TransAlta Utilities Corporation

AIR QUALITY MONITORING
March 2017
Monthly Report

Prepared by:

West Central Airshed Society
Drayton Valley, Alberta

West Central
Airshed Society

April 15, 2017

Attention: Mr. Ken Woolard
GBS Building
RR#1, Site 4, Box #1
Duffield Alberta
T0E 0N0

Dear Sir:

Monthly Ambient Air Quality Monitoring Report for March 2017
For TransAlta Utilities Corporation

Enclosed are the reports for the continuous ambient air quality monitoring stations of the West Central Airshed Society network.

Network Stations are Identified as:	AMS 907	Power
	AMS 908	Meadows
	AMS 959	Wagner2

The person responsible for this reporting is Gary Redmond, Executive Director of West Central Airshed Society.

The following operational notes are included as required by the Air Monitoring Directive:

1. Concentrations in excess of the Clean Air (Maximum Levels) Regulation:

There were two readings in excess of the 24-hour guidelines for $PM_{2.5}$, as indicated in Air Monitoring Directive Section III.A.3. (a&b). These were recorded on March 23 and 24, AEP reference numbers 322375 and 322376. There were no readings in excess of guidelines as indicated in Air Monitoring Directive Section III.A.3. (a&b) for SO_2 or NO_2.

2. Operational times less than 90 percent:

All analyzers returned operational uptimes of greater than 90% for the month of March.

3. Monitoring Notes:

AMS 907 (Power)

The NOx analyzer returned an uptime of 92.2%, due to instrument malfunctioning. The As Founds completed during the calibration failed to meet AMD requirements, and data was invalidated back to the last valid span. The $PM_{2.5}$ analyzer returned an uptime of 99.6% due to analyzer maintenance. The wind instrument returned an uptime of 98.8% due to instrument malfunctioning, attributed to cold temperatures and precipitation causing the instrument to freeze up. All other analyzers and meteorological equipment returned uptimes of 100% percent in March.

AMS 908 (Meadows)

The wind instrument returned an uptime of 99.7% due to instrument malfunctioning, attributed to cold temperatures and precipitation causing the instrument to freeze up. All other analyzers and meteorological equipment returned uptimes of 100% percent in March.

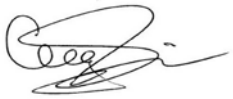
AMS 959 (Wagner2)

The external temperature sensor returned an uptime of 99.6% due to instrument malfunctioning. The wind instrument returned an uptime of 98.0% due to instrument malfunctioning, attributed to cold temperatures and precipitation causing the instrument to freeze up. All pollutant analyzers returned uptimes of 100% percent in March.

If additional information is required please contact Patrick Andersen at (780) 514-3533.

Sincerely,

Patrick Andersen
Environmental Specialist

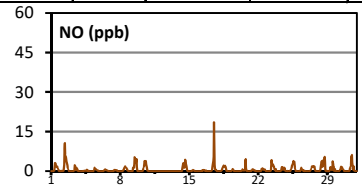


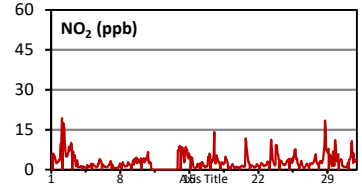
Greg Swain
Senior Technologist

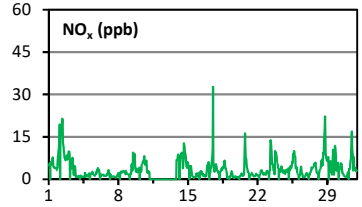
Jeff McClintock
Technologist

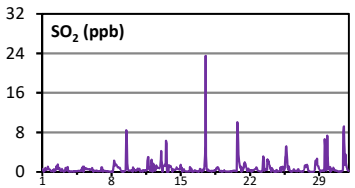
WCAS - March 2017 Power Summary Report

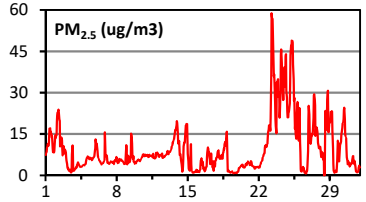
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc Unit	Avg. Conc.	Uptime	Maximum Conc	Maximum Time	AAAQO Objective	Exceed No.	Maximum Conc	Maximum Time	AAAQO Objective	Exceed No.
SO_2	ppb	0.7	100.0%	2.0	Mar-13	48	0	23.5	Mar-17 13:00	172	0
NO	ppb	0.7	92.2%	2.1	Mar-2	-	-	18.5	Mar-17 13:00	-	-
NO_2	ppb	3.3	92.2%	9.8	Mar-2	-	-	19.3	Mar-02 3:00	159	0
NO_X	ppb	3.9	92.2%	11.8	Mar-2	-	-	32.7	Mar-17 13:00	-	-
$PM_{2.5}$	µg/m³	10	99.6%	32	Mar-23	30	2	59	Mar-23 7:00	-	-

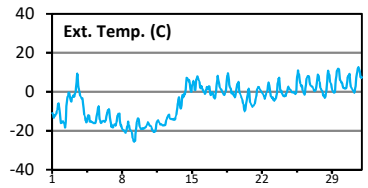


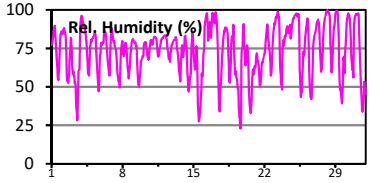


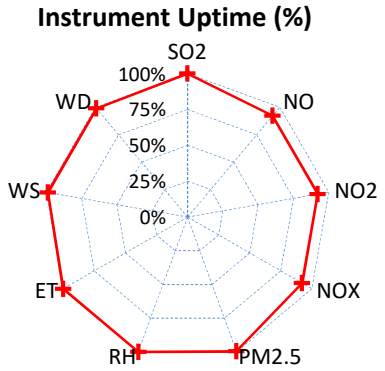


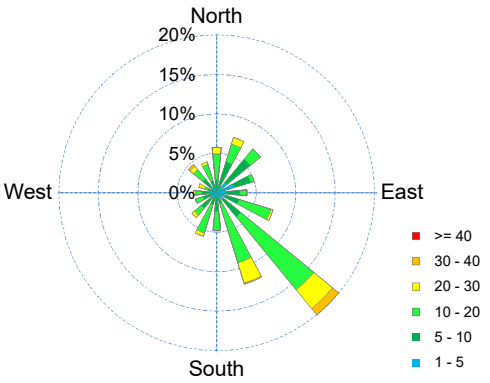




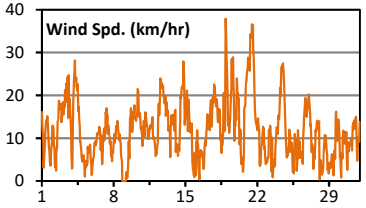








Wind Rose (km/hr)

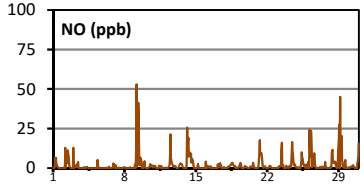


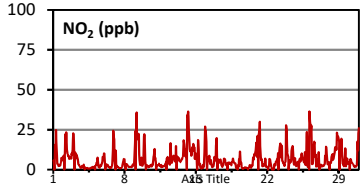
Monthly Summary

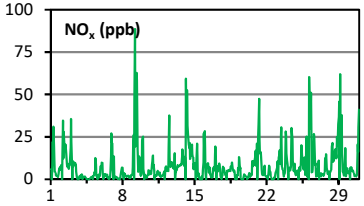
* All data has been slope, intercept, and baseline corrected. Data may change after validation process.
* The measured ambient concentrations of all parameters are within the AAAQO for the month of March, with the exception of two 24-hour PM2.5 exceedance events on March 23 and 24.
* All compliance parameters are above 90% operational for the month of March.
* Routine calibration was performed on March 13.

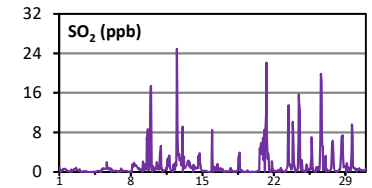
WCAS - March 2017 Meadows Summary Report

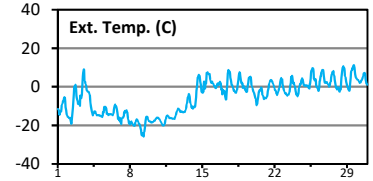
Pollutants		Month Records		24-Hour Records				1-Hour Records			
				Maximum		AAAQO	Exceed	Maximum		AAAQO	Exceed
Name	Conc Unit	Avg. Conc.	Uptime	Conc	Time	Objective	No.	Conc	Time	Objective	No.
SO_2	ppb	1.3	100.0%	3.9	Mar-9	48	0	24.9	Mar-12 13:00	172	0
NO	ppb	2.1	100.0%	9.1	Mar-9	-	-	53.0	Mar-09 5:00	-	-
NO_2	ppb	6.9	100.0%	16.3	Mar-14	-	-	36.4	Mar-26 4:00	159	0
NO_X	ppb	8.8	100.0%	23.6	Mar-9	-	-	88.6	Mar-09 5:00	-	-

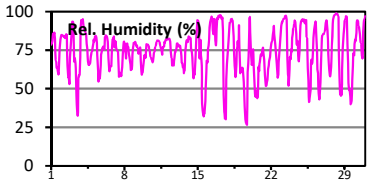


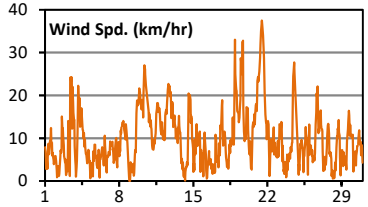


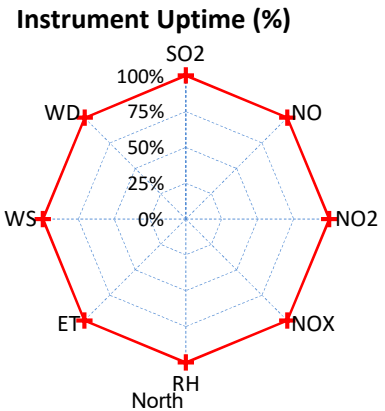


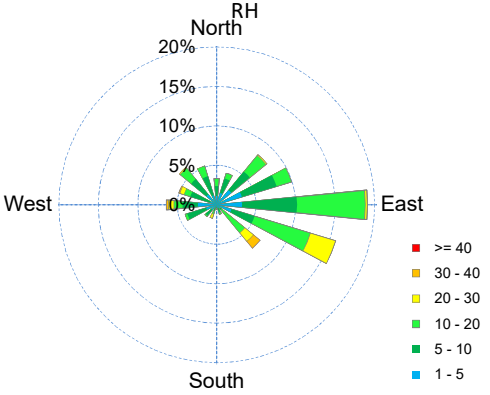










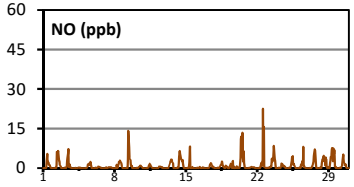


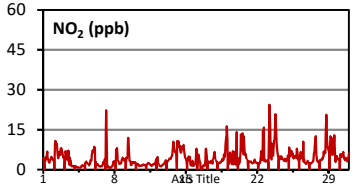
Monthly Summary

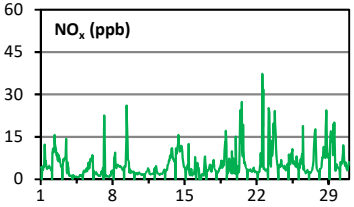
* All data has been slope, intercept, and baseline corrected. Data may change after validation process.
* The measured ambient concentrations of all parameters are within the AAAQO for the month of March.
* All compliance parameters are above 90% operational for the month of March.
* Routine calibration was performed on March 22.

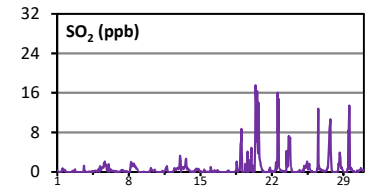
WCAS - March 2017 Wagner2 Summary Report

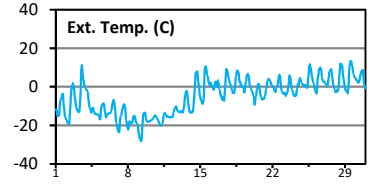
Pollutants		Month Records		24-Hour Records				1-Hour Records			
				Maximum		AAAQO	Exceed	Maximum		AAAQO	Exceed
Name	Conc Unit	Avg. Conc.	Uptime	Conc	Time	Objective	No.	Conc	Time	Objective	No.
SO_2	ppb	0.8	100.0%	5.1	Mar-20	48	0	17.6	Mar-20 10:00	172	0
NO	ppb	1.0	100.0%	3.1	Mar-20	-	-	22.5	Mar-22 14:00	-	-
NO_2	ppb	4.4	100.0%	10.6	Mar-23	-	-	24.4	Mar-23 5:00	159	0
NO_X	ppb	5.5	100.0%	12.7	Mar-23	-	-	37.3	Mar-22 14:00	-	-

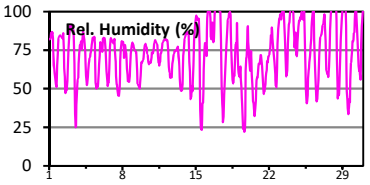


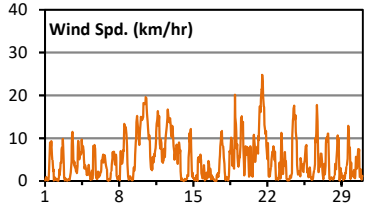


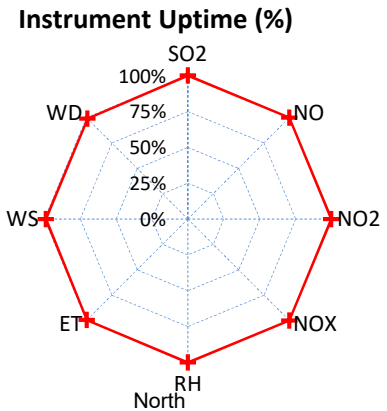


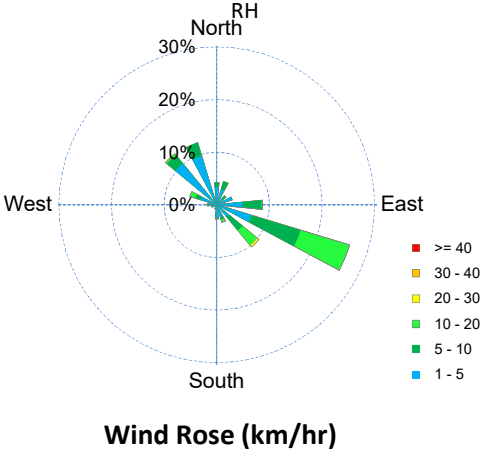












Wind Rose (km/hr)

Monthly Summary

* All data has been slope, intercept, and baseline corrected. Data may change after validation process.
* The measured ambient concentrations of all parameters are within the AAAQO for the month of March.
* All compliance parameters are above 90% operational for the month of March.
* Routine calibration was performed on March 16.

WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT CONTINUOUS AIR MONITORING DATA

AMS 907
POWERS
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

Summary Report **West Central Airshed Society**

Continuous air quality/meteorlogical monitoring measurements

TransAlta / Powers **March 2017**
Station 907

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile P10	Q1	Median	Q3	P90	Exceedences 1-hour	Exceedences 24-hour	24 Hour Average Max (ppm)
SO_2 (ppb)	36	708	100.0	0.7	0.0	23.5	0.1	0.2	0.3	0.8	1.4	0	0	0.002
NO (ppb)	35	651	92.2	0.7	0.0	18.5	0.0	0.0	0.0	0.7	2.2	-	-	-
NO_2 (ppb)	35	651	92.2	3.3	0.5	19.3	0.9	1.3	2.4	4.1	7.1	0	0	0.010
NO_x (ppb)	35	651	92.2	3.9	0.4	32.7	0.9	1.5	2.8	5.0	8.3	-	-	-
Particulate Matter 2.5 microns (μ/m^3)	0	741	99.6	9.6	0.7	58.9	1.7	3.9	6.5	11.8	21.7	0	2	32.47 ug/m3
Wind Speed (kph)	0	735	98.8	12.0	0.3	37.9	4.1	7.0	11.6	15.6	21.2	-	-	-
Temperature (^oC)	0	744	100.0	-4.6	-25.7	12.7	-17.3	-14.0	-1.7	2.0	6.3	-	-	-
Relative Humidity (%)	0	744	100.0	73.2	22.7	100.0	51.2	61.8	76.0	85.0	94.4	-	-	-
Std Dev Wind Direction (deg)	0	735	98.8	15.8	1.4	88.7	7.6	9.1	11.8	16.3	27.6	-	-	-
Std Dev Wind Speed (kph)	0	735	98.8	2.6	0.6	18.1	1.4	1.8	2.4	3.1	4.0	-	-	-

West Central Airshed Society

WCAS - Power
Summary of Hourly Averages

Sulphur Dioxide (SO_2) - ppb
March 2017

Maximum Value: 23.53 ppb on Mar 17 13:00

Maximum Daily Average: 2.01 ppb on Mar 13

Minimum Value: 0.0 ppb on Mar 27 09:00

Minimum Daily Average: 0.12 ppb on Mar 19

Maximum Diurnal Average: 1.83 ppb at hour 13

Minimum Diurnal Average: 0.40 ppb at hour 5

Monthly Average: 0.730 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.1 Q_1 = 0.2 Median = 0.3 Q_3 = 0.8 P_{90} = 1.4 P_{99} = 7.3

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.6	0.4	0.3	Z	0.2	0.2	0.5	0.8	0.4	0.4	0.6	0.5	0.6	1.0	0.8	0.6	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.1	0.45	1.03
2-Mar	0.2	0.2	0.4	Z	0.5	0.4	0.4	0.2	0.5	0.6	1.2	0.6	0.6	1.5	0.6	0.5	0.7	0.8	0.5	0.3	0.2	0.2	0.3	0.6	0.52	1.53
3-Mar	0.5	0.3	0.3	Z	0.2	0.1	0.1	0.2	0.8	0.9	0.5	0.3	0.3	1.0	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.29	0.98
4-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.5	0.16	0.51
5-Mar	0.7	0.9	1.1	Z	1.1	1.1	0.9	0.7	0.5	0.6	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.4	0.6	0.64	1.08
6-Mar	0.8	0.7	0.5	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.9	0.28	0.90
7-Mar	0.9	0.6	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.18	0.95
8-Mar	0.0	0.0	0.2	Z	1.0	1.4	2.3	1.3	1.3	1.6	1.4	1.4	1.4	1.2	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.5	0.3	0.2	0.94	2.31
9-Mar	0.1	0.0	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.5	8.4	7.7	5.3	1.7	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	1.18	8.45
10-Mar	0.2	0.2	0.4	Z	0.9	0.6	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.7	0.3	0.4	0.5	0.6	0.2	0.1	0.1	0.2	0.38	0.94
11-Mar	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.6	2.2	3.0	3.0	1.2	0.4	0.3	0.2	0.2	0.2	0.65	2.99
12-Mar	1.9	2.5	1.4	Z	1.1	1.6	1.4	0.6	0.3	0.2	0.4	0.4	1.3	1.1	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.8	1.1	2.5	1.05	2.47
13-Mar	4.2	2.3	1.5	Z	1.1	1.1	1.2	1.2	1.3	1.5	1.2	1.8	6.3	5.7	C	C	C	C	C	1.4	1.3	1.1	1.0	1.2	2.01	6.29
14-Mar	1.0	0.8	0.7	Z	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.9	0.7	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.7	1.4	0.61	1.41
15-Mar	1.0	0.5	0.9	Z	0.5	0.3	0.3	0.5	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	1.0	0.3	0.29	1.00
16-Mar	0.2	0.6	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.6	0.6	0.20	0.63
17-Mar	0.5	0.3	0.1	Z	0.1	0.3	0.4	0.3	0.8	1.0	3.2	5.2	23.5	3.3	0.5	0.3	0.4	0.2	0.5	0.3	0.2	0.2	0.1	0.2	1.82	23.53
18-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.8	0.7	0.9	1.0	0.9	0.8	0.4	0.3	0.1	0.1	0.40	0.97
19-Mar	0.1	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.4	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	0.12	0.36
20-Mar	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	6.3	10.0	7.5	4.5	3.0	2.3	1.6	1.1	1.69	10.04
21-Mar	0.9	0.6	1.0	Z	0.7	0.7	0.3	0.3	0.7	1.6	1.4	2.0	1.7	1.4	1.0	0.8	0.4	0.1	0.1	0.5	0.7	0.2	0.3	0.3	0.77	1.96
22-Mar	0.3	0.3	0.4	Z	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.8	0.9	0.8	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.38	0.91
23-Mar	0.1	0.1	0.1	Z	0.0	0.1	0.8	2.1	3.1	2.5	0.8	0.2	0.5	0.6	0.5	0.4	0.4	0.4	2.5	1.9	2.3	2.1	1.6	1.3	1.06	3.13
24-Mar	0.9	0.6	0.5	Z	0.5	0.8	0.6	0.5	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.3	0.4	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.28	0.93
25-Mar	0.2	0.2	0.9	Z	0.7	1.0	0.8	1.0	0.5	0.5	0.3	0.3	0.5	3.0	3.3	5.1	5.2	3.1	2.2	0.8	0.4	1.1	1.0	0.3	1.41	5.20
26-Mar	0.3	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.4	0.5	0.5	0.3	0.2	0.23	0.53
27-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.5	0.8	1.3	1.4	1.0	1.2	1.3	1.5	1.3	0.8	0.2	0.1	0.1	0.54	1.45
28-Mar	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	2.2	2.3	2.1	1.7	2.6	1.4	1.2	1.2	0.9	0.7	0.75	2.64
29-Mar	0.4	0.3	0.2	Z	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	1.0	6.6	4.6	3.5	0.6	0.2	2.0	7.3	3.3	1.0	0.5	0.6	1.48	7.32
30-Mar	0.5	0.5	1.0	Z	0.6	0.5	0.5	0.4	0.3	0.7	0.9	0.7	0.5	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.39	0.99
31-Mar	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.6	7.8	9.2	5.9	4.5	1.4	3.5	1.9	1.5	0.9	0.7	0.4	0.3	0.2	0.2	1.73	9.20
	0.56	0.46	0.44	--	0.40	0.42	0.44	0.42	0.47	0.55	0.81	1.15	1.83	1.36	0.84	0.92	0.97	0.96	0.92	0.87	0.62	0.46	0.45	0.48	Diurnal Average	
	4.20	2.47	1.46	--	1.07	1.63	2.31	2.08	3.13	2.51	7.85	9.20	23.53	6.63	4.63	5.07	6.28	10.04	7.45	7.32	3.29	2.31	1.63	2.46	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb

WCAS - Power
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
March 2017

Maximum Value: 18.52 ppb on Mar 17 13:00

Maximum Daily Average: 2.11 ppb on Mar 2

Minimum Value: 0.0 ppb on Mar 1 01:00

Minimum Daily Average: 0.06 ppb on Mar 15

Maximum Diurnal Average: 2.01 ppb at hour 13

Minimum Diurnal Average: 0.00 ppb at hour 22

Monthly Average: 0.656 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.0 Q_3 = 0.7 P_{90} = 2.2 P_{99} = 5.5

Hours in Service:	744
Hours of Data:	651
Hours of Missing Data:	93
Hours of Calibration:	35
Percent Operational Time:	92.2

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	1.6	3.0	2.9	1.9	1.8	1.7	1.7	1.2	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.77	3.04
2-Mar	0.0	0.0	0.1	Z	0.0	0.1	0.1	2.3	8.5	10.5	6.2	5.5	4.6	3.7	2.7	2.2	1.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.11	10.54
3-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.7	2.2	2.0	0.7	0.3	1.2	1.1	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.40	2.23
4-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.55
5-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	1.2	0.8	0.8	0.7	0.5	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.25	1.19
6-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.15	0.58
7-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.44
8-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.5	1.0	1.4	1.7	1.7	1.5	1.3	1.1	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.51	1.72
9-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	1.3	1.6	1.2	2.5	5.3	4.7	3.7	3.2	4.5	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.29	5.25
10-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.9	1.6	2.4	3.8	3.2	3.4	3.8	2.5	1.5	0.8	0.1	0.0	0.0	0.0	0.0	0.0	1.06	3.84
11-Mar	0.0	0.0	0.0	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	0.00
12-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
13-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	C	C	C	C	C	0.0	0.0	0.0	0.0	--	0.00
14-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.9	2.3	3.0	2.9	1.2	2.4	2.4	4.3	2.9	2.3	1.8	0.2	0.0	0.0	0.0	0.0	0.0	1.17	4.34
15-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.4	0.3	0.2	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	0.06	0.44
16-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11	0.42
17-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.4	1.4	2.3	3.8	5.4	18.5	2.4	1.0	0.6	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	1.59	18.52
18-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	1.0	1.3	1.5	2.1	1.9	1.9	1.8	2.0	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.71	2.11
19-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.5	0.8	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11	0.78
20-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.6	0.4	0.2	0.3	0.3	0.3	0.3	4.1	4.5	1.0	0.0	0.0	0.0	0.0	0.0	0.54	4.47
21-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.3	0.7	0.6	0.6	0.4	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.16	0.67
22-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.9	1.0	1.0	0.7	0.5	0.5	0.5	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.28	0.99
23-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.3	2.5	4.2	2.9	2.2	2.1	2.4	1.9	1.1	0.8	0.3	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.94	4.18
24-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.9	1.5	1.5	1.0	0.5	0.7	0.8	1.2	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.41	1.49
25-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.5	1.0	1.5	2.2	2.8	2.6	3.8	3.4	3.6	2.4	1.3	0.4	0.0	0.0	0.0	0.0	0.0	1.11	3.79
26-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	1.2	1.0	0.6	0.5	0.3	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	1.23
27-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.5	1.2	1.7	1.8	1.7	1.6	1.7	1.6	1.7	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.65	1.77
28-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.2	1.0	1.9	3.3	3.8	2.7	1.7	3.0	4.2	2.9	4.5	5.3	3.6	0.3	0.0	0.0	0.0	0.0	1.67	5.32
29-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.3	1.5	1.0	0.6	0.4	0.4	0.7	3.6	2.2	1.9	0.2	0.6	0.8	0.0	0.0	0.0	0.0	0.0	0.62	3.64
30-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.5	1.0	1.7	1.6	1.4	0.8	0.7	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.40	1.66
31-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	1.2	1.9	2.2	5.6	6.1	3.0	2.2	0.7	1.9	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.11	6.12
	0.00	0.00	0.00	--	0.00	0.00	0.07	0.53	1.27	1.71	1.79	1.81	2.01	1.50	1.35	1.25	0.96	0.69	0.27	0.02	0.00	0.00	0.00	0.00	Diurnal Average	
	0.02	0.02	0.06	--	0.03	0.06	0.35	2.53	8.53	10.54	6.19	6.12	18.52	3.79	4.34	4.46	4.50	5.32	3.58	0.32	0.01	0.01	0.02	0.01	Diurnal Maximum	

Z - zerospan C - Calibration AF - Analyzer Failure

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

WCAS - Power
Summary of Hourly Averages

Nitrogen Dioxide (NO_2) - ppb
March 2017

Maximum Value: 19.32 ppb on Mar 2 03:00

Maximum Daily Average: 9.77 ppb on Mar 2

Minimum Value: 0.5 ppb on Mar 19 00:00

Minimum Daily Average: 0.99 ppb on Mar 4

Maximum Diurnal Average: 4.30 ppb at hour 19

Minimum Diurnal Average: 2.40 ppb at hour 15

Monthly Average: 3.251 ppb

Percentiles: P_1 = 0.6 P_{10} = 0.9 Q_1 = 1.3 Median = 2.4 Q_3 = 4.1 P_{90} = 7.1 P_{99} = 14.8

Hours in Service:	744
Hours of Data:	651
Hours of Missing Data:	93
Hours of Calibration:	35
Percent Operational Time:	92.2

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	5.3	5.0	5.0	Z	6.1	5.1	5.5	5.6	5.2	4.6	3.6	2.5	2.3	2.5	2.7	2.7	2.8	3.4	3.6	3.3	3.6	4.0	8.7	9.7	4.46	9.65
2-Mar	10.7	14.8	19.3	Z	14.1	17.5	16.9	15.7	12.9	9.6	6.7	5.9	5.0	5.4	4.9	5.3	5.6	6.6	8.1	8.6	7.3	7.1	7.4	9.2	9.77	19.32
3-Mar	10.0	9.8	8.8	Z	5.4	6.7	3.9	3.8	5.3	5.4	3.9	1.8	1.3	2.5	3.5	3.3	2.4	0.9	0.9	0.9	0.9	0.9	1.1	0.9	3.67	9.98
4-Mar	1.2	0.8	1.1	Z	1.0	1.2	1.1	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	1.7	0.8	0.9	1.1	1.4	1.1	1.1	1.1	1.6	0.99	1.69
5-Mar	1.9	2.2	2.2	Z	2.0	2.1	2.0	1.9	1.5	1.5	1.2	1.0	1.0	1.0	0.9	1.0	1.1	1.8	2.3	2.1	3.2	3.0	4.0	3.7	1.94	4.01
6-Mar	3.5	3.2	2.2	Z	1.3	1.3	1.8	1.4	1.3	1.2	1.0	1.0	1.0	0.8	0.8	0.9	1.0	1.1	1.3	1.5	1.9	1.7	2.0	3.0	1.58	3.49
7-Mar	3.2	2.6	1.8	Z	2.0	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.7	1.0	1.5	1.0	1.1	2.3	1.11	3.23
8-Mar	2.2	1.6	1.5	Z	2.3	2.5	2.8	2.2	1.8	1.7	1.3	1.2	1.3	1.2	1.2	1.3	1.3	1.5	2.8	2.7	2.0	2.1	1.9	1.8	1.84	2.80
9-Mar	1.5	1.3	1.1	Z	1.9	2.2	1.9	3.4	3.7	1.8	2.4	4.1	3.6	3.1	3.1	4.5	2.5	3.0	2.6	3.3	3.8	3.0	2.5	3.1	2.77	4.52
10-Mar	3.2	2.9	4.2	Z	2.9	2.5	2.9	2.7	4.2	3.8	3.1	2.7	3.2	3.5	4.3	3.8	3.5	4.3	5.7	6.7	4.2	2.5	2.3	2.5	3.55	6.69
11-Mar	2.9	2.3	2.5	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	2.87
12-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
13-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	C	C	C	C	C	7.2	7.1	7.4	8.5	--	8.47
14-Mar	9.0	8.4	8.3	Z	8.4	7.4	8.3	8.2	7.2	6.1	5.3	2.6	2.9	4.9	8.3	8.6	6.6	7.5	7.6	5.9	4.6	4.1	4.3	6.0	6.53	8.96
15-Mar	5.7	5.0	4.8	Z	4.0	4.6	4.1	4.3	2.3	1.3	0.9	0.8	0.6	0.7	0.6	0.7	0.8	0.8	1.1	1.0	2.2	1.1	1.9	1.2	2.19	5.70
16-Mar	1.2	2.4	1.4	Z	0.9	1.4	2.7	2.3	2.5	1.8	1.4	1.5	1.4	0.9	1.0	0.9	1.1	0.9	1.2	1.2	1.3	3.7	4.9	4.4	1.85	4.91
17-Mar	4.1	6.0	5.4	Z	3.4	2.4	3.4	3.4	3.7	3.6	4.7	5.7	14.2	3.6	2.5	2.2	2.3	3.6	4.8	5.3	4.4	3.8	3.0	3.0	4.29	14.16
18-Mar	2.8	2.3	2.6	Z	2.4	2.3	2.6	2.7	2.8	2.2	1.9	2.2	2.1	2.4	2.5	4.1	4.9	3.7	3.6	3.8	3.1	2.1	0.5	0.5	2.60	4.86
19-Mar	0.6	0.9	0.9	Z	0.6	1.1	1.2	1.7	2.0	2.0	1.6	1.1	0.7	0.7	0.6	0.6	0.6	1.1	1.0	0.9	0.9	0.9	0.7	0.7	1.01	2.05
20-Mar	0.7	0.8	0.9	Z	0.8	1.2	1.2	1.3	1.5	1.5	1.2	0.9	1.0	1.2	1.1	1.3	7.3	11.7	10.3	7.9	7.0	5.1	4.1	3.2	3.19	11.70
21-Mar	2.5	2.7	2.3	Z	1.4	1.6	1.1	1.3	1.4	1.6	1.4	1.2	1.0	1.0	0.8	1.1	0.9	1.0	1.2	1.5	2.0	1.6	1.6	1.3	1.46	2.68
22-Mar	1.3	1.3	1.3	Z	1.5	1.7	1.9	2.5	2.4	2.1	2.0	1.6	1.4	1.2	1.4	1.6	1.6	1.5	1.7	1.7	1.8	2.9	3.0	2.6	1.83	2.99
23-Mar	2.7	2.4	2.1	Z	2.4	3.6	10.2	11.2	9.0	6.4	4.2	3.2	2.7	2.4	2.0	1.7	1.4	1.7	9.2	8.8	9.2	8.8	6.1	5.8	5.10	11.23
24-Mar	5.3	3.7	3.4	Z	3.7	3.3	2.6	2.8	3.1	3.0	2.2	2.2	1.8	1.7	1.6	2.0	2.1	1.8	1.9	2.2	3.0	3.4	3.2	3.0	2.74	5.28
25-Mar	2.8	2.5	4.0	Z	3.3	3.7	3.3	4.1	3.0	2.4	2.6	3.3	3.2	4.9	4.7	6.5	7.5	7.5	7.6	4.5	3.9	4.3	4.3	2.3	4.17	7.64
26-Mar	2.0	1.6	1.2	Z	1.1	1.4	1.5	2.5	3.2	2.7	1.9	1.5	1.1	0.7	0.6	0.5	0.7	1.0	1.1	1.4	2.0	2.2	2.2	2.1	1.58	3.22
27-Mar	1.5	1.2	1.3	Z	1.8	1.7	2.3	2.3	2.2	2.2	2.5	2.1	2.2	2.4	2.7	3.1	3.7	4.3	5.2	5.8	4.7	3.2	2.3	2.1	2.73	5.83
28-Mar	2.0	2.2	1.7	Z	2.6	3.1	3.2	2.7	2.4	3.0	3.1	2.4	3.1	3.5	5.3	6.2	8.8	12.6	18.5	15.4	9.1	7.2	7.1	6.6	5.73	18.48
29-Mar	6.4	6.8	7.8	Z	4.9	4.5	5.6	5.0	2.8	1.8	1.4	1.2	2.1	6.7	5.4	4.6	1.4	5.7	10.9	11.1	8.5	3.8	3.0	3.2	4.99	11.14
30-Mar	3.2	4.6	5.9	Z	2.9	3.3	3.4	3.1	3.5	4.0	3.7	2.3	1.4	1.4	1.3	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	2.30	5.86
31-Mar	1.7	2.5	2.4	Z	3.6	3.5	3.6	4.6	5.0	4.9	9.8	10.7	7.5	5.9	2.4	6.0	4.1	4.2	3.3	3.8	2.9	3.2	3.0	3.1	4.42	10.71
	3.48	3.58	3.70	--	3.16	3.35	3.65	3.73	3.48	2.99	2.72	2.43	2.51	2.40	2.40	2.79	2.79	3.41	4.30	4.09	3.73	3.31	3.30	3.40	Diurnal Average	
	10.65	14.78	19.32	--	14.05	17.53	16.93	15.75	12.94	9.63	9.77	10.71	14.16	6.74	8.30	8.56	8.78	12.59	18.48	15.40	9.15	8.83	8.67	9.65	Diurnal Maximum	

Z - zerospan C - Calibration AF - Analyzer Failure

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb

WCAS - Power
Summary of Hourly Averages

NOx (NO_x) - ppb
March 2017

Maximum Value: 32.73 ppb on Mar 17 13:00

Maximum Daily Average: 11.84 ppb on Mar 2

Minimum Value: 0.4 ppb on Mar 19 00:00

Minimum Daily Average: 1.05 ppb on Mar 4

Maximum Diurnal Average: 4.76 ppb at hour 9

Minimum Diurnal Average: 3.12 ppb at hour 5

Monthly Average: 3.886 ppb

Percentiles: P_1 = 0.6 P_{10} = 0.9 Q_1 = 1.5 Median = 2.8 Q_3 = 5.0 P_{90} = 8.3 P_{99} = 18.0

Hours in Service:	744
Hours of Data:	651
Hours of Missing Data:	93
Hours of Calibration:	35
Percent Operational Time:	92.2

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	5.2	4.9	4.9	Z	6.0	5.1	5.5	5.7	6.8	7.7	6.5	4.5	4.1	4.1	4.4	4.0	3.9	3.9	3.6	3.2	3.5	4.0	8.6	9.6	5.21	9.60
2-Mar	10.6	14.8	19.4	Z	14.0	17.6	17.0	18.1	21.5	20.2	12.8	11.3	9.6	9.1	7.6	7.5	6.7	7.4	8.1	8.5	7.3	7.0	7.3	9.1	11.84	21.46
3-Mar	9.9	9.7	8.7	Z	5.4	6.7	3.9	3.8	6.0	7.7	5.9	2.5	1.5	3.7	4.6	4.1	2.7	0.8	0.8	0.8	0.8	0.9	1.0	0.9	4.03	9.91
4-Mar	1.1	0.8	1.0	Z	1.0	1.2	1.1	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	2.3	1.0	1.0	1.1	1.4	1.1	1.0	1.1	1.5	1.05	2.27
5-Mar	1.9	2.1	2.1	Z	1.9	2.0	1.9	1.9	1.9	2.7	2.1	1.8	1.7	1.5	1.3	1.5	1.4	1.9	2.4	2.0	3.1	3.0	4.0	3.6	2.16	3.96
6-Mar	3.5	3.2	2.2	Z	1.2	1.2	1.8	1.4	1.4	1.6	1.5	1.6	1.5	1.2	1.1	1.2	1.3	1.2	1.3	1.4	1.8	1.6	1.9	3.0	1.69	3.45
7-Mar	3.2	2.5	1.7	Z	1.9	0.9	0.8	0.8	0.9	1.0	1.1	1.0	1.0	0.8	0.7	0.8	0.8	0.6	0.6	0.9	1.4	0.9	1.0	2.2	1.20	3.20
8-Mar	2.1	1.5	1.4	Z	2.2	2.5	2.7	2.5	2.2	2.6	2.7	2.9	3.0	2.8	2.4	2.5	2.2	1.8	2.9	2.7	1.9	2.0	1.9	1.7	2.31	2.98
9-Mar	1.4	1.3	1.0	Z	1.9	2.1	1.8	4.6	5.4	3.0	4.9	9.4	8.3	6.9	6.3	9.0	3.8	3.5	2.6	3.2	3.7	3.0	2.5	3.1	4.03	9.39
10-Mar	3.2	2.8	4.1	Z	2.8	2.4	2.8	2.8	5.1	5.4	5.5	6.4	6.5	6.9	8.2	6.4	5.1	5.1	5.8	6.6	4.1	2.4	2.3	2.4	4.58	8.20
11-Mar	2.8	2.2	2.4	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	2.82
12-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
13-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	C	C	C	C	C	6.8	6.8	7.2	8.2	--	8.24
14-Mar	8.8	8.3	8.2	Z	8.3	7.3	8.4	9.1	9.5	9.1	8.2	3.9	5.4	7.3	12.7	11.5	9.0	9.3	7.8	5.8	4.5	4.0	4.2	6.0	7.68	12.69
15-Mar	5.7	4.9	4.7	Z	3.9	4.6	4.1	4.7	2.7	1.6	1.1	0.9	0.6	0.7	0.6	0.7	0.8	0.7	1.0	1.0	2.1	1.0	1.9	1.1	2.23	5.66
16-Mar	1.1	2.3	1.4	Z	0.9	1.3	2.9	2.3	2.7	2.1	1.7	2.0	1.8	1.0	1.1	1.1	1.3	0.9	1.1	1.1	1.2	3.6	4.9	4.4	1.93	4.89
17-Mar	4.1	6.0	5.4	Z	3.3	2.3	3.6	3.9	5.2	6.0	8.5	11.1	32.7	6.0	3.6	2.8	2.7	3.9	4.9	5.3	4.4	3.7	3.0	3.0	5.89	32.73
18-Mar	2.8	2.2	2.5	Z	2.4	2.2	2.7	3.0	3.8	3.5	3.3	4.3	4.0	4.3	4.3	6.2	6.6	4.3	3.7	3.8	3.0	2.1	0.4	0.4	3.30	6.57
19-Mar	0.5	0.9	0.9	Z	0.6	1.0	1.2	1.8	2.5	2.8	2.2	1.4	0.7	0.7	0.5	0.5	0.5	1.1	1.0	0.8	0.8	0.8	0.6	0.6	1.06	2.84
20-Mar	0.6	0.7	0.8	Z	0.8	1.2	1.2	1.4	1.8	2.1	1.6	1.1	1.3	1.5	1.4	1.6	11.4	16.3	11.4	7.9	6.9	5.1	4.1	3.2	3.71	16.26
21-Mar	2.5	2.7	2.2	Z	1.3	1.6	1.2	1.4	1.7	2.3	2.0	1.9	1.4	1.2	1.0	1.3	1.0	1.0	1.1	1.5	2.0	1.6	1.5	1.2	1.59	2.65
22-Mar	1.3	1.3	1.2	Z	1.4	1.6	1.9	2.8	3.2	3.1	3.0	2.4	1.9	1.6	1.9	2.2	2.0	1.7	1.6	1.6	1.7	2.8	3.0	2.5	2.08	3.24
23-Mar	2.6	2.3	2.1	Z	2.3	3.5	10.6	13.9	13.2	9.3	6.5	5.3	5.2	4.3	3.0	2.6	1.7	1.8	9.9	8.8	9.1	8.8	6.1	5.8	6.04	13.85
24-Mar	5.3	3.7	3.3	Z	3.6	3.3	2.7	3.0	4.1	4.6	3.7	3.2	2.3	2.4	2.4	3.2	2.8	2.1	1.9	2.1	3.0	3.4	3.3	3.0	3.15	5.27
25-Mar	2.7	2.4	3.9	Z	3.3	3.6	3.3	4.7	4.0	4.0	4.9	6.2	5.8	8.7	8.2	10.0	9.9	8.8	8.1	4.4	3.8	4.2	4.3	2.3	5.29	10.03
26-Mar	2.0	1.5	1.2	Z	1.1	1.4	1.5	2.9	4.5	3.6	2.5	2.0	1.4	0.7	0.6	0.7	0.7	0.9	1.0	1.3	1.9	2.2	2.1	2.0	1.73	4.49
27-Mar	1.4	1.1	1.2	Z	1.7	1.6	2.3	2.6	2.7	3.4	4.2	3.9	3.9	4.1	4.5	4.8	5.5	5.0	5.5	5.9	4.6	3.2	2.3	2.0	3.37	5.89
28-Mar	2.0	2.1	1.7	Z	2.6	3.1	3.4	3.7	4.4	6.4	6.9	5.2	4.8	6.6	9.4	9.1	13.3	18.0	22.2	15.8	9.1	7.3	7.1	6.6	7.42	22.18
29-Mar	6.4	6.8	7.9	Z	4.9	4.6	5.9	6.5	3.8	2.4	1.8	1.6	2.9	10.4	7.6	6.5	1.6	6.3	11.8	11.2	8.5	3.7	3.0	3.2	5.62	11.80
30-Mar	3.2	4.6	5.9	Z	2.9	3.3	3.7	3.6	4.5	5.7	5.3	3.8	2.2	2.1	2.0	1.5	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	2.69	5.85
31-Mar	1.6	2.5	2.4	Z	3.6	3.5	3.8	5.7	6.9	7.1	15.4	16.9	10.6	8.2	3.0	7.9	4.7	4.3	3.4	3.8	2.8	3.1	2.9	3.1	5.53	16.91
	3.43	3.52	3.65	--	3.12	3.31	3.70	4.27	4.76	4.72	4.53	4.26	4.54	3.92	3.76	4.04	3.76	4.10	4.55	4.06	3.66	3.25	3.24	3.34	Diurnal Average	
	10.62	14.79	19.38	--	14.04	17.56	17.01	18.09	21.46	20.17	15.37	16.91	32.73	10.40	12.69	11.46	13.31	18.00	22.18	15.79	9.12	8.81	8.63	9.60	Diurnal Maximum	

Z - zerospan C - Calibration AF - Analyzer Failure

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

West Central Airshed Society

WCAS - Power
Summary of Hourly Averages

PM2.5 ($PM_{2.5}$) - $\mu g/m^3$
March 2017

Maximum Value: 58.86 $\mu g/m^3$ on Mar 23 07:00

Maximum Daily Average: 32.47 $\mu g/m^3$ on Mar 23

Minimum Value: 0.7 $\mu g/m^3$ on Mar 26 17:00

Minimum Daily Average: 1.09 $\mu g/m^3$ on Mar 19

Maximum Diurnal Average: 11.36 $\mu g/m^3$ at hour 7

Minimum Diurnal Average: 8.07 $\mu g/m^3$ at hour 18

Monthly Average: 9.637 $\mu g/m^3$

Percentiles: P_1 = 0.9 P_{10} = 1.7 Q_1 = 3.9 Median = 6.5 Q_3 = 11.8 P_{90} = 21.7 P_{99} = 47.6

Hours in Service:	744
Hours of Data:	741
Hours of Missing Data:	3
Hours of Calibration:	0
Percent Operational Time:	99.6

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	7.4	8.1	8.5	9.9	10.8	11.4	10.6	11.7	14.7	17.0	17.1	15.3	15.8	15.2	13.7	14.1	9.7	8.4	8.7	8.3	8.9	11.1	14.6	14.5	11.89	17.07
2-Mar	13.6	14.5	19.4	21.8	22.7	23.4	23.9	22.9	20.0	19.9	10.5	11.8	12.7	13.8	12.8	9.3	7.2	7.9	10.6	8.4	7.9	8.2	9.3	8.5	14.21	23.87
3-Mar	6.6	5.4	4.1	2.9	2.5	2.7	1.8	1.6	1.6	2.0	2.0	1.2	0.9	1.5	7.5	10.8	8.4	1.7	1.7	1.7	1.9	2.2	2.4	2.8	3.25	10.80
4-Mar	2.8	2.8	3.9	4.5	4.7	4.5	4.0	3.5	3.2	3.2	3.1	3.1	3.1	3.2	3.3	3.5	3.6	3.8	3.8	3.7	3.7	4.0	4.1	5.1	3.66	5.06
5-Mar	5.6	6.4	6.6	6.9	6.8	6.3	6.1	5.8	6.1	6.5	6.1	6.2	5.8	5.4	5.8	6.2	6.3	6.5	6.7	6.9	8.9	9.8	13.0	11.3	6.99	12.99
6-Mar	11.5	10.9	8.9	7.2	6.6	5.9	5.5	5.3	5.1	4.7	4.6	4.0	3.9	4.2	4.4	4.5	4.7	4.7	5.3	5.7	15.5	7.3	6.9	7.0	6.43	15.54
7-Mar	7.3	6.0	4.6	4.5	4.6	4.2	4.1	4.4	4.6	5.0	5.0	4.8	4.8	4.6	4.6	5.0	4.4	4.2	5.0	5.2	5.6	5.5	6.0	6.6	5.01	7.28
8-Mar	5.8	4.6	4.5	4.4	4.6	5.4	6.0	5.3	5.5	5.7	5.7	5.5	5.3	5.2	5.0	4.9	4.3	4.1	4.5	4.4	4.2	6.5	10.9	9.0	5.47	10.92
9-Mar	5.8	4.0	4.4	7.1	5.8	4.7	4.8	4.9	6.3	6.5	15.1	13.6	11.5	7.1	6.0	7.0	4.9	4.5	4.2	4.6	4.9	4.5	4.4	5.1	6.31	15.09
10-Mar	5.2	5.5	5.5	5.7	5.4	5.5	5.4	5.2	5.4	5.8	6.2	6.4	6.7	7.1	7.5	7.7	7.5	7.1	6.9	7.4	7.5	7.3	7.1	7.3	6.43	7.69
11-Mar	7.4	7.0	6.6	6.6	6.7	7.5	7.3	7.1	7.1	7.2	7.3	6.9	6.6	7.3	7.8	6.4	6.3	6.3	6.1	6.2	6.4	8.1	7.8	8.0	7.00	8.11
12-Mar	8.2	7.9	7.3	6.8	6.7	7.0	7.3	7.4	7.4	7.0	7.1	7.9	6.4	6.4	6.5	6.7	6.7	7.0	6.9	7.2	7.4	7.5	7.7	7.9	7.19	8.25
13-Mar	8.9	7.7	7.7	8.2	8.6	8.5	8.6	8.8	9.3	9.8	10.5	11.0	12.0	12.0	12.2	13.1	14.0	14.8	16.5	16.3	16.7	18.1	19.7	19.0	12.17	19.67
14-Mar	15.4	12.1	11.4	12.4	10.0	7.3	7.7	6.5	5.5	4.0	2.8	1.3	3.0	6.0	10.5	11.9	11.7	12.3	14.6	18.2	18.5	18.6	18.6	13.2	10.57	18.63
15-Mar	7.9	5.2	2.5	2.0	1.8	1.7	5.8	11.3	4.0	1.9	1.2	1.1	1.0	1.0	1.0	1.1	1.3	1.2	1.3	1.3	2.0	1.5	1.3	1.8	2.59	11.34
16-Mar	1.2	1.3	1.4	1.2	1.2	2.0	4.0	5.5	6.2	5.0	3.7	4.9	3.3	2.3	2.8	1.8	1.4	1.7	2.3	3.0	3.1	6.5	8.2	10.1	3.51	10.10
17-Mar	9.8	8.6	8.5	6.4	5.8	4.1	4.1	7.9	5.3	5.2	4.2	2.8	4.5	1.7	5.2	4.2	3.1	4.7	5.4	6.3	6.4	6.6	8.0	8.7	5.73	9.77
18-Mar	9.1	7.6	6.7	6.2	5.9	6.1	7.0	7.3	6.5	6.0	6.1	8.1	8.2	9.8	9.5	11.4	12.1	10.8	11.8	14.0	15.8	11.4	1.5	1.4	8.34	15.84
19-Mar	1.5	1.6	1.3	1.0	1.0	1.1	1.1	1.3	1.2	1.4	1.1	0.9	0.8	0.8	1.0	0.8	0.8	1.0	0.9	0.9	0.9	1.2	1.2	1.4	1.09	1.62
20-Mar	2.1	2.8	2.9	2.8	3.1	3.4	3.5	3.7	3.9	3.9	3.7	2.9	2.8	2.8	2.9	3.1	3.4	4.1	3.7	3.6	4.6	4.7	5.0	4.8	3.49	4.99
21-Mar	4.3	4.1	3.7	3.7	4.4	5.1	4.9	4.1	3.4	3.3	3.2	3.2	3.1	3.1	2.3	2.4	2.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.41	5.10
22-Mar	2.7	2.8	3.0	3.6	4.2	4.6	4.9	5.3	5.4	6.4	6.9	7.4	7.8	8.0	10.1	10.7	11.0	10.4	10.3	10.7	11.4	13.7	15.5	16.6	8.07	16.63
23-Mar	18.2	18.0	17.3	16.1	20.6	36.9	58.9	57.4	56.8	51.8	46.4	35.9	36.6	34.1	26.5	20.4	17.9	15.2	33.7	34.0	33.3	34.8	28.4	30.1	32.47	58.86
24-Mar	28.3	21.0	23.2	30.7	43.8	45.6	40.7	35.8	33.9	27.3	27.5	35.3	39.1	39.2	32.2	43.2	43.9	30.5	28.1	23.4	21.0	21.0	23.2	23.1	31.72	45.62
25-Mar	23.9	26.2	33.3	43.6	47.1	46.0	48.9	48.8	48.2	40.2	34.8	27.1	28.1	16.9	18.9	15.3	13.3	20.9	22.6	26.6	26.3	16.7	12.6	21.3	29.49	48.94
26-Mar	24.5	11.8	8.5	2.2	1.4	1.3	1.5	2.3	3.0	2.2	2.7	1.5	1.0	0.9	0.8	0.7	0.7	1.7	1.7	3.5	8.8	20.3	25.2	22.0	6.26	25.20
27-Mar	16.0	11.8	11.4	12.3	13.7	15.0	14.6	14.7	16.2	20.7	28.9	29.4	27.6	25.3	14.4	16.8	16.9	17.3	15.9	14.5	11.8	10.6	9.8	9.9	16.49	29.37
28-Mar	10.0	10.4	9.3	6.7	8.3	8.5	7.5	6.7	5.7	7.9	M	M	M	23.3	17.7	16.6	17.4	22.7	27.3	30.7	20.1	15.6	18.4	18.6	14.73	30.68
29-Mar	19.0	20.4	23.1	22.9	23.2	23.2	16.3	9.7	4.1	1.6	0.9	1.0	1.4	1.6	1.2	1.2	1.2	5.1	8.9	12.6	11.8	5.6	5.1	9.1	9.60	23.24
30-Mar	11.2	11.3	12.2	14.7	15.4	17.2	18.8	19.2	20.4	23.7	24.6	20.4	15.0	14.2	13.5	9.4	6.6	5.2	3.9	4.1	5.0	4.3	3.9	3.1	12.40	24.57
31-Mar	3.5	4.3	4.1	4.2	4.3	5.5	6.9	7.0	4.6	4.1	5.2	4.6	3.1	2.1	1.3	1.2	1.1	1.2	1.2	1.4	2.7	3.6	3.1	2.8	3.47	7.01
	9.82	8.77	8.90	9.33	10.06	10.70	11.36	11.23	10.66	10.22	10.14	9.51	9.40	9.22	8.67	8.75	8.20	8.07	9.15	9.61	9.87	9.68	9.86	10.10	Diurnal Average	
	28.28	26.18	33.31	43.60	47.10	46.03	58.86	57.36	56.77	51.84	46.36	35.90	39.13	39.18	32.17	43.23	43.88	30.54	33.75	34.00	33.31	34.83	28.44	30.05	Diurnal Maximum	

M - Maintenance

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 ul/m^3 24-hr 30 ul/m^3

Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 907, Power

Calibration Date: March 13, 2017

Parameter: $NO/NO_2/NO_x$

Instrument: Teco 42 i

Serial Number: 1153630147

Previous Calibration Date: Feb 15 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn 04300810

Barometric Pressure: 27.10" Hg

Calibration Method: Standard Gas Dilution/ GPT

Cylinder ID: FF27662

Temperature: 20.0° C

Cylinder Concentration: 11.9 ppm NO, 12.0 NOx

In Service: June 2 2016; exp Jan 20 2019

Technician: Dean Yustak

Instrument Settings	NO bkg ppb	NO_x bkg ppb	Pre-reactor bkg ppb	NO Coefficient	NO_x Coefficient	NO_2 Coefficient	Monitoring Range
Previous	3.4	4.0	na	1.059	1.000	0.993	300 ppb
Current	2.8	3.3	na	0.853	1.005	0.993	300 ppb

NO	Final Zero: -0.8 ppb	Final Span: 122.1 ppb	As Found Correction Factor: 1.136
NO_2	Final Zero: 1.1 ppb	Final Span: 16.4 ppb	As Found Correction Factor: NA
NO_x	Final Zero: -0.4 ppb	Final Span: 137.9 ppb	As Found Correction Factor: 1.142

Results of Linear Regression			Slope	Intercept	R^2
NO	R_c vs C_c	Previous	99.827110	4.395878	0.999991
		Current	99.446350	57.437160	0.999938
	C_i vs C_c	Current	1.000000	0.000000	0.999938
NO_2	R_c vs C_c	Previous	99.948430	-11.526770	0.999991
		Current	100.035300	-74.476340	0.999925
	C_i vs C_c	Current	1.000000	-0.000039	0.999925
NO_x	R_c vs C_c	Previous	99.863240	15.193140	0.999991
		Current	99.476040	53.023510	0.999946
	C_i vs C_c	Current	1.000000	0.000043	0.999946

Comments: Sample flow: 0.687 lpm. Analyzer had failed 2 previous daily spans. Data removed. Pump and scrubber replaced.

Calibration Data Summary (Page 2)

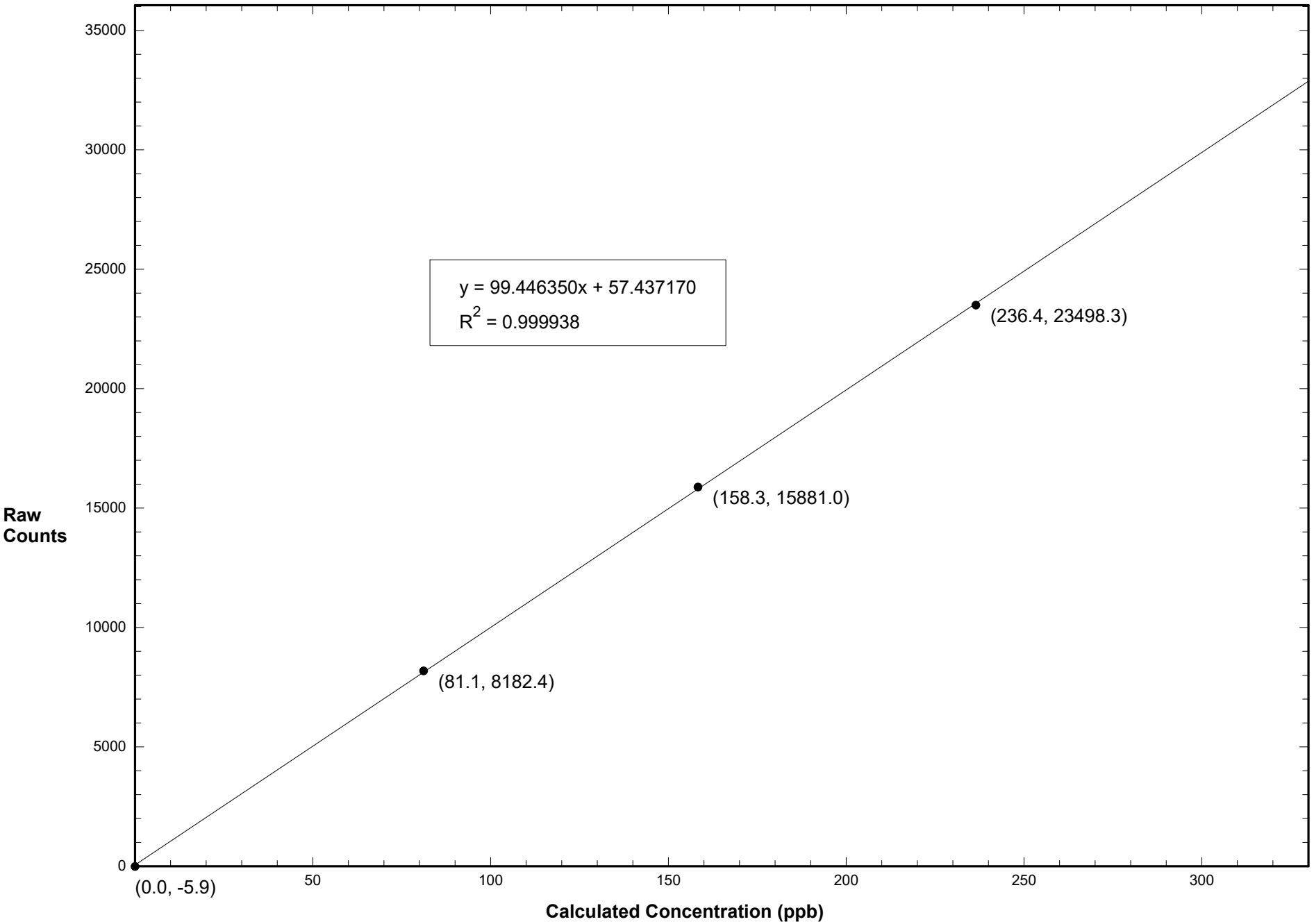
March 13, 2017 - Station 907

NO Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.07744	3.820	236.4	23498.3	235.7	1.003
0.05110	3.790	158.3	15881.0	159.1	0.995
0.02595	3.780	81.1	8182.4	81.7	0.993
0.00000	3.734	0.0	-5.9	-0.6	
NO Calibration				Average Correction Factor:	0.997
0.07744	3.820	238.4	23702.8	237.7	1.003
0.05110	3.790	159.6	16009.1	160.4	0.995
0.02595	3.780	81.8	8244.7	82.3	0.994
0.00000	3.734	0.0	-6.5	-0.6	
NO_x Calibration				Average Correction Factor:	0.997

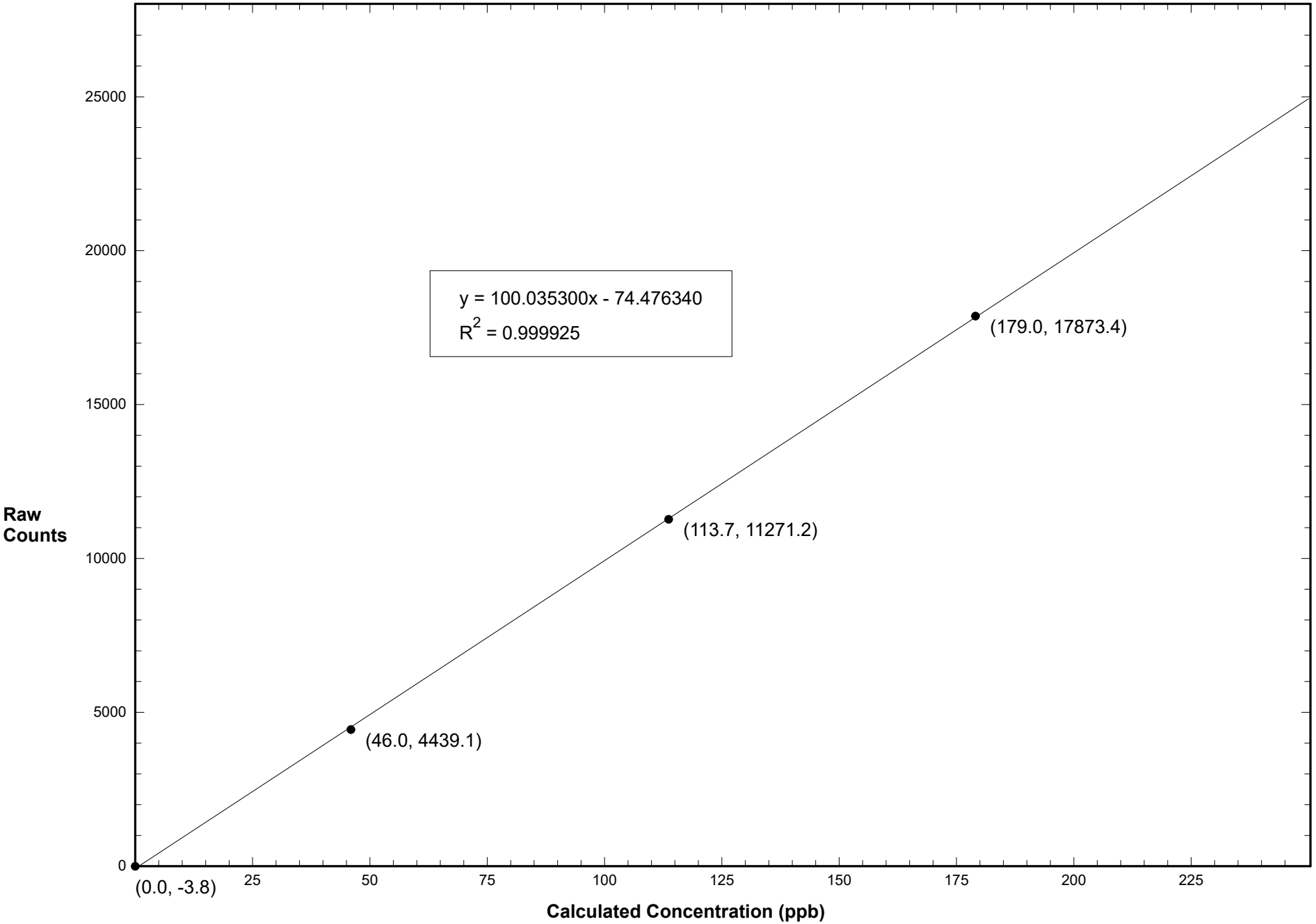
Reference Concentration NO (ppb)	Raw Count Output NO	Calculated Concentration NO (ppb)	Calculated Concentration NO_2, C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i	Converter Efficiency C_i/C_c
236.6	5782.7	57.6	179.0	17873.4	179.4	0.998	1.002
236.6	12285.1	123.0	113.7	11271.2	113.4	1.002	0.998
236.6	19018.7	190.7	46.0	4439.1	45.1	1.018	0.982
			0.0	-3.8	0.7		
					Average Correction Factor:	1.006	
NO_2 Gas Phase Titration						Average Converter Efficiency:	0.994

Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor
NO	1.001	1.003	0.2
NO_2	1.000	0.998	-0.2
NO_x	1.001	1.003	0.2

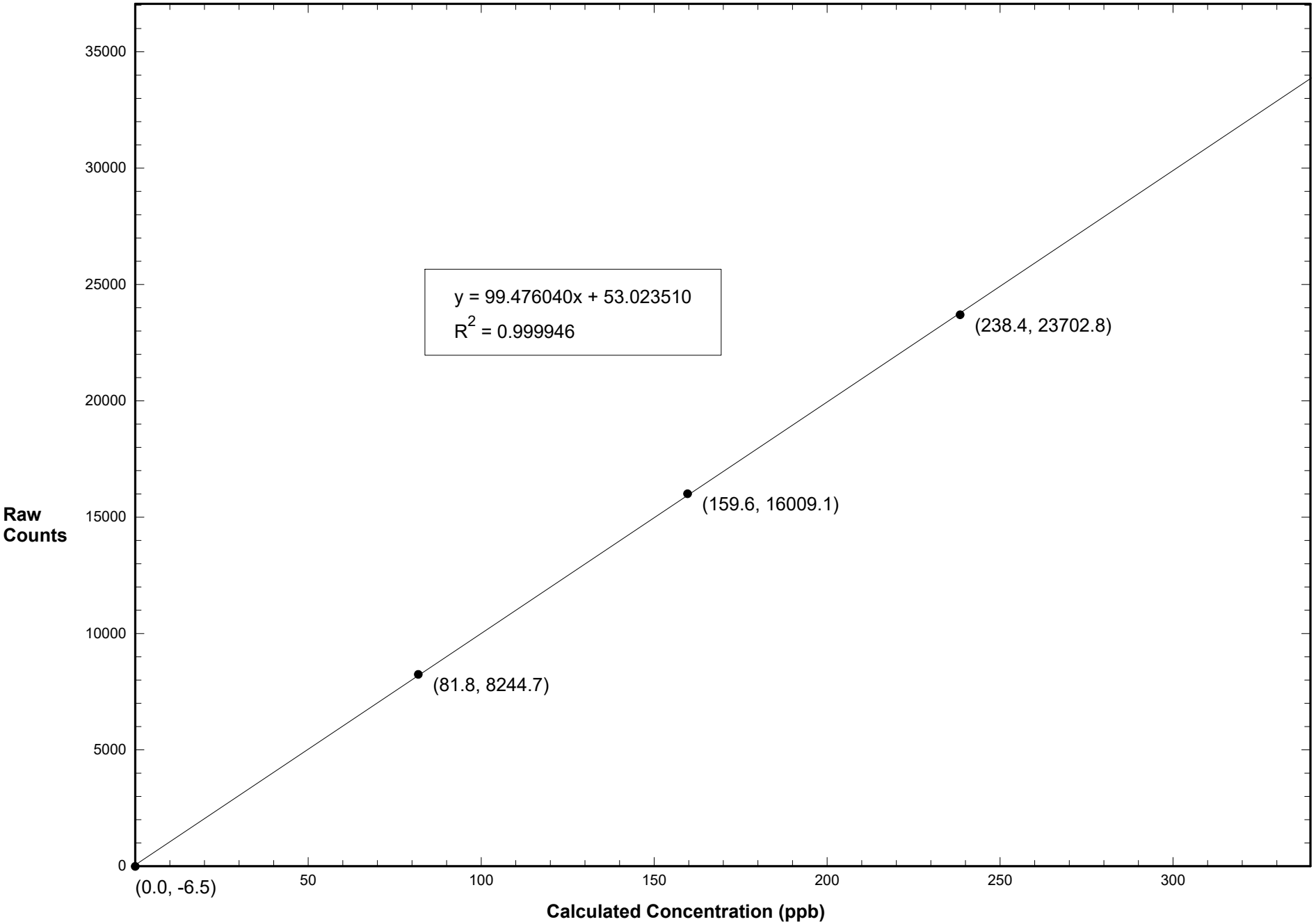
Station 907 NO March 13, 2017: Linear Regression



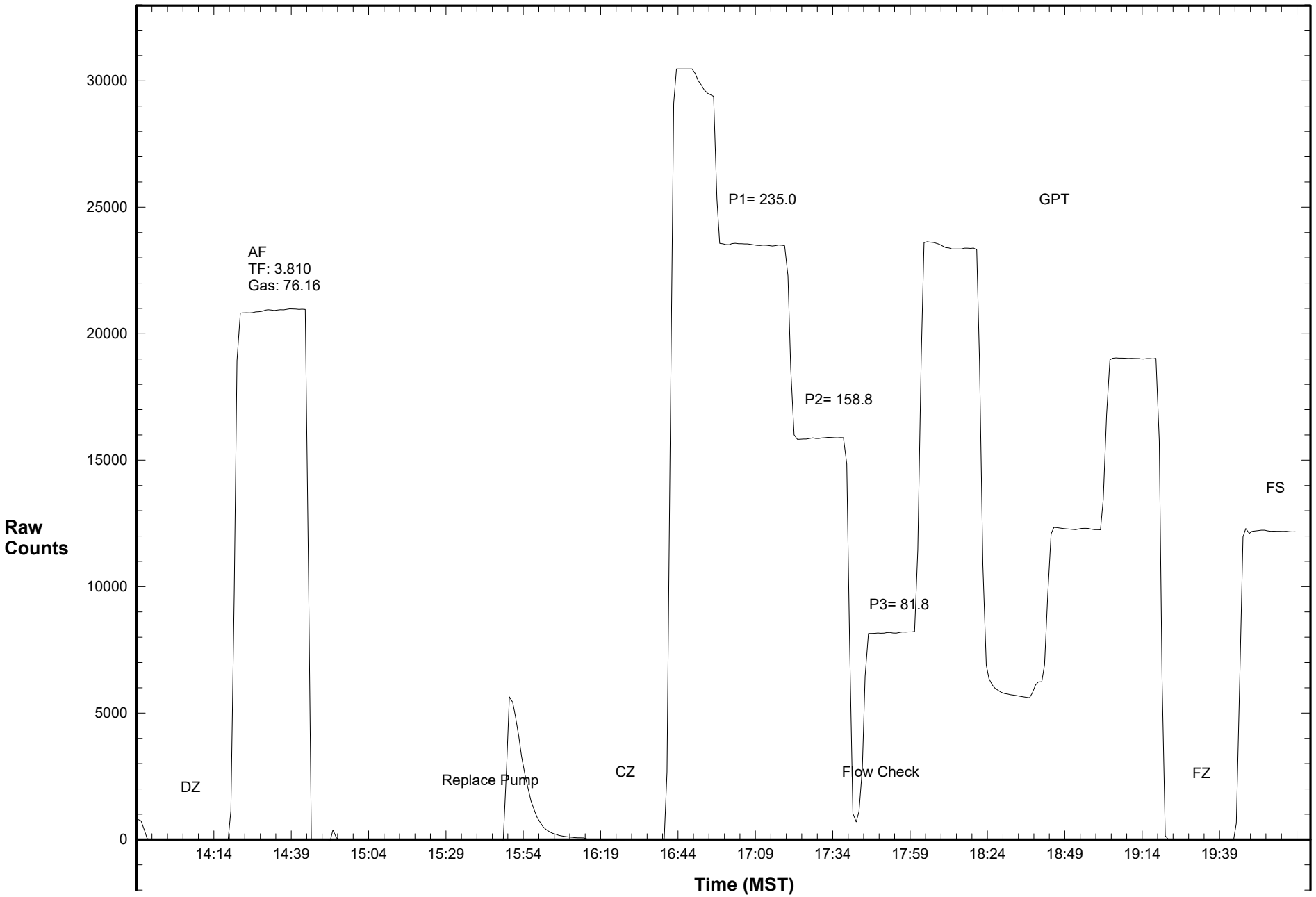
Station 907 NO2 March 13, 2017: Linear Regression



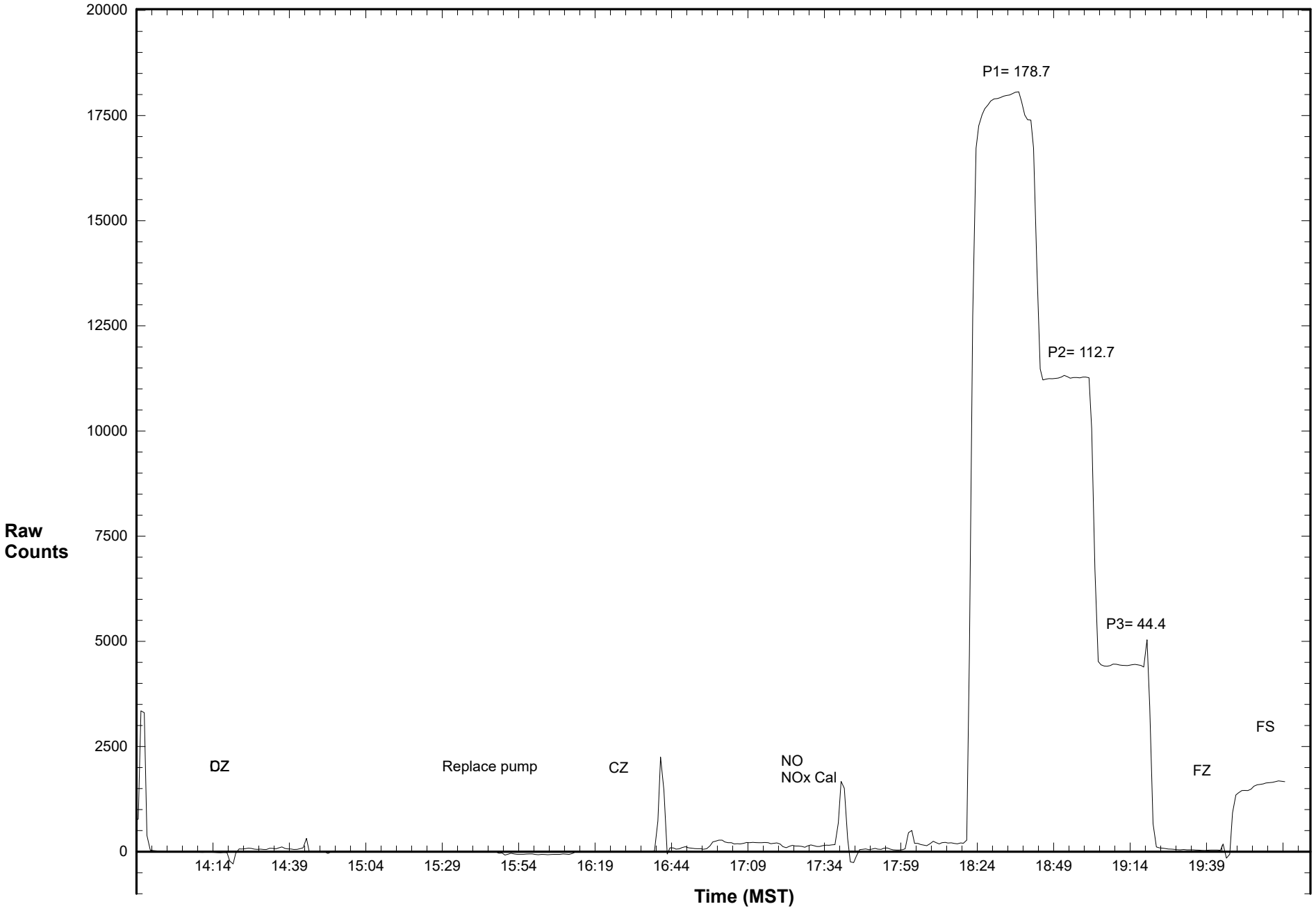
Station 907 NOX March 13, 2017: Linear Regression



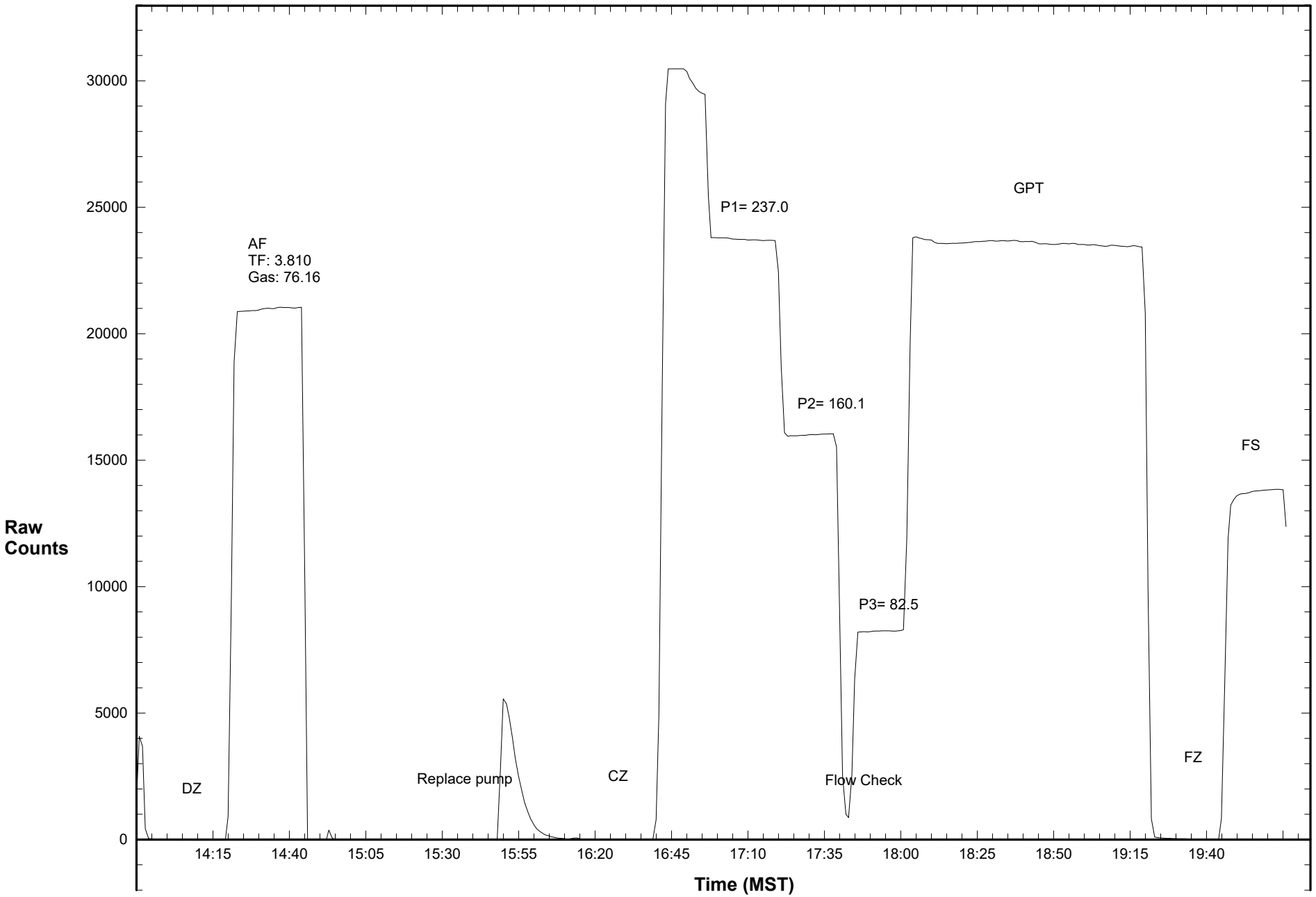
Station 907 NO March 13, 2017: Calibration Graph



Station 907 NO2 March 13, 2017: Calibration Graph



Station 907 NOX March 13, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 907, Power

Calibration Date: March 13, 2017

Parameter: SO_2

Instrument: Teco 43CTL

Serial Number: 333803284

Previous Calibration Date: Feb 15 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn 04300810

Barometric Pressure: 27.10" Hg

Calibration Method: Std. Gas Dilution

Cylinder ID: FF27662

Temperature: 20.0° C

Cylinder Concentration: 5.92 ppm SO2

In Service: June 2 2016; exp Jan 20 2019

Technician: Dean Yustak

Instrument Settings	SO_2 bkg ppb	SO_2 Coefficient	Monitoring Range
Previous	4.26	0.815	200 ppb
Current	4.36	0.853	200 ppb

Final Zero: 0.1 ppb

Final Span: 61.5 ppb

As Found Correction Factor: 1.039

SO_2 Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.0774	3.820	117.6	17662.2	117.6	1.000
0.0511	3.790	78.8	11865.7	79.0	0.997
0.0260	3.780	40.4	6016.5	40.1	1.008
0.0000	3.734	0.0	19.3	0.1	

Results of Linear Regression

R_c vs C_c	Slope	Intercept	R^2
Previous	149.689000	-24.187000	0.999983
Current	150.216300	0.072334	0.999978
C_i vs C_c			
Current	1.000000	0.000011	0.999978

Average Correction Factor: 1.002

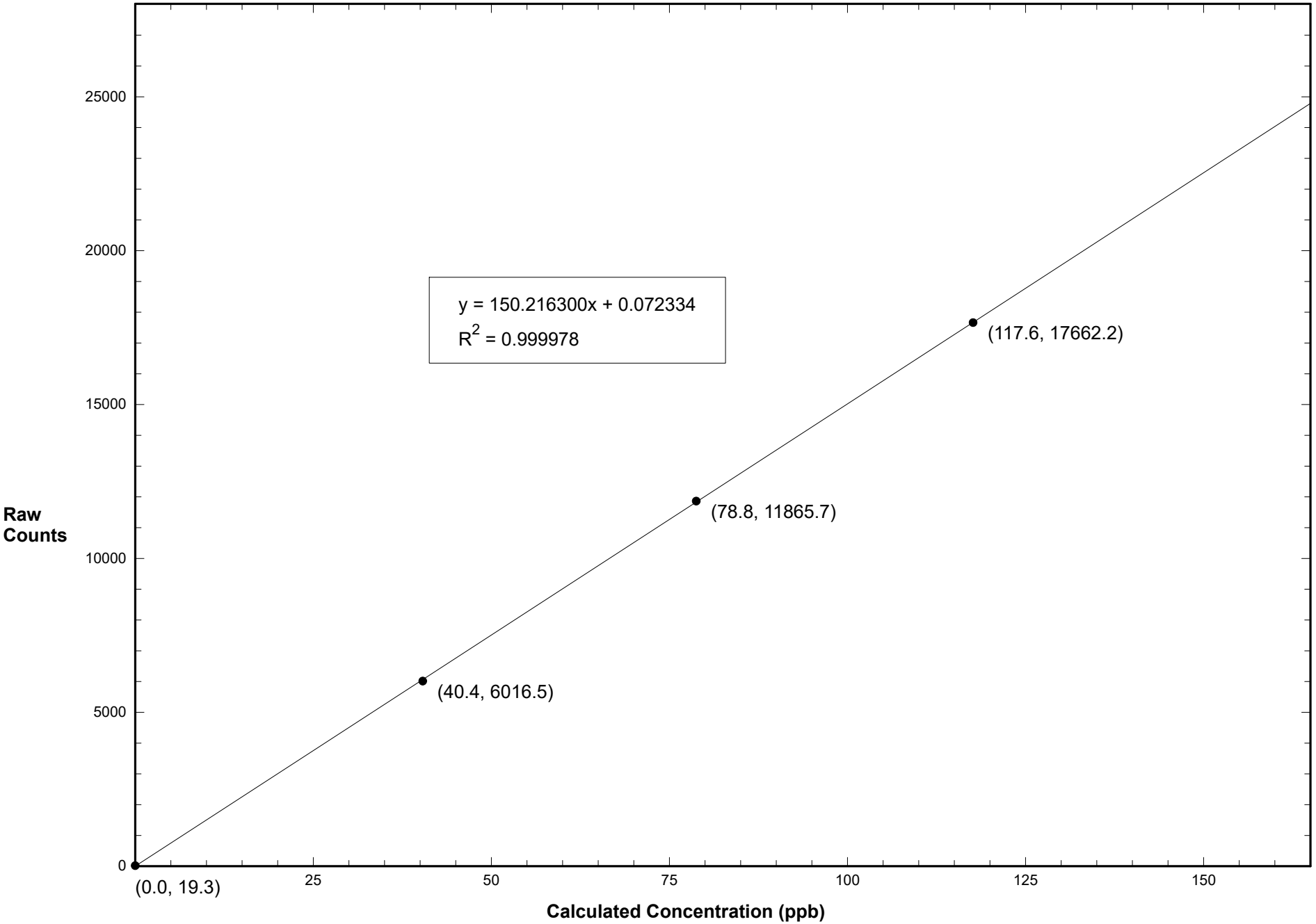
Previous Correction Factor: 0.999

Current Correction Factor: 1.000

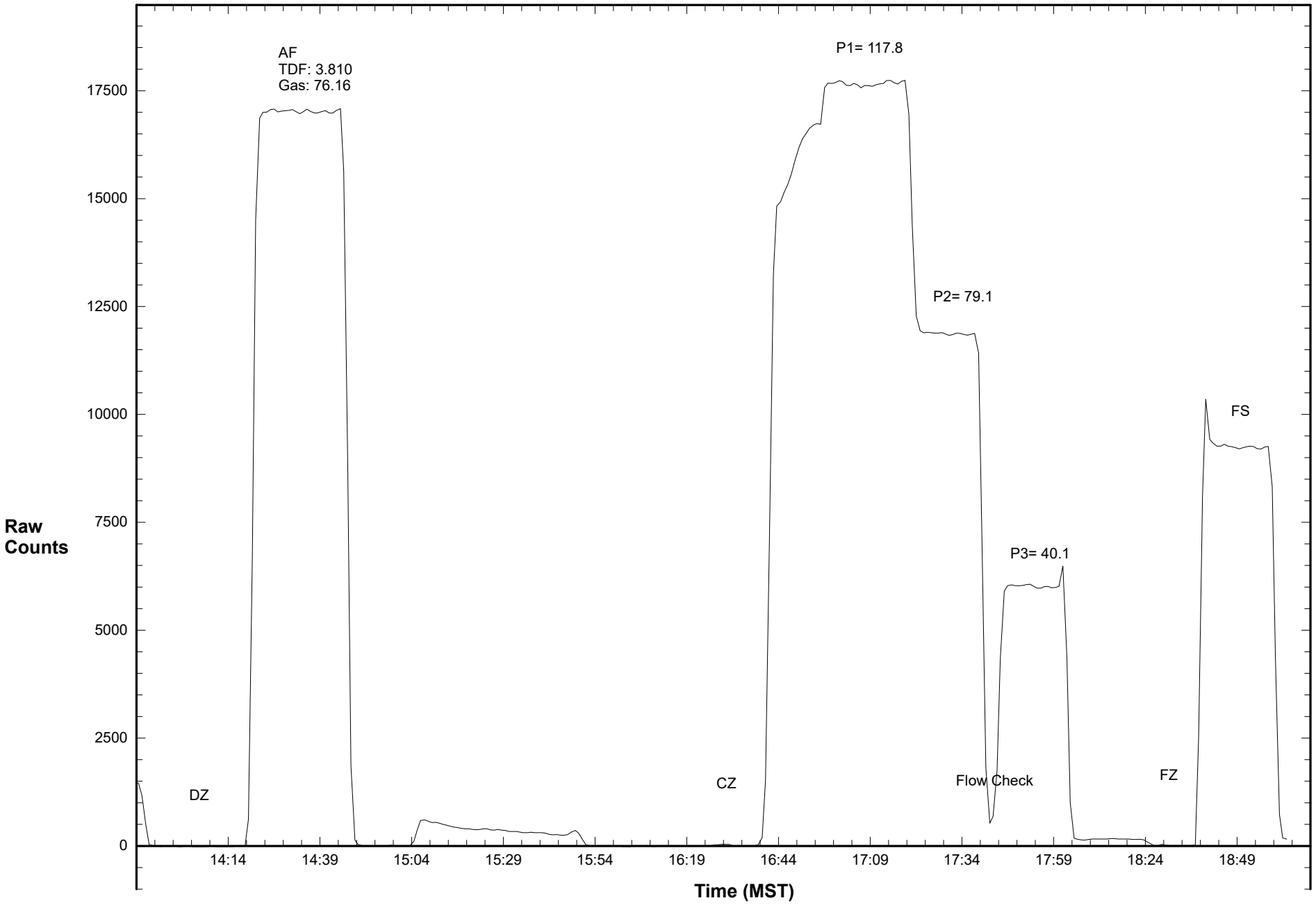
Percent Change of Correction Factor: 0.1

Comments: Sample Flow 0.418 lpm

Station 907 SO2 March 13, 2017: Linear Regression



Station 907 SO2 March 13, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT METEOROLOGICAL DATA

AMS 907
POWERS
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

West Central Airshed Society

WCAS - Power

Summary of Hourly Averages

External Temperature (ET) - C

March 2017

Maximum Value: 12.71 C on Mar 31 16:00

Maximum Daily Average: 6.18 C on Mar 31

Minimum Value: -25.7 C on Mar 9 06:00

Minimum Daily Average: -19.66 C on Mar 9

Maximum Diurnal Average: -0.10 C at hour 16

Minimum Diurnal Average: -7.96 C at hour 7

Monthly Average: -4.612 C

Percentiles: P_1 = -22.1 P_{10} = -17.3 Q_1 = -14.0 Median = -1.7 Q_3 = 2.0 P_{90} = 6.3 P_{99} = 11.6

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	-11.1	-11.0	-11.8	-12.6	-13.3	-12.1	-11.8	-12.2	-12.1	-11.4	-11.1	-10.0	-9.0	-8.1	-6.3	-5.9	-7.6	-8.5	-11.4	-13.1	-14.8	-16.1	-15.7	-15.9	-11.38	-5.93
2-Mar	-15.4	-15.2	-15.3	-15.6	-16.3	-16.7	-17.3	-18.4	-15.7	-12.5	-7.4	-4.8	-3.2	-2.6	-1.7	-0.4	-0.4	-0.5	-2.4	-3.3	-4.0	-5.1	-5.0	-3.3	-8.44	-0.36
3-Mar	-2.6	-2.3	-2.1	-2.4	-2.2	-2.5	-1.1	-0.9	-0.3	2.0	4.9	7.6	9.3	8.9	3.3	2.1	1.5	0.2	-1.0	-2.0	-2.5	-3.0	-3.3	-3.3	0.34	9.34
4-Mar	-3.3	-4.2	-6.0	-8.5	-10.3	-11.8	-12.8	-13.6	-14.9	-15.7	-15.8	-15.0	-14.3	-13.0	-12.2	-11.9	-12.2	-13.4	-15.3	-15.4	-15.3	-15.2	-15.4	-15.5	-12.55	-3.25
5-Mar	-15.7	-15.8	-16.0	-16.1	-16.0	-16.1	-16.1	-16.1	-15.9	-14.4	-13.0	-12.1	-10.7	-9.5	-8.2	-7.4	-9.3	-12.5	-14.1	-14.6	-15.7	-16.1	-16.0	-15.6	-13.88	-7.43
6-Mar	-15.4	-15.1	-14.9	-14.9	-15.2	-15.3	-15.5	-15.4	-14.8	-13.8	-12.7	-11.4	-10.4	-10.0	-9.4	-9.2	-8.9	-9.7	-13.1	-14.2	-15.2	-16.9	-18.1	-17.2	-13.61	-8.91
7-Mar	-17.7	-18.3	-18.4	-17.6	-17.2	-16.7	-16.8	-17.1	-17.4	-16.9	-15.6	-14.3	-13.0	-12.1	-11.4	-11.3	-11.7	-11.2	-14.7	-15.8	-17.4	-17.1	-17.8	-18.4	-15.66	-11.20
8-Mar	-19.3	-19.5	-19.6	-19.8	-20.0	-20.3	-20.5	-20.8	-21.0	-20.9	-19.8	-18.8	-17.8	-16.8	-15.3	-16.5	-17.3	-18.4	-19.2	-19.5	-19.7	-20.0	-20.3	-21.1	-19.27	-15.32
9-Mar	-22.1	-23.7	-24.5	-25.3	-25.6	-25.7	-25.1	-25.2	-21.8	-18.9	-17.6	-15.8	-14.6	-13.8	-13.7	-14.0	-15.2	-16.8	-17.8	-18.5	-18.9	-19.1	-19.0	-19.1	-19.66	-13.65
10-Mar	-19.0	-18.8	-18.8	-18.9	-18.8	-18.8	-18.6	-18.2	-18.1	-18.1	-17.6	-16.9	-16.4	-16.0	-15.7	-16.1	-16.7	-17.1	-17.4	-17.5	-17.6	-17.9	-18.3	-19.0	-17.76	-15.71
11-Mar	-19.7	-20.0	-20.1	-20.5	-20.5	-20.5	-20.5	-20.4	-19.5	-18.5	-16.7	-15.5	-15.2	-15.0	-14.7	-15.0	-15.4	-15.9	-16.4	-16.7	-16.7	-16.7	-16.8	-16.9	-17.67	-14.72
12-Mar	-17.1	-17.2	-17.3	-17.3	-17.3	-17.2	-17.1	-17.1	-16.4	-15.5	-14.4	-14.0	-13.4	-12.5	-12.2	-12.3	-11.7	-13.0	-13.5	-13.9	-14.0	-14.0	-13.9	-14.1	-14.85	-11.69
13-Mar	-14.0	-14.1	-14.1	-14.0	-14.4	-14.5	-14.4	-14.2	-13.1	-12.2	-11.5	-10.2	-8.0	-6.3	-5.6	-4.0	-2.7	-4.0	-6.2	-7.9	-8.5	-8.6	-7.0	-4.4	-9.75	-2.75
14-Mar	-2.3	-1.6	-1.7	-2.9	-2.3	-1.0	-1.6	-0.6	1.2	3.4	5.6	7.2	7.1	6.6	6.3	5.5	6.0	5.9	3.9	2.2	1.1	0.1	0.0	2.6	2.10	7.19
15-Mar	3.5	3.9	5.1	5.5	4.8	3.7	1.1	0.8	2.5	4.5	6.4	7.4	7.9	7.8	6.4	6.4	6.0	5.0	3.8	2.2	1.8	2.1	3.0	2.2	4.33	7.87
16-Mar	1.4	1.4	0.5	0.0	-0.1	-0.5	-1.0	-1.0	-0.6	1.0	1.8	2.4	1.8	1.5	1.4	2.3	2.8	2.8	1.4	-0.4	-1.7	-1.6	-0.5	-0.6	0.61	2.85
17-Mar	-0.8	-0.4	-0.8	-2.0	-2.9	-2.6	-3.4	-3.2	-1.4	0.4	2.8	4.1	6.3	8.2	6.9	6.0	4.5	3.6	2.4	1.9	1.5	1.2	1.0	0.4	1.40	8.19
18-Mar	-0.1	-0.3	-1.0	-1.3	-1.4	-1.7	-1.3	-1.0	-0.1	1.1	3.3	5.4	8.3	8.9	9.5	7.4	6.1	3.6	2.3	2.0	1.9	1.7	-0.8	-0.9	2.14	9.47
19-Mar	-0.3	-0.3	-0.6	-1.6	-2.2	-2.4	-2.7	-2.8	-1.3	-0.2	1.0	3.0	3.9	4.1	4.5	5.0	3.7	0.8	-0.7	-1.0	-1.5	-2.3	-3.0	-3.4	-0.01	5.03
20-Mar	-4.1	-5.1	-6.0	-6.7	-8.2	-9.5	-10.1	-9.5	-8.4	-6.7	-5.1	-4.3	-2.8	-1.4	0.2	1.3	1.6	-0.7	-3.4	-5.3	-6.0	-6.4	-6.7	-7.3	-5.03	1.61
21-Mar	-7.6	-7.8	-7.3	-7.1	-6.9	-6.7	-6.1	-5.1	-4.1	-3.0	-2.1	-0.3	1.3	2.0	2.5	2.3	2.4	2.0	1.5	1.0	0.6	0.5	0.0	-0.2	-2.00	2.48
22-Mar	-0.7	-0.9	-1.3	-1.8	-2.1	-2.5	-3.7	-3.3	-2.7	-1.2	-0.7	-0.1	0.4	1.5	3.1	4.8	4.2	3.5	1.3	-0.2	-1.2	-2.3	-2.8	-3.2	-0.51	4.77
23-Mar	-3.2	-2.8	-3.9	-4.1	-4.0	-4.6	-4.2	-4.0	-3.7	-3.3	-2.3	-0.8	1.4	4.1	5.3	6.8	6.6	7.2	3.2	1.3	0.7	-0.1	0.5	-0.5	-0.18	7.20
24-Mar	-1.4	-1.3	-1.9	-2.2	-2.2	-2.2	-2.3	-1.5	-1.5	-2.1	-1.0	-0.4	0.0	1.0	2.5	2.6	2.1	1.7	1.3	1.2	0.9	0.7	0.1	-0.1	-0.25	2.57
25-Mar	-0.2	-0.3	-0.1	-0.2	-0.3	-0.6	-0.8	-1.0	-1.1	-0.6	1.2	5.3	7.6	9.3	11.0	9.4	9.0	7.7	6.1	4.2	3.7	3.1	2.8	3.3	3.26	11.02
26-Mar	2.5	0.8	0.4	0.0	-0.9	-1.5	-1.4	-0.3	1.8	3.7	6.1	6.9	7.7	7.9	7.8	8.1	7.9	6.9	5.1	3.6	3.2	3.1	3.0	2.8	3.55	8.11
27-Mar	2.7	2.3	1.8	1.3	0.9	0.5	0.4	0.4	0.8	1.6	2.5	4.9	6.2	7.5	8.9	8.3	7.7	5.8	4.8	2.8	2.0	1.2	1.1	0.6	3.19	8.87
28-Mar	0.3	-0.2	-1.5	-2.1	-1.9	-2.6	-3.1	-2.8	-2.2	-0.7	0.8	3.2	5.1	8.1	10.8	10.0	9.7	8.6	6.6	5.1	4.4	4.1	3.4	2.2	2.72	10.80
29-Mar	1.2	0.4	0.0	-0.2	-0.4	-0.6	-0.4	1.1	4.2	6.3	8.2	10.3	11.0	11.7	11.8	11.8	11.5	9.7	7.8	6.1	5.7	5.4	4.7	4.8	5.50	11.81
30-Mar	4.4	3.5	2.2	1.9	2.0	1.8	1.6	1.6	1.9	1.8	1.9	3.3	5.5	7.5	8.1	8.3	8.7	8.4	9.2	5.0	3.6	2.6	2.0	1.8	4.10	9.18
31-Mar	1.3	0.8	0.5	0.3	0.1	-0.5	-0.1	1.3	2.9	5.4	7.3	9.4	10.1	11.2	12.2	12.7	12.2	11.7	10.6	9.4	7.6	7.7	7.0	7.5	6.18	12.71
	-6.32	-6.56	-6.92	-7.31	-7.59	-7.79	-7.96	-7.76	-6.86	-5.66	-4.21	-2.72	-1.55	-0.62	-0.13	-0.10	-0.49	-1.51	-3.09	-4.24	-4.91	-5.32	-5.54	-5.54	Diurnal Average	
	4.37	3.92	5.12	5.52	4.83	3.67	1.55	1.60	4.24	6.26	8.23	10.27	10.99	11.69	12.23	12.71	12.24	11.75	10.57	9.38	7.56	7.70	7.04	7.48	Diurnal Maximum	

West Central Airshed Society

WCAS - Power

Summary of Hourly Averages

Wind Speed (WS) - kph

March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	16.1	13.0	10.8	9.4	3.1	5.7	7.1	8.5	12.2	13.1	14.2	13.5	15.1	15.1	12.4	11.0	8.1	7.2	5.6	4.2	3.5	6.6	7.5	8.8	2.86	16.08
Dir	SSE	SSE	SSE	SSE	WSW	W	NW	NNW	NNW	NNW	NNW	NNW	N	N	NNE	NNE	NE	NE	ENE	E	ESE	SE	SE	SE	NNE	SSE
2 Spd	12.7	13.0	12.7	12.0	8.5	7.5	4.8	3.1	4.9	2.4	7.7	7.5	11.4	13.9	14.4	17.1	18.7	17.7	17.5	16.7	17.2	18.0	13.7	15.1	11.39	18.72
Dir	SSE	SSE	SSE	SSE	SSE	S	S	S	S	SSE	S	SSE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	S	S	SSW	SSE	SE
3 Spd	15.6	18.3	18.4	15.6	18.4	17.4	21.2	18.4	18.5	22.8	22.3	22.6	24.3	14.7	24.7	18.4	18.4	19.2	16.7	13.4	11.3	6.3	2.8	3.7	6.97	24.73
Dir	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SSW	WSW	N	NNE	N	N	N	N	N	N	NNE	NNW	WSW	NNW
4 Spd	9.4	20.2	21.2	22.9	26.3	28.2	23.5	23.7	24.1	22.1	21.3	22.6	20.3	16.2	17.2	14.7	12.6	9.2	9.3	7.6	6.8	5.4	4.5	4.5	16.06	28.16
Dir	N	NNE	NNE	NNE	N	NNE	NNE	NNE	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NE	ENE	NNE	NNE
5 Spd	5.9	6.0	4.8	4.5	1.0	4.7	3.0	4.1	3.4	3.8	4.0	7.9	7.2	6.5	6.9	8.0	8.5	7.8	5.4	3.9	1.4	1.5	3.7	4.4	4.43	8.47
Dir	NE	NE	ENE	ESE	ENE	NE	NNE	NE	NNE	NE	NE	NNE	NE	NE	NE	NE	NE	ENE	ESE	SE	SE	NE	ENE	ENE	NE	NE
6 Spd	5.1	5.8	7.6	8.9	9.2	8.6	8.3	9.0	9.5	11.1	10.7	11.1	11.0	11.7	12.7	12.5	11.1	7.2	7.3	10.5	6.0	3.9	6.8	10.4	8.71	12.68
Dir	NE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	N	N	N	NW	NW	N	N	NNE
7 Spd	10.3	12.2	9.5	9.7	11.7	16.0	15.6	17.0	14.0	15.5	11.1	13.1	12.2	10.7	10.4	8.7	9.4	8.5	5.7	6.2	4.6	6.4	6.5	7.9	8.93	17.01
Dir	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	NNE	NNE	NNE	NE	NE	NE	NE	NNE	ENE	E	E	ENE	ENE	ENE	NNE	N
8 Spd	8.8	11.0	8.9	9.4	10.3	12.0	12.8	12.6	13.4	14.0	12.0	11.3	9.7	9.5	10.8	9.6	8.8	6.1	4.9	4.6	AF	AF	AF	AF	9.80	14.01
Dir	ENE	ENE	ENE	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	ENE	E	E	AF	AF	AF	AF	ENE	NE
9 Spd	AF	AF	AF	AF	AF	2.0	1.8	0.6	0.9	3.4	5.6	9.2	5.3	9.2	14.5	15.4	17.0	15.2	11.6	11.4	11.6	16.1	15.6	15.6	9.32	16.98
Dir	AF	AF	AF	AF	AF	ENE	ENE	ENE	E	ESE	ESE	SE	ESE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
10 Spd	17.7	14.8	14.7	14.2	14.0	15.1	15.2	16.9	21.5	21.1	17.5	15.0	15.8	15.9	14.7	12.2	12.7	11.8	10.5	8.2	11.8	11.7	14.0	13.2	14.01	21.46
Dir	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ENE	E	E	ESE	SE	SE	SSE	SE	ESE	ESE
11 Spd	10.4	14.4	16.0	15.1	14.3	13.4	12.5	12.3	9.9	9.8	10.0	11.3	12.5	12.9	12.3	13.1	13.3	13.0	14.9	12.9	9.8	10.0	10.2	9.9	11.71	16.02
Dir	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	E	ESE	ESE	SE	ESE	E	E	E	SE	SE
12 Spd	8.3	7.6	5.8	6.2	6.1	7.4	8.4	9.5	14.6	18.0	15.3	15.8	20.5	24.0	23.2	21.8	22.4	22.9	22.5	22.3	21.0	19.2	19.1	18.1	15.05	24.00
Dir	E	E	E	E	E	E	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SE	SE
13 Spd	19.1	19.8	15.2	16.9	18.3	15.4	16.5	15.5	11.7	12.8	12.7	12.8	5.6	12.8	12.9	15.3	13.2	13.7	13.7	15.4	13.3	13.2	11.8	16.2	13.63	19.79
Dir	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	ESE	SE	SE	SE	SSE	SSE	SSE	S	S	SSW	SSE	SE
14 Spd	16.6	6.7	7.8	7.9	7.2	8.5	5.9	7.3	7.7	7.0	9.5	14.6	19.8	19.2	21.1	21.9	22.0	21.8	23.1	27.9	24.4	19.3	13.1	15.6	13.31	27.89
Dir	SW	SW	SW	SW	SSW	SSW	S	S	S	S	S	SSE	SSE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	S	SSW	SSE	SSE
15 Spd	16.6	16.8	18.1	21.2	15.8	11.6	14.9	19.0	15.4	12.9	13.6	11.3	13.1	12.0	13.4	8.0	4.5	2.4	2.2	1.3	0.9	6.6	5.9	5.4	5.19	21.15
Dir	SSW	SSW	SSW	SSW	SW	WSW	NW	NW	NNW	NW	N	N	N	N	NW	NW	SE	NNW	NW	W	SW	NW	N	NNE	WNW	SSW
16 Spd	1.3	9.1	9.3	11.8	9.1	8.3	3.2	2.3	0.3	6.4	6.0	7.2	6.0	6.9	6.7	5.5	5.4	4.1	2.8	3.4	7.8	8.5	9.5	8.4	1.83	11.81
Dir	SSW	SSW	S	SSW	SSW	S	S	WNW	ENE	SSE	E	NE	NNE	NNE	NNE	NNE	NNE	NE	ENE	E	S	S	SW	WSW	S	SSW
17 Spd	10.0	11.7	13.5	15.6	12.2	12.5	13.5	13.4	11.9	13.2	16.9	18.9	12.7	12.7	16.7	17.1	19.6	18.4	19.3	22.6	21.5	20.3	19.3	17.4	13.49	22.56
Dir	SW	SW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SW	SW	SW	S	SE	SE	SE	SE	SSE	SSE	SSE	SE	SSE	SSE	S	SSE
18 Spd	17.5	19.1	17.0	14.6	13.7	14.1	15.8	16.8	15.9	9.7	11.0	8.3	6.5	8.6	8.4	9.5	12.3	20.5	16.0	11.6	12.0	26.6	37.9	32.8	0.68	37.92
Dir	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	NNE	NNE	NNE	NE	NNE	N	NNW	NNW	NW	NW	WNW	NW	NW	NNW	NW
19 Spd	28.3	26.4	20.4	14.1	12.9	14.2	11.2	12.9	14.7	16.8	18.9	22.1	28.5	22.9	23.6	28.9	23.6	18.0	9.4	14.1	12.9	16.4	14.3	19.1	16.30	28.87
Dir	NW	NW	WNW	W	W	W	WSW	WSW	W	WSW	W	W	W	WNW	WNW	WNW	WNW	NNE	N	NNW	WNW	NNW	WNW	NW	WNW	WNW
20 Spd	23.9	19.5	20.6	19.9	19.4	12.9	8.6	9.3	12.0	7.0	3.9	5.4	5.5	3.8	2.1	3.1	6.4	16.5	17.3	17.4	19.8	22.6	23.5	24.9	0.38	24.89
Dir	NW	NNW	NW	NW	NNW	NW	NW	NW	NW	NNE	NE	WNW	WSW	SW	SSW	ENE	SE	SSE	SSE	SE	SSE	SSE	SSE	SE	W	SSE
21 Spd	25.7	26.6	28.8	28.4	28.6	26.9	25.8	33.6	34.3	33.5	33.5	36.6	35.8	36.4	30.8	29.6	25.1	20.0	18.0	14.7	13.7	13.7	12.8	12.4	25.83	36.59
Dir	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	SE
22 Spd	11.8	14.6	13.4	12.7	11.6	3.6	3.5	3.8	6.2	8.0	8.3	9.2	10.3	12.7	10.4	12.1	7.5	7.9	6.3	3.9	4.0	4.4	4.5	4.3	2.47	14.61
Dir	ESE	SE	SE	SE	SE	ESE	NW	NW	NNW	N	NNW	NW	NW	NW	NNW	NNE	NE	ENE	ESE	SE	ESE	SE	SSE	SE	ENE	ESE

WCAS - Power

Summary of Hourly Averages

Wind Speed (WS) - kph

March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	5.4	5.4	6.1	12.0	11.9	11.2	12.9	10.4	9.8	2.2	10.1	4.5	0.8	3.9	3.2	4.1	5.1	3.5	7.1	9.6	10.7	12.5	12.1	10.9	5.71	12.91
Dir	ESE	E	ESE	ESE	ESE	SE	ESE	SE	SE	N	N	NE	ENE	ENE	E	ENE	ESE	SE	S	SSE	S	S	S	S	SE	ESE
24 Spd	11.0	15.3	14.5	14.5	17.9	21.7	19.6	23.8	26.4	26.8	26.6	27.1	27.5	25.4	24.6	19.9	18.0	14.7	11.8	8.1	6.6	5.5	6.3	5.9	15.97	27.49
Dir	S	S	SSE	SSE	SSE	SSE	SSE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	SE	SE	SE	SE	ESE	ENE	NE	NE	NNE	SE	SSE
25 Spd	7.5	6.6	9.3	12.0	10.9	9.8	7.5	8.8	6.6	8.8	3.9	2.1	3.3	1.8	4.8	11.0	9.8	9.6	7.4	9.8	2.4	4.7	8.7	11.9	2.57	11.98
Dir	N	WNW	NW	WNW	W	W	W	WSW	SW	WSW	WSW	NNW	ENE	ESE	ESE	SE	SE	SSE	SSE	SE	SW	SW	W	NNW	WSW	WNW
26 Spd	7.1	5.4	9.4	8.6	5.4	5.7	6.7	6.0	6.8	4.3	4.0	9.9	12.4	15.0	15.8	18.3	19.4	18.5	15.3	15.0	15.6	17.7	17.2	18.7	7.03	19.36
Dir	NNW	W	WNW	WNW	W	W	WSW	SW	WSW	W	NE	ESE	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SSE	SE
27 Spd	20.2	18.6	18.1	15.6	12.8	13.3	8.0	6.7	8.5	7.0	7.2	2.8	7.7	6.6	5.1	8.7	11.9	11.4	12.5	13.8	14.1	12.3	12.0	12.8	10.09	20.24
Dir	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	ESE	NE	NE	NE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SE	SSE
28 Spd	13.9	2.4	0.3	4.9	4.1	3.6	3.3	1.4	1.8	2.6	4.0	6.8	7.8	9.7	10.7	9.8	10.5	8.9	6.6	6.3	2.6	2.8	4.1	1.8	2.69	13.94
Dir	SSE	S	ENE	SSE	SSW	SSW	SW	NNW	NW	NNW	NE	NNE	NE	NE	NE	NE	NE	ENE	ENE	E	E	SE	NW	NW	ENE	SSE
29 Spd	3.1	3.9	4.2	3.0	4.4	4.4	6.2	4.6	5.0	5.4	1.3	4.2	6.8	7.2	5.2	15.0	16.2	13.3	11.9	9.4	11.4	14.4	13.7	12.9	3.55	16.16
Dir	W	WNW	W	W	W	WSW	WSW	WSW	WNW	WNW	NW	NE	NE	NE	E	SE	SE	SE	E	E	ESE	SE	SE	ESE	SE	SE
30 Spd	8.9	5.5	5.9	2.3	0.8	6.4	6.4	5.2	10.3	11.8	9.2	9.6	8.7	11.4	10.4	10.2	11.4	6.8	2.6	4.7	9.1	8.0	6.9	8.8	4.77	11.76
Dir	SE	NE	ENE	NW	SE	NE	NE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	N	NNE	W	W	W	W	W	NNE	NNE
31 Spd	8.3	8.7	9.3	9.7	8.7	7.1	10.2	12.8	13.6	12.0	14.1	13.1	12.3	13.7	15.0	13.7	10.0	4.7	6.3	8.1	10.3	10.2	9.2	13.8	9.94	14.96
Dir	WSW	WSW	SW	SW	SW	S	S	SSW	SSW	S	SSW	S	SSW	SSW	SSW	SW	SW	SW	SSW	SSW	SW	WSW	SW	WSW	SSW	SSW
Spd	4.20	3.95	4.07	4.55	3.93	3.22	2.88	2.76	2.34	2.49	2.95	2.58	3.32	4.34	4.98	6.32	6.99	6.59	6.57	6.47	6.03	5.69	4.58	3.73	Diurnal Average	
Dir	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	ESE	ESE	ESE	E	ESE	ESE	ESE	SE	SE	SSE	SSE	SSE	SSE		
Spd	28.28	26.60	28.82	28.43	28.63	28.16	25.75	33.62	34.35	33.48	33.51	36.59	35.78	36.43	30.76	29.56	25.13	22.88	23.06	27.89	24.42	26.55	37.92	32.81	Diurnal Maximum	
Dir	311.82	142.72	146.98	146.23	141.22	12.40	136.32	140.08	146.48	140.87	140.96	143.73	144.01	143.19	140.60	137.42	139.38	141.75	149.40	154.12	160.08	301.27	309.25	314.47		

Maximum Speed Value: 37.9 kph on Mar 18 23:00
Maximum Daily Speed Average: 25.83 kph on Mar 21
Maximum Diurnal Speed Average: 6.99 kph at hour 17

Minimum Speed Value: 0.3 kph on Mar 28 03:00
Minimum Daily Speed Average: 0.38 kph on Mar 5
Minimum Diurnal Speed Average: 2.34 kph at hour 9

Monthly Average Velocity: 4.032 kph 134.14 deg

Speed Percentiles: P_1 = 1.0 P_{10} = 4.1 Q_1 = 7.0 Median = 11.6 Q_3 = 15.6 P_{90} = 21.2 P_{99} = 33.4

All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service:	744
Hours of Data:	735
Hours of Missing Data:	9
Percent Operational Time:	98.8

AF - Analyzer Failure

Frequency Distribution

Direction	Speed Range (kph) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	6	30	35	11	1	0	83
NorthEast	20	66	14	2	0	0	102
East	25	32	16	1	0	0	74
SouthEast	13	35	123	52	12	0	235
South	9	23	38	2	0	0	72
SouthWest	9	23	27	6	0	0	65
West	10	18	9	3	2	0	42
NorthWest	11	19	18	11	3	0	62
Total	103	246	280	88	18	0	735

WCAS - Power
Summary of Hourly Averages

Relative Humidity (RH) - %
March 2017

Maximum Value: 99.99 % on Mar 28 05:00

Maximum Daily Average: 89.73 % on Mar 16

Minimum Value: 22.7 % on Mar 19 16:00

Minimum Daily Average: 53.70 % on Mar 15

Maximum Diurnal Average: 84.89 % at hour 7

Minimum Diurnal Average: 54.69 % at hour 15

Monthly Average: 73.181 %

Percentiles: P_1 = 29.5 P_{10} = 51.2 Q_1 = 61.8 Median = 76.0 Q_3 = 85.0 P_{90} = 94.4 P_{99} = 98.9

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	77.2	78.2	80.3	82.8	86.2	85.9	88.7	89.8	85.0	79.5	76.1	70.2	65.2	62.0	56.4	54.3	58.6	60.1	71.4	76.0	81.2	84.6	85.8	85.9	75.91	89.81
2-Mar	84.8	84.2	85.4	87.0	87.9	88.2	86.6	84.7	83.8	82.4	71.6	59.5	54.1	53.8	52.8	52.4	57.6	59.1	67.5	73.3	77.1	81.8	81.7	72.6	73.75	88.20
3-Mar	64.7	61.0	58.5	59.9	57.4	56.9	52.6	53.0	50.9	42.7	37.0	32.4	28.2	30.5	51.0	60.4	60.8	61.2	72.5	84.2	91.1	94.8	96.2	96.1	60.60	96.24
4-Mar	95.5	88.3	92.0	90.3	89.8	88.3	88.1	87.3	84.5	81.7	78.7	73.6	68.1	62.5	58.6	57.6	57.2	62.4	75.0	77.1	78.7	80.3	81.1	79.5	78.17	95.50
5-Mar	80.2	81.4	82.7	83.0	83.8	84.6	84.9	84.3	81.7	74.6	66.4	61.4	58.6	54.6	49.8	47.1	52.3	64.4	70.2	72.0	77.0	78.7	78.2	77.3	72.05	84.94
6-Mar	78.1	78.9	78.7	82.3	85.4	85.9	85.8	85.6	83.7	79.4	76.2	71.4	67.5	64.7	62.1	59.8	57.3	57.6	70.6	76.6	81.4	85.3	88.1	87.0	76.22	88.10
7-Mar	82.5	81.0	79.3	79.1	79.6	76.3	75.6	75.0	72.8	69.1	63.7	59.8	57.4	55.8	53.6	54.0	53.8	49.5	64.0	70.4	75.1	75.9	79.0	79.7	69.25	82.54
8-Mar	75.0	70.5	70.0	69.9	73.9	77.6	78.5	78.4	77.0	73.8	68.5	64.2	61.5	58.8	55.4	58.5	61.2	66.3	68.9	72.0	76.2	78.5	79.2	80.8	70.61	80.78
9-Mar	81.3	80.2	79.5	79.5	78.9	78.8	78.8	76.9	76.8	73.3	66.9	58.1	55.0	51.3	50.0	51.7	55.1	59.3	63.0	65.1	67.3	67.8	68.3	70.0	68.03	81.26
10-Mar	69.8	70.8	76.8	78.8	78.4	78.6	79.2	77.5	75.8	74.3	70.7	69.5	68.2	67.4	69.0	74.1	76.0	77.1	80.2	80.6	79.0	79.3	77.5	78.3	75.28	80.55
11-Mar	79.9	81.3	82.2	82.5	82.4	82.2	82.0	81.5	79.7	77.1	73.1	69.9	69.6	70.6	70.5	74.1	75.6	77.5	78.4	80.0	81.3	81.4	81.3	81.3	78.15	82.48
12-Mar	82.7	83.1	83.3	83.2	83.4	83.3	83.2	82.5	79.9	77.5	75.0	73.4	70.1	68.0	68.1	69.3	66.3	71.2	73.3	75.6	76.9	77.5	78.4	79.1	76.85	83.44
13-Mar	79.9	80.4	80.4	80.7	81.4	82.2	82.2	80.4	75.9	73.7	71.9	69.4	65.6	61.7	58.7	56.1	53.5	57.7	65.6	73.3	75.8	77.0	72.7	69.3	71.89	82.17
14-Mar	72.3	74.6	78.1	82.6	83.3	77.7	79.2	74.3	67.6	60.4	53.9	47.6	46.8	49.1	51.4	55.9	55.9	58.6	68.0	76.0	81.7	85.6	85.7	75.3	68.40	85.70
15-Mar	70.6	68.0	62.5	61.2	63.6	68.9	76.4	75.6	65.6	52.8	39.0	31.8	27.6	28.2	31.7	32.3	36.8	42.0	48.3	58.6	56.9	56.9	63.1	70.2	53.70	76.40
16-Mar	74.3	75.5	89.0	92.9	93.5	95.0	97.1	97.8	96.5	89.1	79.9	82.5	89.4	91.5	92.2	88.4	83.5	81.8	85.6	92.8	96.7	98.0	96.2	94.3	89.73	97.97
17-Mar	92.0	91.2	95.7	97.0	98.5	95.3	94.5	89.9	84.9	74.1	57.3	49.6	39.0	33.9	43.2	45.0	49.9	55.2	62.8	66.9	72.7	77.6	81.1	84.4	72.16	98.47
18-Mar	86.2	85.6	88.5	88.4	88.5	88.5	87.6	87.2	84.5	80.5	72.2	63.6	53.8	53.8	52.8	60.5	65.8	76.9	82.4	83.0	81.7	82.6	90.2	79.9	77.70	90.25
19-Mar	68.9	64.5	57.9	57.7	60.1	56.6	54.3	54.6	49.3	48.9	44.7	36.4	29.5	28.9	24.8	22.7	28.9	66.9	73.6	74.8	77.0	85.8	90.8	81.2	55.78	90.84
20-Mar	75.6	72.0	64.8	63.8	66.3	73.2	77.0	76.0	72.9	65.9	57.5	45.4	40.5	37.2	34.3	32.8	33.9	42.5	50.2	55.7	61.3	59.6	58.1	60.6	57.38	77.01
21-Mar	63.3	63.2	62.6	65.3	69.3	71.9	71.4	68.4	67.0	64.9	63.7	56.9	52.1	50.4	50.8	54.4	57.7	63.1	65.7	65.7	66.8	69.0	69.5	70.3	63.48	71.91
22-Mar	72.1	73.5	77.3	81.8	85.2	86.9	90.6	88.5	84.4	79.0	77.5	75.6	72.9	68.2	61.8	57.3	59.4	62.1	71.8	77.6	81.6	86.2	89.1	91.3	77.15	91.29
23-Mar	90.3	91.3	94.5	95.5	94.6	95.7	97.3	99.0	97.9	97.0	94.5	85.8	72.8	62.6	58.0	51.8	52.8	48.3	66.8	76.1	77.8	80.6	76.8	79.7	80.72	98.96
24-Mar	83.1	82.3	84.0	85.5	87.8	89.3	89.3	87.0	84.8	85.1	85.6	87.8	90.3	88.1	81.5	84.1	87.3	89.8	92.1	93.3	94.4	94.5	95.7	96.4	88.29	96.39
25-Mar	96.5	96.9	97.2	97.6	96.7	95.9	95.7	96.6	97.3	94.3	83.1	62.9	57.6	46.8	43.3	46.9	46.5	54.4	59.3	69.9	72.8	70.2	71.1	76.0	76.06	97.64
26-Mar	81.5	85.6	87.1	89.2	92.5	94.5	94.3	88.1	79.1	70.0	56.3	51.2	46.5	43.7	42.1	42.1	45.3	57.7	64.4	75.3	80.6	80.8	83.6	84.2	71.49	94.51
27-Mar	85.1	86.2	88.7	90.7	91.9	93.1	93.7	93.7	92.3	89.2	85.2	75.8	70.8	64.7	59.7	61.6	63.2	69.7	74.3	83.8	88.1	91.8	93.4	94.9	82.55	94.86
28-Mar	96.2	97.6	98.7	99.5	100.0	99.9	99.0	98.0	98.1	97.6	95.9	89.9	78.3	69.6	61.2	59.3	62.7	69.3	76.1	85.0	88.7	88.7	92.5	95.8	87.39	99.99
29-Mar	98.1	98.7	99.4	99.5	99.0	98.2	92.7	85.1	70.1	59.9	52.8	48.1	49.1	45.0	42.1	39.2	39.7	51.3	61.2	69.4	66.1	58.8	66.7	75.8	69.41	99.52
30-Mar	77.6	82.6	91.0	94.2	94.6	97.1	97.8	97.4	96.7	94.9	94.0	89.8	80.5	71.5	67.9	63.5	61.0	61.5	56.0	74.6	90.3	94.6	95.7	96.0	84.20	97.79
31-Mar	97.3	96.8	96.6	96.7	96.6	97.5	97.6	92.8	86.0	77.4	66.9	58.3	53.2	48.0	40.8	35.1	33.8	35.5	39.2	45.8	53.3	50.7	49.1	45.0	66.25	97.60
	81.06	80.82	82.01	83.17	84.21	84.65	84.89	83.45	80.08	75.48	69.55	63.61	59.35	56.22	54.69	54.91	56.43	61.62	68.34	74.20	77.64	79.19	80.52	80.27	Diurnal Average	
	98.13	98.68	99.35	99.52	99.99	99.87	99.04	98.96	98.08	97.58	95.90	89.92	90.31	91.54	92.23	88.44	87.34	89.83	92.07	93.27	96.70	97.97	96.24	96.39	Diurnal Maximum	

West Central Airshed Society

WCAS - Power

Summary of Hourly Standard Deviations

Wind Speed (WS) - kph

March 2017

Maximum Value: 18.15 kph on Mar 18 22:00

Maximum Daily Average: 4.61 kph on Mar 19

Minimum Value: 0.6 kph on Mar 26 07:00

Minimum Daily Average: 1.56 kph on Mar 5

Maximum Diurnal Average: 3.11 kph at hour 14

Minimum Diurnal Average: 2.19 kph at hour 20

Monthly Average: 2.592 kph

Percentiles: P_1 = 0.9 P_{10} = 1.4 Q_1 = 1.8 Median = 2.4 Q_3 = 3.1 P_{90} = 4.0 P_{99} = 6.8

Hours in Service:	744
Hours of Data:	735
Hours of Missing Data:	9
Hours of Calibration:	0
Percent Operational Time:	98.8

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	2.6	2.7	1.4	1.9	2.5	1.5	1.3	1.0	1.9	2.6	2.7	3.8	3.5	3.7	2.2	1.7	2.0	1.3	1.2	1.1	1.4	0.9	0.9	2.7	2.02	3.75
2-Mar	1.1	1.5	1.3	1.6	2.5	1.4	3.1	2.1	1.6	1.2	2.5	2.3	1.9	1.6	2.1	2.0	2.3	2.6	2.3	2.3	2.3	2.0	3.2	3.6	2.11	3.62
3-Mar	1.9	2.9	2.5	4.1	3.4	2.6	3.0	3.0	4.7	3.9	4.4	5.1	6.2	6.6	5.7	3.5	4.1	3.6	2.9	2.8	2.3	2.2	2.1	1.4	3.53	6.62
4-Mar	4.1	3.7	4.9	4.5	4.5	5.2	4.4	4.6	5.3	3.4	3.8	3.8	4.1	2.8	3.4	2.7	2.6	1.9	1.8	1.9	1.5	1.1	1.7	1.3	3.29	5.34
5-Mar	1.7	1.4	1.8	1.6	1.5	1.2	1.8	1.2	1.3	1.2	1.0	2.3	1.7	1.2	1.2	1.4	1.6	2.0	1.0	1.8	1.5	2.4	1.9	1.7	1.56	2.39
6-Mar	1.5	1.4	1.7	1.7	1.5	1.2	1.4	1.3	1.8	2.0	1.8	2.1	2.0	2.2	2.1	2.1	2.1	1.6	1.2	1.5	1.9	1.4	1.2	2.3	1.71	2.28
7-Mar	1.4	1.7	1.5	2.0	2.9	2.5	2.8	3.0	3.0	3.3	2.2	2.6	2.0	2.0	2.0	1.7	2.0	1.4	1.6	1.4	0.9	1.9	1.5	1.9	2.06	3.33
8-Mar	2.2	2.8	3.0	2.6	3.5	2.8	2.8	2.6	2.7	2.7	2.7	2.2	2.1	2.0	2.0	2.5	2.1	1.6	1.3	0.8	AF	AF	AF	AF	2.34	3.54
9-Mar	AF	AF	AF	AF	AF	0.7	1.2	0.8	1.3	2.2	2.2	2.7	2.8	3.6	2.7	2.9	2.8	2.4	2.2	2.9	2.3	2.3	2.7	2.7	2.28	3.62
10-Mar	2.7	3.2	2.7	2.7	3.1	3.0	2.6	3.4	4.0	4.5	4.0	3.7	3.4	3.9	3.6	3.4	3.3	2.9	2.7	1.6	3.5	2.0	2.6	2.1	3.10	4.48
11-Mar	1.5	2.4	1.6	1.5	1.3	1.4	1.3	1.3	1.9	1.6	1.5	3.9	2.6	2.6	2.5	2.8	3.0	2.8	2.7	3.1	2.2	2.2	2.1	2.4	2.17	3.86
12-Mar	2.0	1.9	1.8	1.4	1.3	1.5	1.6	1.8	3.8	2.8	2.9	2.5	3.3	3.4	3.7	3.6	3.6	3.9	3.5	3.5	3.6	2.9	2.9	2.8	2.74	3.85
13-Mar	2.9	3.1	2.6	3.4	3.0	2.8	2.9	2.9	2.4	2.4	2.3	3.2	3.2	2.8	3.1	2.2	2.3	1.9	2.8	2.5	3.4	3.2	3.7	3.7	2.87	3.75
14-Mar	3.3	2.9	2.2	2.8	2.3	1.6	2.1	2.5	1.7	1.6	2.8	2.3	2.4	2.8	3.2	3.2	3.6	2.8	4.0	3.8	3.5	4.2	3.0	3.7	2.85	4.23
15-Mar	2.5	2.3	2.5	3.0	3.9	1.7	4.6	2.7	3.3	2.2	3.1	3.1	3.0	2.9	2.4	3.1	2.9	4.0	1.6	1.1	1.0	2.7	3.8	1.9	2.73	4.60
16-Mar	2.5	2.3	2.4	2.6	2.7	2.0	1.6	0.9	1.0	2.1	2.2	1.7	1.7	1.2	1.7	1.3	2.0	0.9	2.0	1.8	1.1	1.8	1.5	1.3	1.77	2.70
17-Mar	1.5	2.6	2.0	2.4	2.8	3.2	2.5	2.8	3.2	2.5	4.9	3.6	3.8	3.8	2.9	2.4	2.6	2.3	2.4	2.8	2.6	2.4	2.3	2.0	2.76	4.91
18-Mar	2.0	1.7	2.4	1.6	2.2	1.6	1.8	2.0	4.9	2.6	3.5	1.4	1.4	1.6	1.8	2.1	2.0	4.0	5.1	2.2	3.3	18.1	9.4	7.0	3.57	18.15
19-Mar	6.8	6.8	4.6	2.5	2.3	2.4	2.0	2.1	4.4	3.5	4.0	6.1	6.5	5.8	6.0	6.6	6.1	7.2	2.3	5.4	4.5	4.3	4.5	3.6	4.61	7.24
20-Mar	5.1	3.9	4.2	4.9	4.3	4.0	1.6	2.5	2.2	2.9	1.9	2.7	3.5	3.0	2.9	2.3	4.0	2.6	2.5	2.1	2.0	2.7	3.3	2.9	3.08	5.13
21-Mar	2.8	3.0	3.8	3.9	4.2	3.8	4.7	5.7	5.3	5.1	6.1	6.8	7.6	6.5	6.3	4.7	5.1	3.2	3.4	2.4	2.7	2.9	2.6	2.2	4.38	7.62
22-Mar	2.5	2.1	2.4	1.7	1.9	3.8	2.6	2.1	1.9	1.8	1.7	2.5	2.2	2.7	2.9	2.8	2.5	1.9	1.4	1.0	2.0	1.6	1.5	0.8	2.09	3.80
23-Mar	1.1	1.3	1.5	2.6	2.1	1.9	2.6	3.1	2.0	3.0	2.1	2.7	1.7	3.3	1.4	2.6	1.8	2.3	1.6	1.2	2.0	1.7	2.3	1.3	2.05	3.33
24-Mar	1.6	1.9	1.8	1.8	3.2	2.7	2.5	3.0	3.3	4.2	4.1	4.1	5.0	4.8	5.1	4.0	3.3	3.3	2.8	2.5	1.7	1.6	2.0	2.2	3.01	5.12
25-Mar	2.3	1.8	3.1	4.3	2.8	2.5	2.1	2.0	2.1	2.2	2.0	1.9	1.6	2.6	3.1	1.6	1.2	1.2	2.5	2.1	2.2	2.4	3.1	3.0	2.31	4.28
26-Mar	1.7	1.6	1.8	2.6	0.8	1.5	0.6	1.3	1.8	3.1	1.6	2.6	2.3	2.5	2.4	3.1	3.2	3.4	2.4	1.7	3.1	2.5	3.5	2.7	2.24	3.48
27-Mar	3.0	2.8	3.1	4.9	1.9	2.7	2.6	2.0	1.6	1.3	1.5	2.4	2.0	1.7	2.2	3.3	2.1	3.1	2.5	1.9	2.1	1.4	1.7	2.5	2.36	4.94
28-Mar	1.8	3.8	1.8	3.0	1.8	1.1	2.0	1.3	1.5	1.5	1.4	1.1	1.5	1.8	1.9	2.3	2.3	2.4	1.6	1.9	2.2	3.1	3.7	1.6	2.02	3.83
29-Mar	1.4	1.1	1.5	1.4	1.8	1.3	1.2	1.6	1.8	2.0	2.0	2.2	2.1	3.0	3.5	3.5	2.5	2.5	2.2	1.3	2.0	2.8	2.1	2.3	2.05	3.53
30-Mar	2.4	2.4	2.3	1.6	2.2	2.9	1.5	3.0	2.4	2.5	1.8	1.9	2.1	2.6	2.3	2.4	2.1	2.5	1.2	3.8	1.4	1.5	1.0	1.6	2.15	3.83
31-Mar	1.2	1.0	1.7	1.2	1.6	1.9	2.7	2.9	3.1	3.6	4.0	3.8	3.4	5.5	4.3	4.4	2.4	1.6	1.3	1.6	1.8	1.7	1.0	1.6	2.47	5.46
	2.37	2.46	2.40	2.59	2.54	2.27	2.29	2.34	2.69	2.63	2.73	3.00	2.99	3.11	2.99	2.84	2.76	2.61	2.26	2.19	2.27	2.80	2.63	2.43	Diurnal Average	
	6.82	6.85	4.93	4.94	4.51	5.18	4.67	5.72	5.34	5.07	6.13	6.77	7.62	6.62	6.27	6.64	6.14	7.24	5.13	5.45	4.47	18.15	9.36	7.05	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

West Central Airshed Society

WCAS - Power

Summary of Hourly Standard Deviations

Wind Direction (WD) - deg

March 2017

Maximum Value: 88.66 deg on Mar 30 05:00

Maximum Daily Average: 35.13 deg on Mar 28

Minimum Value: 1.4 deg on Mar 9 06:00

Minimum Daily Average: 9.22 deg on Mar 2

Maximum Diurnal Average: 21.29 deg at hour 12

Minimum Diurnal Average: 11.68 deg at hour 4

Monthly Average: 15.787 deg

Percentiles: P_1 = 5.3 P_{10} = 7.6 Q_1 = 9.1 Median = 11.8 Q_3 = 16.3 P_{90} = 27.6 P_{99} = 74.5

Hours in Service:	744
Hours of Data:	735
Hours of Missing Data:	9
Hours of Calibration:	0
Percent Operational Time:	98.8

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	7.9	8.0	7.1	5.9	52.1	14.9	11.3	9.5	9.5	17.0	18.0	18.0	16.4	18.9	9.5	9.5	8.5	8.3	11.9	8.8	14.9	9.4	10.5	7.8	13.07	52.13
2-Mar	5.5	4.9	4.4	5.6	8.0	9.4	9.0	9.5	8.9	9.0	18.0	28.2	8.0	7.6	8.7	8.0	7.4	8.1	7.9	8.0	7.1	5.7	11.8	12.3	9.22	28.25
3-Mar	7.0	7.8	8.5	12.3	10.5	9.2	8.7	10.2	11.3	10.1	11.5	12.5	14.2	53.0	23.6	15.3	19.4	22.8	18.2	11.5	13.5	20.7	11.7	20.2	15.15	53.00
4-Mar	17.1	15.6	10.5	11.0	19.1	18.1	16.5	16.3	18.0	20.2	20.2	18.4	19.4	12.8	12.6	12.4	12.3	9.3	12.9	11.6	10.0	9.1	11.8	13.8	14.53	20.21
5-Mar	15.7	17.8	11.8	11.9	17.1	9.5	9.8	11.7	13.0	28.2	19.4	15.9	11.6	15.0	11.4	6.5	9.4	14.0	21.3	32.2	10.9	52.7	23.9	16.0	16.94	52.70
6-Mar	31.2	12.6	9.0	9.1	9.3	10.2	9.2	8.4	12.7	13.8	13.8	14.3	13.1	12.5	12.2	11.2	11.6	7.8	8.1	7.3	13.2	12.9	7.0	13.4	11.82	31.23
7-Mar	7.5	7.6	10.9	14.5	19.1	14.6	14.9	16.6	16.1	15.4	12.1	14.0	9.1	11.2	11.6	15.1	13.9	11.5	17.5	9.5	12.5	11.0	8.6	11.0	12.75	19.15
8-Mar	11.2	12.9	12.9	12.3	12.4	10.7	9.1	11.3	10.2	8.7	11.3	10.4	12.1	11.6	11.4	15.0	10.5	11.5	9.5	5.6	AF	AF	AF	AF	11.03	14.99
9-Mar	AF	AF	AF	AF	AF	1.4	1.7	2.7	4.6	25.9	20.2	16.9	38.8	35.9	15.3	12.7	11.3	9.4	7.8	8.9	9.4	7.9	9.4	9.6	13.15	38.78
10-Mar	9.0	12.7	11.2	10.6	10.9	11.0	10.7	11.5	11.0	11.4	13.3	13.0	15.3	15.1	15.0	18.6	13.4	11.8	16.7	11.4	13.3	8.8	8.4	8.3	12.18	18.57
11-Mar	7.8	6.8	5.9	5.3	6.1	6.2	6.8	7.1	13.5	7.9	10.9	10.6	13.4	12.8	15.5	20.3	14.1	12.8	11.5	9.5	13.2	10.2	10.7	12.1	10.47	20.32
12-Mar	11.5	9.9	10.7	10.4	12.1	11.4	9.5	10.1	7.8	8.9	13.7	12.2	9.6	9.3	11.6	10.8	11.0	10.1	8.4	8.9	9.1	8.6	8.1	8.2	10.07	13.70
13-Mar	8.0	8.7	9.3	9.1	8.4	10.6	10.1	8.7	10.2	10.1	11.4	10.0	44.9	11.8	11.0	13.5	11.2	9.3	8.7	8.6	7.7	9.5	16.3	14.5	11.73	44.86
14-Mar	8.0	12.7	10.7	20.1	8.8	8.4	13.0	12.7	11.2	10.9	10.2	9.0	6.9	7.5	8.0	8.1	12.7	7.8	8.1	7.5	8.2	7.5	12.3	13.0	10.14	20.12
15-Mar	8.6	7.7	9.0	9.0	13.6	11.5	26.4	7.6	10.0	10.0	19.6	20.0	18.2	19.9	14.7	26.2	46.6	76.0	17.8	52.9	38.9	14.1	53.5	31.2	23.46	76.04
16-Mar	67.2	14.7	13.8	12.8	13.4	16.1	42.5	40.8	65.4	20.0	36.7	11.5	9.4	11.6	17.8	17.6	13.4	9.2	35.6	40.4	7.9	18.5	12.9	15.4	23.52	67.17
17-Mar	12.4	13.8	8.5	8.6	13.7	12.0	11.9	11.7	14.9	11.7	14.9	11.5	26.4	22.6	8.2	7.3	7.6	7.8	7.7	7.5	7.4	7.0	6.7	6.7	11.18	26.42
18-Mar	6.6	5.6	6.7	6.9	6.6	6.1	7.2	6.0	9.3	11.8	35.7	11.2	11.1	12.0	10.1	17.5	16.8	10.6	15.8	17.1	10.5	16.9	11.3	12.5	11.75	35.69
19-Mar	12.1	12.2	11.6	10.0	11.7	11.9	10.5	7.9	15.7	16.4	14.6	17.5	13.6	14.5	13.8	13.9	17.2	19.0	14.1	17.2	13.5	17.1	14.8	11.5	13.84	18.98
20-Mar	10.2	13.5	11.3	10.6	11.3	8.9	9.0	13.0	10.3	28.3	27.6	41.2	36.3	44.7	81.4	69.1	21.5	11.1	8.2	7.7	6.1	6.9	7.3	6.4	20.92	81.44
21-Mar	6.7	6.6	7.2	8.1	8.1	8.6	9.7	9.3	8.9	9.1	9.7	10.0	10.0	9.8	10.8	10.1	10.3	8.6	9.7	10.2	12.8	11.4	11.4	10.2	9.48	12.76
22-Mar	10.9	9.0	9.3	7.4	8.5	23.3	49.8	14.5	14.7	15.2	18.5	15.7	13.4	12.4	19.5	17.5	14.4	13.2	21.1	39.5	31.3	25.2	22.3	12.9	18.32	49.83
23-Mar	11.7	15.7	9.0	8.4	10.6	8.0	11.8	12.6	12.6	80.0	17.6	58.6	75.9	51.1	35.3	27.3	23.9	51.7	15.3	8.2	11.2	6.3	13.0	11.0	24.45	79.99
24-Mar	7.2	7.3	7.0	7.5	7.7	6.8	6.6	6.6	7.3	8.2	9.3	10.7	11.1	10.7	10.2	11.0	10.7	10.3	10.6	19.3	13.1	19.7	20.7	38.0	11.57	38.02
25-Mar	21.3	12.2	12.0	16.4	13.0	14.1	21.3	19.9	24.6	14.8	22.9	56.1	44.8	84.9	38.7	6.2	5.0	9.7	24.5	9.8	60.5	44.6	34.1	23.1	26.44	84.87
26-Mar	24.7	17.0	9.9	9.2	9.1	9.6	12.5	13.4	15.0	15.3	37.0	29.3	12.7	14.2	9.8	10.4	9.7	9.2	7.9	7.1	9.0	8.2	8.4	7.9	13.19	36.99
27-Mar	8.1	9.0	8.7	12.3	7.3	9.3	11.2	10.7	12.0	15.1	13.9	74.3	15.7	17.7	26.6	28.2	12.7	12.6	8.7	8.8	8.0	6.8	7.4	6.8	14.66	74.25
28-Mar	7.0	77.0	86.5	20.0	36.6	32.8	37.7	48.3	56.1	44.2	15.9	11.5	13.3	12.6	12.4	14.7	12.5	12.4	15.5	15.0	61.5	88.2	45.4	66.0	35.13	88.18
29-Mar	40.5	26.6	10.2	16.3	11.1	9.9	10.7	14.2	17.4	25.8	76.2	34.3	21.8	31.7	45.5	15.0	11.9	15.9	10.9	10.3	10.9	15.7	15.6	14.5	21.36	76.16
30-Mar	22.9	26.0	19.6	42.1	88.7	21.7	20.6	22.1	12.7	12.3	12.3	15.5	17.9	15.1	17.4	17.5	14.2	16.6	23.1	47.3	7.2	8.0	8.4	7.9	21.55	88.66
31-Mar	8.8	8.4	8.5	6.6	12.8	15.3	14.3	13.5	11.9	17.8	18.2	27.7	24.0	26.1	21.7	24.2	17.4	27.9	12.3	11.3	9.4	5.6	7.5	8.9	15.01	27.94
	14.47	14.01	12.39	11.68	15.92	11.99	14.65	13.50	15.38	17.86	19.50	21.29	19.63	20.87	18.43	16.47	13.95	15.37	13.79	15.44	15.40	16.47	15.04	15.04	Diurnal Average	
	67.17	77.02	86.45	42.13	88.66	32.76	49.83	48.31	65.39	79.99	76.16	74.25	75.86	84.87	81.44	69.08	46.57	76.04	35.58	52.87	61.52	88.18	53.51	66.01	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT CONTINUOUS AIR MONITORING DATA

AMS 908
MEADOWS
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

Summary Report **West Central Airshed Society**

Continuous air quality/meteorlogical monitoring measurements

TransAlta / Meadows **March 2017**
Station 908

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile P10	Q1	Median	Q3	P90	Exceedences 1-hour	Exceedences 24-hour	24 Hour Average Max (ppm)
SO_2 (ppb)	35	709	100.0	1.3	0.0	24.9	0.0	0.2	0.4	1.0	3.3	0	0	0.004
NO (ppb)	36	708	100.0	2.1	0.0	53.0	0.0	0.0	0.4	1.7	5.7	-	-	-
NO_2 (ppb)	36	708	100.0	6.9	0.5	36.4	1.4	2.3	4.7	8.7	16.6	0	0	0.016
NO_x (ppb)	36	708	100.0	8.8	0.0	88.6	1.0	2.2	5.3	10.5	21.0	-	-	-
Wind Speed (kph)	0	742	99.7	9.9	0.1	37.5	2.7	5.1	8.5	13.2	18.9	-	-	-
Temperature (^{o}C)	0	744	100.0	-4.8	-25.9	13.9	-17.2	-13.4	-2.6	2.1	5.7	-	-	-
Relative Humidity (%)	0	744	100.0	74.1	26.5	99.0	53.9	65.0	76.2	84.5	94.3	-	-	-
Std Dev Wind Direction (deg)	0	742	99.7	20.0	3.7	91.2	7.1	8.8	13.6	23.4	42.6	-	-	-
Std Dev Wind Speed (kph)	0	742	99.7	2.3	0.6	14.5	1.2	1.5	2.0	2.8	3.8	-	-	-

WCAS - Meadows
Summary of Hourly Averages

Sulphur Dioxide (SO_2) - ppb
March 2017

Maximum Value: 24.91 ppb on Mar 12 13:00

Maximum Daily Average: 3.87 ppb on Mar 9

Minimum Value: 0.0 ppb on Mar 3 16:00

Minimum Daily Average: 0.03 ppb on Mar 19

Maximum Diurnal Average: 2.34 ppb at hour 16

Minimum Diurnal Average: 0.63 ppb at hour 8

Monthly Average: 1.287 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.2 Median = 0.4 Q_3 = 1.0 P_{90} = 3.3 P_{99} = 15.0

Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.8	0.7	Z	0.2	0.3	0.3	0.3	0.3	0.6	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.40	0.85
2-Mar	0.1	0.1	Z	0.1	0.5	0.1	0.2	0.1	0.3	0.5	0.5	0.5	0.6	0.4	0.5	0.8	0.7	0.3	0.2	0.3	0.4	0.3	0.2	0.5	0.36	0.83
3-Mar	0.2	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.22
4-Mar	0.0	0.0	Z	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	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.06	0.19
5-Mar	0.0	0.1	Z	0.6	0.5	0.7	0.7	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.9	2.0	1.1	0.7	0.5	0.7	0.8	0.6	0.6	0.7	0.67	1.98
6-Mar	0.6	0.7	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.21	0.68
7-Mar	0.7	0.7	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.68
8-Mar	0.0	0.1	Z	1.5	1.1	1.1	1.2	1.8	1.2	1.2	1.4	1.3	1.2	1.2	1.1	0.8	0.8	0.6	0.5	0.7	0.6	0.4	0.4	0.4	0.90	1.83
9-Mar	0.4	0.4	Z	0.8	2.1	0.2	0.3	0.5	1.6	1.4	0.4	0.5	0.5	7.0	6.3	8.6	5.7	0.3	0.2	0.8	1.6	14.9	16.9	17.4	3.87	17.41
10-Mar	2.0	0.5	Z	1.2	1.1	0.6	0.6	0.6	0.4	0.7	0.6	0.6	2.0	1.6	0.7	0.4	1.2	0.8	0.5	2.2	3.6	4.4	5.3	1.2	1.43	5.28
11-Mar	0.4	0.6	Z	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.8	0.4	0.9	2.6	1.3	2.9	1.9	3.3	1.0	0.6	0.4	0.3	0.2	0.88	3.29
12-Mar	0.2	0.2	Z	1.3	1.5	1.2	0.9	0.4	1.8	1.8	1.2	10.1	24.9	7.0	4.8	3.3	3.1	3.6	2.3	2.5	2.7	2.2	1.3	2.1	3.51	24.91
13-Mar	3.4	9.1	Z	2.6	3.1	1.0	0.8	0.8	0.8	1.0	1.3	1.4	1.6	2.1	1.5	2.3	2.1	1.1	1.9	1.4	0.8	0.7	0.9	0.9	1.85	9.15
14-Mar	0.9	0.8	Z	1.5	0.8	1.1	1.1	0.7	0.8	0.7	0.7	0.8	0.9	0.7	3.2	2.3	2.0	3.8	1.9	1.3	0.6	0.4	0.2	0.2	1.19	3.76
15-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.5	3.4	0.61	8.49
16-Mar	0.7	1.1	Z	1.0	1.0	0.9	0.6	0.5	0.3	0.2	1.5	1.6	0.8	0.9	0.4	0.3	0.2	0.3	0.7	0.7	0.3	0.6	0.2	0.3	0.66	1.65
17-Mar	0.5	0.2	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.8	0.3	0.4	0.2	0.0	0.0	0.16	0.80
18-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.3	2.6	3.1	3.3	3.9	0.9	0.3	0.2	0.1	0.3	0.3	0.0	0.0	0.70	3.91
19-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	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	0.03	0.24
20-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	4.7	3.9	4.6	5.9	4.3	3.6	5.0	5.3	6.9	2.4	2.06	6.88
21-Mar	4.0	8.5	Z	7.4	9.1	12.1	22.1	7.2	3.6	2.6	3.7	2.8	0.2	0.1	0.0	0.0	0.0	0.0	0.7	2.2	0.5	0.5	0.2	0.3	3.82	22.09
22-Mar	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.4	C	C	C	C	0.7	0.8	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.29	0.82
23-Mar	0.1	0.1	Z	0.1	0.1	0.5	0.8	0.9	1.7	11.8	13.5	1.5	1.7	1.6	1.0	0.6	0.5	0.4	0.5	1.8	10.1	6.2	2.9	1.6	2.61	13.53
24-Mar	1.0	0.7	Z	0.3	0.3	0.2	0.3	0.4	1.0	6.8	15.7	13.9	12.5	3.9	1.1	0.2	1.7	2.4	0.8	0.3	0.1	0.1	0.1	0.1	2.78	15.69
25-Mar	0.1	0.3	Z	0.8	1.5	1.4	0.6	0.4	0.3	0.5	0.4	0.4	0.6	0.5	1.5	2.8	7.0	4.9	0.5	0.7	0.3	0.2	0.1	0.1	1.13	7.01
26-Mar	0.1	0.2	Z	0.9	0.5	0.8	0.5	1.0	0.7	0.3	0.4	0.7	5.5	12.5	19.8	18.1	8.3	5.3	5.2	0.3	0.6	0.7	0.4	1.2	3.66	19.83
27-Mar	1.4	3.3	Z	0.6	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.5	0.8	1.9	5.8	3.5	6.3	3.5	1.5	0.7	0.3	0.2	1.41	6.28
28-Mar	0.1	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.4	0.6	1.4	3.7	5.9	7.1	6.9	7.4	3.3	0.9	1.1	0.9	1.0	1.1	1.89	7.40
29-Mar	1.1	1.3	Z	1.8	0.9	0.9	0.6	0.9	0.5	0.4	0.3	0.3	0.2	2.7	4.2	9.6	7.2	1.0	0.8	0.9	0.7	0.7	0.7	0.5	1.66	9.59
30-Mar	0.5	0.4	Z	0.4	0.5	0.4	0.6	0.7	0.7	0.4	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.6	0.39	0.74
31-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.2	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	0.7	0.9	0.31	0.87
	0.65	1.00	--	0.81	0.87	0.81	1.09	0.63	0.63	1.12	1.49	1.36	2.02	1.76	2.20	2.34	2.09	1.50	1.19	0.88	1.10	1.37	1.58	1.19	Diurnal Average	
	4.04	9.15	--	7.44	9.05	12.11	22.09	7.20	3.63	11.79	15.69	13.86	24.91	12.52	19.83	18.11	8.33	7.40	6.28	3.59	10.11	14.93	16.93	17.41	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb

WCAS - Meadows
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
March 2017

Maximum Value: 52.99 ppb on Mar 9 05:00

Maximum Daily Average: 9.09 ppb on Mar 9

Minimum Value: 0.0 ppb on Mar 1 13:00

Minimum Daily Average: 0.10 ppb on Mar 8

Maximum Diurnal Average: 4.26 ppb at hour 5

Minimum Diurnal Average: 0.20 ppb at hour 20

Monthly Average: 2.109 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.4 Q_3 = 1.7 P_{90} = 5.7 P_{99} = 23.2

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.1	0.0	Z	0.5	6.6	1.7	6.3	1.8	2.0	0.8	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.92	6.57
2-Mar	0.0	0.0	Z	1.6	12.8	0.0	4.8	2.8	6.1	8.9	11.2	9.2	6.7	2.3	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	12.8	3.54	12.85
3-Mar	4.5	0.0	Z	0.4	0.8	1.7	0.9	0.6	1.4	2.9	3.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.81	4.49
4-Mar	0.0	0.3	Z	0.3	0.0	0.3	0.6	0.7	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	0.69
5-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	5.2	3.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.41	5.17
6-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.9	1.0	2.4	0.36	2.95
7-Mar	0.3	0.0	Z	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.5	0.15	1.64
8-Mar	0.4	0.3	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.10	0.51
9-Mar	2.3	2.1	Z	17.2	53.0	0.6	2.9	9.4	41.3	36.2	7.9	5.4	1.6	6.6	5.2	5.5	2.8	0.0	0.0	0.0	0.0	1.8	2.7	4.4	9.09	52.99
10-Mar	0.8	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.7	2.5	2.3	1.7	1.1	1.6	1.3	0.6	0.3	0.9	1.4	1.1	1.0	0.79	2.53
11-Mar	1.2	0.6	Z	0.1	0.0	0.0	0.0	0.0	0.2	1.4	1.1	1.0	0.5	0.2	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.34	1.38
12-Mar	0.1	0.0	Z	0.2	0.2	0.0	0.0	0.0	1.0	1.6	1.9	9.6	21.3	6.6	4.1	2.9	2.8	2.0	1.0	1.3	0.9	1.1	1.3	0.8	2.64	21.30
13-Mar	0.8	0.8	Z	0.0	0.0	0.0	0.0	0.4	1.6	1.9	2.4	2.9	3.0	2.7	2.4	1.7	1.4	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.98	2.96
14-Mar	0.2	0.1	Z	25.6	8.6	16.3	19.0	7.2	8.6	9.7	8.7	7.6	9.2	3.4	4.5	5.6	4.3	4.6	1.1	0.0	0.0	0.0	0.0	0.0	6.28	25.64
15-Mar	0.0	0.0	Z	0.2	2.1	2.7	1.2	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	0.3	0.0	4.1	0.46	4.07
16-Mar	1.1	0.1	Z	0.8	1.3	0.8	0.4	0.9	0.6	0.3	0.9	1.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.38	1.28
17-Mar	0.0	0.0	Z	2.0	2.5	1.5	0.4	0.6	2.4	3.1	2.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.75	3.06
18-Mar	0.0	0.2	Z	0.7	0.9	0.6	1.0	1.1	1.7	1.8	1.9	2.1	3.1	3.2	3.3	3.0	1.8	1.2	0.7	0.9	1.4	0.8	0.0	0.0	1.36	3.30
19-Mar	0.0	0.0	Z	0.0	0.6	0.6	0.8	2.0	3.3	2.2	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.3	0.9	0.8	0.9	0.7	0.76	3.32
20-Mar	0.5	0.0	Z	0.0	0.0	0.0	0.2	0.8	0.9	0.4	0.4	0.6	0.9	0.2	3.2	1.6	1.3	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.52	3.22
21-Mar	0.0	0.0	Z	1.7	4.8	7.3	17.7	8.7	9.0	9.0	9.3	8.0	3.5	1.2	0.2	0.1	0.6	0.8	1.0	1.1	0.5	0.0	0.0	0.0	3.68	17.69
22-Mar	0.0	0.0	Z	0.5	0.9	1.5	0.8	1.0	0.9	0.4	0.3	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.35	1.47
23-Mar	0.2	0.4	Z	0.7	1.3	1.0	0.8	1.5	1.2	10.9	16.1	1.8	1.9	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.6	1.5	0.2	0.4	1.89	16.10
24-Mar	0.5	0.2	Z	0.9	1.4	1.2	0.5	0.7	1.4	6.1	16.4	11.0	9.5	4.2	2.5	1.7	2.1	2.2	1.0	0.2	0.2	0.3	0.3	0.4	2.82	16.35
25-Mar	0.2	0.3	Z	0.1	0.1	0.0	0.0	1.3	4.9	10.0	7.0	5.6	4.2	2.0	1.2	1.2	2.1	0.7	0.0	0.0	2.3	1.9	1.0	0.0	2.01	10.04
26-Mar	0.4	4.1	Z	24.1	12.6	21.9	7.1	23.6	13.8	0.5	0.9	1.1	3.1	6.4	9.4	8.6	2.9	0.6	0.1	0.0	0.0	0.0	0.0	0.0	6.14	24.10
27-Mar	0.1	0.3	Z	0.4	0.5	0.5	0.7	0.0	0.2	0.8	0.6	0.7	0.0	0.0	0.2	0.7	3.9	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.48	3.89
28-Mar	0.0	0.0	Z	0.4	0.5	0.1	0.2	3.1	10.0	11.7	5.7	3.9	3.1	3.3	3.4	4.0	3.8	2.5	0.2	0.0	1.7	0.5	5.7	12.1	3.30	12.09
29-Mar	18.5	27.7	Z	45.0	18.8	17.6	8.7	20.3	5.6	0.9	0.9	0.7	0.1	1.8	1.9	5.2	2.5	0.0	0.0	0.0	0.0	0.2	0.2	0.3	7.68	45.00
30-Mar	0.1	0.0	Z	0.6	0.9	0.9	0.6	0.6	1.2	1.6	1.6	0.9	0.7	0.1	0.2	0.2	0.0	0.0	0.0	0.0	3.3	4.1	8.0	15.4	1.77	15.40
31-Mar	3.6	1.4	Z	1.1	1.2	2.6	4.2	2.3	3.2	3.0	1.1	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.4	6.6	20.7	19.5	22.4	4.10	22.42
	1.15	1.26	--	4.10	4.26	2.62	2.58	2.95	4.14	4.20	3.45	2.63	2.51	1.64	1.56	1.48	1.10	0.58	0.26	0.20	0.65	1.25	1.38	2.52	Diurnal Average	
	18.46	27.69	--	45.00	52.99	21.92	19.04	23.60	41.35	36.19	16.35	11.01	21.30	6.61	9.40	8.59	4.34	4.59	1.11	1.34	6.64	20.72	19.55	22.42	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

West Central Airshed Society

WCAS - Meadows
Summary of Hourly Averages

Nitrogen Dioxide (NO_2) - ppb
March 2017

Maximum Value: 36.44 ppb on Mar 26 04:00

Maximum Daily Average: 16.30 ppb on Mar 14

Minimum Value: 0.5 ppb on Mar 19 15:00

Minimum Daily Average: 1.08 ppb on Mar 4

Maximum Diurnal Average: 10.07 ppb at hour 22

Minimum Diurnal Average: 3.78 ppb at hour 14

Monthly Average: 6.925 ppb

Percentiles: P_1 = 0.6 P_{10} = 1.4 Q_1 = 2.3 Median = 4.7 Q_3 = 8.7 P_{90} = 16.6 P_{99} = 32.5

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	5.7	5.0	Z	4.6	15.6	10.7	24.8	17.0	8.6	3.6	3.4	3.0	2.3	2.3	2.5	2.6	2.5	3.5	4.6	7.2	7.0	7.5	5.8	7.3	6.83	24.78
2-Mar	8.7	7.9	Z	11.9	22.1	12.5	23.4	18.3	12.5	9.8	9.4	8.5	8.5	6.9	6.6	6.9	7.6	7.8	6.9	10.1	9.0	12.2	18.9	22.8	11.71	23.39
3-Mar	17.4	9.1	Z	10.6	6.9	7.9	9.3	9.1	8.4	6.5	5.1	3.2	2.5	2.6	2.1	1.2	1.1	1.2	1.2	2.2	2.0	2.2	1.2	2.1	5.01	17.43
4-Mar	3.0	1.7	Z	1.2	1.0	0.9	0.9	1.0	0.8	0.7	0.6	0.6	0.7	0.6	0.7	0.8	0.8	0.9	1.4	1.3	1.1	1.6	1.3	1.2	1.08	2.97
5-Mar	1.4	1.8	Z	2.2	2.8	2.8	4.5	3.4	7.4	5.3	1.6	1.5	1.3	1.1	1.7	2.9	2.3	3.3	3.5	5.0	8.0	7.5	7.7	10.0	3.88	9.99
6-Mar	10.0	3.7	Z	2.3	2.4	3.3	2.3	2.1	2.8	2.0	1.6	1.7	1.2	1.1	1.5	1.3	1.1	1.3	2.0	3.9	12.5	24.3	21.1	18.9	5.41	24.25
7-Mar	5.8	4.7	Z	11.9	3.2	2.7	1.8	1.6	1.6	1.4	1.0	0.8	0.9	0.9	0.9	0.9	0.9	1.3	1.9	3.0	4.8	5.7	6.6	6.5	3.08	11.92
8-Mar	3.3	1.9	Z	3.5	3.3	3.3	2.9	2.7	1.9	1.6	1.7	1.6	1.7	1.7	1.7	1.4	1.6	1.9	1.8	3.3	2.8	2.7	3.0	7.1	2.53	7.11
9-Mar	16.6	24.2	Z	30.8	35.8	18.8	20.7	22.4	21.6	22.0	9.7	6.1	2.8	7.0	6.2	7.5	6.3	2.5	2.4	3.0	4.6	20.9	22.1	20.8	14.56	35.75
10-Mar	5.1	3.2	Z	2.9	2.6	2.3	2.3	1.9	1.5	2.1	1.9	1.7	2.9	2.6	2.0	1.8	2.7	3.2	2.6	5.9	8.0	8.9	13.0	6.7	3.81	12.97
11-Mar	7.4	4.6	Z	2.1	2.2	2.7	2.5	2.7	3.1	3.6	2.4	2.6	2.1	2.1	2.8	1.4	1.7	2.0	1.9	2.1	2.3	2.0	2.8	3.5	2.73	7.37
12-Mar	3.7	4.9	Z	6.9	6.8	7.8	7.3	5.1	4.2	3.4	3.0	9.3	16.4	6.6	5.2	4.3	6.0	8.1	6.8	8.7	8.0	7.1	5.1	6.3	6.56	16.42
13-Mar	8.0	14.6	Z	5.3	8.1	5.7	6.2	7.5	6.9	5.7	5.5	4.7	5.3	5.4	6.2	6.5	7.4	8.3	13.4	18.2	15.6	13.0	9.1	7.9	8.46	18.24
14-Mar	9.4	12.8	Z	33.9	32.9	36.4	33.4	24.6	16.6	12.9	11.8	10.9	12.2	8.6	11.0	13.9	11.6	16.0	13.9	14.5	13.8	6.6	10.1	6.9	16.30	36.37
15-Mar	8.0	9.9	Z	6.5	9.6	18.5	12.7	4.0	2.8	3.7	1.5	0.8	0.6	0.6	1.0	1.2	2.9	1.1	2.0	6.3	10.7	26.9	19.2	24.4	7.60	26.86
16-Mar	17.3	4.5	Z	6.7	7.4	7.5	6.9	8.7	5.6	3.4	5.9	6.0	2.9	2.6	1.5	1.9	2.1	2.1	4.4	7.9	7.8	5.8	5.7	14.8	6.06	17.31
17-Mar	19.7	10.2	Z	3.9	4.4	6.3	4.2	4.7	5.1	6.3	5.2	4.5	2.6	1.8	1.7	1.9	2.9	4.7	6.8	6.4	6.5	5.1	4.1	2.7	5.30	19.68
18-Mar	2.6	2.7	Z	4.3	3.3	4.2	4.4	3.7	3.9	3.6	2.9	2.6	4.6	5.0	5.5	6.9	4.7	4.5	4.3	3.8	3.8	3.7	0.9	0.8	3.77	6.91
19-Mar	0.9	0.9	Z	2.6	1.8	6.2	4.6	11.2	7.8	3.7	4.3	1.4	0.9	0.6	0.5	0.7	0.9	0.8	1.1	1.5	1.2	1.3	1.0	1.1	2.48	11.19
20-Mar	0.9	0.9	Z	0.8	1.0	1.7	2.7	2.9	2.2	1.1	1.3	1.9	2.6	2.4	7.4	6.1	7.3	9.7	8.8	9.9	11.9	14.3	16.8	8.1	5.34	16.81
21-Mar	12.0	21.1	Z	17.4	22.2	25.1	29.8	14.8	7.7	6.0	6.7	4.9	2.1	2.1	2.3	2.2	3.3	3.7	4.2	6.8	1.9	1.8	1.7	1.8	8.77	29.84
22-Mar	1.5	1.4	Z	1.5	2.4	6.6	6.3	4.6	3.7	1.7	1.2	C	C	C	C	C	3.2	3.2	2.6	2.6	4.8	5.3	5.4	6.6	3.60	6.64
23-Mar	7.1	10.3	Z	6.0	11.4	13.7	16.3	12.4	7.7	15.1	14.6	5.5	5.1	3.9	3.9	3.0	2.3	3.3	4.6	8.1	27.8	24.6	15.0	10.6	10.10	27.78
24-Mar	9.3	7.8	Z	4.5	4.1	5.8	5.4	4.6	5.9	11.7	14.1	14.7	14.5	6.7	4.1	3.1	5.7	7.1	3.2	2.2	2.1	3.5	3.1	4.8	6.43	14.71
25-Mar	3.2	3.7	Z	5.4	6.9	6.7	5.1	7.4	9.2	10.0	6.6	6.3	5.9	4.6	4.5	6.0	10.8	9.5	2.8	6.2	19.9	23.5	12.2	1.7	7.74	23.48
26-Mar	10.4	18.1	Z	36.4	29.5	28.3	23.2	27.6	16.6	3.5	3.4	4.8	7.6	13.5	17.4	17.0	9.6	7.8	9.3	1.8	2.1	2.1	2.0	6.2	12.98	36.44
27-Mar	5.7	10.9	Z	2.4	2.1	2.5	3.0	1.9	2.1	2.4	2.0	2.5	2.2	2.5	3.0	3.9	8.6	7.0	14.2	12.3	7.3	4.8	3.2	3.9	4.80	14.20
28-Mar	3.3	4.7	Z	4.1	4.0	4.1	5.2	7.9	9.3	9.6	5.8	6.4	7.7	8.9	10.8	13.3	14.1	14.0	12.2	14.6	23.2	19.3	20.6	20.5	10.59	23.17
29-Mar	18.2	18.1	Z	17.0	13.4	14.3	19.3	17.6	8.9	3.6	3.3	3.6	2.1	5.3	6.0	13.3	10.2	2.0	4.6	6.1	6.8	3.6	3.8	3.8	8.90	19.26
30-Mar	3.4	4.8	Z	6.4	4.7	6.3	4.8	4.2	4.0	3.5	2.8	2.4	2.4	1.7	1.7	1.9	1.9	1.9	2.5	5.9	17.6	12.2	22.8	25.9	6.32	25.86
31-Mar	23.8	8.9	Z	9.1	11.9	15.7	14.0	5.8	6.0	5.6	2.9	2.3	1.8	1.6	1.7	1.4	1.7	2.7	4.3	10.3	30.7	32.5	33.7	29.7	11.22	33.74
	8.16	7.71	--	8.55	9.22	9.40	10.00	8.50	6.65	5.66	4.62	4.23	4.21	3.78	4.15	4.57	4.71	4.72	5.04	6.50	9.21	10.07	9.65	9.53	Diurnal Average	
	23.81	24.15	--	36.44	35.75	36.37	33.41	27.61	21.55	22.04	14.63	14.71	16.42	13.52	17.45	17.04	14.14	15.99	14.20	18.24	30.74	32.51	33.74	29.73	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb

West Central Airshed Society

WCAS - Meadows
Summary of Hourly Averages

NOx (NO_x) - ppb
March 2017

Maximum Value: 88.62 ppb on Mar 9 05:00

Maximum Daily Average: 23.55 ppb on Mar 9

Minimum Value: 0.0 ppb on Mar 3 16:00

Minimum Daily Average: 0.83 ppb on Mar 4

Maximum Diurnal Average: 13.29 ppb at hour 5

Minimum Diurnal Average: 4.71 ppb at hour 19

Monthly Average: 8.787 ppb

Percentiles: P_1 = 0.0 P_{10} = 1.0 Q_1 = 2.2 Median = 5.3 Q_3 = 10.5 P_{90} = 21.0 P_{99} = 50.1

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	5.9	5.1	Z	5.2	22.1	12.5	31.0	18.8	10.6	4.4	4.3	3.7	2.1	1.9	1.9	1.7	1.2	2.1	3.0	6.2	6.4	7.1	5.5	7.1	7.38	31.01
2-Mar	8.4	7.6	Z	13.4	34.7	12.2	28.1	21.0	18.5	18.7	20.5	17.7	15.1	9.2	7.5	7.8	7.7	7.8	6.1	9.3	8.5	11.9	18.8	35.5	15.04	35.47
3-Mar	21.8	8.9	Z	10.8	7.6	9.5	10.0	9.6	9.7	9.3	8.9	4.4	1.5	0.4	0.1	0.0	0.0	0.6	0.5	1.9	1.2	2.1	1.0	2.5	5.32	21.78
4-Mar	2.9	2.0	Z	1.4	0.7	1.2	1.5	1.7	1.5	1.0	0.6	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	1.3	1.0	1.0	0.83	2.88
5-Mar	1.2	1.7	Z	2.0	2.6	2.6	4.4	3.5	12.5	8.8	2.0	1.6	0.7	0.0	0.7	2.7	1.0	1.9	2.0	4.3	7.7	7.4	7.7	9.9	3.86	12.54
6-Mar	9.7	3.5	Z	2.4	2.4	3.0	2.4	2.1	2.8	1.8	1.4	2.6	1.1	0.6	1.2	0.7	0.0	0.6	1.3	3.6	13.2	27.1	22.0	21.1	5.51	27.09
7-Mar	6.1	4.6	Z	13.5	2.8	1.9	1.0	0.9	1.1	1.4	1.3	0.7	0.3	0.0	0.4	0.1	0.0	0.1	0.8	2.5	4.8	6.0	6.9	6.9	2.78	13.46
8-Mar	3.7	2.2	Z	3.6	2.9	2.9	2.3	2.0	1.4	1.4	1.8	1.9	2.2	2.2	1.9	0.7	0.6	0.9	0.7	2.5	2.3	2.4	2.8	7.1	2.29	7.07
9-Mar	18.8	26.2	Z	47.9	88.6	19.4	23.6	31.8	62.8	58.2	17.5	11.6	4.4	13.7	11.4	13.1	9.1	2.4	1.9	2.5	4.1	22.7	24.8	25.2	23.55	88.62
10-Mar	5.8	3.2	Z	2.9	2.2	1.9	1.7	1.1	0.7	2.3	2.4	2.5	5.4	4.9	3.7	2.9	4.4	4.4	3.1	6.2	8.8	10.2	14.0	7.7	4.46	14.03
11-Mar	8.5	5.2	Z	2.2	2.0	2.3	2.0	2.3	3.3	5.0	3.5	3.7	2.6	2.4	4.0	1.5	1.5	1.4	1.7	2.0	2.3	2.2	2.9	3.6	2.96	8.50
12-Mar	3.8	4.8	Z	7.1	7.0	7.7	6.9	5.0	5.2	5.0	4.9	18.8	37.6	13.2	9.3	7.2	8.7	10.0	7.8	9.9	8.7	8.2	6.3	7.0	9.13	37.64
13-Mar	8.7	15.3	Z	4.2	6.4	4.8	5.9	7.9	8.3	7.6	7.8	7.6	8.2	8.1	8.6	8.2	8.7	8.6	13.0	17.7	15.4	12.9	9.1	7.8	9.16	17.69
14-Mar	9.5	12.9	Z	59.4	41.3	52.5	52.3	31.7	25.1	22.5	20.4	18.4	21.4	11.9	15.4	19.4	15.9	20.4	14.9	13.5	13.0	5.9	9.4	6.6	22.33	59.42
15-Mar	7.7	9.5	Z	6.6	11.5	21.0	13.8	2.4	1.4	3.5	1.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.7	5.4	9.8	27.0	19.0	28.4	7.40	28.35
16-Mar	18.3	4.6	Z	7.5	8.6	8.2	7.2	9.6	6.2	3.8	6.8	6.9	3.0	2.8	1.1	1.6	1.6	1.1	3.2	6.7	7.2	5.3	5.2	14.7	6.13	18.30
17-Mar	19.4	10.1	Z	6.0	6.9	7.7	4.6	5.3	7.5	9.4	7.3	6.1	2.2	0.6	0.1	0.8	2.0	4.5	7.5	6.8	6.1	4.4	3.9	2.4	5.71	19.36
18-Mar	2.6	2.8	Z	5.0	4.2	4.7	5.4	4.8	5.5	5.4	4.9	4.7	7.7	8.1	8.8	9.8	6.4	5.6	4.9	4.6	5.1	4.3	0.0	0.0	5.02	9.80
19-Mar	0.2	0.3	Z	2.4	2.3	6.7	5.3	13.1	11.0	5.8	6.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.8	2.1	2.1	1.8	1.7	2.94	13.11
20-Mar	1.4	0.9	Z	0.6	0.6	1.5	2.9	3.6	3.0	1.4	1.7	2.6	3.5	2.6	10.6	7.7	8.6	10.6	8.4	9.6	11.6	13.7	16.8	8.1	5.73	16.83
21-Mar	11.6	21.0	Z	19.1	26.9	32.3	47.4	23.3	16.6	15.0	15.9	12.9	5.6	3.3	2.5	2.3	3.9	4.5	5.1	7.9	2.4	1.7	1.6	1.7	12.36	47.35
22-Mar	1.3	1.0	Z	2.1	3.2	8.0	7.0	5.5	4.4	2.0	1.4	C	C	C	C	C	0.7	0.9	0.3	1.0	3.7	4.4	4.7	6.2	3.21	8.00
23-Mar	6.9	10.4	Z	6.7	12.6	14.5	16.9	13.8	8.8	25.9	30.6	7.2	6.8	5.8	4.7	2.8	1.5	2.6	3.6	7.4	28.2	26.0	15.1	10.9	11.73	30.62
24-Mar	9.7	7.9	Z	5.3	5.5	6.9	5.8	5.2	7.2	17.7	30.3	25.6	23.9	10.8	6.6	4.7	7.7	9.2	4.1	2.4	2.2	3.8	3.4	5.1	9.18	30.33
25-Mar	3.3	3.9	Z	5.4	7.0	6.4	4.9	8.5	14.0	20.0	13.6	11.8	10.0	6.5	5.7	7.1	12.8	10.0	2.5	6.1	22.0	25.2	13.2	1.4	9.62	25.15
26-Mar	10.7	22.1	Z	60.3	41.9	50.0	30.1	51.0	30.3	4.0	4.2	5.9	10.5	19.8	26.6	25.4	12.3	8.3	9.3	1.5	1.9	2.1	1.9	6.0	18.96	60.29
27-Mar	5.7	11.1	Z	2.7	2.6	2.9	3.6	1.8	2.3	3.2	2.5	3.1	2.0	2.3	3.2	4.5	12.4	7.7	14.8	11.3	6.7	4.6	3.1	3.7	5.12	14.85
28-Mar	3.3	4.6	Z	4.4	4.5	4.2	5.4	10.9	19.3	21.3	11.5	10.3	10.8	12.1	14.1	17.2	17.9	16.4	12.3	13.9	24.8	19.7	26.3	32.5	13.80	32.51
29-Mar	36.7	45.8	Z	62.0	32.2	31.9	27.8	37.9	14.5	4.4	4.2	4.2	2.2	7.1	7.8	18.3	12.6	1.7	4.2	5.6	6.5	3.7	3.9	4.0	16.49	62.05
30-Mar	3.5	4.7	Z	6.9	5.4	7.1	5.3	4.8	5.1	5.1	4.4	3.2	3.0	1.8	1.9	2.0	1.7	1.5	2.1	5.7	20.7	16.2	30.6	41.1	7.99	41.08
31-Mar	27.3	10.2	Z	10.1	13.0	18.2	18.1	8.0	9.2	8.6	4.0	2.6	1.8	1.5	1.9	1.5	1.6	2.5	4.1	10.6	37.1	53.0	53.0	52.0	15.21	53.05
	9.16	8.84	--	12.55	13.29	11.83	12.41	11.25	10.64	9.80	8.01	6.78	6.52	5.12	5.39	5.71	5.29	4.79	4.71	6.18	9.52	11.11	10.83	11.90	Diurnal Average	
	36.66	45.83	--	62.05	88.62	52.51	52.30	51.00	62.82	58.17	30.62	25.59	37.64	19.76	26.64	25.43	17.89	20.44	14.87	17.69	37.15	53.01	53.05	51.97	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 908, Meadows

Calibration Date: March 22, 2017

Parameter: $NO/NO_2/NO_x$

Instrument: Teco 42 CTL

Serial Number: 42c-70987-367

Previous Calibration Date: February 14 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 04300810

Barometric Pressure: 27.10" Hg

Calibration Method: Standard Gas Dilution/ GPT

Cylinder ID: FF27662

Temperature: 19.0° C

Cylinder Concentration: 11.9 ppm NO 12.0 ppm NOx

In Service: Jun 02 2016; exp: Jan 20 2019

Technician: Dean Yustak

Instrument Settings	NO bkg ppb	NO_x bkg ppb	Pre-reactor bkg ppb	NO Coefficient	NO_x Coefficient	NO_2 Coefficient	Monitoring Range
Previous	10.9	11.6	na	0.984	1.005	1.000	300 ppb
Current	8.1	8.5	na	0.970	1.008	1.000	300 ppb

NO	Final Zero: -0.2 ppb	Final Span: 251.2 ppb	As Found Correction Factor: 0.999
NO_2	Final Zero: 0.8 ppb	Final Span: 2.7 ppb	As Found Correction Factor: NA
NO_x	Final Zero: 0.0 ppb	Final Span: 253.8 ppb	As Found Correction Factor: 1.006

Results of Linear Regression			Slope	Intercept	R^2
NO	R_c vs C_c	Previous	100.032600	-13.432050	0.999987
		Current	99.934650	45.393620	0.999950
	C_i vs C_c	Current	1.000000	-0.000022	0.999950
NO_2	R_c vs C_c	Previous	99.668240	86.547570	0.999987
		Current	99.136210	-77.549600	0.999898
	C_i vs C_c	Current	1.000000	-0.000001	0.999898
NO_x	R_c vs C_c	Previous	100.092400	18.643500	0.999987
		Current	99.722040	55.363750	0.999949
	C_i vs C_c	Current	1.000000	0.000013	0.999950

Comments: Sample Flow: 0.532 lpm

Calibration Data Summary (Page 2)

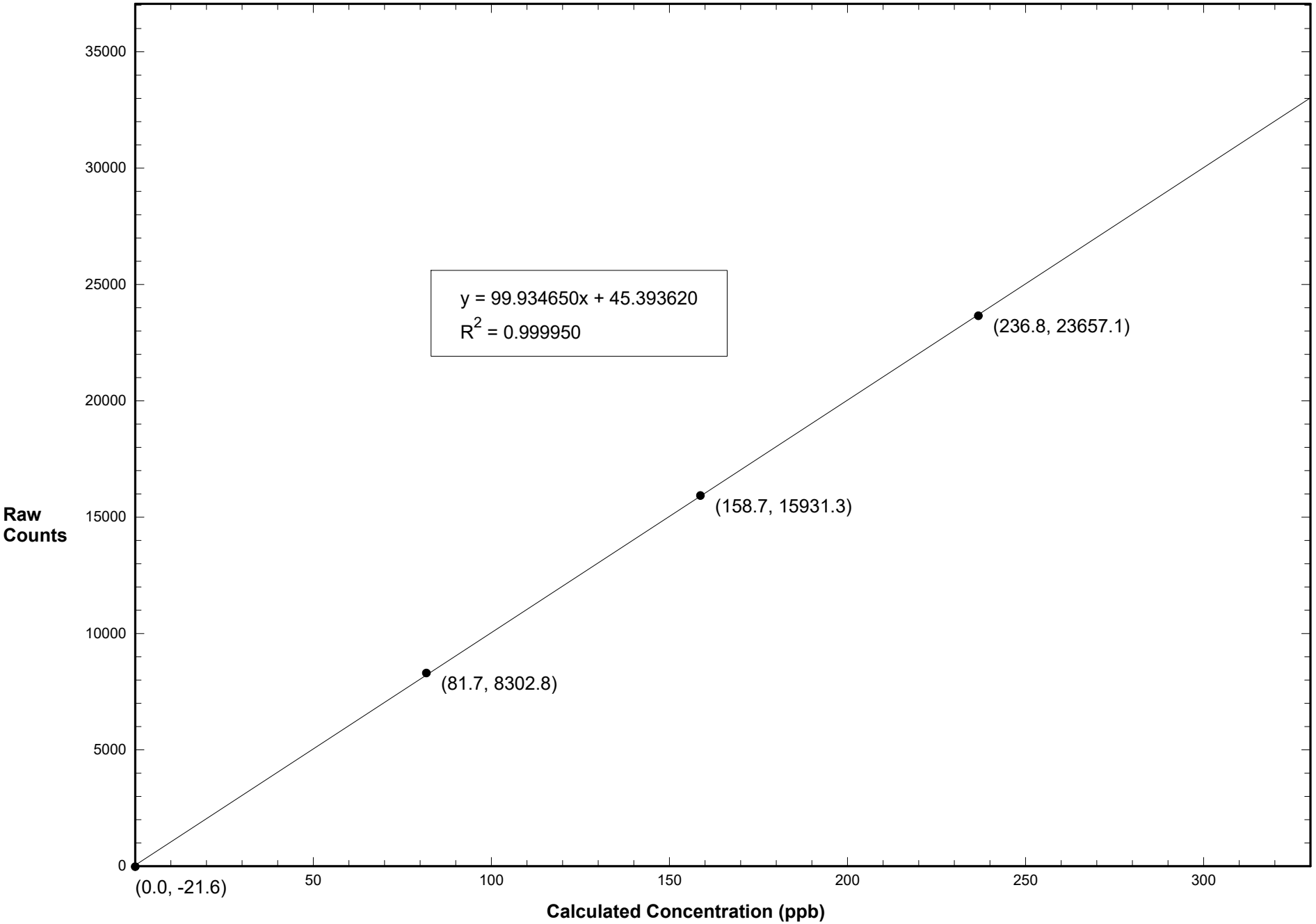
March 22, 2017 - Station 908

NO Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.07673	3.780	236.8	23657.1	236.3	1.002
0.05150	3.810	158.7	15931.3	159.0	0.998
0.02628	3.800	81.7	8302.8	82.6	0.989
0.00000	3.620	0.0	-21.6	-0.7	
NO Calibration				Average Correction Factor:	0.997
0.07673	3.780	238.7	23801.0	238.1	1.003
0.05150	3.810	160.0	16072.4	160.6	0.996
0.02628	3.800	82.4	8342.9	83.1	0.992
0.00000	3.620	0.0	-8.4	-0.6	
NO_x Calibration				Average Correction Factor:	0.997

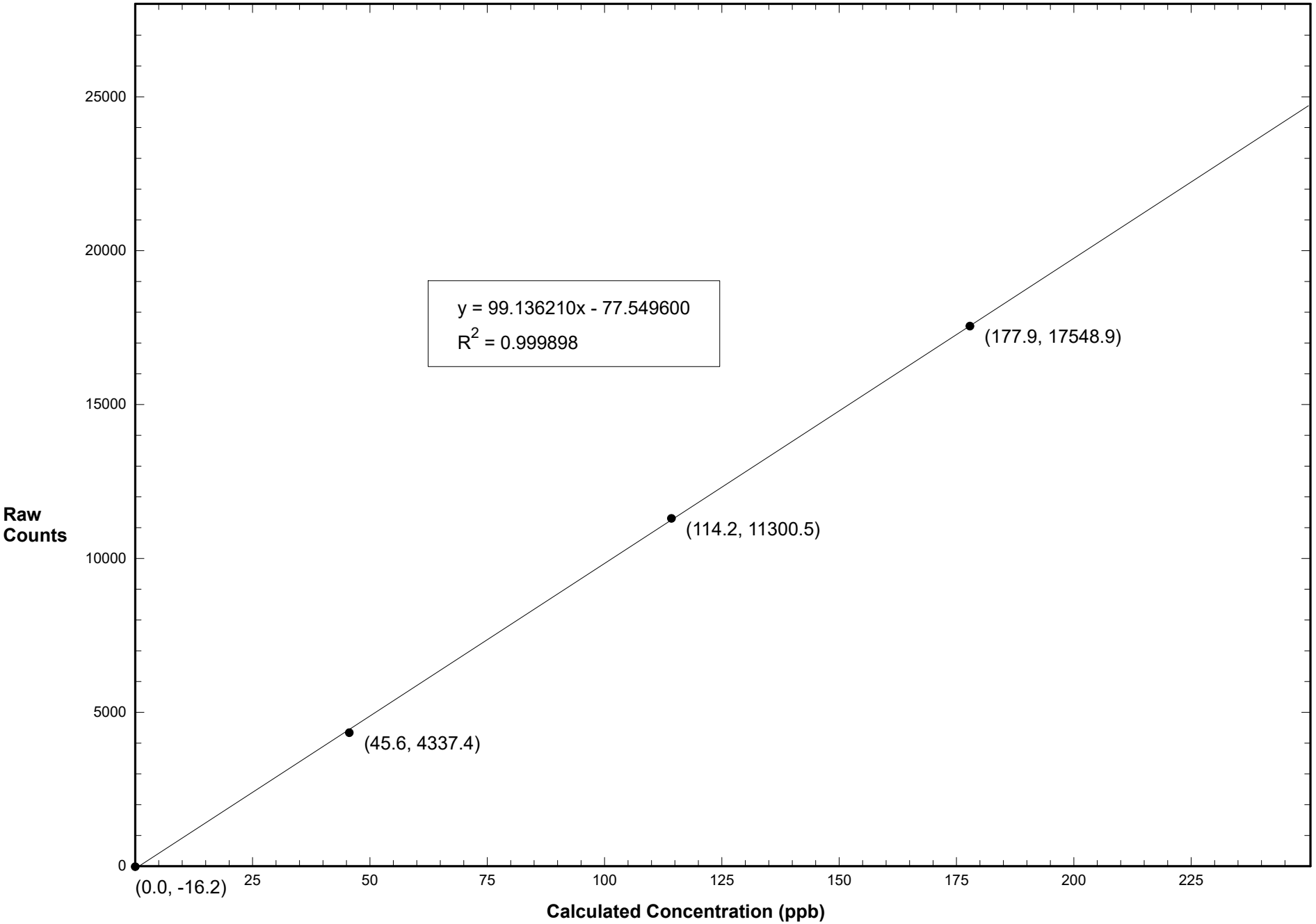
Reference Concentration NO (ppb)	Raw Count Output NO	Calculated Concentration NO (ppb)	Calculated Concentration NO_2, C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i	Converter Efficiency C_i/C_c
239.5	6206.3	61.6	177.9	17548.9	177.8	1.000	1.000
239.5	12564.4	125.3	114.2	11300.5	114.8	0.995	1.005
239.5	19421.7	193.9	45.6	4337.4	44.5	1.024	0.976
			0.0	-16.2	0.6		
					Average Correction Factor:	1.007	
NO_2 Gas Phase Titration						Average Converter Efficiency:	0.993

Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor
NO	0.999	1.002	0.3
NO_2	1.003	1.000	-0.3
NO_x	0.999	1.003	0.4

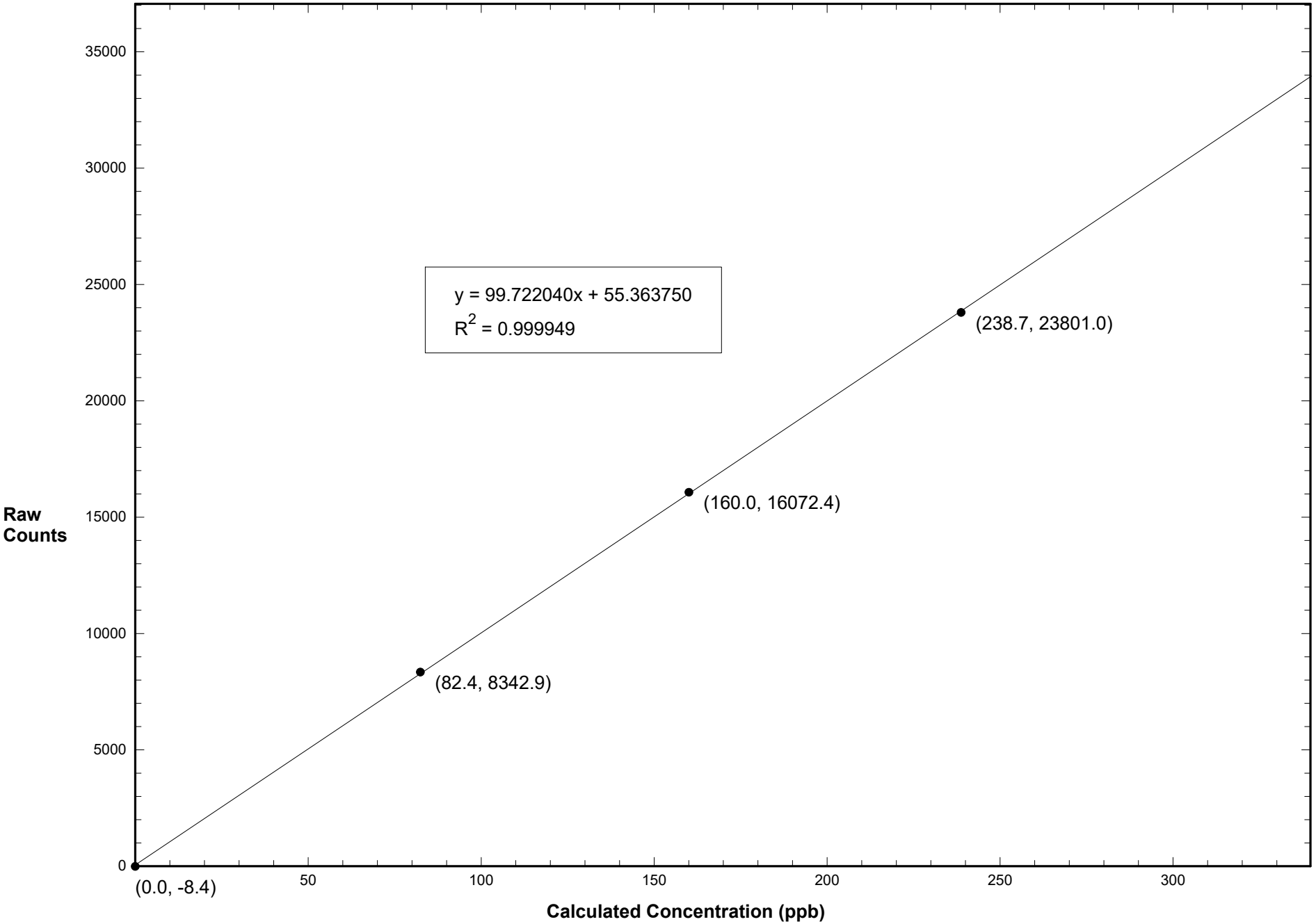
Station 908 NO March 22, 2017: Linear Regression



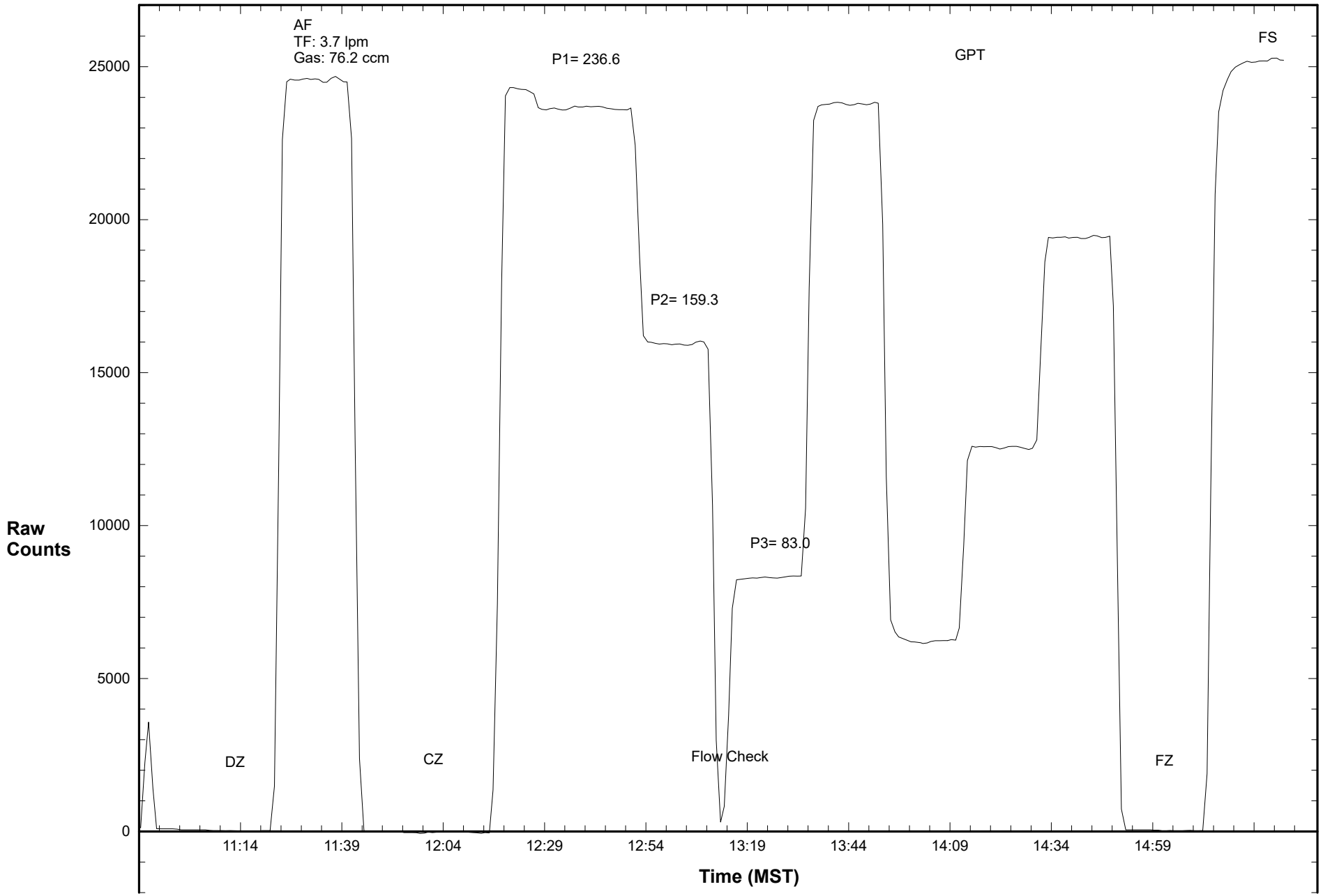
Station 908 NO2 March 22, 2017: Linear Regression



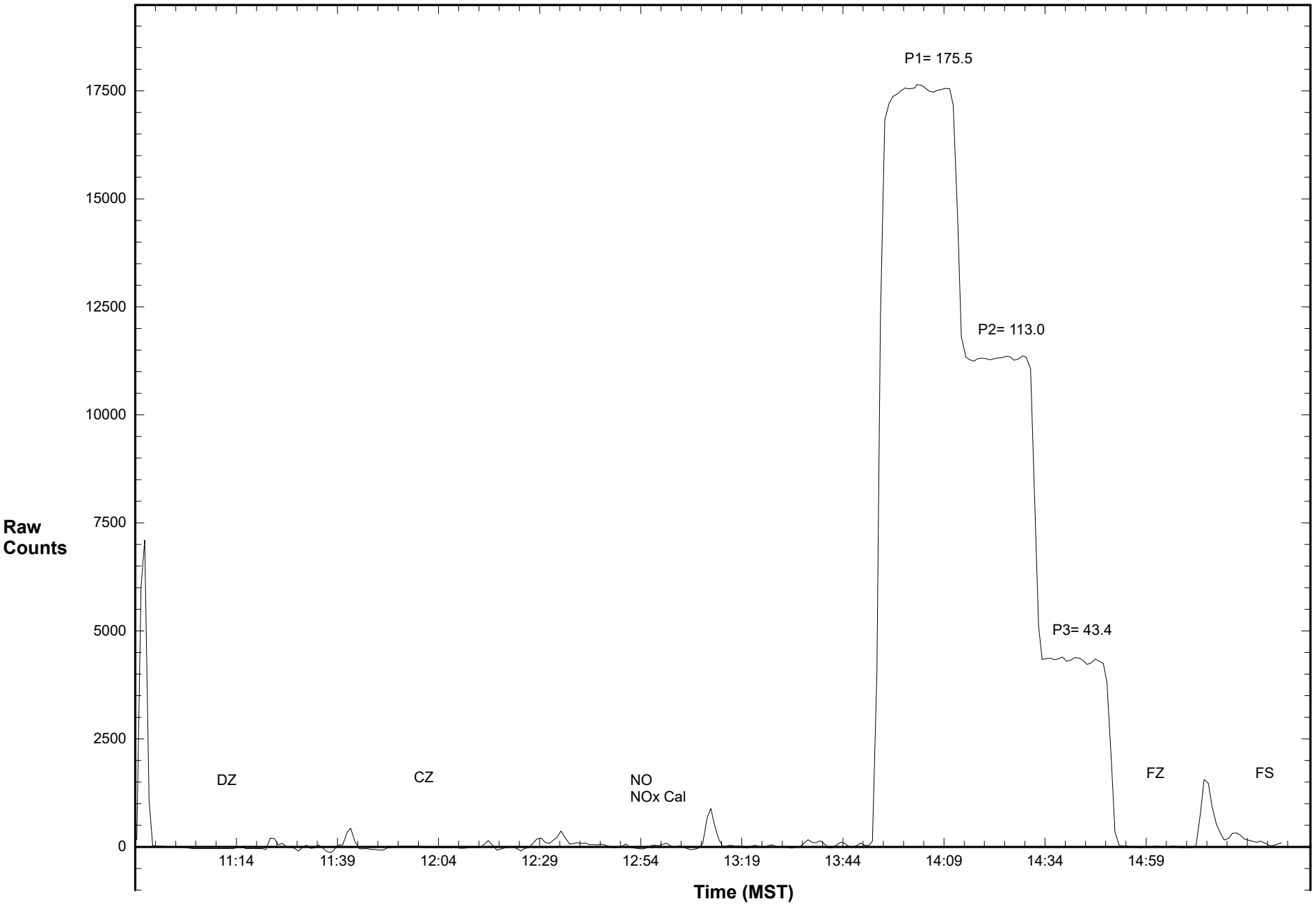
Station 908 NOX March 22, 2017: Linear Regression



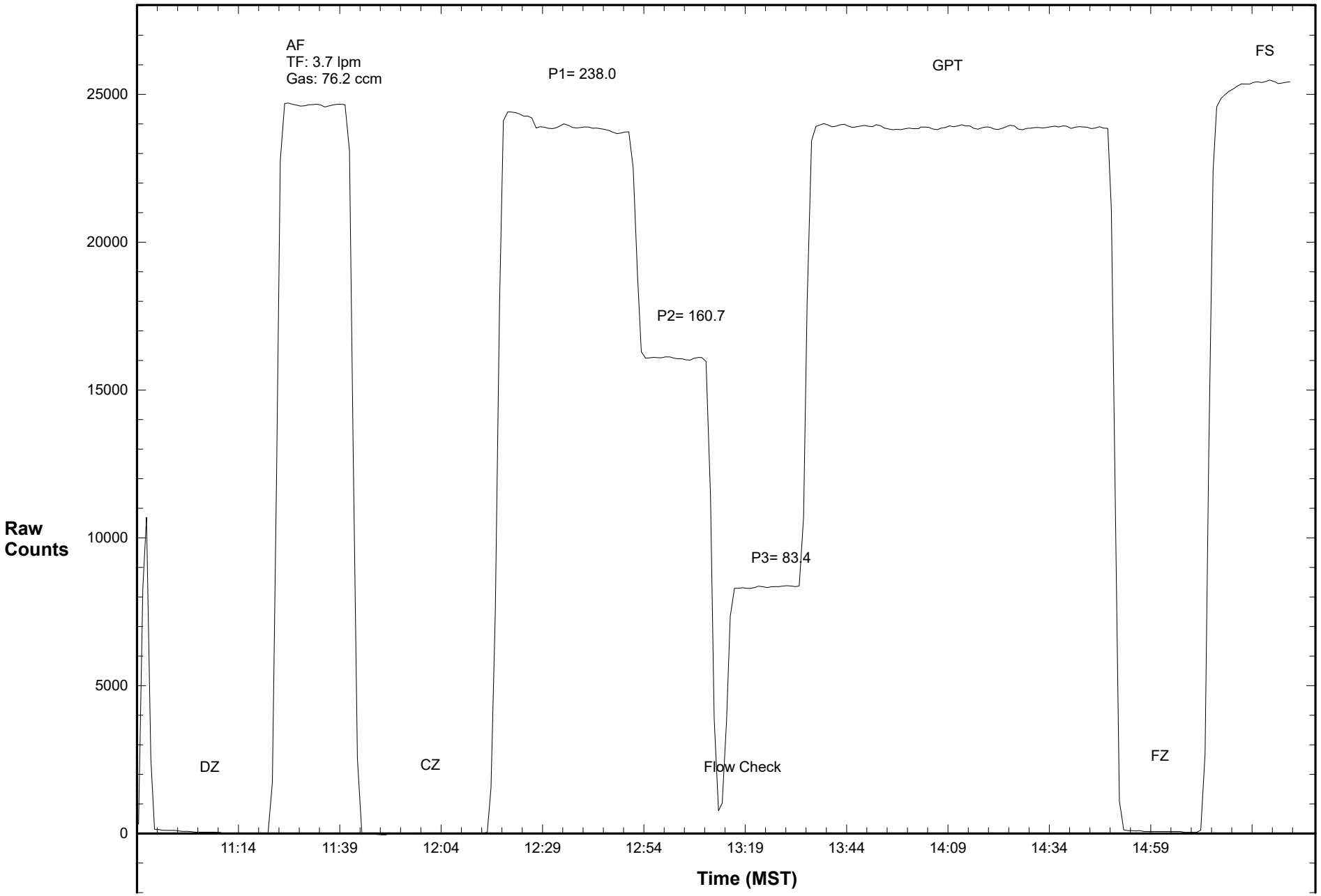
Station 908 NO March 22, 2017: Calibration Graph



Station 908 NO2 March 22, 2017: Calibration Graph



Station 908 NOX March 22, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 908, Meadows

Calibration Date: March 22, 2017

Parameter: SO_2

Instrument: Teco 43 CTL

Serial Number: 0333803285

Previous Calibration Date: February 14 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 04300810

Barometric Pressure: 27.10" Hg

Calibration Method: Standard Gas Dilution

Cylinder ID: FF27662

Temperature: 19.0° C

Cylinder Concentration: 5.92 ppm SO2

In Service: Jun 02 2016; exp: Jan 20 2019

Technician: Dean Yustak

Instrument Settings	SO_2 bkg ppb	SO_2 Coefficient	Monitoring Range
Previous	3.16	1.522	200 ppb
Current	3.26	1.569	200 ppb

Final Zero: -0.1 ppb

Final Span: 62.6 ppb

As Found Correction Factor: 1.040

SO_2 Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.0767	3.780	117.8	17669.1	117.7	1.001
0.0515	3.810	79.0	11884.3	79.1	0.998
0.0263	3.800	40.7	6115.1	40.7	1.000
0.0000	3.620	0.0	4.7	-0.1	

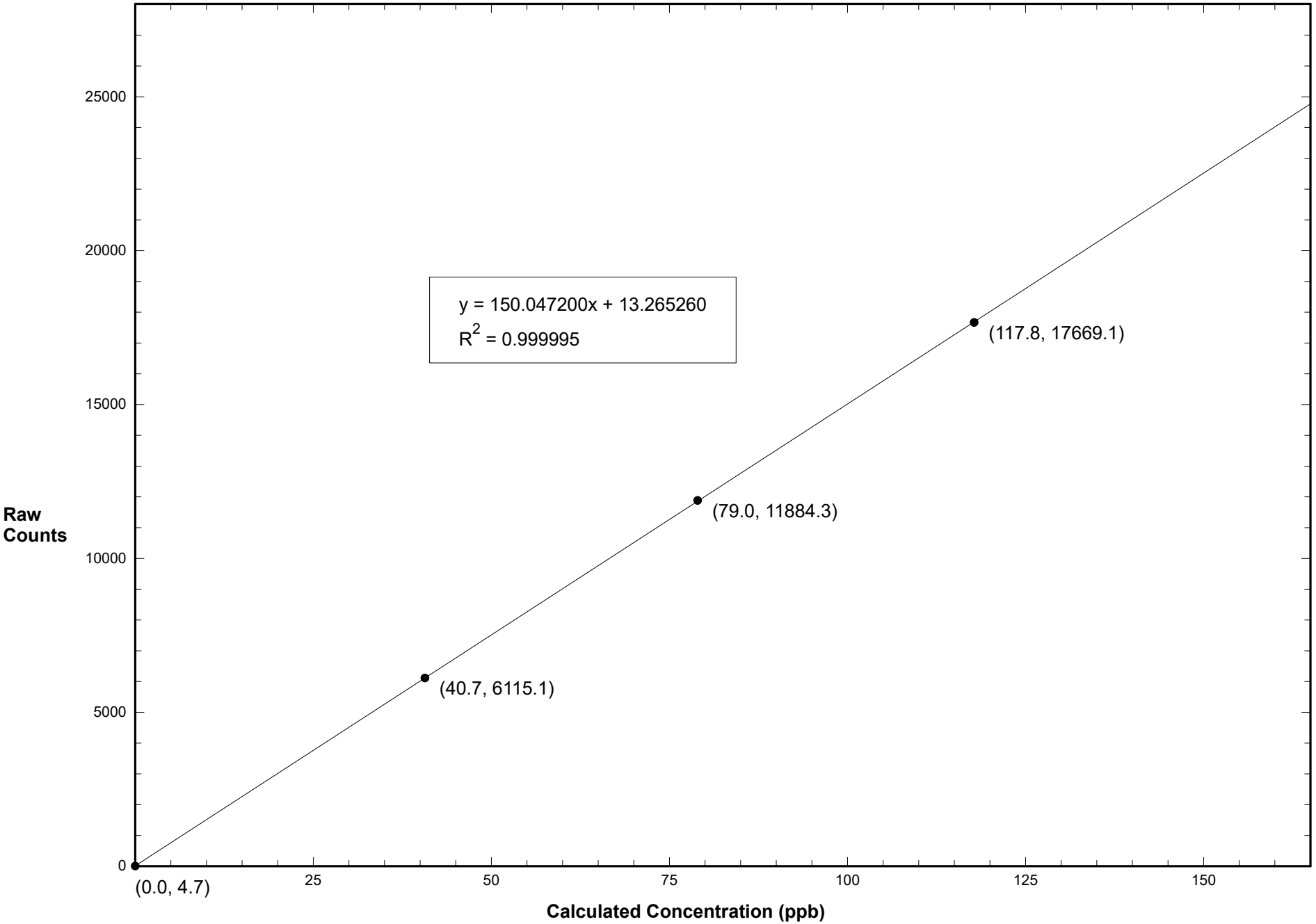
Results of Linear Regression

R_c vs C_c	Slope	Intercept	R^2
Previous	150.632500	-53.812640	0.999905
Current	150.047200	13.265260	0.999995
C_i vs C_c			
Current	1.000000	0.000004	0.999995

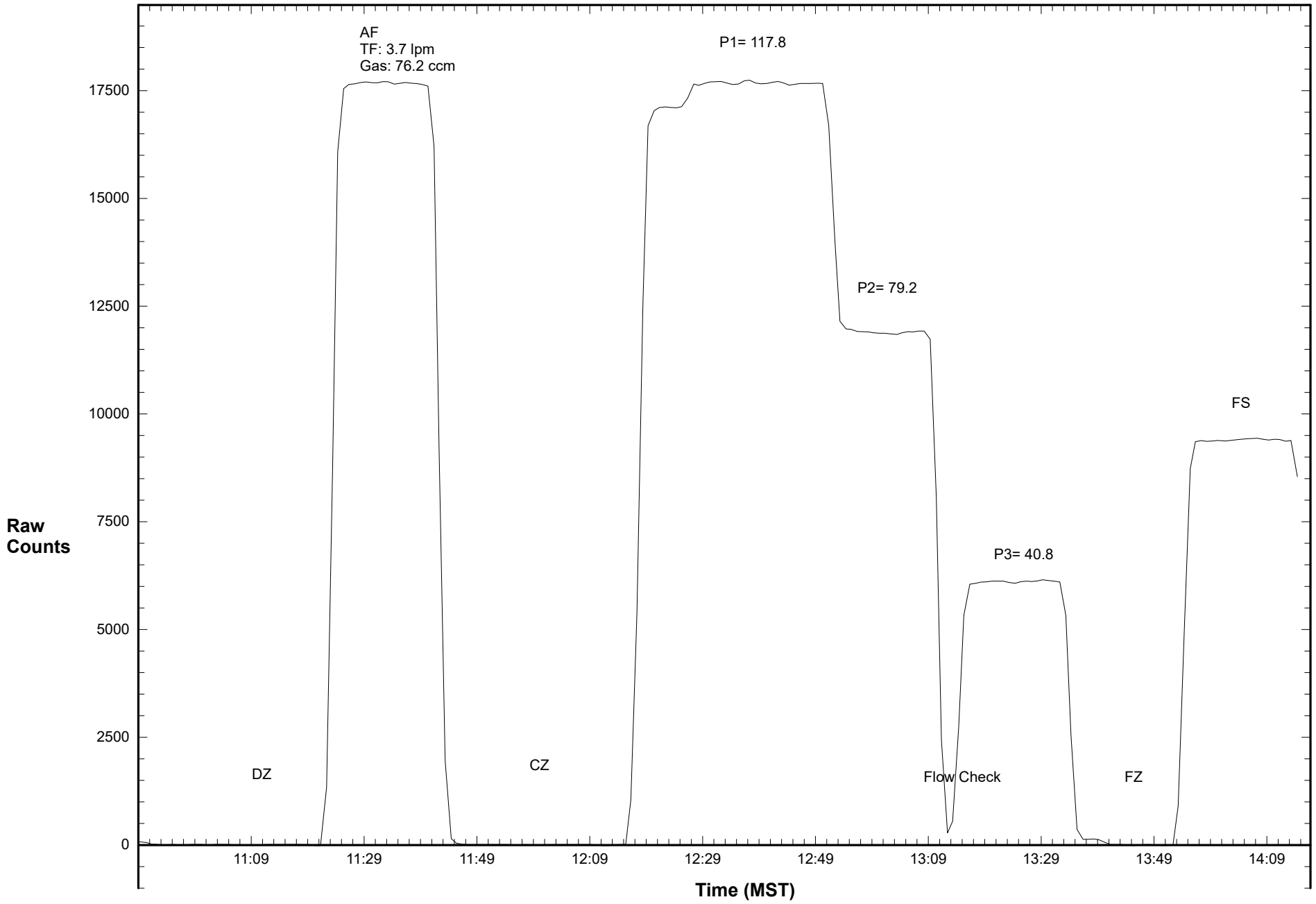
Average Correction Factor:	1.000
Previous Correction Factor:	0.997
Current Correction Factor:	1.001
Percent Change of Correction Factor:	0.4

Comments: Sample Flow: 0.350 lpm

Station 908 SO2 March 22, 2017: Linear Regression



Station 908 SO2 March 22, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT METEOROLOGICAL DATA

AMS 908
MEADOWS
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

WCAS - Meadows
Summary of Hourly Averages

External Temperature (ET) - C
March 2017

Maximum Value: 13.88 C on Mar 31 16:00

Maximum Daily Average: 5.51 C on Mar 31

Minimum Value: -25.9 C on Mar 9 08:00

Minimum Daily Average: -20.23 C on Mar 9

Maximum Diurnal Average: -0.25 C at hour 16

Minimum Diurnal Average: -8.54 C at hour 7

Monthly Average: -4.832 C

Percentiles: P_1 = -23.7 P_{10} = -17.2 Q_1 = -13.4 Median = -2.6 Q_3 = 2.1 P_{90} = 5.7 P_{99} = 11.2

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	-11.6	-11.5	-12.1	-13.2	-14.6	-13.3	-13.0	-12.9	-11.7	-9.6	-8.8	-8.4	-7.5	-7.1	-6.1	-5.4	-5.7	-7.6	-10.5	-12.1	-13.6	-14.6	-15.4	-15.6	-10.91	-5.42
2-Mar	-15.6	-16.1	-16.2	-16.3	-16.1	-16.8	-17.5	-19.1	-18.1	-15.7	-13.7	-10.5	-5.4	-3.4	0.0	0.2	0.7	1.1	-1.3	-4.6	-5.7	-7.0	-7.2	-8.8	-9.72	1.13
3-Mar	-8.5	-8.2	-8.9	-9.9	-4.5	-5.7	-5.8	-4.9	-4.2	2.4	5.4	7.3	9.1	8.9	3.3	2.7	1.7	0.9	-0.3	-1.8	-2.2	-2.3	-2.7	-2.8	-1.30	9.06
4-Mar	-2.8	-3.1	-4.3	-6.5	-8.8	-10.7	-11.9	-12.8	-13.9	-14.7	-14.8	-13.7	-13.6	-12.8	-12.9	-13.0	-13.6	-14.2	-14.7	-14.7	-14.8	-14.8	-14.8	-14.7	-11.94	-2.82
5-Mar	-14.8	-15.0	-15.0	-15.1	-15.2	-15.5	-15.5	-15.7	-15.2	-13.2	-13.4	-11.7	-10.4	-11.8	-11.3	-10.4	-11.1	-12.3	-14.1	-13.8	-14.2	-14.7	-14.3	-14.3	-13.66	-10.37
6-Mar	-14.2	-14.3	-14.3	-14.3	-14.2	-14.4	-14.5	-14.7	-14.6	-13.8	-12.0	-10.9	-9.6	-9.2	-9.8	-10.1	-10.7	-11.4	-13.3	-14.7	-16.7	-16.4	-15.9	-17.6	-13.40	-9.19
7-Mar	-16.2	-16.8	-18.5	-19.4	-16.7	-16.3	-16.0	-15.9	-15.8	-15.4	-13.4	-12.6	-13.4	-12.5	-12.6	-12.4	-12.3	-13.2	-14.9	-16.2	-17.3	-18.8	-19.3	-18.8	-15.62	-12.30
8-Mar	-19.5	-18.6	-18.2	-18.0	-18.5	-19.1	-19.4	-19.7	-20.1	-20.2	-20.2	-19.5	-18.5	-17.9	-17.2	-17.0	-17.1	-17.4	-17.8	-18.6	-19.2	-19.5	-19.5	-20.0	-18.78	-16.95
9-Mar	-21.2	-22.6	-24.4	-25.2	-24.3	-24.4	-25.4	-25.9	-24.0	-23.6	-21.2	-19.3	-17.7	-15.8	-15.6	-15.5	-15.7	-16.6	-17.3	-17.7	-18.0	-18.0	-18.1	-18.1	-20.23	-15.49
10-Mar	-18.4	-18.6	-18.4	-18.4	-18.4	-18.3	-18.0	-17.7	-17.6	-17.6	-17.4	-17.0	-16.6	-16.3	-16.1	-16.0	-16.0	-16.1	-16.5	-16.7	-16.8	-17.2	-17.6	-18.2	-17.32	-16.01
11-Mar	-18.5	-18.9	-19.5	-19.9	-20.1	-20.1	-20.0	-19.9	-19.2	-18.3	-17.3	-16.5	-15.6	-15.1	-14.9	-15.1	-15.2	-15.5	-15.9	-16.2	-16.3	-16.2	-16.2	-16.3	-17.35	-14.92
12-Mar	-16.4	-16.5	-16.5	-16.5	-16.5	-16.5	-16.5	-16.7	-16.3	-15.3	-14.6	-13.7	-13.0	-12.3	-11.8	-11.5	-11.4	-11.5	-11.9	-12.2	-12.9	-13.0	-12.8	-12.8	-14.14	-11.38
13-Mar	-12.8	-13.0	-13.1	-13.1	-13.3	-13.0	-13.0	-13.0	-12.7	-11.8	-11.0	-9.5	-8.4	-6.7	-5.3	-4.4	-3.8	-3.9	-5.2	-7.4	-8.4	-9.4	-10.2	-10.9	-9.73	-3.82
14-Mar	-10.2	-10.3	-11.5	-10.9	-10.6	-10.2	-10.6	-10.2	-8.5	-5.5	-2.1	0.4	2.7	4.8	5.8	5.8	6.2	5.7	4.2	2.5	0.9	-1.0	-2.7	-2.9	-2.84	6.17
15-Mar	-2.8	-3.1	-2.6	1.6	2.7	-0.9	-0.9	1.5	1.7	4.0	7.2	7.4	7.5	7.2	6.6	6.6	6.7	5.3	4.0	2.9	2.1	2.2	2.8	1.9	2.98	7.54
16-Mar	1.7	1.6	1.0	0.5	0.2	0.0	-0.7	-0.7	-0.4	0.5	1.4	1.7	1.0	0.8	1.1	2.0	2.5	2.5	1.9	0.2	-1.6	-1.0	-3.9	-2.6	0.40	2.53
17-Mar	-1.7	-2.2	-2.0	-2.2	-4.0	-5.0	-6.6	-6.6	-3.9	0.6	3.7	6.8	8.7	7.7	7.9	7.8	7.0	4.8	3.2	2.0	1.0	0.7	0.6	-0.5	1.16	8.67
18-Mar	-1.4	-2.1	-2.1	-2.7	-2.9	-2.9	-3.1	-2.8	-1.6	-0.2	1.2	3.3	5.1	6.4	7.6	7.3	5.6	3.3	2.5	1.6	2.0	1.7	-0.5	-0.5	1.03	7.59
19-Mar	0.1	0.3	-0.5	-1.5	-1.8	-2.4	-2.8	-2.6	-0.7	0.2	2.1	3.8	4.7	4.7	4.6	5.2	4.8	3.1	0.9	-0.1	-0.6	-1.3	-2.6	-2.7	0.62	5.22
20-Mar	-3.1	-4.4	-5.1	-5.8	-6.7	-8.1	-9.5	-9.0	-7.3	-5.3	-4.0	-2.5	-1.8	-2.3	-1.9	-1.2	-0.5	-0.4	-2.0	-4.1	-4.4	-4.8	-5.6	-6.4	-4.43	-0.40
21-Mar	-6.3	-5.8	-5.8	-5.7	-6.0	-5.7	-4.9	-3.9	-2.3	-0.9	0.1	1.4	2.4	3.0	3.3	3.5	3.5	3.0	2.6	2.0	1.3	0.9	0.2	-0.8	-0.86	3.53
22-Mar	-1.7	-1.7	-2.0	-2.5	-3.5	-4.3	-4.0	-3.5	-2.6	-1.8	-0.9	-0.1	1.2	2.5	4.0	4.5	4.1	3.8	1.5	0.0	-0.8	-1.5	-2.6	-3.0	-0.62	4.54
23-Mar	-3.2	-3.5	-3.5	-3.9	-4.2	-4.5	-4.2	-4.1	-3.9	-3.9	-2.7	-1.3	0.3	2.1	5.1	5.1	5.7	4.6	3.2	1.5	2.1	1.4	0.5	0.0	-0.47	5.70
24-Mar	-2.2	-3.0	-4.0	-4.0	-4.3	-4.9	-4.0	-3.3	-1.2	-0.1	0.7	1.4	1.4	2.3	3.6	4.3	4.1	3.9	1.8	1.2	0.8	0.8	0.5	0.6	-0.14	4.33
25-Mar	0.6	0.8	0.7	0.5	0.4	0.2	-0.4	-0.7	-0.9	1.4	1.3	4.2	7.1	8.4	9.2	9.5	9.7	9.3	7.8	4.2	3.4	3.7	4.0	3.7	3.67	9.72
26-Mar	1.0	0.1	-0.4	-0.8	-1.3	-2.0	-2.1	-0.1	2.9	3.1	5.5	5.5	7.4	8.4	8.7	8.8	8.7	7.6	5.8	3.2	2.2	2.1	2.1	2.2	3.27	8.77
27-Mar	2.4	2.3	1.9	1.5	1.1	0.5	0.1	0.5	1.1	2.1	2.7	4.9	6.5	6.9	7.6	7.9	8.2	6.8	5.8	3.7	2.6	0.7	-0.1	-0.8	3.21	8.17
28-Mar	-1.2	-1.4	-0.6	-0.2	-0.5	-1.5	-2.5	-2.4	-2.0	-1.5	1.8	4.5	7.6	8.8	10.0	10.6	9.5	9.6	8.5	5.7	4.8	3.7	2.6	1.3	3.14	10.63
29-Mar	0.2	-0.2	-0.7	-1.4	-1.9	-2.2	-1.5	1.3	4.5	7.4	8.2	9.0	8.9	10.1	10.8	11.2	11.3	9.9	8.0	6.5	4.9	4.6	4.3	3.9	4.88	11.26
30-Mar	3.7	3.5	3.3	2.9	2.4	2.1	2.1	2.2	3.0	3.2	3.5	3.9	4.5	5.6	6.2	7.1	6.9	7.1	6.8	3.5	2.9	1.8	1.4	1.1	3.79	7.15
31-Mar	0.6	0.5	-0.3	-1.0	-1.9	-2.8	-2.7	1.5	3.8	5.7	7.9	9.6	10.9	12.2	13.5	13.9	13.6	12.8	11.2	7.5	6.0	3.8	3.1	2.6	5.51	13.88
	-6.91	-7.15	-7.53	-7.78	-7.87	-8.34	-8.54	-8.13	-7.15	-5.74	-4.34	-2.96	-1.77	-1.04	-0.53	-0.25	-0.41	-1.12	-2.46	-3.96	-4.73	-5.26	-5.81	-6.19	Diurnal Average	
	3.73	3.50	3.35	2.87	2.68	2.13	2.14	2.23	4.47	7.38	8.22	9.65	10.89	12.24	13.51	13.88	13.65	12.79	11.19	7.52	6.02	4.61	4.28	3.87	Diurnal Maximum	

WCAS - Meadows

Summary of Hourly Averages

Wind Speed (WS) - kph

March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	7.9	6.9	2.8	4.9	5.1	2.8	6.0	8.7	7.1	6.2	7.7	9.4	8.6	12.4	9.5	9.0	5.9	6.6	5.4	5.0	3.9	5.0	5.7	5.9	2.57	12.38
Dir	E	E	E	E	W	WSW	WSW	W	W	NW	NW	NNW	NNW	NNW	N	NNW	N	ENE	E	ESE	ESE	E	ESE	E	N	NNW
2 Spd	5.3	4.7	2.6	0.9	2.0	3.4	1.6	1.1	1.7	3.1	5.4	7.1	6.6	7.4	15.1	11.6	12.3	10.4	8.3	5.8	5.0	4.4	5.1	1.4	4.43	15.09
Dir	E	ESE	E	SSE	WSW	NW	W	NW	ENE	NE	NE	NE	ENE	ENE	ESE	E	ESE	ESE	ESE	E	ESE	E	E	NE	E	ESE
3 Spd	1.8	4.2	4.0	2.2	14.0	2.8	3.4	2.6	1.1	24.1	24.3	23.3	24.2	12.2	22.0	18.6	15.9	14.2	14.3	8.2	4.7	3.6	1.0	3.2	3.91	24.28
Dir	E	ENE	ENE	NNE	SSW	NE	ENE	ENE	NNE	SSW	SSW	SSW	SSW	SW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NW	WNW	W	SSW
4 Spd	4.8	11.4	17.1	22.2	17.1	17.6	19.4	12.7	15.9	14.8	17.0	15.8	13.1	11.9	11.9	9.9	11.2	8.0	9.7	7.9	6.3	6.5	5.0	4.1	11.36	22.22
Dir	NW	NNE	NE	NE	NNE	N	NNE	N	N	NNW	NNW	N	N	NNW	N	NNE	NNE	NNE	NE	NE	NNE	NE	NNE	N	NNE	NE
5 Spd	6.1	6.2	7.3	6.3	4.3	4.6	0.6	4.3	1.2	2.6	2.9	3.2	1.1	6.9	4.7	6.0	8.5	8.5	5.6	5.7	5.2	3.7	3.0	6.0	3.90	8.49
Dir	N	NNE	NE	E	ENE	ENE	NE	N	WNW	NE	NE	N	E	NE	NNE	NNE	NE	ENE	E	ESE	ESE	E	ESE	ENE	NE	ENE
6 Spd	4.4	7.3	6.2	0.8	5.1	4.9	5.6	6.1	6.9	7.9	6.5	7.0	4.5	3.6	8.1	10.6	8.2	5.8	4.8	2.0	5.4	5.9	5.5	5.8	4.34	10.59
Dir	NNE	NE	ENE	NNE	NNW	NNW	NNW	NW	NW	NW	NNW	NNW	NNW	N	N	NNE	NNE	NNE	NE	NNW	WSW	WSW	NW	WNW	NNW	NNE
7 Spd	6.8	6.7	6.0	9.3	8.2	8.1	8.8	8.8	9.1	7.2	7.5	4.2	4.7	4.8	7.1	8.2	9.7	10.0	4.8	3.2	6.2	6.1	9.1	6.6	3.19	10.02
Dir	NW	NW	W	W	WNW	NW	NW	NW	NNW	N	NNW	N	NE	ENE	NE	ENE	ENE	ENE	ENE	E	ESE	E	ESE	ESE	NNE	ENE
8 Spd	5.7	8.2	6.9	11.8	11.1	12.5	12.9	13.6	13.6	14.0	13.4	11.8	11.5	10.6	9.7	13.2	11.6	10.2	9.4	8.0	5.1	2.1	0.8	AF	9.60	14.05
Dir	ENE	E	ENE	ENE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	E	E	E	E	AF	NE	NE
9 Spd	AF	1.7	4.3	2.5	2.2	1.9	3.8	3.1	4.0	1.2	1.9	5.9	7.2	6.7	11.9	15.8	18.8	18.2	17.7	17.8	19.0	21.6	20.3	20.8	7.51	21.61
Dir	AF	W	WSW	W	WNW	W	W	WSW	W	NW	NNE	NE	NE	E	E	ESE	ESE	E	E	E	ESE	ESE	ESE	ESE	E	ESE
10 Spd	18.5	18.0	16.7	19.0	18.9	18.0	14.9	20.3	25.3	27.0	26.0	24.3	22.7	21.3	20.6	19.8	18.5	17.7	16.3	13.7	15.7	14.4	12.7	14.1	18.74	27.02
Dir	E	E	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	ESE
11 Spd	12.5	12.1	8.2	7.6	7.4	7.3	7.7	9.7	8.7	9.8	11.1	13.1	15.8	16.9	18.2	18.2	17.5	16.1	17.0	16.9	16.0	12.8	11.7	10.9	12.39	18.20
Dir	ESE	ESE	E	E	E	E	E	E	E	E	E	ENE	ENE	E	ESE	E	E	E	E	E	E	E	E	E	E	ESE
12 Spd	12.5	13.7	11.7	9.8	9.9	11.5	9.5	9.7	15.2	15.9	16.6	15.7	18.7	19.8	21.3	22.7	21.5	22.2	22.2	19.7	20.8	18.5	14.7	16.1	15.37	22.68
Dir	E	E	E	E	ENE	E	E	E	ESE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE
13 Spd	18.4	17.8	12.6	13.5	14.6	15.3	13.3	12.5	10.0	10.9	12.1	11.4	8.8	12.4	11.7	15.2	12.8	11.2	11.3	9.5	4.2	5.1	5.2	2.7	11.00	18.42
Dir	ESE	ESE	E	E	ESE	SE	SE	SE	SE	SE	ESE	ESE	E	ESE	ESE	ESE	SE	SE	SE	ESE	ESE	E	E	E	ESE	ESE
14 Spd	4.3	2.1	1.0	2.8	1.1	0.1	2.1	3.2	3.1	4.4	3.6	3.9	13.8	20.4	19.8	17.6	20.1	18.9	13.5	15.2	14.4	9.8	8.5	7.6	8.31	20.41
Dir	E	E	W	SW	NE	WSW	ENE	ESE	ENE	E	E	E	ESE	ESE	ESE	ESE	SE	ESE	ESE	E	ESE	E	E	E	ESE	ESE
15 Spd	2.1	4.1	2.5	9.7	6.2	6.3	11.5	13.3	10.7	8.2	8.7	9.6	10.2	10.6	11.5	8.1	2.1	7.3	6.2	3.0	4.0	6.4	1.0	4.4	4.83	13.27
Dir	ENE	ENE	NE	SW	SW	W	W	WNW	W	W	NNW	NNW	NNW	NNW	NW	NW	W	N	N	SW	SW	WSW	S	WSW	WNW	WNW
16 Spd	8.0	11.3	9.8	7.4	6.1	2.4	0.5	0.7	2.8	4.3	5.1	7.0	4.0	3.8	4.1	5.1	3.7	2.7	4.0	1.7	3.6	3.1	1.9	3.9	2.48	11.33
Dir	SSW	S	SSE	SSE	SSW	SE	ENE	NE	ENE	E	ESE	SSE	E	NE	N	NE	E	E	SE	SE	ESE	SSW	WNW	WNW	SE	S
17 Spd	1.9	2.2	10.8	10.0	6.3	4.4	5.6	5.7	3.2	3.3	8.8	5.9	6.6	13.0	12.1	13.4	17.7	18.9	12.3	8.2	11.1	8.6	11.5	11.2	6.10	18.90
Dir	W	SSW	SSW	SSW	E	ENE	E	E	ENE	SSW	SW	SW	SSW	SSE	SSE	SE	SE	SE	SE	E	ENE	ENE	E	ESE	SE	SE
18 Spd	9.3	7.0	5.5	4.4	3.2	3.6	4.9	2.9	5.9	6.5	8.5	6.6	9.6	8.2	9.8	9.0	8.7	14.9	10.0	8.5	9.9	26.9	33.0	24.9	3.84	33.02
Dir	ESE	ESE	ESE	ESE	E	ESE	E	E	ENE	ENE	NE	NNE	NE	ENE	ENE	ENE	NNW	NW	WNW	W	WNW	WNW	WNW	WNW	NNW	WNW
19 Spd	22.2	21.3	21.0	16.4	16.1	15.9	15.6	13.7	14.9	16.7	19.1	28.7	28.0	27.2	24.9	32.5	32.8	17.0	11.5	10.6	9.3	10.0	10.8	9.8	17.41	32.79
Dir	WNW	WNW	W	W	W	W	W	WSW	WSW	W	W	W	W	W	W	W	W	NW	N	NW	WNW	NW	NW	WNW	W	W
20 Spd	17.2	17.2	16.4	17.0	11.9	8.4	7.1	6.2	9.3	6.9	2.9	2.8	2.7	8.9	12.7	13.7	12.6	13.4	15.7	13.2	15.4	17.7	18.0	16.4	3.07	17.95
Dir	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NNW	N	W	NNE	NE	NE	ENE	ENE	ESE	SE	ESE	E	ESE	ESE	ESE	NE	ESE
21 Spd	19.1	23.4	24.3	23.2	24.1	25.2	27.9	29.1	32.4	34.7	36.5	37.5	36.6	35.3	33.4	30.2	26.4	21.9	19.4	15.5	13.7	13.7	9.7	11.2	24.55	37.51
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	E	E	E	ENE	ESE	SE
22 Spd	13.8	14.0	13.2	8.1	1.1	2.4	5.8	7.9	9.8	8.7	6.9	9.2	8.2	10.9	12.5	6.1	7.9	8.9	7.0	6.7	5.5	6.5	5.5	9.3	2.34	14.03
Dir	E	E	E	E	NE	W	W	WNW	NW	WNW	WNW	WNW	NW	NW	NW	NNW	NE	ENE	ESE	ESE	ESE	ESE	E	ESE	NE	E

WCAS - Meadows
Summary of Hourly Averages

Wind Speed (WS) - kph
March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	7.9	5.7	9.1	13.2	13.1	10.0	11.8	13.8	12.5	4.6	8.3	5.5	2.2	2.7	1.7	4.4	1.8	2.9	0.8	1.6	6.2	2.5	5.7	4.6	4.66	13.78
Dir	ESE	ESE	E	ESE	E	E	E	E	E	NNE	NNW	NW	NW	ENE	NNW	NNE	ENE	NNE	ENE	SE	SSE	ESE	E	SSE	E	E
24 Spd	4.5	6.4	6.5	5.2	7.9	7.6	6.8	8.9	8.9	20.9	24.5	25.4	27.7	25.1	21.3	19.7	18.9	15.9	11.8	10.8	8.8	6.1	1.4	3.9	11.33	27.71
Dir	ENE	ENE	ENE	E	ENE	ENE	E	ENE	E	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	E	E	ENE	E	NW	NW	ESE	ESE
25 Spd	2.4	6.3	8.3	8.8	7.9	9.6	8.5	7.8	6.8	2.0	7.4	5.7	7.6	8.4	12.6	11.0	10.4	9.1	9.0	1.4	9.9	6.0	13.2	7.7	1.44	13.22
Dir	NW	WNW	WNW	WNW	W	WSW	WSW	WSW	SW	W	NE	ENE	E	ENE	ENE	ENE	E	S	SE	NW	WSW	SW	WNW	NW	WNW	WNW
26 Spd	8.4	8.2	8.3	6.1	5.8	7.2	4.4	4.9	5.6	5.7	4.7	6.5	9.7	13.1	16.1	20.5	19.7	22.1	18.0	11.2	12.2	11.5	12.9	15.7	5.26	22.07
Dir	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WNW	NNW	NNW	NE	E	SE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	ESE	ESE	ESE
27 Spd	16.5	13.1	12.5	12.1	11.6	6.9	2.4	2.3	5.1	2.6	5.6	5.0	3.7	4.9	7.7	10.3	12.9	13.4	13.3	11.0	6.3	6.7	5.8	6.7	7.02	16.51
Dir	ESE	ESE	E	ESE	E	ESE	ENE	NE	ENE	NE	N	NNW	N	NE	NNE	ENE	E	E	ESE	ESE	E	E	ESE	ESE	E	ESE
28 Spd	5.1	1.1	1.9	2.4	0.5	2.2	2.0	0.6	2.3	4.3	2.4	5.6	7.8	10.5	10.3	12.2	11.6	14.3	11.3	10.6	5.5	1.3	4.8	5.5	3.48	14.27
Dir	E	NE	SW	ESE	S	SW	SW	SSE	WNW	NNW	NW	NE	ENE	NE	NE	ENE	ENE	E	E	ESE	E	SE	W	SW	ENE	E
29 Spd	7.2	7.2	4.5	3.5	6.7	3.9	5.9	3.8	5.4	4.7	2.6	6.2	9.4	11.1	12.1	13.9	16.4	15.4	10.6	13.1	11.2	10.9	10.7	10.1	3.42	16.40
Dir	WSW	WSW	W	W	WSW	W	WSW	WSW	WNW	W	NNW	NNE	NE	NE	NE	ENE	E	ESE	ESE	E	E	E	E	E	E	E
30 Spd	10.2	10.8	2.2	2.6	5.2	4.7	5.3	6.9	3.6	6.0	7.1	8.2	8.1	8.6	10.2	11.9	10.2	9.7	8.4	9.1	6.0	8.4	7.7	4.3	3.21	11.85
Dir	E	E	ESE	NNE	ENE	ENE	NNE	ENE	NW	N	NE	NNE	NNE	NW	NW	NW	NW	WNW	WNW	W	W	WSW	WSW	WSW	NNW	WNW
31 Spd	5.1	5.3	4.0	4.0	2.6	2.6	0.5	2.7	7.6	10.4	10.8	7.6	8.8	13.1	11.1	9.7	10.0	6.9	4.4	5.3	4.4	5.8	5.2	5.7	5.17	13.09
Dir	WSW	SW	WSW	WSW	E	ESE	SSE	S	SSW	S	S	SSE	S	S	SSW	SW	SSW	S	SSE	WSW	WSW	W	W	WSW	SSW	S
Spd	3.44	3.68	2.87	2.60	1.96	2.02	1.63	1.85	1.67	2.03	2.55	2.63	4.71	5.04	5.45	6.47	7.08	7.63	7.40	5.88	5.20	3.91	3.04	3.26	Diurnal Average	
Dir	E	E	E	E	E	ENE	ENE	ENE	ENE	E	E	E	E	E	E	E	E	E	E	E	ESE	ESE	E	E		
Spd	22.24	23.37	24.29	23.24	24.10	25.17	27.87	29.14	32.41	34.72	36.53	37.51	36.62	35.33	33.44	32.46	32.79	22.22	22.17	19.74	20.82	26.91	33.02	24.92	Diurnal Maximum	
Dir	292.75	109.60	108.78	115.16	112.02	111.77	110.09	119.22	125.98	126.78	128.15	130.54	131.08	133.72	131.38	268.85	280.31	129.58	129.63	131.25	131.73	290.08	296.66	300.07		

Maximum Speed Value: 37.5 kph on Mar 21 12:00
Maximum Daily Speed Average: 24.55 kph on Mar 21
Maximum Diurnal Speed Average: 7.63 kph at hour 18

Minimum Speed Value: 0.1 kph on Mar 14 06:00
Minimum Daily Speed Average: 1.44 kph on Mar 16
Minimum Diurnal Speed Average: 1.63 kph at hour 7

Monthly Average Velocity: 3.869 kph 91.564 deg

Speed Percentiles: P_1 = 0.8 P_{10} = 2.7 Q_1 = 5.1 Median = 8.5 Q_3 = 13.2 P_{90} = 18.9 P_{99} = 32.6

All monthly, daily, and diurnal averages have been calculated using vector methods

Hours in Service:	744
Hours of Data:	742
Hours of Missing Data:	2
Percent Operational Time:	99.7

AF - Analyzer Failure

Frequency Distribution

Direction	Speed Range (kph) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	17	26	15	1	0	0	59
NorthEast	34	53	22	1	0	0	110
East	50	97	92	21	0	0	260
SouthEast	10	10	35	23	9	0	87
South	6	10	3	1	0	0	20
SouthWest	12	16	2	3	0	0	33
West	29	44	10	7	3	0	93
NorthWest	19	45	12	3	1	0	80
Total	177	301	191	60	13	0	742

WCAS - Meadows
Summary of Hourly Averages

Relative Humidity (RH) - %
March 2017

Maximum Value: 98.95 % on Mar 28 06:00

Maximum Daily Average: 90.15 % on Mar 16

Minimum Value: 26.5 % on Mar 19 17:00

Minimum Daily Average: 56.30 % on Mar 19

Maximum Diurnal Average: 85.45 % at hour 7

Minimum Diurnal Average: 55.95 % at hour 16

Monthly Average: 74.148 %

Percentiles: P_1 = 30.7 P_{10} = 53.9 Q_1 = 65.0 Median = 76.2 Q_3 = 84.5 P_{90} = 94.3 P_{99} = 98.2

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	78.5	79.2	80.9	84.2	85.9	85.5	85.6	86.4	82.5	73.3	69.1	67.6	63.5	64.0	62.5	61.0	59.3	62.6	70.6	75.3	80.1	82.3	84.1	85.0	75.38	86.42
2-Mar	84.8	84.8	84.5	83.9	84.1	84.0	84.3	82.9	83.7	84.0	85.4	85.0	71.5	65.0	58.9	57.2	57.6	52.9	59.5	71.9	76.2	81.5	85.3	88.9	76.57	88.95
3-Mar	93.4	93.5	92.4	85.6	67.5	68.3	69.9	66.6	63.1	45.7	39.7	36.5	32.4	34.8	56.9	58.9	58.3	58.9	70.4	89.0	94.5	93.8	93.5	94.4	69.08	94.52
4-Mar	95.1	92.9	88.9	88.1	87.6	87.6	86.6	85.8	82.9	79.2	75.8	70.8	67.8	65.4	65.9	65.4	66.1	66.9	71.0	72.1	73.5	74.1	75.7	77.4	77.60	95.11
5-Mar	79.6	81.8	80.4	81.2	83.9	84.2	84.3	83.8	79.8	71.9	68.2	60.6	54.6	60.0	58.5	56.4	59.1	65.2	72.1	74.0	75.6	76.5	77.3	76.6	72.73	84.32
6-Mar	77.1	75.4	77.4	83.6	84.6	84.5	84.1	84.0	83.1	80.5	74.9	70.0	63.6	61.3	62.2	63.6	64.4	64.6	70.9	75.9	82.0	82.7	82.9	83.9	75.70	84.60
7-Mar	80.0	76.9	78.5	80.9	76.6	75.7	75.0	74.6	74.1	74.0	63.2	57.7	60.7	58.2	60.0	59.4	58.3	60.4	63.9	68.3	72.9	78.5	80.4	80.6	70.37	80.88
8-Mar	79.7	75.0	72.6	69.7	77.6	79.4	79.1	77.0	77.1	74.6	72.4	70.2	68.4	65.6	62.0	62.5	62.4	65.0	72.1	76.9	77.8	79.8	80.0	79.9	73.21	79.98
9-Mar	80.3	79.7	78.5	77.2	78.1	77.1	76.3	75.3	72.7	74.6	76.0	76.8	75.2	68.1	61.3	59.3	58.9	60.5	63.2	65.0	68.7	71.7	71.8	70.9	71.56	80.35
10-Mar	70.0	76.5	79.0	78.8	78.6	78.3	78.6	77.7	76.0	75.0	73.0	71.1	70.1	69.7	68.7	67.9	67.1	67.5	70.9	73.3	74.1	75.8	76.8	77.9	73.84	79.04
11-Mar	79.0	80.3	81.1	81.3	81.2	81.2	81.1	80.7	80.1	78.8	77.2	76.1	75.4	73.5	72.0	77.0	76.5	77.2	77.4	80.5	79.9	80.8	81.8	82.0	78.84	81.99
12-Mar	81.9	82.1	82.0	82.1	82.5	82.3	82.4	82.2	80.6	77.0	73.5	70.1	69.7	65.1	65.4	65.1	65.0	68.2	69.6	73.6	73.6	75.0	75.2	77.1	75.05	82.50
13-Mar	79.4	79.3	78.0	77.5	78.4	77.5	77.4	77.9	76.3	73.5	71.0	66.9	66.5	64.8	63.6	62.9	60.0	61.4	66.4	74.0	77.4	80.0	81.2	81.6	73.04	81.60
14-Mar	80.5	80.2	82.9	84.0	82.4	83.4	83.1	82.7	76.2	75.2	73.2	70.8	66.7	58.9	56.8	60.1	59.1	61.3	68.1	75.8	81.6	85.7	91.1	94.5	75.60	94.45
15-Mar	94.2	93.4	89.9	75.3	69.7	78.7	81.6	71.8	68.7	58.9	40.0	34.5	33.5	32.0	34.2	33.8	39.2	41.9	50.9	61.0	68.2	68.0	67.0	75.6	60.92	94.24
16-Mar	78.0	80.0	86.5	90.9	93.5	94.5	95.9	96.8	96.6	93.8	88.2	85.3	92.2	95.4	95.1	87.8	81.4	78.0	81.1	88.7	96.0	95.0	95.6	97.4	90.15	97.36
17-Mar	97.3	96.6	96.9	97.9	97.7	96.7	95.5	95.1	96.1	87.4	64.0	46.1	35.1	33.6	30.5	30.7	30.2	51.1	63.1	70.4	73.8	77.1	80.2	85.7	72.03	97.90
18-Mar	90.1	92.8	93.0	93.5	95.2	95.2	95.3	94.3	91.6	87.0	80.0	72.2	65.2	61.4	57.6	58.6	65.9	74.5	77.4	80.8	78.4	80.6	91.3	78.5	81.26	95.30
19-Mar	66.3	60.1	60.4	63.6	61.4	62.5	63.6	62.5	56.6	54.4	48.6	37.3	33.8	30.2	27.6	27.0	26.5	38.8	60.8	66.5	70.9	79.0	95.9	96.7	56.30	96.66
20-Mar	86.5	76.3	71.4	65.4	66.5	71.1	75.7	72.4	64.3	55.6	50.9	46.6	44.7	48.9	48.6	47.3	43.8	45.7	53.9	64.2	61.5	66.1	67.2	70.6	61.06	86.52
21-Mar	72.0	72.3	71.5	74.0	75.8	76.7	73.8	71.4	66.6	60.8	58.3	53.8	51.7	52.2	54.0	55.8	59.2	62.8	65.1	67.7	68.8	70.6	73.3	76.1	66.01	76.67
22-Mar	79.4	80.2	81.3	83.4	85.3	87.9	90.7	85.4	81.6	79.4	76.1	73.1	68.4	63.6	60.1	57.2	59.1	61.2	71.3	77.2	79.2	82.1	86.6	90.9	76.70	90.87
23-Mar	93.0	93.8	93.0	94.5	95.4	95.4	95.6	95.8	97.2	97.4	97.2	95.0	84.0	70.6	59.4	57.9	52.0	58.3	62.8	70.7	69.0	71.2	75.7	74.2	81.22	97.36
24-Mar	83.0	85.5	88.9	89.6	91.5	92.2	94.3	93.4	90.3	85.8	79.4	78.4	81.0	79.2	71.4	67.7	70.9	73.6	86.3	90.9	93.9	94.2	94.5	95.1	85.46	95.12
25-Mar	94.2	94.0	93.9	94.9	93.9	92.4	93.7	94.6	94.5	83.7	82.8	71.5	63.1	55.2	44.8	41.5	44.5	46.1	49.4	66.4	68.8	66.1	66.5	69.4	73.58	94.94
26-Mar	79.1	84.5	86.8	89.2	91.2	93.8	93.3	87.1	78.1	73.5	62.5	60.1	50.6	47.0	42.9	44.7	50.7	57.4	65.8	75.3	82.7	84.5	85.1	85.6	72.97	93.78
27-Mar	85.3	85.8	86.5	88.3	90.5	92.7	94.4	94.3	91.5	85.6	82.5	72.6	65.4	62.2	58.4	57.9	59.3	64.2	69.9	78.2	83.9	92.2	94.9	96.6	80.55	96.61
28-Mar	97.4	97.9	98.0	98.3	98.8	99.0	98.4	98.0	98.2	98.2	96.8	73.4	57.5	51.3	46.5	45.4	52.0	45.7	52.9	68.4	77.7	81.0	85.2	90.1	79.42	98.95
29-Mar	94.1	94.7	96.0	97.0	97.0	96.7	87.3	78.6	66.3	53.9	51.3	48.9	48.9	44.7	39.8	40.4	42.2	47.0	56.0	64.9	72.9	71.9	71.7	79.0	68.38	97.02
30-Mar	81.8	80.8	82.5	86.2	93.1	94.2	94.3	93.9	91.4	90.1	88.3	85.2	82.2	80.0	78.7	74.6	71.5	69.5	72.5	86.8	93.2	94.7	96.0	97.1	85.77	97.11
31-Mar	97.3	95.7	95.1	96.9	97.9	98.2	98.0	93.5	79.0	73.1	62.9	55.1	48.7	42.5	35.7	29.5	30.8	34.7	44.0	57.5	62.2	69.2	69.7	70.9	68.26	98.17
	84.14	83.93	84.16	84.41	84.63	85.38	85.45	83.76	80.55	75.99	71.04	65.79	61.68	58.85	56.77	55.95	56.49	59.46	66.11	73.58	77.07	79.42	81.72	83.23	Diurnal Average	
	97.40	97.92	98.03	98.31	98.81	98.95	98.36	98.04	98.18	98.22	97.22	94.99	92.20	95.41	95.13	87.76	81.44	78.03	86.26	90.89	96.02	95.02	95.95	97.36	Diurnal Maximum	

WCAS - Meadows
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
March 2017

Maximum Value: 14.49 kph on Mar 18 22:00

Maximum Daily Average: 4.14 kph on Mar 21

Minimum Value: 0.6 kph on Mar 1 06:00

Minimum Daily Average: 1.40 kph on Mar 6

Maximum Diurnal Average: 2.86 kph at hour 16

Minimum Diurnal Average: 1.89 kph at hour 1

Monthly Average: 2.313 kph

Percentiles: P_1 = 0.8 P_{10} = 1.2 Q_1 = 1.5 Median = 2.0 Q_3 = 2.8 P_{90} = 3.8 P_{99} = 6.5

Hours in Service:	744
Hours of Data:	742
Hours of Missing Data:	2
Hours of Calibration:	0
Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	1.3	1.9	1.4	1.6	2.0	0.6	1.3	1.7	1.9	1.6	2.0	1.8	1.9	2.2	2.2	2.1	1.6	1.2	1.3	1.1	1.3	1.1	1.0	1.7	1.57	2.23
2-Mar	1.2	1.2	1.0	1.0	0.9	1.1	1.2	1.2	0.8	1.8	1.2	1.4	1.3	1.2	4.0	2.9	1.7	1.8	1.8	2.0	1.4	2.3	1.7	1.1	1.55	4.00
3-Mar	1.1	1.0	1.2	1.5	8.6	3.5	1.7	2.1	2.5	4.8	3.5	3.5	3.8	5.0	5.3	4.7	4.4	3.3	2.8	3.3	1.7	2.4	1.3	1.7	3.11	8.60
4-Mar	0.9	7.0	4.8	5.1	5.1	4.7	4.5	3.2	3.8	3.2	3.6	3.6	3.8	2.4	2.5	2.5	2.6	1.7	1.5	1.6	1.3	1.0	1.1	1.1	3.03	7.03
5-Mar	1.7	1.4	1.2	1.1	1.5	2.1	1.1	1.1	1.1	2.5	1.6	1.3	1.5	2.0	1.3	2.5	1.3	1.4	1.2	1.0	1.9	2.0	1.9	1.2	1.55	2.54
6-Mar	2.0	1.3	1.5	1.1	1.6	1.4	0.9	1.2	1.3	1.3	1.4	1.6	1.9	2.1	2.0	2.1	2.0	1.6	1.2	0.9	0.7	0.8	1.0	0.8	1.40	2.07
7-Mar	1.7	1.7	1.8	1.3	1.8	2.0	2.2	2.0	2.1	1.6	1.9	1.7	1.8	1.8	1.8	1.8	1.9	1.5	3.8	0.7	2.3	1.1	1.1	0.8	1.76	3.83
8-Mar	1.7	3.0	1.9	1.9	2.5	1.9	2.0	1.8	2.2	1.9	1.8	1.6	1.7	1.6	1.5	1.9	1.8	1.5	1.5	1.1	0.8	1.5	1.4	AF	1.75	2.99
9-Mar	AF	0.9	0.7	1.0	0.7	1.1	1.1	1.8	1.7	1.5	1.8	2.7	1.3	2.8	2.9	2.9	2.9	2.2	2.3	2.4	3.0	2.7	3.2	3.4	2.03	3.40
10-Mar	2.9	3.0	2.6	2.6	2.8	2.8	2.4	3.6	3.7	3.7	3.6	3.4	2.9	2.9	2.7	2.5	2.2	2.2	2.5	2.8	2.5	2.3	2.8	2.0	2.80	3.73
11-Mar	1.7	1.6	3.1	1.3	1.3	1.3	1.4	1.4	1.5	1.3	1.8	2.0	2.6	2.6	2.3	2.7	2.5	3.2	2.5	2.7	2.8	2.6	1.9	1.5	2.06	3.19
12-Mar	1.6	1.8	1.9	1.5	1.4	1.7	1.5	1.8	1.9	2.8	2.7	2.3	2.6	3.1	3.2	3.2	3.2	3.7	3.3	3.4	3.1	2.3	2.0	2.9	2.45	3.66
13-Mar	2.0	2.1	1.9	2.0	2.4	3.0	2.2	2.2	1.8	1.4	1.5	2.8	2.6	1.8	2.0	2.1	1.7	2.3	2.1	1.6	2.1	1.5	1.2	1.9	2.01	2.98
14-Mar	0.9	1.4	1.5	1.8	1.5	0.8	1.3	1.0	1.5	0.8	1.0	2.2	2.8	1.7	3.0	2.9	3.0	2.4	2.3	3.0	2.6	2.1	1.8	1.4	1.87	3.03
15-Mar	1.4	2.4	2.0	8.3	6.8	2.2	3.9	2.5	1.9	2.1	2.3	2.1	2.2	2.2	2.5	2.8	1.0	2.3	1.3	1.6	1.2	3.3	1.8	0.9	2.54	8.27
16-Mar	3.0	2.5	1.7	1.9	2.8	1.3	1.6	0.8	1.2	1.1	2.2	2.0	1.8	1.1	1.5	2.8	1.6	1.8	2.0	1.4	1.6	2.4	1.3	1.6	1.80	2.95
17-Mar	1.8	2.4	4.0	4.8	1.7	1.7	1.6	1.0	1.1	3.1	4.2	2.0	2.5	3.4	3.4	2.9	3.6	3.2	3.3	2.4	1.9	1.8	1.3	1.6	2.54	4.82
18-Mar	0.9	1.6	1.4	2.1	0.7	1.0	1.4	1.4	1.6	2.0	1.7	1.7	2.0	1.8	2.2	2.1	5.0	4.3	3.5	3.8	3.5	14.5	8.0	5.9	3.10	14.49
19-Mar	4.2	5.0	4.0	3.9	2.5	2.4	1.8	2.2	2.6	3.2	6.2	5.0	5.3	5.7	4.5	6.0	6.2	6.3	4.6	3.6	3.1	3.3	2.7	2.4	4.03	6.26
20-Mar	5.0	4.1	3.5	3.7	3.3	3.5	1.7	1.2	2.4	1.8	2.5	3.0	2.7	1.9	2.4	2.5	2.5	3.8	3.9	1.8	2.1	2.7	2.3	2.0	2.76	5.04
21-Mar	3.4	2.5	2.9	3.2	2.8	3.2	4.1	4.9	5.2	5.9	6.2	6.6	6.4	6.1	5.9	5.6	4.6	4.5	3.5	2.8	2.5	2.5	2.0	2.1	4.14	6.64
22-Mar	1.5	1.7	1.4	2.9	1.6	2.0	2.9	1.7	2.0	2.2	1.9	2.7	2.1	2.1	2.8	2.2	1.9	1.8	1.9	1.4	1.1	1.0	1.7	0.7	1.88	2.93
23-Mar	0.8	2.2	3.1	1.5	2.3	1.8	2.0	2.3	2.3	4.1	2.9	2.3	2.6	1.8	2.6	1.6	1.9	1.8	1.3	2.5	3.4	3.1	2.7	2.8	2.31	4.06
24-Mar	3.0	2.8	2.4	1.3	2.0	2.2	1.8	1.5	4.7	4.4	5.0	4.0	4.7	4.2	4.2	3.7	3.2	3.3	1.7	1.6	1.6	1.2	1.4	2.4	2.85	4.96
25-Mar	1.6	1.6	1.8	1.9	1.7	2.3	2.4	1.6	1.7	1.7	1.5	2.1	2.4	3.4	1.7	1.9	1.8	3.5	2.5	1.6	2.9	1.8	4.1	2.8	2.18	4.14
26-Mar	1.1	1.3	0.8	1.7	0.8	1.3	0.8	1.1	1.4	1.3	1.3	3.0	3.8	3.8	4.1	3.9	3.9	3.4	2.9	1.7	1.8	1.4	1.8	1.6	2.09	4.09
27-Mar	2.3	2.4	2.2	2.0	1.4	2.7	1.7	1.8	1.8	2.5	2.3	2.0	2.0	2.1	2.0	2.2	2.1	2.5	2.2	2.5	1.4	1.6	1.9	2.3	2.09	2.70
28-Mar	1.3	1.4	1.4	1.6	1.4	1.5	2.5	1.1	1.4	1.6	1.6	2.0	2.8	2.1	1.4	1.9	1.8	2.3	2.7	1.3	3.0	2.4	2.5	1.0	1.84	3.04
29-Mar	1.6	1.4	1.5	1.3	1.9	2.4	0.8	1.6	2.2	1.9	2.2	2.6	1.5	1.6	1.5	2.8	3.3	2.5	1.5	3.5	2.1	1.8	1.9	1.8	1.97	3.47
30-Mar	1.6	1.3	3.0	2.5	1.5	1.6	2.2	3.7	2.9	1.9	1.9	2.2	2.3	2.8	2.2	2.3	2.1	1.7	1.9	2.3	1.8	1.4	1.9	1.3	2.10	3.68
31-Mar	1.2	1.3	1.7	2.0	1.5	2.1	1.2	2.2	3.0	2.6	3.5	3.0	3.9	5.0	4.9	4.8	3.5	2.3	1.8	2.1	1.3	1.2	1.4	3.3	2.53	5.01
	1.89	2.17	2.11	2.31	2.28	2.04	1.90	1.89	2.17	2.37	2.54	2.59	2.70	2.73	2.80	2.86	2.66	2.62	2.34	2.10	2.06	2.35	2.06	1.94	Diurnal Average	
	5.04	7.03	4.76	8.27	8.60	4.73	4.53	4.93	5.24	5.92	6.23	6.64	6.43	6.08	5.91	6.01	6.22	6.26	4.61	3.84	3.54	14.49	8.01	5.95	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

WCAS - Meadows
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
March 2017

Maximum Value: 91.21 deg on Mar 14 05:00

Maximum Daily Average: 36.32 deg on Mar 28

Minimum Value: 3.7 deg on Mar 30 22:00

Minimum Daily Average: 7.50 deg on Mar 10

Maximum Diurnal Average: 25.33 deg at hour 10

Minimum Diurnal Average: 14.83 deg at hour 18

Monthly Average: 19.986 deg

Percentiles: P_1 = 5.1 P_{10} = 7.1 Q_1 = 8.8 Median = 13.6 Q_3 = 23.4 P_{90} = 42.6 P_{99} = 83.6

Hours in Service:	744
Hours of Data:	742
Hours of Missing Data:	2
Hours of Calibration:	0
Percent Operational Time:	99.7

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	10.2	9.2	22.2	15.8	36.8	25.5	10.8	6.1	20.6	12.7	14.1	13.2	14.8	13.9	16.6	15.5	28.4	26.9	15.3	12.7	12.4	10.4	13.0	19.8	16.54	36.81
2-Mar	13.4	8.2	15.2	58.1	29.0	32.9	26.3	35.0	21.9	19.2	17.2	13.8	25.8	10.5	19.1	15.8	8.4	11.6	11.5	18.8	16.7	32.3	14.2	52.7	21.98	58.10
3-Mar	23.9	13.7	20.4	55.7	51.2	62.8	61.3	72.3	76.6	7.7	8.3	7.0	7.0	51.8	12.9	13.3	13.8	14.4	12.6	15.7	30.7	44.7	73.0	37.4	32.84	76.58
4-Mar	17.3	19.5	10.9	9.9	19.4	21.5	14.5	20.2	17.8	16.9	14.2	18.5	16.8	21.2	16.6	14.7	11.9	18.0	9.2	12.9	11.4	9.8	12.8	13.6	15.39	21.48
5-Mar	15.4	17.8	11.1	14.2	15.1	11.4	41.7	24.9	71.3	87.8	25.5	27.8	80.5	21.0	17.8	31.9	15.5	13.0	18.6	17.4	13.4	24.1	19.6	12.1	27.04	87.82
6-Mar	29.9	11.1	12.8	66.2	19.2	13.7	10.2	13.2	15.4	13.9	11.7	16.5	33.6	41.8	22.3	13.5	11.5	15.0	13.5	46.9	6.6	9.7	13.1	13.1	19.76	66.21
7-Mar	11.8	18.8	17.5	7.4	15.8	14.6	13.6	13.0	16.3	25.6	15.2	24.0	29.3	29.6	11.6	14.8	11.9	8.5	17.5	12.7	9.9	10.7	7.5	9.9	15.31	29.62
8-Mar	11.1	11.5	11.8	6.9	8.2	7.1	7.0	7.9	7.1	6.8	6.6	7.2	8.1	8.0	8.0	6.2	6.0	7.5	9.9	8.2	9.4	17.6	27.8	AF	9.39	27.76
9-Mar	AF	46.0	7.4	19.7	24.5	34.2	24.8	33.4	12.3	58.3	42.5	11.5	28.3	33.6	29.3	12.7	9.1	6.2	6.2	6.1	7.3	6.2	8.4	8.5	20.72	58.30
10-Mar	8.3	8.2	7.7	7.5	7.5	7.5	7.8	7.8	7.6	7.1	6.5	8.0	8.3	7.6	7.3	7.9	6.2	6.1	6.1	9.5	7.0	8.0	7.1	7.3	7.50	9.53
11-Mar	6.3	9.6	23.4	13.8	8.5	8.3	9.6	9.8	9.4	8.2	12.4	9.8	10.2	13.9	8.6	13.2	9.3	9.8	7.5	7.1	7.3	8.3	8.8	7.5	10.03	23.40
12-Mar	7.5	6.0	7.2	7.2	6.5	6.6	7.9	11.7	5.1	15.0	6.1	7.9	10.6	8.2	8.6	6.7	7.5	7.1	6.7	6.8	6.5	5.1	5.8	5.9	7.50	14.97
13-Mar	8.1	5.6	7.5	7.0	13.5	7.5	7.7	8.0	7.5	7.1	7.5	10.4	21.8	16.1	10.0	9.9	7.4	8.0	6.7	10.2	12.6	16.3	14.0	22.4	10.53	22.42
14-Mar	9.9	30.0	87.3	51.8	91.2	81.8	58.5	17.3	14.0	6.8	16.0	28.0	8.9	4.2	4.7	6.4	5.6	5.3	8.7	14.1	8.7	12.7	12.8	13.4	24.92	91.21
15-Mar	71.7	41.3	69.0	55.2	60.7	23.5	21.4	11.0	17.4	23.7	16.1	11.4	12.0	17.5	10.2	15.1	39.2	18.5	16.6	63.0	9.4	38.1	90.3	22.3	32.28	90.32
16-Mar	24.8	20.4	11.7	16.9	16.3	64.7	84.3	87.7	28.2	17.2	26.7	19.7	28.8	41.4	24.7	32.2	41.6	36.0	26.7	31.8	32.4	41.5	42.7	21.2	34.15	87.74
17-Mar	39.0	77.7	37.8	27.6	26.1	29.5	17.6	12.3	21.6	74.5	55.4	19.9	22.4	21.0	14.1	16.5	9.5	6.6	7.3	27.3	8.5	8.8	10.3	4.5	24.82	77.66
18-Mar	5.1	9.5	12.0	12.5	19.8	12.5	23.4	32.3	15.3	19.8	13.0	31.2	19.1	22.7	18.5	14.6	29.8	12.2	22.0	11.4	14.1	18.9	11.3	11.9	17.21	32.31
19-Mar	10.2	9.9	7.3	9.2	5.9	7.9	8.8	8.2	9.8	8.9	9.8	8.7	10.7	11.3	9.5	13.4	13.1	29.7	23.5	16.7	14.0	24.1	22.0	16.4	12.87	29.65
20-Mar	15.5	12.0	14.0	11.1	14.9	13.8	9.9	15.1	11.9	19.2	68.5	76.8	78.2	14.0	12.0	20.4	14.7	21.6	11.2	7.2	6.6	7.6	6.1	11.5	20.57	78.25
21-Mar	8.5	5.3	5.7	6.8	5.6	5.7	6.5	8.6	7.0	7.9	8.4	8.6	9.2	9.0	8.6	9.3	8.3	8.4	8.1	15.7	7.8	8.5	8.8	6.0	8.01	15.66
22-Mar	9.6	8.2	4.4	10.9	69.1	65.5	30.3	14.5	12.2	15.1	16.9	18.6	15.3	14.0	11.6	20.3	17.6	13.3	12.1	12.1	19.4	10.7	17.2	4.5	18.47	69.13
23-Mar	6.7	10.6	11.3	5.9	10.3	12.0	8.5	7.6	8.5	58.7	19.5	36.3	74.0	53.4	90.5	31.4	43.0	34.2	71.4	74.2	52.6	64.8	41.7	44.4	36.32	90.50
24-Mar	48.3	22.5	18.3	11.6	10.7	8.6	9.8	10.3	39.0	9.7	9.1	8.8	10.1	8.9	11.5	10.4	9.4	15.9	9.8	8.3	10.7	13.3	62.4	53.0	17.93	62.36
25-Mar	46.1	14.3	12.5	11.6	15.4	14.2	12.2	21.6	22.3	51.8	15.8	31.3	32.2	33.0	11.3	13.2	21.9	35.6	29.5	63.7	19.5	13.0	23.2	24.0	24.56	63.73
26-Mar	6.8	6.1	7.1	7.2	7.9	7.5	14.2	17.8	26.0	13.0	21.9	29.1	42.3	19.6	16.0	11.3	10.8	8.4	7.8	11.9	10.9	9.0	6.8	5.6	13.54	42.29
27-Mar	9.6	7.7	9.2	6.8	6.0	9.5	25.6	15.2	16.5	69.8	24.5	26.7	39.7	27.2	16.0	21.4	15.3	6.6	8.6	9.6	17.1	20.6	9.4	8.4	17.80	69.76
28-Mar	12.9	78.7	54.8	41.9	85.3	43.8	47.6	71.3	28.0	27.5	39.0	26.1	25.4	13.6	12.8	13.6	15.5	10.4	7.5	8.3	61.9	81.4	39.7	24.7	36.32	85.35
29-Mar	8.4	10.9	18.3	19.3	8.3	33.6	5.7	7.4	24.5	36.7	57.0	40.5	10.1	10.5	9.0	15.6	17.5	7.5	6.9	8.2	14.8	9.4	13.8	18.6	17.19	56.98
30-Mar	8.1	7.9	64.1	46.2	42.9	15.4	14.6	16.8	51.8	19.4	26.6	16.7	20.4	13.5	11.5	10.6	13.9	11.4	10.2	8.7	7.4	3.7	11.9	9.2	19.28	64.12
31-Mar	15.6	16.9	30.3	57.6	21.4	55.3	61.2	40.5	16.7	19.4	19.5	26.3	26.6	24.8	27.9	30.5	23.4	26.2	34.9	17.9	17.1	11.7	19.3	40.9	28.41	61.25
	17.33	18.54	20.98	22.57	24.94	24.47	22.69	21.90	21.27	25.33	21.02	20.65	25.17	20.54	16.42	15.56	16.03	14.83	14.98	19.19	15.63	19.39	21.77	18.35	Diurnal Average	
	71.74	78.68	87.30	66.21	91.21	81.78	84.29	87.74	76.58	87.82	68.52	76.77	80.53	53.45	90.50	32.17	43.00	35.98	71.44	74.18	61.95	81.40	90.32	53.03	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT CONTINUOUS AIR MONITORING DATA

AMS 959
WAGNER2
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

Summary Report **West Central Airshed Society**

Continuous air quality/meteorlogical monitoring measurements

TransAlta / Wagner2 **March 2017**
Station 959

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile P10	Q1	Median	Q3	P90	Exceedences 1-hour	Exceedences 24-hour	24 Hour Average Max (ppm)
SO_2 (ppb)	35	709	100.0	0.8	0.0	17.6	0.0	0.0	0.1	0.6	1.4	0	0	0.005
NO (ppb)	36	708	100.0	1.0	0.0	22.5	0.0	0.0	0.1	0.9	2.9	-	-	-
NO_2 (ppb)	36	708	100.0	4.4	0.6	24.4	1.5	2.3	3.5	5.5	8.5	0	0	0.011
NO_x (ppb)	36	708	100.0	5.5	0.7	37.3	1.7	2.6	4.0	6.6	11.0	-	-	-
Wind Speed (kph)	0	729	98.0	5.3	0.0	24.8	0.4	1.1	4.0	8.1	12.5	-	-	-
Temperature (^{o}C)	0	741	99.6	-4.7	-28.3	13.5	-17.1	-13.1	-3.0	2.1	6.9	-	-	-
Relative Humidity (%)	0	744	100.0	73.0	22.0	109.0	48.5	59.8	74.8	84.9	98.5	-	-	-
Std Dev Wind Direction (deg)	0	729	98.0	42.3	7.4	102.9	12.6	17.5	34.6	67.2	85.1	-	-	-
Std Dev Wind Speed (kph)	0	729	98.0	2.2	0.2	11.0	0.8	1.1	1.9	2.8	3.8	-	-	-

WCAS - Wagner2
Summary of Hourly Averages

Sulphur Dioxide (SO_2) - ppb
March 2017

Maximum Value: 17.56 ppb on Mar 20 10:00

Maximum Daily Average: 5.11 ppb on Mar 20

Minimum Value: 0.0 ppb on Mar 1 04:00

Minimum Daily Average: 0.00 ppb on Mar 9

Maximum Diurnal Average: 2.16 ppb at hour 14

Minimum Diurnal Average: 0.16 ppb at hour 8

Monthly Average: 0.760 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.1 Q_3 = 0.6 P_{90} = 1.4 P_{99} = 13.1

Hours in Service:	744
Hours of Data:	709
Hours of Missing Data:	35
Hours of Calibration:	35
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.3	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.7	0.4	0.5	0.4	0.2	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.18	0.72
2-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.3	0.3	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.08	0.55
3-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.07	1.25
4-Mar	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.2	0.1	0.5	0.11	0.47
5-Mar	0.4	0.6	Z	0.7	1.2	1.0	0.5	0.4	0.7	0.8	1.0	0.9	0.9	1.7	1.3	2.1	1.6	1.3	1.4	1.2	0.4	0.1	0.2	0.4	0.89	2.08
6-Mar	1.6	1.1	Z	0.6	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.25	1.56
7-Mar	0.0	0.0	Z	0.0	0.2	0.2	0.3	0.4	0.3	0.4	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.13	0.42
8-Mar	0.0	0.0	Z	0.9	1.5	2.0	1.2	1.1	1.2	1.5	1.7	1.3	1.5	1.0	1.1	1.2	1.0	0.7	0.7	0.7	0.5	0.2	0.0	0.0	0.91	2.05
9-Mar	0.0	0.0	Z	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	0.00	0.05
10-Mar	0.1	0.2	Z	0.8	0.5	0.3	0.4	0.4	0.1	0.0	0.1	0.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	0.80
11-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.3	0.6	0.8	0.6	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.20	1.16
12-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.8	0.3	0.4	0.3	0.5	0.6	0.6	0.9	0.8	0.5	0.7	1.1	2.0	0.46	2.00
13-Mar	3.2	2.3	Z	1.1	0.8	0.9	0.9	0.9	0.5	0.9	0.8	1.1	1.0	2.5	2.7	1.3	0.5	0.8	0.8	0.4	0.5	0.4	0.3	0.0	1.07	3.24
14-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.4	0.6	0.6	0.5	0.4	0.5	0.6	0.7	0.5	0.2	0.0	0.1	0.24	0.68
15-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.46
16-Mar	1.0	0.1	Z	0.1	0.1	0.1	0.2	0.0	0.0	0.3	C	C	C	C	0.0	0.3	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.15	0.97
17-Mar	0.0	0.0	Z	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	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.02	0.27
18-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.7	2.1	0.6	0.0	0.0	0.4	0.4	0.4	0.3	2.6	5.4	6.3	0.87	6.35
19-Mar	8.7	4.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.5	0.2	0.1	0.1	4.1	0.1	0.0	2.4	0.1	0.3	0.3	2.1	0.4	4.9	1.30	8.68
20-Mar	0.5	0.2	Z	1.2	0.5	0.0	0.0	0.1	6.7	17.6	15.3	11.9	6.2	16.4	5.7	3.8	14.0	6.5	3.0	2.5	2.1	1.4	1.1	0.8	5.11	17.56
21-Mar	0.5	0.1	Z	0.3	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	0.5	0.0	0.8	0.1	0.0	0.1	0.1	0.11	0.82
22-Mar	0.2	0.0	Z	0.0	0.0	0.2	0.0	0.1	0.3	2.0	0.6	0.5	3.0	16.0	8.0	14.8	1.0	0.8	0.6	0.4	0.2	0.2	0.2	0.2	2.14	16.01
23-Mar	0.0	0.1	Z	0.1	0.2	0.1	0.0	0.0	0.0	0.2	4.2	1.2	1.0	1.3	3.8	7.3	5.1	5.0	6.9	2.9	1.2	0.8	0.4	0.0	1.83	7.26
24-Mar	0.1	0.0	Z	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	0.4	0.0	0.0	0.0	0.1	0.1	0.3	0.05	0.42
25-Mar	0.5	0.3	Z	1.2	0.8	1.1	0.8	0.8	1.2	1.7	2.1	1.7	0.5	0.4	1.1	1.6	0.8	0.7	0.2	0.2	0.0	0.2	0.1	0.1	0.79	2.10
26-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7	0.6	12.8	0.6	1.2	0.7	0.5	0.4	0.3	0.5	0.4	0.4	0.2	0.2	0.86	12.80
27-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.9	0.9	1.9	4.5	6.0	8.6	9.8	10.7	4.3	1.4	0.5	0.1	0.0	0.0	2.25	10.66
28-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	1.4	2.6	3.9	2.9	1.4	0.8	1.0	0.6	0.6	0.3	0.2	0.76	3.92
29-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	8.4	8.0	13.4	9.8	0.9	0.4	0.8	0.7	0.6	0.5	0.3	0.0	0.0	1.96	13.42
30-Mar	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.3	0.2	0.4	0.6	0.8	0.6	0.4	0.4	0.2	0.2	0.2	0.4	0.23	0.77
31-Mar	0.4	0.3	Z	0.2	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.16	0.48
	0.58	0.32	--	0.25	0.21	0.22	0.17	0.16	0.40	0.96	1.02	1.06	1.43	2.16	1.68	1.62	1.33	1.21	0.78	0.51	0.29	0.35	0.33	0.54	Diurnal Average	
	8.68	4.05	--	1.23	1.51	2.05	1.23	1.12	6.73	17.56	15.29	11.92	12.80	16.37	9.78	14.78	14.00	10.66	6.92	2.95	2.09	2.60	5.43	6.35	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb

WCAS - Wagner2
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
March 2017

Maximum Value: 22.50 ppb on Mar 22 14:00

Maximum Daily Average: 3.13 ppb on Mar 20

Minimum Value: 0.0 ppb on Mar 1 01:00

Minimum Daily Average: 0.03 ppb on Mar 4

Maximum Diurnal Average: 2.87 ppb at hour 10

Minimum Diurnal Average: 0.00 ppb at hour 21

Monthly Average: 0.960 ppb

Percentiles: P_1 = 0.0 P_{10} = 0.0 Q_1 = 0.0 Median = 0.1 Q_3 = 0.9 P_{90} = 2.9 P_{99} = 10.4

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.2	2.7	5.4	2.0	2.4	2.1	1.3	1.1	1.1	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.84	5.41
2-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	1.0	6.1	6.2	5.9	6.5	3.8	2.7	2.5	1.3	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	1.63	6.46
3-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.7	2.8	3.8	5.5	7.2	0.4	0.3	1.4	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.02	7.15
4-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.13
5-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.6	1.3	1.3	1.1	1.2	1.9	1.6	2.4	1.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.59	2.38
6-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.4	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.54
7-Mar	0.0	0.0	Z	0.1	0.3	0.1	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.30
8-Mar	0.0	0.0	Z	0.1	0.0	1.2	0.0	0.1	0.6	1.3	2.3	2.4	2.8	2.7	2.4	2.0	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.88	2.85
9-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	3.4	14.1	12.1	7.9	3.8	3.5	3.0	1.4	0.7	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.22	14.12
10-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.5	0.8	0.9	0.9	0.8	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.24	0.87
11-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.6	1.1	1.6	1.3	1.3	0.7	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.34	1.60
12-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.54
13-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.9	1.3	1.6	2.5	2.4	3.2	3.2	2.5	2.2	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.96	3.20
14-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.1	1.7	4.3	6.5	5.4	4.8	3.5	3.2	2.9	2.4	3.0	1.8	0.3	0.0	0.0	0.0	0.0	0.0	1.74	6.49
15-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.8	2.1	8.2	0.5	0.1	0.1	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.53	8.21
16-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.2	0.4	0.4	C	C	C	C	C	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.10	0.45
17-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.9	1.4	1.8	1.7	1.6	0.8	0.3	0.5	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.45	1.85
18-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.3	0.6	1.0	1.2	1.6	1.8	2.5	1.1	0.7	0.5	0.5	0.0	0.0	0.0	0.4	0.9	0.2	0.58	2.46
19-Mar	0.4	0.5	Z	0.1	0.0	0.0	0.0	0.6	1.3	1.6	1.2	0.3	0.0	0.0	2.7	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.6	0.43	2.70
20-Mar	0.0	0.0	Z	0.2	0.1	0.1	0.1	0.8	3.7	10.9	11.9	10.5	5.2	13.4	4.2	2.3	6.4	2.0	0.2	0.0	0.0	0.0	0.0	0.0	3.13	13.38
21-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.13	0.37
22-Mar	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.3	0.9	2.0	1.1	0.7	3.2	22.5	8.8	15.6	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	2.44	22.50
23-Mar	0.0	0.0	Z	0.2	0.2	0.2	0.4	0.4	0.6	0.5	3.6	2.3	2.6	3.6	5.9	8.4	4.8	3.3	2.8	0.1	0.0	0.0	0.0	0.0	1.73	8.40
24-Mar	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.3	0.6	1.7	1.7	1.0	0.6	0.8	0.8	0.6	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.40	1.73
25-Mar	0.0	0.0	Z	0.2	0.1	0.1	0.1	0.5	2.0	2.7	4.2	4.5	2.1	1.2	1.5	1.2	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.92	4.46
26-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.2	1.4	1.7	2.0	2.6	1.1	8.1	0.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.82	8.08
27-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.3	0.6	1.1	1.3	2.5	4.5	5.5	7.1	6.7	4.8	0.8	0.0	0.0	0.0	0.0	0.0	1.53	7.10
28-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.5	1.9	3.3	3.7	3.4	4.6	2.7	2.5	2.5	1.0	4.0	3.3	0.3	0.0	0.0	0.1	0.1	1.48	4.62
29-Mar	0.1	0.3	Z	2.0	2.8	4.3	4.9	6.8	7.6	6.5	2.6	7.4	5.4	6.8	4.3	0.5	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	2.74	7.59
30-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.4	0.7	1.8	3.1	5.2	3.0	2.3	1.7	1.0	1.1	1.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.96	5.16
31-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.2	1.1	1.4	1.9	0.6	0.3	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.31	1.91
	0.02	0.03	--	0.15	0.13	0.20	0.21	0.73	1.99	2.87	2.62	2.45	2.12	2.74	1.95	1.82	1.14	0.76	0.27	0.02	0.00	0.02	0.04	0.04	Diurnal Average	
	0.36	0.54	--	2.04	2.83	4.28	4.90	6.79	14.12	12.14	11.89	10.47	8.08	22.50	8.79	15.61	6.67	4.79	3.32	0.34	0.02	0.42	0.92	0.62	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

WCAS - Wagner2
Summary of Hourly Averages

Nitrogen Dioxide (NO_2) - ppb
March 2017

Maximum Value: 24.43 ppb on Mar 23 05:00

Maximum Daily Average: 10.65 ppb on Mar 23

Minimum Value: 0.6 ppb on Mar 7 13:00

Minimum Daily Average: 1.03 ppb on Mar 4

Maximum Diurnal Average: 5.51 ppb at hour 5

Minimum Diurnal Average: 3.81 ppb at hour 13

Monthly Average: 4.428 ppb

Percentiles: P_1 = 0.7 P_{10} = 1.5 Q_1 = 2.3 Median = 3.5 Q_3 = 5.5 P_{90} = 8.5 P_{99} = 17.1

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	4.3	4.4	Z	3.5	3.6	3.3	4.8	4.1	5.8	6.8	4.0	3.9	3.4	2.7	2.6	3.0	3.3	3.8	4.2	4.9	4.6	4.0	3.8	3.8	4.03	6.79
2-Mar	3.3	3.9	Z	9.0	10.7	10.8	9.5	9.7	9.6	6.1	5.4	4.3	5.2	5.4	6.6	5.5	5.6	8.0	8.1	7.6	7.0	5.8	5.1	4.4	6.80	10.77
3-Mar	4.3	3.9	Z	4.0	6.9	6.2	6.5	6.7	4.5	3.5	5.0	7.1	2.0	1.8	4.6	3.8	3.5	2.4	1.2	1.3	1.2	1.2	1.2	1.3	3.66	7.14
4-Mar	1.2	1.2	Z	1.4	1.1	1.1	1.1	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.8	1.0	1.4	1.2	1.6	1.4	1.3	1.3	1.03	1.62
5-Mar	1.5	1.8	Z	2.7	2.8	3.0	2.8	2.4	2.5	2.2	1.8	1.6	1.6	2.2	2.2	3.5	3.5	3.4	5.4	6.6	7.3	6.8	6.5	6.9	3.53	7.28
6-Mar	8.5	7.4	Z	2.6	2.8	2.0	1.8	2.0	2.0	1.9	1.4	1.2	1.3	1.2	1.1	1.1	1.1	1.4	1.4	1.3	1.8	2.9	2.5	2.3	2.30	8.53
7-Mar	2.7	4.0	Z	14.3	22.2	9.9	1.6	1.0	1.2	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	1.2	1.2	1.3	2.5	3.0	2.6	2.3	3.34	22.24
8-Mar	3.1	3.2	Z	7.5	7.0	8.1	6.2	4.0	3.2	3.0	2.7	2.1	2.2	2.2	2.2	2.4	3.1	3.7	4.5	4.5	4.1	4.0	3.4	3.2	3.90	8.14
9-Mar	3.7	4.0	Z	4.5	4.3	4.3	5.1	10.3	11.9	8.0	5.3	3.3	3.1	3.1	1.9	1.5	2.5	2.6	2.4	2.8	2.6	2.4	2.7	2.8	4.13	11.91
10-Mar	2.8	2.5	Z	2.1	2.1	1.9	2.1	2.1	1.8	1.4	1.2	1.4	1.4	1.5	1.5	1.4	1.5	1.6	1.6	2.0	1.8	1.7	1.5	1.7	1.78	2.81
11-Mar	1.6	1.8	Z	1.7	2.0	2.1	2.5	2.6	2.3	2.2	2.2	1.9	1.9	1.6	1.3	1.4	1.6	1.7	1.9	1.9	2.1	2.1	2.2	2.0	1.95	2.59
12-Mar	2.1	3.8	Z	4.1	4.6	4.7	3.0	2.2	1.9	1.5	1.3	1.3	1.2	1.2	1.3	1.5	1.7	1.8	2.0	2.0	2.2	2.6	3.0	3.2	2.35	4.72
13-Mar	3.5	3.3	Z	3.2	3.2	3.3	3.2	3.6	4.1	3.9	3.9	4.1	4.0	4.6	5.1	5.1	5.9	8.9	10.5	9.1	8.0	6.9	6.7	6.9	5.26	10.53
14-Mar	6.1	6.3	Z	10.8	10.6	9.0	10.6	9.4	8.5	9.1	7.5	6.4	6.2	6.8	8.5	8.6	8.8	8.9	9.3	7.5	6.0	5.0	4.3	3.9	7.74	10.75
15-Mar	3.8	3.9	Z	4.1	4.1	3.4	4.9	4.5	3.7	4.7	2.3	1.5	1.5	1.4	1.6	3.2	1.6	1.3	1.6	1.7	1.7	2.4	2.7	3.6	2.84	4.93
16-Mar	7.8	3.1	Z	1.4	3.0	5.7	4.4	4.0	3.7	2.8	C	C	C	C	C	1.4	1.4	1.5	1.5	1.4	1.3	3.2	7.3	7.9	3.49	7.90
17-Mar	5.7	4.1	Z	2.7	2.8	3.1	2.8	2.7	2.4	2.6	3.2	3.3	3.3	3.0	2.2	3.1	3.9	4.5	5.4	6.7	5.1	4.1	3.3	3.0	3.61	6.66
18-Mar	2.9	2.9	Z	2.2	2.2	2.2	2.3	2.4	2.8	2.9	2.6	3.1	3.1	4.0	3.2	3.2	3.6	5.7	5.2	4.8	6.9	9.5	12.0	12.7	4.46	12.66
19-Mar	16.3	11.2	Z	1.6	2.2	2.1	3.2	6.4	5.8	4.9	3.8	2.4	2.0	2.1	6.9	2.0	2.1	6.7	2.2	2.1	2.1	6.2	1.8	14.1	4.79	16.32
20-Mar	2.3	1.8	Z	4.2	2.5	2.0	2.5	3.3	6.7	13.1	12.2	11.3	7.3	13.6	6.1	5.6	12.5	8.3	5.9	5.5	5.9	5.0	4.3	3.9	6.34	13.60
21-Mar	3.5	3.2	Z	3.2	3.1	3.0	2.9	2.9	3.0	3.0	2.6	2.4	2.3	2.4	2.4	2.5	3.0	3.7	2.9	2.6	2.5	2.6	2.7	2.4	2.82	3.70
22-Mar	2.3	2.4	Z	2.2	2.3	2.4	2.5	3.5	4.4	7.0	4.5	3.6	7.1	14.4	9.6	15.8	3.1	3.1	3.6	3.3	2.9	3.3	3.3	3.3	4.79	15.79
23-Mar	3.2	3.1	Z	15.0	24.4	22.9	14.6	5.0	4.2	3.8	9.8	6.0	5.5	5.3	7.8	11.0	11.2	13.0	20.8	19.0	14.5	10.5	8.0	6.2	10.65	24.43
24-Mar	5.0	4.6	Z	3.7	3.8	4.9	4.2	3.9	4.5	5.0	4.1	4.0	4.0	3.6	3.4	3.2	3.7	4.2	3.3	3.1	3.1	3.4	3.6	4.5	3.94	5.03
25-Mar	5.3	4.3	Z	8.3	5.2	6.3	4.9	5.7	6.9	6.3	5.4	6.1	4.5	4.1	4.8	5.1	4.8	4.6	4.5	4.4	5.8	7.8	6.1	4.3	5.45	8.29
26-Mar	3.7	4.6	Z	5.1	3.8	5.0	6.6	5.2	4.6	5.8	6.1	3.9	10.5	2.9	3.7	2.9	2.5	2.3	2.1	2.2	2.6	2.9	3.3	3.0	4.16	10.50
27-Mar	2.7	2.5	Z	2.2	2.3	2.3	2.2	2.4	2.5	2.6	3.0	3.1	3.9	5.8	6.8	9.1	10.4	12.5	8.5	5.3	3.7	3.1	2.8	2.9	4.46	12.53
28-Mar	2.8	2.9	Z	3.5	3.4	3.6	3.7	3.6	4.1	4.4	3.9	4.7	6.7	5.8	6.4	6.6	6.3	12.9	20.6	17.8	11.6	8.1	7.7	7.4	6.89	20.59
29-Mar	6.8	8.3	Z	10.1	12.6	12.3	11.3	7.3	5.5	6.9	5.7	11.8	10.3	12.9	9.7	3.1	2.7	4.3	4.5	5.1	4.5	4.3	3.8	3.8	7.29	12.88
30-Mar	3.8	3.4	Z	5.8	5.6	5.1	5.5	4.9	5.9	6.0	6.7	5.4	4.0	3.7	3.6	4.4	4.5	3.6	3.3	3.0	3.1	4.2	4.6	6.0	4.61	6.69
31-Mar	4.7	4.3	Z	3.6	3.7	3.4	3.1	2.8	3.5	4.5	3.1	2.8	3.2	2.9	2.7	2.8	2.8	3.3	3.2	4.3	9.1	14.6	10.8	8.4	4.67	14.57
	4.24	3.94	--	4.85	5.51	5.15	4.59	4.23	4.34	4.44	4.09	3.85	3.81	4.11	4.04	4.04	3.99	4.71	4.97	4.72	4.49	4.68	4.35	4.63	Diurnal Average	
	16.32	11.22	--	14.99	24.43	22.89	14.64	10.31	11.91	13.08	12.25	11.79	10.50	14.45	9.66	15.79	12.53	13.03	20.80	18.95	14.54	14.57	12.03	14.11	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb

West Central Airshed Society

WCAS - Wagner2
Summary of Hourly Averages

NOx (NO_x) - ppb
March 2017

Maximum Value: 37.29 ppb on Mar 22 14:00

Maximum Daily Average: 12.66 ppb on Mar 23

Minimum Value: 0.7 ppb on Mar 4 15:00

Minimum Daily Average: 1.02 ppb on Mar 4

Maximum Diurnal Average: 7.40 ppb at hour 10

Minimum Diurnal Average: 4.00 ppb at hour 2

Monthly Average: 5.470 ppb

Percentiles: P_1 = 0.8 P_{10} = 1.7 Q_1 = 2.6 Median = 4.0 Q_3 = 6.6 P_{90} = 11.0 P_{99} = 24.4

Hours in Service:	744
Hours of Data:	708
Hours of Missing Data:	36
Hours of Calibration:	36
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	4.2	4.4	Z	3.6	3.6	3.3	4.7	4.3	8.6	12.3	6.0	6.4	5.6	4.1	3.7	4.2	4.2	4.1	4.2	4.8	4.5	3.9	3.8	3.8	4.89	12.28
2-Mar	3.2	3.9	Z	9.2	10.8	10.9	9.6	10.7	15.7	12.3	11.3	10.7	9.1	8.1	9.2	6.8	6.3	8.7	8.2	7.6	7.1	5.8	5.1	4.4	8.46	15.67
3-Mar	4.2	3.9	Z	4.2	7.0	6.3	6.6	7.5	7.3	7.4	10.7	14.4	2.4	2.0	6.1	4.6	4.0	2.4	1.1	1.2	1.2	1.2	1.1	1.3	4.71	14.35
4-Mar	1.2	1.2	Z	1.5	1.1	1.1	1.1	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.9	1.3	1.1	1.5	1.3	1.2	1.2	1.02	1.53
5-Mar	1.4	1.7	Z	2.8	2.9	3.0	2.8	2.6	3.1	3.6	3.2	2.8	2.9	4.2	3.9	6.0	5.1	3.8	5.4	6.6	7.3	6.8	6.5	6.9	4.14	7.26
6-Mar	8.5	7.4	Z	2.7	2.8	2.0	1.7	2.0	2.2	2.5	2.0	1.6	1.7	1.4	1.3	1.2	1.2	1.4	1.3	1.2	1.8	2.8	2.4	2.2	2.40	8.48
7-Mar	2.7	4.0	Z	14.5	22.6	10.0	1.6	1.0	1.4	1.0	1.0	1.0	0.9	1.0	1.0	1.0	0.8	1.3	1.1	1.2	2.4	2.9	2.6	2.3	3.44	22.61
8-Mar	3.1	3.2	Z	7.6	7.0	9.5	6.2	4.2	3.9	4.4	5.2	4.6	5.1	5.0	4.7	4.4	4.7	4.4	4.5	4.4	4.0	3.9	3.3	3.2	4.81	9.46
9-Mar	3.6	3.9	Z	4.6	4.3	4.4	5.1	13.7	26.1	20.2	13.1	7.1	6.7	6.1	3.3	2.3	3.4	3.0	2.3	2.7	2.5	2.4	2.7	2.7	6.36	26.12
10-Mar	2.7	2.5	Z	2.2	2.1	1.9	2.0	2.2	2.1	1.7	1.7	2.2	2.3	2.4	2.3	1.9	1.9	1.8	1.6	1.9	1.7	1.6	1.5	1.6	2.00	2.75
11-Mar	1.5	1.7	Z	1.8	2.0	2.1	2.5	2.8	3.0	3.4	3.9	3.3	3.2	2.3	1.8	1.7	1.8	1.8	1.8	1.8	2.0	2.1	2.1	1.9	2.28	3.88
12-Mar	2.1	3.7	Z	4.2	4.6	4.7	2.9	2.3	2.4	2.1	1.9	1.8	1.7	1.5	1.6	2.0	2.0	1.8	1.9	1.9	2.1	2.5	2.9	3.2	2.51	4.72
13-Mar	3.4	3.2	Z	3.3	3.2	3.3	3.2	3.8	5.0	5.2	5.6	6.6	6.6	7.8	8.4	7.6	8.2	10.8	11.0	9.1	8.0	6.9	6.7	6.9	6.25	10.99
14-Mar	6.1	6.3	Z	10.9	10.7	9.1	10.8	11.2	12.8	15.6	12.9	11.2	9.7	10.0	11.5	11.1	11.8	10.8	9.7	7.5	6.0	5.0	4.3	3.9	9.52	15.62
15-Mar	3.8	3.9	Z	4.3	4.1	3.5	5.0	5.3	5.9	12.4	2.8	1.6	1.6	1.4	1.7	3.6	1.6	1.3	1.6	1.6	1.7	2.4	2.7	3.6	3.37	12.44
16-Mar	7.8	3.1	Z	1.5	3.1	5.8	4.5	4.2	4.1	3.3	C	C	C	C	C	1.7	1.6	1.7	1.6	1.4	1.3	3.2	7.5	8.1	3.65	8.10
17-Mar	5.8	4.2	Z	2.8	2.9	3.2	2.9	3.2	3.4	4.2	5.1	5.1	5.0	4.0	2.6	3.8	4.6	5.0	5.6	6.8	5.2	4.2	3.4	3.1	4.18	6.80
18-Mar	3.0	3.0	Z	2.4	2.3	2.3	2.4	2.8	3.6	4.0	3.9	4.8	5.0	6.6	4.5	4.0	4.2	6.3	5.4	4.9	7.0	10.2	13.3	13.2	5.18	13.30
19-Mar	17.1	12.1	Z	1.7	2.3	2.2	3.3	7.2	7.3	6.7	5.2	2.8	2.1	2.2	9.8	2.1	2.2	7.4	2.3	2.2	2.2	6.4	1.9	15.1	5.38	17.10
20-Mar	2.4	1.9	Z	4.5	2.6	2.2	2.7	4.2	10.7	24.4	24.5	22.1	12.7	27.3	10.5	8.1	19.3	10.6	6.3	5.6	6.0	5.1	4.3	4.0	9.66	27.35
21-Mar	3.6	3.2	Z	3.4	3.2	3.1	2.9	3.1	3.4	3.5	3.1	2.9	2.7	2.7	2.7	2.9	3.4	4.1	3.0	2.7	2.5	2.7	2.7	2.4	3.03	4.09
22-Mar	2.4	2.4	Z	2.4	2.4	2.6	2.6	3.9	5.5	9.2	5.8	4.4	10.5	37.3	18.7	31.8	3.6	3.5	3.8	3.5	3.0	3.4	3.4	3.5	7.37	37.29
23-Mar	3.3	3.2	Z	15.6	25.2	23.6	15.4	5.6	4.9	4.4	13.7	8.5	8.3	9.0	13.8	19.7	16.3	16.7	24.2	19.5	14.9	10.8	8.2	6.4	12.66	25.19
24-Mar	5.1	4.7	Z	3.9	4.0	5.1	4.3	4.3	5.2	6.9	5.9	5.1	4.7	4.5	4.4	3.9	4.2	4.8	3.5	3.2	3.1	3.5	3.7	4.6	4.47	6.88
25-Mar	5.5	4.4	Z	8.7	5.5	6.5	5.2	6.3	9.1	9.3	9.8	10.7	6.7	5.4	6.5	6.4	5.7	5.0	4.6	4.5	5.9	8.0	6.3	4.4	6.55	10.70
26-Mar	3.8	4.7	Z	5.4	4.0	5.2	7.0	6.8	6.5	8.0	8.9	5.2	18.9	3.4	4.6	3.4	2.7	2.5	2.1	2.2	2.6	3.0	3.4	3.1	5.11	18.88
27-Mar	2.7	2.5	Z	2.3	2.4	2.3	2.3	2.6	2.9	3.3	4.3	4.5	6.6	10.5	12.5	16.4	17.3	17.7	9.5	5.4	3.7	3.1	2.8	2.9	6.12	17.69
28-Mar	2.8	3.0	Z	3.7	3.5	3.7	3.9	4.2	6.2	7.8	7.7	8.2	11.5	8.6	9.1	9.3	7.5	17.3	24.4	18.6	12.0	8.3	8.1	7.7	8.57	24.43
29-Mar	7.1	8.9	Z	12.5	15.8	17.0	16.5	14.3	13.2	13.6	8.5	19.5	16.1	20.1	14.3	3.7	3.0	4.8	4.8	5.3	4.7	4.4	3.9	3.9	10.25	20.06
30-Mar	3.9	3.5	Z	6.1	5.8	5.3	6.0	5.8	7.9	9.3	12.0	8.5	6.5	5.5	4.6	5.6	5.9	4.1	3.4	3.1	3.2	4.3	4.7	6.2	5.71	12.02
31-Mar	4.8	4.4	Z	3.8	3.8	3.5	3.4	4.0	5.1	6.6	3.8	3.3	3.7	3.2	3.0	3.1	3.0	3.4	3.3	4.5	9.3	15.0	11.2	8.9	5.13	15.01
	4.30	4.00	--	5.10	5.74	5.44	4.88	5.06	6.43	7.40	6.82	6.40	6.04	6.96	6.09	5.97	5.24	5.58	5.32	4.77	4.53	4.74	4.44	4.72	Diurnal Average	
	17.10	12.08	--	15.56	25.19	23.65	16.55	14.25	26.12	24.38	24.50	22.09	18.88	37.29	18.66	31.80	19.27	17.69	24.43	19.48	14.94	15.01	13.30	15.11	Diurnal Maximum	

Z - zerospan C - Calibration

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb

Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 959, Wagner

Calibration Date: March 16, 2017

Parameter: $NO/NO_2/NO_x$

Instrument: Teco 42i

Serial Number: 1004840574

Previous Calibration Date: February 13 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn# 04300810

Barometric Pressure: 27.60" Hg

Calibration Method: Standard Gas Dilution/GPT

Cylinder ID: FF27662

Temperature: 21.0° C

Cylinder Concentration: 11.9 ppm NO & 12.0 ppm NOx

In Service: June 2 2016 Exp: Jan 20 2019

Technician: Dean Yustak

Instrument Settings	NO bkg ppb	NO_x bkg ppb	Pre-reactor bkg ppb	NO Coefficient	NO_x Coefficient	NO_2 Coefficient	Monitoring Range
Previous	7.9	8.8	na	1.035	0.998	1.000	300 ppb
Current	7.6	8.5	na	1.020	1.007	1.000	300 ppb

NO	Final Zero: 0.1 ppb	Final Span: 201.8 ppb	As Found Correction Factor: 0.998
NO_2	Final Zero: -0.3 ppb	Final Span: 1.0 ppb	As Found Correction Factor: NA
NO_x	Final Zero: -0.2 ppb	Final Span: 202.5 ppb	As Found Correction Factor: 1.006

Results of Linear Regression			Slope	Intercept	R^2
NO	R_c vs C_c	Previous	100.267400	-41.746130	0.999976
		Current	99.826730	12.905120	0.999959
	C_i vs C_c	Current	1.000000	-0.000022	0.999959
NO_2	R_c vs C_c	Previous	100.365100	-61.743560	0.999976
		Current	102.097600	4.764375	0.999997
	C_i vs C_c	Current	1.000000	0.000000	0.999997
NO_x	R_c vs C_c	Previous	100.416500	-54.135960	0.999976
		Current	100.022400	15.266160	0.999942
	C_i vs C_c	Current	1.000000	-0.000022	0.999942

Comments: Sample Flow: 0.507 lpm

Calibration Data Summary (Page 2)

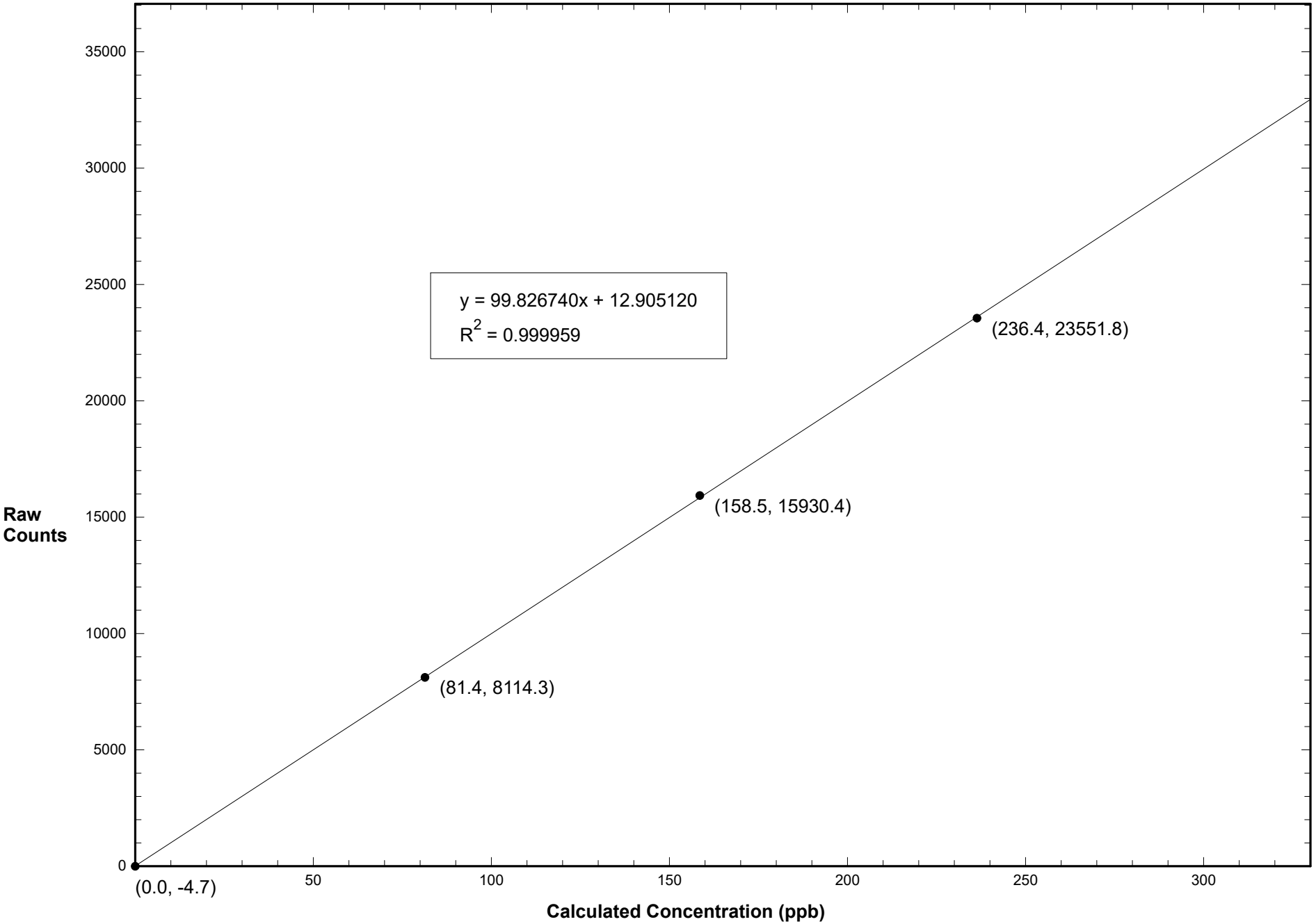
March 16, 2017 - Station 959

NO Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.07660	3.780	236.4	23551.8	235.8	1.002
0.05130	3.800	158.5	15930.4	159.5	0.994
0.02609	3.790	81.4	8114.3	81.2	1.003
0.00000	3.520	0.0	-4.7	-0.2	
NO Calibration				Average Correction Factor:	1.000
0.07660	3.780	238.3	23794.6	237.7	1.003
0.05130	3.800	159.8	16115.2	161.0	0.993
0.02609	3.790	82.0	8178.5	81.6	1.005
0.00000	3.520	0.0	6.4	-0.1	
NO_x Calibration				Average Correction Factor:	1.000

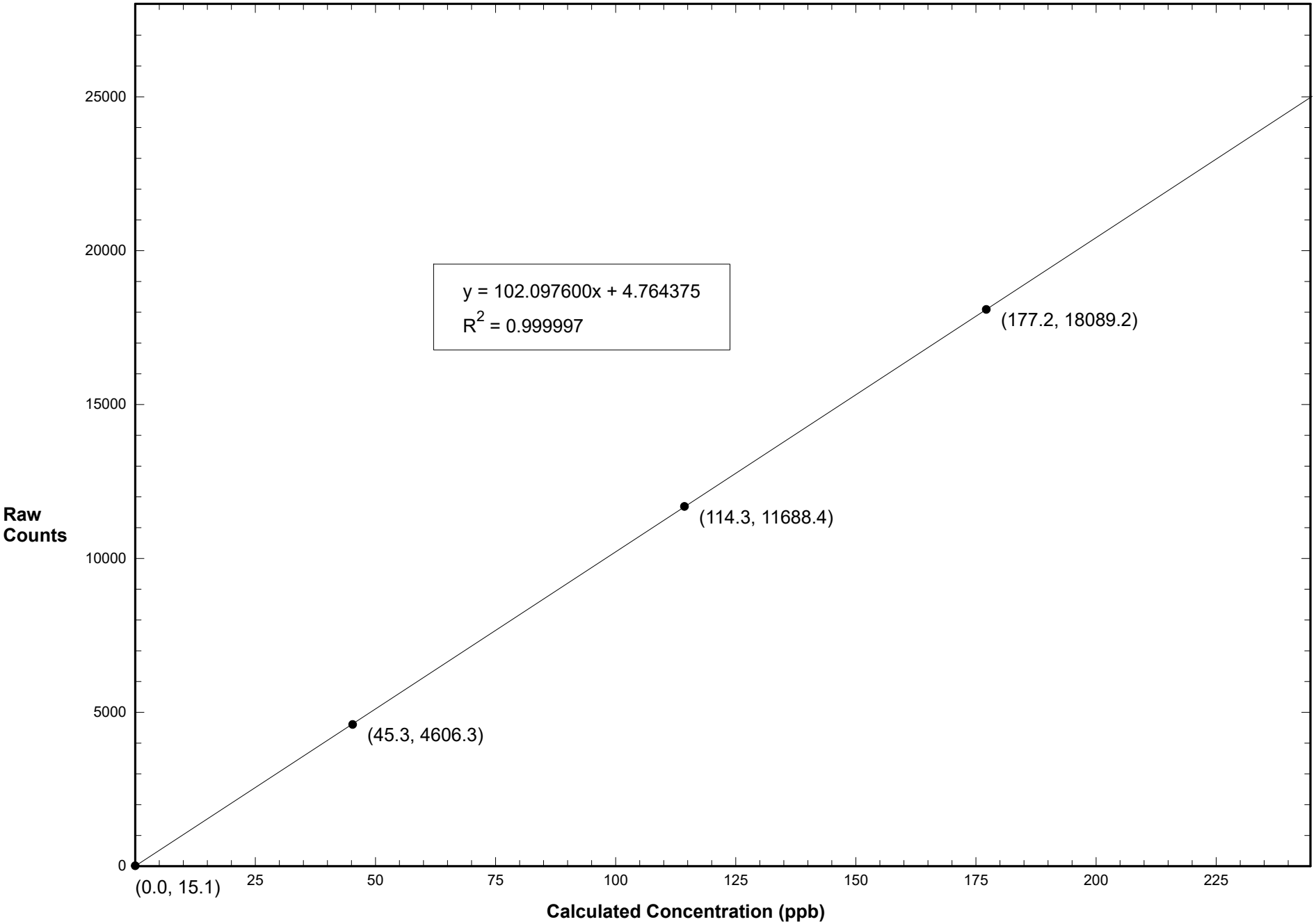
Reference Concentration NO (ppb)	Raw Count Output NO	Calculated Concentration NO (ppb)	Calculated Concentration NO_2, C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i	Converter Efficiency C_i/C_c
238.1	6101.0	61.0	177.2	18089.2	177.1	1.000	1.000
238.1	12372.9	123.8	114.3	11688.4	114.4	0.999	1.001
238.1	19267.5	192.9	45.3	4606.3	45.1	1.004	0.996
			0.0	15.1	0.1		
					Average Correction Factor:	1.001	
NO_2 Gas Phase Titration						Average Converter Efficiency:	0.999

Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor
NO	0.998	1.002	0.4
NO_2	0.998	1.000	0.2
NO_x	0.998	1.003	0.5

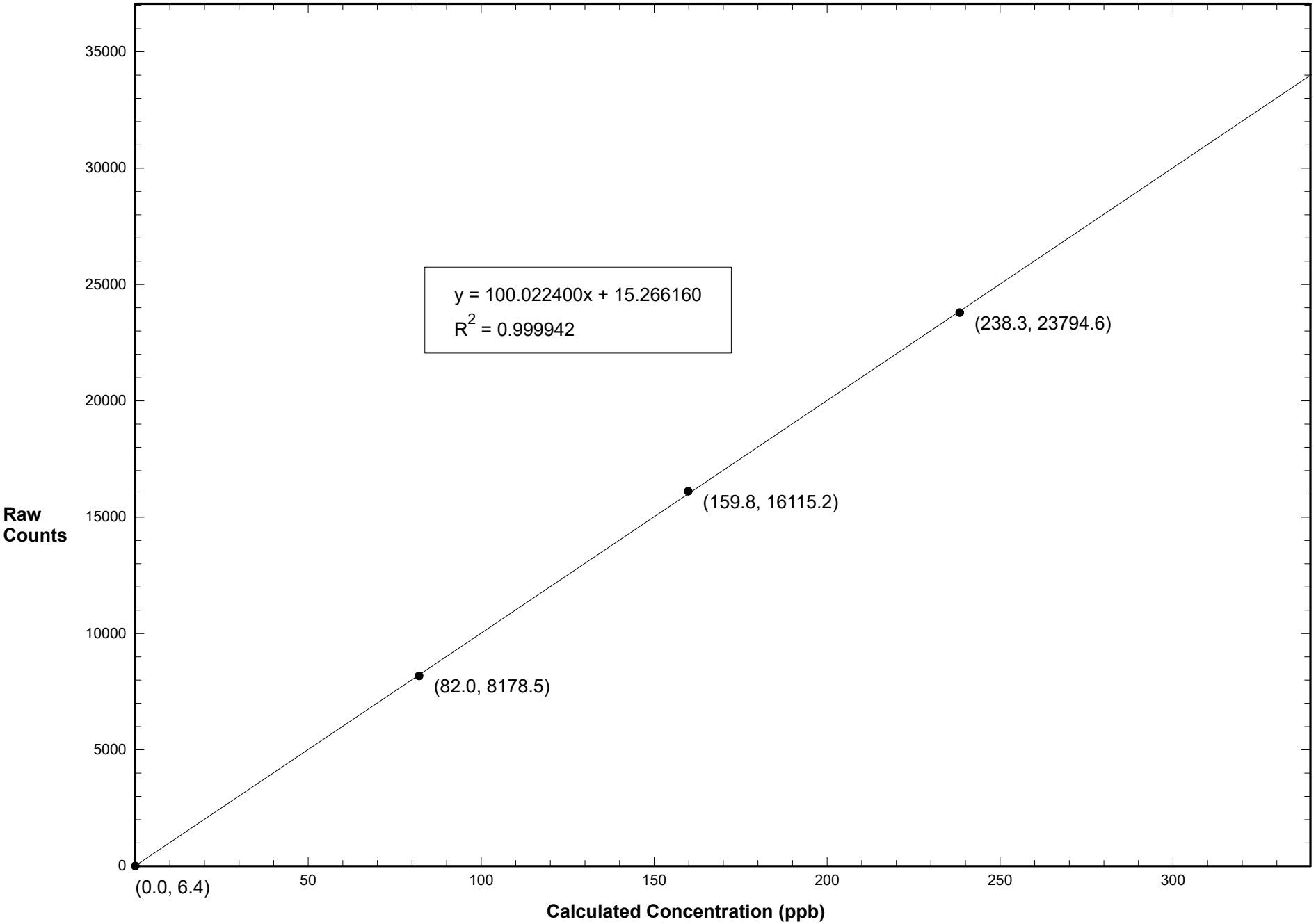
Station 959 NO March 16, 2017: Linear Regression



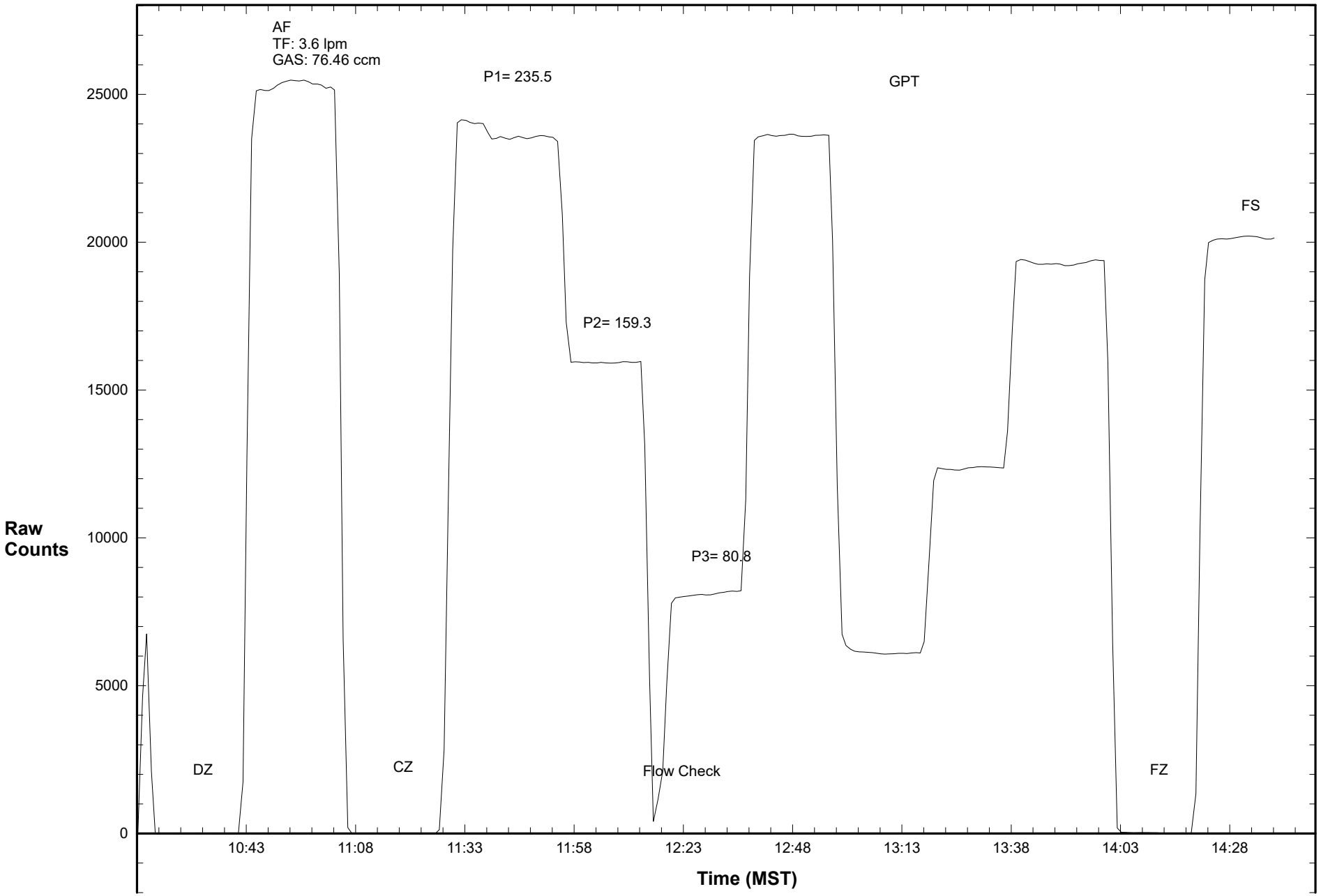
Station 959 NO2 March 16, 2017: Linear Regression



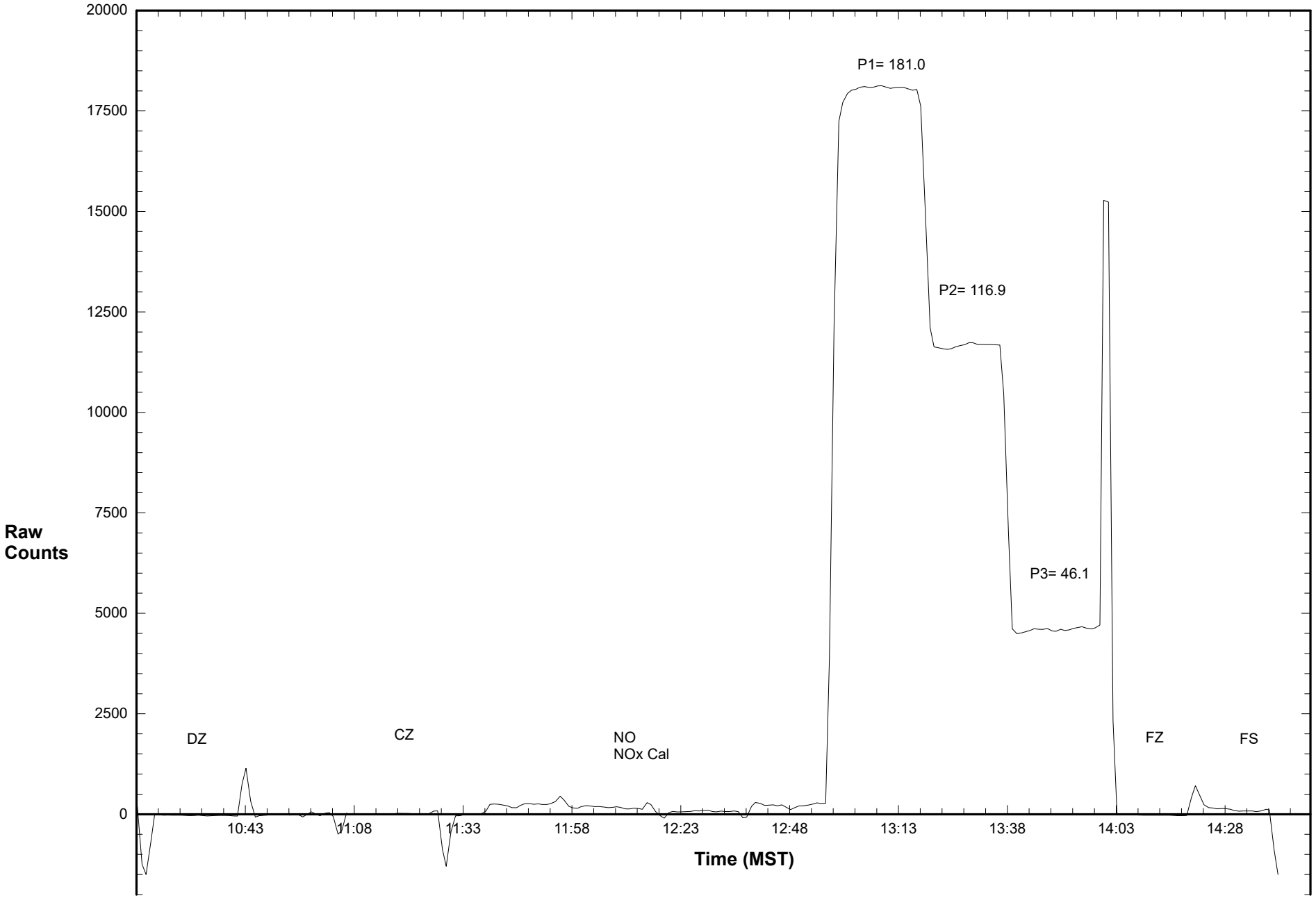
Station 959 NOX March 16, 2017: Linear Regression



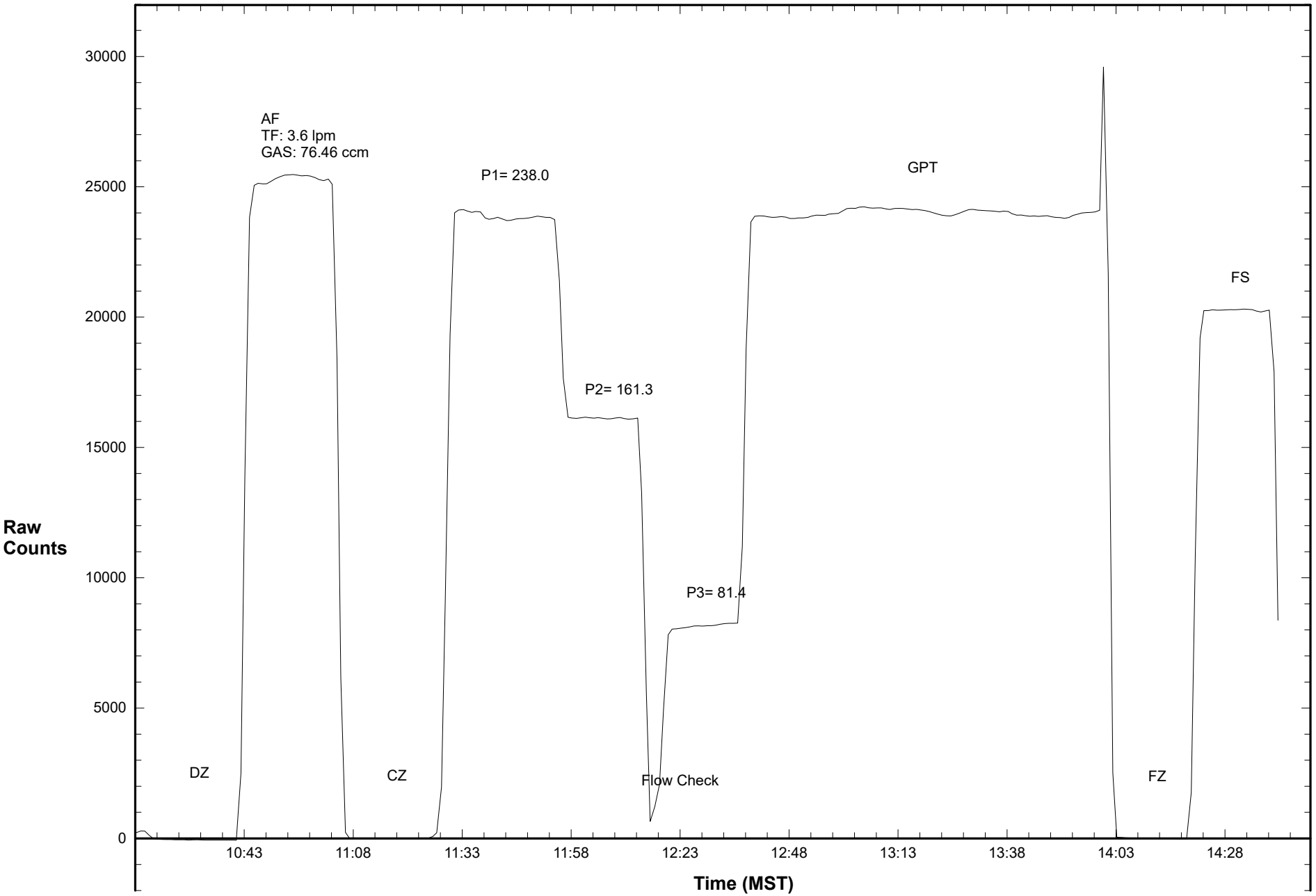
Station 959 NO March 16, 2017: Calibration Graph



Station 959 NO2 March 16, 2017: Calibration Graph



Station 959 NOX March 16, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 959, Wagner

Calibration Date: March 16, 2017

Parameter: SO_2

Instrument: Teco 43C

Serial Number: 0324 8000 1472

Previous Calibration Date: February 13 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn# 04300810

Barometric Pressure: 27.60" Hg

Calibration Method: Standard Gas Dilution

Cylinder ID: FF27662

Temperature: 21.0° C

Cylinder Concentration: 5.92 PPM SO2

In Service: January 14, 2015; exp Nov 03 2017

Technician: Dean Yustak

Instrument Settings	SO_2 bkg ppb	SO_2 Coefficient	Monitoring Range
Previous	83.8	0.881	200 ppb
Current	87.1	0.903	200 ppb

Final Zero: 0.0 ppb

Final Span: 94.9 ppb

As Found Correction Factor: 1.023

SO_2 Flow Rate (LPM)	Dilution Flow Rate (LPM)	Calculated Concentration C_c (ppb)	Raw Count Output R_c	Indicated Concentration C_i (ppb)	Correction Factor C_c/C_i
0.0766	3.780	117.6	17668.3	117.5	1.000
0.0513	3.800	78.9	11882.7	79.0	0.998
0.0261	3.790	40.5	6075.1	40.3	1.003
0.0000	3.520	0.0	21.0	0.0	

Results of Linear Regression

R_c vs C_c	Slope	Intercept	R^2
Previous	149.156000	15.170160	0.999974
Current	150.202000	15.573920	0.999994
C_i vs C_c			
Current	1.000000	0.000000	0.999994

Average Correction Factor: 1.001

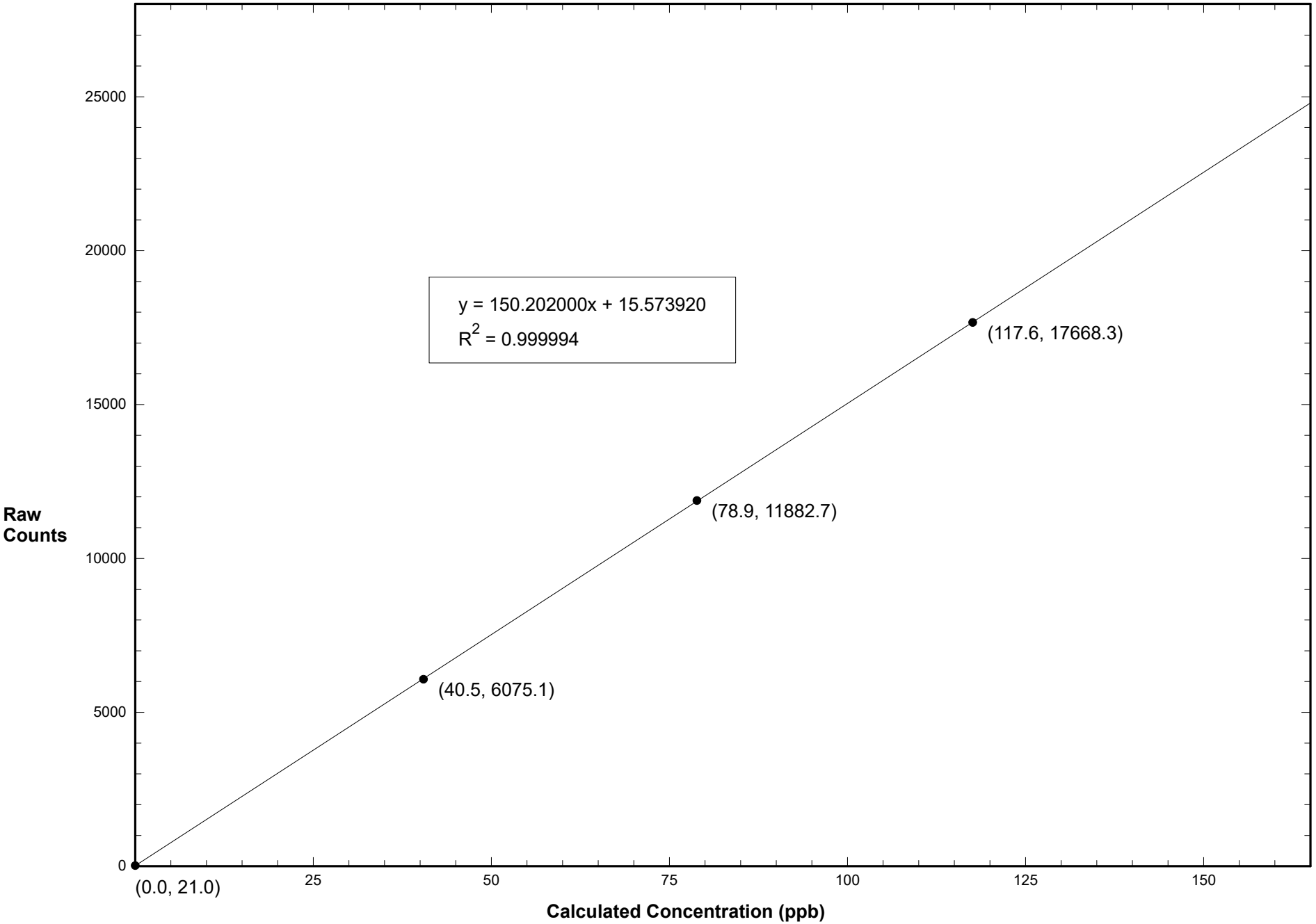
Previous Correction Factor: 0.999

Current Correction Factor: 1.000

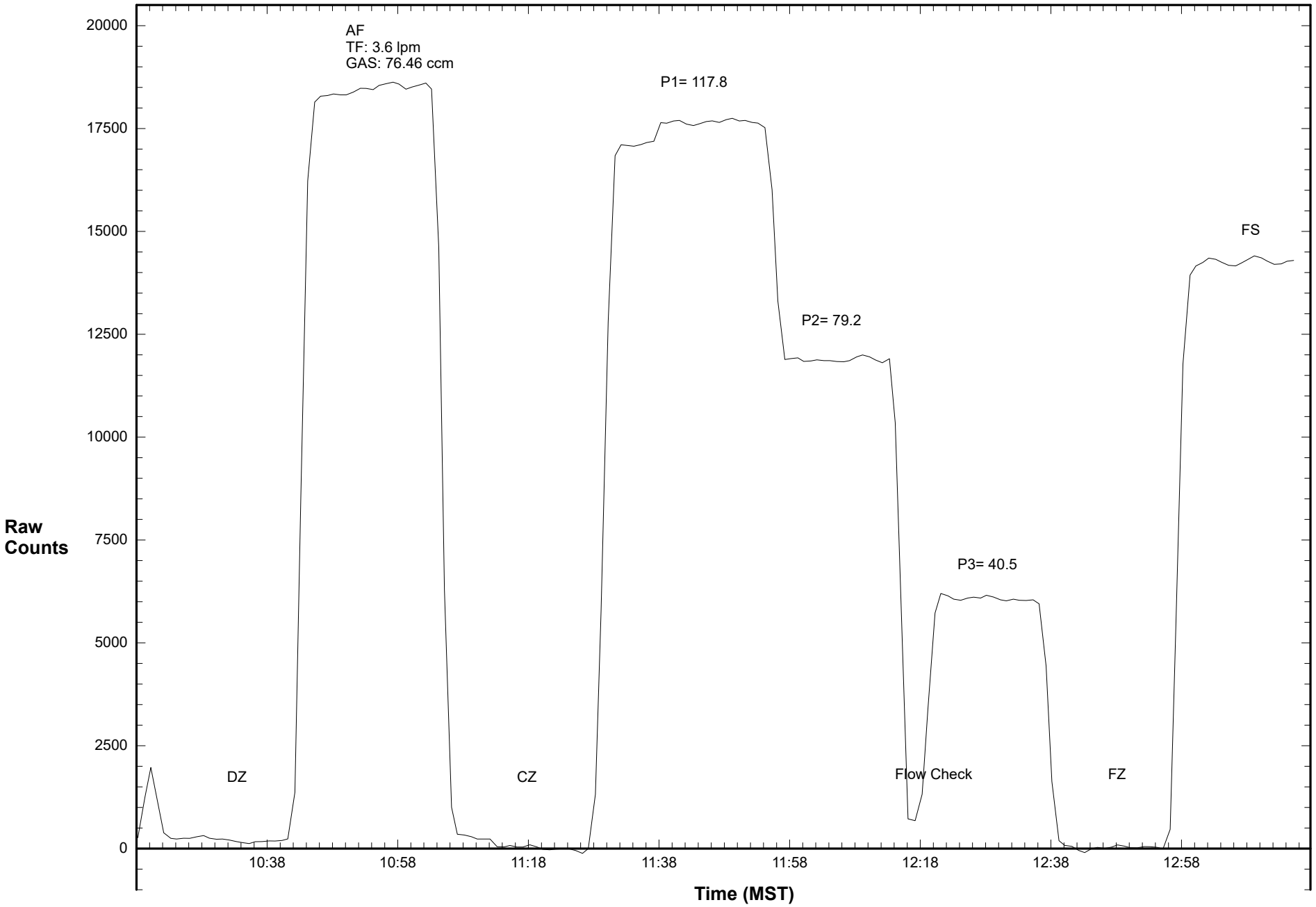
Percent Change of Correction Factor: 0.1

Comments: Sample Flow: 0.491 lpm

Station 959 SO2 March 16, 2017: Linear Regression



Station 959 SO2 March 16, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT METEOROLOGICAL DATA

AMS 959
WAGNER2
MARCH 2017

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

West Central Airshed Society

WCAS - Wagner2

Summary of Hourly Averages

External Temperature (ET) - C

March 2017

Maximum Value: 13.52 C on Mar 29 14:00

Maximum Daily Average: 5.14 C on Mar 29

Minimum Value: -28.3 C on Mar 9 07:00

Minimum Daily Average: -20.02 C on Mar 9

Maximum Diurnal Average: 1.09 C at hour 15

Minimum Diurnal Average: -9.31 C at hour 7

Monthly Average: -4.681 C

Percentiles: P_1 = -24.8 P_{10} = -17.1 Q_1 = -13.1 Median = -3.0 Q_3 = 2.1 P_{90} = 6.9 P_{99} = 12.8

Hours in Service:	744
Hours of Data:	741
Hours of Missing Data:	3
Hours of Calibration:	0
Percent Operational Time:	99.6

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	-12.0	-11.8	-12.1	-14.1	-15.2	-14.4	-14.5	-15.1	-13.3	-9.6	-7.2	-6.7	-6.0	-5.4	-4.8	-3.9	-3.6	-6.1	-8.9	-11.1	-13.4	-15.2	-16.1	-16.5	-10.71	-3.64
2-Mar	-16.6	-17.3	-18.0	-18.5	-19.0	-19.4	-19.4	-18.7	-16.7	-13.1	-8.3	-4.1	-0.8	0.6	0.8	1.9	1.5	AF	-1.4	-3.4	-5.2	-7.3	-9.0	-10.5	-9.64	1.90
3-Mar	-11.1	-12.0	-12.3	-12.5	-12.9	-13.3	-12.8	-11.7	-9.5	-4.5	1.2	7.7	11.1	11.3	7.0	4.5	3.5	2.3	1.1	0.1	-0.6	-0.9	-1.3	-1.5	-2.80	11.26
4-Mar	-1.8	-1.9	-3.0	-4.9	-7.1	-9.3	-10.7	-11.3	-12.0	-12.8	-13.3	-13.2	-11.2	-11.2	-10.8	-11.0	-12.4	-13.0	-13.7	-14.0	-14.1	-14.3	-14.3	-14.3	-10.65	-1.77
5-Mar	-14.3	-14.4	-14.5	-14.7	-14.8	-15.2	-17.0	-16.5	-14.7	-11.6	-10.1	-9.3	-9.0	-9.4	-9.1	-8.5	-9.3	-11.4	-12.7	-13.9	-15.7	-15.9	-15.0	-14.8	-13.00	-8.55
6-Mar	-14.2	-13.9	-13.8	-13.9	-13.7	-13.6	-13.6	-13.5	-13.2	-12.2	-10.5	-9.4	-7.9	-7.4	-6.8	-7.8	-8.2	-10.8	-12.8	-16.3	-18.2	-19.2	-20.2	-21.2	-13.01	-6.78
7-Mar	-22.3	-23.1	-23.6	-23.4	-21.2	-17.1	-15.6	-15.0	-14.5	-13.0	-11.8	-11.6	-10.6	-9.6	-9.2	-9.1	-9.9	-10.8	-14.1	-17.1	-18.0	-20.0	-21.1	-21.9	-15.99	-9.07
8-Mar	-22.4	-21.9	-18.7	-17.8	-18.2	-18.4	-18.7	-19.0	-18.9	-18.6	-17.4	-16.5	-15.5	-15.1	-15.0	-15.2	-16.5	-17.3	-18.2	-18.6	-18.9	-19.3	-19.7	-21.3	-18.22	-14.98
9-Mar	-23.2	-24.7	-25.9	-26.8	-27.1	-27.6	-28.3	-27.7	-24.9	-21.2	-16.6	-14.3	-13.9	-14.0	-13.4	-13.5	-14.3	-15.9	-17.1	-17.7	-18.0	-18.2	-18.2	-18.1	-20.02	-13.40
10-Mar	-18.0	-17.8	-17.8	-17.8	-17.8	-17.4	-17.2	-17.1	-17.1	-16.9	-16.4	-15.8	-15.5	-15.2	-14.9	-14.9	-15.1	-15.7	-16.3	-16.4	-16.7	-17.0	-17.7	-18.2	-16.71	-14.91
11-Mar	-19.0	-19.2	-20.2	-20.3	-20.1	-20.0	-19.9	-19.6	-18.6	-17.1	-15.4	-14.5	-13.8	-13.9	-13.7	-14.2	-14.5	-15.0	-15.5	-15.7	-15.5	-15.4	-15.6	-15.7	-16.76	-13.67
12-Mar	-15.9	-15.9	-15.8	-15.7	-15.7	-15.7	-15.8	-15.8	-14.7	-13.7	-12.7	-11.7	-11.5	-10.8	-10.4	-10.0	-10.2	-11.4	-12.2	-12.7	-12.9	-12.9	-13.1	-13.2	-13.34	-10.02
13-Mar	-12.9	-12.9	-12.7	-12.5	-12.9	-13.3	-13.4	-13.3	-12.3	-11.1	-9.9	-7.4	-5.0	-4.0	-2.8	-2.7	-2.1	-3.0	-5.6	-7.5	-9.2	-11.1	-12.2	-13.0	-9.29	-2.07
14-Mar	-13.1	-13.5	-13.5	-13.4	-13.3	-13.0	-12.8	-12.2	-9.6	-6.6	-3.3	0.9	5.5	7.3	7.5	6.9	8.0	6.7	3.9	2.2	0.8	-1.4	-3.7	-5.3	-3.55	7.97
15-Mar	-5.9	-6.8	-7.4	-7.8	-8.7	-8.8	-8.4	-7.7	-3.1	4.6	8.9	10.4	10.8	10.3	8.2	6.8	5.8	5.2	3.4	2.0	1.5	1.0	0.9	1.0	0.67	10.76
16-Mar	2.3	1.1	0.7	0.0	-0.1	-0.2	-1.5	-1.4	-0.5	1.2	2.6	2.5	2.1	2.1	AF	AF	3.3	2.8	1.8	-0.7	-1.2	-2.3	-3.8	-4.6	0.28	3.34
17-Mar	-4.5	-5.1	-6.3	-7.0	-6.2	-5.4	-6.9	-7.2	-4.4	-0.4	2.6	6.1	9.1	8.7	8.9	7.9	6.1	5.0	3.9	3.2	2.1	1.6	0.9	0.1	0.54	9.13
18-Mar	-1.0	-1.6	-2.2	-3.2	-3.1	-3.3	-3.3	-2.7	0.3	2.4	4.8	5.9	7.7	8.4	8.4	7.2	7.8	6.4	3.5	2.7	2.4	2.4	0.3	-0.1	2.09	8.36
19-Mar	0.7	0.6	0.0	-0.4	-1.2	-2.9	-3.0	-1.3	0.1	2.3	3.3	5.3	6.3	6.4	6.7	6.1	5.6	4.1	1.3	0.1	0.0	-0.5	-1.8	-2.0	1.49	6.65
20-Mar	-2.2	-3.2	-4.3	-4.8	-5.7	-7.1	-9.3	-7.5	-5.0	-4.6	-3.0	-1.5	-0.8	0.7	1.5	1.4	1.2	-0.1	-2.6	-4.2	-4.9	-5.3	-5.7	-6.5	-3.48	1.51
21-Mar	-6.6	-6.4	-6.3	-6.1	-6.2	-5.2	-4.6	-3.7	-2.0	-0.9	0.6	2.4	3.0	3.7	4.2	4.0	3.6	3.4	2.9	1.7	1.9	1.3	0.6	0.4	-0.59	4.17
22-Mar	0.3	-0.3	-0.9	-1.6	-2.0	-2.1	-2.7	-1.8	-0.8	-0.2	0.5	1.1	1.8	3.4	5.4	6.0	6.3	5.3	2.6	0.0	-1.7	-2.3	-3.0	-3.4	0.41	6.28
23-Mar	-3.2	-3.6	-3.1	-3.1	-3.5	-4.3	-4.7	-3.9	-3.9	-3.1	-2.6	-1.2	-0.3	1.7	4.3	5.8	5.5	4.7	3.0	0.7	-0.9	-1.5	-2.2	-3.2	-0.94	5.82
24-Mar	-4.0	-4.5	-4.7	-4.8	-4.9	-4.2	-4.5	-3.4	-1.5	-0.7	1.3	1.4	1.1	2.7	4.1	4.5	4.2	3.6	2.6	2.0	1.5	1.4	1.1	0.8	-0.20	4.54
25-Mar	1.1	0.4	0.2	0.8	0.8	0.6	0.0	-0.5	-0.4	0.6	3.9	6.1	9.3	11.0	11.7	11.2	10.4	7.7	6.4	5.5	4.2	3.2	2.2	1.3	4.07	11.73
26-Mar	1.1	-0.7	-1.6	-2.4	-2.9	-3.4	-3.4	0.5	3.8	5.2	6.6	9.0	9.2	9.4	10.0	9.9	9.0	7.6	5.4	4.2	3.3	2.7	2.6	2.7	3.65	9.99
27-Mar	2.6	2.0	1.5	1.4	1.1	0.7	0.1	0.7	1.8	3.0	5.1	7.4	8.3	8.7	8.7	9.2	8.6	7.1	4.9	3.2	1.7	0.4	0.3	-0.8	3.66	9.17
28-Mar	-1.8	-2.5	-2.8	-2.7	-2.1	-1.8	-2.2	-2.3	-1.5	0.3	2.9	6.2	9.7	12.0	11.8	11.9	10.5	10.8	8.6	6.1	4.3	3.1	1.8	-0.1	3.34	11.95
29-Mar	-1.2	-1.7	-2.1	-2.0	-1.7	-2.7	-3.4	-2.2	1.9	7.0	9.7	11.5	12.4	13.5	13.4	12.8	11.0	10.5	8.6	7.2	6.2	5.3	5.0	4.5	5.14	13.52
30-Mar	4.4	4.1	3.4	3.1	3.1	2.8	2.1	2.1	2.6	2.8	4.4	5.3	6.5	6.9	8.0	7.6	8.6	8.9	7.5	3.5	1.6	1.3	-0.1	-1.0	4.15	8.90
31-Mar	-1.6	-2.1	-2.5	-2.9	-3.2	-3.5	-3.5	0.1	3.1	6.5	8.6	10.1	11.0	12.2	13.0	13.5	13.3	12.8	10.6	6.7	3.8	1.9	0.8	0.0	4.53	13.47
	-7.62	-8.09	-8.41	-8.70	-8.89	-8.99	-9.31	-8.67	-7.08	-5.04	-2.95	-1.23	0.10	0.81	1.09	0.94	0.57	-0.52	-2.23	-3.81	-4.84	-5.63	-6.37	-6.99	Diurnal Average	
	4.42	4.08	3.36	3.14	3.11	2.78	2.07	2.14	3.77	7.04	9.68	11.46	12.41	13.52	13.36	13.47	13.33	12.76	10.58	7.23	6.20	5.31	4.97	4.53	Diurnal Maximum	

AF - Analyzer Failure

WCAS - Wagner2

Summary of Hourly Averages

Wind Speed (WS) - kph

March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1 Spd	0.1	0.4	0.9	0.8	0.7	0.1	0.6	0.2	1.0	2.7	6.8	9.0	8.8	8.1	9.3	6.0	5.0	4.8	2.2	2.6	0.1	0.4	0.8	0.5	2.34	9.32
Dir	ESE	S	NNW	NW	NW	SSW	WNW	NNW	SSW	NW	NW	NW	NW	NNW	NNW	N	NNE	ENE	ENE	E	WNW	NNW	NNW	NW	NNW	NNW
2 Spd	0.2	0.6	0.5	0.1	0.3	0.2	0.0	1.0	2.7	1.4	2.8	4.3	4.2	7.3	7.8	8.2	9.8	8.2	3.9	0.8	0.2	0.1	0.7	0.2	2.44	9.85
Dir	NW	NNW	NW	NNW	NW	NNW	NNW	SE	ESE	SE	ESE	ESE	E	ESE	E	ESE	SE	ESE	ESE	SE	WNW	NW	NW	NW	ESE	SE
3 Spd	0.2	0.1	0.0	0.2	0.4	0.4	0.2	0.2	0.7	1.5	2.2	2.8	9.0	10.9	11.5	8.0	4.7	3.8	4.5	3.2	2.8	2.6	2.3	3.5	0.84	11.50
Dir	NW	NNW	NW	WNW	NW	NW	S	SSW	SE	SE	ESE	ESE	S	S	NW	NNE	NNE	N	NNE	N	NNW	N	NNE	NNW	N	NW
4 Spd	1.8	3.4	8.0	9.4	7.8	5.3	5.1	6.8	6.1	6.2	6.5	9.7	7.0	6.9	8.1	7.0	5.0	2.8	3.5	3.6	2.9	2.8	1.3	1.8	4.95	9.66
Dir	NNW	NNE	NE	NE	NNE	NNE	NE	NE	NNE	NNW	NNW	NNW	N	NNE	NNE	NNE	NNE	N	NE	NNE	NNE	NE	NNE	NNE	NNE	NNW
5 Spd	1.5	2.9	2.6	3.8	1.3	1.1	0.7	0.3	1.2	2.0	2.4	0.4	2.5	8.2	8.1	7.9	8.4	7.5	4.6	1.4	0.5	0.8	0.5	1.0	2.46	8.43
Dir	NE	E	E	ESE	ENE	ENE	NNW	WNW	S	SSE	SSE	NW	SSE	SE	SE	SE	E	ESE	SE	SE	NNW	NNW	NE	S	ESE	E
6 Spd	2.2	1.7	0.9	2.0	1.3	1.5	1.9	2.6	4.8	5.1	5.2	6.2	4.3	5.4	5.6	6.0	5.4	4.0	3.6	2.9	2.7	0.2	0.2	AF	3.01	6.16
Dir	ENE	NE	NNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	NNE	NNE	NNE	N	N	NNW	NNW	N	NW	AF	N	NNW
7 Spd	AF	0.4	0.2	0.3	0.8	1.9	2.3	3.9	5.3	6.8	5.6	6.8	6.8	5.7	3.8	4.7	6.1	5.5	1.2	0.7	0.3	0.5	1.0	1.1	2.37	6.85
Dir	AF	SSW	WSW	SW	S	NW	NW	NNW	NNW	NNW	N	NW	N	N	N	NE	NE	E	ENE	NE	NNW	NNW	NW	NNW	N	N
8 Spd	0.3	0.1	2.9	7.0	5.1	4.0	4.0	4.2	5.8	7.2	7.0	13.3	12.7	12.5	12.6	12.3	10.8	9.4	6.2	2.7	1.1	0.2	0.4	1.0	5.55	13.35
Dir	WNW	NNW	ESE	E	E	ENE	ENE	ENE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	S	NNW	WNW	NNW	E	ESE
9 Spd	1.0	1.1	0.7	0.5	0.2	0.1	0.3	0.3	2.4	3.1	2.4	3.3	6.2	9.2	9.9	13.7	15.2	14.0	12.2	12.2	10.0	8.4	9.8	11.6	5.74	15.18
Dir	NW	NNW	NNW	N	NW	W	N	SSE	SSE	ESE	SE	SE	SE	SSE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
10 Spd	13.6	15.0	14.3	14.8	14.2	14.6	14.8	18.2	18.2	18.0	18.0	18.0	19.6	19.4	17.1	15.8	13.9	12.6	10.3	9.8	10.7	9.2	5.7	3.2	14.05	19.65
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	E	ESE	ESE
11 Spd	2.7	5.3	2.5	2.7	5.6	5.0	4.4	6.3	5.8	6.9	7.7	9.2	11.9	13.8	14.2	16.3	15.2	12.9	15.1	10.8	8.6	7.5	9.8	8.8	8.69	16.34
Dir	E	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	E	ESE	ESE
12 Spd	6.5	4.5	5.9	4.2	4.7	7.5	6.2	5.5	7.6	10.3	11.2	12.0	14.0	15.8	16.7	15.1	13.8	14.5	13.7	14.7	13.1	11.5	10.4	10.2	10.16	16.72
Dir	E	E	E	E	E	ESE	ESE	E	ESE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	SE	SE	ESE	ESE	SE
13 Spd	12.9	12.1	9.7	8.2	6.9	5.0	5.9	7.1	6.7	8.4	8.5	8.0	4.0	7.7	7.5	9.0	8.6	6.7	7.2	2.3	0.2	0.4	0.6	0.4	6.22	12.88
Dir	ESE	ESE	ESE	ESE	ESE	SE	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	ESE	E	NW	NW	NW	NW	ESE	ESE
14 Spd	0.2	0.0	0.2	0.1	0.4	0.2	0.4	0.2	0.4	0.5	1.4	1.3	1.1	5.5	7.4	11.2	9.0	11.6	12.1	7.8	2.5	1.0	1.9	0.7	2.78	12.12
Dir	NNE	NW	NNW	WNW	NW	NNE	NW	WNW	ESE	S	SSE	SSE	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	NNW	NW	NW	ESE	ESE
15 Spd	0.7	0.2	0.2	0.5	0.1	0.2	1.3	0.3	0.5	0.0	4.7	5.5	4.7	5.5	4.8	4.3	6.1	4.8	1.8	1.1	0.6	0.6	0.8	2.8	1.97	6.13
Dir	NW	NW	NNW	NW	NW	NNW	WNW	SE	ESE	NW	NNW	N	N	NNW	NW	WNW	NNW	NNE	NNW	NNW	NW	NW	NNW	NW	NNW	NNW
16 Spd	3.7	1.5	0.1	1.4	0.4	1.2	2.0	0.5	1.1	2.0	4.6	3.9	1.0	2.6	2.8	2.3	0.4	1.3	0.6	1.0	0.6	0.7	0.2	0.3	0.51	4.65
Dir	NNW	ENE	SSW	W	W	E	NW	NW	ENE	ESE	ESE	SE	S	ENE	NE	E	NW	S	S	NNW	NW	NW	N	NNW	ENE	ESE
17 Spd	AF	AF	AF	AF	AF	1.3	1.2	1.8	0.9	1.9	1.8	5.0	6.0	8.0	9.6	11.5	11.7	9.1	8.4	8.1	7.2	5.5	4.0	2.1	5.00	11.67
Dir	AF	AF	AF	AF	AF	ESE	NW	NW	SSE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	SE	SE	SE	ESE	ESE	E	E	SE	SSE
18 Spd	0.5	0.2	0.9	0.9	0.8	0.3	0.2	0.1	1.2	3.3	7.0	6.4	7.6	10.1	8.6	9.4	3.6	6.5	7.2	3.5	2.9	10.9	20.1	14.8	0.92	20.13
Dir	E	SE	NW	NNW	NNW	NNW	NW	WNW	E	ESE	SE	SSE	SE	ESE	E	E	NNE	NW	NW	W	W	WNW	NW	NW	NNW	NW
19 Spd	13.2	11.5	7.6	8.5	5.6	3.5	3.3	3.8	5.8	5.5	8.0	10.6	14.6	15.1	13.3	12.8	13.8	8.0	4.0	1.3	2.8	5.9	8.1	6.5	7.64	15.10
Dir	WNW	WNW	WNW	WNW	WNW	WNW	W	WNW	WNW	WNW	W	W	WNW	WNW	WNW	WNW	WNW	NW	NNE	NNW	NNW	NW	NNW	WNW	WNW	WNW
20 Spd	6.2	8.0	6.8	7.8	7.1	2.9	1.0	2.6	5.6	8.1	4.4	1.3	4.3	4.5	1.0	6.9	10.0	10.8	8.9	8.1	4.4	6.5	7.3	7.0	1.04	10.83
Dir	NW	NNW	NW	NW	NW	NNW	NNW	WNW	NNW	NNW	NNW	NNW	S	SE	WSW	SSE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	SE
21 Spd	7.2	8.0	6.3	10.5	9.5	14.8	17.3	17.4	16.1	19.1	21.4	21.2	24.8	22.8	19.6	17.4	17.3	13.1	11.9	10.9	11.6	8.2	7.3	5.1	13.50	24.82
Dir	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	SE	SE	SE	SE	SSE	SE	SSE	SE	SSE	SE	ESE	ESE	ESE	E	E	E	SE	SSE
22 Spd	8.5	8.8	1.5	1.0	2.1	1.1	2.0	3.0	3.2	4.9	6.2	6.9	6.6	8.1	7.8	6.4	4.8	6.8	2.4	0.3	0.7	0.5	0.7	0.5	1.94	8.84
Dir	E	E	ESE	ESE	ENE	E	NW	NNW	NNW	NNW	NW	NW	NW	WNW	NNW	NNW	N	E	E	N	N	NNW	NW	NW	N	ESE

WCAS - Wagner2

Summary of Hourly Averages

Wind Speed (WS) - kph

March 2017

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
23 Spd	0.3	0.4	1.8	4.3	2.7	0.6	4.1	11.3	10.6	4.7	4.0	1.6	4.1	4.5	3.6	6.8	4.9	4.7	2.8	0.5	0.2	0.1	0.4	0.3	2.59	11.27
Dir	NW	NNE	E	E	E	NE	ESE	ESE	ESE	ENE	N	ENE	SE	S	S	SE	SE	SE	ESE	NNE	WNW	N	NNE	NNW	ESE	ESE
24 Spd	0.1	0.2	0.6	1.2	0.9	0.7	1.2	1.9	10.6	14.1	14.8	16.9	17.6	14.7	14.4	15.4	11.5	9.9	9.3	3.7	2.0	1.4	1.8	1.9	6.27	17.60
Dir	NNW	NNW	NE	ENE	E	NNE	ENE	E	ESE	ESE	SE	ESE	SE	SE	SE	SE	SE	ESE	E	E	E	N	NW	NW	ESE	SE
25 Spd	2.3	2.3	1.1	5.4	4.3	4.1	3.9	3.3	2.3	2.0	3.4	4.0	4.8	6.0	8.1	7.9	8.4	3.0	1.9	2.8	2.7	0.9	2.8	1.2	0.70	8.37
Dir	NW	WNW	WNW	W	W	W	WSW	W	WSW	SW	SSE	SSE	ESE	SE	SE	ESE	ESE	SE	N	ENE	WNW	NW	NW	WNW	SSE	ESE
26 Spd	3.1	0.8	0.9	0.5	0.3	0.8	0.4	0.7	1.5	2.4	2.6	3.9	9.9	9.0	11.1	14.5	17.8	13.9	9.4	2.0	2.1	4.3	3.2	3.9	4.24	17.77
Dir	WNW	NW	WNW	N	NW	NW	NW	SSE	SSE	ESE	S	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	SE	ESE	ESE	ESE
27 Spd	6.3	6.4	6.4	4.6	2.7	1.7	0.4	1.6	4.0	2.0	1.5	3.6	8.6	9.9	10.2	9.2	11.0	11.1	9.2	3.3	0.5	0.2	0.4	0.4	4.69	11.09
Dir	ESE	ESE	ESE	E	E	E	ENE	E	ESE	SSE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	NE	N	NNW	ESE	ESE
28 Spd	0.8	0.8	0.7	0.4	0.4	0.5	0.5	1.1	1.4	4.0	2.8	2.7	4.9	7.3	9.7	10.6	7.9	10.0	5.0	0.1	1.1	3.0	1.7	2.0	2.28	10.63
Dir	NW	NW	NNW	NNW	WSW	S	NW	S	SE	SE	SSE	SSE	ESE	ESE	ESE	E	E	E	E	ESE	NW	NNW	NW	NW	E	E
29 Spd	1.2	0.6	0.6	0.1	1.0	1.3	0.5	0.5	1.9	1.8	3.2	3.5	3.8	5.2	9.9	12.9	10.6	6.8	7.8	4.8	0.5	4.3	1.4	2.1	3.02	12.88
Dir	NW	NNW	WNW	WSW	NW	NW	NW	SSE	SE	ESE	SSE	SE	SSE	ESE	ESE	ESE	ESE	SE	ESE	E	ENE	ESE	E	E	ESE	ESE
30 Spd	1.3	2.1	1.0	0.8	2.5	1.1	0.6	1.2	5.6	5.7	2.8	3.5	5.1	7.4	5.7	7.4	2.6	0.9	0.8	2.7	1.3	0.3	1.2	1.1	1.54	7.41
Dir	ENE	E	NNE	NNW	NNE	NE	WSW	N	ESE	ESE	SE	NNE	NNE	E	E	ESE	S	S	N	NW	NNW	W	NW	N	E	E
31 Spd	AF	AF	AF	AF	AF	AF	AF	AF	2.0	1.7	9.4	8.5	8.1	9.9	11.6	7.2	5.2	2.5	0.3	1.7	0.7	0.4	0.5	0.1	--	11.63
Dir	AF	AF	AF	AF	AF	AF	AF	AF	ESE	SE	S	S	S	S	S	S	S	S	NW	NW	NNW	NNW	NW	NE	--	S
Spd	1.24	1.62	1.41	1.45	1.36	1.45	1.36	1.97	2.66	2.77	2.86	3.05	4.24	5.42	5.25	6.84	6.07	5.88	4.88	3.08	1.85	1.36	0.89	0.94	Diurnal Average	
Dir	ENE	E	E	E	ENE	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	E	ENE	ENE		
Spd	13.56	15.00	14.31	14.81	14.23	14.80	17.34	18.23	18.18	19.13	21.41	21.24	24.82	22.77	19.60	17.40	17.77	14.51	15.11	14.70	13.09	11.45	20.13	14.84	Diurnal Maximum	
Dir	108.71	104.67	111.16	108.08	103.56	123.93	117.52	107.67	113.12	128.84	137.98	144.61	149.12	145.39	146.58	144.57	108.91	127.57	109.97	123.39	131.00	128.46	306.74	309.31		

Maximum Speed Value: 24.8 kph on Mar 21 13:00
Maximum Daily Speed Average: 14.05 kph on Mar 21
Maximum Diurnal Speed Average: 6.84 kph at hour 16

Minimum Speed Value: 0.0 kph on Mar 3 03:00
Minimum Daily Speed Average: 0.51 kph on Mar 16
Minimum Diurnal Speed Average: 0.89 kph at hour 23

Monthly Average Velocity: 2.861 kph 106.55 deg
All monthly, daily, and diurnal averages have been calculated using vector methods

Speed Percentiles: P_1 = 0.1 P_{10} = 0.4 Q_1 = 1.1 Median = 4.0 Q_3 = 8.1 P_{90} = 12.5 P_{99} = 19.6

Hours in Service:	744
Hours of Data:	729
Hours of Missing Data:	15
Percent Operational Time:	98.0

AF - Analyzer Failure

Frequency Distribution

Direction	Speed Range (kph) 0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total
North	52	21	0	0	0	0	73
NorthEast	36	10	0	0	0	0	46
East	69	76	34	2	0	0	181
SouthEast	63	65	43	6	0	0	177
South	26	8	1	0	0	0	35
SouthWest	6	0	0	0	0	0	6
West	22	8	4	0	0	0	34
NorthWest	143	28	5	1	0	0	177
Total	417	216	87	9	0	0	729

WCAS - Wagner2
Summary of Hourly Averages

Relative Humidity (RH) - %
March 2017

Maximum Value: 108.95 % on Mar 28 09:00

Maximum Daily Average: 93.84 % on Mar 16

Minimum Value: 22.0 % on Mar 19 16:00

Minimum Daily Average: 52.49 % on Mar 19

Maximum Diurnal Average: 88.78 % at hour 7

Minimum Diurnal Average: 50.61 % at hour 15

Monthly Average: 72.968 %

Percentiles: P_1 = 25.0 P_{10} = 48.5 Q_1 = 59.8 Median = 74.8 Q_3 = 84.9 P_{90} = 98.5 P_{99} = 106.8

Hours in Service:	744
Hours of Data:	744
Hours of Missing Data:	0
Hours of Calibration:	0
Percent Operational Time:	100.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	82.1	82.1	82.4	83.8	86.0	86.9	85.8	86.6	82.7	74.6	65.3	63.0	60.3	57.0	55.1	52.9	51.2	56.6	65.0	72.7	78.6	82.3	83.7	84.2	73.37	86.86
2-Mar	84.6	84.5	84.0	83.7	83.5	83.0	82.8	85.1	86.1	75.4	63.3	57.8	49.6	47.2	49.4	48.8	49.7	55.0	61.8	69.3	76.5	83.0	86.8	89.5	71.68	89.47
3-Mar	91.2	91.1	90.9	90.7	89.9	89.8	89.4	88.2	82.3	66.5	48.7	33.6	25.0	25.7	39.4	47.7	53.0	55.5	57.0	66.1	73.0	74.9	78.1	77.9	67.72	91.20
4-Mar	80.0	80.8	75.7	79.5	81.9	87.1	85.6	83.8	82.1	77.1	72.5	68.2	58.3	54.6	52.3	53.4	57.7	61.4	66.5	67.8	69.6	70.7	72.7	73.5	71.37	87.14
5-Mar	76.3	78.6	79.9	83.2	82.4	82.2	81.6	83.7	79.3	64.2	54.1	51.2	50.1	53.1	53.0	51.1	53.3	60.4	65.7	71.4	77.4	80.3	78.5	77.1	69.50	83.72
6-Mar	76.0	74.0	77.6	82.5	82.8	83.1	82.9	81.9	78.5	73.3	66.2	62.4	57.3	54.6	51.7	54.2	54.3	63.1	69.6	77.0	82.1	82.9	82.5	81.7	72.18	83.06
7-Mar	80.6	80.4	79.5	79.5	81.2	82.4	76.0	70.0	67.6	58.1	52.8	52.6	49.8	46.8	45.6	45.2	47.5	51.6	60.6	73.6	76.5	79.5	80.7	80.0	66.59	82.37
8-Mar	79.7	80.4	77.4	70.1	76.5	78.3	77.1	74.5	72.9	68.9	63.1	59.0	54.9	54.7	54.5	54.5	58.3	63.2	70.5	74.3	75.5	77.8	80.0	79.5	69.81	80.37
9-Mar	78.8	77.3	76.5	75.3	74.8	74.5	73.5	73.7	70.1	61.4	53.5	52.5	51.7	52.0	50.8	50.2	53.1	58.5	62.8	67.2	66.8	67.7	68.1	68.8	64.99	78.78
10-Mar	70.0	75.5	76.9	78.4	79.2	78.2	78.0	76.6	72.8	71.6	69.5	67.3	65.8	66.4	66.8	67.1	66.8	67.6	70.3	73.5	73.7	73.0	73.8	76.2	72.29	79.22
11-Mar	79.1	79.6	81.4	81.4	80.9	80.0	79.4	78.6	75.3	71.2	66.6	66.1	64.9	67.4	67.5	72.7	73.1	74.5	77.1	79.6	80.0	80.7	81.4	81.7	75.84	81.74
12-Mar	81.9	82.0	81.5	81.5	82.1	81.4	81.4	80.5	75.2	68.7	64.3	60.7	60.1	57.2	57.7	57.1	57.4	63.0	66.2	68.6	70.6	72.1	73.1	74.6	70.80	82.12
13-Mar	74.3	74.7	75.2	74.8	75.2	75.7	77.3	75.3	70.8	67.7	64.5	57.0	50.8	49.9	48.6	49.7	48.9	53.0	63.6	71.4	75.5	78.7	81.9	83.4	67.42	83.39
14-Mar	84.3	86.0	86.5	86.2	85.8	86.1	86.8	84.9	76.1	67.5	60.9	51.0	43.3	44.5	48.5	51.8	48.5	55.0	67.8	75.6	80.3	88.9	90.6	94.1	72.13	94.12
15-Mar	96.6	97.4	96.2	95.7	94.7	94.8	95.6	93.6	79.3	53.4	36.4	25.0	23.6	23.3	30.1	40.4	41.0	48.0	62.3	73.7	77.0	79.6	79.6	77.7	67.29	97.41
16-Mar	71.2	88.5	96.0	100.6	102.5	102.4	103.0	103.1	101.5	95.8	84.0	82.0	90.8	92.8	92.9	83.6	80.2	82.4	88.7	97.9	102.8	103.2	103.2	103.1	93.84	103.22
17-Mar	103.2	103.2	103.3	101.2	102.2	103.2	100.5	100.3	99.8	81.0	65.2	51.7	40.1	36.8	28.3	31.9	40.4	49.0	53.8	60.2	70.0	75.5	80.1	84.1	73.55	103.32
18-Mar	89.8	94.3	95.8	96.3	98.7	98.5	99.8	97.9	84.0	74.7	65.4	60.4	55.9	53.5	54.1	59.3	58.3	63.7	76.3	78.9	79.5	79.2	92.6	82.2	78.71	99.82
19-Mar	67.3	62.6	60.2	58.3	57.7	63.9	64.4	56.1	50.5	44.1	40.1	29.4	23.9	24.5	23.2	22.0	24.1	32.4	61.8	70.0	70.2	74.9	87.7	90.7	52.49	90.66
20-Mar	80.2	74.8	69.6	64.2	61.8	64.8	74.5	68.4	59.6	52.6	48.2	42.0	40.4	37.0	32.2	34.8	36.9	42.5	50.2	55.5	57.3	57.2	58.9	64.5	55.33	80.16
21-Mar	66.3	66.0	66.0	68.1	71.9	71.8	69.5	66.7	61.2	58.4	52.8	47.7	46.5	48.0	50.3	53.1	57.8	59.9	62.2	67.7	66.9	69.0	71.0	71.0	62.08	71.90
22-Mar	72.1	74.3	76.4	80.9	84.8	85.6	89.8	86.8	80.5	76.0	72.7	70.1	68.2	62.2	55.7	52.0	50.8	54.5	65.3	77.2	86.6	90.3	93.3	95.6	75.07	95.58
23-Mar	96.7	98.2	97.5	95.0	96.7	98.6	100.4	101.4	102.9	100.1	94.8	86.6	82.7	73.1	62.8	57.9	58.5	61.7	68.8	79.0	87.6	91.6	93.4	97.0	86.79	102.86
24-Mar	99.5	101.0	101.7	101.3	101.6	102.3	101.1	99.7	91.1	83.4	76.7	80.2	86.4	80.3	72.1	71.0	73.9	80.4	87.2	90.3	94.1	93.7	94.5	96.3	89.99	102.32
25-Mar	95.1	96.6	99.9	99.5	97.0	94.9	96.9	100.1	100.7	91.2	72.0	63.2	50.8	42.6	40.4	41.4	45.7	56.5	62.0	63.4	67.1	70.8	73.4	77.6	74.94	100.73
26-Mar	82.4	89.9	93.5	98.1	100.1	101.8	101.8	82.3	67.9	65.7	58.6	46.2	42.9	41.7	43.5	47.9	52.4	58.5	67.2	74.2	80.2	83.1	84.2	85.0	72.87	101.82
27-Mar	85.1	88.1	90.8	91.9	92.7	94.4	98.3	97.5	89.6	80.7	70.8	62.3	60.8	59.6	59.6	57.5	59.5	63.3	73.8	83.6	90.5	97.8	100.5	101.5	81.25	101.50
28-Mar	103.3	104.1	104.5	104.6	105.1	106.4	107.4	108.2	109.0	108.9	94.3	70.6	54.1	43.6	47.6	45.7	46.5	52.5	63.9	75.6	83.6	89.2	92.2	98.1	84.11	108.95
29-Mar	102.0	104.1	105.3	106.6	107.2	107.3	105.9	107.0	90.7	62.1	48.5	42.8	37.5	33.4	36.2	38.0	43.5	41.3	55.7	66.4	67.1	70.3	75.4	80.8	72.29	107.29
30-Mar	80.7	81.8	86.0	86.6	94.3	99.0	101.3	103.4	98.4	91.2	82.2	76.4	68.3	64.9	61.5	64.3	59.6	55.9	62.4	78.7	90.8	93.3	99.8	103.0	82.66	103.37
31-Mar	104.4	105.1	105.5	105.3	105.0	104.5	104.7	92.9	79.7	70.0	60.9	53.1	46.7	39.8	37.2	35.0	32.9	36.9	48.1	61.0	71.3	79.8	84.0	89.0	73.04	105.50
	84.34	85.71	86.24	86.61	87.61	88.48	88.78	86.73	81.23	72.76	64.16	57.81	53.60	51.22	50.61	51.36	52.74	57.36	65.61	72.96	77.38	80.35	83.10	84.50	Diurnal Average	
	104.43	105.10	105.50	106.55	107.17	107.29	107.44	108.20	108.95	108.85	94.82	86.62	90.80	92.78	92.91	83.57	80.19	82.41	88.70	97.90	102.78	103.16	103.22	103.14	Diurnal Maximum	

WCAS - Wagner2

Summary of Hourly Standard Deviations

Wind Speed (WS) - kph

March 2017

Maximum Value: 10.99 kph on Mar 18 22:00

Maximum Daily Average: 4.09 kph on Mar 19

Minimum Value: 0.2 kph on Mar 3 03:00

Minimum Daily Average: 1.21 kph on Mar 2

Maximum Diurnal Average: 3.35 kph at hour 15

Minimum Diurnal Average: 1.56 kph at hour 21

Monthly Average: 2.158 kph

Percentiles: P_1 = 0.5 P_{10} = 0.8 Q_1 = 1.1 Median = 1.9 Q_3 = 2.8 P_{90} = 3.8 P_{99} = 6.4

Hours in Service:	744
Hours of Data:	729
Hours of Missing Data:	15
Hours of Calibration:	0
Percent Operational Time:	98.0

Day	Hourly Period Ending At (MST)																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	0.7	0.9	1.0	0.9	0.8	0.7	0.9	0.7	1.3	3.3	3.1	3.9	3.8	4.1	4.1	3.6	3.0	2.6	1.9	1.6	1.0	0.9	0.9	0.8	1.92	4.06
2-Mar	0.5	0.8	0.8	0.4	0.5	0.5	0.2	1.1	0.7	0.9	1.0	1.5	1.8	3.0	2.4	2.4	2.1	2.2	2.6	1.0	0.9	0.4	0.9	0.5	1.21	3.03
3-Mar	0.5	0.7	0.2	0.5	1.1	0.7	0.5	0.7	1.1	0.9	1.4	2.3	4.0	4.6	7.6	5.5	3.6	2.9	3.2	2.3	1.7	1.8	1.7	1.5	2.13	7.61
4-Mar	1.5	3.6	4.6	5.3	5.0	4.2	3.8	4.0	4.0	4.1	4.1	4.6	3.8	3.8	4.4	3.9	2.9	2.0	2.0	1.8	1.5	1.7	1.4	1.4	3.31	5.28
5-Mar	1.3	2.0	1.3	1.0	1.3	1.5	0.8	0.8	1.0	1.2	1.8	2.6	3.2	2.6	2.3	2.5	3.1	1.9	1.7	1.9	0.8	1.0	1.2	1.5	1.67	3.17
6-Mar	1.7	1.3	1.2	1.0	1.2	1.2	1.3	1.8	2.3	2.1	2.2	2.7	3.3	3.1	3.2	3.4	2.9	1.7	1.3	1.0	1.3	0.5	0.6	AF	1.84	3.42
7-Mar	AF	0.9	0.6	0.9	1.1	2.1	2.0	3.2	2.7	3.7	2.6	3.4	3.6	2.8	2.9	2.8	2.9	2.7	2.0	1.1	0.5	0.8	1.0	0.9	2.05	3.69
8-Mar	0.6	1.0	2.3	3.2	2.9	2.9	2.2	2.6	2.8	3.3	3.2	3.1	2.9	2.6	2.5	2.7	2.3	1.9	1.6	1.4	1.0	0.5	0.6	0.7	2.11	3.26
9-Mar	0.9	0.8	0.8	0.7	0.5	0.2	0.6	0.9	0.8	0.9	1.1	1.6	2.6	2.8	3.4	3.2	3.6	2.5	1.7	1.9	2.6	1.8	2.2	2.3	1.68	3.55
10-Mar	2.7	2.4	3.0	2.9	2.7	2.9	3.5	3.4	4.1	3.9	4.1	3.8	3.8	3.5	3.4	3.3	3.0	2.9	3.0	2.0	2.7	2.6	3.1	1.9	3.11	4.12
11-Mar	1.8	1.4	1.8	1.6	1.9	1.6	1.5	1.6	1.4	2.2	1.9	2.1	2.9	2.8	2.6	2.7	2.9	3.0	2.8	2.5	1.7	2.8	2.5	1.9	2.16	2.96
12-Mar	2.6	1.8	2.0	1.9	2.2	1.5	1.7	1.5	2.2	3.3	2.4	2.7	3.1	3.5	3.8	3.8	3.7	3.2	3.1	3.1	3.0	2.1	2.0	1.8	2.58	3.78
13-Mar	2.6	1.9	2.2	2.0	1.8	2.4	2.4	2.5	2.5	1.9	1.9	2.3	2.6	3.4	2.1	2.1	2.2	1.8	2.1	1.4	1.2	1.0	0.9	1.1	2.01	3.43
14-Mar	0.7	0.2	0.5	1.0	1.6	0.9	0.6	0.6	0.7	0.7	1.0	1.0	1.5	1.9	2.5	2.8	3.3	2.1	2.4	3.0	2.5	1.3	1.3	1.1	1.46	3.31
15-Mar	1.0	0.7	0.8	0.9	0.6	0.7	2.5	1.1	1.3	1.4	2.8	3.3	2.7	2.8	2.5	2.0	4.8	2.0	1.1	1.1	0.7	1.6	1.7	1.6	1.73	4.77
16-Mar	3.3	1.9	0.5	1.0	0.8	1.4	1.3	0.9	1.4	1.1	1.4	2.2	1.3	1.7	1.6	1.7	1.3	1.1	1.3	1.1	0.7	0.8	0.5	0.7	1.29	3.31
17-Mar	AF	AF	AF	AF	AF	1.5	0.9	1.4	0.9	1.2	1.5	1.2	1.4	2.8	2.9	3.2	3.7	1.9	2.3	1.6	1.2	1.9	1.9	1.6	1.85	3.72
18-Mar	0.9	0.9	0.9	1.1	1.0	0.7	0.6	0.5	1.6	1.8	2.2	2.0	2.4	2.3	3.4	3.7	2.4	4.3	3.4	2.2	2.4	11.0	9.0	7.2	2.83	10.99
19-Mar	6.0	4.4	4.0	3.6	2.4	1.7	1.9	2.0	2.6	3.7	4.4	5.4	6.5	6.1	6.4	5.8	6.6	5.0	3.4	1.4	3.2	3.5	5.1	3.1	4.09	6.56
20-Mar	3.6	4.5	4.1	4.3	4.0	2.7	1.3	1.5	2.9	3.2	2.5	2.3	2.6	2.6	2.3	3.1	2.5	2.3	2.4	2.0	1.4	2.3	1.8	1.3	2.65	4.45
21-Mar	1.5	1.5	2.1	2.9	2.5	3.8	4.1	4.1	3.9	4.5	5.9	6.7	7.1	6.2	5.4	4.8	5.5	4.2	2.5	1.9	2.6	2.5	2.3	2.3	3.79	7.11
22-Mar	2.6	3.3	1.6	1.1	1.4	1.4	1.6	2.4	2.0	2.2	2.6	2.9	3.1	4.0	3.4	3.0	2.7	2.6	2.2	0.8	1.0	0.8	0.8	0.7	2.10	4.02
23-Mar	0.7	1.1	1.5	1.7	1.6	1.0	4.4	2.2	2.3	3.2	2.6	2.2	2.2	1.8	1.4	3.0	1.7	1.4	2.3	1.1	0.9	0.6	1.1	0.7	1.77	4.38
24-Mar	0.7	0.6	0.9	1.1	1.1	0.9	0.9	1.3	3.9	2.6	4.0	4.2	3.7	3.1	4.4	3.8	3.2	1.5	2.8	1.9	1.7	1.2	1.4	1.4	2.18	4.36
25-Mar	1.8	1.6	1.8	2.5	2.3	1.8	2.6	2.0	2.1	2.0	1.0	1.6	1.6	1.9	2.6	1.7	2.0	2.1	1.8	3.8	2.7	1.5	1.7	1.1	2.00	3.82
26-Mar	1.4	0.9	1.1	0.8	0.5	1.0	0.7	1.0	1.0	1.1	1.2	2.3	2.8	3.0	3.7	3.3	3.3	3.2	2.8	1.7	1.7	2.0	2.6	2.2	1.89	3.69
27-Mar	1.8	2.1	1.5	1.9	1.6	1.7	0.8	1.6	1.3	1.0	1.7	2.4	2.0	2.4	2.5	2.6	2.4	2.0	2.0	1.6	0.9	0.6	0.8	0.7	1.66	2.64
28-Mar	1.0	1.0	1.1	0.9	0.9	0.9	1.0	1.1	1.2	1.2	1.4	1.3	1.6	2.1	2.2	3.6	3.2	3.6	3.0	1.1	1.1	2.3	2.0	1.9	1.69	3.62
29-Mar	1.2	1.3	1.0	1.1	1.1	1.5	0.8	0.9	1.0	1.3	1.3	1.8	2.6	3.0	4.1	3.3	3.0	1.9	1.9	3.3	1.5	3.1	2.1	2.3	1.93	4.07
30-Mar	1.5	1.7	1.1	0.9	2.0	1.8	1.2	1.4	3.1	1.7	1.5	2.6	3.2	2.9	3.5	2.1	2.4	2.3	1.3	1.3	1.2	1.1	1.1	1.3	1.84	3.46
31-Mar	AF	AF	AF	AF	AF	AF	AF	AF	1.3	1.2	3.8	4.4	4.0	4.7	4.6	3.8	2.7	2.0	0.7	1.4	1.0	0.7	0.9	0.4	--	4.73
	1.69	1.63	1.59	1.69	1.66	1.59	1.62	1.69	1.99	2.15	2.38	2.78	3.02	3.17	3.35	3.20	3.06	2.48	2.21	1.78	1.56	1.82	1.85	1.59	Diurnal Average	
	6.04	4.45	4.60	5.28	5.05	4.22	4.38	4.09	4.06	4.47	5.92	6.72	7.11	6.23	7.61	5.82	6.56	5.02	3.43	3.82	3.21	10.99	9.02	7.24	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

WCAS - Wagner2

Summary of Hourly Standard Deviations

Wind Direction (WD) - deg

March 2017

Maximum Value: 102.91 deg on Mar 29 21:00

Maximum Daily Average: 64.48 deg on Mar 15

Minimum Value: 7.4 deg on Mar 9 20:00

Minimum Daily Average: 13.22 deg on Mar 10

Maximum Diurnal Average: 56.95 deg at hour 6

Minimum Diurnal Average: 23.21 deg at hour 16

Monthly Average: 42.263 deg

Percentiles: P_1 = 8.7 P_{10} = 12.6 Q_1 = 17.5 Median = 34.6 Q_3 = 67.2 P_{90} = 85.1 P_{99} = 95.3

Hours in Service:	744
Hours of Data:	729
Hours of Missing Data:	15
Hours of Calibration:	0
Percent Operational Time:	98.0

Day	Hourly Period Ending At																								Daily	Daily
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average	Maximum
1-Mar	75.0	78.1	74.5	71.9	72.0	83.9	87.3	93.7	72.6	85.9	30.4	25.3	25.3	32.4	25.8	39.3	42.4	28.9	49.2	32.2	90.0	88.9	62.9	85.2	60.54	93.68
2-Mar	77.3	83.1	89.9	79.0	84.7	87.1	42.9	46.5	14.8	35.6	21.9	19.3	25.4	12.1	13.1	15.1	12.1	11.8	33.2	74.8	85.0	71.7	80.9	74.3	49.65	89.90
3-Mar	85.6	70.8	38.1	77.6	84.7	85.3	71.3	78.8	49.6	46.7	34.6	37.5	23.3	22.1	56.9	42.0	42.5	45.0	37.1	40.3	35.2	37.0	44.7	21.0	50.33	85.62
4-Mar	45.7	49.4	32.6	32.1	37.4	52.1	44.4	34.8	37.6	35.0	36.9	27.7	37.8	37.1	34.4	32.4	31.3	42.5	32.6	26.2	32.4	29.6	55.9	43.1	37.54	55.89
5-Mar	51.9	35.4	34.2	15.7	42.1	55.2	86.4	87.8	53.0	27.5	46.7	100.2	87.9	25.7	20.9	17.6	22.1	14.5	22.1	67.2	92.2	86.0	84.2	79.2	52.33	100.23
6-Mar	49.6	44.3	71.2	31.4	51.5	56.7	48.0	39.9	22.9	22.4	27.3	27.4	44.2	46.1	38.4	35.7	35.4	22.9	16.2	14.7	41.8	79.1	93.8	AF	41.78	93.76
7-Mar	AF	72.6	79.5	88.1	73.0	66.0	48.7	40.4	32.6	39.0	35.1	29.6	34.0	33.0	49.4	48.6	35.6	34.8	77.6	61.7	88.9	86.4	80.7	42.7	55.56	88.88
8-Mar	91.9	102.0	54.0	22.2	30.0	33.2	29.2	37.2	29.8	27.6	30.8	11.5	12.6	13.5	12.6	12.9	12.3	11.4	12.4	38.5	52.5	79.3	82.7	47.8	36.99	101.99
9-Mar	60.3	45.9	87.4	77.6	82.6	55.8	78.4	77.1	28.2	17.0	26.3	31.4	32.1	18.6	21.4	19.0	13.8	9.6	8.4	7.4	10.8	12.5	12.4	13.1	35.30	87.44
10-Mar	9.8	8.0	11.8	10.4	9.5	9.6	10.2	9.6	13.2	13.2	14.4	13.6	11.5	10.1	11.4	14.7	14.8	14.7	13.0	11.8	12.7	16.7	19.5	32.8	13.22	32.78
11-Mar	30.5	12.1	35.9	28.4	13.1	15.7	21.2	12.6	12.6	14.2	18.0	17.0	11.4	14.2	10.4	7.5	9.9	12.1	11.3	13.8	11.2	16.0	11.1	10.7	15.46	35.94
12-Mar	22.0	23.4	17.5	20.7	19.2	11.2	13.1	12.7	16.4	13.8	15.2	14.1	13.0	13.5	14.4	16.8	15.9	12.4	12.8	11.7	12.8	11.2	10.8	11.2	14.84	23.36
13-Mar	11.6	10.2	10.6	11.6	14.4	29.6	24.5	20.4	18.7	14.3	14.9	16.3	46.5	32.0	19.5	15.6	12.7	18.6	9.1	36.1	97.9	84.8	84.3	94.2	31.17	97.88
14-Mar	86.0	56.1	82.4	83.0	99.5	92.8	87.0	70.8	73.2	73.7	69.0	48.8	68.8	23.9	13.5	11.1	21.0	8.3	10.2	13.4	54.2	83.1	42.5	86.7	56.63	99.47
15-Mar	90.1	94.9	90.5	87.1	81.0	95.9	71.6	82.5	72.8	95.8	37.9	35.9	38.1	31.5	31.5	22.5	38.2	24.7	53.2	64.7	81.1	83.3	89.3	53.3	64.48	95.95
16-Mar	81.3	73.7	64.1	65.2	81.8	65.6	46.6	81.2	64.2	20.5	18.6	31.3	57.1	38.4	38.0	45.2	92.9	35.2	91.9	80.6	81.2	76.7	77.4	92.8	62.56	92.87
17-Mar	AF	AF	AF	AF	AF	67.4	50.4	78.1	70.5	60.4	40.4	18.6	17.7	30.9	17.8	16.5	16.7	14.6	14.5	14.6	8.7	16.9	37.7	31.8	32.85	78.09
18-Mar	66.2	75.6	65.4	88.5	85.4	79.6	89.2	74.7	64.9	37.5	19.3	22.0	20.4	11.9	24.4	18.8	46.6	31.4	27.8	36.5	50.5	31.6	24.4	26.0	46.60	89.24
19-Mar	23.0	19.6	20.9	18.7	20.2	23.5	24.6	28.8	29.6	45.0	27.5	27.3	23.7	21.1	23.9	21.5	20.2	39.2	42.2	73.7	56.7	28.8	29.1	25.0	29.75	73.72
20-Mar	33.4	33.1	34.0	28.4	29.0	51.1	60.9	35.8	26.0	24.6	41.9	94.6	51.7	53.6	87.8	45.2	13.7	13.0	15.7	8.9	15.4	15.1	11.5	10.3	34.78	94.63
21-Mar	10.7	10.2	18.2	14.3	17.2	13.9	12.8	13.8	14.1	15.3	16.5	18.3	17.4	16.4	17.1	17.7	16.1	18.1	12.2	7.5	10.5	13.5	14.0	20.8	14.86	20.78
22-Mar	14.2	14.5	54.4	78.0	34.2	75.7	60.4	47.3	33.4	27.7	23.7	25.0	25.5	30.2	30.1	27.8	41.1	26.6	51.2	87.0	87.9	85.7	73.4	81.9	47.37	87.91
23-Mar	96.1	72.4	63.1	21.7	33.2	61.3	63.1	12.8	11.9	53.7	42.0	67.3	36.4	25.4	29.3	33.0	16.8	26.0	51.6	90.6	88.8	92.8	77.3	96.4	52.62	96.44
24-Mar	91.9	80.9	74.6	62.1	85.0	63.1	49.8	35.1	9.6	15.2	16.9	15.9	14.4	13.3	16.7	15.3	15.8	8.7	10.4	27.5	50.0	49.9	58.5	51.4	38.83	91.87
25-Mar	51.1	47.8	92.6	21.4	23.6	22.6	27.7	36.1	67.4	66.0	24.2	27.3	16.1	28.3	18.5	15.9	12.2	59.0	65.4	70.5	67.9	85.5	56.1	57.3	44.19	92.60
26-Mar	14.5	84.6	74.4	85.7	89.9	81.2	90.7	55.9	33.6	35.9	28.7	42.4	17.3	22.8	20.1	14.0	11.4	11.9	10.5	43.7	48.5	22.5	40.8	27.2	42.00	90.71
27-Mar	11.0	11.6	13.8	19.5	29.7	45.1	82.4	67.9	14.4	35.9	65.2	57.0	15.8	13.2	12.8	15.5	11.4	9.9	7.5	22.3	68.1	87.4	87.5	89.8	37.29	89.83
28-Mar	73.4	78.8	95.7	91.5	81.3	78.0	81.2	67.5	70.4	14.6	25.3	28.0	17.9	18.7	12.6	16.2	19.4	16.2	31.9	100.6	70.5	51.5	68.2	55.7	52.71	100.58
29-Mar	65.2	94.4	84.4	77.2	76.3	66.7	86.6	78.7	39.7	50.0	30.8	36.0	46.7	40.2	20.8	16.7	15.9	20.0	11.7	43.7	102.9	43.8	86.2	75.8	54.60	102.91
30-Mar	66.7	48.1	58.8	82.8	49.6	83.8	83.1	77.7	50.9	15.8	31.5	52.5	40.0	29.5	41.9	22.6	68.5	73.6	88.0	26.8	42.3	92.4	63.4	80.4	57.11	92.39
31-Mar	AF	AF	AF	AF	AF	AF	AF	AF	36.5	49.5	18.7	23.4	25.1	24.9	22.1	27.0	23.0	52.4	63.8	46.3	82.7	88.9	90.2	63.0	--	90.25
	53.08	52.82	56.01	51.44	52.80	56.95	55.78	51.20	38.23	36.42	30.02	33.64	30.81	25.31	26.04	23.21	25.86	24.78	32.09	41.78	55.85	56.41	56.50	52.70	Diurnal Average	
	96.08	101.99	95.66	91.50	99.47	95.95	90.71	93.68	73.20	95.80	69.02	100.23	87.90	53.60	87.80	48.61	92.87	73.59	91.85	100.58	102.91	92.77	93.76	96.44	Diurnal Maximum	

AF - Analyzer Failure

,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3

WEST CENTRAL AIRSHED SOCIETY

CONTINUOUS AMBIENT AIR QUALITY MONITORING PROGRAM MONTHLY REPORT

END OF REPORT MARCH 2017