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

JOB #: 8449-2017-02-80-C

February 2017

Prepared for:

PEACE RIVER AREA MONITORING PROGRAM COMMITTEE
MIKE BISAGA C/O PRAMP COMMITTEE
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Attention: KARLA REESOR

DATE: **March 29, 2017**

Prepared by:

A handwritten signature in blue ink, appearing to read "Wunmi Adekanmbi", is written over a horizontal line.

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Project Manager, Customer Service, Air Services

Reviewed by:

A handwritten signature in black ink, appearing to read "Cheri Sinclair", is written over a horizontal line.

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

SUMMARY

In February 2017, Maxxam Analytics was contracted to manage the ambient air quality monitoring and maintenance activities at the Three Creeks 842b Station, near Peace River Oil Sands Area 2, Alberta. The monitoring station provides continuous meteorological measurements and air quality data for compliance parameters, as requested by the PRAMP Committee.

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

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

An internal station audit was conducted on February 1. There were no documented findings and the audit report is included in Appendix IV.

TRS:

- The analyzer was upgraded to a trace level model on February 1.
- In total, fifty-three hours of downtime were recorded this month. Nineteen hours were attributed to the analyzer and converter upgrade. Thirty-four hours were recorded, between February 13 and February 15, due to additional quality checks and maintenance activities associated with a biased high span response.

Wind System: The wind system, RM Young 05305VK (s/n: 92411), was calibrated on February 14.

The summary of results is presented on the following pages.

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

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

Monthly Continuous Data Summary

Peace River Area Monitoring Program Committee Three Creeks 842b Station						MAXIMUM VALUES							OPERATIONAL TIME (%)
PARAMETER	OBJECTIVES		EXCEEDANCES		MONTHLY AVERAGE	READING	DAY	1-HOUR			24-HOUR		
	1-hr	24-hr	1-hr	24-hr				HOUR	WIND SPEED (kph)	WIND DIRECTION (sector)	READING	DAY	
SO ₂ (ppb)	172	48	0	0	0.1	2.5	6	16	6.5	NW	0.3	8, 9	100.0
TRS (ppb)	-	-	-	-	0.2	0.6	1, 1	1, 2	6.6 4.6	NW WNW	0.5	1	92.1
THC (ppm)	-	-	-	-	1.88	2.89	6	9	2.6	ENE	2.00	6	100.0
CH ₄ (ppm)	-	-	-	-	1.88	2.89	6	9	2.6	ENE	2.00	6	100.0
NMHC (ppm)	-	-	-	-	0.00	0.01	6, 18	9, 8	2.6 3.1	ENE ENE	0.00	ALL	100.0
RELATIVE HUMIDITY (%)	-	-	-	-	76	97	17, 18	VAR, 2	VAR 0.4	VAR SSE	96	17	100.0
BAROMETRIC PRESSURE (millibar)	-	-	-	-	938	962	1	VAR	VAR	VAR	961	1	100.0
AMBIENT TEMPERATURE (°C)	-	-	-	-	-8.9	9.7	15	16	15.3	SSW	5.8	15	100.0
STATION TEMPERATURE (°C)	-	-	-	-	21.3	25.7	1	10	0.5	SE	22.7	6, 11	100.0
VECTOR WS (kph)	-	-	-	-	3.4	33.9	12	10	-	WSW	26.6	12	100.0
VECTOR WD (sec)	-	-	-	-	234 (SW)	-	-	-	-	-	-	-	100.0

VAR-VARIOUS

**SOUR GAS PROCESSING INDUSTRY
MONTHLY REPORT SUMMARY**

Three Creeks 842b Station

Peace River Area Monitoring Program Committee

Plant Name / Location

Company

Licence Number	Report Date	
	YEAR	MONTH
N/A	2017	February

CONTINUOUS AMBIENT MONITORING								
PARAMETER	STN No.	% TIME OPERATIONAL	ONE - HOUR AVERAGE			24 - HOUR AVERAGE		
			MAXIMUM VALUES		NO. READINGS > REGULATION	MAXIMUM VALUES		NO. READINGS > REGULATION
SO ₂	1	100.0	0.0025	ppm	0	0.0003	ppm	0
TRS	1	92.1	0.0006	ppm	-	0.0005	ppm	-
THC	1	100.0	2.89	ppm	-	2.00	ppm	-
CH ₄	1	100.0	2.89	ppm	-	2.00	ppm	-
NMHC	1	100.0	0.01	ppm	-	0.00	ppm	-
RH	1	100.0	97	%	-	96	%	-
BP	1	100.0	962	mb	-	961	mb	-
Ambient TPXX	1	100.0	9.7	°C	-	5.8	°C	-
Station TPXX	1	100.0	25.7	°C	-	22.7	°C	-
Wind Speed	1	100.0	33.9	kph	-	26.6	kph	-
Wind Direction	1	100.0	-		-	-		-

SIGNATURE OF COMPANY REPRESENTATIVE

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Exceedance Summary Report

SO₂ 1-Hour Exceedances

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

SO₂ 24-Hour Exceedances

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

In accordance with EPEA and the Substance Release Regulation.

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

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1.0 Discussion

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

Sample filters for all continuous air monitors are changed 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.

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)

- The routine monthly calibration was performed on February 1. There were no issues that impacted operational time this month.

TOTAL REDUCED SULPHUR (TRS)

- An analyzer and converter upgrade was implemented this month. The Thermo 43i analyzer (s/n: 1226154720) was removed on February 1, following a shut-down calibration. The replacement analyzer was a trace level model, Thermo 43i TL (s/n: 1162460023). The new analyzer was allowed time to stabilize and the installation calibration was completed on February 2. Nineteen hours of downtime were recorded during the stabilization period. Analyzer response checks and leak checks were conducted between shut-down and install, but are considered invalid data.
- The analyzer spanned towards the upper acceptance limit on February 12. An additional span check, initiated on February 13, across hours 07:00 and 08:00, confirmed the high drift. Two hours of downtime were recorded due to this additional quality check.
- A repeat calibration was initiated at hour 09:00 on February 14, however, it was aborted as the desired response was not reached at low point. The analyzer was restored to as-found settings and a shut-down calibration was successfully completed. A leak check was performed on the converter and the SO₂ scrubber material was renewed. The analyzer was allowed time to stabilize but response checks indicated there were still converter issues. The converter was left overnight to cool so the technician could dismantle and clean the converter prior to adjusting the operating temperature on February 15. The post-repair calibration was successfully completed on February 15. Thirty-two hours of downtime were recorded due to the additional quality checks and maintenance activities.

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

- The routine monthly calibration was performed on February 1. The analyzer was allowed time to stabilize prior to updating the expected span value on February 3. There were no issues that impacted operational time this month.
- The canister sampler is programmed to draw in a whole air sample when the 5-minute average concentration of NMHC is above 0.30 ppm. A representative sample of ambient air is collected over a one-hour period when the canister event is triggered. No canister event was recorded this month.

WIND SPEED (WS) and WIND DIRECTION (WD)

- There were no issues that impacted operational time this month.
- The wind system, RM Young 05305VK (s/n: 92411), was calibrated on February 14.
- 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)

- There were no issues that impacted operational time this month.

BAROMETRIC PRESSURE (BP)

- There were no issues that impacted operational time this month. The reporting unit was changed from inHg to millibar, as per client request.

AMBIENT TEMPERATURE (AmbTPX)

- There were no issues that impacted operational time this month.

STATION TEMPERATURE (StnTPX)

- There were no issues that impacted operational time this month.
- The internal thermostats were not operating optimally this month. The heater and A/C thermostats were running in parallel, for extended periods of time, as both thermostats were attempting to maintain individual temperatures. On February 14, adjustments were made to the thermostats in order to uphold the required internal temperature.

2.0 Project Personnel

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

3.0 Plant Monthly Required AMD Summary

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

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

4.0 Calculations and Results

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

5.0 Methods and Procedures

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

Maxxam AIR SOP-00001 - Methane, Non-Methane Hydrocarbon Analyzer Monitoring
Maxxam AIR SOP-00208: RM Young Wind Monitor Calibration
Maxxam AIR SOP-00209: Ambient Sulphur Monitoring

There were no deviations from the prescribed methods.

The following instruments were used to perform the test program:

Sulphur Dioxide - API 100A UV Fluorescent Analyzer
Total Reduced Sulphur - Thermo 43i UV Fluorescent Analyzer
Methane, Non-Methane Hydrocarbon - Thermo 55i FID Analyzer
Wind System - RM Young Unit
Relative Humidity - RM Young Unit
Barometric Pressure - Met One Unit
Ambient Temperature - RM Young Unit
Station Temperature - Maxxam Supplied Unit
Datalogger - ESC 8832

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

Level 0 Preliminary Verification

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

Level 1 Primary Validation

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

Level 2 Final Validation

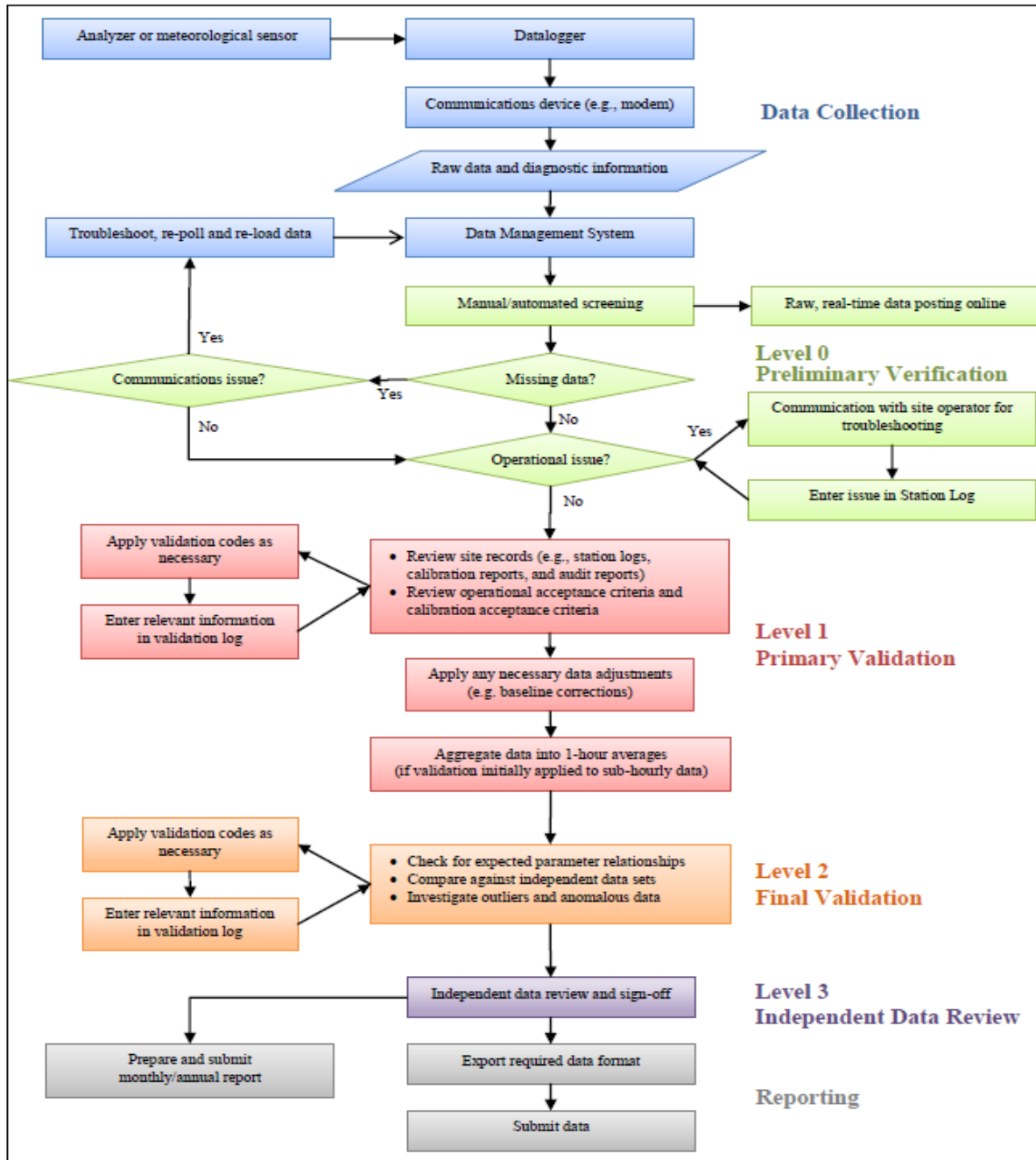
The purpose of Level 2 validation is to verify that there are no inconsistencies among related data, or among regional data measured at nearby sites.

Level 3 Independent Data Review

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

Post-Final Validation

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



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

APPENDIX I
CONTINUOUS MONITORING DATA RESULTS

SULPHUR DIOXIDE



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	0.0	0.4	0.6	0.3	0.0	0.0	0.0	S	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	24
2	0.0	0.0	0.0	0.0	0.1	0.2	S	0.2	0.3	0.3	0.3	0.4	0.1	0.1	0.2	0.3	0.1	0.0	0.2	0.0	0.1	0.2	0.2	0.2	0.2	0.0	0.4	0.2	24
3	0.1	0.1	0.2	0.1	0.1	S	0.1	0.1	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	0.0	0.0	0.0	0.0	0.2	0.0	24
4	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24
5	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
6	0.0	0.0	S	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.5	0.0	0.0	0.0	0.0	0.0	2.5	0.6	0.4	0.0	0.1	0.0	0.0	0.0	0.0	2.5	0.2	24	
7	0.0	S	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.4	0.4	0.2	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.4	0.1	24	
8	S	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.7	0.9	0.5	0.1	0.3	0.2	0.4	0.3	0.4	0.5	0.4	0.4	S	0.0	0.0	0.9	0.3	24	
9	0.6	0.3	0.5	0.6	0.5	0.3	0.1	0.2	0.5	0.3	0.3	0.4	0.4	0.2	0.6	0.8	0.4	0.0	0.0	0.1	0.1	0.0	S	0.0	0.0	0.8	0.3	24	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	S	0.0	0.2	0.0	0.2	0.0	24	
11	0.3	0.4	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	S	0.2	0.0	0.0	0.0	0.4	0.1	24	
12	0.2	0.3	0.1	0.0	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	24	
13	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.2	0.0	24	
14	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	S	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.1	24	
15	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.3	S	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24	
16	0.0	0.0	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	S	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	24	
17	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	S	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	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
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	24	
21	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	0.0	0.0	0.4	0.4	0.0	0.1	0.0	0.1	0.0	0.1	0.6	0.0	0.6	0.1	24
22	0.3	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.1	S	0.2	0.6	0.2	0.1	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.1	24
23	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.1	0.2	0.3	0.0	0.1	0.5	0.2	0.2	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.5	0.1	24	
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	24	
25	0.0	0.0	0.1	0.0	0.1	0.3	S	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	24	
26	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	24	
27	0.0	0.0	0.0	0.0	S	0.1	0.1	0.0	0.0	0.3	0.2	0.3	0.3	0.4	0.1	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.1	24	
28	0.0	0.1	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	24
HOURLY MAX	0.6	0.4	0.6	0.6	0.5	0.3	0.2	0.3	0.5	0.4	0.7	0.9	0.5	0.4	0.6	0.8	2.5	0.6	0.4	0.5	0.4	0.4	0.4	0.6	0.6	0.2	0.0	24	
HOURLY AVG	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	24	

STATUS FLAG CODES

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

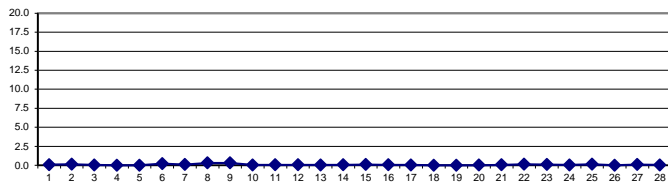
OBJECTIVE LIMIT:

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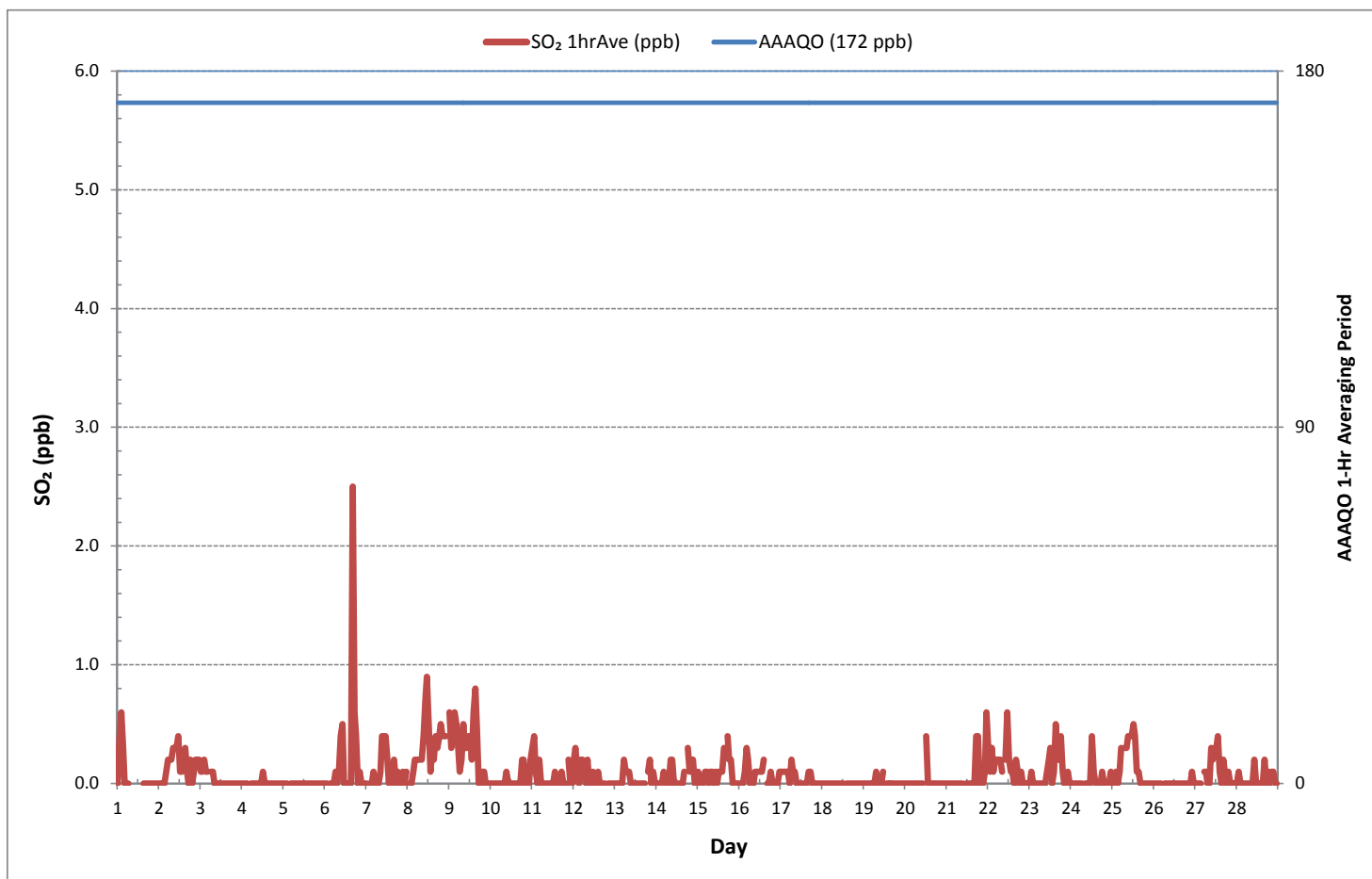
MONTHLY SUMMARY

NUMBER OF 1-HR EXCEEDANCES:	0				
NUMBER OF 24-HR EXCEEDANCES:	0				
NUMBER OF NON-ZERO READINGS:	225				
MINIMUM 1-HR AVERAGE:	0.0	ppb	@ HOUR(S)	VAR	ON DAY(S) ALL
MAXIMUM 1-HR AVERAGE:	2.5	ppb	@ HOUR(S)	16	ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	0.3	ppb			ON DAY(S) 8, 9
					VAR-VARIOUS
IZS CALIBRATION TIME:	29	hrs	OPERATIONAL TIME:	672	hrs
MONTHLY CALIBRATION TIME:	6	hrs	AMD OPERATION UPTIME:	100.0	%
STANDARD DEVIATION:	0.2		MONTHLY AVERAGE:	0.1	ppb

24 HR AVERAGES February 2017



SULPHUR DIOXIDE Hourly Averages (SO₂ ppb)





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

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY 1	0.4	1.3	1.6	1.3	0.4	0.1	0.4	S	0.4	C	C	C	C	C	C	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	1.6	0.5	24
2	0.1	0.1	0.1	0.1	0.1	0.1	S	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.4	0.4	0.4	0.1	0.4	0.1	0.4	0.1	0.4	0.4	0.4	0.1	0.4	0.3	24
3	0.4	0.1	0.4	0.1	0.1	S	0.1	0.4	0.1	0.4	0.4	0.1	0.1	0.4	0.4	0.1	0.4	0.1	0.1	0.1	0.5	0.4	0.1	0.1	0.4	0.1	0.5	0.2	24
4	0.4	0.7	0.4	0.4	S	0.4	0.4	0.1	0.1	0.4	0.4	0.4	0.7	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.7	0.4	24
5	0.1	0.1	0.1	S	0.4	0.1	0.1	0.4	0.4	0.1	0.4	0.4	0.1	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.0	0.0	0.7	0.3	24	
6	0.4	0.4	S	0.4	0.1	0.4	0.7	0.7	1.0	1.0	1.0	0.7	0.4	0.1	0.4	0.4	5.1	1.3	1.3	0.4	0.4	0.4	0.1	0.1	0.1	5.1	0.7	24	
7	0.1	S	0.4	0.4	0.4	0.4	0.4	0.1	0.4	1.0	1.0	1.0	0.7	0.4	0.4	0.4	0.7	0.7	0.4	0.1	0.4	0.4	0.4	0.7	0.1	1.0	0.5	24	
8	S	0.1	0.4	0.7	0.7	0.7	0.4	0.7	0.7	1.0	1.3	1.3	1.0	0.4	0.4	0.4	0.7	0.4	0.7	1.0	0.7	0.7	0.7	S	0.1	1.3	0.7	24	
9	1.3	0.7	1.0	1.0	1.0	1.0	0.7	0.4	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.0	0.7	0.7	1.0	0.7	0.7	1.0	S	1.0	0.4	1.6	0.9	24
10	0.7	0.7	0.7	0.7	0.4	0.4	0.7	0.7	0.7	1.0	0.7	0.7	0.7	0.4	0.4	0.7	0.7	0.7	1.0	1.0	0.7	S	0.7	1.0	0.4	1.0	0.7	24	
11	1.0	1.0	0.7	0.4	0.7	0.7	0.4	0.1	0.4	0.4	0.4	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.1	1.0	0.5	24	
12	0.7	0.7	0.4	0.4	1.0	0.7	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.7	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.1	0.1	1.0	0.5	24	
13	0.1	0.1	0.1	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.4	0.4	0.4	S	0.4	1.0	0.4	0.7	0.4	0.1	1.0	0.4	24	
14	0.4	0.4	0.4	0.7	0.4	0.4	0.4	0.4	1.0	0.7	0.4	0.7	0.4	0.4	0.7	0.4	0.7	S	0.7	0.7	1.0	0.7	0.7	0.7	0.4	1.0	0.6	24	
15	0.7	0.7	0.7	0.4	0.7	0.7	0.4	0.7	0.7	0.4	0.7	0.4	0.4	0.7	0.4	0.7	S	1.0	0.7	0.7	0.4	0.7	0.4	0.4	0.4	1.0	0.6	24	
16	0.4	0.4	0.7	0.7	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.0	S	0.7	0.7	0.7	0.7	0.7	0.4	0.7	0.7	0.4	1.0	0.7	24	
17	0.7	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.7	0.4	24	
18	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.4	0.4	0.4	S	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.4	0.4	0.7	0.5	24	
19	0.7	0.7	0.4	0.7	0.7	0.4	0.4	0.7	0.7	0.4	0.7	0.7	S	0.4	0.4	0.4	0.7	0.4	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.7	0.5	24	
20	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	1.0	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.4	0.4	0.4	0.4	0.1	1.0	0.4	24	
21	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	S	0.4	0.1	0.4	0.4	0.4	0.4	2.2	1.6	0.4	0.4	0.4	0.4	1.9	0.1	2.2	0.6	24	
22	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.1	S	0.1	1.0	0.7	0.4	0.4	0.1	0.4	0.4	0.1	0.4	0.4	0.1	0.1	0.4	0.1	1.0	0.4	24	
23	0.1	0.4	0.1	0.1	0.4	0.1	0.1	0.1	S	0.4	0.4	0.4	0.7	0.1	0.7	0.7	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.3	24
24	0.1	0.1	0.1	0.1	0.1	0.1	0.1	S	0.1	0.1	0.1	0.1	0.1	0.7	0.7	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.4	0.4	0.1	0.7	0.2	24	
25	0.4	0.1	0.4	0.4	0.4	0.7	S	0.7	0.7	0.7	0.7	0.7	1.0	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.4	0.1	1.0	0.5	24	
26	0.4	0.1	0.4	0.4	0.1	S	0.1	0.4	0.1	0.1	0.1	0.4	0.7	0.4	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.7	0.3	24	
27	0.4	0.4	0.4	0.4	S	0.4	0.4	0.4	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.4	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.5	24
28	0.4	0.4	0.1	S	0.4	0.1	0.4	0.4	0.1	0.1	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.4	0.4	0.1	0.7	0.4	24
HOURLY MAX	1.3	1.3	1.6	1.3	1.0	0.7	0.7	0.7	1.0	1.0	1.3	1.3	1.0	1.0	1.0	1.6	5.1	2.2	1.6	1.0	1.0	1.0	0.7	1.9					
HOURLY AVG	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.4	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.4	0.4	0.5					

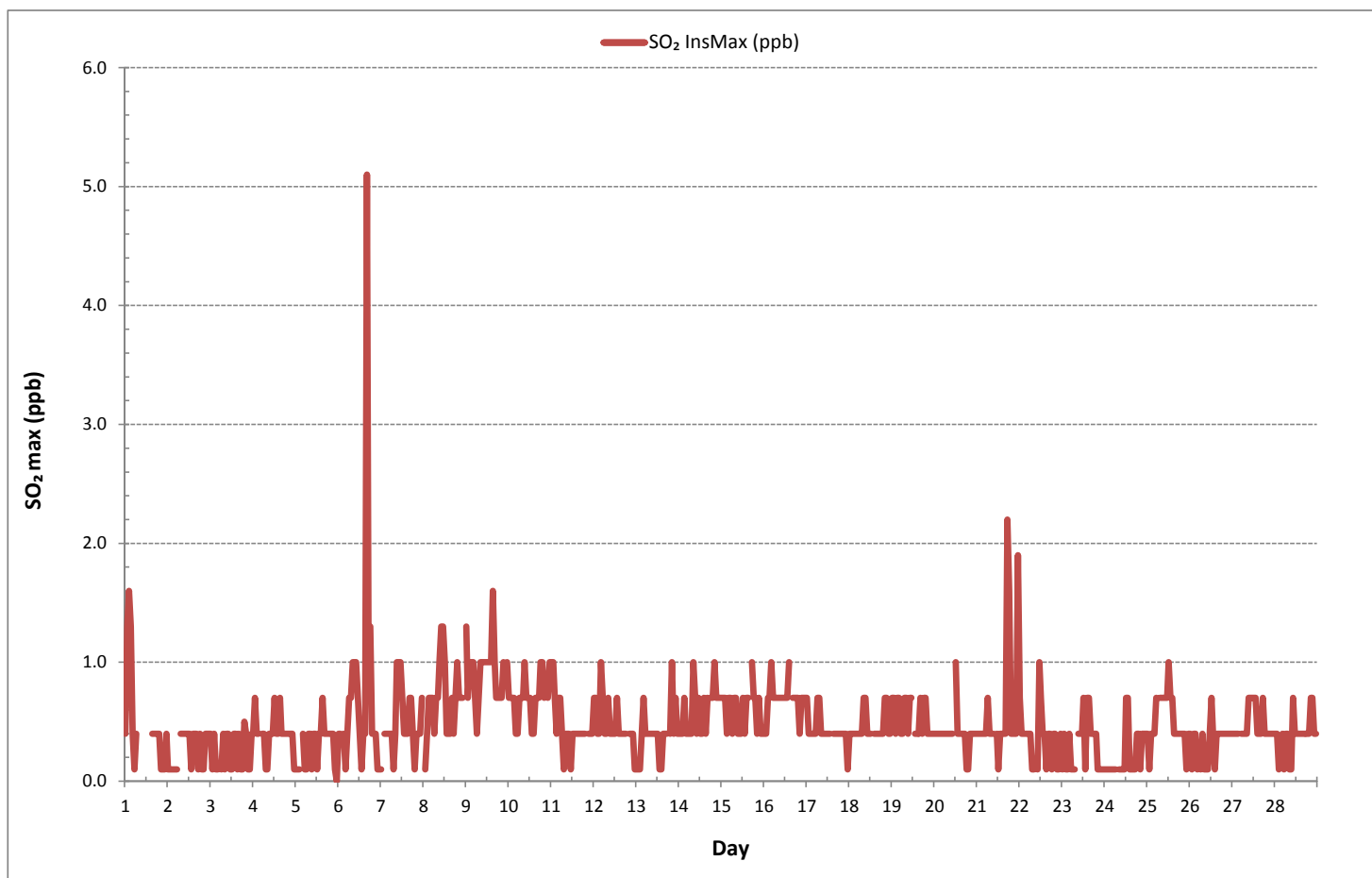
STATUS FLAG CODES

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:	636
MAXIMUM INSTANTANEOUS VALUE:	5.1 ppb @ HOUR(S) 16 ON DAY(S) 6
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	6 hrs
OPERATIONAL TIME:	672 hrs
STANDARD DEVIATION:	0.3

SULPHUR DIOXIDE Instantaneous Maximum (SO₂ ppb)



Wind: PRAMP_842 Poll.: PRAMP_842-SO2[ppb] Monthly: 17/02
 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

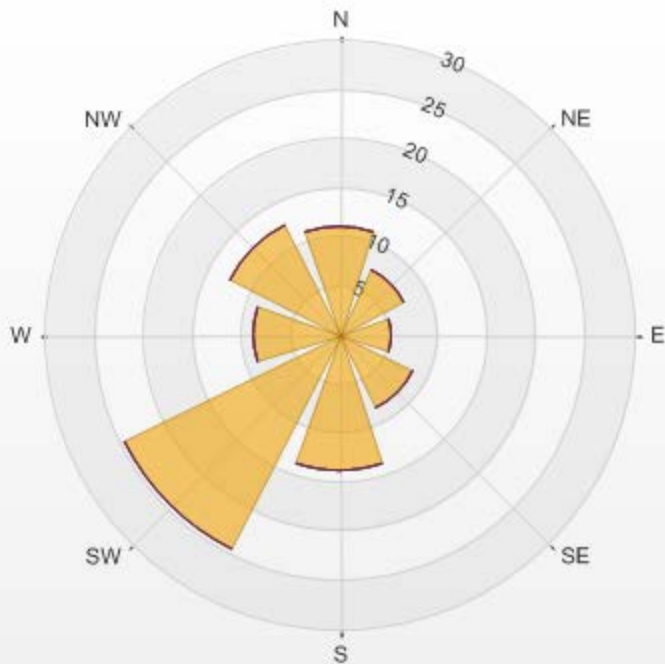
Calm: 8.36%

Calm Avg: 0.06 [ppb]

Direction	0-3	3-10	10-85	85-170	>170.0	Total
N	11.0	0.0	0.0	0.0	0.0	11.0
NE	7.4	0.0	0.0	0.0	0.0	7.4
E	5.2	0.0	0.0	0.0	0.0	5.2
SE	8.4	0.0	0.0	0.0	0.0	8.4
S	13.9	0.0	0.0	0.0	0.0	13.9
SW	24.5	0.0	0.0	0.0	0.0	24.5
W	8.8	0.0	0.0	0.0	0.0	8.8
NW	12.5	0.0	0.0	0.0	0.0	12.5
Summary	91.6	0.0	0.0	0.0	0.0	91.6

% 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] 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.36% Calm Poll Avg: 0.06[ppb]



SO2[ppb] Calibration: PRAMP_842 Monthly: 2017/02 Type: Span



Span Meas Span Ref Span Low Span High

TOTAL REDUCED SULPHUR



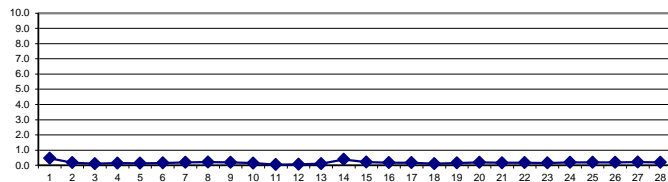
TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY 1	0.4	0.6	0.6	0.5	0.4	0.4	0.4	S	0.4	C	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.4	0.6	0.5	13	
DAY 2	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	16
DAY 3	0.1	0.2	0.1	0.1	0.1	S	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	24	
DAY 4	0.1	0.1	0.1	0.1	S	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	24	
DAY 5	0.2	0.2	0.2	S	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	24	
DAY 6	0.2	0.2	S	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	24	
DAY 7	0.2	S	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24
DAY 8	S	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	S	0.1	0.3	0.2	24	
DAY 9	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.5	0.3	S	0.2	0.1	0.5	0.2	24	
DAY 10	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	S	0.1	0.1	0.1	0.3	0.1	24	
DAY 11	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	S	0.0	0.0	0.0	0.0	0.1	0.0	24	
DAY 12	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	S	0.0	0.0	0.1	0.1	0.0	0.2	0.1	24	
DAY 13	0.1	0.1	0.1	0.1	0.1	0.1	0.1	S1	S1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	S	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.3	0.1	22	
DAY 14	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	Y	Y	Y	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.3	0.4	0.4	9	
DAY 15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.3	0.2	7	
DAY 16	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	S	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
DAY 17	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	S	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	24	
DAY 18	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	S	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	24	
DAY 19	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
DAY 20	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
DAY 21	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
DAY 22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	24	
DAY 23	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	S	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	24	
DAY 24	0.2	0.2	0.2	0.2	0.2	0.1	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
DAY 25	0.2	0.2	0.2	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	
DAY 26	0.2	0.2	0.2	0.2	0.2	S	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	
DAY 27	0.2	0.2	0.2	0.2	S	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	24	
DAY 28	0.2	0.2	0.2	S	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	24	
HOURLY MAX	0.4	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.3	0.2	0.3					
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2					

STATUS FLAG CODES

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

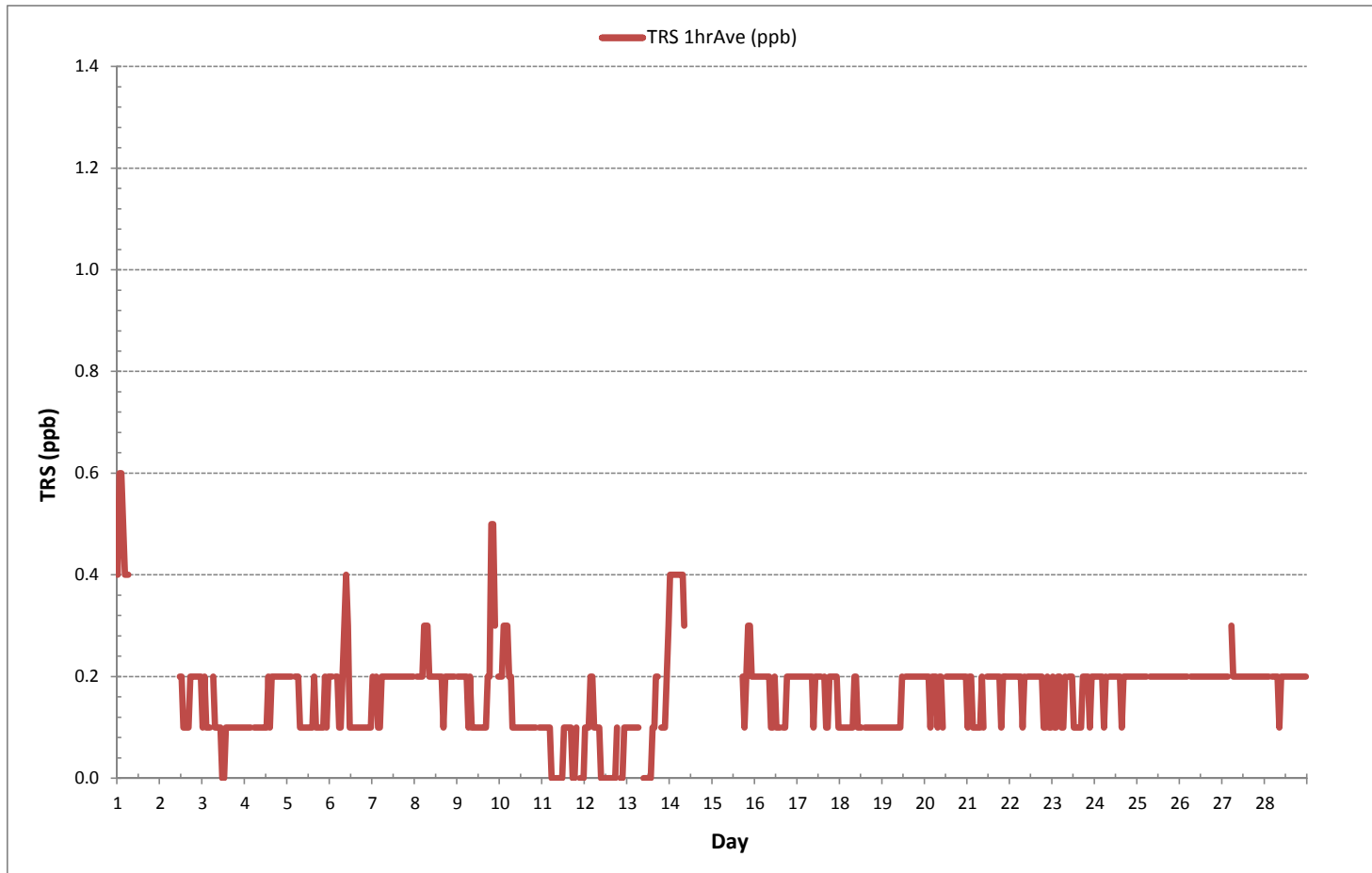
24 HR AVERAGES February 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	556			
MINIMUM 1-HR AVERAGE:	0.0 ppb	@ HOUR(S)	VAR	ON DAY(S) VAR
MAXIMUM 1-HR AVERAGE:	0.6 ppb	@ HOUR(S)	1, 2	ON DAY(S) 1, 1
MAXIMUM 24-HR AVERAGE:	0.5 ppb			ON DAY(S) 1
				VAR-VARIOUS
IZS CALIBRATION TIME:	26 hrs	OPERATIONAL TIME:	619 hrs	
MONTHLY CALIBRATION TIME:	7 hrs	AMD OPERATION UPTIME:	92.1 %	
STANDARD DEVIATION:	0.1	MONTHLY AVERAGE:	0.2 ppb	

TOTAL REDUCED SULPHUR Hourly Averages (TRS ppb)





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

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY 1	0.6	1.0	1.0	0.8	0.8	0.6	0.6	S	0.6	C	C	C	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	0.6	1.0	0.8	13	
2	Y	Y	Y	Y	Y	Y	Y	Y	C	C	C	C	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.3	16	
3	0.3	0.4	0.3	0.3	0.3	S	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	24	
4	0.2	0.2	0.2	0.2	S	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.4	0.2	24	
5	0.2	0.2	0.3	S	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.2	24	
6	0.2	0.2	S	0.2	0.2	0.1	0.2	0.2	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.4	0.2	24	
7	0.2	S	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	24	
8	S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	S	0.2	0.3	0.3	24	
9	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.5	S	0.3	0.1	0.6	0.3	24	
10	0.3	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	S	0.4	0.4	0.2	0.5	0.3	24	
11	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	S	0.5	0.5	0.5	0.5	0.3	0.5	0.4	24	
12	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.6	S	0.6	0.7	0.7	0.8	0.8	0.5	0.8	0.6	24	
13	0.8	0.8	0.8	0.8	0.8	0.8	0.8	S1	S1	0.7	0.7	0.7	0.9	0.9	1.0	1.1	1.1	1.1	S	1.0	1.1	1.0	1.1	1.1	0.7	1.1	0.9	22	
14	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.0	1.0	Y	Y	Y	C1	C1	C1	Y	Y	Y	Y	Y	Y	Y	Y	Y	1.0	1.2	1.1	9	
15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C1	C1	C1	C1	C1	C1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	6
16	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	24
17	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	24
18	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	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
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	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
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
22	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
23	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
24	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
25	0.0	0.0	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	24
26	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
27	0.0	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
28	0.0	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24
HOURLY MAX	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.0	1.0	0.7	0.7	0.7	0.9	0.9	1.0	1.1	1.1	1.1	0.6	1.0	1.1	1.0	1.1	1.1					
HOURLY AVG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2					

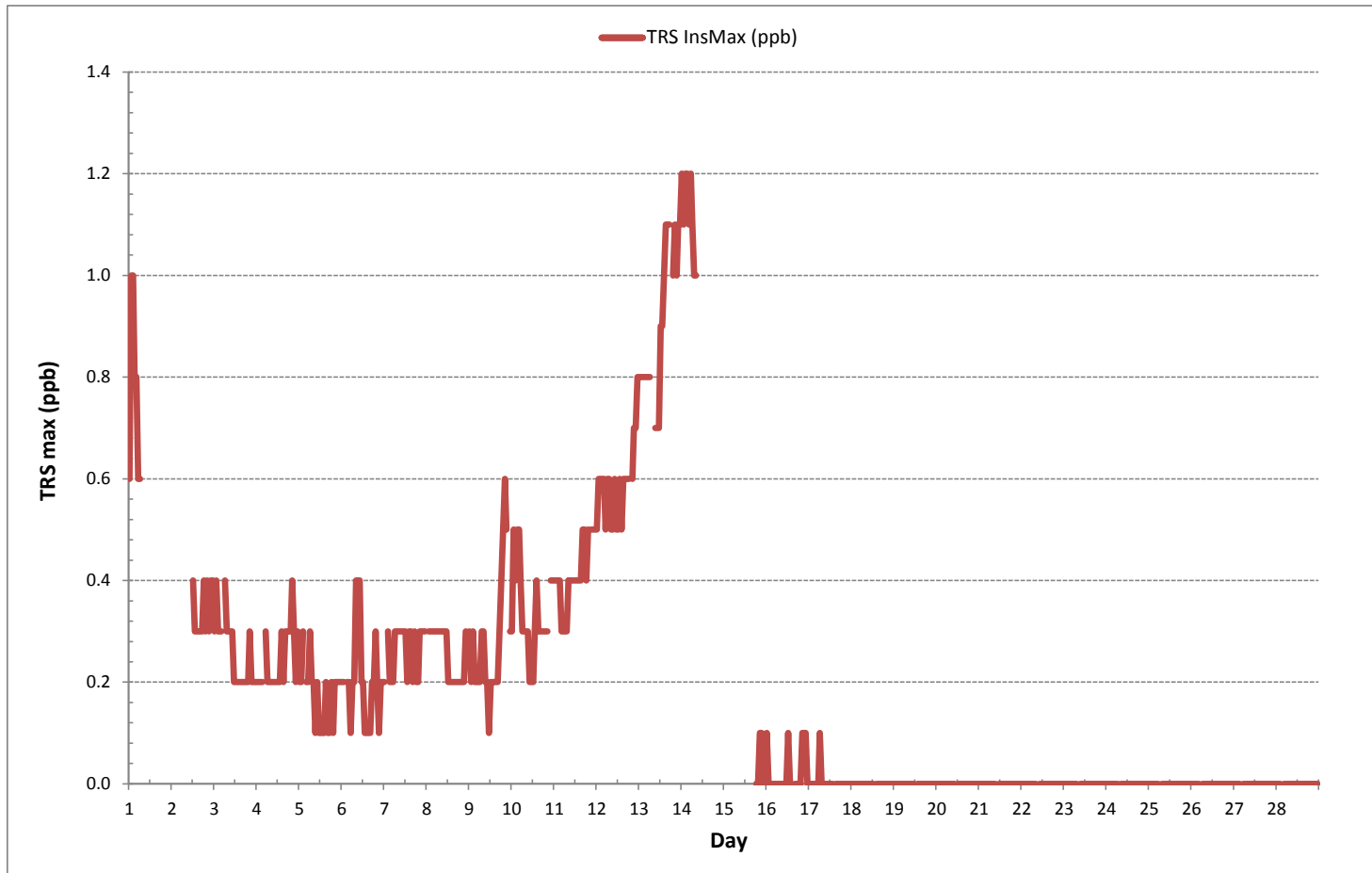
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	287
MAXIMUM INSTANTANEOUS VALUE:	1.2 ppb @ HOUR(S) VAR ON DAY(S) 14
VAR-VARIOUS	
IZS CALIBRATION TIME:	26 hrs
MONTHLY CALIBRATION TIME:	8 hrs
OPERATIONAL TIME:	618 hrs
STANDARD DEVIATION:	0.3

TOTAL REDUCED SULPHUR Instantaneous Maximum (TRS ppb)



Wind: PRAMP_842 Poll.: PRAMP_842-TRS[ppb] Monthly: 17/02 Type:
 PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.56%

Calm Avg: 0.17 [ppb]

Direction	0-1	1-3	3-10	>10.0	Total
N	12.0	0.0	0.0	0.0	12.0
NE	8.1	0.0	0.0	0.0	8.1
E	5.5	0.0	0.0	0.0	5.5
SE	5.3	0.0	0.0	0.0	5.3
S	13.0	0.0	0.0	0.0	13.0
SW	24.8	0.0	0.0	0.0	24.8
W	9.3	0.0	0.0	0.0	9.3
NW	13.5	0.0	0.0	0.0	13.5
Summary	91.5	0.0	0.0	0.0	91.5

% Icon Classes (ppb)

91



0



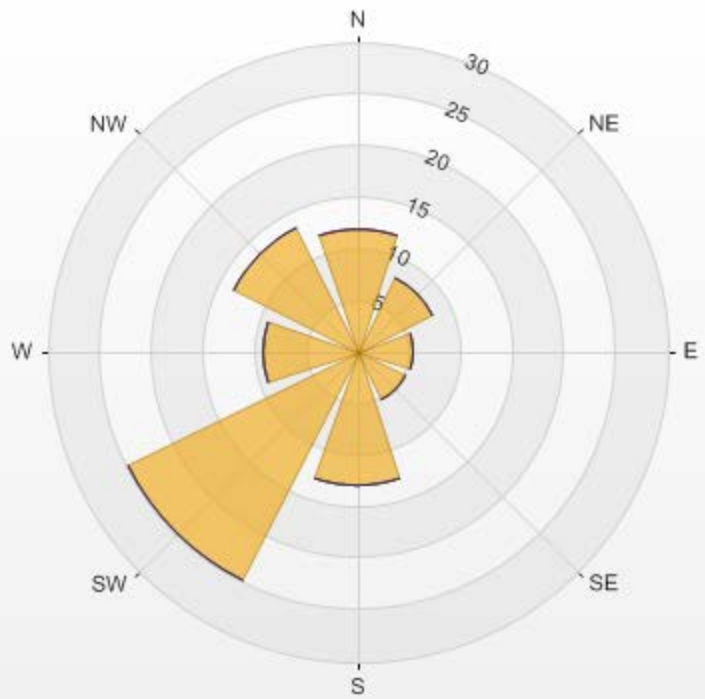
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PRAMP_842 Poll.: PRAMP_842-TRS[ppb] 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.56% Calm Poll Avg: 0.17[ppb]



TRS[ppb] Calibration: PRAMP_842 Monthly: 2017/02 Type: Span



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

TOTAL HYDROCARBON



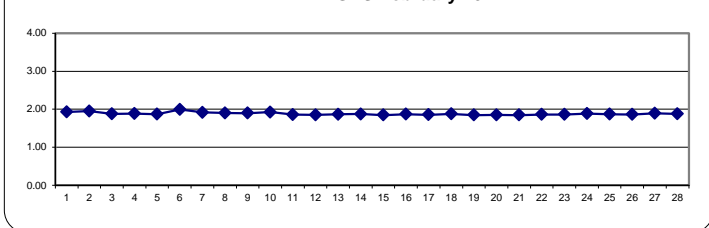
TOTAL HYDROCARBONS Hourly Averages (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.95	1.93	1.93	1.93	1.93	1.93	1.93	S	1.93	1.94	1.95	1.96	1.92	1.92	C	C	C	C	1.91	1.91	1.92	1.93	1.93	1.94	1.91	1.96	1.93	24	
2	1.93	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.94	1.93	1.91	1.94	1.94	1.93	1.90	1.94	2.00	2.09	1.95	2.02	2.03	1.98	1.90	1.90	2.09	1.95	24	
3	1.88	1.89	1.88	1.87	1.87	S	1.87	1.87	1.87	1.87	1.88	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.89	1.88	1.88	1.88	1.89	1.90	1.87	1.90	1.88	24	
4	1.92	1.91	1.92	1.89	S	1.87	1.87	1.87	1.90	1.87	1.88	1.91	1.89	1.87	1.88	1.88	1.88	1.89	1.90	1.90	1.89	1.87	1.86	1.87	1.86	1.92	1.89	24	
5	1.87	1.87	1.87	S	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.86	1.88	1.88	1.87	1.88	1.88	1.88	1.88	1.89	1.89	1.86	1.89	1.87	24	
6	1.89	1.89	S	1.89	1.89	1.91	1.93	2.00	2.33	2.89	2.75	1.96	1.90	1.86	1.87	1.87	1.87	1.88	1.89	1.88	1.89	1.90	1.90	1.90	1.86	2.89	2.00	24	
7	1.89	S	1.89	1.90	1.91	1.91	1.92	1.93	1.95	1.95	1.95	1.95	1.94	1.92	1.93	1.90	1.89	1.90	1.90	1.90	1.92	1.96	1.91	1.89	1.89	1.96	1.92	24	
8	S	1.9	1.9	1.9	1.90	1.90	1.90	1.91	1.91	1.92	1.91	1.90	1.88	1.88	1.88	1.88	1.88	1.89	1.90	1.90	1.90	1.91	S	1.88	1.88	1.93	1.90	24	
9	1.90	1.89	1.90	1.90	1.90	1.89	1.88	1.89	1.89	1.88	1.91	1.88	1.90	1.91	1.93	1.93	1.89	1.90	1.89	1.88	1.88	1.94	S	1.91	1.88	1.94	1.90	24	
10	1.88	1.89	1.89	1.90	1.91	1.94	2.04	2.00	1.97	1.97	1.94	1.92	1.91	1.89	1.89	1.91	1.90	1.90	1.91	1.91	1.92	S	1.93	1.94	1.88	2.04	1.92	24	
11	1.93	1.92	1.91	1.89	1.87	1.86	1.86	1.85	1.85	1.84	1.85	1.85	1.85	1.84	1.83	1.83	1.83	1.84	1.84	1.85	S	1.85	1.84	1.85	1.83	1.93	1.86	24	
12	1.86	1.85	1.85	1.86	1.86	1.85	1.85	1.86	1.86	1.86	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	S	1.85	1.85	1.85	1.85	1.85	1.86	1.85	24
13	1.85	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.87	1.86	1.87	1.86	S	1.87	1.87	1.87	1.87	1.85	1.87	1.87	24
14	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.89	1.89	1.89	1.90	S	1.90	1.89	1.88	1.87	1.87	1.86	1.86	1.90	1.88	24	
15	1.86	1.85	1.85	1.85	1.85	1.85	1.84	1.84	1.84	1.85	1.91	1.88	1.88	1.91	1.87	1.88	S	1.83	1.82	1.81	1.81	1.81	1.81	1.80	1.81	1.80	1.91	1.85	24
16	1.83	1.83	1.82	1.81	1.85	1.87	1.87	1.87	1.91	1.91	2.00	1.99	1.87	1.84	1.85	S	1.87	1.84	1.84	1.84	1.85	1.86	1.87	1.87	1.88	1.81	2.00	1.87	24
17	1.88	1.88	1.88	1.88	1.87	1.85	1.84	1.83	1.83	1.84	1.85	1.87	1.86	1.86	S	1.83	1.84	1.84	1.84	1.87	1.87	1.88	1.85	1.85	1.83	1.88	1.86	24	
18	1.85	1.85	1.85	1.87	1.87	1.90	1.89	1.89	2.03	2.10	1.90	1.85	1.84	S	1.85	1.85	1.86	1.86	1.85	1.84	1.86	1.85	1.87	1.87	1.84	2.10	1.88	24	
19	1.86	1.84	1.84	1.83	1.85	1.87	1.86	1.85	1.85	1.84	1.85	1.86	S	1.86	1.85	1.84	1.84	1.85	1.84	1.84	1.84	1.85	1.85	1.85	1.83	1.87	1.85	24	
20	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	S	1.86	1.85	1.85	1.86	1.85	1.86	1.85	1.86	1.86	1.85	1.85	1.84	1.84	1.87	1.85	24	
21	1.85	1.85	1.85	1.84	1.84	1.83	1.84	1.84	1.84	1.84	S	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.85	1.85	1.91	1.86	1.87	1.86	1.83	1.91	1.85	24
22	1.88	1.86	1.87	1.86	1.87	1.86	1.86	1.86	1.86	S	1.87	1.87	1.86	1.86	1.87	1.87	1.85	1.86	1.85	1.86	1.86	1.86	1.86	1.87	1.85	1.88	1.86	24	
23	1.87	1.88	1.90	1.89	1.87	1.86	1.86	1.86	S	1.86	1.87	1.87	1.85	1.85	1.85	1.85	1.86	1.85	1.85	1.85	1.85	1.85	1.86	1.87	1.85	1.90	1.86	24	
24	1.88	1.88	1.88	1.88	1.88	1.88	1.88	S	1.89	1.89	1.89	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.89	1.88	1.89	1.88	24
25	1.89	1.88	1.88	1.88	1.89	1.88	S	1.89	1.89	1.89	1.90	1.88	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.85	1.85	1.90	1.87	24
26	1.86	1.86	1.85	1.86	1.86	S	1.87	1.87	1.87	1.87	1.86	1.87	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.87	1.85	1.87	1.86	24	
27	1.88	1.87	1.88	1.89	S	1.90	1.90	1.92	2.00	1.98	1.90	1.90	1.89	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.88	1.88	1.87	1.87	2.00	1.89	24	
28	1.87	1.86	1.87	S	1.87	1.87	1.87	1.88	1.88	1.88	1.90	1.88	1.88	1.88	1.87	1.87	1.88	1.88	1.90	1.89	1.89	1.89	1.89	1.88	1.86	1.91	1.88	24	
HOURLY MAX	1.95	1.94	1.94	1.94	1.94	1.94	2.04	2.00	2.33	2.89	2.75	1.99	1.94	1.94	1.93	1.93	1.94	2.00	2.09	1.95	2.02	2.03	1.98	1.94					
HOURLY AVG	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.91	1.93	1.92	1.89	1.88	1.87	1.87	1.87	1.87	1.87	1.88	1.87	1.88	1.88	1.88	1.88					

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

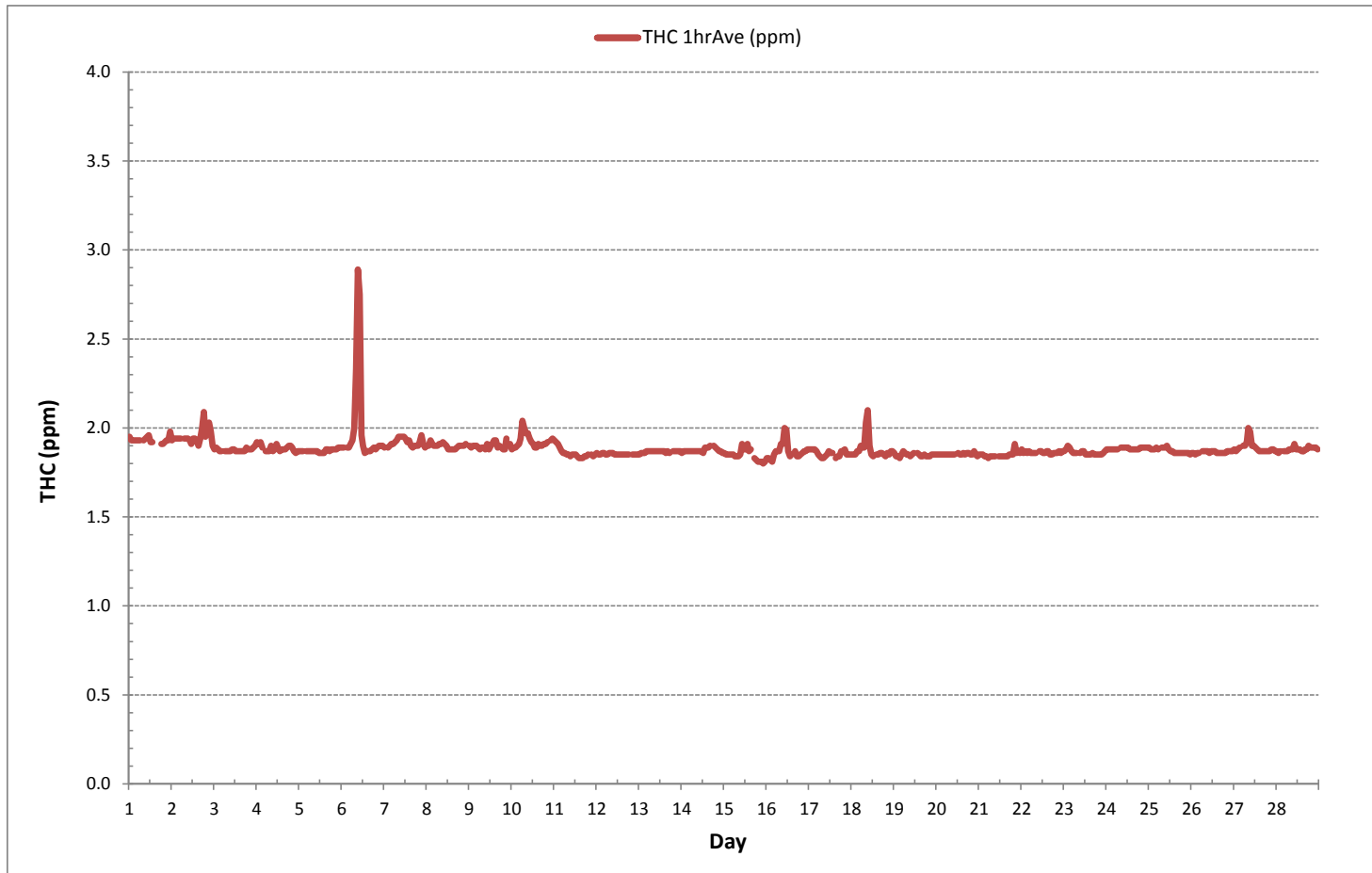
24 HR AVERAGES February 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	639			
MINIMUM 1-HR AVERAGE:	1.80 ppm	@ HOUR(S)	22	ON DAY(S)
MAXIMUM 1-HR AVERAGE:	2.89 ppm	@ HOUR(S)	9	ON DAY(S)
MAXIMUM 24-HR AVERAGE:	2.00 ppm			ON DAY(S)
				VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs	OPERATIONAL TIME:	672 hrs	
MONTHLY CALIBRATION TIME:	4 hrs	AMD OPERATION UPTIME:	100.0 %	
STANDARD DEVIATION:	0.07	MONTHLY AVERAGE:	1.88 ppm	

TOTAL HYDROCARBONS Hourly Averages (THC ppm)





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

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY MIN.	DAILY MAX.	24-HR AVG.	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59					
DAY 1	1.97	1.97	1.98	1.95	1.95	1.96	1.97	S	2.16	2.06	1.99	1.99	1.93	1.95	C	C	C	C	C	1.97	1.94	1.95	1.98	1.97	1.93	2.16	1.98	24	
2	1.95	1.95	2.01	1.96	2.03	1.98	S	1.95	1.96	1.97	1.95	1.92	1.97	1.96	1.95	1.94	1.95	2.15	2.16	2.08	2.08	2.09	2.01	1.97	1.92	2.16	2.00	24	
3	1.89	1.90	1.88	1.88	1.88	S	1.88	1.88	1.89	1.88	1.99	1.89	1.89	1.87	1.87	1.88	1.87	1.89	1.92	1.89	1.88	1.93	1.95	1.92	1.87	1.99	1.90	24	
4	1.95	1.95	1.96	1.95	S	1.91	1.88	1.88	1.97	1.87	1.92	1.94	1.91	1.88	1.92	1.90	1.89	1.97	1.95	1.96	1.90	1.89	1.87	2.00	1.87	2.00	1.92	24	
5	1.88	1.95	1.88	S	1.89	1.88	1.88	1.87	1.88	1.88	1.88	1.87	1.87	1.88	1.92	1.92	1.92	1.89	1.92	1.88	1.89	1.89	1.91	1.89	1.87	1.95	1.89	24	
6	1.91	1.92	S	1.90	1.92	1.92	1.99	2.22	2.86	3.37	3.10	2.39	1.93	1.97	1.88	1.88	1.89	1.89	1.89	1.89	1.90	1.93	1.94	1.90	1.88	3.37	2.10	24	
7	1.91	S	1.92	1.92	1.92	1.93	1.97	1.95	1.96	1.96	1.97	1.97	1.97	1.94	1.95	1.92	1.92	1.92	1.92	1.92	1.98	2.01	1.97	1.91	1.91	2.01	1.94	24	
8	S	1.92	1.96	2.04	1.96	1.92	1.92	1.95	1.92	1.94	1.93	1.92	1.89	1.89	1.90	1.90	1.90	1.93	1.92	1.91	1.96	1.92	1.92	S	1.89	2.04	1.93	24	
9	1.92	1.91	1.91	1.90	2.00	1.90	1.91	1.92	1.91	1.89	1.93	1.89	1.98	1.95	2.10	2.16	1.90	1.92	1.92	1.88	1.92	1.97	S	1.94	1.88	2.16	1.94	24	
10	1.89	1.89	1.97	1.92	1.93	2.02	2.11	2.08	2.00	2.02	1.98	1.93	1.93	1.92	1.91	1.93	1.92	1.92	1.92	1.92	1.92	1.96	S	1.94	1.95	1.89	2.11	1.95	24
11	1.95	1.94	1.92	1.95	1.88	1.87	1.87	1.85	1.86	1.85	1.87	1.85	1.88	1.88	1.91	1.84	1.85	1.85	1.86	1.87	S	1.85	1.86	1.86	1.84	1.95	1.88	24	
12	1.87	1.86	1.86	1.86	1.87	1.87	1.86	1.88	1.87	1.87	1.85	1.86	1.87	1.91	1.87	1.88	1.87	1.86	1.86	S	1.86	1.86	1.86	1.87	1.85	1.91	1.87	24	
13	1.86	1.87	1.87	1.87	1.90	1.87	1.89	1.88	1.89	1.90	1.88	1.88	1.88	1.88	1.92	1.89	1.87	1.87	S	1.89	1.89	1.88	1.98	1.87	1.86	1.98	1.87	24	
14	1.87	1.90	1.89	1.88	1.87	1.88	1.87	1.87	2.01	2.00	1.89	1.89	1.96	1.90	1.91	1.90	1.90	S	1.91	1.91	1.89	1.88	1.89	1.90	1.87	2.01	1.90	24	
15	1.97	1.86	1.85	1.85	1.85	1.85	1.87	1.85	1.85	1.87	2.03	1.92	1.91	2.13	1.93	1.91	S	1.85	1.83	1.82	1.81	1.81	1.81	1.82	1.81	2.13	1.88	24	
16	1.87	2.00	1.84	1.82	1.92	1.90	1.90	1.93	1.96	1.99	2.06	2.08	1.96	1.87	1.86	S	1.93	1.85	1.87	1.87	1.87	2.06	1.89	2.01	1.82	2.08	1.93	24	
17	1.90	1.96	1.90	1.89	1.89	1.86	1.89	1.89	1.96	1.85	1.86	1.89	1.91	1.87	S	1.84	1.84	1.85	1.92	1.91	1.93	1.87	1.91	1.87	1.84	1.96	1.89	24	
18	1.86	1.87	1.86	1.90	1.89	1.93	2.00	1.95	2.14	2.29	2.02	1.87	1.85	S	1.87	1.98	1.89	1.89	1.86	1.85	1.89	1.87	2.06	1.91	1.85	2.29	1.93	24	
19	1.87	1.85	1.85	1.85	1.86	1.89	1.89	1.86	1.86	1.85	1.86	1.86	S	1.90	1.85	1.85	1.85	1.91	1.85	1.87	1.85	1.86	1.85	1.87	1.85	1.91	1.86	24	
20	1.86	1.87	1.86	1.86	1.87	1.85	1.86	1.86	1.87	1.85	1.86	S	1.89	1.87	1.87	1.90	1.86	1.89	1.87	1.89	1.87	1.92	1.85	1.85	1.85	1.92	1.87	24	
21	1.90	1.98	1.89	1.85	1.86	1.84	1.85	1.85	1.87	1.85	S	1.85	1.89	1.86	1.87	1.85	1.85	1.87	1.85	1.89	1.96	1.90	1.89	1.87	1.84	1.98	1.88	24	
22	1.91	1.87	2.05	1.87	1.89	1.91	1.86	1.86	1.87	S	1.89	1.92	1.89	1.87	1.95	1.90	1.87	1.87	1.90	1.89	1.87	1.89	1.95	1.90	1.86	2.05	1.90	24	
23	1.90	1.90	1.92	1.93	1.89	1.89	1.89	1.90	S	1.89	1.89	1.92	1.87	1.89	1.89	1.86	1.91	1.86	2.00	1.87	1.86	1.87	1.89	1.89	1.86	2.00	1.89	24	
24	1.90	1.90	1.90	1.92	1.90	1.90	1.91	S	2.05	1.90	1.91	1.91	1.91	1.92	1.92	1.90	1.90	1.90	1.91	1.92	1.92	1.91	1.91	1.90	1.90	2.05	1.91	24	
25	1.91	1.90	1.91	1.91	1.92	1.90	S	1.90	1.91	1.90	1.93	1.90	1.89	1.87	1.87	1.87	1.87	1.87	1.90	1.87	1.87	1.86	1.87	1.86	1.86	1.93	1.89	24	
26	1.86	1.86	1.87	1.87	1.87	S	1.89	1.87	1.89	1.91	1.87	1.87	1.89	1.89	1.92	1.87	1.87	1.90	1.87	1.87	1.87	1.87	1.87	1.89	1.89	1.86	1.92	1.88	24
27	1.90	1.89	1.90	1.91	S	1.92	1.92	1.96	2.13	2.07	1.92	1.92	1.91	1.90	1.89	1.87	1.91	1.87	1.87	1.89	1.89	1.90	1.90	1.90	1.87	2.13	1.92	24	
28	1.89	1.94	1.87	S	1.89	1.87	1.90	1.95	2.00	1.90	1.93	2.01	1.92	1.91	1.89	1.90	1.90	1.91	1.92	1.96	1.91	1.92	1.91	1.90	1.87	2.01	1.92	24	
HOURLY MAX	1.97	2.00	2.05	2.04	2.03	2.02	2.11	2.22	2.86	3.37	3.10	2.39	1.98	2.13	2.10	2.16	1.95	2.15	2.16	2.08	2.08	2.09	2.06	2.01					
HOURLY AVG	1.90	1.91	1.91	1.90	1.90	1.90	1.91	1.92	1.98	1.98	1.97	1.93	1.91	1.91	1.91	1.90	1.89	1.90	1.91	1.90	1.90	1.91	1.91	1.90					

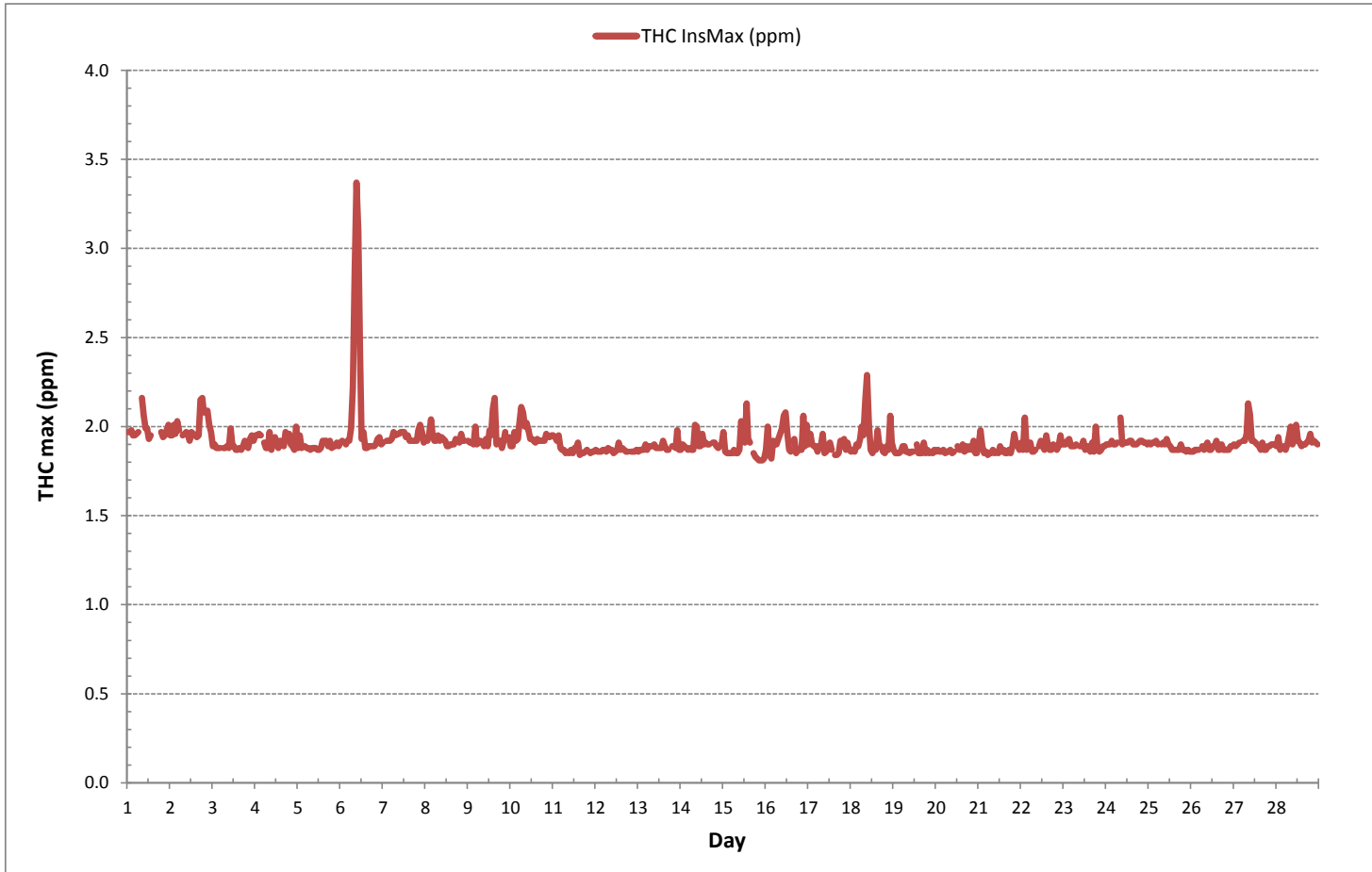
STATUS FLAG CODES

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:	638
MAXIMUM INSTANTANEOUS VALUE:	3.37 ppm @ HOUR(S) 9 ON DAY(S) 6
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	672 hrs
STANDARD DEVIATION:	0.10

TOTAL HYDROCARBONS Instantaneous Maximum (THC ppm)



Wind: PRAMP_842 Poll.: PRAMP_842-THC55[ppm] Monthly: 17/02
 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

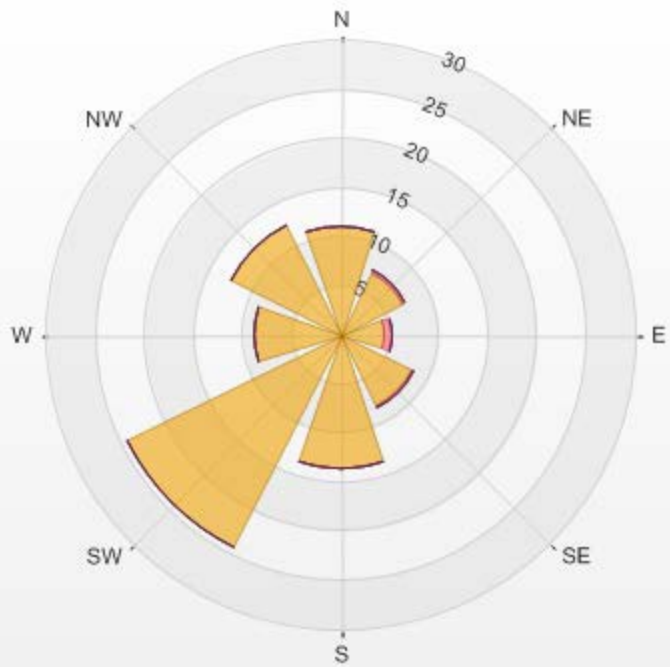
Calm: 8.82%

Calm Avg: 1.91 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	11.0	0.0	0.0	0.0	0.0	11.0
NE	7.1	0.3	0.0	0.0	0.0	7.4
E	4.6	0.6	0.0	0.0	0.0	5.2
SE	8.2	0.2	0.0	0.0	0.0	8.4
S	13.5	0.0	0.0	0.0	0.0	13.5
SW	24.3	0.0	0.0	0.0	0.0	24.3
W	8.8	0.0	0.0	0.0	0.0	8.8
NW	12.6	0.0	0.0	0.0	0.0	12.6
Summary	90.1	1.1	0.0	0.0	0.0	91.2

% Icon	Classes (ppm)	90	0-2	1	2-3	0	3-5	0	5-10	0	>10.0

PRAMP_842 Poll.: PRAMP_842-THC55[ppm] 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.82% Calm Poll
 Avg: 1.91[ppm]



THC55[ppm] Calibration: PRAMP_842 Monthly: 2017/02 Type: Span



Span Meas Span Ref Span Low Span High

METHANE



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

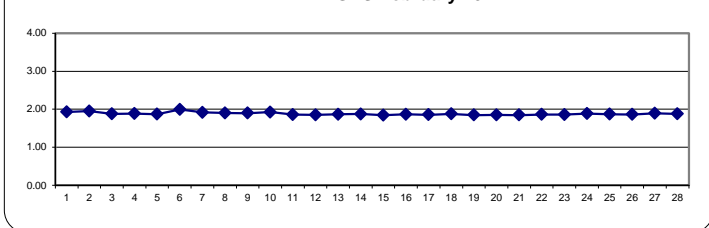
METHANE Hourly Averages (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	1.95	1.92	1.93	1.93	1.93	1.93	1.93	S	1.93	1.94	1.95	1.96	1.92	1.92	C	C	C	C	1.91	1.91	1.92	1.93	1.93	1.94	1.91	1.96	1.93	24	
2	1.93	1.94	1.94	1.94	1.94	1.94	S	1.94	1.94	1.94	1.93	1.91	1.94	1.94	1.93	1.90	1.94	2.00	2.09	1.95	2.02	2.03	1.98	1.90	1.90	2.09	1.95	24	
3	1.88	1.89	1.88	1.87	1.87	S	1.87	1.87	1.87	1.87	1.87	1.88	1.87	1.87	1.87	1.87	1.87	1.87	1.89	1.88	1.88	1.88	1.89	1.90	1.87	1.90	1.88	24	
4	1.92	1.91	1.92	1.89	S	1.87	1.87	1.87	1.90	1.87	1.88	1.91	1.89	1.87	1.88	1.88	1.88	1.89	1.90	1.90	1.89	1.87	1.86	1.87	1.86	1.92	1.89	24	
5	1.87	1.87	1.87	S	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.86	1.88	1.88	1.87	1.88	1.88	1.88	1.88	1.88	1.89	1.86	1.89	1.87	24	
6	1.89	1.89	S	1.89	1.89	1.91	1.93	2.00	2.33	2.89	2.74	1.96	1.90	1.86	1.87	1.87	1.87	1.88	1.89	1.88	1.89	1.90	1.90	1.90	1.86	2.89	2.00	24	
7	1.89	S	1.89	1.90	1.91	1.91	1.92	1.93	1.95	1.95	1.95	1.95	1.94	1.92	1.93	1.90	1.89	1.90	1.90	1.90	1.92	1.96	1.91	1.89	1.89	1.96	1.92	24	
8	S	1.90	1.93	1.91	1.90	1.90	1.90	1.91	1.91	1.91	1.92	1.91	1.90	1.88	1.88	1.88	1.88	1.89	1.90	1.90	1.90	1.91	S	1.88	1.88	1.93	1.90	24	
9	1.90	1.89	1.90	1.90	1.90	1.89	1.88	1.89	1.89	1.88	1.91	1.88	1.90	1.91	1.93	1.93	1.89	1.90	1.89	1.88	1.88	1.94	S	1.91	1.88	1.94	1.90	24	
10	1.88	1.89	1.89	1.90	1.91	1.94	2.04	2.00	1.97	1.97	1.94	1.92	1.91	1.89	1.89	1.91	1.90	1.90	1.91	1.91	1.92	S	1.93	1.94	1.88	2.04	1.92	24	
11	1.93	1.92	1.91	1.89	1.87	1.86	1.86	1.85	1.85	1.84	1.85	1.85	1.85	1.84	1.83	1.83	1.83	1.84	1.84	1.84	S	1.85	1.84	1.85	1.83	1.93	1.86	24	
12	1.86	1.85	1.85	1.86	1.86	1.85	1.85	1.85	1.86	1.86	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	S	1.85	1.85	1.85	1.85	1.85	1.86	1.85	24
13	1.85	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.86	1.87	1.86	S	1.87	1.87	1.87	1.87	1.87	1.85	1.87	1.87	24
14	1.86	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.86	1.87	1.87	1.87	1.86	1.89	1.89	1.89	1.90	S	1.90	1.89	1.88	1.87	1.87	1.86	1.86	1.90	1.87	24	
15	1.85	1.85	1.85	1.85	1.85	1.85	1.84	1.84	1.84	1.85	1.91	1.88	1.88	1.90	1.87	1.88	S	1.83	1.82	1.81	1.81	1.81	1.80	1.81	1.80	1.91	1.85	24	
16	1.83	1.82	1.82	1.81	1.85	1.87	1.87	1.87	1.91	1.91	2.00	1.99	1.87	1.84	1.85	S	1.87	1.84	1.84	1.84	1.85	1.86	1.87	1.87	1.87	1.81	2.00	1.87	24
17	1.88	1.88	1.88	1.88	1.87	1.85	1.84	1.83	1.83	1.84	1.85	1.87	1.86	1.86	S	1.83	1.84	1.84	1.84	1.87	1.87	1.88	1.85	1.85	1.83	1.88	1.86	24	
18	1.85	1.85	1.85	1.87	1.87	1.90	1.89	1.89	2.03	2.09	1.90	1.85	1.84	S	1.85	1.85	1.86	1.86	1.85	1.84	1.86	1.85	1.86	1.87	1.84	2.09	1.88	24	
19	1.86	1.84	1.84	1.83	1.85	1.87	1.86	1.85	1.85	1.84	1.85	1.86	S	1.86	1.85	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.85	1.83	1.87	1.85	24	
20	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	S	1.86	1.85	1.85	1.86	1.85	1.86	1.86	1.85	1.85	1.87	1.85	1.84	1.84	1.87	1.85	24	
21	1.85	1.85	1.85	1.84	1.84	1.83	1.84	1.84	1.84	1.84	S	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.85	1.85	1.91	1.86	1.86	1.86	1.83	1.91	1.85	24
22	1.88	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	S	1.87	1.87	1.86	1.86	1.87	1.87	1.85	1.85	1.86	1.86	1.86	1.86	1.86	1.87	1.85	1.88	1.86	24	
23	1.87	1.88	1.89	1.89	1.87	1.86	1.86	1.86	S	1.86	1.87	1.87	1.85	1.85	1.85	1.85	1.86	1.85	1.85	1.85	1.85	1.85	1.86	1.87	1.85	1.89	1.86	24	
24	1.88	1.88	1.88	1.88	1.88	1.88	1.88	S	1.88	1.89	1.89	1.89	1.89	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.89	1.88	1.89	1.88	24
25	1.89	1.88	1.88	1.88	1.89	1.88	S	1.89	1.89	1.89	1.90	1.88	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.85	1.85	1.90	1.87	24
26	1.86	1.85	1.85	1.86	1.86	S	1.87	1.87	1.87	1.87	1.86	1.87	1.87	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.85	1.87	1.86	24	
27	1.88	1.87	1.88	1.89	S	1.90	1.90	1.92	2.00	1.98	1.90	1.90	1.89	1.88	1.87	1.87	1.86	1.87	1.87	1.87	1.87	1.88	1.88	1.87	1.86	2.00	1.89	24	
28	1.87	1.86	1.87	S	1.87	1.87	1.87	1.88	1.88	1.88	1.91	1.88	1.88	1.88	1.87	1.87	1.88	1.88	1.90	1.89	1.89	1.89	1.89	1.88	1.86	1.91	1.88	24	
HOURLY MAX	1.95	1.94	1.94	1.94	1.94	1.94	2.04	2.00	2.33	2.89	2.74	1.99	1.94	1.94	1.93	1.93	1.94	2.00	2.09	1.95	2.02	2.03	1.98	1.94					
HOURLY AVG	1.88	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.91	1.93	1.92	1.89	1.88	1.87	1.87	1.87	1.87	1.87	1.88	1.87	1.88	1.88	1.88	1.87					

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

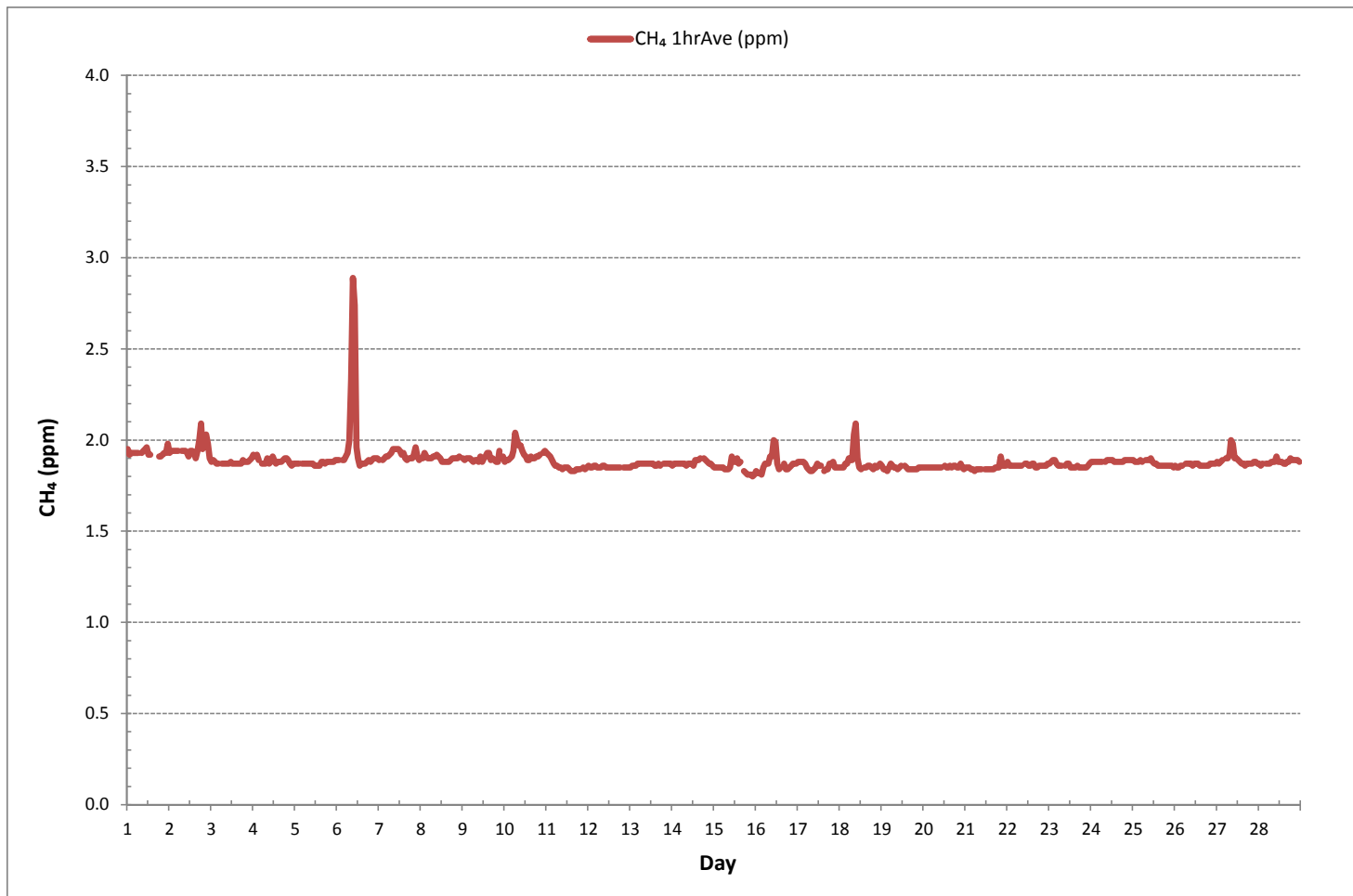
24 HR AVERAGES February 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	639			
MINIMUM 1-HR AVERAGE:	1.80 ppm	@ HOUR(S)	22	ON DAY(S) 15
MAXIMUM 1-HR AVERAGE:	2.89 ppm	@ HOUR(S)	9	ON DAY(S) 6
MAXIMUM 24-HR AVERAGE:	2.00 ppm			ON DAY(S) 6
				VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs	OPERATIONAL TIME:	672 hrs	
MONTHLY CALIBRATION TIME:	4 hrs	AMD OPERATION UPTIME:	100.0 %	
STANDARD DEVIATION:	0.07	MONTHLY AVERAGE:	1.88 ppm	

METHANE Hourly Averages (CH₄ ppm)





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

METHANE MAX Instantaneous Maximum (CH₄ ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY 1	1.97	1.97	1.94	1.95	1.95	1.96	1.95	S	1.98	2.06	1.99	1.99	1.94	1.95	C	C	C	C	C	1.93	1.94	1.94	1.98	1.95	1.93	2.06	1.96	24	
2	1.94	1.95	1.96	1.96	1.96	1.97	S	1.95	1.96	1.97	1.95	1.92	1.96	1.96	1.95	1.95	1.95	2.14	2.15	2.07	2.08	2.08	2.01	1.94	1.92	2.15	1.99	24	
3	1.90	1.90	1.89	1.88	1.88	S	1.88	1.88	1.89	1.88	1.89	1.89	1.88	1.87	1.87	1.88	1.88	1.89	1.91	1.90	1.89	1.93	1.95	1.91	1.87	1.95	1.89	24	
4	1.95	1.95	1.96	1.95	S	1.92	1.88	1.89	1.97	1.88	1.92	1.95	1.92	1.89	1.91	1.91	1.90	1.97	1.95	1.95	1.91	1.89	1.87	2.00	1.87	2.00	1.93	24	
5	1.88	1.95	1.88	S	1.87	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.87	1.89	1.91	1.92	1.93	1.89	1.91	1.88	1.90	1.89	1.90	1.90	1.87	1.95	1.89	24	
6	1.91	1.92	S	1.90	1.91	1.93	1.99	2.21	2.85	3.31	3.10	2.39	1.93	1.96	1.88	1.89	1.89	1.90	1.89	1.90	1.91	1.93	1.94	1.91	1.88	3.31	2.10	24	
7	1.91	S	1.92	1.93	1.92	1.94	1.97	1.95	1.96	1.96	1.97	1.97	1.96	1.93	1.95	1.93	1.92	1.92	1.91	1.92	1.98	1.99	1.97	1.91	1.91	1.99	1.94	24	
8	S	1.92	1.96	2.04	1.92	1.92	1.92	1.95	1.93	1.93	1.91	1.90	1.89	1.90	1.91	1.91	1.91	1.91	1.92	1.91	1.96	1.92	1.92	S	1.89	2.04	1.93	24	
9	1.91	1.91	1.92	1.91	1.92	1.91	1.91	1.91	1.90	1.90	1.93	1.89	1.98	1.94	2.09	2.09	1.91	1.92	1.92	1.89	1.91	1.97	S	1.93	1.89	2.09	1.93	24	
10	1.90	1.90	1.97	1.91	1.93	2.02	2.10	2.08	1.99	2.01	1.98	1.93	1.93	1.92	1.92	1.94	1.92	1.91	1.93	1.93	1.96	S	1.94	1.95	1.90	2.10	1.96	24	
11	1.95	1.94	1.92	1.91	1.88	1.87	1.87	1.86	1.86	1.85	1.87	1.86	1.88	1.88	1.92	1.84	1.85	1.85	1.86	1.85	S	1.86	1.86	1.87	1.84	1.95	1.88	24	
12	1.87	1.87	1.87	1.87	1.88	1.87	1.86	1.89	1.87	1.87	1.86	1.86	1.87	1.87	1.87	1.88	1.88	1.87	1.86	S	1.86	1.86	1.86	1.86	1.86	1.86	1.89	1.87	24
13	1.86	1.87	1.87	1.87	1.88	1.88	1.89	1.89	1.89	1.91	1.89	1.89	1.89	1.89	1.88	1.88	1.87	1.88	S	1.89	1.89	1.89	1.97	1.88	1.86	1.97	1.89	24	
14	1.88	1.88	1.89	1.88	1.88	1.89	1.88	1.88	1.88	1.89	1.89	1.89	1.89	1.91	1.91	1.90	1.91	S	1.91	1.91	1.90	1.88	1.89	1.88	1.88	1.91	1.89	24	
15	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.86	1.85	1.87	2.00	1.92	1.92	2.00	1.88	1.92	S	1.85	1.84	1.82	1.82	1.82	1.82	1.82	1.82	1.82	2.00	1.87	24
16	1.86	1.84	1.84	1.82	1.92	1.90	1.90	1.93	1.96	1.95	2.05	2.03	1.96	1.87	1.86	S	1.93	1.86	1.85	1.88	1.88	1.88	1.88	1.90	1.82	2.05	1.90	24	
17	1.90	1.91	1.90	1.89	1.88	1.86	1.88	1.84	1.85	1.85	1.86	1.89	1.90	1.88	S	1.84	1.84	1.85	1.93	1.92	1.94	1.88	1.87	1.86	1.84	1.94	1.88	24	
18	1.87	1.88	1.86	1.90	1.88	1.94	1.91	1.95	2.11	2.22	2.02	1.87	1.85	S	1.87	1.86	1.88	1.89	1.87	1.86	1.89	1.87	1.88	1.90	1.85	2.22	1.91	24	
19	1.88	1.86	1.85	1.85	1.86	1.88	1.88	1.86	1.87	1.86	1.86	1.86	S	1.86	1.86	1.86	1.86	1.87	1.86	1.87	1.85	1.86	1.86	1.87	1.85	1.88	1.86	24	
20	1.86	1.88	1.86	1.87	1.87	1.86	1.86	1.86	1.87	1.86	1.87	S	1.88	1.88	1.88	1.89	1.86	1.88	1.87	1.88	1.86	1.93	1.86	1.86	1.86	1.93	1.87	24	
21	1.89	1.86	1.86	1.85	1.86	1.84	1.86	1.85	1.87	1.85	S	1.86	1.85	1.87	1.86	1.85	1.85	1.87	1.86	1.88	1.96	1.87	1.88	1.88	1.84	1.96	1.87	24	
22	1.91	1.88	1.88	1.88	1.88	1.88	1.87	1.86	1.87	S	1.88	1.91	1.88	1.88	1.94	1.89	1.88	1.87	1.89	1.88	1.88	1.89	1.95	1.89	1.86	1.95	1.89	24	
23	1.90	1.90	1.92	1.93	1.89	1.89	1.88	1.89	S	1.88	1.89	1.92	1.87	1.88	1.89	1.87	1.88	1.87	1.87	1.88	1.86	1.87	1.88	1.88	1.86	1.93	1.89	24	
24	1.90	1.90	1.90	1.91	1.89	1.90	1.91	S	1.90	1.90	1.90	1.91	1.91	1.90	1.90	1.90	1.90	1.89	1.90	1.91	1.92	1.90	1.90	1.90	1.89	1.92	1.90	24	
25	1.90	1.89	1.89	1.91	1.90	1.90	S	1.89	1.90	1.90	1.93	1.90	1.88	1.88	1.87	1.87	1.87	1.87	1.87	1.89	1.87	1.87	1.87	1.86	1.87	1.93	1.89	24	
26	1.87	1.87	1.87	1.87	S	1.88	1.88	1.88	1.91	1.88	1.88	1.88	1.88	1.88	1.91	1.87	1.87	1.87	1.87	1.87	1.88	1.88	1.88	1.89	1.88	1.87	1.91	1.88	24
27	1.89	1.89	1.89	1.90	S	1.92	1.92	1.96	2.12	2.06	1.92	1.92	1.91	1.89	1.89	1.88	1.88	1.87	1.87	1.88	1.89	1.90	1.90	1.89	1.87	2.12	1.91	24	
28	1.88	1.94	1.88	S	1.88	1.88	1.89	1.95	1.91	1.89	1.94	2.01	1.91	1.89	1.88	1.89	1.90	1.90	1.92	1.96	1.91	1.93	1.90	1.89	1.88	2.01	1.91	24	
HOURLY MAX	1.97	1.97	1.97	2.04	1.96	2.02	2.10	2.21	2.85	3.31	3.10	2.39	1.98	2.00	2.09	2.09	1.95	2.14	2.15	2.07	2.08	2.08	2.01	2.00					
HOURLY AVG	1.90	1.90	1.90	1.90	1.89	1.90	1.92	1.95	1.97	1.96	1.93	1.90	1.90	1.90	1.90	1.90	1.89	1.89	1.90	1.90	1.91	1.90	1.90	1.90					

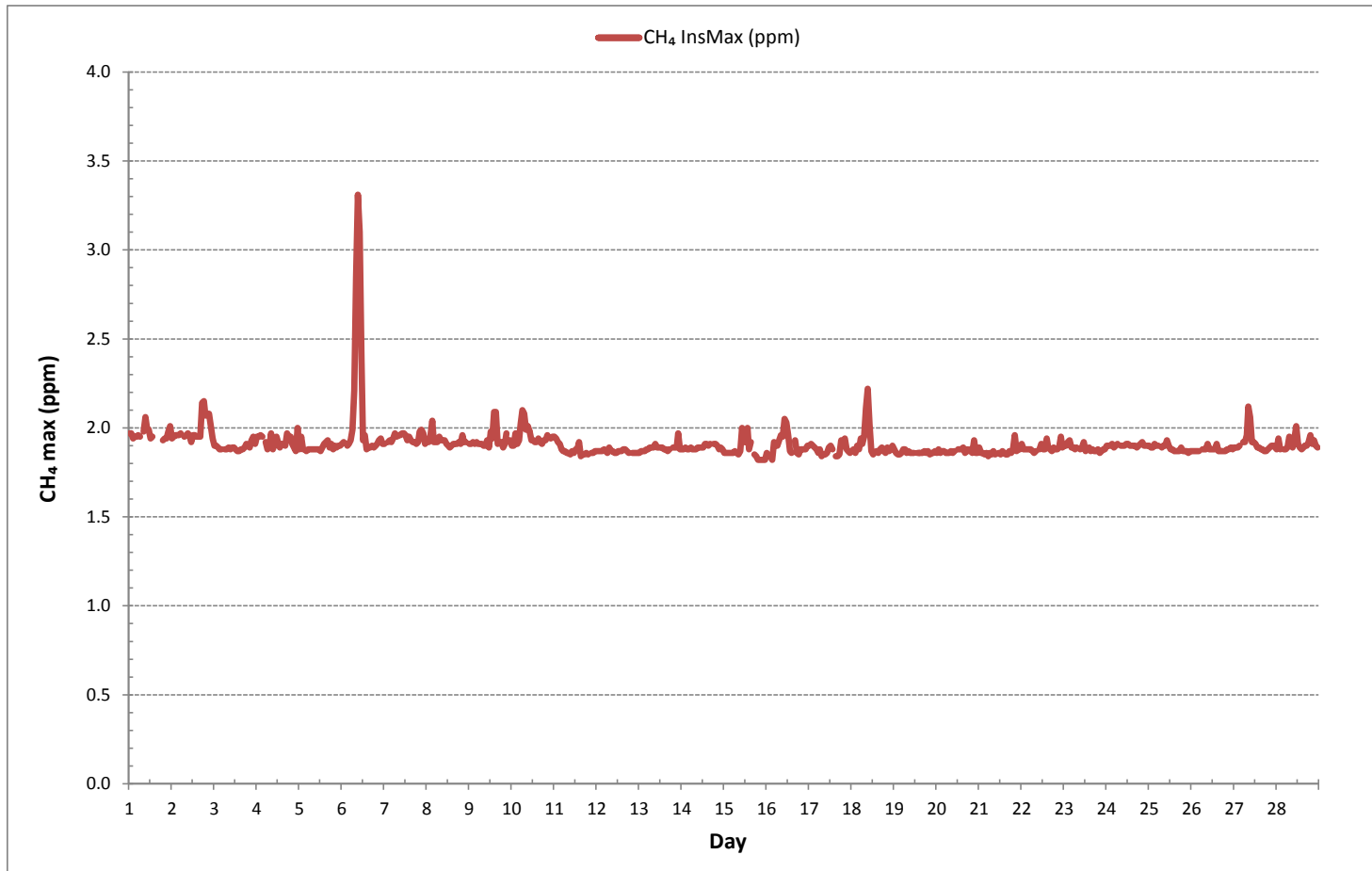
STATUS FLAG CODES

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:	638
MAXIMUM INSTANTANEOUS VALUE:	3.31 ppm @ HOUR(S) 9 ON DAY(S) 6
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	672 hrs
STANDARD DEVIATION:	0.10

METHANE MAX Instantaneous Maximum (CH₄ ppm)



Wind: PRAMP_842 Poll.: PRAMP_842-CH4[ppm] Monthly: 17/02
 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.82%

Calm Avg: 1.91 [ppm]

Direction	0-2	2-3	3-5	5-10	>10.0	Total
N	11.0	0.0	0.0	0.0	0.0	11.0
NE	7.1	0.3	0.0	0.0	0.0	7.4
E	4.6	0.6	0.0	0.0	0.0	5.2
SE	8.2	0.2	0.0	0.0	0.0	8.4
S	13.5	0.0	0.0	0.0	0.0	13.5
SW	24.3	0.0	0.0	0.0	0.0	24.3
W	8.8	0.0	0.0	0.0	0.0	8.8
NW	12.6	0.0	0.0	0.0	0.0	12.6
Summary	90.1	1.1	0.0	0.0	0.0	91.2

% Icon Classes (ppm)

90 0-2

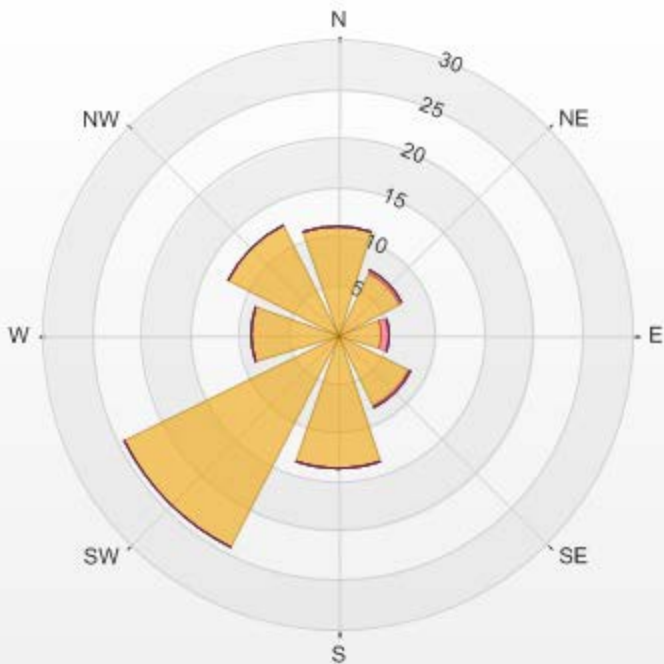
1 2-3

0 3-5

0 5-10

0 >10.0

PRAMP_842 Poll.: PRAMP_842-CH4[ppm] 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.82% Calm Poll Avg: 1.91[ppm]



CH4[ppm] Calibration: PRAMP_842 Monthly: 2017/02 Type: Span



Span Meas Span Ref Span Low Span High

NON-METHANE HYDROCARBON



PEACE RIVER AREA MONITORING PROGRAM COMMITTEE

Three Creeks 842b Station - February 2017

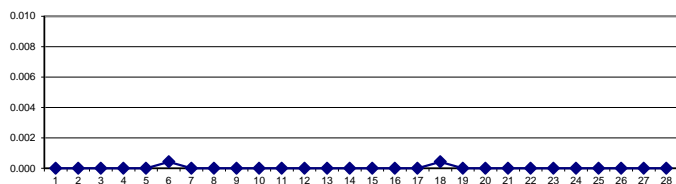
NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.																						
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.																							
DAY																																																		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	C	C	C	C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
3	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
4	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
5	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
6	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24																						
7	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
8	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	24																						
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	24																						
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	24																						
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	24																						
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24																						
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
25	0.00	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
26	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
27	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
28	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24																						
HOURLY MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	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 February 2017

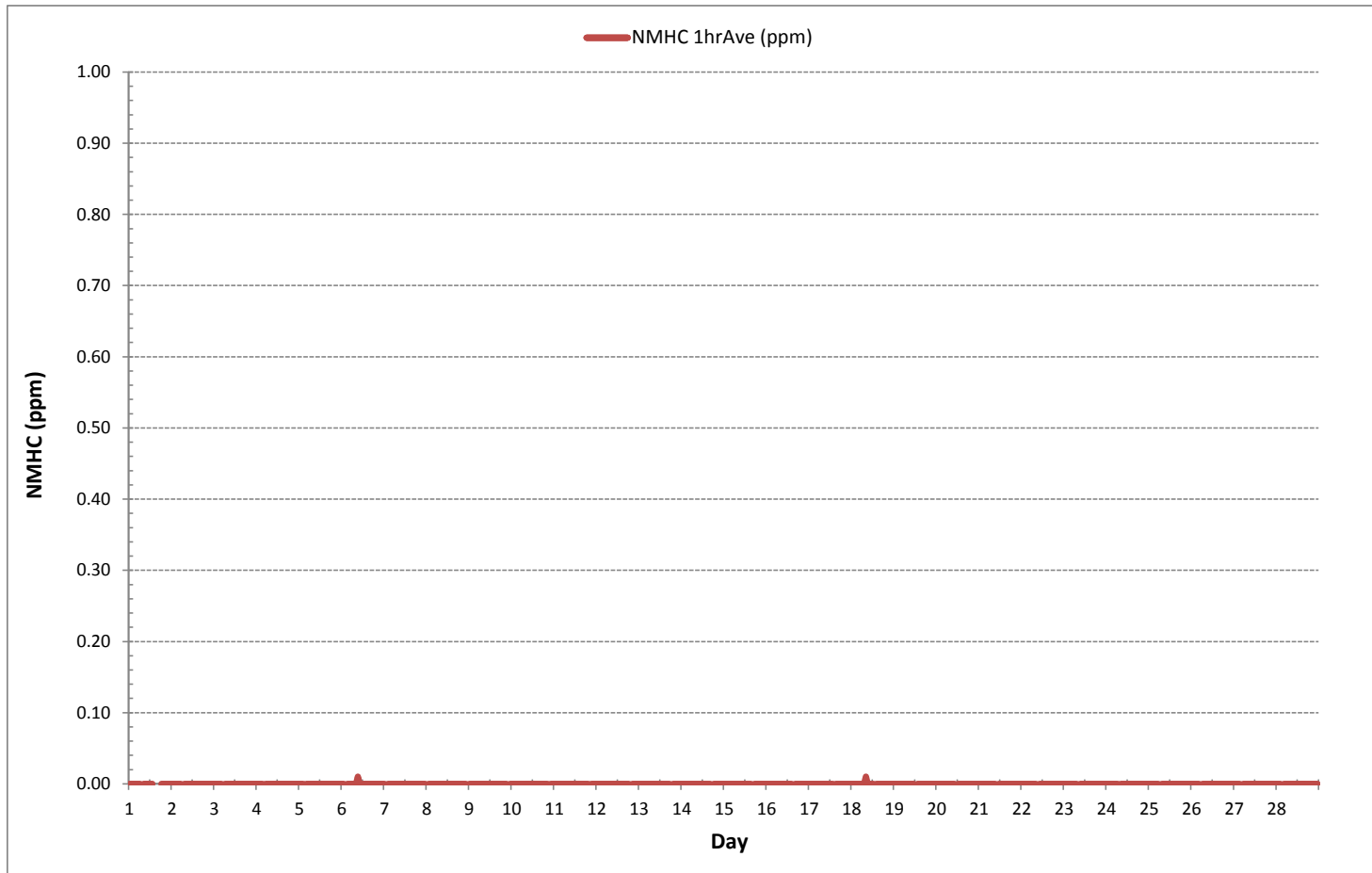


MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	2				
MINIMUM 1-HR AVERAGE:	0.00	ppm	@ HOUR(S)	VAR	ON DAY(S) ALL
MAXIMUM 1-HR AVERAGE:	0.01	ppm	@ HOUR(S)	9 , 8	ON DAY(S) 6 , 18
MAXIMUM 24-HR AVERAGE:	0.00	ppm			ON DAY(S) ALL
					VAR-VARIOUS
IZS CALIBRATION TIME:	29	hrs		OPERATIONAL TIME:	672 hrs
MONTHLY CALIBRATION TIME:	4	hrs		AMD OPERATION UPTIME:	100.0 %
STANDARD DEVIATION:	0.00			MONTHLY AVERAGE:	0.00 ppm



NON-METHANE HYDROCARBONS Hourly Averages (NMHC ppm)





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

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY 1	0.01	0.04	0.06	0.01	0.01	0.02	0.05	S	0.24	0.01	0.04	0.00	0.00	0.00	C	C	C	C	C	0.04	0.00	0.00	0.00	0.03	0.00	0.24	0.03	24
2	0.00	0.00	0.08	0.00	0.09	0.00	S	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.09	0.01	24
3	0.02	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.13	0.01	24
4	0.00	0.00	0.00	0.00	S	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	24
5	0.00	0.01	0.01	S	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	24
6	0.00	0.01	S	0.00	0.05	0.00	0.01	0.00	0.01	0.17	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.01	24
7	0.00	S	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	24
8	S	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.05	0.00	0.00	0.00	0.00	0.00	S	0.00	0.05	0.01	24
9	0.01	0.00	0.00	0.00	0.09	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.01	0.00	0.00	0.00	0.00	0.00	S	0.00	0.13	0.01	24
10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.00	S	0.00	0.00	0.04	0.01	24	
11	0.00	0.03	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03	S	0.00	0.00	0.02	0.00	0.05	0.01	24
12	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.08	0.01	0.02	0.00	0.00	S	0.00	0.00	0.01	0.02	0.00	0.08	0.01	24
13	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.05	0.03	0.00	0.00	S	0.00	0.00	0.01	0.01	0.00	0.00	0.05	0.01	24
14	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.16	0.14	0.00	0.01	0.09	0.00	0.02	0.00	0.01	S	0.01	0.02	0.00	0.02	0.00	0.05	0.00	0.16	0.03	24
15	0.11	0.00	0.00	0.01	0.01	0.00	0.02	0.00	0.00	0.01	0.13	0.01	0.01	0.14	0.07	0.00	S	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.14	0.02	24
16	0.07	0.18	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.07	0.01	0.09	0.00	0.00	0.01	S	0.03	0.00	0.04	0.00	0.00	0.17	0.00	0.14	0.00	0.18	0.04	24
17	0.00	0.07	0.00	0.02	0.00	0.00	0.00	0.08	0.13	0.00	0.00	0.00	0.00	0.01	S	0.00	0.00	0.00	0.01	0.04	0.01	0.06	0.03	0.00	0.13	0.02	24	
18	0.01	0.00	0.00	0.01	0.00	0.00	0.12	0.00	0.12	0.15	0.00	0.00	0.00	S	0.00	0.13	0.00	0.01	0.00	0.00	0.00	0.00	0.19	0.04	0.00	0.19	0.03	24
19	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	S	0.04	0.00	0.00	0.01	0.06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.01	24
20	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.02	0.00	0.00	0.03	0.01	24
21	0.01	0.15	0.04	0.01	0.00	0.01	0.00	0.00	0.02	0.00	S	0.01	0.03	0.01	0.03	0.03	0.00	0.02	0.01	0.02	0.01	0.04	0.01	0.00	0.00	0.15	0.02	24
22	0.02	0.00	0.19	0.00	0.00	0.05	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.19	0.01	24
23	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	S	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.01	0.15	0.00	0.00	0.00	0.02	0.00	0.00	0.15	0.01	24
24	0.00	0.01	0.02	0.01	0.00	0.01	0.00	S	0.16	0.00	0.01	0.00	0.00	0.05	0.05	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.02	24
25	0.02	0.00	0.02	0.00	0.03	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.01	24	
26	0.00	0.00	0.00	0.00	0.00	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.00	24
27	0.00	0.00	0.01	0.00	S	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.00	24
28	0.00	0.00	0.00	S	0.02	0.00	0.01	0.00	0.10	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.01	24
HOURLY MAX	0.11	0.18	0.19	0.05	0.09	0.05	0.12	0.08	0.24	0.17	0.13	0.09	0.09	0.14	0.07	0.13	0.04	0.06	0.15	0.04	0.04	0.17	0.19	0.14				
HOURLY AVG	0.01	0.02	0.02	0.01	0.02	0.00	0.01	0.01	0.04	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01				

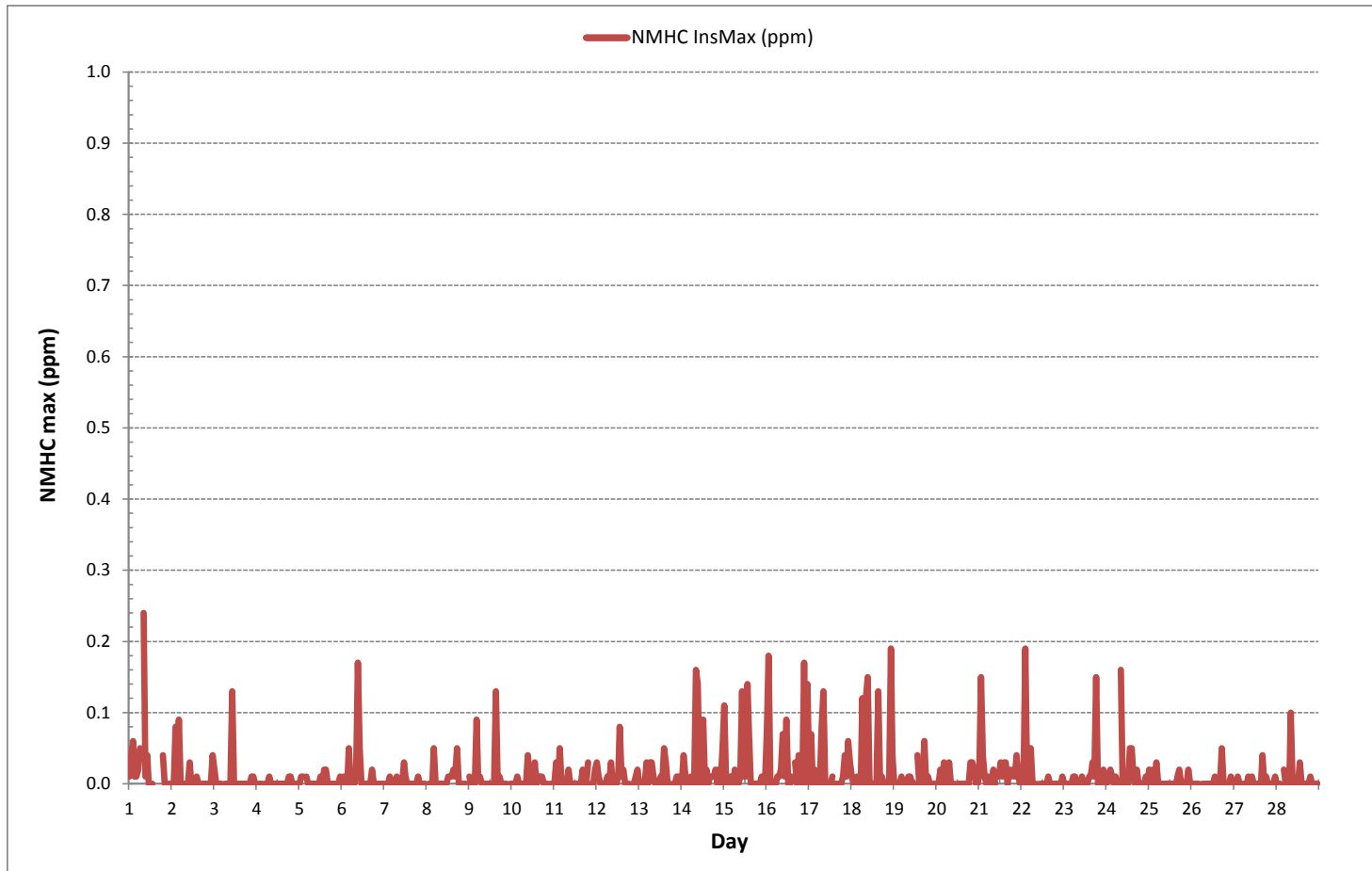
STATUS FLAG CODES

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

MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	220
MAXIMUM INSTANTANEOUS VALUE:	0.24 ppm @ HOUR(S) 8 ON DAY(S) 1
	VAR-VARIOUS
IZS CALIBRATION TIME:	29 hrs
MONTHLY CALIBRATION TIME:	5 hrs
OPERATIONAL TIME:	672 hrs
STANDARD DEVIATION:	0.03

NON-METHANE HYDROCARBONS Instantaneous Maximum (NMHC ppm)



Wind: PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] Monthly: 17/02
 Type: PollutionRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.82%

Calm Avg: 0.00 [ppm]

Direction	0-0.1	0.1-0.3	0.3-1	1-2	>2.0	Total
N	11.0	0.0	0.0	0.0	0.0	11.0
NE	7.4	0.0	0.0	0.0	0.0	7.4
E	5.2	0.0	0.0	0.0	0.0	5.2
SE	8.4	0.0	0.0	0.0	0.0	8.4
S	13.5	0.0	0.0	0.0	0.0	13.5
SW	24.3	0.0	0.0	0.0	0.0	24.3
W	8.8	0.0	0.0	0.0	0.0	8.8
NW	12.6	0.0	0.0	0.0	0.0	12.6
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

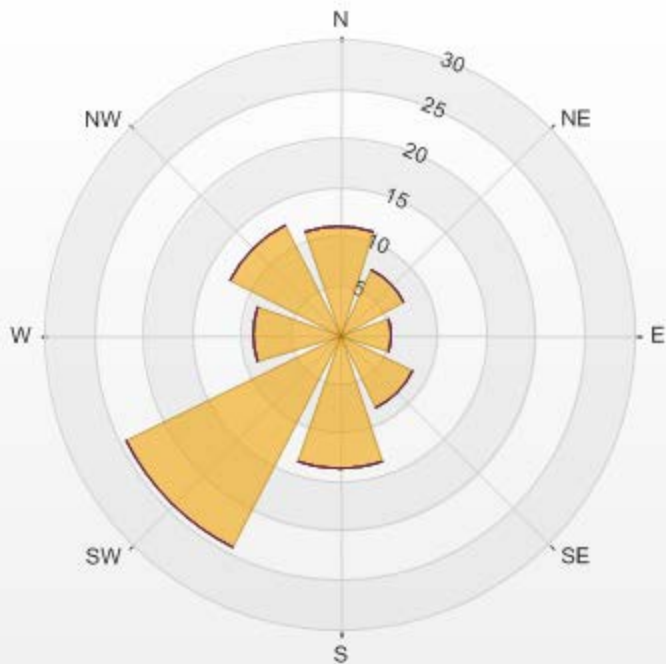
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1-2

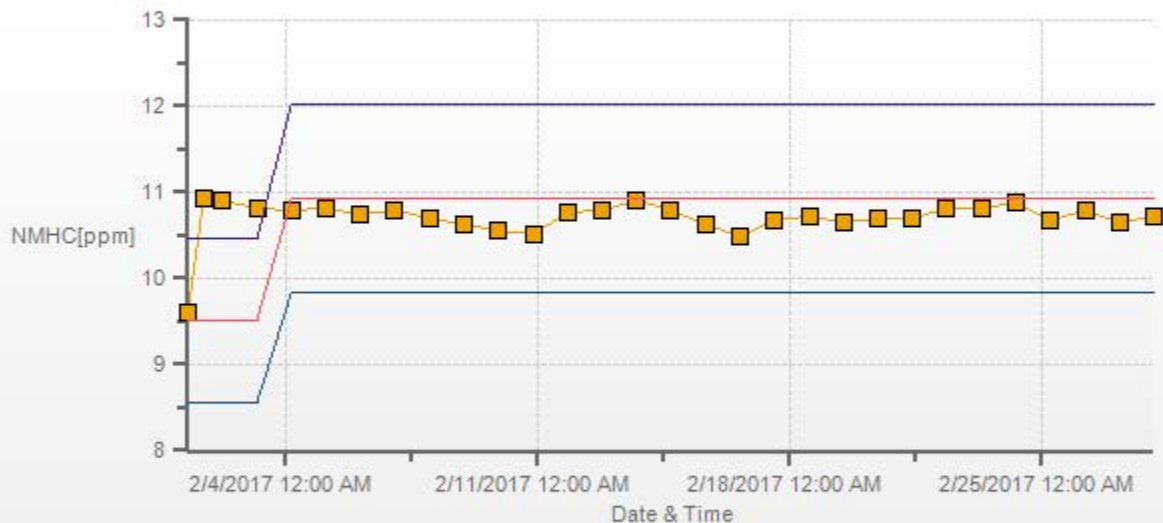
0

>2.0

PRAMP_842 Poll.: PRAMP_842-NMHC[ppm] 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.82% Calm Poll
Avg: 0.00[ppm]



NMHC[ppm] Calibration: PRAMP_842 Monthly: 2017/02 Type: Span



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

WIND SPEED



WIND SPEED Hourly Averages (WS kph)

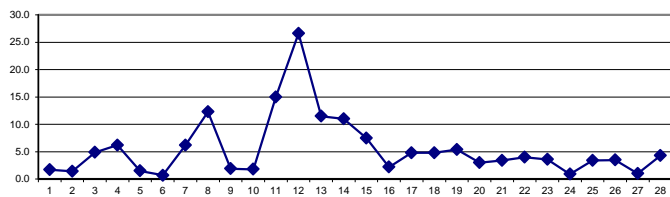
HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	2.8	6.6	4.6	2.8	1.4	1.3	0.6	0.9	0.4	0.3	0.5	0.2	3.5	5.7	4.5	4.0	6.8	6.3	5.9	4.6	4.2	4.0	3.7	1.6	0.2	6.8	1.7	24
2	2.0	3.2	2.1	1.8	1.8	2.6	2.7	2.7	3.5	3.9	2.7	5.6	5.0	3.4	3.5	4.4	3.8	1.9	0.4	0.5	0.3	0.9	2.3	4.6	0.3	5.6	1.4	24
3	5.3	5.0	5.6	8.4	7.1	6.9	6.9	10.9	7.8	6.6	7.1	10.1	10.0	9.4	9.3	7.0	6.5	2.5	2.3	4.1	2.2	0.3	0.9	1.1	0.3	10.9	4.9	24
4	2.1	4.6	3.7	3.1	1.9	3.9	8.7	7.2	7.6	10.5	11.3	13.1	13.4	13.8	12.9	11.5	11.0	9.8	10.0	5.5	3.5	8.4	8.2	11.0	1.9	13.8	6.2	24
5	9.2	8.8	9.5	8.7	7.2	3.6	3.0	5.4	0.8	1.2	6.0	4.4	3.7	7.7	6.4	6.4	6.4	7.7	8.8	7.8	4.6	4.4	3.9	4.0	0.8	9.5	1.5	24
6	3.7	2.8	3.0	2.4	3.9	3.9	3.4	2.9	2.5	2.6	1.6	2.9	6.7	6.8	7.8	7.9	6.5	3.0	0.3	0.2	0.2	1.9	1.6	1.9	0.2	7.9	0.7	24
7	2.3	2.2	1.4	0.8	4.9	3.0	4.9	5.9	5.5	8.7	10.1	12.6	12.1	13.6	12.1	11.1	11.1	7.5	6.0	3.8	4.9	5.2	7.2	8.0	0.8	13.6	6.2	24
8	8.7	9.9	9.9	12.0	12.6	10.0	11.2	11.3	10.7	12.9	15.5	15.0	18.6	18.2	19.6	17.0	17.0	16.7	17.0	13.0	9.9	10.1	8.3	6.4	6.4	19.6	12.3	24
9	9.2	5.1	5.0	5.6	4.4	4.5	5.1	4.9	3.2	2.7	2.3	0.5	4.7	2.1	4.4	4.2	1.9	1.7	5.0	3.9	2.6	2.6	2.3	2.6	0.5	9.2	1.9	24
10	3.2	1.3	1.0	2.1	4.1	5.0	4.8	3.4	2.8	3.6	4.3	4.9	4.7	6.2	4.1	6.0	6.9	7.0	7.5	3.8	5.9	5.6	6.9	12.9	1.0	12.9	1.8	24
11	11.5	9.0	4.4	8.7	11.5	9.3	10.2	9.3	10.9	10.9	13.6	19.1	21.6	21.4	25.1	27.2	27.2	20.6	17.1	13.8	19.2	17.3	20.2	26.3	4.4	27.2	15.0	24
12	30.6	27.2	27.6	26.9	27.9	26.6	27.3	27.4	28.3	29.0	33.9	29.5	15.4	16.3	24.9	26.4	30.5	31.5	31.7	31.3	26.3	21.2	22.5	23.3	15.4	33.9	26.6	24
13	19.7	11.0	11.2	12.1	11.6	15.7	14.8	10.3	8.6	7.5	11.0	14.0	15.4	14.5	14.2	13.4	14.2	10.6	11.2	11.4	10.2	13.4	11.7	15.5	7.5	19.7	11.5	24
14	15.3	14.3	13.7	12.7	13.4	10.8	10.1	9.9	8.9	11.9	13.5	C	C	15.1	11.4	7.4	9.3	10.5	6.4	10.7	12.8	12.7	9.0	13.6	6.4	15.3	11.0	24
15	11.7	5.6	5.1	2.1	6.1	8.8	4.7	2.7	2.0	2.4	3.9	4.9	7.1	7.3	9.4	12.9	15.3	18.4	20.1	20.4	16.7	12.4	4.9	3.4	2.0	20.4	7.5	24
16	4.5	8.5	15.5	6.0	4.5	3.8	2.6	3.2	3.5	2.4	3.6	2.2	1.3	5.4	5.2	5.3	8.8	3.8	2.4	2.2	3.4	2.9	3.5	3.1	1.3	15.5	2.2	24
17	1.4	2.6	5.2	4.2	4.1	6.4	8.5	6.5	3.5	4.8	8.8	8.4	6.7	8.4	8.9	7.3	5.3	4.4	5.1	4.4	5.6	3.6	3.6	2.4	1.4	8.9	4.8	24
18	0.3	0.2	0.4	0.9	1.9	2.4	1.4	2.7	3.1	3.5	4.0	3.4	4.6	5.4	6.0	6.6	7.5	8.6	8.0	9.2	9.3	10.7	10.5	9.8	0.2	10.7	4.8	24
19	10.3	9.6	9.7	10.8	10.1	8.4	6.6	6.0	5.9	5.1	4.6	4.8	7.1	8.8	10.3	11.3	11.1	11.3	10.0	7.1	7.1	5.8	6.1	4.0	4.0	11.3	5.4	24
20	4.1	4.2	4.0	3.6	4.8	3.2	4.7	5.2	4.9	4.0	3.7	5.7	4.7	4.3	5.1	5.3	4.8	6.5	5.8	6.6	3.6	4.3	8.8	8.8	3.2	8.8	3.0	24
21	6.8	2.7	3.2	4.1	4.7	5.8	7.7	5.9	5.1	6.4	7.4	5.7	7.0	7.9	4.2	1.7	1.7	2.8	2.0	2.7	1.2	1.6	0.6	4.0	0.6	7.9	3.4	24
22	5.9	4.6	2.7	1.3	1.5	7.0	6.4	5.6	5.3	6.3	8.4	8.3	8.6	9.1	6.1	7.3	6.0	3.4	5.4	3.5	1.8	0.3	0.2	0.6	0.2	9.1	4.0	24
23	0.5	1.6	0.9	3.7	2.0	3.8	5.2	3.6	7.7	9.8	8.6	8.6	10.8	10.6	10.7	8.8	5.9	4.0	6.3	5.1	7.2	7.4	10.6	8.8	0.5	10.8	3.6	24
24	9.6	9.5	9.9	8.3	8.0	10.8	8.9	8.4	6.7	6.4	4.6	5.6	6.1	8.7	8.3	8.8	10.9	9.5	8.4	9.5	10.2	10.3	7.8	8.5	4.6	10.9	0.9	24
25	7.1	6.9	9.9	10.9	10.2	9.8	9.0	6.9	4.4	5.8	5.5	4.4	7.4	6.8	9.1	9.6	8.5	4.5	2.9	7.8	12.8	15.9	13.9	10.7	2.9	15.9	3.4	24
26	11.3	10.3	13.3	10.8	8.9	9.0	9.0	6.7	4.6	6.5	9.7	8.7	7.5	11.1	14.7	13.1	13.7	14.9	13.9	12.6	10.2	9.1	7.8	8.9	4.6	14.9	3.5	24
27	8.8	6.9	5.9	2.4	4.8	2.7	1.9	3.8	2.2	5.2	5.2	1.6	4.5	5.0	10.8	12.0	10.9	8.4	1.8	1.5	1.2	3.5	3.8	1.2	12.0	1.0	24	
28	3.7	6.9	6.5	5.7	6.4	4.1	3.2	0.6	1.9	4.9	5.4	3.8	3.3	3.1	4.1	5.1	4.4	9.0	9.3	9.3	8.3	7.6	9.7	9.6	0.6	9.7	4.3	24
HOURLY MAX	30.6	27.2	27.6	26.9	27.9	26.6	27.3	27.4	28.3	29.0	33.9	29.5	21.6	21.4	25.1	27.2	30.5	31.5	31.7	31.3	26.3	21.2	22.5	26.3				
HOURLY AVG	2.9	2.0	2.0	1.6	1.7	2.0	2.3	1.5	1.8	2.2	3.1	4.4	5.4	6.3	6.9	6.9	6.7	5.3	4.4	3.7	3.1	2.4	1.8	2.2				

STATUS FLAG CODES

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

LAST CALIBRATION: February 14, 2017
DECLINATION: MAGNETIC DECLINATION 15 DEGREE EAST

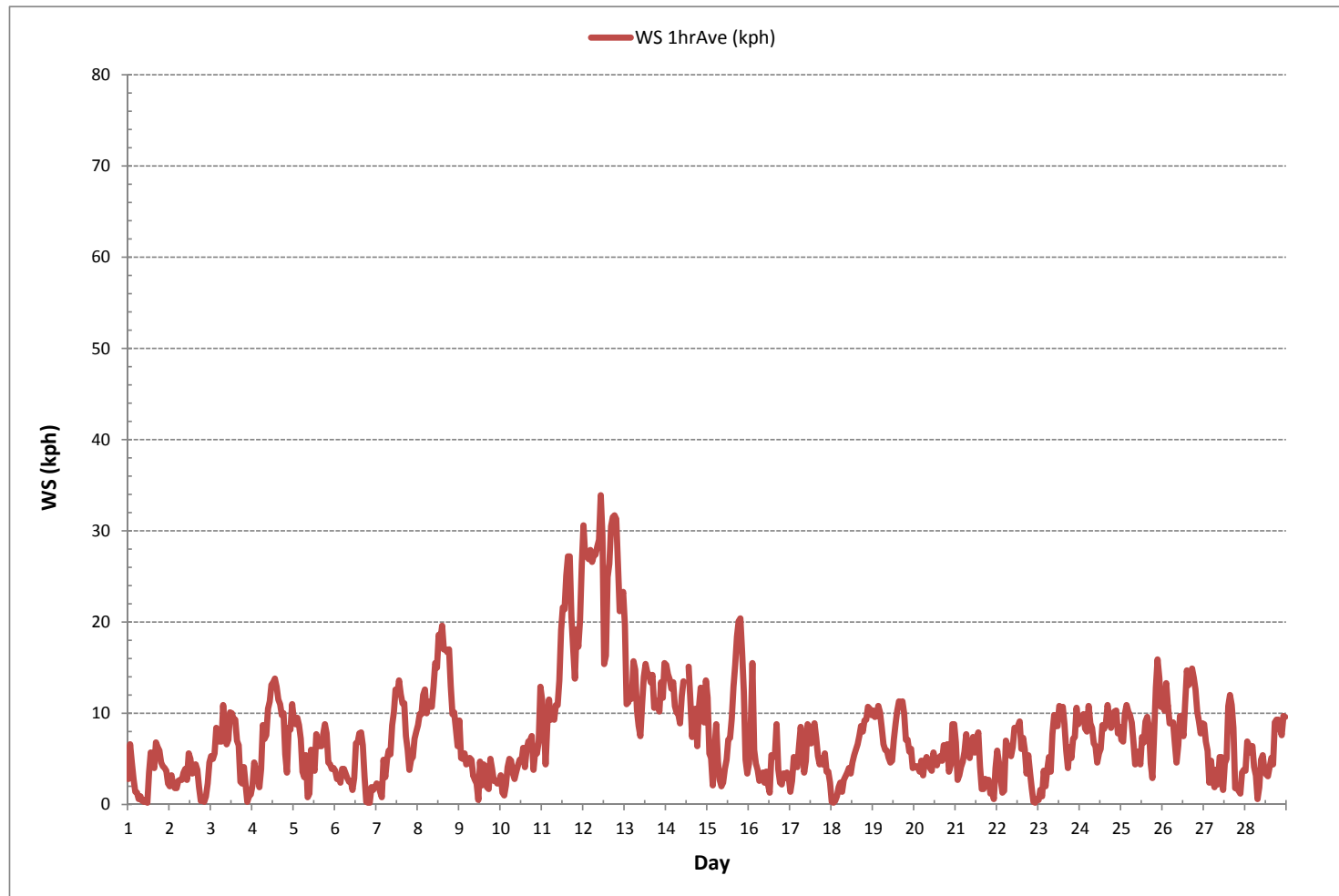
24 HR AVERAGES February 2017



MONTHLY SUMMARY

NUMBER OF NON-ZERO READINGS:	670
MINIMUM 1-HR AVERAGE:	0.2 kph @ HOUR(S) VAR ON DAY(S) VAR
MAXIMUM 1-HR AVERAGE:	33.9 kph @ HOUR(S) 10 ON DAY(S) 12
MAXIMUM 24-HR AVERAGE:	26.6 kph ON DAY(S) 12 VAR-VARIOUS
MONTHLY CALIBRATION TIME:	2 hrs OPERATIONAL TIME: 672 hrs
STANDARD DEVIATION:	5.8 AMD OPERATION UPTIME: 100.0 %
	MONTHLY AVERAGE: 3.4 kph

WIND SPEED Hourly Averages (WS kph)





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

WIND SPEED Instantaneous Maximum (WS kph)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	8.6	11.4	10.4	5.8	5.1	4.0	2.6	3.1	2.4	1.7	2.5	6.7	11.6	11.4	8.8	8.5	12.3	11.5	9.3	8.7	6.7	6.3	5.9	4.4	1.7	12.3	7.1	24
2	3.8	5.4	4.7	4.5	3.9	5.6	6.2	5.5	5.5	6.6	5.5	8.8	8.7	6.6	6.6	7.8	6.9	5.8	2.7	3.1	2.8	3.3	8.2	14.1	2.7	14.1	5.9	24
3	15.3	11.1	16.7	19.2	19.0	19.0	17.8	23.7	21.1	17.0	19.4	22.1	21.4	24.6	20.8	14.1	12.7	5.4	7.2	9.5	7.0	2.7	4.7	4.1	2.7	24.6	14.8	24
4	5.1	9.1	8.3	10.9	5.9	9.8	19.5	16.9	14.6	17.5	20.2	22.7	22.1	24.2	23.2	19.5	18.3	16.4	16.6	11.7	14.7	23.4	26.6	26.0	5.1	26.6	16.8	24
5	23.4	23.4	25.1	21.3	20.4	10.8	7.3	10.9	10.8	8.9	13.3	13.2	12.2	12.6	12.6	9.6	11.4	13.8	13.6	12.6	8.8	7.9	7.3	7.4	7.3	25.1	13.3	24
6	6.9	6.8	6.9	6.2	7.2	7.5	6.6	6.4	4.3	4.3	3.6	8.0	10.3	10.9	11.4	13.4	11.2	8.5	2.1	2.4	2.9	4.7	3.9	5.2	2.1	13.4	6.7	24
7	6.4	6.7	3.8	4.2	9.2	5.7	11.1	11.5	10.6	17.1	17.6	20.0	20.6	21.8	19.7	18.6	17.7	12.0	11.0	7.6	9.1	12.0	12.1	15.3	3.8	21.8	12.6	24
8	16.0	18.9	18.0	18.0	21.9	20.9	18.1	16.7	19.0	24.2	28.2	31.3	34.3	34.9	32.3	34.6	33.1	28.7	29.3	26.4	20.6	17.7	14.3	14.4	14.3	34.9	23.8	24
9	17.2	8.6	9.8	9.4	9.6	10.4	10.7	9.4	8.8	7.3	7.8	4.1	10.5	7.0	10.6	10.4	6.0	5.4	9.9	7.7	8.1	5.9	5.8	8.0	4.1	17.2	8.7	24
10	8.2	7.1	3.1	3.4	7.0	8.7	8.9	8.3	7.0	7.5	9.1	12.0	15.2	17.5	8.3	11.2	12.8	13.8	14.0	8.0	9.8	11.0	13.6	28.3	3.1	28.3	10.6	24
11	21.4	16.9	11.9	18.2	21.1	15.9	18.3	16.1	23.0	20.9	28.8	33.8	38.8	39.6	55.9	57.1	49.0	45.9	33.5	25.5	32.8	30.7	34.7	56.5	11.9	57.1	31.1	24
12	52.7	48.9	52.3	46.8	48.6	61.4	49.0	52.1	48.6	50.4	59.0	58.2	33.8	42.4	44.0	56.1	57.9	68.6	59.8	57.5	52.5	46.3	43.7	44.4	33.8	68.6	51.5	24
13	37.2	27.3	17.5	20.2	22.1	27.4	26.3	19.2	18.7	13.2	19.0	23.5	25.1	24.7	24.0	22.6	24.3	17.6	22.3	22.2	19.1	22.7	19.3	22.8	13.2	37.2	22.4	24
14	26.0	25.5	21.8	21.4	23.1	19.8	16.2	17.7	19.1	22.2	24.1	C	C	C	23.2	15.3	16.4	16.8	13.4	17.8	22.0	20.1	17.2	23.6	13.4	26.0	20.0	24
15	19.1	17.7	17.6	7.8	12.5	14.8	13.7	8.6	6.0	10.5	10.0	10.2	11.5	14.9	16.2	26.5	27.8	34.6	35.3	36.8	30.9	22.5	18.0	9.6	6.0	36.8	18.0	24
16	11.3	18.0	26.9	16.4	8.8	8.4	5.6	5.5	7.4	5.9	10.3	6.9	6.4	10.4	10.1	9.9	16.1	9.3	8.0	21.4	11.7	10.4	7.4	8.9	5.5	26.9	10.9	24
17	6.7	7.1	8.1	6.8	8.0	13.2	16.7	14.4	6.4	13.7	17.0	13.6	12.1	15.4	15.8	14.0	10.2	8.7	9.1	7.6	13.2	10.8	7.7	6.5	6.4	17.0	11.0	24
18	2.8	3.5	3.1	3.1	5.5	6.7	5.2	7.1	7.4	8.2	10.2	9.5	10.1	11.7	12.0	15.3	18.7	23.7	19.2	20.8	21.3	24.8	24.2	21.9	2.8	24.8	12.3	24
19	23.2	21.5	22.7	29.3	22.4	21.6	15.9	14.2	11.8	9.9	10.5	9.9	13.2	17.7	19.3	20.2	20.5	23.3	19.0	15.2	16.4	13.0	13.8	12.4	9.9	29.3	17.4	24
20	12.7	9.4	9.6	9.7	10.6	7.5	9.9	10.2	11.7	11.3	9.1	11.4	9.7	11.5	10.7	11.5	11.7	12.1	12.3	13.5	9.0	10.6	16.2	15.2	7.5	16.2	11.1	24
21	15.0	6.3	6.9	9.1	14.3	12.7	17.9	12.9	11.3	13.0	14.6	13.3	16.1	17.0	14.9	6.4	6.4	6.7	5.9	8.6	4.8	4.1	3.3	11.9	3.3	17.9	10.6	24
22	9.7	10.3	5.3	3.7	4.1	17.8	12.3	10.4	10.8	15.1	15.8	16.4	15.3	17.1	12.2	13.6	13.4	6.3	14.7	7.0	7.3	3.8	2.2	3.5	2.2	17.8	10.3	24
23	2.3	3.5	5.4	7.4	6.7	9.4	9.2	7.6	14.5	19.0	16.1	15.4	20.0	17.6	16.9	16.4	11.9	16.0	18.6	9.4	21.3	24.6	25.0	22.1	2.3	25.0	14.0	24
24	26.1	23.4	21.8	24.8	18.6	23.9	23.1	23.1	17.2	16.4	13.5	14.3	12.3	17.6	14.9	14.5	16.7	17.3	12.5	18.5	15.5	16.4	15.0	17.3	12.3	26.1	18.1	24
25	14.4	12.9	20.6	21.4	22.6	18.2	15.4	12.6	8.4	10.9	12.2	9.2	13.5	14.9	17.7	17.6	15.1	11.0	6.8	25.5	33.6	37.7	38.2	29.6	6.8	38.2	18.3	24
26	28.3	25.6	35.7	29.7	22.8	20.5	17.9	16.8	10.3	21.8	24.8	22.9	16.7	21.8	22.6	20.5	23.2	24.9	22.5	23.0	17.0	21.2	16.3	14.7	10.3	35.7	21.7	24
27	17.8	12.5	12.1	7.2	11.0	6.6	4.4	6.9	8.1	11.5	11.0	10.4	12.8	13.9	18.5	19.6	17.6	20.0	7.2	4.7	8.3	6.8	10.5	8.5	4.4	20.0	11.2	24
28	10.9	15.7	14.9	13.2	14.8	9.7	7.7	5.0	7.9	13.8	14.4	11.8	10.1	15.0	13.3	16.0	16.7	22.6	24.3	19.6	21.5	17.5	22.0	22.5	5.0	24.3	15.0	24
HOURLY MAX	52.7	48.9	52.3	46.8	48.6	61.4	49.0	52.1	48.6	50.4	59.0	58.2	33.8	42.4	44.0	56.1	57.9	68.6	59.8	57.5	52.5	46.3	43.7	44.4	33.8	68.6	51.5	
HOURLY AVG	16.0	14.8	15.0	14.3	14.5	14.9	14.1	13.3	12.6	14.3	16.0	16.3	16.5	18.3	18.4	18.6	18.4	18.1	16.4	16.2	16.0	15.7	15.6	17.1				

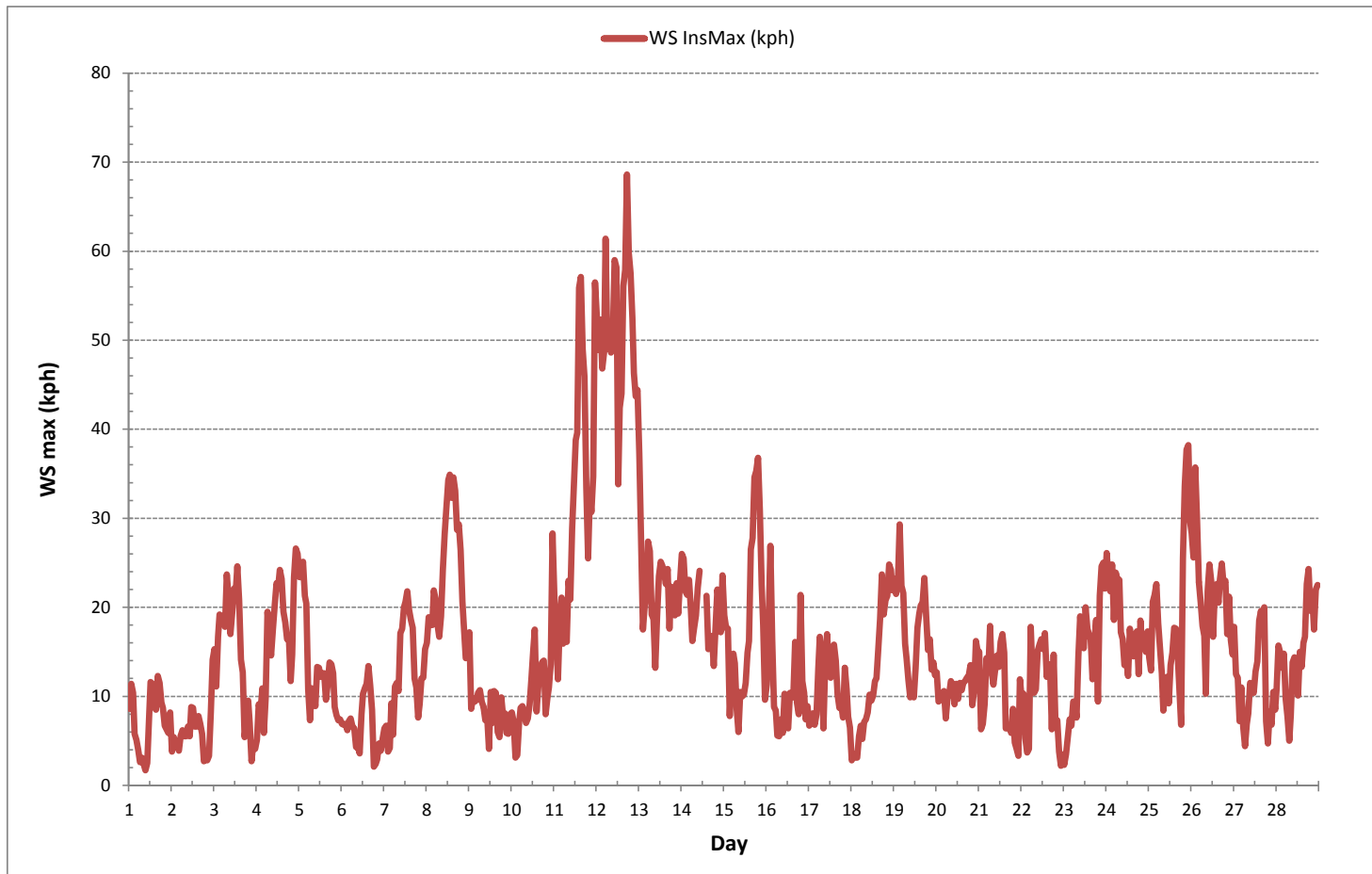
STATUS FLAG CODES

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

MONTHLY SUMMARY

MAXIMUM INSTANTANEOUS VALUE:	68.6	kph	@ HOUR(S)	17	ON DAY(S)	12
					VAR-VARIOUS	
OPERATIONAL TIME:					672	hrs

WIND SPEED Instantaneous Maximum (WS kph)



Wind: PRAMP_842 Monitor: WSP[kph] Monthly: 17/02
 Type: WindRose Direction: Blowing From (Wind Frequency) Based On 1 Hr.

Calm: 8.51%

Direction	1.8-6.0	6.0-12.0	12.0-20.0	20.0-29.0	29.0-39.0	>39.0	Total
N	5.1	5.8	0.5	0.0	0.0	0.0	11.3
NE	3.9	3.1	0.0	0.0	0.0	0.0	7.0
E	4.5	0.6	0.0	0.0	0.0	0.0	5.1
SE	6.4	1.6	0.3	0.0	0.0	0.0	8.4
S	3.0	7.3	3.4	0.3	0.0	0.0	14.0
SW	6.9	9.3	5.2	1.9	1.0	0.0	24.3
W	4.0	2.5	0.6	1.5	0.0	0.0	8.7
NW	5.5	7.0	0.2	0.0	0.0	0.0	12.7
Summary	39.3	37.3	10.2	3.7	1.0	0.0	91.5

% Icon Classes (kph)

39 1.8-6.0

37 6.0-12.0

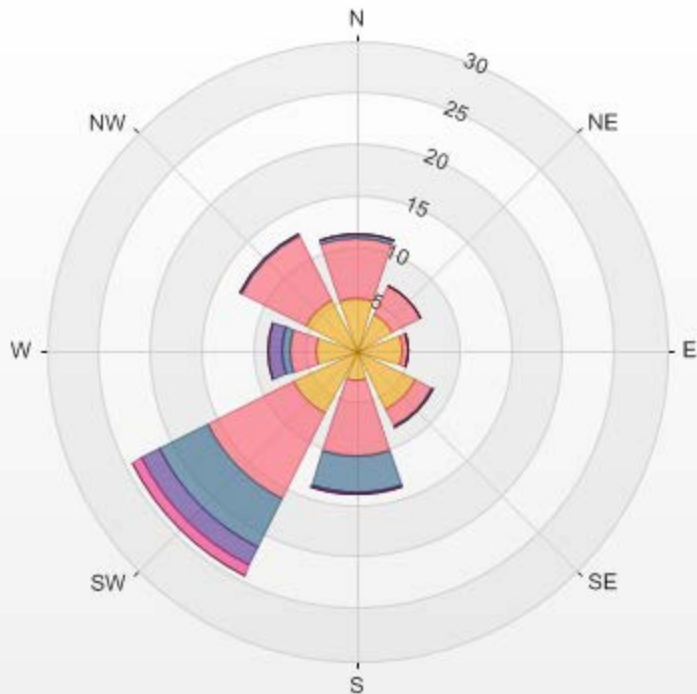
10 12.0-20.0

4 20.0-29.0

1 29.0-39.0

0 >39.0

PRAMP_842 2017/02/01 00:00 - 2017/02/28 23:00 Calm: 8.51% Calm Wind Avg Speed: 0.98(kph)



WIND DIRECTION



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

WIND DIRECTION Hourly Averages (WD)

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

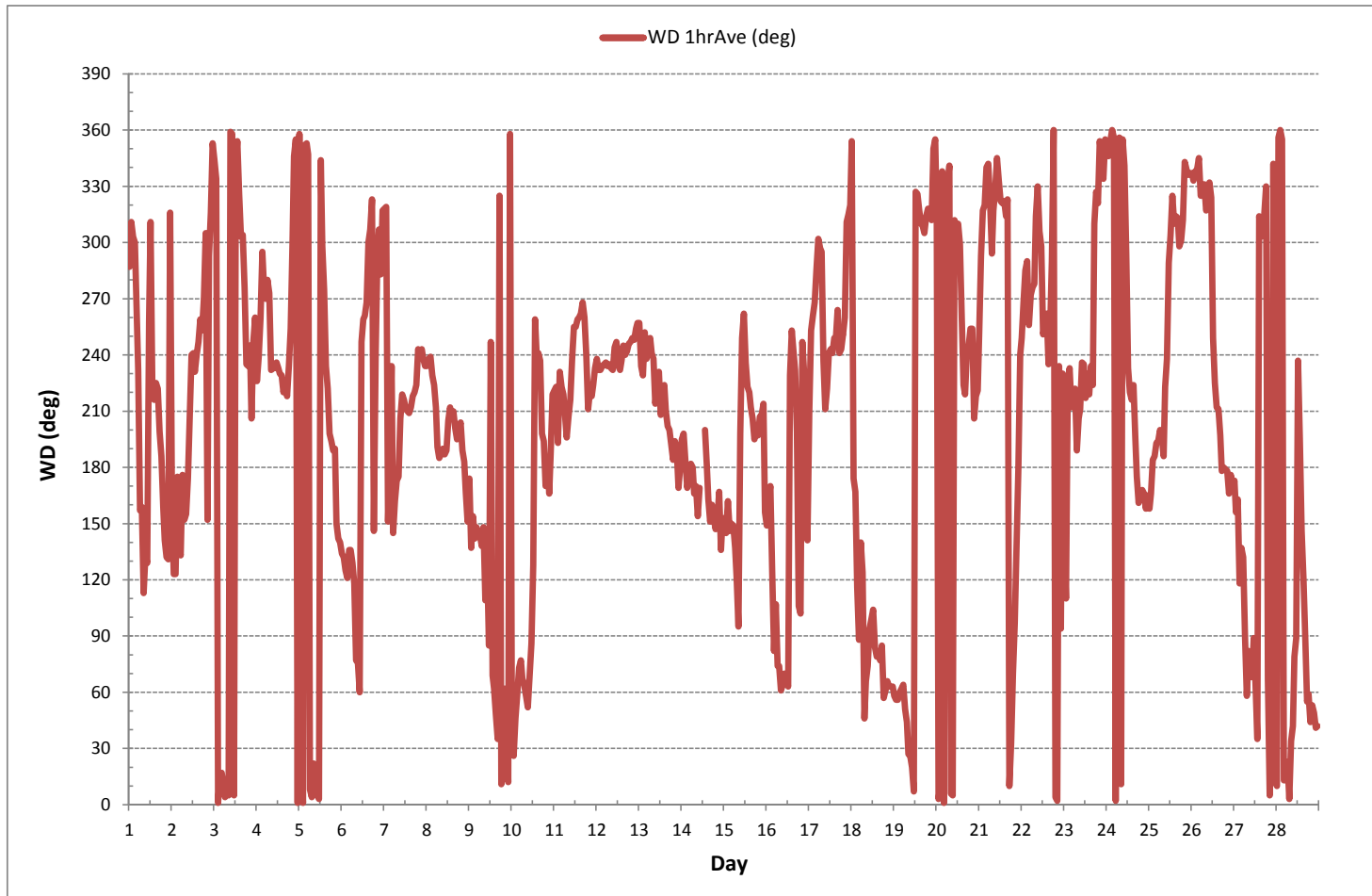
STATUS FLAG CODES

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:	February 14, 2017
DECLINATION :	MAGNETIC DECLINATION 15 DEGREE EAST

MONTHLY CALIBRATION TIME:	2 hrs	OPERATIONAL TIME:	672 hrs
STANDARD DEVIATION:	95	AMD OPERATION UPTIME:	100.0 %
		MONTHLY AVERAGE:	234 (SW)

WIND DIRECTION Hourly Averages (WD)



RELATIVE HUMIDITY



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

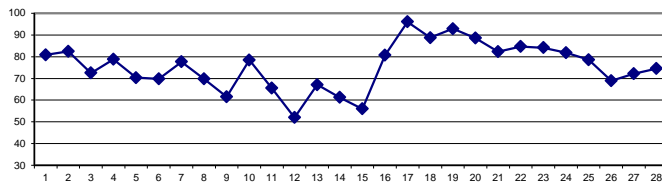
RELATIVE HUMIDITY Hourly Averages (RH %)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.	
DAY																												
1	90	84	81	84	87	87	84	83	82	84	84	78	74	64	59	67	75	83	85	86	86	86	84	59	90	81	24	
2	83	80	81	83	82	83	83	83	84	83	80	76	79	75	79	80	83	87	88	84	86	85	85	86	75	88	82	24
3	84	86	85	84	85	84	84	83	83	77	62	57	54	49	49	47	52	66	75	73	76	81	82	82	47	86	73	24
4	83	85	82	79	81	80	75	74	80	79	79	78	76	74	71	73	78	83	85	83	84	79	76	71	85	79	24	
5	76	75	71	74	77	78	77	77	77	74	59	51	50	55	56	65	64	71	77	78	78	76	76	50	78	70	24	
6	75	75	75	73	75	76	71	69	69	69	66	63	71	69	65	55	52	59	73	74	74	77	76	74	52	77	70	24
7	74	75	77	76	80	75	75	77	76	77	77	76	74	73	75	77	79	80	82	82	82	82	81	81	73	82	78	24
8	79	79	80	83	83	83	83	83	82	77	70	65	63	59	55	53	55	54	57	60	64	69	53	83	70	24		
9	66	70	70	71	70	67	67	67	68	65	60	53	56	55	47	44	44	59	59	57	61	64	64	73	44	73	62	24
10	69	73	77	77	76	76	75	73	72	77	80	77	77	75	73	77	76	81	85	85	88	88	90	85	69	90	78	24
11	79	80	80	78	74	74	75	73	74	68	66	61	60	57	53	51	51	55	58	59	60	64	63	61	51	80	66	24
12	61	61	60	58	55	52	50	49	51	50	48	44	41	39	43	46	49	51	54	56	59	60	62	39	62	52	24	
13	64	67	69	68	68	66	65	68	70	69	61	59	58	59	59	62	66	70	70	70	75	72	77	78	58	78	67	24
14	73	73	76	81	81	81	83	84	81	71	61	53	48	49	45	47	49	50	50	48	47	47	46	45	45	84	61	24
15	47	48	51	50	49	49	54	62	66	65	53	52	51	54	54	52	52	56	57	59	60	61	65	77	47	77	56	24
16	76	76	68	76	84	85	86	90	91	82	76	69	58	63	65	63	74	90	93	95	94	95	94	94	58	95	81	24
17	95	95	96	97	97	97	97	96	96	96	96	95	95	94	95	96	96	96	97	97	97	97	96	96	94	97	96	24
18	96	96	97	96	96	95	93	94	93	93	89	85	81	81	77	76	78	81	82	84	89	93	92	92	76	97	89	24
19	94	95	95	95	94	94	95	95	94	93	91	89	89	88	89	90	91	93	94	94	94	94	94	94	88	95	93	24
20	94	94	93	92	91	92	93	93	89	86	85	86	83	82	86	87	88	90	89	87	87	88	86	84	82	94	89	24
21	84	87	87	86	86	86	86	84	84	82	79	77	76	75	75	73	77	77	80	83	85	88	89	89	73	89	82	24
22	90	88	88	87	88	88	89	90	90	83	82	77	82	81	78	71	76	78	84	85	87	91	90	90	71	91	85	24
23	90	89	90	90	87	87	86	87	83	80	78	75	68	66	67	79	91	92	89	91	89	89	89	87	66	92	84	24
24	86	87	87	86	86	86	85	86	84	82	81	80	80	77	72	71	70	74	81	84	85	85	85	84	70	87	82	24
25	81	83	83	82	82	81	81	85	86	82	85	80	77	71	71	72	73	75	79	81	72	68	76	80	68	86	79	24
26	76	76	74	69	73	73	74	75	73	59	54	51	57	64	64	64	66	70	73	74	76	76	79	51	79	69	24	
27	78	79	78	79	79	81	83	85	83	76	71	63	52	48	51	57	54	56	65	79	84	86	84	82	48	86	72	24
28	83	80	79	81	80	82	84	83	74	70	65	66	62	62	59	60	69	75	77	78	79	79	79	59	84	75	24	
HOURLY MAX	96	96	97	97	97	97	97	96	96	96	96	95	95	94	95	96	96	96	97	97	97	97	96	96				
HOURLY AVG	80	80	80	80	80	80	80	80	80	77	73	70	68	67	66	66	68	72	76	77	78	79	79	80				

STATUS FLAG CODES

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

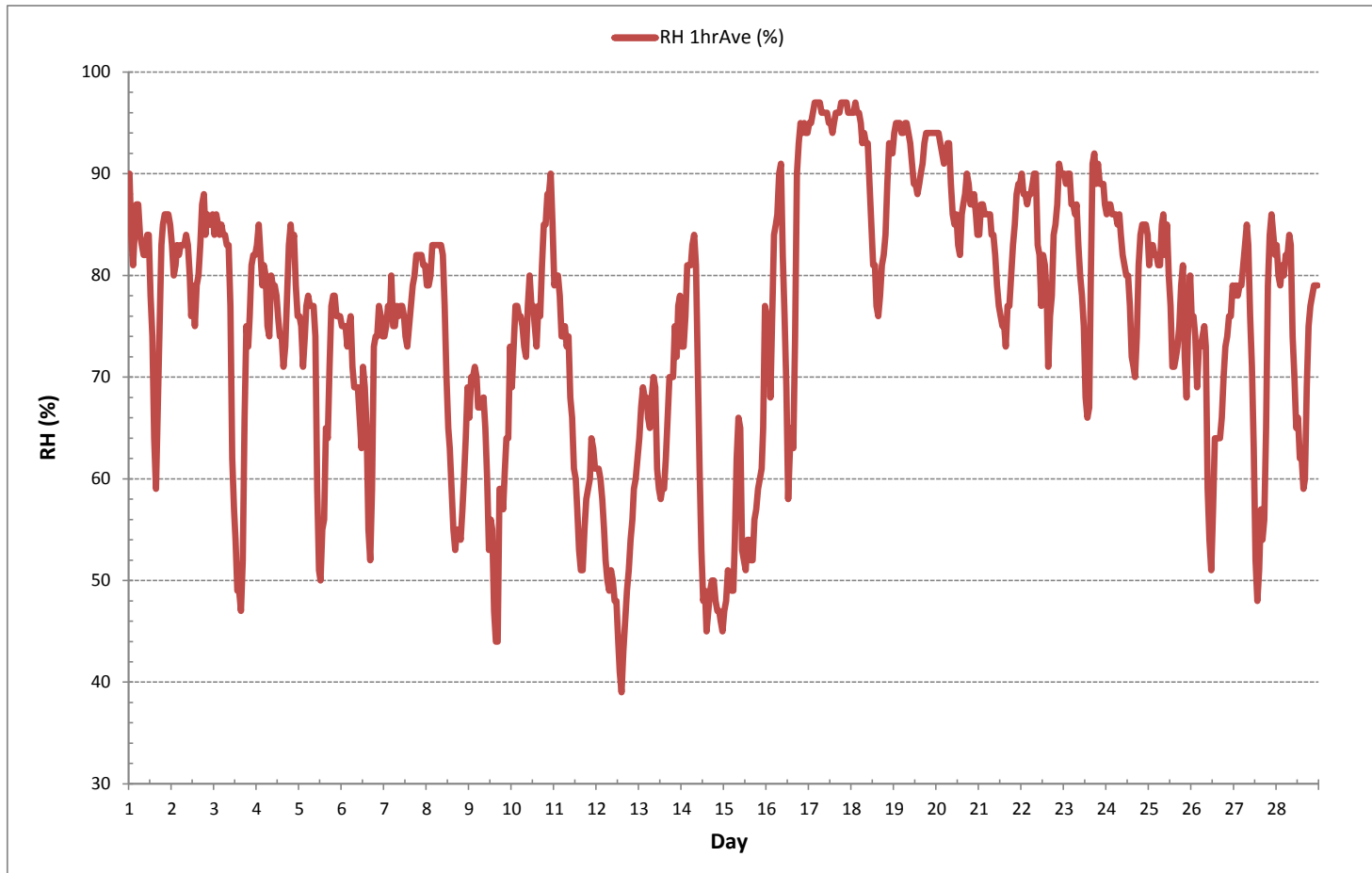
24 HR AVERAGES February 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	39	%	@ HOUR(S)	14	ON DAY(S)	12
MAXIMUM 1-HR AVERAGE:	97	%	@ HOUR(S)	VAR , 2	ON DAY(S)	17 , 18
MAXIMUM 24-HR AVERAGE:	96	%			ON DAY(S)	17
					VAR-VARIOUS	
OPERATIONAL TIME:						672 hrs
AMD OPERATION UPTIME:						100.0 %
STANDARD DEVIATION:	13					
MONTHLY AVERAGE:						76 %

RELATIVE HUMIDITY Hourly Averages (RH %)



BAROMETRIC PRESSURE



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

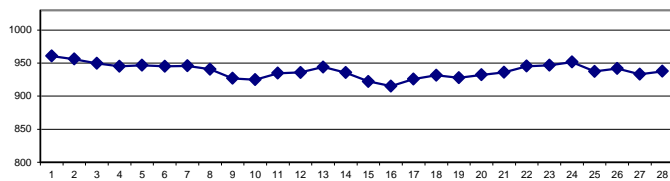
BAROMETRIC PRESSURE Hourly Averages (BP mbar)

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	958	958	958	959	959	960	960	961	961	962	962	962	961	962	961	961	961	961	961	962	962	961	961	961	961	958	962	961	24
2	961	960	960	960	959	959	958	958	957	957	956	956	956	955	955	954	954	954	954	954	953	953	952	952	952	952	961	956	24
3	951	951	951	951	950	950	950	950	951	951	950	950	950	949	949	948	948	948	948	949	949	949	949	949	949	948	951	950	24
4	949	949	948	948	948	947	947	947	946	946	945	945	944	943	942	942	942	942	942	943	943	943	944	945	945	942	949	945	24
5	946	947	947	947	948	948	948	948	949	949	948	947	947	946	946	946	946	947	947	946	946	946	945	945	945	945	949	947	24
6	945	945	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	944	946	947	947	948	948	948	948	944	948	945	24
7	948	948	948	948	948	948	948	947	947	946	946	945	945	945	944	944	944	944	944	944	944	944	945	945	945	944	948	946	24
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9	935	934	933	932	932	931	930	929	928	927	926	925	926	925	923	922	923	923	923	923	923	924	924	924	925	922	935	927	24
10	925	926	926	926	926	926	925	925	925	925	924	924	923	923	923	923	924	924	925	925	926	926	926	927	923	927	925	24	
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12	936	936	936	935	935	935	935	935	935	935	935	936	936	936	935	935	935	935	935	935	936	937	938	938	939	935	939	936	24
13	940	942	942	943	943	944	944	945	945	946	946	946	946	945	945	945	945	945	945	944	944	943	943	943	943	940	946	944	24
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21	933	933	934	934	934	934	934	935	935	935	935	936	936	936	936	936	937	938	938	939	939	939	939	940	933	940	936	24	
22	941	941	942	942	943	943	944	944	945	945	946	946	946	946	946	947	947	947	947	947	948	948	948	948	941	948	945	24	
23	948	948	948	948	948	947	947	947	946	946	946	946	945	945	945	945	945	945	945	946	947	947	948	949	945	949	947	24	
24	950	951	952	952	953	954	954	954	955	955	955	954	953	953	952	951	951	950	950	949	949	947	946	945	945	955	951	24	
25	944	943	941	940	939	937	937	936	935	935	934	934	934	934	934	935	935	936	937	938	938	939	940	941	934	944	937	24	
26	942	943	944	945	946	946	947	947	947	945	945	944	944	943	942	941	940	939	938	937	936	935	934	934	934	934	947	942	24
27	933	932	932	932	931	931	932	932	932	932	932	932	933	933	933	933	933	933	933	934	935	935	936	936	936	931	936	933	24
28	936	936	937	937	937	938	938	939	939	939	938	938	938	938	937	937	936	937	937	938	938	939	939	939	936	936	939	938	24
HOURLY MAX	961	960	960	960	959	960	960	961	961	962	962	962	962	961	962	961	961	961	962	962	961	961	961	961	961	961	961	961	24
HOURLY AVG	939	939	939	939	939	939	939	939	939	939	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	938	939	938	24

STATUS FLAG CODES

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

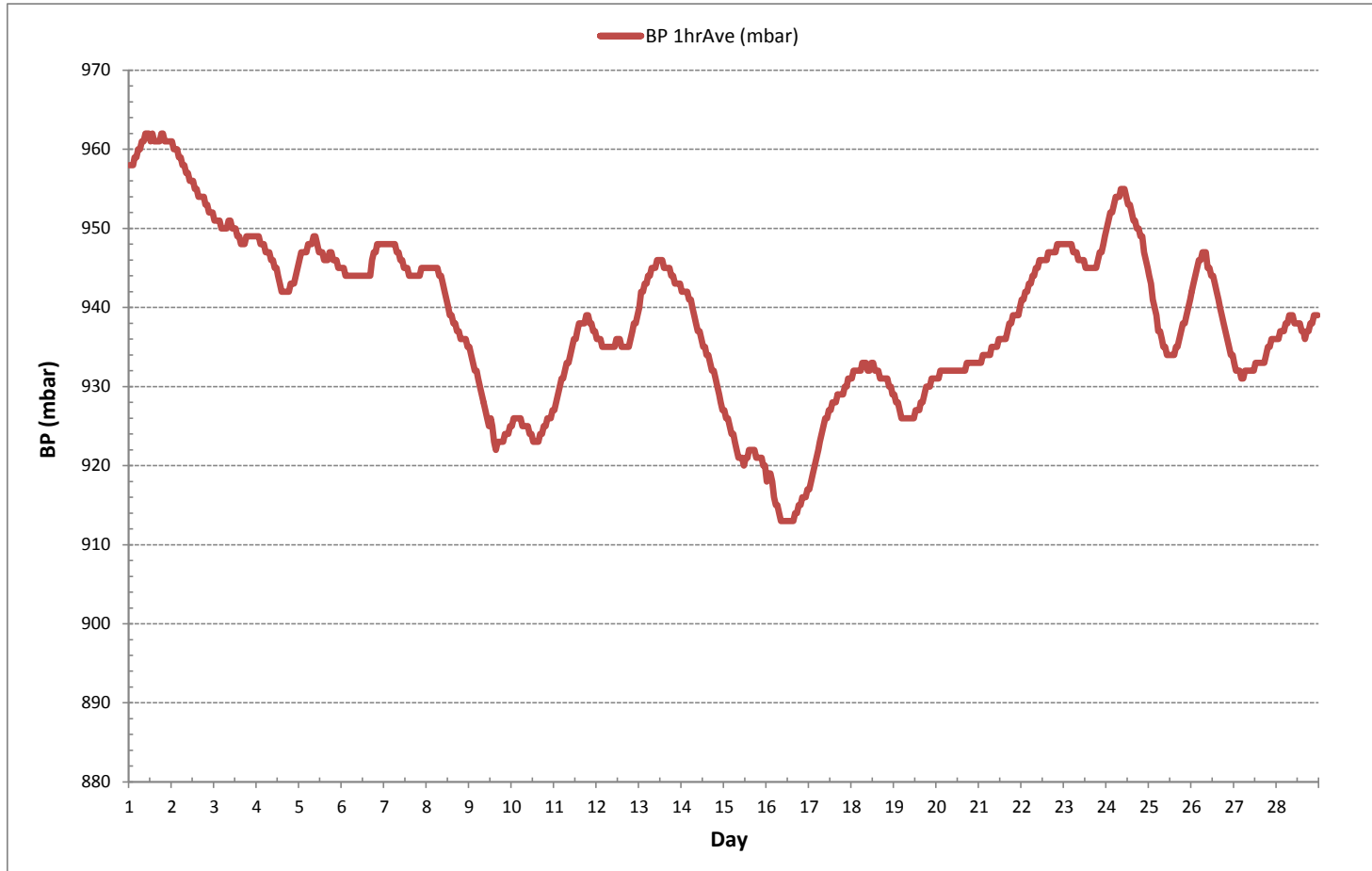
24 HR AVERAGES February 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	913 mbar	@ HOUR(S)	VAR	ON DAY(S)	16
MAXIMUM 1-HR AVERAGE:	962 mbar	@ HOUR(S)	VAR	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	961 mbar			ON DAY(S)	1
				VAR-VARIOUS	
OPERATIONAL TIME:				672	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	11			MONTHLY AVERAGE:	938 mbar

BAROMETRIC PRESSURE Hourly Averages (BP mbar)



AMBIENT TEMPERATURE



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

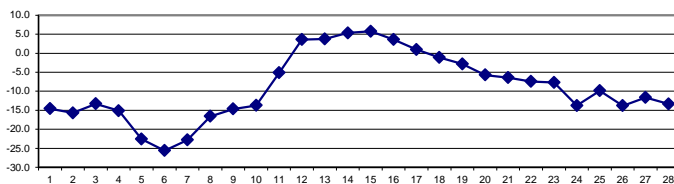
AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	-14.8	-11.1	-10.9	-12.8	-15.9	-17.6	-19.2	-20.0	-20.8	-20.6	-16.2	-12.1	-9.5	-9.9	-8.4	-7.6	-9.5	-12.0	-14.4	-15.5	-16.6	-17.4	-18.2	-19.0	-20.8	-7.6	-14.6	24	
2	-20.5	-21.8	-21.7	-20.8	-20.0	-20.0	-19.1	-17.9	-17.8	-16.5	-15.0	-13.6	-13.3	-11.8	-11.5	-11.3	-11.6	-12.7	-14.0	-15.3	-13.8	-12.6	-12.2	-11.4	-21.8	-11.3	-15.7	24	
3	-11.2	-11.6	-11.3	-11.5	-11.3	-11.3	-11.7	-12.6	-14.0	-13.8	-10.6	-9.9	-9.5	-9.0	-9.7	-9.9	-11.5	-15.1	-17.1	-15.7	-18.3	-21.7	-21.3	-19.6	-21.7	-9.0	-13.3	24	
4	-18.5	-16.7	-15.6	-15.2	-15.5	-15.4	-15.1	-15.3	-15.9	-15.7	-15.8	-15.7	-15.4	-14.5	-14.0	-13.5	-13.9	-14.4	-14.2	-14.1	-13.5	-13.8	-14.7	-16.1	-18.5	-13.5	-15.1	24	
5	-18.2	-19.8	-20.5	-21.5	-22.6	-24.1	-25.3	-25.7	-26.9	-26.2	-19.2	-17.0	-16.6	-17.8	-18.4	-20.4	-20.4	-22.3	-23.8	-24.6	-26.2	-27.5	-28.1	-28.6	-28.6	-16.6	-22.6	24	
6	-28.6	-28.8	-28.6	-29.1	-29.4	-29.5	-31.3	-31.9	-32.2	-30.1	-25.7	-19.7	-21.7	-21.2	-19.7	-17.6	-17.4	-20.4	-24.8	-26.9	-28.0	-26.0	-23.3	-22.4	-32.2	-17.4	-25.6	24	
7	-22.4	-23.3	-24.4	-26.6	-27.0	-28.2	-29.4	-28.9	-28.4	-26.2	-24.8	-23.8	-22.7	-21.2	-20.8	-19.4	-18.7	-18.9	-19.5	-19.6	-18.6	-18.4	-18.3	-18.2	-29.4	-18.2	-22.8	24	
8	-17.9	-17.7	-17.9	-18.1	-18.1	-18.5	-20.0	-21.0	-20.9	-19.8	-17.7	-15.9	-15.0	-14.7	-13.6	-12.6	-12.2	-13.2	-13.7	-13.4	-14.3	-15.5	-17.1	-18.8	-21.0	-12.2	-16.6	24	
9	-17.7	-19.4	-19.5	-20.1	-19.9	-19.5	-19.6	-19.3	-19.2	-18.1	-15.3	-11.1	-12.0	-10.6	-8.5	-7.9	-7.9	-10.2	-10.3	-10.8	-12.7	-12.9	-13.2	-15.5	-20.1	-7.9	-14.6	24	
10	-15.3	-17.6	-19.7	-20.7	-20.9	-19.7	-17.2	-15.0	-13.7	-12.6	-11.7	-10.2	-9.0	-9.7	-10.1	-9.7	-10.0	-10.9	-11.4	-13.4	-12.9	-13.6	-13.8	-10.3	-20.9	-9.0	-13.7	24	
11	-10.6	-11.8	-12.2	-11.2	-10.2	-10.3	-10.9	-10.3	-10.2	-8.1	-6.4	-4.5	-3.5	-1.9	-0.3	0.3	0.6	0.1	-0.5	-1.1	-1.2	-0.8	0.4	1.1	-12.2	1.1	-5.1	24	
12	1.5	1.7	2.2	2.3	2.5	3.0	3.1	3.1	2.8	2.8	3.2	3.2	4.5	5.6	6.1	5.6	5.3	5.0	4.8	4.3	3.9	3.6	3.4	3.1	1.5	6.1	3.6	24	
13	2.9	2.1	1.7	2.3	2.3	2.8	3.1	2.4	2.0	2.2	4.5	5.6	6.0	6.2	6.5	5.8	5.1	4.5	4.3	4.4	3.3	4.4	3.1	2.9	1.7	6.5	3.8	24	
14	4.3	4.3	3.5	2.2	2.2	1.9	1.4	1.0	1.3	3.2	5.5	7.5	8.6	8.3	9.3	8.9	8.2	7.2	6.4	6.5	6.5	6.9	6.4	6.8	1.0	9.3	5.3	24	
15	6.4	6.0	5.4	5.4	5.1	5.2	4.0	2.8	2.0	2.4	5.4	5.9	6.5	6.5	6.8	8.4	9.7	9.1	8.2	7.2	6.5	6.2	5.1	1.8	1.8	9.7	5.8	24	
16	1.8	2.2	4.7	4.3	2.6	2.7	1.6	-0.1	0.4	2.7	4.4	6.8	9.3	7.4	6.8	7.3	5.1	3.4	2.8	2.7	2.6	1.7	1.7	1.5	-0.1	9.3	3.6	24	
17	1.2	1.4	1.4	1.1	1.0	1.3	1.0	0.6	0.5	0.7	1.2	1.4	1.7	1.9	1.6	1.3	1.2	0.9	0.7	0.7	0.7	0.5	-0.3	-1.0	-1.0	1.9	0.9	24	
18	-2.1	-3.1	-2.9	-2.6	-2.5	-2.1	-1.7	-1.4	-1.3	-0.9	-0.5	0.1	0.8	1.2	1.8	1.4	0.7	-0.3	-0.9	-1.2	-1.8	-2.3	-2.4	-2.4	-3.1	1.8	-1.1	24	
19	-2.5	-2.4	-2.3	-2.3	-2.3	-2.2	-2.1	-2.1	-2.0	-1.4	-0.8	-0.3	-0.7	-1.0	-2.1	-3.3	-4.0	-4.3	-4.7	-4.8	-5.0	-5.0	-5.0	-5.1	-5.1	-0.3	-2.8	24	
20	-5.3	-5.4	-5.5	-5.7	-5.7	-6.0	-6.0	-6.2	-6.6	-6.3	-5.8	-5.7	-4.8	-4.8	-5.6	-5.7	-5.7	-5.7	-5.7	-5.8	-5.9	-5.9	-5.9	-5.9	-6.6	-4.8	-5.7	24	
21	-5.8	-5.8	-5.7	-6.1	-6.4	-6.8	-7.3	-7.7	-7.5	-7.3	-7.0	-6.5	-6.1	-6.0	-5.7	-5.1	-5.7	-5.4	-5.9	-6.7	-6.9	-7.1	-7.1	-7.1	-7.7	-5.1	-6.4	24	
22	-7.1	-7.0	-6.9	-6.8	-7.2	-7.7	-8.6	-8.6	-8.4	-7.1	-7.4	-6.7	-7.3	-7.0	-6.1	-5.0	-5.3	-5.0	-6.0	-7.0	-9.5	-11.2	-9.9	-9.6	-11.2	-5.0	-7.4	24	
23	-9.6	-9.8	-10.0	-9.8	-9.4	-9.6	-9.5	-9.8	-9.0	-8.1	-7.6	-6.7	-5.2	-4.4	-4.0	-4.8	-5.3	-5.2	-5.9	-7.3	-7.1	-7.6	-8.8	-10.5	-10.5	-4.0	-7.7	24	
24	-11.6	-12.7	-12.8	-13.5	-14.5	-14.5	-14.5	-14.8	-14.8	-14.3	-13.6	-13.5	-13.9	-13.1	-11.9	-11.4	-11.1	-12.0	-13.9	-15.1	-15.4	-15.8	-16.0	-16.0	-16.0	-11.1	-13.8	24	
25	-15.7	-15.9	-14.4	-13.4	-12.9	-12.4	-11.9	-11.5	-11.0	-10.1	-9.9	-8.1	-7.3	-6.2	-6.8	-7.1	-7.0	-7.1	-7.7	-7.9	-7.2	-7.6	-8.2	-9.1	-15.9	-6.2	-9.9	24	
26	-10.3	-11.4	-12.6	-13.8	-15.1	-16.4	-17.3	-17.8	-17.5	-14.3	-12.3	-11.4	-12.7	-13.7	-12.9	-12.1	-11.9	-12.5	-13.5	-14.2	-14.5	-14.9	-14.1	-14.2	-17.8	-10.3	-13.8	24	
27	-13.5	-13.2	-12.8	-12.8	-12.6	-13.2	-15.6	-16.1	-14.7	-11.6	-10.5	-8.3	-5.0	-3.7	-4.9	-7.0	-6.6	-7.6	-10.7	-14.9	-17.7	-17.5	-15.5	-13.7	-17.7	-3.7	-11.7	24	
28	-13.6	-13.9	-14.5	-15.5	-16.1	-17.9	-19.5	-19.8	-17.5	-14.0	-10.7	-10.5	-8.9	-8.1	-7.1	-7.1	-7.2	-10.1	-12.0	-13.0	-13.5	-14.5	-14.8	-15.1	-19.8	-7.1	-13.4	24	
HOURLY MAX	6.4	6.0	5.4	5.4	5.1	5.2	4.0	3.1	2.8	3.2	5.5	7.5	9.3	8.3	9.3	8.9	9.7	9.1	8.2	7.2	6.5	6.9	6.4	6.8					
HOURLY AVG	-9.8	-10.1	-10.1	-10.4	-10.7	-10.9	-11.4	-11.6	-11.5	-10.3	-8.7	-7.2	-6.6	-6.2	-5.9	-5.7	-6.0	-7.0	-8.0	-8.7	-9.2	-9.5	-9.6	-9.7					

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

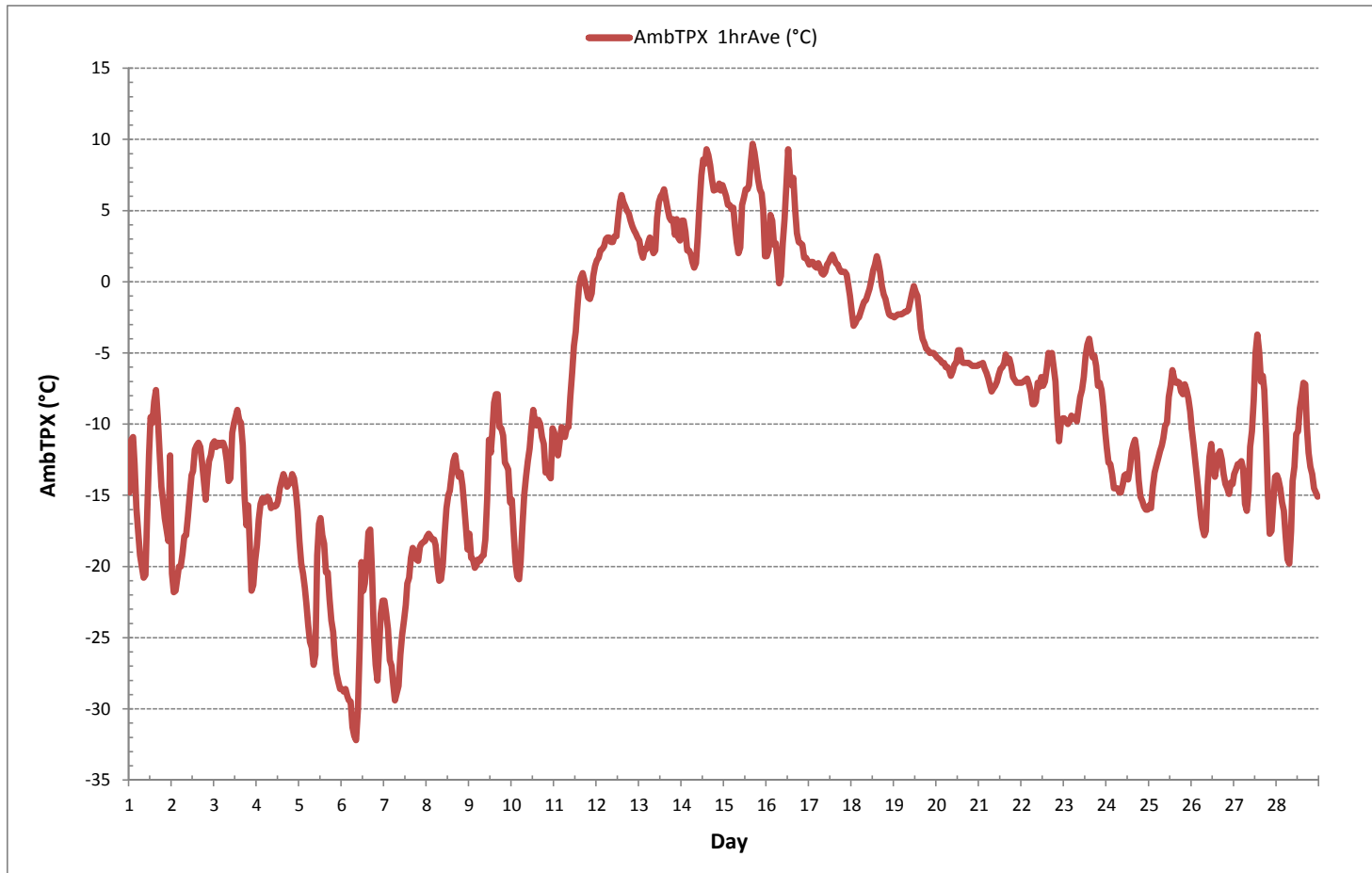
24 HR AVERAGES February 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	-32.2 °C	@ HOUR(S)	8	ON DAY(S)	6
MAXIMUM 1-HR AVERAGE:	9.7 °C	@ HOUR(S)	16	ON DAY(S)	15
MAXIMUM 24-HR AVERAGE:	5.8 °C			ON DAY(S)	15
				VAR-VARIOUS	
OPERATIONAL TIME:				672	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	9.1			MONTHLY AVERAGE:	-8.9 °C

AMBIENT TEMPERATURE Hourly Averages (AmbTPX °C)



STATION TEMPERATURE



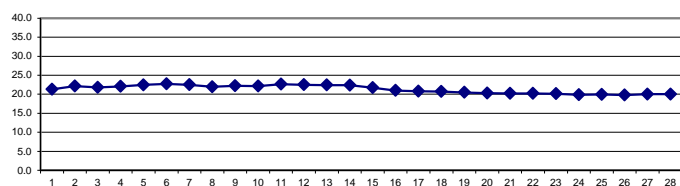
STATION TEMPERATURE Hourly Averages (StnTPX °C)

HR START (MST)	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DAILY	DAILY	24-HR	RDGS.	
HR END (MST)	0:59	1:59	2:59	3:59	4:59	5:59	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	MIN.	MAX.	AVG.		
DAY																													
1	20.4	20.3	20.3	20.3	20.3	20.3	20.4	20.4	20.4	22.8	25.7	23.9	21.5	21.5	21.5	20.3	18.2	19.3	21.6	21.4	22.3	22.8	22.9	22.8	18.2	25.7	21.3	24	
2	22.9	22.9	23.0	22.9	22.9	22.8	22.8	22.8	22.5	21.8	21.7	21.0	21.2	21.0	21.6	21.8	21.8	21.8	22.0	22.3	22.3	22.1	22.0	22.0	21.0	23.0	22.2	24	
3	22.0	21.7	22.0	21.7	22.0	21.8	21.9	21.8	22.0	22.1	21.2	20.2	20.1	20.2	21.3	21.5	21.8	22.1	22.7	22.4	22.8	22.8	22.9	22.8	20.1	22.9	21.8	24	
4	22.6	22.7	22.3	22.3	22.5	22.3	22.1	22.2	22.1	22.2	22.2	21.5	21.5	21.5	21.6	21.5	21.9	22.1	22.1	22.4	22.1	22.2	22.0	22.3	21.5	22.7	22.1	24	
5	22.2	22.4	22.4	22.5	22.8	22.7	23.1	23.0	23.0	23.2	22.3	21.3	21.0	21.0	21.4	21.7	22.1	22.4	22.6	22.8	23.1	23.1	23.2	23.3	21.0	23.3	22.4	24	
6	23.3	23.4	23.2	23.3	23.3	23.4	23.3	23.3	23.4	23.3	22.4	21.4	20.6	21.2	21.4	21.8	22.0	22.4	22.9	23.3	23.3	23.0	22.9	22.9	20.6	23.4	22.7	24	
7	22.8	22.9	22.9	23.1	23.1	23.1	23.2	23.3	23.3	22.8	22.2	21.8	21.4	21.3	21.6	21.8	21.9	22.3	22.6	22.8	22.7	22.5	22.6	22.3	21.3	23.3	22.5	24	
8	22.3	22.4	22.3	22.2	22.1	22.3	22.2	22.3	22.6	22.2	21.5	21.1	20.4	20.9	21.0	21.8	21.6	21.9	21.7	21.8	22.2	22.3	22.9	22.8	20.4	22.9	22.0	24	
9	22.8	23.0	22.9	22.9	22.9	22.9	23.0	23.0	22.7	22.7	22.2	21.4	21.2	21.3	21.4	21.0	21.8	21.7	21.5	21.8	22.3	22.1	22.4	22.4	21.0	23.0	22.2	24	
10	22.4	22.6	22.8	22.7	22.9	22.9	22.5	22.7	22.3	22.0	21.9	21.5	21.2	21.7	21.2	21.6	21.5	21.4	21.8	22.3	22.1	22.7	22.4	22.0	21.2	22.9	22.1	24	
11	22.0	22.1	22.4	22.2	22.2	22.3	22.2	22.2	21.9	21.9	21.8	23.2	23.7	23.3	23.2	23.3	23.4	22.9	23.0	23.3	23.0	22.9	23.0	22.9	21.8	23.7	22.7	24	
12	23.0	22.7	22.6	22.6	22.8	22.6	22.5	22.7	22.5	22.7	22.7	22.5	22.3	21.9	21.8	22.0	22.4	22.4	22.5	22.5	22.5	22.7	22.7	22.9	21.8	23.0	22.5	24	
13	22.9	22.9	22.9	22.9	22.9	22.9	22.8	22.8	22.9	22.9	22.1	21.6	21.5	21.6	21.4	21.8	21.9	22.1	22.6	22.4	22.4	22.5	22.8	22.8	21.4	22.9	22.4	24	
14	22.7	22.6	22.8	22.7	22.7	22.9	22.6	22.6	21.9	21.0	21.0	20.9	21.4	22.1	22.5	23.1	23.7	24.0	23.6	23.2	22.3	21.5	21.4	21.7	20.9	24.0	22.4	24	
15	21.2	21.7	21.4	21.3	21.6	21.3	21.4	21.5	21.5	20.8	21.5	22.1	22.4	22.9	23.3	23.8	23.4	21.9	21.3	21.0	21.2	21.2	20.9	20.9	20.8	23.8	21.7	24	
16	20.9	20.9	21.1	21.2	21.0	21.1	20.8	20.8	20.8	20.9	20.9	20.7	21.4	20.8	21.4	21.2	21.0	21.2	21.1	21.0	20.8	20.9	21.0	20.9	20.7	21.4	21.0	24	
17	20.9	20.9	20.9	20.9	20.8	20.8	20.8	20.8	20.9	20.9	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.9	20.9	20.9	20.7	20.7	20.9	20.8	24	
18	20.5	20.8	20.5	20.6	20.7	20.4	20.9	20.6	20.5	20.9	20.7	20.7	20.8	21.0	20.9	20.9	20.8	20.9	20.9	20.7	20.6	20.7	20.9	20.6	20.4	21.0	20.7	24	
19	20.5	20.8	20.6	20.5	20.9	20.7	20.5	20.6	20.9	20.6	20.6	20.7	20.7	20.5	20.1	20.3	20.2	20.0	20.4	20.0	20.5	20.1	20.4	20.0	20.0	20.9	20.5	24	
20	20.3	20.3	20.4	20.1	20.4	20.2	20.3	20.3	20.2	20.2	20.2	20.4	20.1	20.4	20.2	20.4	20.2	20.3	20.2	20.3	20.2	20.3	20.4	20.2	20.0	20.4	20.3	24	
21	20.4	20.0	20.5	20.1	20.4	20.0	20.3	19.8	20.3	19.9	20.3	20.1	20.1	20.2	20.2	20.1	20.4	20.1	20.5	20.0	20.5	20.1	20.5	20.2	19.8	20.5	20.2	24	
22	20.5	20.1	20.4	20.1	20.5	20.0	20.3	20.0	20.1	20.1	20.1	20.0	20.1	20.0	20.4	20.4	20.4	20.6	20.3	20.2	20.2	20.1	20.2	20.1	20.0	20.6	20.2	24	
23	20.0	20.3	19.9	20.1	20.2	20.0	19.9	20.3	20.1	20.1	20.3	19.9	20.4	20.1	20.3	20.4	20.4	20.2	20.3	20.2	20.3	19.9	20.2	19.7	19.7	20.4	20.1	24	
24	19.9	19.9	19.6	19.8	19.8	19.5	19.8	19.7	19.6	20.0	19.6	19.9	19.7	19.9	20.0	20.1	20.1	20.1	20.2	19.8	20.1	20.0	19.7	20.0	19.5	20.2	19.9	24	
25	20.0	19.7	20.1	19.9	19.8	20.0	20.0	19.8	20.1	20.0	20.1	20.0	20.1	20.0	20.0	19.8	20.2	19.9	20.3	20.0	19.9	19.9	19.6	20.0	19.6	20.3	20.0	24	
26	19.5	19.9	19.4	19.8	19.5	19.8	19.6	19.5	19.7	19.7	19.5	19.4	19.3	19.7	19.5	20.2	20.0	20.1	20.2	20.2	20.0	19.9	20.1	20.2	19.3	20.2	19.8	24	
27	20.0	20.0	20.2	19.9	20.3	19.8	20.1	19.8	20.0	20.0	20.1	20.2	20.0	20.1	20.3	19.9	20.0	20.5	20.2	20.2	19.7	20.1	19.9	19.8	19.7	20.5	20.0	24	
28	20.2	19.8	19.8	20.0	19.6	20.0	19.6	20.0	19.9	19.7	20.2	19.8	20.2	19.8	20.4	20.2	20.6	20.2	20.2	20.0	20.2	19.9	20.0	20.2	19.6	20.6	20.0	24	
HOURLY MAX	23.3	23.4	23.2	23.3	23.3	23.4	23.3	23.3	23.4	23.3	25.7	23.9	23.7	23.3	23.3	23.8	23.7	24.0	23.6	23.3	23.3	23.1	23.2	23.3					
HOURLY AVG	21.4	21.4	21.4	21.4	21.5	21.4	21.4	21.4	21.4	21.3	21.3	21.0	20.9	21.0	21.1	21.2	21.2	21.3	21.4	21.4	21.4	21.4	21.4	21.4					

STATUS FLAG CODES

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

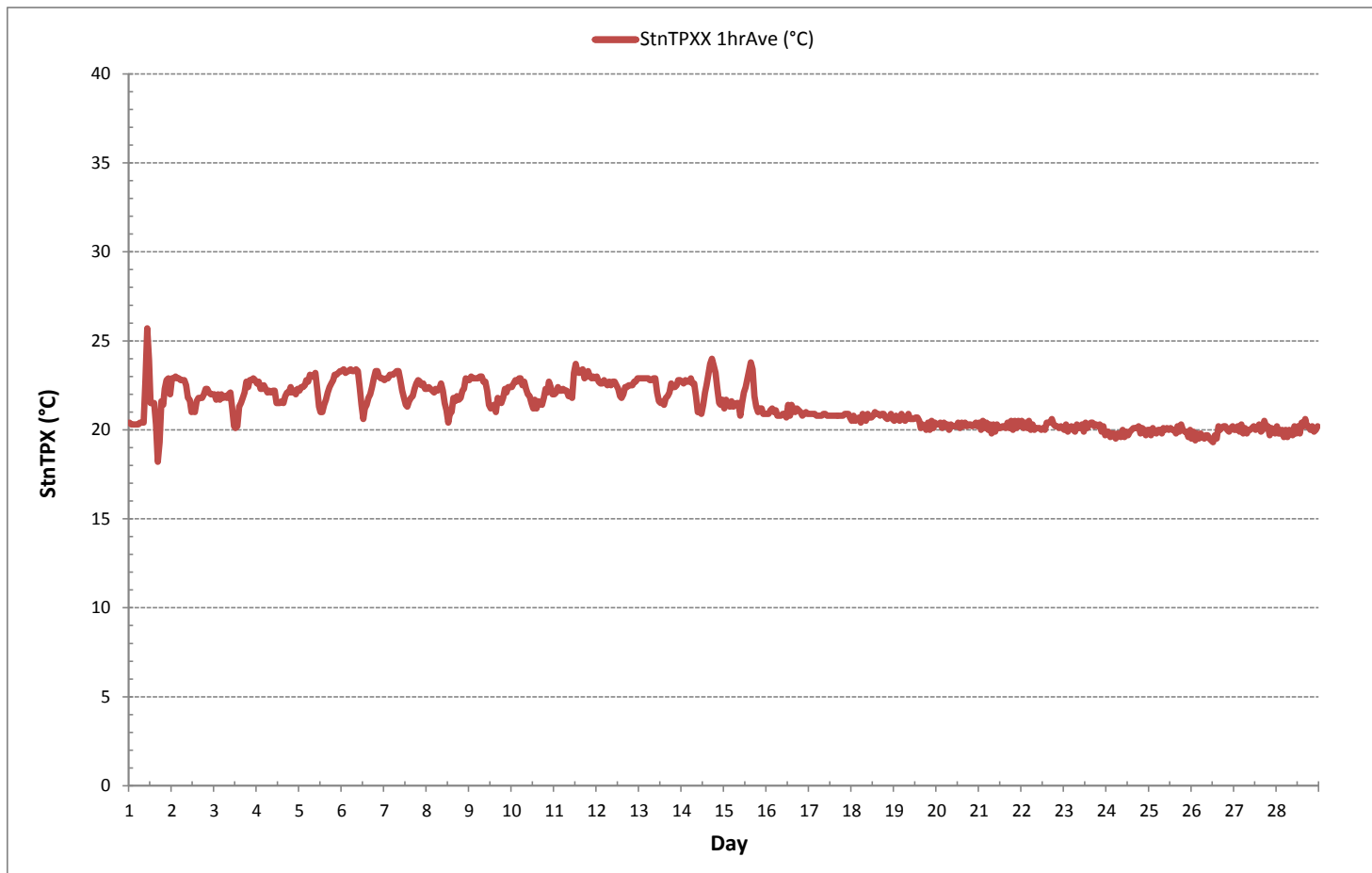
24 HR AVERAGES February 2017



MONTHLY SUMMARY

MINIMUM 1-HR AVERAGE:	18.2 °C	@ HOUR(S)	16	ON DAY(S)	1
MAXIMUM 1-HR AVERAGE:	25.7 °C	@ HOUR(S)	10	ON DAY(S)	1
MAXIMUM 24-HR AVERAGE:	22.7 °C			ON DAY(S)	6, 11
				VAR-VARIOUS	
OPERATIONAL TIME:				672	hrs
AMD OPERATION UPTIME:				100.0	%
STANDARD DEVIATION:	1.2			MONTHLY AVERAGE:	21.3 °C

STATION TEMPERATURE Hourly Averages (StnTPX °C)



APPENDIX II
EQUIPMENT CALIBRATION RESULTS

SULPHUR DIOXIDE



API 100A Sulphur Dioxide Analyzer Calibration

Date: February 1, 2017	Barometric Pressure: 28.34 inHg
Company/Airshed: PRAMP	Station Temperature °C: 25
Location/Station Name: 842b	Weather Conditions: Mainly sunny
Parameter: Sulphur Dioxide	Calibration Purpose: routine monthly
Start Time 24 hr. (mst): 9:30	Performed By/Reviewer: Limin Li / Trina Whitsitt
End Time 24 hr. (mst): 15:00	Cal Gas Expiry Date: December 25, 2018
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): n/a

Analyzer:	
ID# or Serial Number: 838	Range ppb: 500
Last Calibration Date: January 4, 2017	As Found C.F.: 1.006
Previous C.F.: 1.000	New C.F.: 1.000

Calibrator:	Standard Calibration Points for Ranges								
Flow Meter ID's: n/a	<table border="1" style="margin: auto;"> <tr><th>Point</th><th>ppb</th></tr> <tr><td>High</td><td>380</td></tr> <tr><td>Mid</td><td>180</td></tr> <tr><td>Low</td><td>90</td></tr> </table>	Point	ppb	High	380	Mid	180	Low	90
Point	ppb								
High	380								
Mid	180								
Low	90								
Make & Model: Sabio 2010									
Serial #: 17200415									
Cal Gas Cylinder I.D. #: BLM002756T									
Cal Gas Conc. (ppm): 49.9									

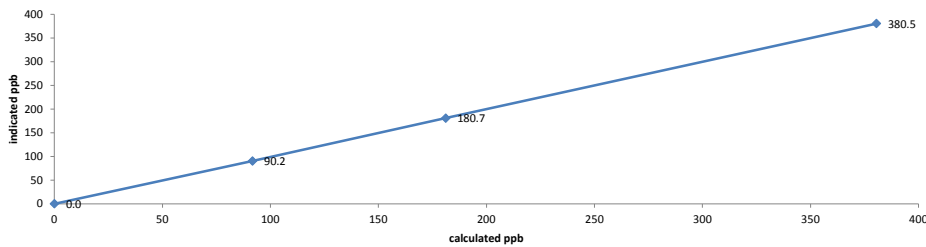
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	6528	0.00	6528	0.0	0.1	n/a
as found high	6481	49.80	6531	380.5	378.2	1.006
adjusted zero	6528	0.00	6528	0.0	0.0	n/a
adjusted high	6481	49.80	6531	380.5	380.5	1.000
mid	6505	23.70	6529	181.1	180.7	1.002
low	6518	12.00	6530	91.7	90.2	1.017
calibrator zero	6528	0.00	6528	0.0	-0.2	n/a
Average C.F.=						1.006

Linear Regression/Calibration Results:

Correlation Coefficient = 1.000	LIMITS
Slope = 0.999	> or = 0.995
b (Intercept as % of full scale) = 0.14%	.95-1.05
% change in C.F. from last cal = -0.64%	± 3% F.S.
	± 10%

API 100A Sulphur Dioxide Analyzer Calibration



As found:	As left:
SLOPE: 1.032	SLOPE: 1.041
OFFSET: 19.1	OFFSET: 19.6
HVPS: 685	HVPS: 686
DCPS: 2546	DCPS: 2545
RCELL TEMP: 50.9	RCELL TEMP: 50.6
BOX TEMP: 27.2	BOX TEMP: 29.8
PMT TEMP: 7.3	PMT TEMP: 7.3
IZS TEMP: 60.1	IZS TEMP: 60
Converter Temp: n/a	Converter Temp: n/a
PRES: 27.1	PRES: 27.0
SAMP FL: 659	SAMP FL: 654
PMT: 59	PMT: 58.1
UV LAMP: 2249	UV LAMP: 2276
LAMP RATIO: 90.5	LAMP RATIO: 91.7
STR. LGT 9.8	STR. LGT 10.2
DRK PMT: 35.8	DRK PMT: 34.6
DRK LMP: -6.9	DRK LMP: -6.9
Expected Value: 229.1	Expected Value: 226.7

Comments:
The analyzer sample inlet filter was changed.



— SO2[ppb]

TOTAL REDUCED SULPHUR



Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	February 1, 2017	Barometric Pressure:	28.34 inHg
Company/Airshed:	PRAMP	Station Temperature °C:	25
Location/Station Name:	842b	Weather Conditions:	Mainly sunny
Parameter:	Total Reduced Sulphur	Calibration Purpose:	shut down
Start Time 24 hr. (mst):	9:30	Performed By/Reviewer:	Limin Li Trina Whitsitt
End Time 24 hr. (mst):	12:30	Cal Gas Expiry Date:	January 6, 2018
Calibration Method:	Gas Dilution	Converter Model & s/n (if applicable):	WATLOW 05572

Analyzer:	
ID# or Serial Number:	1226154720
Range ppb:	100
Last Calibration Date:	January 20, 2017
As Found C.F.:	1.032
Previous C.F.:	1.000
New C.F.:	n/a

Calibrator:	Standard Calibration Points for Ranges	SO ₂ Scrubber Check (10 mins.)
Flow Meter ID's:	n/a	Start/End Time 24 hr.:
Make & Model:	Sabio 2010	10:38/10:55
Serial #:	17100415	Target Concentration (ppb):
Cal Gas Cylinder I.D. #:	BLM002508	780
Cal Gas Conc. (ppm):	10.2	Result (ppb):
		0
		Zero Corrected Result (ppb):
		0

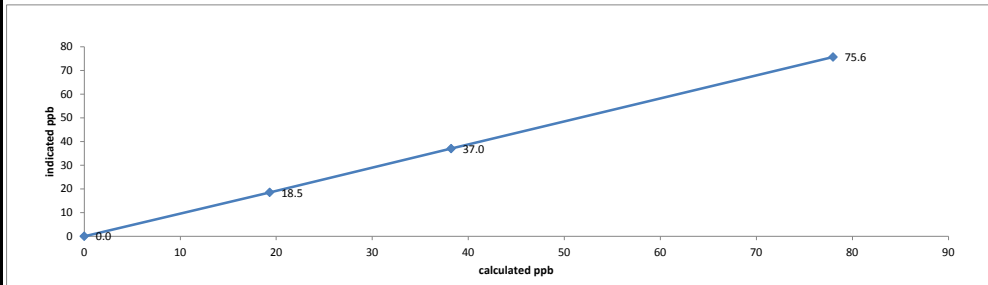
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7499	0.00	7499	0.0	0.0	n/a
as found high	7443	57.35	7500	78.0	75.6	1.032
mid	7473	28.10	7501	38.2	37.0	1.033
low	7484	14.20	7498	19.3	18.5	1.044
Average C.F.=						1.036

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	1.031		0.90-1.10
b (Intercept as % of full scale)=	0.10%		± 3% F.S.
% change in C.F. from last cal=	-3.16%		± 10%

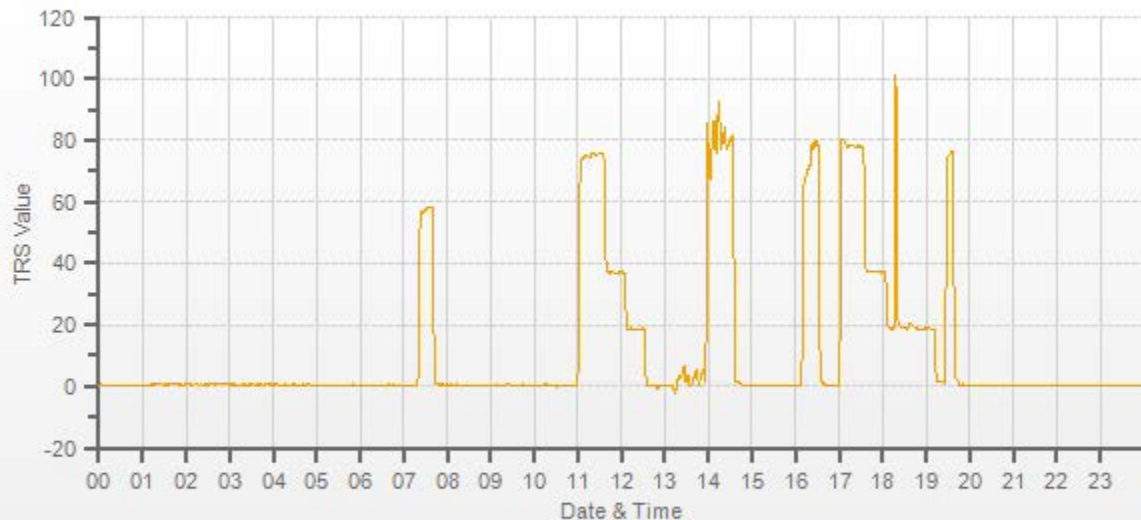
Thermo 43i Total Reduced Sulphur Analyzer Calibration



As found:	As left:
BKG: 11.7	BKG: n/a
COEF: 0.953	COEF: n/a
PMT: -649.7	PMT: n/a
FLASH: 919	FLASH: n/a
INTERNAL: 32.6	INTERNAL: n/a
CHAMBER: 45.2	CHAMBER: n/a
PERM OVEN GAS: 45.02	PERM OVEN GAS: n/a
PERM OVEN HEATER: 44.35	PERM OVEN HEATER: n/a
PRESSURE: 640.4	PRESSURE: n/a
SAMPLE FLOW: 0.383	SAMPLE FLOW: n/a
LAMP INTENSITY: 91	LAMP INTENSITY: n/a
CONVERTER: 850	CONVERTER: n/a
CONVERTER SET: 850	CONVERTER SET: n/a
Expected Value: 61.0	Expected Value: n/a

Comments:

Remove TRS analyzer and converter to upgrade to a trace level analyzer and new converter.



— TRS[ppb]



Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	February 2, 2017	Barometric Pressure:	28.21 inHg
Company/Airshed:	PRAMP	Station Temperature °C:	22
Location/Station Name:	842b	Weather Conditions:	Mainly sunny
Parameter:	Total Reduced Sulphur	Calibration Purpose:	installation
Start Time 24 hr. (mst):	8:00	Performed By/Reviewer:	Limin Li Trina Whitsitt
End Time 24 hr. (mst):	11:15	Skip	January 6, 2018
Calibration Method:	Gas Dilution	Date:	Cal Gas Expiry Converter Model & s/n (if applicable): CDNOVA CDN-101 & s/n:553

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

Calibrator:	Flow Meter ID's: n/a	Standard Calibration Points for Ranges	SO ₂ Scrubber Check (10 mins.)
Make & Model:	Sabio 2010	Point	Start/End Time 24 hr.: 10:10/10:25
Serial #:	17100415	High	Target Concentration (ppb): 780
Cal Gas Cylinder I.D. #:	BLM002508	Mid	Result (ppb): 0
Cal Gas Conc. (ppm):	10.2	Low	Zero Corrected Result (ppb): 0

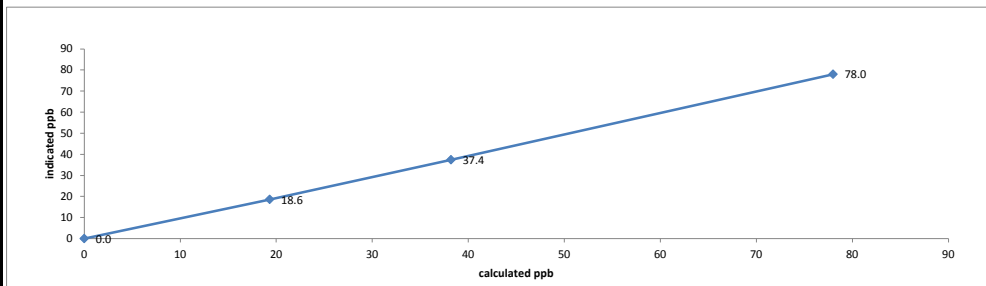
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	7502	0.00	7502	0.0	0.0	n/a
adjusted high	7443	57.35	7500	78.0	78.0	1.000
mid	7474	28.10	7502	38.2	37.4	1.022
low	7486	14.20	7500	19.3	18.6	1.038
calibrator zero	7502	0.00	7502	0.0	0.1	n/a
Average C.F. =						1.020

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS
Slope =	0.998	> or = 0.995
b (Intercept as % of full scale) =	0.46%	.95-1.05
% change in C.F. from last cal =	n/a	± 3% F.S.
		± 10%

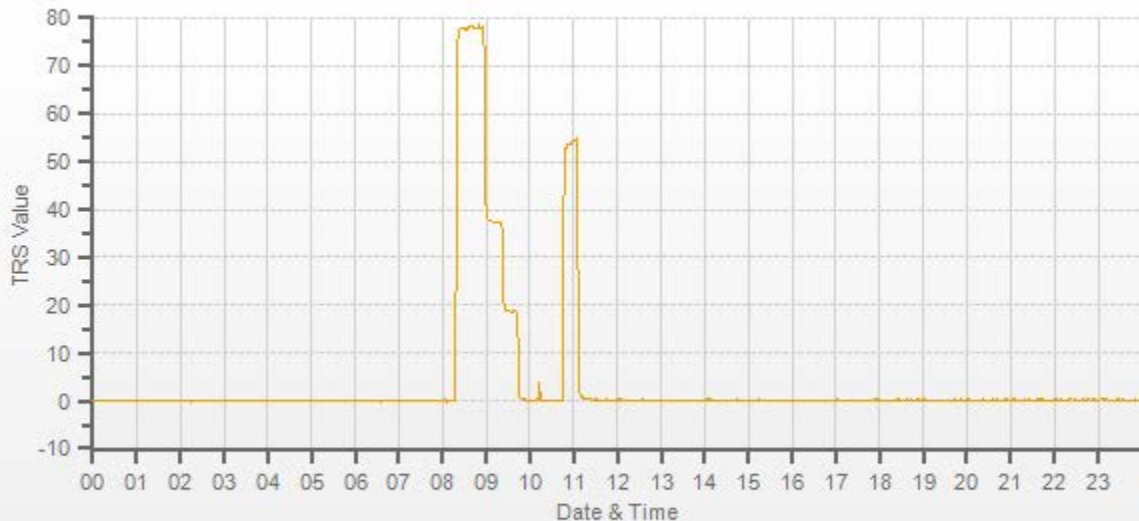
Thermo 43i Total Reduced Sulphur Analyzer Calibration



As found:	As left:
BKG: n/a	BKG: 3.07
COEF: n/a	COEF: 0.928
PMT: n/a	PMT: -725.2
FLASH: n/a	FLASH: 1022
INTERNAL: n/a	INTERNAL: 28.9
CHAMBER: n/a	CHAMBER: 45.1
PERM OVEN GAS: n/a	PERM OVEN GAS: 45
PERM OVEN HEATER: n/a	PERM OVEN HEATER: 44.09
PRESSURE: n/a	PRESSURE: 669.9
SAMPLE FLOW: n/a	SAMPLE FLOW: 0.420
LAMP INTENSITY: n/a	LAMP INTENSITY: 88
CONVERTER: n/a	CONVERTER: 825
CONVERTER SET: n/a	CONVERTER SET: 825
Expected Value: n/a	Expected Value: 54.5

Comments:

The analyzer sample inlet filter was changed.



— TRS[ppb]



Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date: February 14, 2017	Barometric Pressure: 934 hPa
Company/Airshed: PRAMP	Station Temperature °C: 21
Location/Station Name: 842b	Weather Conditions: Mainly clear
Parameter: Total Reduced Sulphur	Calibration Purpose: shut down
Start Time 24 hr. (mst): 12:12	Performed By/Reviewer: Chris Wesson / Trina Whitsitt
End Time 24 hr. (mst): 13:57	Cal Gas Expiry Date: December 1, 2018
Calibration Method: Gas Dilution	Converter Model & s/n (if applicable): CD Nova CDN101 #553

Analyzer: ID# or Serial Number: 1162460023	Range ppb: 100
Last Calibration Date: February 2, 2017	As Found C.F.: 0.948
Previous C.F.: 1.000	New C.F.: n/a

Calibrator: Flow Meter ID's: High=148943, Low=15020 Make & Model: Sabio 2010 Serial #: 17100415 Cal Gas Cylinder I.D. #: BLM001927 Cal Gas Conc. (ppm): 10.3	Standard Calibration Points for Ranges <table border="1" style="margin: auto;"> <tr><th>Point</th><th>ppb</th></tr> <tr><td>High</td><td>78</td></tr> <tr><td>Mid</td><td>38</td></tr> <tr><td>Low</td><td>19</td></tr> </table>	Point	ppb	High	78	Mid	38	Low	19
Point	ppb								
High	78								
Mid	38								
Low	19								

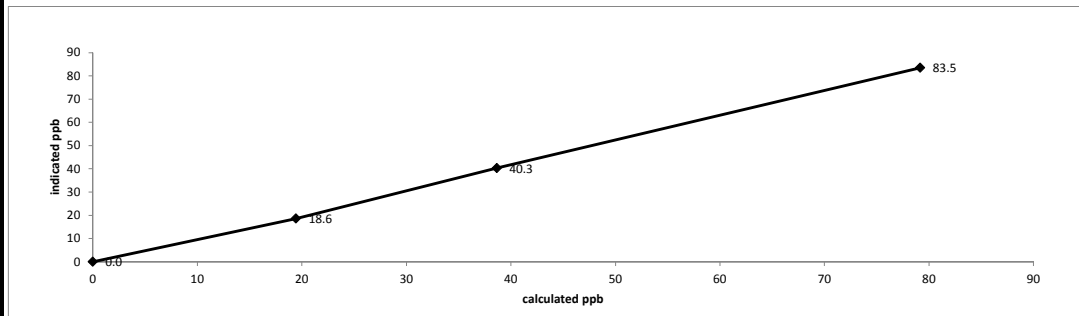
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
as found zero	7418	0.00	7418	0.0	0.0	n/a
as found high	7357	56.98	7414	79.2	83.5	0.948
mid	7394	27.85	7422	38.7	40.3	0.959
low	7399	13.99	7413	19.4	18.6	1.045
Average C.F.=						0.984

Linear Regression/Calibration Results:

	LIMITS
Correlation Coefficient = 1.000	> or = 0.995
Slope = 0.941	0.90-1.10
b (Intercept as % of full scale) = 0.83%	± 3% F.S.
% change in C.F. from last cal = 5.20%	± 10%

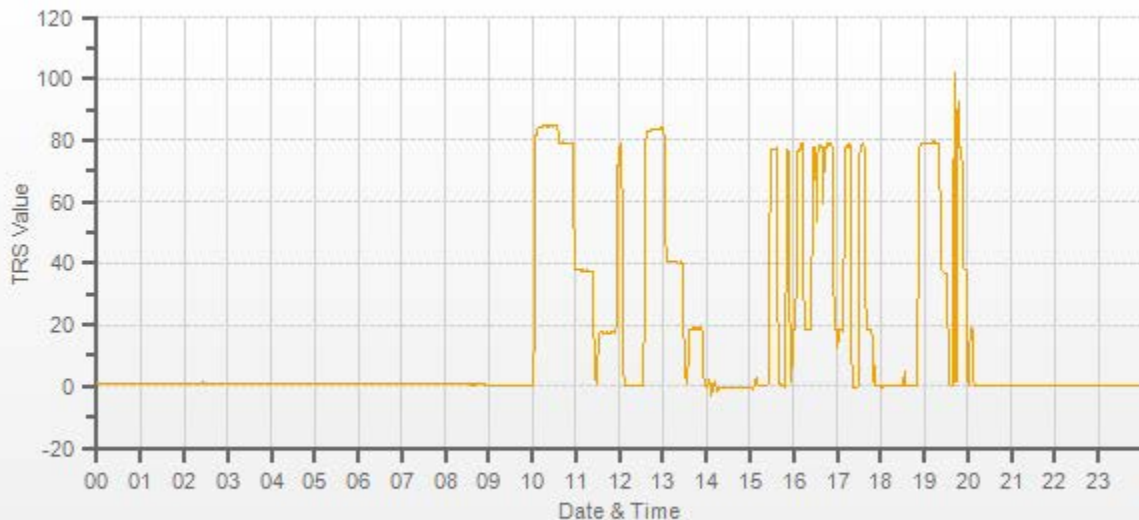
Thermo 43i Total Reduced Sulphur Analyzer Calibration



As found:	As left:
BKG: 3.08	BKG: n/a
COEF: 0.928	COEF: n/a
PMT: -75.2	PMT: n/a
FLASH: 1003	FLASH: n/a
INTERNAL: 30.6	INTERNAL: n/a
CHAMBER: 44.9	CHAMBER: n/a
PERM OVEN GAS: 44.99	PERM OVEN GAS: n/a
PERM OVEN HEATER: 44.09	PERM OVEN HEATER: n/a
PRESSURE: 659.4	PRESSURE: n/a
SAMPLE FLOW: 0.413	SAMPLE FLOW: n/a
LAMP INTENSITY: 88	LAMP INTENSITY: n/a
CONVERTER: 825	CONVERTER: n/a
CONVERTER SET: 825	CONVERTER SET: n/a
Expected Value: 54.5	Expected Value: 54.5

Comments:

Analyzer = 43i-TLE
Flowmeters = Mesalabs Defender 530



— TRS[ppb]



Thermo 43i Total Reduced Sulphur Analyzer Calibration

Date:	February 15, 2017	Barometric Pressure:	920 hPa
Company/Airshed:	PRAMP	Station Temperature °C:	23
Location/Station Name:	842b	Weather Conditions:	Mix of sun and clouds
Parameter:	Total Reduced Sulphur	Calibration Purpose:	post repair
Start Time 24 hr. (mst):	13:24	Performed By/Reviewer:	Chris Wesson Trina Whitsitt
End Time 24 hr. (mst):	17:07	Cal Gas Expiry Date:	December 1, 2018
Calibration Method:	Gas Dilution	<input type="checkbox"/> Converter Model & s/n (if applicable):	CD Nova CDN101 #553

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

Calibrator:	Flow Meter ID's:	High=148943, Low=15020	Standard Calibration Points for Ranges	SO ₂ Scrubber Check (10 mins.)
	Make & Model:	Sabio 2010	Point	ppb
	Serial #:	17100415	High	78
	Cal Gas Cylinder I.D. #:	BLM001927	Mid	38
	Cal Gas Conc. (ppm):	10.3	Low	19
			Start/End Time 24 hr.:	14:06/14:16
			Target Concentration (ppb):	780
			Result (ppb):	0
			Zero Corrected Result (ppb):	0

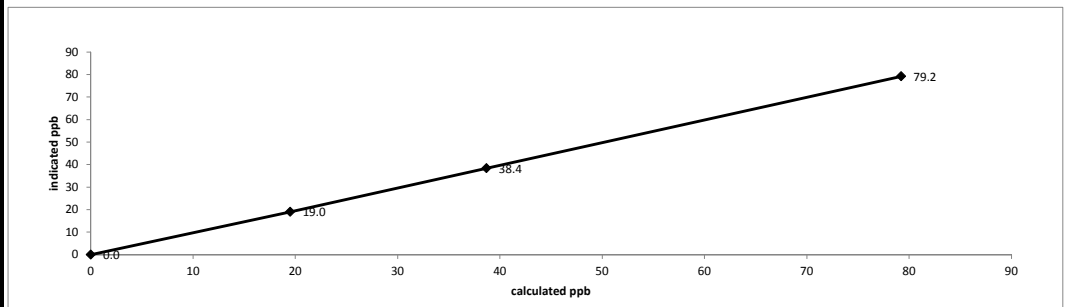
ALL POINTS ARE 15 MINUTES OF STABILITY AS OF SEPTEMBER 23, 2015

Calibrator Flow Rates (cc/min)				Calculated Concentration:	Indicated Concentration:	Correction Factors (C.F.):
Point	Diluent	Cal Gas	Total	(ppb)	(ppb)	
adjusted zero	7427	0.00	7427	0.0	0.0	n/a
adjusted high	7360	57.04	7417	79.2	79.2	1.000
mid	7413	27.95	7441	38.7	38.4	1.008
low	7416	14.07	7430	19.5	19.0	1.027
calibrator zero	7427	0.00	7427	0.0	-0.2	n/a
Average C.F.=						1.011

Linear Regression/Calibration Results:

Correlation Coefficient =	1.000	LIMITS	> or = 0.995
Slope =	0.998		.95-1.05
b (Intercept as % of full scale) =	0.26%		± 3% F.S.
% change in C.F. from last cal =	n/a		± 10%

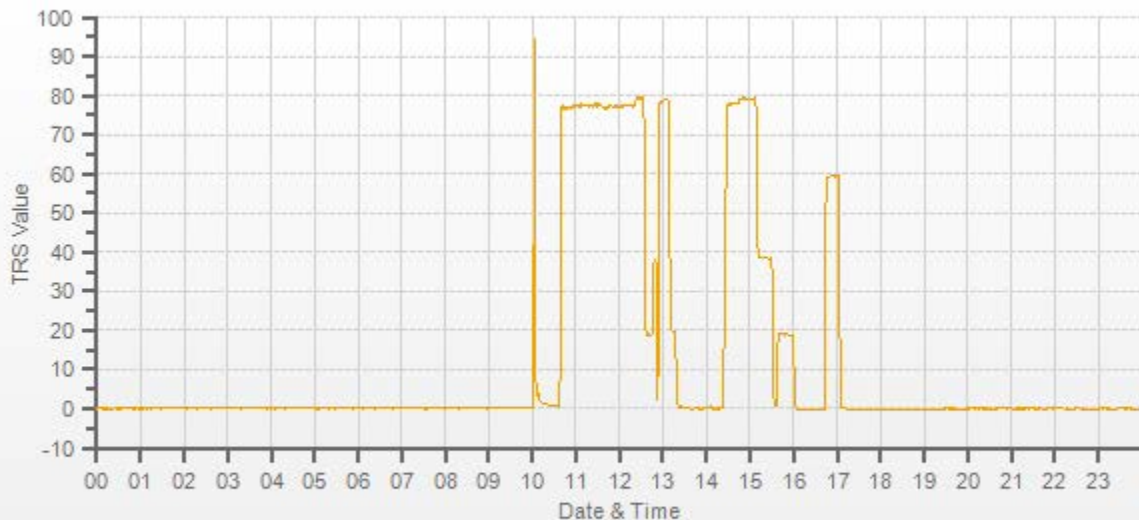
Thermo 43i Total Reduced Sulphur Analyzer Calibration



As found:	As left:
BKG: 3.16	BKG: 3.05
COEF: 0.863	COEF: 0.879
PMT: -725.2	PMT: -725.2
FLASH: 998	FLASH: 997
INTERNAL: 31.7	INTERNAL: 32.9
CHAMBER: 45.2	CHAMBER: 44.9
PERM OVEN GAS: 45.00	PERM OVEN GAS: 45.00
PERM OVEN HEATER: 44.11	PERM OVEN HEATER: 44.12
PRESSURE: 649.2	PRESSURE: 652.2
SAMPLE FLOW: 0.399	SAMPLE FLOW: 0.401
LAMP INTENSITY: 87	LAMP INTENSITY: 89
CONVERTER: 850	CONVERTER: 850
CONVERTER SET: 850	CONVERTER SET: 850
Expected Value: 54.5	Expected Value: 59.6

Comments:

Analyzer = 43i-TLE
 Flowmeters = Mesalabs Defender 530
 Post-repair following maintenance work on TRS converter



— TRS[ppb]

TOTAL HYDROCARBON



Thermo 55i Methane/Non-Methane Analyzer Calibration

Date:	February 1, 2017	Barometric Pressure:	28.34 inHg
Company/Airshed:	PRAMP	Station Temperature °C:	21.7
Location/Station Name:	842b	Weather Conditions:	Mainly sunny
Parameter:	CH ₄ / NMHC / THC	Calibration Purpose:	routine monthly
Start/End Time 24 hr. (mst):	14:00/18:15	Performed By/Reviewer:	Limin Li Trina Whitsitt
Calibration Method:	Gas Dilution	Cal Gas Expiry Date:	July 7, 2022

Analyzer:		Correction Factors:			
ID# or Serial Number:	1433563261	Previous C.F.:	As Found C.F.:	New C.F.:	
Measured Flow:	1.22 LPM	CH ₄ =	1.000	0.981	0.998
Last Calibration Date:	January 4, 2017	NMHC =	1.001	1.007	0.999
Range ppm:	20 CH ₄ /20 NMHC/40 THC	THC =	1.001	0.993	0.998

Calibrator:	Flow Meter ID's:	n/a	Standard Calibration Points for Analyzer Range of 20/20/40 ppm
	Make & Model:	Sabio 2010	
	Serial #:	17200415	
	Cal Gas Cylinder I.D. #:	LL83638	
	CH ₄ Cylinder Conc. =	582.0 203.0	=C ₂ H ₆ Cylinder Conc.
	CH ₄ as C ₂ H ₆ =	558.3 1140.3	=total CH ₄ equivalent

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

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

Point	Calibrator Flow Rates (cc/min)			Calculated CH ₄ (ppm)	Calculated NMHC (ppm)	Calculated THC (ppm)	Indicated CH ₄ (ppm)	Indicated NMHC (ppm)	Indicated THC (ppm)	Correction Factors:		
	Diluent	Cal Gas	Total Flow							CH ₄	NMHC	THC
as found zero	2523	0.00	2523	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
as found high	2523	65.00	2588	14.62	14.02	28.64	14.90	13.93	28.83	0.981	1.007	0.993
adjusted zero	2523	0.00	2523	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a
adjusted high	2523	65.00	2588	14.62	14.02	28.64	14.65	14.04	28.69	0.998	0.999	0.998
mid	2523	32.30	2555	7.36	7.06	14.41	7.43	7.12	14.55	0.990	0.991	0.991
low	2523	14.10	2537	3.23	3.10	6.34	3.31	3.20	6.51	0.977	0.970	0.973
calibrator zero	2523	0.00	2523	0.00	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a

Average C.F. = 0.988 0.986 0.987

Linear Regression/Calibration Results:

	CH ₄	NMHC	THC	LIMITS
Correlation Coefficient =	1.000	1.000	1.000	> or = 0.995
Slope =	1.001	0.999	1.000	.95-1.05
b (Intercept as % of full scale) =	0.20%	0.24%	0.22%	± 3% F.S.
% change in C.F. from last cal =	1.90%	-0.55%	0.76%	± 10%

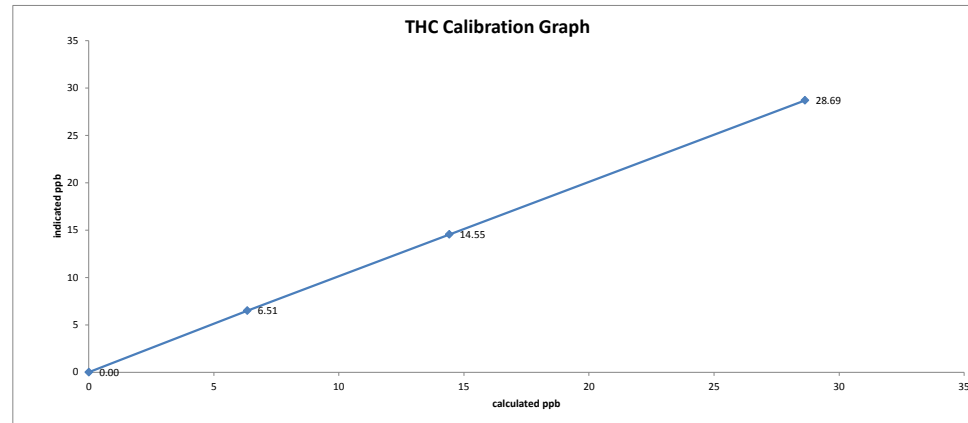
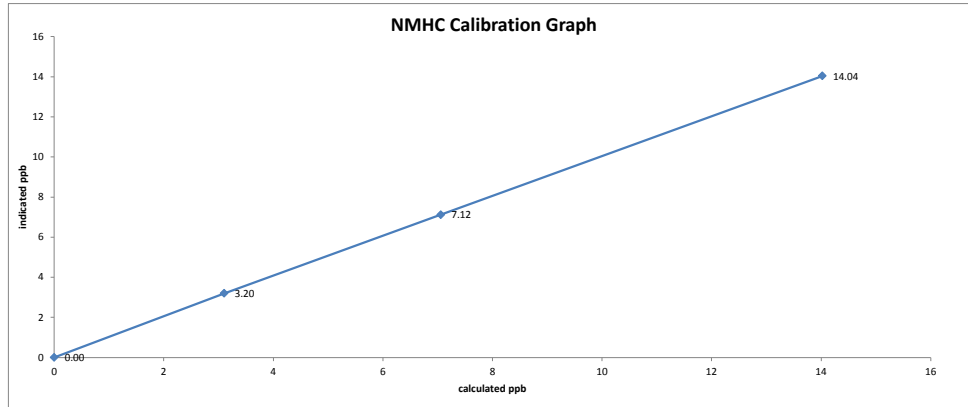
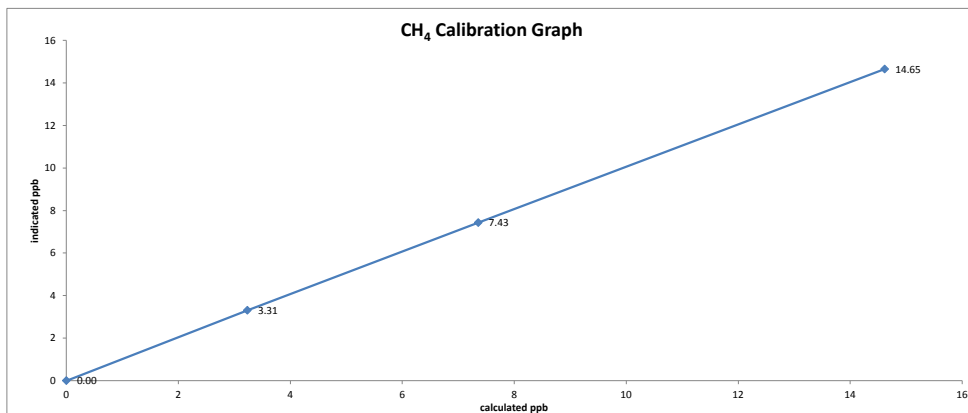
Interface Board Voltages:	Bias Supply:	-299.5	Calibration History cnt'd:	NM Peak Area:	0
Temperatures:	Detector Oven:	175	Crucial Settings:	Methane Start:	8
	Filter:	175		Methane End:	16
	Column Oven:	75		Backflush:	18
	Internal:	25.9		NMHW Start:	26
Cylinder Pressures/reg.:	Carrier:	600 50	Run History>1:	NMHC End:	56
	Fuel:	2000 50		Date:	01FEB17
	Span Gas:	1800 14		Time:	14:07
	Zero Air Generator:	45		CH ₄ PK HT:	2794
Internal Pressures:	Carrier:	28.6		CH ₄ RT:	12.4
	Fuel:	37.6		CH ₄ Baseline:	1784
	Air:	34.3		CH ₄ LOD:	32
FID Status:	Status:	LIT		CH ₄ SD:	10
	Counts:	21600		CH ₄ CONC:	1.92
	Flame:	350.9		NM PK HT:	0
	Det Base:	175		NM Peak Area:	0
Flame and Power Stats:	Last Power On:	05Jan2017 13:00:38		NM CONC:	0
	Flameouts:	1		NM Base Start:	1787
	Det Oven at Start:	30.5		NM Base End:	1814
	Col Oven at Start:	28.3		NM LOD:	30
Calibration History:	Time:	01JAN70 00:00		NM Start IDX:	11
	Type:	ERROR		NM End IDX:	90
	Status:	ERROR		NM Max Slope:	1.3e+00
	Check/Adjust:	ADJUST		NM Min Slope:	-5.8e-01
	CH ₄ Span Conc:	0	Expected Values:	NM PT Count:	0
	CH ₄ SP Ratio:	0		Previous CH ₄ :	8.05
	CH ₄ RT:	0		Previous NMHC:	9.51
	CH ₄ PK IDX:	0		Previous THC:	15.57
	CH ₄ PK HT:	0		New CH ₄ :	8.72
	NM Span Conc:	0		New NMHC:	10.94
	NM SP Ratio:	0		New THC:	19.68

Comments:
 The analyzer sample inlet filter was changed.
 A new hydrogen cylinder was installed. No zero adjustment was required/made. As found zero values were copied to adjusted zero values for linearity calculation purposes.
 The analyzer cooling fan filter(s) were cleaned.

H2 gas was changed before calibration.

Date: February 1, 2017
Company/Airshed: PRAMP
Location/Station Name: 842b

Start/End Time 24 hr. (mst): 14:00/18:15
Calibration Purpose: routine monthly
Calibration Method: Gas Dilution





— CH4[ppm] — NMHC[ppm]

WIND SYSTEM



Meteorological Sensor Audit/Calibration

Location Information Check to remove

Company:	PRAMP	Performed By:	Chris Wesson
Audit Location:	842b	Reviewed By:	Trina Whitsitt
Audit Date:	February 14, 2017	Start /EndTime (mst):	11:37 / 11:58

Wind Sensor Information

Sensor ID Data:		Sensor Outputs:	
Sensor Make:	RM Young	Velocity Voltage Output Range:	0-1
Sensor Model:	05305VK	Velocity Unit Output Range:	0-200
Serial #:	92411	Direction Voltage Output Range:	0-1
Previous Cal/Audit Date:	October 12, 2016	Direction Unit Output Range:	0-360

Wind Calibrator Information

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

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

RPM	Wind Speed Generated kph	Clockwise Wind Speed kph	Counter Clockwise Wind Speed kph	Correction Factor
0	0	0.0	0.0	-
1000	17.6	17.6	17.7	1.001
2000	35.3	35.1	35.2	1.005
3000	52.9	52.6	52.6	1.006
4000	70.6	70.2	70.2	1.006
5000	88.2	87.7	87.7	1.006
6000	105.8	105.2	105.2	1.006
7000	123.5	122.7	122.7	1.006
8000	141.1	140.2	140.2	1.007
9000	158.8	157.6	157.6	1.007
10000	176.4	175.1	175.2	1.007
The audit meets AMD requirements.			Average Correction Factor=	1.006

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

Generated Wind Direction 0-360 (Up)	Generated Wind Direction 360-0 (Down)	Indicated Wind Direction 0-360 (Up)	Indicated Wind Direction 360-0 (Down)	Degrees Difference 0-360 (Up)	Degrees Difference 360-0 (Down)	Average Absolute Degrees Difference
0	355	0	351	0.4	3.7	2.0
30	330	30	327	-0.1	3.0	1.5
60	300	60	298	-0.5	2.1	1.3
90	270	90	269	0.0	1.5	0.8
120	240	120	239	0.3	1.4	0.9
150	210	150	209	0.3	1.0	0.7
180	180	180	180	0.0	0.4	0.2
210	150	209	150	0.8	0.5	0.7
240	120	240	119	0.5	0.8	0.6
270	90	270	91	-0.1	-0.8	0.4
300	60	298	61	2.1	-0.6	1.3
330	30	328	31	1.7	-0.8	1.2
355	0	351	0	3.9	0.1	2.0
The audit meets AMD requirements.			Average Absolute Degrees Difference=		1.0	

Comments:

Alignment with true north confirmed whilst remounting (magnetic declination = 16°)

CALIBRATORS

Company Maxxam Operator: Christopher Wesson

Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17200415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>May 2015</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOx Concentration	<u>48.5/48.5</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
5029	0.0	0.000	0.000	0.000	0.000	0.000	Limit ± 10%	
5030	80.6	0.777	0.777	0.805	-0.005	0.800	4%	3%
5025	39.4	0.380	0.380	0.394	-0.002	0.392	4%	3%
5028	19.8	0.191	0.191	0.198	-0.001	0.197	4%	3%
Absolute Average Percent Difference							3.65%	3.09%

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)=	1.0360	0.90-1.10		m (Slope)=	1.0295		
b (Intercept % of FS)=	0.0110	± 3% F.S.		b (Intercept % of FS)=	0.0293		

Flow	O ₂ Conc	NO Decrease	NO	NO ₂	NOx	% Diff. Vs Audit gas	
5030	Lamp C.	0.000	0.804	-0.004	0.800	NO ₂	% Diff. Limit
5030	1.388	0.495	0.309	0.491	0.800	0%	± 10%
5030	0.745	0.241	0.563	0.239	0.802	1%	± 10%
5030	0.367	0.091	0.713	0.089	0.801	2%	± 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)=	0.9988	0.90-1.10					
b (Intercept % of FS)=	-0.2760	± 3% F.S.					

AENV Standards Audit Calibrator		NO _x Analyzer	
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>
		Last Calibration Date	<u>May 18, 2016</u>
		Full Scale (ppm)	<u>1.0</u>

 COMMENTS: Contains 50.3 ppm SO₂. Flows not measured as per Chapter 7, Section 5 of AMD.

 Auditor: AI Clark
 Operator Signature: *Christopher Wesson*

 Date: May 18, 2016
 Location: McIntyre Center Edmonton

Company <u>Maxxam</u>		Operator: <u>Christopher Wesson</u>	
Calibrator:		Flow Measurement Device:	
Make/Model	<u>Sabio 2010</u>	Make/Model	<u>N/A</u>
Serial Number	<u>17100415</u>	Serial Number	<u>N/A</u>
Last Verification Date	<u>May 2015</u>	Temperature (°C)	<u>N/A</u>
NO Cylinder S/N	<u>LL42475</u>	Barometric Pressure	<u>N/A</u>
NO/NOX Concentration	<u>48.5/48.5</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%	
5001	80.7	0.783	0.783	0.810	-0.004	0.806	3%	3%
5001	39.4	0.382	0.382	0.395	-0.001	0.393	3%	3%
5000	19.8	0.192	0.192	0.198	0.000	0.198	3%	3%
Absolute Average Percent Difference							3%	3%

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

NO		LIMITS		NOx
Correlation=	1.0000	≥ 0.990		Correlation=
m (Slope)=	1.0347	0.90-1.10		m (Slope)=
b (Intercept % of FS)=	-0.0283	± 3% F.S.		b (Intercept % of FS)=
				1.0000
				1.0292
				0.0098

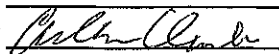
Flow	O ₃ Conc	NO Decrease	NO	NO ₂	NOX	% Diff. Vs Audit gas	
5001	Lamp C.	0.000	0.808	-0.004	0.804	NO ₂	% Diff. Limit
5001	1.316	0.476	0.332	0.472	0.804	0%	± 10%
5001	0.696	0.234	0.574	0.231	0.805	0%	± 10%
5001	0.392	0.089	0.719	0.086	0.805	1%	± 10%
Absolute Average Percent Difference						1%	± 10%

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

NO₂		LIMITS
Correlation=	1.0000	≥ 0.995
m (Slope)=	0.9994	0.90-1.10
b (Intercept % of FS)=	-0.3382	± 3% F.S.

AENV Standards	NO_x Analyzer
Audit Calibrator	
Make/Model	<u>Teco 146i</u>
Serial/AMU Number	<u>AMU 1809</u>
	Make/Model
	<u>Teco 42i</u>
	Serial/AMU Number
	<u>AMU 1868</u>
	Last Calibration Date
	<u>May 18, 2016</u>
	Full Scale (ppm)
	<u>1.0</u>

COMMENTS: Contains 50.3 ppm SO₂. Flows not measured as per Chapter 7, Section 5 of AMD.

Auditor: Al Clark
 Operator Signature: 

Date: May 18, 2016
 Location: McIntyre Center Edmonton

CALIBRATION GASES



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-342CGA

Company: Maxxam **Operator's Name:** Limin Li
Cylinder #: BLM002756T **Concentration PPM:** 49.9 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU 1690
 Last Verification Date: March 31, 2015
 Gas Type: SO2 Conc. 98.57
 Cylinder Number: CAL016720

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 22.5 C
 B.P. 690 mmhg

Reference Analyzer:

Make/Model: Teco 43C Serial/AMU Number: 1623
 Instrument Settings: Zero: 7.9 Span: 1.028 Range: 1.0
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.000	0.0000	0.000	0.000
4976	82.6	0.821	0.01660	60.242	49.5
4993	41.0	0.410	0.00821	121.780	49.9
4977	20.2	0.202	0.00406	246.386	49.8
Average Cylinder Concentration:					49.7

Previous Stated Concentration PPM: 49.9

Percent variance from Stated: 0.4

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: March 31, 2015
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-338CGA

Company: Maxxam **Operator's Name:** Limin Li
Cylinder #: BLM002508 **Concentration PPM:** 10.2 **Tolerance(%)** 2 **Certified By:** Air Liquide

Reference Calibrator and Gas:

Make/Model: R&R MFC 201
 Serial Number: AMU1690
 Last Verification Date: March 31, 2015
 Gas Type: H2S Conc. 20.43
 Cylinder Number: CAL015106

Flow Measurement Device:

Make/Model: Bios DC2
 Serial Number: AMU 1659
 Temp. °C: 23.0 C
 B.P. 689 mmhg

Reference Analyzer:

Make/Model: Teco 450i Serial/AMU Number: 1980
 Instrument Settings: Zero: 14.5 Span: 1.035 Range: 0.1
 Last Calibration: Date: Mar 31/15 C.F. 1.000 Done By: Al Clark

Calibrator Flows (sccm)		Indicated Concentration (PPM)	Gas Flow/ Dilution Flow	Concentration Factor	Cylinder Concentration
Dilution	Gas				
5000	0.0	0.0000	0.0000	132.984	9.6
5080	38.2	0.0725	0.00752	132.984	9.6
5078	17.9	0.0340	0.00353	283.687	9.6
5066	9.1	0.0170	0.00180	556.703	9.5
Average Cylinder Concentration:					9.6

Previous Stated Concentration PPM: 10.2

Percent variance from Stated: 6.0

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: March 31, 2015
 Location: McIntyre Center Edmonton



Calibration Gas Audit

Single Component Cylinder Gas

File No. 2015-109CGA

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

Reference Calibrator and Gas:

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

Flow Measurement Device:

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

Reference Analyzer:

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

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

Previous Stated Concentration PPM: 10.3

Percent variance from Stated: 0.1

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

Auditor: Shea Beaton
 Operator Signature: *[Signature]*

Date: February 2, 2016
 Location: McIntyre Center Edmonton



Praxair
 5700 South Alameda Street
 Los Angeles, CA 90058
 Tel: (323) 585-2154 Fax: (714) 542-6689
 PGVPID: F22014

DocNumber: 000068924

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

MAXXAM ANALYTICS INC *NA*
 9372 49TH ST
 EDMONTON AB T6B 2L

Praxair Order Number: 21137117
 Customer P. O. Number: 35-55963
 Customer Reference Number:

Fill Date: 7/1/2014
 Part Number: NI ME600P2E-AQ
 Lot Number: 109418203
 Cylinder Style & Outlet: AQ CGA 350
 Cylinder Pressure & Volume: 2200 psig 78 cu. ft.

Certified Concentration:

Expiration Date:	7/7/2022	NIST Traceable
Cylinder Number:	LL83638	Analytical Uncertainty:
582 ppm	METHANE	± 1.5 %
203 ppm	PROPANE	± 0.9 %
Balance	NITROGEN	

Certification Information: Certification Date: 7/7/2014 Term: 96 Months Expiration Date: 7/7/2022

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: METHANE

Requested Concentration: 600 ppm
 Certified Concentration: 582 ppm
 Instrument Used: MKS Multigas 2031 FTIR
 Analytical Method: Fourier Transform Infrared
 Last Multipoint Calibration: 6/24/2014

Reference Standard Type: GMIS
 Ref. Std. Cylinder #: CC139480
 Ref. Std. Conc: 246 ppm
 Ref. Std. Traceable to SRM #: 2751
 SRM Sample #: 212-09-AL
 SRM Cylinder #: SX-20000

First Analysis Data:		Date: 7/7/2014	
Z: 0	R: 249.5	C: 589.4	Conc: 581.21
R: 249.5	Z: 0	C: 589	Conc: 580.82
Z: 0	C: 592	R: 249.4	Conc: 583.77
UOM: ppm	Mean Test Assay:	581.93 ppm	

Second Analysis Data:		Date:	
Z: 0	R: 0	C: 0	Conc: 0
R: 0	Z: 0	C: 0	Conc: 0
Z: 0	C: 0	R: 0	Conc: 0
UOM: ppm	Mean Test Assay:	0 ppm	

2. Component: PROPANE

Requested Concentration: 200 ppm
 Certified Concentration: 203 ppm
 Instrument Used: MKS Multigas 2031 FTIR
 Analytical Method: Fourier Transform Infrared
 Last Multipoint Calibration: 6/24/2014

Reference Standard Type: GMIS
 Ref. Std. Cylinder #: CC 163442
 Ref. Std. Conc: 265.8 ppm
 Ref. Std. Traceable to SRM #: vs 2644a
 SRM Sample #: 101-C-45
 SRM Cylinder #: XF003829B

First Analysis Data:		Date: 7/7/2014	
Z: 0	R: 273.6	C: 208.4	Conc: 202.43
R: 273.7	Z: 0	C: 208.6	Conc: 202.63
Z: 0	C: 208.5	R: 273.6	Conc: 202.53
UOM: ppm	Mean Test Assay:	202.53 ppm	

Second Analysis Data:		Date:	
Z: 0	R: 0	C: 0	Conc: 0
R: 0	Z: 0	C: 0	Conc: 0
Z: 0	C: 0	R: 0	Conc: 0
UOM: ppm	Mean Test Assay:	0 ppm	

Analyzed by:

Jack Fu

Certified by:

Ying Yu

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

APPENDIX III
INTERNAL AUDIT RESULTS

Maxxam Analytics Ambient Air Audit Station Summary

Company: PRAMP **Plant:** PRAMP **Site:** 842B

GENERAL

- Is site location changed from previous audit?
- Is site secure?
- Are station operating conditions adequate?

YES	NO	N/A
	X	
X		
X		

DATA ACQUISITION

- Are strip charts in use?
- Are digital charts in use?
- Is a telemetry system for data acquisition in use?

	X	
	X	
X		

TRAILER COMPONENTS

- Is a glass sampling manifold installed?
- Is sampling manifold clean?
- Is a trap in place?
- Are spare manifold ports capped?
- Is manifold pump properly installed and operative?
- Are manifold ports situated to prevent water entering monitors?
- Is manifold mounted at a slight downward angle?
- Do sample lines extend at least 3/4" into manifold?
- Are monitor sampling lines connected to manifold?
- Are sampling lines clean?
- Are monitors properly mounted and secure?
- Are monitors properly exhausted from room or scrubbed?
- Are zero and span systems operational?

X		
X		
X		
X		
X		
X		
X		
x		
X		
X		
X		
X		
X		

WIND EQUIPMENT

- Is wind equipment properly oriented?
- Does wind equipment appear to be functioning properly?

X		
X		

COMMENTS:

AUDITOR: Limin Li **DATE:** February 1, 2017

**Maxxam Analytics Ambient Air Audit
Station Summary**

Company: PRAMP **Plant:** PRAMP **Site:** 842B

Meteorological

- o Temperature
- o Barometric Pressure
- o Wind Speed (KPH)
- o Wind Direction (Deg)
- o Relative Humidity
- o Ambient Temperature
- o Solar Radiation
- o Precipitation

Indicated	Audit Value
21.94	21.55
28.41 inHg	28.35 inHg
1.2	0-5
180	S
82.14	79.5
-16.04	-16.05
n/a	n/a
n/a	n/a

Location

- o Latitude
- o Longitude
- o Elevation
- o Status of Site Documentation

56.2741° North
116.9813° West
610m
On Site

Trailer Components

- o Manifold Material
- o Condition of Manifold

Glass
Good

COMMENTS: _____

AUDITOR: Limin Li **DATE:** February 2, 2017

***APPENDIX IV
REPORT CERTIFICATION FORM***

Report Certification Form

Alberta Airshed (if applicable)	EPA Approval or Code of Practice Registration # (if applicable)
NO	NA
Company Name (if applicable)	Industrial Operation Name (if applicable)
Peace River Area Monitoring Program Committee	Three Creeks 842b Station
Name of the Representative of the Person Responsible (Last, First, Middle)	Position / Title of the Representative of the Person Responsible
Wunmi Adekanmbi	Project Manager, Customer Service, Air Services
Is an External Party Certifying the Report? (If 'Yes', fill in the fields below for the external person.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Name of External Person Certifying the Report (Last, First, Middle)	Position / Title of External Person Certifying the Report
NA	NA
Company Name for the External Person Certifying the Report	Identification of Qualifications / Professional Designations of the External Person Certifying the Report
NA	NA

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



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

29-03-2017




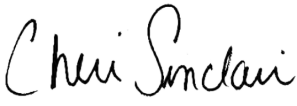
Report Issued Date (dd-mm-yyyy)

APPENDIX V
DATA VALIDATION CERTIFICATION FORM



Validation Certificate Form

Client: <u>Peace River Area Monitoring Program Committee</u>	Project #: <u>8449-2017-02-80-C</u>
Site: <u>Three Creeks 842b Station</u>	Contact: <u>Karla Reesor</u>

Level 0 Preliminary Verification	<u></u>	Date <u>17-03-2017</u>
Level 1 Primary Validation	<u></u>	Date <u>17-03-2017</u>
Level 2 Final Validation	<u></u>	Date <u>22-03-2017</u>
Level 3 Independent Data Review	<u></u>	Date <u>29-03-2017</u>
Post-Final Validation	<u>NA</u>	Date <u>NA</u>

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