129.0	128.6	128.6	1.003
8000	147.4	147.1	147.0	1.003
9000	165.9	165.5	165.5	1.002
10000	184.3	184.2	184.1	1.001
The audit meets AMD requirements.			Average Correction Factor=	1.003

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	1	353	0.5	2.0	1.3
30	330	28	329	2.0	1.0	1.5
60	300	59	299	1.0	1.0	1.0
90	270	89	269	1.0	1.0	1.0
120	240	118	239	2.0	1.0	1.5
150	210	149	209	1.0	1.0	1.0
180	180	178	179	2.0	1.0	1.5
210	150	208	150	2.0	0.0	1.0
240	120	238	119	2.0	1.0	1.5
270	90	268	89	2.0	1.0	1.5
300	60	298	59	2.0	1.0	1.5
330	30	328	29	2.0	1.5	1.8
355	0	353	0	2.0	0.4	1.2
The audit meets AMD requirements.			Average Absolute Degrees Difference=		1.3	

Comments:

METEOROLOGICAL SYSTEMS CHECK



Meteorological System Checklist

Date:	June 4, 2018		
Technician:	Chris Wesson		
Reviewer:	Rob Fisher		
Station:	PRAMP 842b		
Unit:	Make:	Model:	Serial #:
Temperature Sensor:	Campbell	HMP45C	C2608
Barometric Pressure Sensor:	MetOne	92	K12864
Relative Humidity Sensor:	Campbell	HMP45C	C2608
Anemometer:	RM Young	05305VK	124638
AMBIENT TEMPERATURE SENSOR CHECK			
Previous check date:	May 8, 2018		
Parameter:	Temperature @ 2 metres (1 C tolerance)		
Reference Thermometer ID:	Brunton 05490 expires December 11, 2018		
Reference Temperature (°C):	11.0		
Station - Ambient Temperature (°C):	10.7		
Temperature Difference (°C):	0.3		
BAROMETRIC PRESSURE SENSOR CHECK			
Previous check date:	May 8, 2018		
Reference Barometer ID:	Brunton 05490 expires December 11, 2018		
Reference Pressure - Units/Reading:	mbar	932.9	
Station Pressure - Units/Reading:	mbar	934.5	
Pressure Tolerance +/- 15% of error:	793 - 1073	-0.17%	
ANEMOMETER - WIND SPEED & WIND DIRECTION SENSOR CHECK			
WIND SPEED		WIND DIRECTION	
Previous check date:	May 8, 2018	Previous check date:	May 8, 2018
Wind Speed Observed (kph):	~10 - 20	Wind Direction Observed:	W
Wind speed on Data Logger (kph):	14	Wind Direction on Data Logger:	W
Correction Factor: Tolerance +/-2%:	n/a	Wind Direction Pass/Fail?:	Pass

CALIBRATORS

Company <u>Maxxam</u>		Operator: <u>Christopher</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>API 700</u>	Make/Model	<u>Mesa 530+</u>
Serial Number	<u>829</u>	Serial Number	<u>H-156312 L-156151</u>
Last Verification Date	<u>January 2017</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>EY0000715</u>	Barometric Pressure	<u>N/A</u>
NO [PPM]	<u>50.7</u>	NOx [PPM]	<u>50.8</u>
Expiry Date	<u>May 2020</u>		

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4950	79.8	0.787	0.788	0.783	-0.001	0.781	-1%	-1%
4958	37.2	0.380	0.381	0.378	-0.001	0.377	-1%	-1%
4960	18.5	0.189	0.189	0.188	-0.001	0.187	-1%	-1%
Absolute Average Percent Difference							1%	1%

LINEAR REGRESSION ANALYSIS

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

<u>NO</u>		<u>LIMITS</u>	<u>NOx</u>	
Correlation=	1.0000	≥ 0.990	Correlation=	1.0000
m (Slope)=	0.9949	0.90-1.10	m (Slope)=	0.9912
b (Intercept % of FS)=	-0.0030	± 3% F.S.	b (Intercept % of FS)=	-0.0257

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

LINEAR REGRESSION ANALYSIS

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

<u>NO₂</u>		<u>LIMITS</u>
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9938	0.90-1.10
b (Intercept % of FS)=	0.1802	± 3% F.S.

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

COMMENTS:

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: January 31, 2018
Location: McIntyre Center Edmonton

Company: Maxxam

Operator: Christopher

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

Flow Measurements

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

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

LINEAR REGRESSION ANALYSIS

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

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

AENV Standards

Audit Calibrator

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

SO₂ Analyzer

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

COMMENTS:

Auditor: Al Clark

Operator Signature: 

Date: January 31, 2018

Location: McIntyre Center Edmonton

Company: Maxxam		Operator: Chris W	
Calibrator:		Flow Measurement Device:	
Make/Model	Envionics 2000	Make/Model	Mesa Defender 530
Serial Number	1991	Serial Number	L-153351 H-152571
Last Verification Date	March 2017	Temperature (°C)	25.0 C
NO Cylinder S/N	LL108015	Barometric Pressure	695 mmHg
NO [PPM]	52.2	NOx [PPM]	52.3
Expiry Date	Oct 2020		

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

Calibrator Flow (sccm)		Calculated Conc.(ppm)		Indicated Conc.(ppm)			% Difference vs Audit Gas	
Dilution	Gas	NO	NOx	NO	NO ₂	NOx	NO	NOx
5000	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
4988	75.1	0.786	0.787	0.785	-0.002	0.783	0%	-1%
4988	36.5	0.382	0.383	0.382	0.001	0.383	0%	0%
4988	18.3	0.192	0.192	0.190	0.000	0.190	-1%	-1%
Absolute Average Percent Difference							0%	1%

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

NO	LIMITS	NOx
Correlation= 1.0000	≥ 0.990	Correlation= 1.0000
m (Slope)= 0.9996	0.90-1.10	m (Slope)= 0.9956
b (Intercept % of FS)= -0.0599	± 3% F.S.	b (Intercept % of FS)= -0.0005

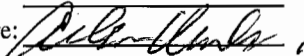
Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
4988	0.000	0.000	0.788	-0.001	0.787	NO ₂	% Diff. Limit
4988	0.350	0.519	0.269	0.512	0.780	-1%	± 10%
4988	0.160	0.231	0.557	0.229	0.786	0%	± 10%
4988	0.070	0.099	0.689	0.097	0.787	-1%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

NO₂	LIMITS	
Correlation= 1.0000	≥ 0.995	
m (Slope)= 0.9885	0.90-1.10	
b (Intercept % of FS)= -0.0567	± 3% F.S.	

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

COMMENTS: Cylinder contains 47.9 ppm SO₂.

Auditor: Al Clark
Operator Signature: 

Date: March 15, 2018
Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-486CGA

Company: Maxxam Operator's Name: Mike
Cylinder #: LL108015 Concentration PPM: 47.9 Tolerance(%) 2 Certified By: Praxair
Expiry Date: October 2020

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
Serial Number: AMU 1690
Last Verification Date: December 13, 2017
Gas Type: SO2 Conc. 98.07
Cylinder Number: CAL016625
Expiry Date: January 2019

Flow Measurement Device:

Make/Model: Mesa Definer 220
Serial Number: H-133034 / L-132702
Temp. °C: 23.4 C
B.P. 707 mmHg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
Instrument Settings: Zero: 10.0 Span: 1.006 Range: 1.0
Last Calibration: Date: Dec12/17 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000			
4989	79.5	0.760	0.01594	62.755	47.7
4995	39.6	0.374	0.00793	126.136	47.2
4992	19.6	0.183	0.00393	254.694	46.6
Average Cylinder Concentration:					47.2

Previous Stated Concentration PPM: 47.9

Percent variance from Stated: 2

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

Auditor: Al Clark
Operator Signature: *Al Clark*

Date: December 13, 2017
Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2017-137CGA

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 75

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

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

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

Auditor: Al Clark

Date: July 27, 2017

Operator Signature: *Al Clark*

Location: McIntyre Center Edmonton



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-484CGA

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

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

Cylinder gas tolerances based on CH₄ only

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

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



Calibration Gas Audit

CH₄ / C₃H₈ Cylinder Gas

File No. 2017-488CGA

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

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

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

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

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

Cylinder gas tolerances based on CH₄ only

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

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

APPENDIX III
MAXIMUM INSTANTANEOUS DATA



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

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

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

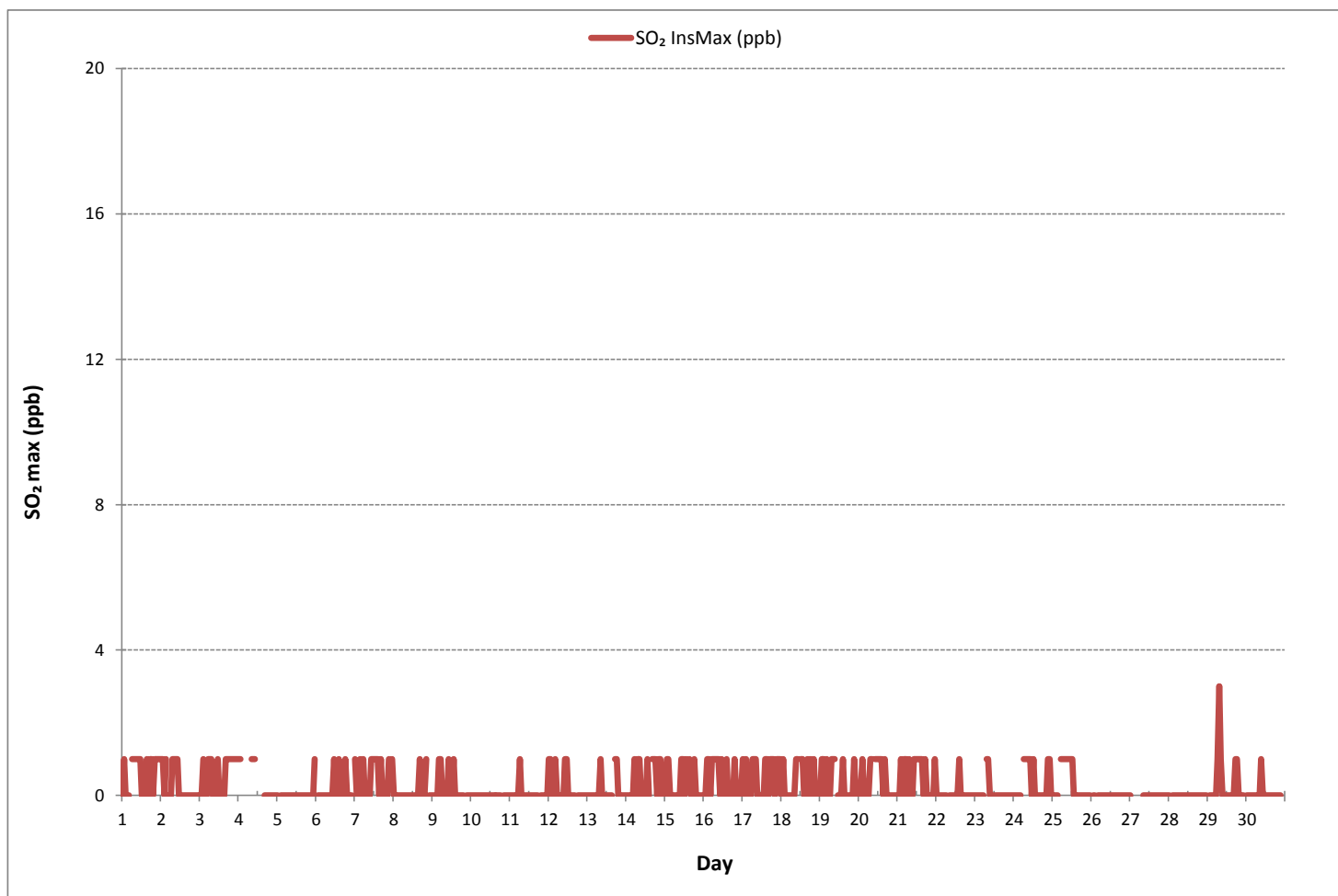
STATUS FLAG CODES

C	- MONTHLY SRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT SRATION	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:	171
MAXIMUM INSTANTANEOUS VALUE:	3 ppb @ HOUR 7 ON DAY 29
IZS SRATION TIME:	32 hrs
MONTHLY SRATION 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 - June 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	0.22	0.20	0.22	0.22	0.22	S	0.25	0.22	0.20	0.20	0.22	0.20	0.22	0.20	0.20	0.17	0.15	0.17	0.17	0.20	0.20	0.22	0.22	0.20	0.15	0.25	0.20	24	
2	0.22	0.22	0.25	0.25	S	0.28	0.33	0.25	0.30	0.28	0.22	0.22	0.20	0.20	0.17	0.20	0.20	0.17	0.17	0.17	0.20	0.41	0.54	0.25	0.17	0.54	0.25	24	
3	0.22	0.28	0.25	S	0.59	0.62	0.43	0.28	0.22	0.28	0.20	0.22	0.20	0.23	0.17	0.25	0.23	0.20	0.20	0.36	0.20	0.23	0.20	0.23	0.17	0.62	0.27	24	
4	0.23	0.23	S	0.28	P	P	P	P	C	C	C	C	C	C	C	0.23	0.23	0.20	0.18	0.20	0.20	0.20	0.18	0.15	0.17	0.15	0.28	0.21	20
5	0.20	S	0.25	0.25	0.28	0.28	0.20	0.20	0.22	0.15	0.20	0.20	0.20	0.20	0.20	0.22	0.20	0.17	0.20	0.17	0.20	0.17	0.17	0.20	0.15	0.28	0.21	24	
6	S	0.20	0.20	0.20	0.23	0.25	0.25	0.23	0.20	0.17	0.20	0.20	0.20	0.20	0.22	0.20	0.17	0.20	0.20	0.22	0.25	0.25	0.30	S	0.17	0.30	0.22	24	
7	0.28	0.22	0.28	0.33	0.33	0.25	0.22	0.22	0.22	0.22	0.22	0.20	0.20	0.17	0.20	0.17	0.20	0.17	0.17	0.17	0.17	0.20	0.17	S	0.25	0.17	0.33	0.22	24
8	0.25	0.25	0.33	0.25	0.30	0.30	0.25	0.22	0.25	0.20	0.17	0.17	0.15	0.15	0.17	0.12	0.17	0.15	0.17	0.17	0.22	S	0.17	0.22	0.12	0.33	0.21	24	
9	0.20	0.23	0.20	0.20	0.28	0.26	0.30	0.25	0.20	0.23	0.22	0.20	0.20	0.20	0.20	0.17	0.20	0.17	0.12	0.15	S	0.17	0.17	0.20	0.12	0.30	0.21	24	
10	0.15	0.25	0.25	0.25	0.20	0.30	0.28	0.17	0.20	0.20	0.17	0.17	0.12	0.09	0.12	0.09	0.12	0.12	0.12	S	0.15	0.12	0.15	0.15	0.09	0.30	0.17	24	
11	0.17	0.15	0.15	0.15	0.17	0.25	0.23	0.17	0.17	0.17	0.15	0.15	0.17	0.12	0.15	0.12	0.17	0.17	S	0.17	0.15	0.12	0.12	0.12	0.12	0.25	0.16	24	
12	0.17	0.20	0.20	0.12	0.20	0.20	0.22	0.15	0.17	0.15	0.12	0.17	0.15	0.17	0.15	0.20	0.12	S	0.22	0.15	0.15	0.15	0.23	0.18	0.12	0.23	0.17	24	
13	0.15	0.17	0.15	0.17	0.15	0.15	0.17	0.22	0.15	0.18	0.18	0.15	0.15	0.17	0.17	0.15	S	0.23	0.20	0.17	0.17	0.15	0.12	0.12	0.12	0.23	0.16	24	
14	0.15	0.12	0.09	0.20	0.15	0.20	0.20	0.20	0.17	0.17	0.15	0.17	0.17	0.15	0.15	S	0.17	0.15	0.15	0.15	0.15	0.17	0.17	0.17	0.09	0.20	0.16	24	
15	0.12	0.17	0.15	0.20	0.17	0.33	0.23	0.17	0.15	0.15	0.17	0.17	0.17	0.15	S	0.20	0.14	0.12	0.17	0.12	0.15	0.20	0.20	0.20	0.12	0.33	0.17	24	
16	0.17	0.22	0.17	0.17	0.20	0.22	0.25	0.17	0.28	0.17	0.17	0.15	0.17	S	0.17	0.15	0.15	0.15	0.12	0.15	0.15	0.17	0.15	0.20	0.12	0.28	0.18	24	
17	0.15	0.20	0.22	0.22	0.20	0.20	0.22	0.15	0.17	0.17	0.15	0.15	S	0.17	0.15	0.12	0.12	0.17	0.15	0.17	0.25	0.30	0.36	0.30	0.12	0.36	0.19	24	
18	0.36	0.25	0.20	0.23	0.36	0.33	0.25	0.25	0.20	0.20	0.20	S	0.12	0.17	0.12	0.12	0.12	0.15	0.15	0.22	0.51	0.57	0.64	0.41	0.12	0.64	0.27	24	
19	0.30	0.36	0.30	0.30	0.30	0.54	0.73	0.38	0.28	0.17	S	0.20	0.15	0.12	0.09	0.12	0.15	0.15	0.17	0.33	0.83	0.60	0.49	0.41	0.09	0.83	0.32	24	
20	0.28	0.30	0.30	0.41	0.43	0.44	0.38	0.28	0.26	S	0.25	0.20	0.17	0.15	0.09	0.12	0.09	0.07	0.15	0.36	0.28	0.22	0.20	0.17	0.07	0.44	0.24	24	
21	0.43	0.43	0.38	0.49	0.49	0.67	0.64	0.49	S	0.22	0.22	0.17	0.25	0.17	0.17	0.15	0.15	0.09	0.12	0.22	0.38	0.17	0.17	0.20	0.09	0.67	0.30	24	
22	0.22	0.22	0.38	0.54	0.39	0.33	0.28	S	0.28	0.28	0.20	0.17	0.15	0.15	0.12	0.12	0.12	0.12	0.17	0.59	0.59	0.44	0.44	0.43	0.12	0.59	0.29	24	
23	0.41	0.57	0.85	4.42	3.94	0.88	S	0.43	0.62	0.23	0.17	0.18	0.17	0.09	0.09	0.09	0.09	0.07	0.12	0.25	0.20	0.22	0.28	0.33	0.07	4.42	0.64	24	
24	0.54	0.44	0.85	0.41	0.92	S	0.17	0.20	0.17	0.15	0.15	0.09	0.09	0.12	0.12	0.15	0.12	0.12	0.09	0.17	0.20	0.33	0.36	0.20	0.09	0.92	0.27	24	
25	0.25	0.30	0.39	0.46	S	0.62	0.62	0.38	0.30	0.23	0.23	0.30	0.25	0.20	0.12	0.07	0.07	0.09	0.09	0.17	0.05	0.15	0.09	0.15	0.05	0.62	0.24	24	
26	X	0.30	0.85	S	0.96	1.03	0.25	0.15	0.17	0.12	0.12	0.15	0.12	0.10	0.15	0.12	0.12	0.18	0.12	0.26	0.15	0.22	0.20	0.36	0.10	1.03	0.28	23	
27	0.38	P	P	P	P	P	P	S	0.12	0.12	0.09	0.09	0.07	0.12	0.09	0.10	0.12	0.12	0.12	0.25	0.28	0.28	0.36	0.41	0.07	0.41	0.18	18	
28	0.95	S	1.41	1.32	1.93	1.54	0.80	0.46	0.36	0.36	0.30	0.46	0.62	0.30	0.28	0.30	0.30	0.33	0.33	0.38	0.39	0.49	0.57	0.59	0.28	1.93	0.64	24	
29	S	1.17	0.49	0.64	0.70	0.64	0.72	0.64	0.56	0.49	0.49	0.38	0.38	0.33	0.33	0.33	0.36	0.36	0.38	0.30	0.33	0.90	0.49	S	0.30	1.17	0.52	24	
30	0.62	0.80	0.59	1.01	1.32	1.14	0.80	0.46	0.46	0.41	0.36	0.30	0.30	0.28	0.30	0.28	0.30	0.28	0.33	0.30	0.36	0.38	S	0.67	0.28	1.32	0.52	24	
HOURLY MAX	0.95	1.17	1.41	4.42	3.94	1.54	0.80	0.64	0.62	0.49	0.49	0.46	0.62	0.33	0.33	0.33	0.36	0.36	0.38	0.59	0.83	0.90	0.64	0.67					
HOURLY AVG	0.29	0.31	0.37	0.51	0.59	0.47	0.36	0.27	0.25	0.22	0.20	0.20	0.20	0.17	0.17	0.17	0.17	0.17	0.17	0.23	0.26	0.28	0.28	0.27					

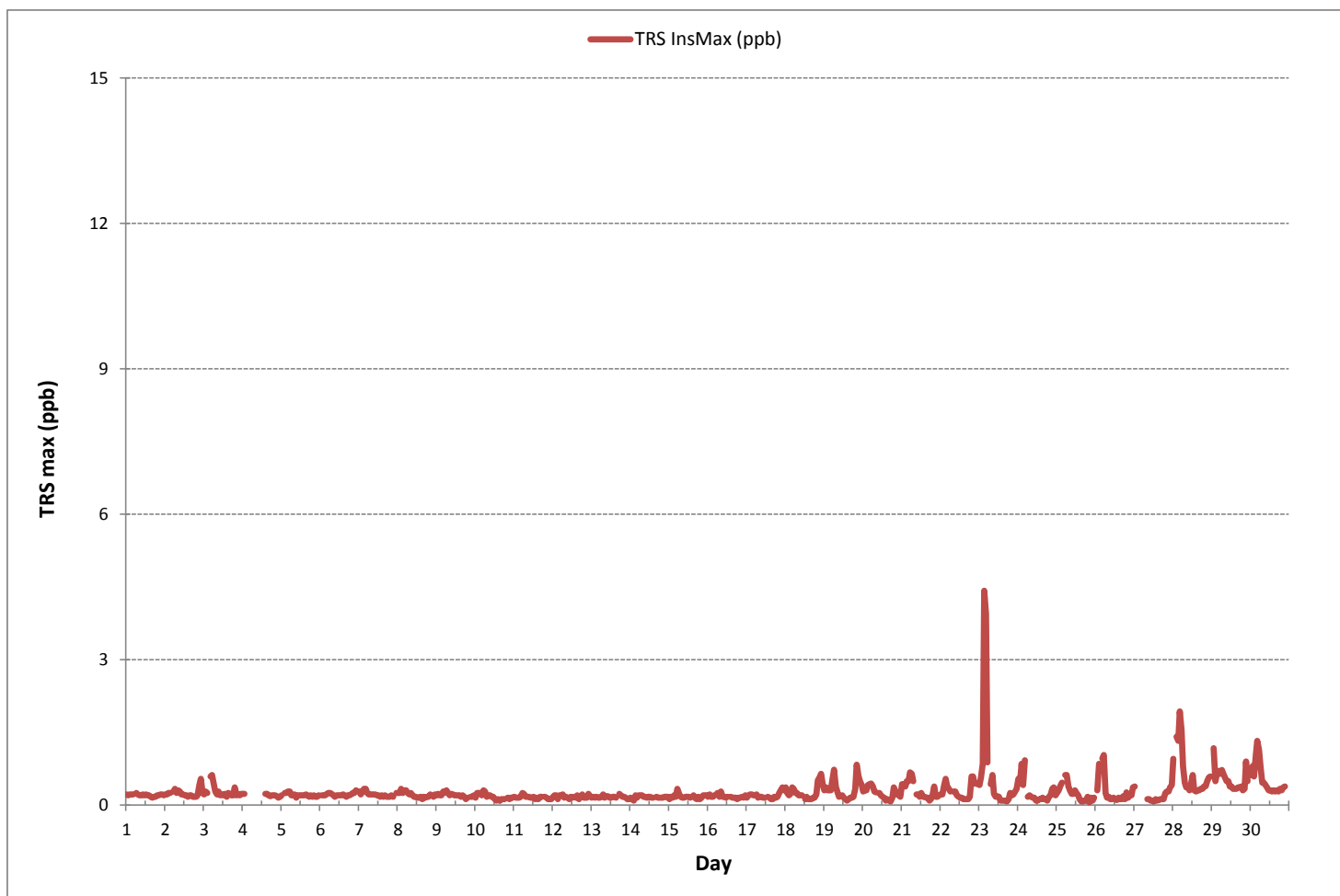
STATUS FLAG CODES

C	- MONTHLY SRATION	Q	- QUALITY ASSURANCE
C1	- REPEAT SRATION	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:	671				
MAXIMUM INSTANTANEOUS VALUE:	4.42	ppb	@ HOUR	3	ON DAY 23
IZS SRATION TIME:	32	hrs	OPERATIONAL TIME:	709	hrs
MONTHLY SRATION TIME:	6	hrs			
STANDARD DEVIATION:	0.29				

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - June 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	2.02	2.03	2.03	2.04	2.01	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.01	2.04	2.03	6	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
4	X	X	X	X	P	P	P	P	C	C	C	C	C	X	X	X	X	X	X	X	X	X	X	X	-	-	-	5	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
8	X	X	X	X	X	X	X	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	-	-	-	-	
10	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
18	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	
19	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	
28	X	X	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	1.93	1.93	1.93	1.93	1.95	1.97	1.95	1.96	1.93	1.97	1.95	7
29	S	1.97	1.94	1.95	1.96	1.97	1.97	1.95	1.97	1.97	1.97	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.94	1.94	1.94	S	1.92	1.97	1.95	24	
30	1.95	1.96	1.94	1.96	1.98	1.98	1.96	1.96	1.96	1.95	1.94	1.94	1.93	1.93	1.92	1.92	1.93	1.93	1.92	1.92	1.92	1.93	S	1.98	1.92	1.98	1.94	24	
HOURLY MAX	2.02	2.03	2.03	2.04	2.01	1.98	1.97	1.96	1.97	1.97	1.97	1.96	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.95	1.94	1.97	1.95	1.98					
HOURLY AVG	1.99	1.99	1.97	1.98	1.98	1.98	1.97	1.96	1.97	1.96	1.96	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.93	1.95	1.95	1.97					

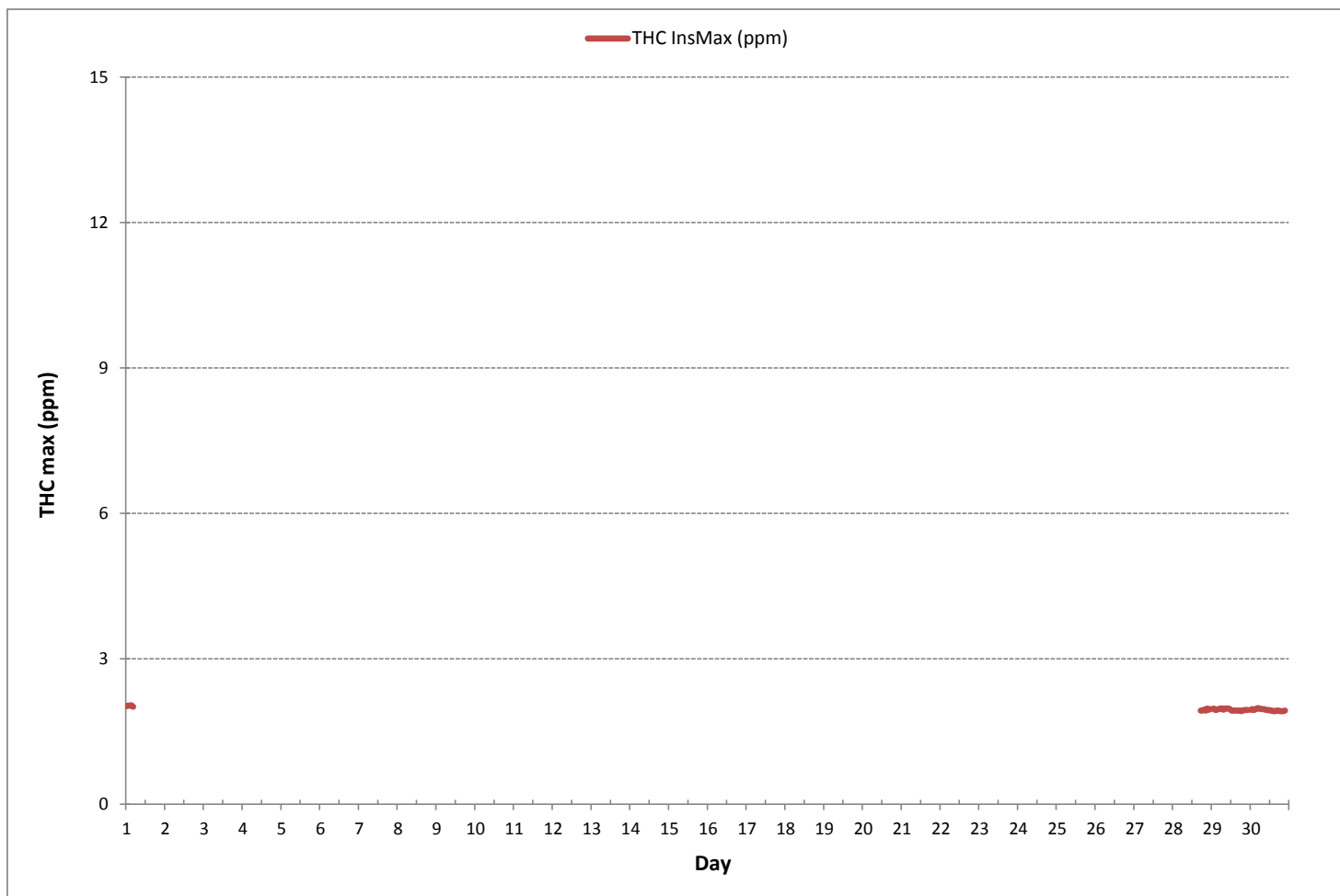
STATUS FLAG CODES

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:	57
MAXIMUM INSTANTANEOUS VALUE:	2.04 ppm @ HOUR 3 ON DAY 1
IZS CALIBRATION TIME:	4 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.03
OPERATIONAL TIME:	66 hrs

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - June 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	2.01	2.02	2.02	2.02	1.99	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.99	2.02	2.01	6
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
4	X	X	X	X	P	P	P	P	C	C	C	C	C	X	X	X	X	X	X	X	X	X	X	X	-	-	-	5
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
8	X	X	X	X	X	X	X	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y	Y	-	-	-	-
10	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
18	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
19	Y	Y	Y	Y	Y	Y	Y	Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-
28	X	X	X	X	X	X	X	X	X	X	X	X	C1	C1	C1	C1	C1	1.93	1.94	1.95	1.93	1.97	1.95	1.95	1.93	1.97	1.95	7
29	S	1.97	1.94	1.95	1.95	1.98	1.97	1.95	1.98	1.97	1.98	1.97	1.93	1.93	1.93	1.93	1.93	1.93	1.92	1.93	1.95	1.95	1.95	S	1.92	1.98	1.95	24
30	1.95	1.96	1.93	1.97	1.99	1.98	1.95	1.95	1.95	1.95	1.94	1.94	1.93	1.92	1.91	1.92	1.92	1.92	1.92	1.92	1.92	1.93	S	1.99	1.91	1.99	1.94	24
HOURLY MAX	2.01	2.02	2.02	2.02	1.99	1.98	1.97	1.95	1.98	1.97	1.98	1.97	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.95	1.95	1.97	1.95	1.99				
HOURLY AVG	1.98	1.98	1.96	1.98	1.98	1.98	1.96	1.95	1.97	1.96	1.96	1.96	1.93	1.93	1.92	1.93	1.93	1.93	1.93	1.93	1.93	1.95	1.95	1.97				

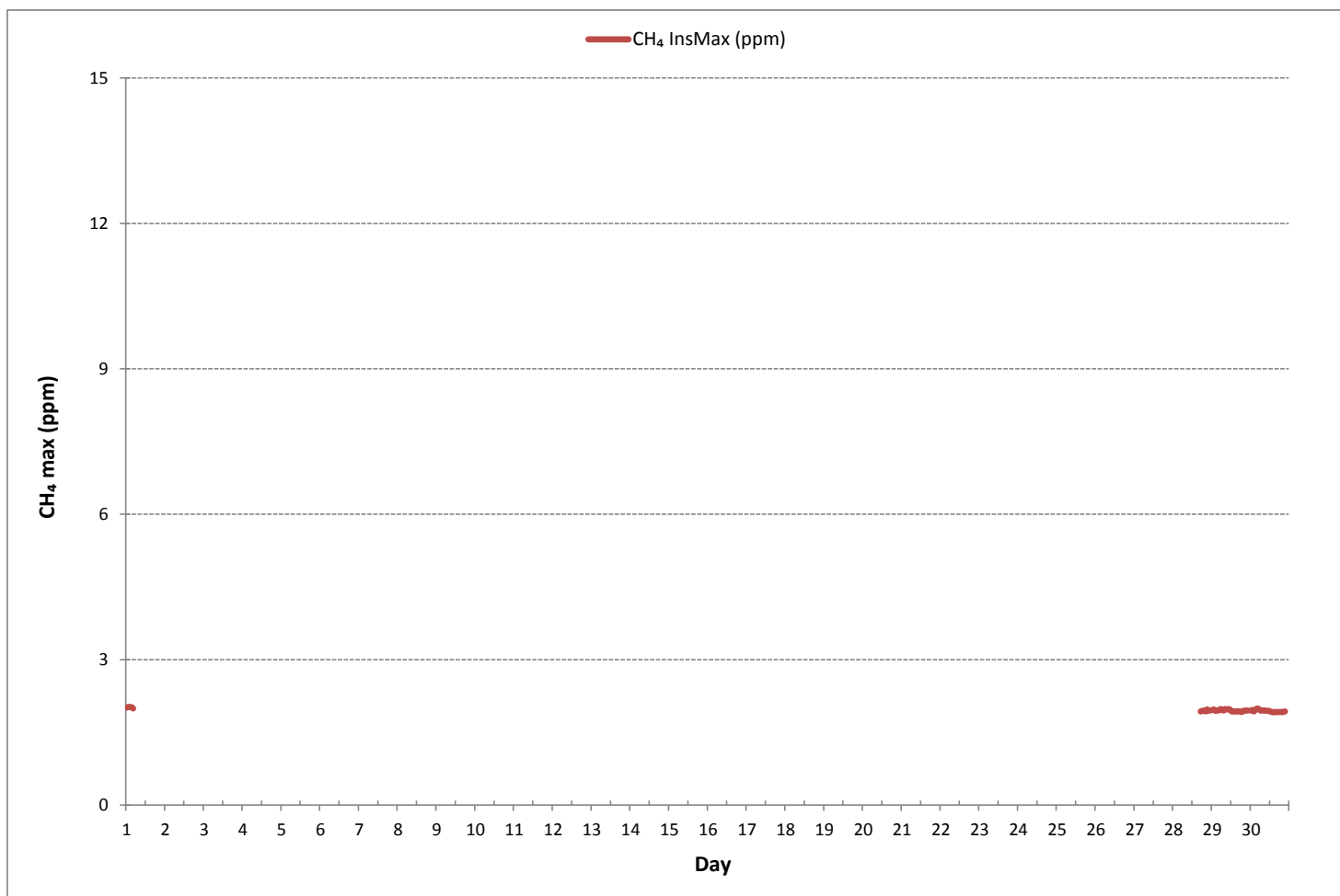
STATUS FLAG CODES

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:	57
MAXIMUM INSTANTANEOUS VALUE:	2.02 ppm @ HOUR 1 ON DAY 1
IZS CALIBRATION TIME:	4 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.03
OPERATIONAL TIME:	66 hrs

METHANE MAX Instantaneous Maximum (CH₄ ppm)





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

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

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

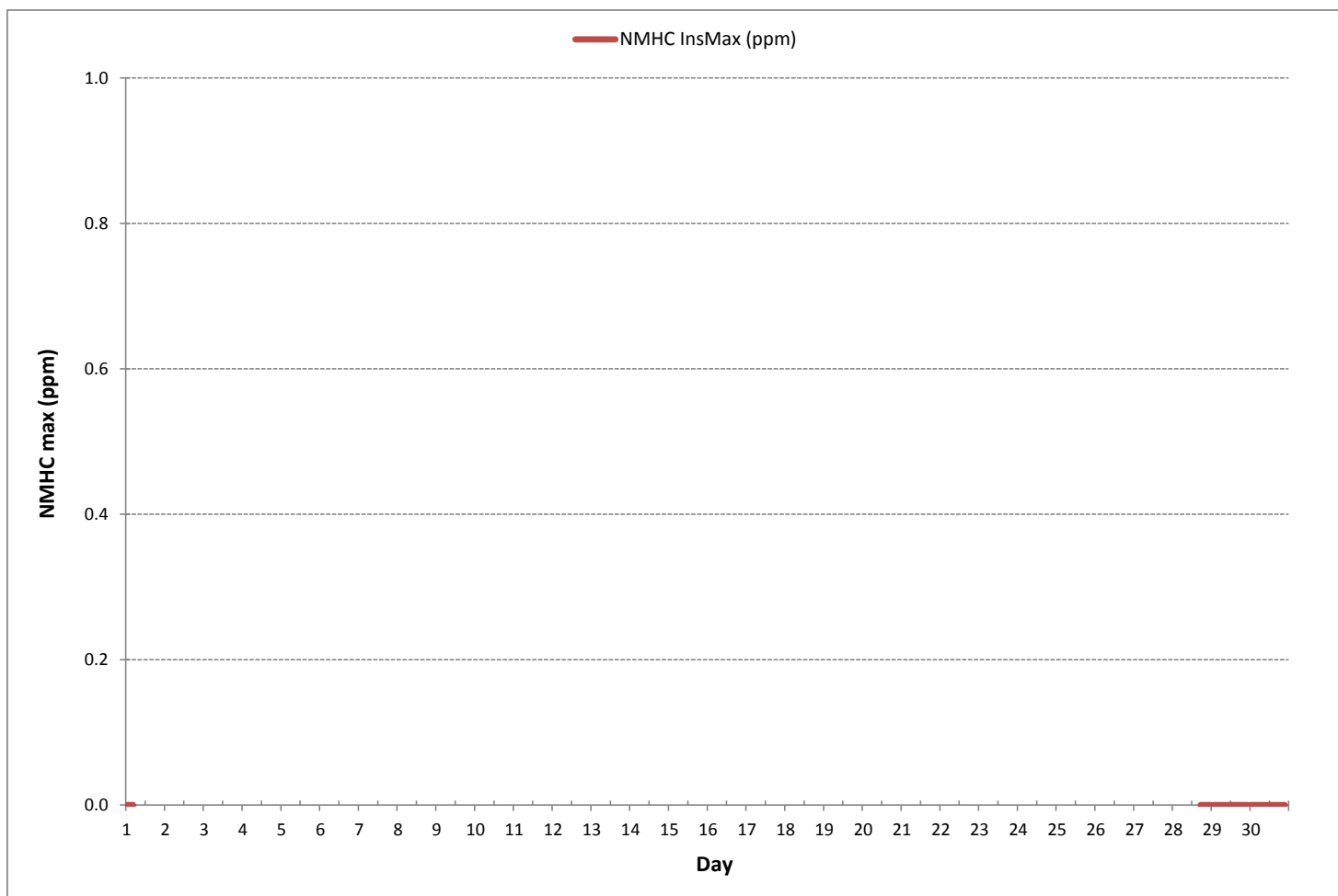
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	0
MAXIMUM INSTANTANEOUS VALUE:	0.00 ppm @ HOUR 0 ON DAY 1
IZS CALIBRATION TIME:	4 hrs
MONTHLY CALIBRATION TIME:	5 hrs
STANDARD DEVIATION:	0.00
OPERATIONAL TIME:	66 hrs

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)





PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
Three Creeks 842b Station - June 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	16.7	14.0	19.0	13.2	10.7	8.7	10.3	22.1	28.6	28.6	34.8	29.4	37.0	33.5	33.7	24.0	27.4	23.5	23.9	22.2	6.7	3.6	4.0	6.8	3.6	37.0	20.1	24
2	9.3	12.6	9.2	7.5	9.5	7.0	22.4	23.8	16.0	24.1	27.0	32.5	35.7	43.2	44.6	38.6	37.1	43.2	42.5	36.2	33.0	17.0	7.0	9.6	7.0	44.6	24.5	24
3	8.0	7.7	4.2	8.2	7.5	7.7	10.9	10.3	8.0	12.5	14.1	22.5	18.3	23.3	24.2	26.9	17.5	18.4	23.2	20.0	26.8	36.0	42.5	41.8	4.2	42.5	18.4	24
4	34.4	25.2	33.2	36.8	P	P	P	P	31.3	35.9	27.3	32.2	26.2	37.1	37.8	32.4	30.0	23.7	23.8	17.2	14.8	14.6	16.9	9.0	9.0	37.8	27.0	20
5	10.8	12.5	15.3	20.6	19.1	24.6	21.0	21.9	26.7	25.9	31.4	30.7	28.5	23.0	24.6	16.4	10.9	12.2	11.9	11.6	6.7	7.4	10.9	12.7	6.7	31.4	18.2	24
6	13.9	12.1	17.0	8.6	16.6	11.4	13.9	22.0	23.1	35.4	40.0	45.4	36.2	35.1	39.3	39.8	40.1	33.1	29.5	20.8	8.3	4.8	13.1	11.6	4.8	45.4	23.8	24
7	10.6	12.1	12.8	12.3	10.2	20.5	17.0	14.1	13.9	15.4	14.0	19.0	19.9	26.1	26.7	31.3	21.1	11.0	14.3	51.4	19.6	16.8	11.4	6.1	6.1	51.4	17.8	24
8	3.9	9.7	8.8	5.9	4.4	9.5	14.8	17.7	21.2	22.6	23.1	22.0	28.9	18.0	17.9	16.3	10.9	20.9	22.5	12.2	22.1	16.7	17.3	18.8	3.9	28.9	16.1	24
9	20.0	12.1	13.9	12.5	16.7	15.8	13.8	11.9	12.3	14.5	14.3	24.0	23.9	19.6	29.4	28.1	9.6	18.7	18.6	8.9	7.8	8.1	4.6	4.4	4.4	29.4	15.1	24
10	5.9	11.0	11.9	13.6	6.7	6.8	14.4	16.9	16.3	15.6	16.6	18.6	23.5	31.2	28.8	23.8	21.7	17.1	14.7	32.5	38.1	18.8	12.7	23.8	5.9	38.1	18.4	24
11	47.9	37.6	29.6	35.6	33.8	34.6	27.3	36.2	41.0	56.3	46.8	48.7	45.5	58.0	56.1	52.2	41.4	37.2	48.0	47.8	42.9	43.5	38.6	39.5	27.3	58.0	42.8	24
12	41.8	39.1	37.3	42.4	42.1	36.7	42.1	44.3	35.6	30.7	44.1	34.5	26.9	36.2	28.3	33.7	27.3	21.4	16.3	15.0	9.2	10.0	8.0	15.3	8.0	44.3	29.9	24
13	14.5	13.4	8.8	10.7	15.4	18.8	19.4	20.2	8.0	9.8	17.9	21.1	24.9	21.4	18.5	20.5	21.4	28.3	21.8	18.4	18.8	14.3	15.7	22.4	8.0	28.3	17.7	24
14	8.8	3.6	8.9	6.3	4.5	5.5	4.2	7.3	9.8	16.8	17.4	15.9	19.7	20.5	18.8	18.9	18.9	19.0	18.5	18.0	15.1	7.7	5.2	6.1	3.6	20.5	12.3	24
15	6.9	6.9	9.2	9.0	5.8	9.6	15.3	15.2	16.3	19.0	18.0	25.1	24.9	25.8	27.1	25.3	25.5	28.4	38.1	17.0	8.8	3.7	2.7	2.2	2.2	38.1	16.1	24
16	3.4	2.1	3.1	3.1	4.5	4.2	9.3	12.7	14.2	18.5	20.5	22.9	17.7	18.4	23.3	22.0	26.4	23.6	19.6	18.0	13.5	14.5	16.9	15.5	2.1	26.4	14.5	24
17	18.6	15.0	7.9	16.1	20.5	23.6	21.8	22.5	16.7	17.5	24.7	26.2	26.4	24.7	20.1	21.9	16.1	16.2	10.9	6.0	2.2	2.5	7.8	8.8	2.2	26.4	16.4	24
18	5.9	7.0	8.3	6.4	7.3	6.0	6.3	6.7	8.6	9.7	13.2	14.6	16.8	20.5	18.2	21.9	19.0	19.8	15.5	7.4	4.7	3.0	5.8	6.7	3.0	21.9	10.8	24
19	7.8	7.1	17.7	12.7	7.9	5.9	11.5	10.9	12.5	15.8	18.0	22.4	21.6	28.7	23.7	23.0	20.7	18.0	14.0	6.8	3.2	4.7	6.9	12.6	3.2	28.7	13.9	24
20	16.1	16.5	18.6	12.6	10.5	14.2	12.6	15.4	15.9	12.8	14.7	14.5	15.9	15.7	17.6	20.5	12.7	10.8	11.7	10.2	18.7	13.4	12.2	13.7	10.2	20.5	14.5	24
21	9.2	8.3	10.6	9.1	6.6	7.3	8.1	8.0	11.7	11.1	11.9	14.5	15.8	26.9	14.5	16.1	15.2	17.5	14.1	8.7	7.9	13.6	18.0	13.4	6.6	26.9	12.4	24
22	15.0	17.0	15.6	19.2	15.7	15.1	14.6	14.5	19.1	23.5	24.9	27.3	30.9	30.6	27.8	27.7	24.5	15.8	16.7	22.1	17.9	16.2	11.9	10.5	10.5	30.9	19.8	24
23	8.5	16.9	10.2	4.9	5.3	3.4	7.0	8.7	11.2	13.7	23.7	22.6	20.8	32.1	30.9	30.0	24.9	25.4	22.9	12.7	14.1	8.6	6.1	4.4	3.4	32.1	15.4	24
24	17.1	16.3	12.9	17.8	14.7	17.7	18.2	19.9	22.7	23.1	23.5	31.8	24.2	24.1	22.5	16.6	18.2	13.7	6.6	6.1	10.4	11.5	14.9	21.9	6.1	31.8	17.8	24
25	22.5	25.5	23.9	25.6	15.9	21.8	25.1	27.2	24.1	24.5	41.2	34.1	42.7	52.3	58.5	55.6	51.3	55.1	48.4	39.9	36.7	39.5	44.4	38.6	15.9	58.5	36.4	24
26	34.9	34.3	36.6	37.2	36.4	37.6	55.4	53.2	51.4	55.1	51.6	47.0	45.9	42.5	41.0	41.0	37.2	39.6	39.2	33.1	28.5	35.8	28.8	27.8	27.8	55.4	40.5	24
27	27.9	P	P	P	P	P	P	27.5	28.8	26.7	35.8	34.8	35.3	27.8	25.4	36.8	30.0	24.9	23.6	24.4	27.6	18.8	8.0	9.3	8.0	36.8	26.3	18
28	9.0	11.8	9.9	9.4	8.2	8.5	12.9	15.2	24.8	19.9	20.5	17.4	8.6	39.8	36.1	36.5	20.9	14.8	6.8	6.1	3.1	4.7	5.4	6.1	3.1	39.8	14.9	24
29	9.6	18.5	16.0	14.0	9.9	12.9	10.1	9.3	11.1	9.8	7.6	13.0	14.4	16.0	13.4	12.2	29.0	23.9	16.4	13.0	10.7	6.7	11.2	13.2	6.7	29.0	13.4	24
30	14.9	13.7	14.8	12.5	12.2	14.0	17.7	24.2	23.4	29.0	27.3	30.5	28.6	37.8	38.2	32.2	42.9	34.8	39.8	30.9	8.6	12.7	12.9	17.8	8.6	42.9	23.8	24
HOURLY MAX	47.9	39.1	37.3	42.4	42.1	37.6	55.4	53.2	51.4	56.3	51.6	48.7	45.9	58.0	58.5	55.6	51.3	55.1	48.4	51.4	42.9	43.5	44.4	41.8				

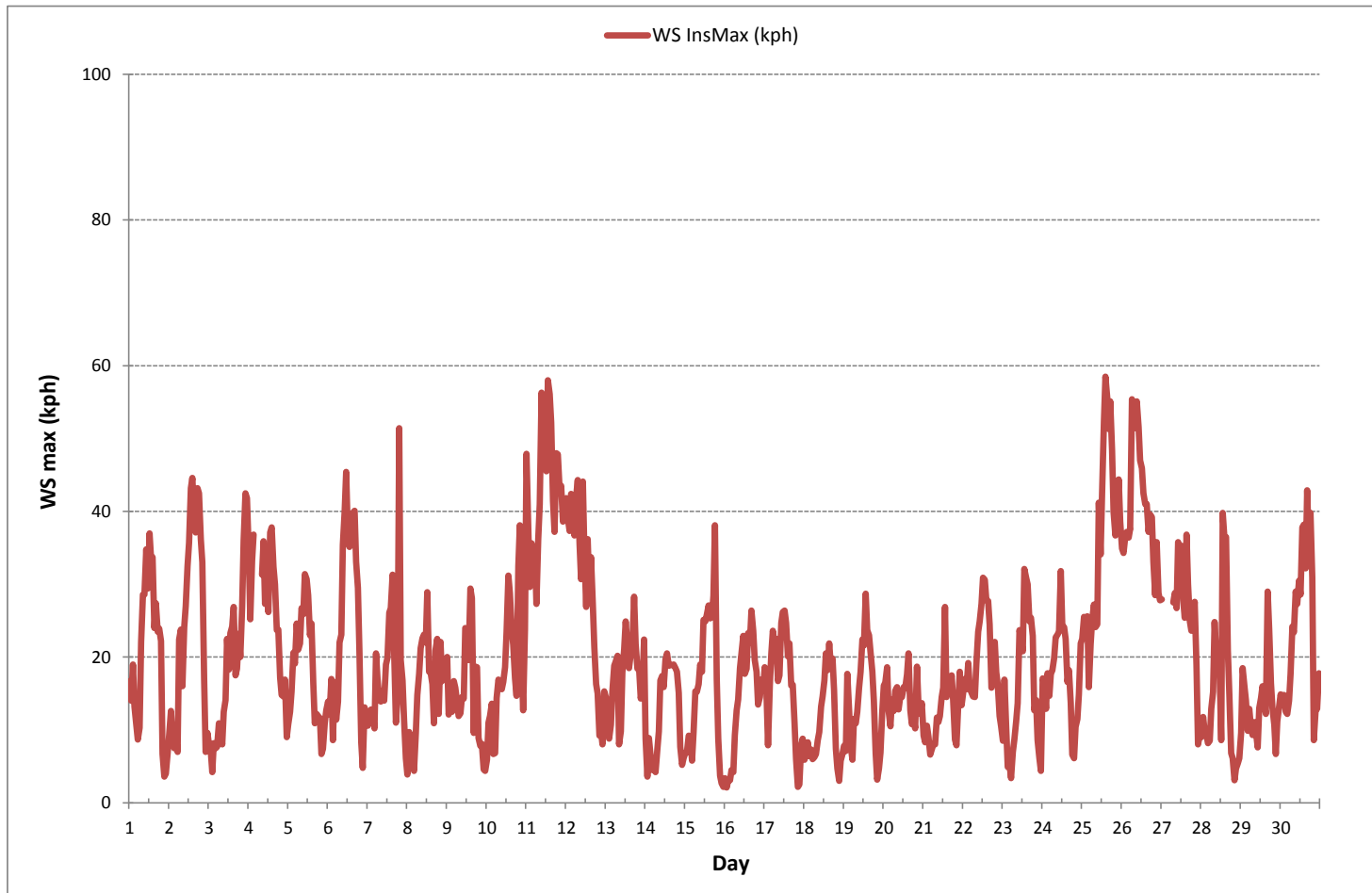
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	58.5	kph	@ HOUR	14	ON DAY	25
OPERATIONAL TIME:	710	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.

Cheri Sinclair

Signature of the External Person Certifying the Report

19 - Jul. - 2018

Report Issued Date (dd-mon-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM

Validation Certificate Form

Client: Peace River Area Monitoring Program Committee

Project #: 8449-2018-06-80-C

Site: Three Creeks 842b Station

Contact: Karla Reesor

Level 0 Preliminary Verification

Chris Sinclair

Date 11 - Jul. - 2018

Level 1 Primary Validation

Chris Sinclair

Date 11 - Jul. - 2018

Level 2 Final Validation

Chris Sinclair

Date 19 - Jul. - 2018

Level 3 Independent Data Review

Chris Sinclair

Date 19 - Jul. - 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.