

TransAlta Utilities Corporation

AIR QUALITY MONITORING December 2017 Monthly Report

Prepared by:

**West Central Airshed Society
Drayton Valley, Alberta**

January 15, 2018

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

Dear Sir:

**Monthly Ambient Air Quality Monitoring Report for December 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	AMS 907	Power
Identified as:	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 no readings in excess of the AAAQO as indicated in Air Monitoring Directive Section III.A.3. (a&b) for SO₂, NO₂, or PM_{2.5}.

2. Operational times less than 90 percent:

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

3. Monitoring Notes:

AMS 907 (Power)

The wind instrument returned an uptime of 98.0% due to malfunctioning, attributed to cold temperatures and precipitation causing the instrument to freeze up. The relative humidity sensor returned an uptime of 96.8% due to instrument malfunctioning. All other analyzers and meteorological sensors returned uptimes of 100% for the month of December.

AMS 908 (Meadows)

All analyzers and meteorological sensors returned uptimes of 100% for the month of December.

AMS 959 (Wagner2)

The wind instrument returned an uptime of 98.9% due to malfunctioning, attributed to cold temperatures and precipitation causing the instrument to freeze up. All other analyzers and meteorological sensors returned uptimes of 100% for the month of December.

If additional information is required, please call (587) 499-4900.

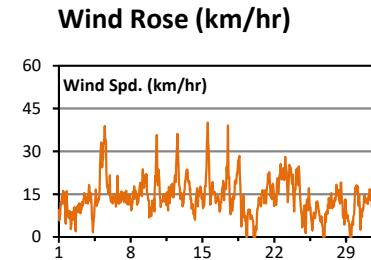
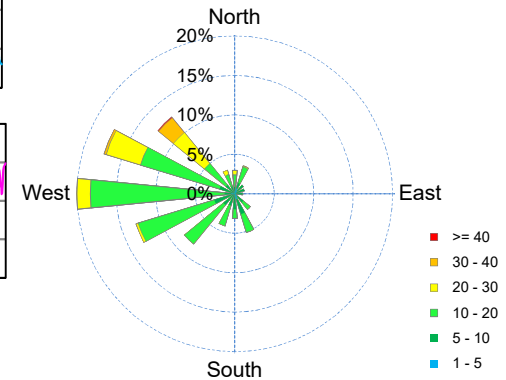
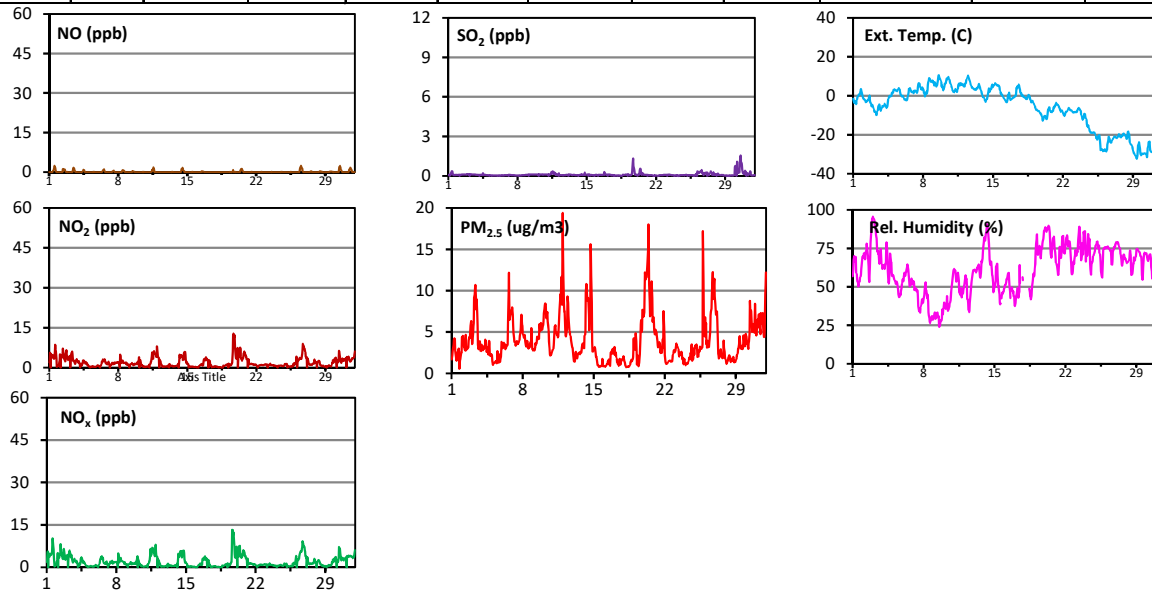
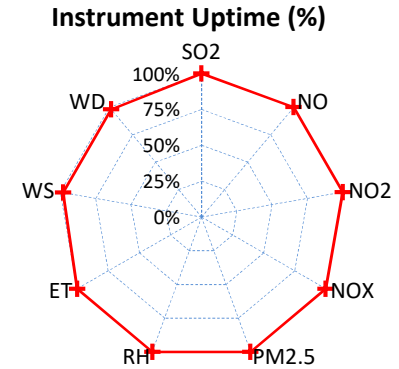
Sincerely,

A handwritten signature in black ink, appearing to read 'PAT ANDERSEN', written in a cursive style.

Patrick Andersen
Environmental Specialist

WCAS - December 2017 Power Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc Unit	Avg. Conc.	Uptime	Maximum		AAAQO Objective	Exceed No.	Maximum		AAAQO Objective	Exceed No.
				Conc	Time			Conc	Time		
SO ₂	ppb	0.1	100.0%	0.6	Dec-30	48	0	1.6	Dec-30 14:00	172	0
NO	ppb	0.1	100.0%	0.5	Dec-26	-	-	2.4	Dec-01 14:00	-	-
NO ₂	ppb	2.0	100.0%	4.8	Dec-20	-	-	12.8	Dec-19 17:00	159	0
NO _x	ppb	2.1	100.0%	5.1	Dec-26	-	-	13.3	Dec-19 16:00	-	-
PM _{2.5}	µg/m ³	4	100.0%	10	Dec-20	30	0	19	Dec-11 23:00	80	0

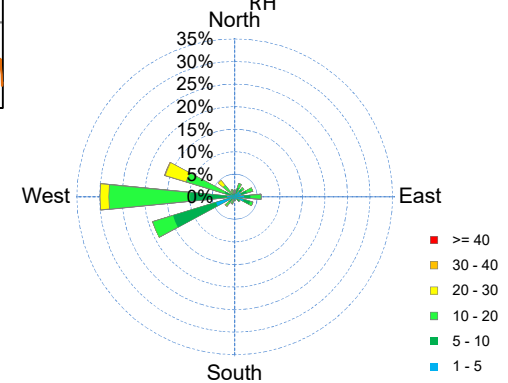
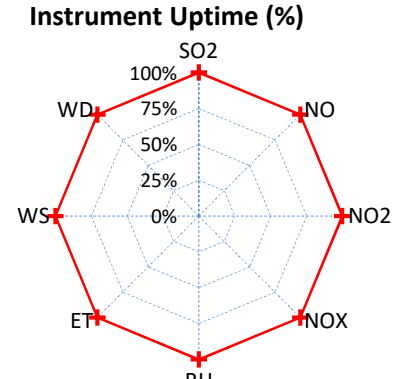
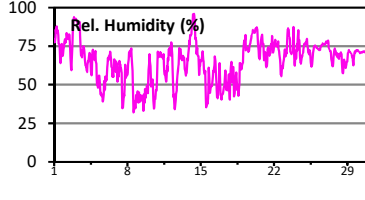
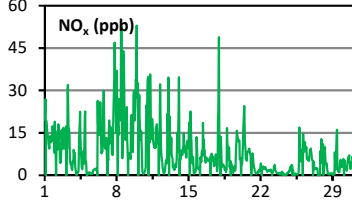
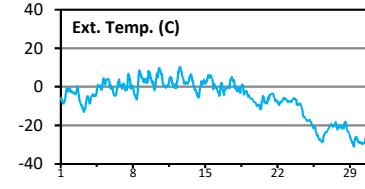
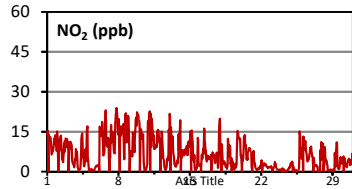
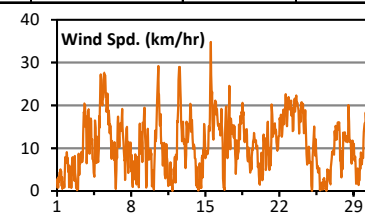
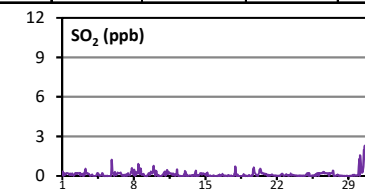
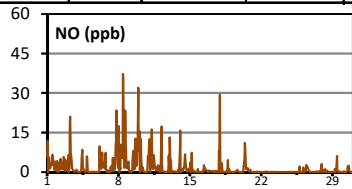


Monthly Summary

- * 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 December.
- * All compliance parameters are above 90% operational for the month of December.
- * Routine calibration was performed on December 18.

WCAS - December 2017 Meadows Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc Unit	Avg. Conc.	Uptime	Maximum		AAAQO Objective	Exceed No.	Maximum		AAAQO Objective	Exceed No.
				Conc	Time			Conc	Time		
SO ₂	ppb	0.1	100.0%	0.8	Dec-30	48	0	2.3	Dec-30 15:00	172	0
NO	ppb	1.8	100.0%	8.9	Dec-8	-	-	37.2	Dec-08 11:00	-	-
NO ₂	ppb	6.9	100.0%	15.4	Dec-8	-	-	23.9	Dec-07 20:00	159	0
NO _x	ppb	8.6	100.0%	24.1	Dec-8	-	-	53.0	Dec-09 23:00	-	-



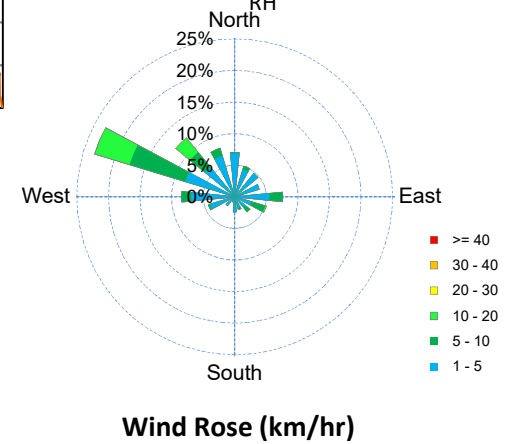
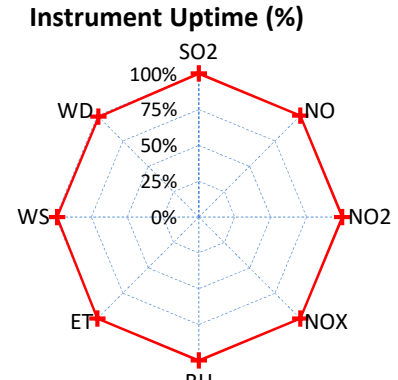
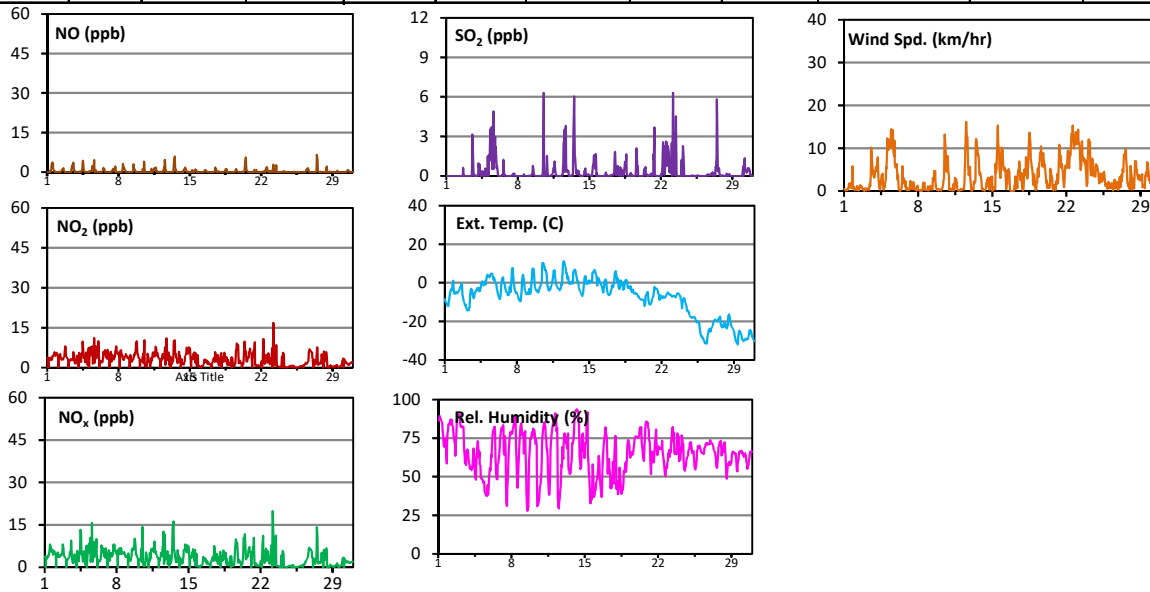
Wind Rose (km/hr)

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 December.
- * All compliance parameters are above 90% operational for the month of December.
- * Routine calibration was performed on December 27.

WCAS - December 2017 Wagner2 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc Unit	Avg. Conc.	Uptime	Maximum		AAAQO Objective	Exceed No.	Maximum		AAAQO Objective	Exceed No.
				Conc	Time			Conc	Time		
SO ₂	ppb	0.3	100.0%	1.6	Dec-5	48	0	6.3	Dec-23 5:00	172	0
NO	ppb	0.4	100.0%	0.8	Dec-13	-	-	6.5	Dec-27 12:00	-	-
NO ₂	ppb	3.2	100.0%	5.2	Dec-5	-	-	16.8	Dec-23 5:00	159	0
NO _x	ppb	3.6	100.0%	5.8	Dec-5	-	-	19.9	Dec-23 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 December.
- * All compliance parameters are above 90% operational for the month of December.
- * Routine calibration was performed on December 28.

WEST CENTRAL AIRSHED SOCIETY

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

**AMS 907
POWERS
DECEMBER 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

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Powers Station 907												December 2017		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Max (ppm)
							P10	Q1	Median	Q3	P90	1-hour	24-hour	
SO ₂ (ppb)	35	709	100.0	0.1	0.0	1.6	0.0	0.0	0.1	0.1	0.2	0	0	0.001
NO (ppb)	36	708	100.0	0.1	0.0	2.4	0.0	0.0	0.0	0.0	0.4	-	-	-
NO ₂ (ppb)	36	708	100.0	2.0	0.1	12.8	0.4	0.6	1.4	2.9	4.5	0	0	0.005
NO _x (ppb)	36	708	100.0	2.1	0.0	13.3	0.3	0.6	1.4	3.2	4.8	-	-	-
Particulate Matter 2.5 microns (μm ³)	0	744	100.0	4.0	0.5	19.4	1.3	2.0	3.2	5.1	7.7	0	0	10.29 ug/m3
Wind Speed (kph)	0	729	98.0	14.2	1.2	40.1	7.2	10.2	13.3	17.2	22.0	-	-	-
Temperature (°C)	0	744	100.0	-6.5	-32.4	10.6	-26.2	-12.4	-2.8	2.7	5.8	-	-	-
Relative Humidity (%)	0	720	96.8	61.9	23.9	95.7	40.4	51.3	64.3	73.3	79.2	-	-	-
Std Dev Wind Direction (deg)	0	729	98.0	11.2	3.3	72.7	7.4	8.9	10.4	12.0	15.2	-	-	-
Std Dev Wind Speed (kph)	0	729	98.0	2.9	0.6	9.2	1.5	1.9	2.5	3.5	4.8	-	-	-



WCAS - Power
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2017

Maximum Value: 1.56 ppb on Dec 30 14:00 Maximum Daily Average: 0.59 ppb on Dec 30 Minimum Value: 0.0 ppb on Dec 24 07:00 Minimum Daily Average: 0.03 ppb on Dec 5 Maximum Diurnal Average: 0.15 ppb at hour 13 Minimum Diurnal Average: 0.07 ppb at hour 22 Monthly Average: 0.107 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.1 P ₉₀ = 0.2 P ₉₉ = 1.0																								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 Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.11	0.36																							
2-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.10	0.12																							
3-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.10	0.13																							
4-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.07	0.19																							
5-Dec	0.0	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	0.03	0.05																							
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.06																							
7-Dec	0.1	0.1	0.1	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.07																							
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.08																							
9-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.10	0.11																							
10-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.12																							
11-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.3	0.1	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.16	0.34																							
12-Dec	0.1	0.1	0.1	Z	0.2	0.0	0.0	0.0	0.0	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	0.1	0.1	0.07	0.20																							
13-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.08	0.09																							
14-Dec	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	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.09	0.25																							
15-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.06	0.10																							
16-Dec	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.09	0.28																							
17-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.10																							
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.06	0.10																							
19-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3	1.0	1.3	0.7	0.5	0.4	0.2	0.1	0.1	0.1	0.25	1.31																							
20-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.16	0.54																							
21-Dec	0.1	0.1	0.1	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.07																							
22-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.08																							
23-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.06	0.09																							
24-Dec	0.1	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.04	0.07																							
25-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.08																							
26-Dec	0.1	0.1	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.24	0.43																							
27-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.17	0.33																							
28-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.16																							
29-Dec	0.0	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	0.1	0.7	0.05	0.66																							
30-Dec	0.8	0.7	0.6	Z	1.1	0.3	0.2	0.2	0.4	0.3	0.2	1.1	1.5	1.6	1.2	1.0	0.8	0.5	0.2	0.2	0.2	0.2	0.1	0.2	0.59	1.56																							
31-Dec	0.4	0.3	0.2	Z	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13	0.39																							
																								0.11	0.10	0.10	--	0.13	0.09	0.09	0.08	0.10	0.11	0.11	0.13	0.15	0.15	0.14	0.14	0.14	0.11	0.10	0.08	0.08	0.07	0.07	0.10	Diurnal Average	
																								0.77	0.69	0.56	--	1.06	0.32	0.28	0.23	0.44	0.54	0.54	1.10	1.49	1.56	1.16	1.01	1.31	0.72	0.55	0.38	0.21	0.21	0.23	0.66	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
December 2017

Maximum Value: 2.36 ppb on Dec 1 14:00		Maximum Daily Average: 0.50 ppb on Dec 26		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.00 ppb on Dec 12		Hours of Data: 708																						
Maximum Diurnal Average: 0.58 ppb at hour 13		Minimum Diurnal Average: 0.00 ppb at hour 1		Hours of Missing Data: 36																						
Monthly Average: 0.126 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.4 P ₉₉ = 1.8		Hours of Calibration: 36																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.9	1.2	1.6	2.4	1.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.39	2.36
2-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.6	0.9	1.0	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	1.07
3-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.5	1.0	1.7	1.4	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	1.66
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.9	0.8	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15	0.93
5-Dec	0.0	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	0.00	0.02
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.8	0.7	1.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.97
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.47
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.6	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13	0.66
9-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.37
10-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.05
11-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.5	1.0	1.7	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28	1.69
12-Dec	0.0	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	0.00	0.00
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.07
14-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	1.1	1.4	1.6	0.9	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29	1.60
15-Dec	0.0	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	0.00	0.01
16-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.21
17-Dec	0.0	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	0.00	0.00
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.81
20-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.7	1.0	1.1	1.3	0.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	1.25
21-Dec	0.0	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	0.00	0.01
22-Dec	0.0	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	0.01	0.05
23-Dec	0.0	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	0.00	0.02
24-Dec	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.08
25-Dec	0.0	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	0.00	0.01
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	1.2	1.7	2.4	2.2	1.9	1.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.50	2.36
27-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.31
28-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.29
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.17
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.9	2.0	2.4	1.9	1.2	0.7	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.42	2.35
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.4	1.7	1.6	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.36	1.66
		0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.17	0.43	0.53	0.58	0.54	0.41	0.23	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	Diurnal Average	
		0.00	0.00	0.00	--	0.00	0.00	0.00	0.04	0.04	1.07	1.97	2.35	2.36	2.36	1.87	1.36	0.34	0.18	0.01	0.03	0.00	0.05	0.00	Diurnal Maximum	
Z - zerospan																										
C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb		24-hr --- ppb																								



WCAS - Power
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2017

Maximum Value: 13.29 ppb on Dec 19 16:00		Maximum Daily Average: 5.10 ppb on Dec 26		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Dec 16 00:00		Minimum Daily Average: 0.36 ppb on Dec 15		Hours of Data: 708																																													
Maximum Diurnal Average: 2.52 ppb at hour 17		Minimum Diurnal Average: 1.73 ppb at hour 1		Hours of Missing Data: 36																																													
Monthly Average: 2.107 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 0.6 Median = 1.4 Q ₃ = 3.2 P ₉₀ = 4.8 P ₉₉ = 8.5		Hours of Calibration: 36																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	1.9	2.6	5.5	Z	5.0	3.6	3.7	4.6	4.8	4.3	4.4	4.5	5.0	8.0	10.3	7.4	6.4	3.4	0.3	0.5	0.4	0.6	0.7	1.0	3.85	10.27																							
2-Dec	2.0	2.6	5.0	Z	4.7	3.5	3.6	4.5	4.9	8.2	6.2	4.2	4.5	3.9	3.0	2.8	5.2	6.5	4.7	4.1	3.5	2.7	3.9	3.8	4.26	8.17																							
3-Dec	4.1	3.3	4.3	Z	4.2	4.8	5.6	5.9	5.1	4.0	3.5	4.3	3.5	2.6	1.7	1.7	2.2	2.4	3.0	2.5	2.2	2.1	1.8	2.2	3.35	5.95																							
4-Dec	2.3	1.7	1.1	Z	0.5	0.5	0.5	1.4	1.1	1.6	3.1	3.6	3.0	3.0	2.1	1.5	1.6	2.0	1.4	1.6	1.4	0.7	0.6	0.6	1.61	3.59																							
5-Dec	0.4	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.6	0.7	0.8	0.5	0.37	0.82																							
6-Dec	0.5	0.4	0.5	Z	0.6	0.7	1.0	1.3	2.3	2.9	3.6	3.6	3.1	3.9	3.1	3.4	2.3	1.6	1.5	1.4	1.1	1.1	1.2	2.0	1.87	3.87																							
7-Dec	2.1	1.7	1.2	Z	0.9	0.8	0.9	1.1	1.2	1.9	2.0	1.6	1.8	2.3	1.8	1.3	1.7	1.8	1.6	1.8	1.9	1.8	1.8	2.0	1.62	2.28																							
8-Dec	1.7	1.6	1.5	Z	4.8	4.0	2.0	1.7	2.0	2.5	3.4	2.3	2.3	2.2	2.1	1.9	1.8	1.9	1.6	1.2	1.7	1.4	0.9	0.9	2.06	4.85																							
9-Dec	0.8	1.0	0.9	Z	0.8	1.0	1.2	1.2	1.3	1.7	1.6	1.8	1.1	1.0	1.1	1.4	1.4	1.2	1.2	1.2	1.4	1.6	1.2	2.1	1.27	2.06																							
10-Dec	2.1	2.4	3.9	Z	2.6	2.8	2.1	1.4	1.1	0.8	0.9	0.4	0.3	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	1.05	3.86																							
11-Dec	0.3	0.5	0.8	Z	1.2	1.3	1.5	2.2	2.2	4.4	6.4	4.0	4.4	6.6	7.0	6.9	5.5	5.2	4.9	4.6	4.0	3.9	8.0	5.4	3.96	7.98																							
12-Dec	4.0	3.9	3.6	Z	2.9	2.5	2.4	1.7	1.4	0.9	0.4	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	1.20	3.98																							
13-Dec	0.5	0.4	0.7	Z	1.3	1.1	0.7	0.5	0.5	0.6	0.8	0.6	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.7	0.7	0.5	0.59	1.29																							
14-Dec	0.4	0.5	1.3	Z	3.1	4.8	3.6	4.6	4.1	4.9	5.7	5.5	5.7	3.7	3.5	5.6	5.8	5.6	5.9	5.0	2.9	1.6	1.5	1.8	3.78	5.94																							
15-Dec	1.6	1.3	1.2	Z	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.36	1.56																							
16-Dec	0.0	0.0	0.2	Z	0.4	0.6	0.8	0.8	0.9	1.2	1.4	1.3	0.9	0.8	0.9	2.7	3.1	2.9	2.9	2.6	3.6	3.9	2.7	3.3	1.64	3.87																							
17-Dec	2.7	3.0	2.5	Z	2.7	2.2	2.5	1.4	0.5	0.8	0.3	0.0	0.0	0.2	0.2	0.1	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.95	3.03																							
18-Dec	0.2	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.0	0.0	C	C	C	C	C	0.6	0.6	0.5	0.5	0.6	0.7	0.8	0.8	1.0	0.40	1.01																							
19-Dec	1.1	1.0	0.8	Z	1.4	0.9	0.4	0.6	0.8	1.1	0.8	1.1	1.6	1.8	6.3	13.3	13.1	11.3	12.4	10.9	7.4	4.7	3.4	3.3	4.32	13.29																							
20-Dec	3.8	6.6	7.3	Z	6.1	5.4	4.2	3.8	7.6	7.6	5.0	4.3	4.6	3.4	4.2	3.7	4.3	5.5	6.0	5.2	5.5	4.8	3.9	4.0	5.07	7.61																							
21-Dec	3.1	2.8	2.6	Z	3.1	2.3	1.5	1.1	1.1	1.3	1.4	1.5	1.3	1.2	1.2	1.2	1.1	0.8	0.9	1.0	0.9	1.1	1.1	0.9	1.50	3.07																							
22-Dec	0.7	0.6	0.5	Z	0.5	0.6	0.7	0.8	0.8	0.8	0.9	1.0	1.0	1.0	0.9	0.8	0.9	0.8	0.8	0.9	1.0	1.1	1.1	1.0	0.82	1.12																							
23-Dec	0.9	1.0	1.0	Z	0.9	0.9	0.9	0.8	0.9	1.4	1.0	0.8	0.9	0.8	0.8	0.9	0.9	0.7	0.8	0.5	0.5	0.5	0.7	0.5	0.82	1.41																							
24-Dec	0.4	0.5	0.5	Z	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.6	0.5	0.4	0.5	0.4	0.6	1.2	1.4	1.3	1.0	0.68	1.36																							
25-Dec	1.2	1.2	1.2	Z	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.3	0.3	1.3	0.6	0.8	1.6	1.3	1.2	1.2	0.71	1.58																							
26-Dec	2.2	4.0	2.1	Z	2.7	2.8	2.8	2.6	3.0	4.0	4.5	5.3	5.7	5.4	5.6	6.6	7.1	9.2	8.3	7.4	7.4	7.1	6.0	5.6	5.10	9.17																							
27-Dec	3.9	3.5	3.8	Z	3.6	2.8	2.2	1.6	1.2	1.0	1.1	1.3	1.4	1.4	1.1	1.1	1.3	1.3	1.4	1.2	1.7	2.9	2.4	1.8	1.96	3.92																							
28-Dec	1.7	1.6	1.9	Z	1.9	2.0	2.4	2.2	2.4	2.4	1.8	1.2	0.9	0.9	0.9	0.6	0.5	0.6	0.7	0.3	0.3	0.3	0.3	0.5	1.24	2.44																							
29-Dec	0.3	0.4	0.3	Z	0.3	0.5	0.4	0.3	0.8	0.6	0.7	0.7	0.6	0.5	0.7	0.9	1.9	1.7	2.8	2.7	1.9	2.6	3.2	3.4	1.23	3.43																							
30-Dec	3.5	3.7	2.5	Z	2.5	1.6	2.0	2.7	3.5	7.2	6.7	6.3	4.8	3.2	2.4	2.7	3.3	3.4	2.8	3.0	2.4	2.7	3.1	3.2	3.44	7.19																							
31-Dec	3.4	3.3	3.6	Z	4.0	3.7	3.6	3.8	4.1	3.9	3.7	3.8	4.1	4.0	3.9	3.9	3.7	3.4	3.1	3.6	3.6	3.7	4.6	6.1	3.86	6.09																							
																								1.73	1.86	2.03	--	2.08	1.92	1.76	1.81	1.96	2.37	2.44	2.24	2.17	2.16	2.24	2.43	2.52	2.48	2.33	2.16	2.02	1.90	1.94	1.96	Diurnal Average	
																								4.12	6.64	7.27	--	6.08	5.41	5.56	5.95	7.56	8.17	6.74	6.31	5.70	8.04	10.27	13.29	13.14	11.31	12.36	10.92	7.45	7.14	7.98	6.09	Diurnal Maximum	
Z - zerospan																								C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb																																																	



WCAS - Power
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2017

Maximum Value: 19.40 µg/m ³ on Dec 11 23:00		Maximum Daily Average: 10.29 µg/m ³ on Dec 20		Hours in Service: 744																																													
Minimum Value: 0.5 µg/m ³ on Dec 1 19:00		Minimum Daily Average: 1.36 µg/m ³ on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: 4.71 µg/m ³ at hour 23		Minimum Diurnal Average: 3.58 µg/m ³ at hour 14		Hours of Missing Data: 0																																													
Monthly Average: 4.001 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 1.3 Q ₁ = 2.0 Median = 3.2 Q ₃ = 5.1 P ₉₀ = 7.7 P ₉₉ = 14.0		Hours of Calibration: 0																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	1.7	2.2	2.7	2.9	3.5	4.1	4.2	4.2	2.8	2.4	1.8	1.5	1.7	2.1	2.6	2.5	3.0	2.1	0.5	1.6	1.7	2.0	2.5	2.5	2.45	4.22																							
2-Dec	4.3	4.2	4.5	4.1	3.7	3.2	3.2	2.9	2.7	4.7	3.3	2.9	3.0	3.0	3.0	3.1	4.0	4.4	4.3	4.3	5.7	6.1	6.3	4.4	3.97	6.34																							
3-Dec	3.5	3.9	4.8	5.7	6.1	9.1	9.5	10.3	10.7	9.0	7.7	8.9	7.1	5.8	3.4	2.9	3.4	3.5	3.9	3.4	2.7	2.7	3.3	3.5	5.63	10.71																							
4-Dec	3.3	3.3	2.8	3.2	3.0	3.2	3.2	4.1	4.0	3.9	2.6	2.6	2.8	3.1	2.6	2.2	3.9	3.6	2.4	2.1	2.3	2.2	2.3	2.1	2.95	4.06																							
5-Dec	1.5	1.0	1.2	1.2	1.3	1.2	1.3	1.4	1.5	1.3	1.2	1.7	2.7	1.6	1.3	1.3	2.2	2.3	1.4	1.7	2.0	2.8	3.8	3.6	1.77	3.82																							
6-Dec	3.1	3.0	3.5	3.7	3.4	3.5	3.4	2.9	3.1	3.4	3.3	3.4	3.5	6.1	9.6	12.2	8.5	6.5	7.0	7.6	7.1	7.3	7.6	8.0	5.45	12.17																							
7-Dec	7.1	5.9	5.0	4.3	3.8	3.8	3.7	3.3	3.5	3.9	3.7	3.5	3.8	3.6	3.7	3.9	4.0	4.6	4.9	5.5	6.7	7.1	5.9	5.7	4.62	7.10																							
8-Dec	4.9	4.6	4.4	4.3	4.7	4.3	3.8	3.3	3.2	3.6	3.9	3.8	3.6	3.0	3.3	3.2	3.2	3.6	3.8	3.8	5.5	4.3	2.9	2.9	3.82	5.49																							
9-Dec	2.8	2.9	2.8	2.8	2.8	3.1	3.7	3.5	3.6	3.9	4.4	4.4	4.1	4.4	4.2	5.9	5.8	5.1	5.5	6.1	5.5	5.4	5.3	5.8	4.32	6.08																							
10-Dec	5.8	6.3	7.2	7.8	8.2	8.4	8.4	7.1	6.7	7.2	7.4	6.3	5.6	5.3	3.8	3.0	2.3	2.1	2.2	2.3	2.3	2.6	2.8	2.8	5.17	8.45																							
11-Dec	3.0	3.4	4.2	5.7	5.6	5.8	5.1	5.0	4.9	4.6	4.8	4.3	4.4	6.0	6.9	7.7	8.9	9.6	9.0	11.7	9.1	8.3	19.4	14.5	7.17	19.40																							
12-Dec	11.7	8.3	7.5	7.5	5.2	4.6	4.5	5.0	5.2	6.3	9.3	8.5	6.9	6.2	5.2	5.1	4.6	4.4	4.0	3.7	3.3	3.1	3.1	2.2	5.65	11.70																							
13-Dec	1.8	1.5	1.4	1.5	2.0	2.6	2.2	1.8	1.8	1.9	2.3	2.4	2.4	2.5	2.4	2.3	2.6	2.6	2.5	2.8	3.2	3.6	3.6	3.2	2.37	3.61																							
14-Dec	3.1	3.0	4.5	4.7	5.0	9.8	10.8	10.3	9.4	8.8	9.1	9.1	7.1	5.2	6.5	6.2	15.6	14.6	11.8	8.6	3.8	2.7	2.6	2.7	7.29	15.62																							
15-Dec	2.8	2.9	3.2	3.1	2.4	2.0	2.1	1.6	1.3	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.8	1.1	0.8	0.9	1.48	3.18																							
16-Dec	0.8	0.9	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.5	1.5	1.7	1.1	1.1	0.9	1.7	2.5	2.6	2.6	2.4	3.0	2.8	2.4	2.6	1.61	2.96																							
17-Dec	2.4	3.2	2.2	2.3	2.5	2.0	1.8	1.3	1.2	1.2	1.0	0.9	1.0	1.7	1.2	1.1	1.5	1.7	1.6	1.6	1.7	1.8	2.1	1.8	1.69	3.17																							
18-Dec	1.4	1.4	1.1	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.1	1.4	1.6	1.6	1.5	1.6	1.7	2.0	4.2	3.0	1.36	4.21																							
19-Dec	3.2	3.1	2.8	4.8	3.9	2.6	1.1	1.6	2.1	1.0	0.8	1.3	1.8	2.3	4.4	5.9	6.4	5.0	5.4	7.7	7.7	7.2	6.9	7.4	4.02	7.68																							
20-Dec	10.0	12.2	11.3	12.1	11.5	12.2	12.8	13.5	15.1	18.0	15.9	10.8	8.7	6.9	7.9	7.9	9.0	11.1	9.1	6.2	6.6	6.8	6.1	5.2	10.29	18.02																							
21-Dec	4.7	4.8	5.3	4.9	4.9	4.5	3.9	3.4	3.2	3.4	3.4	3.8	3.5	2.7	2.5	2.8	2.7	2.5	3.0	4.1	3.1	7.5	5.6	4.4	3.95	7.50																							
22-Dec	2.2	1.5	1.3	1.2	1.3	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.8	2.2	2.4	2.8	2.8	2.8	1.69	2.85																							
23-Dec	2.6	2.7	3.3	3.6	3.5	3.3	3.2	3.1	2.9	2.3	2.0	2.3	2.5	2.3	2.2	2.6	2.4	1.7	1.9	1.5	1.1	1.6	1.7	1.4	2.40	3.60																							
24-Dec	1.1	1.0	1.1	1.2	1.1	1.3	1.2	1.3	1.4	1.8	1.8	2.0	1.7	2.5	2.1	3.5	1.6	1.5	1.6	1.8	3.0	2.3	2.8	3.1	1.82	3.51																							
25-Dec	3.4	3.2	3.4	3.5	2.9	2.0	2.0	2.0	2.7	2.7	2.6	3.2	3.0	3.0	3.0	3.0	3.1	3.5	17.2	11.0	6.3	5.0	4.5	6.8	4.30	17.20																							
26-Dec	5.3	6.0	3.5	4.0	3.1	3.9	3.9	3.1	3.2	3.8	4.2	5.1	7.0	7.5	7.8	9.4	10.4	12.2	9.0	9.4	11.1	11.4	9.3	8.4	6.75	12.24																							
27-Dec	7.7	7.1	7.1	7.5	6.5	3.8	2.4	2.2	1.8	1.9	2.2	2.5	2.9	2.5	2.0	1.9	1.8	1.8	1.9	3.9	3.1	2.6	2.0	1.7	3.37	7.67																							
28-Dec	1.6	1.3	1.1	1.2	1.4	1.5	1.9	2.0	2.2	2.1	2.0	1.5	1.4	1.5	1.6	1.5	1.8	1.8	2.0	1.5	1.3	1.6	1.4	1.4	1.61	2.20																							
29-Dec	1.5	1.7	2.2	2.1	2.4	3.0	2.9	3.5	4.1	4.5	3.3	3.1	3.0	3.0	3.3	3.0	2.9	3.4	4.6	4.2	3.5	3.3	4.1	4.8	3.22	4.77																							
30-Dec	4.5	4.4	3.6	3.7	3.4	2.9	3.7	3.8	4.9	8.8	7.8	7.7	7.5	6.5	5.0	5.5	5.3	6.0	5.6	5.4	4.9	8.4	7.0	5.0	5.47	8.76																							
31-Dec	4.6	4.8	5.5	6.5	6.5	5.9	7.1	5.6	5.7	5.3	4.7	7.3	6.1	6.2	6.2	7.3	5.9	5.1	4.4	4.4	5.0	9.6	10.6	12.2	6.35	12.22																							
																								3.79	3.73	3.72	3.96	3.78	3.89	3.87	3.75	3.81	4.08	3.92	3.85	3.65	3.58	3.62	3.94	4.31	4.28	4.43	4.36	4.14	4.43	4.71	4.42	Diurnal Average	
																								11.70	12.19	11.34	12.14	11.53	12.22	12.78	13.49	15.14	18.02	15.93	10.79	8.66	7.45	9.60	12.17	15.62	14.56	17.20	11.66	11.13	11.43	19.40	14.55	Diurnal Maximum	

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 ul/m³ 24-hr 30 ul/m³

Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 907, Power

Calibration Date: December 18, 2017

Parameter: NO/NO₂/NO_x

Instrument: Teco 42 i

Serial Number: 1153630147

Previous Calibration Date: November 15 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn 04300810

Barometric Pressure: 27.00" Hg

Calibration Method: Standard Gas Dilution/ GPT

Cylinder ID: CC119396

Temperature: 22.0° C

Cylinder Concentration: 25.4 ppm NO & NO_x

In Service: Oct 2 2017 Exp: Aug 2020

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	3.6	4.9	na	1.112	0.999	0.993	500 ppb
Current	3.6	3.9	na	1.096	0.999	0.993	500 ppb

NO	Final Zero: -0.6 ppb	Final Span: 123.9 ppb	As Found Correction Factor: 0.976
NO ₂	Final Zero: 0.6 ppb	Final Span: 15.4 ppb	As Found Correction Factor: NA
NO _x	Final Zero: -0.4 ppb	Final Span: 138.9 ppb	As Found Correction Factor: 0.976

Results of Linear Regression			Slope	Intercept	R ²
NO	R _c vs C _c	Previous	59.899810	15.525280	0.999997
		Current	60.094960	36.911620	0.999971
	C _i vs C _c	Current	1.000000	-0.000041	0.999971
NO ₂	R _c vs C _c	Previous	59.874250	1.203469	0.999997
		Current	60.371200	-19.906640	0.999995
	C _i vs C _c	Current	1.000000	0.000000	0.999995
NO _x	R _c vs C _c	Previous	59.837200	27.594720	0.999997
		Current	60.084130	39.264450	0.999972
	C _i vs C _c	Current	1.000000	-0.000047	0.999972

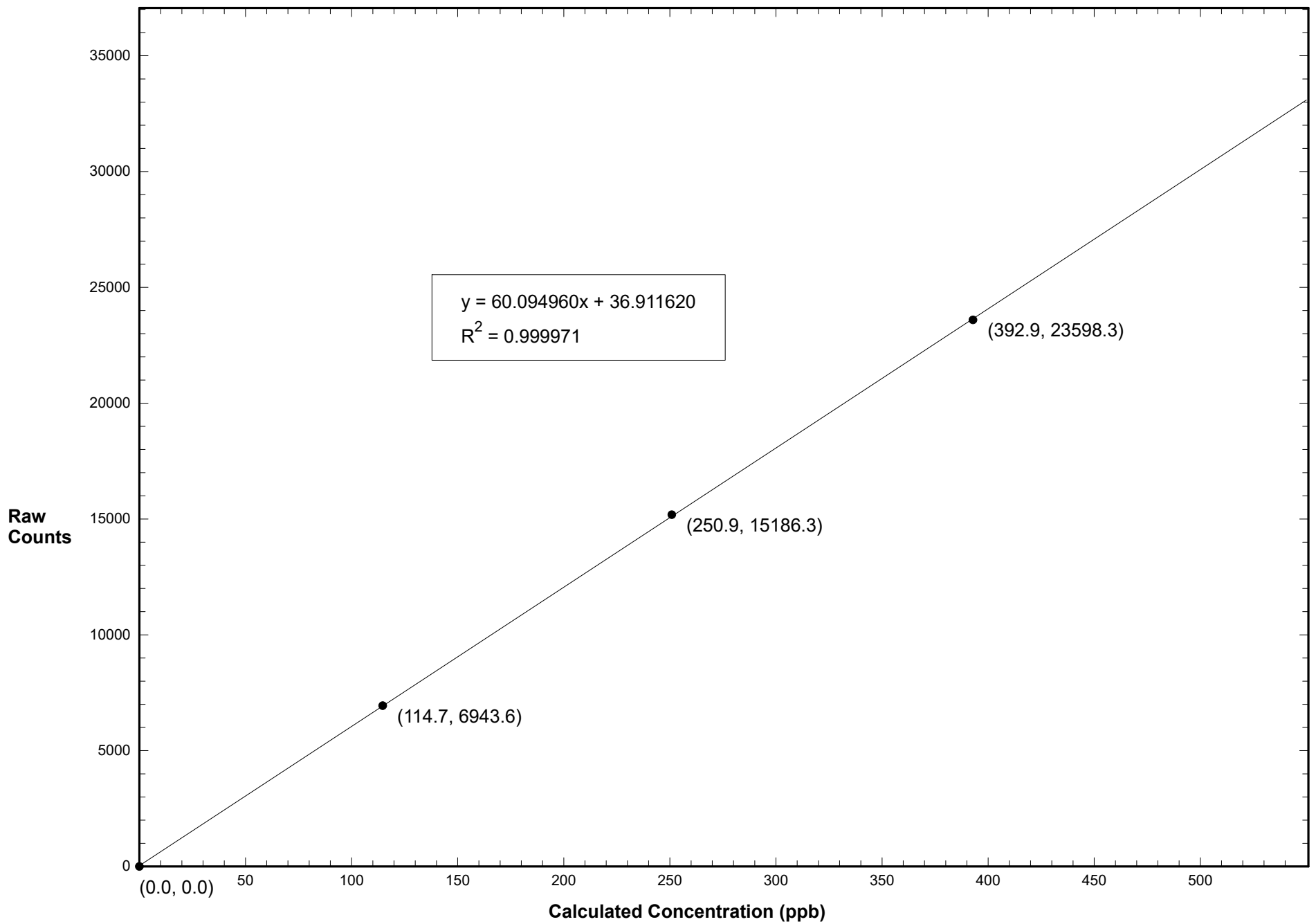
Comments: Sample Flow: 0.545 lpm

Calibration Data Summary (Page 2)

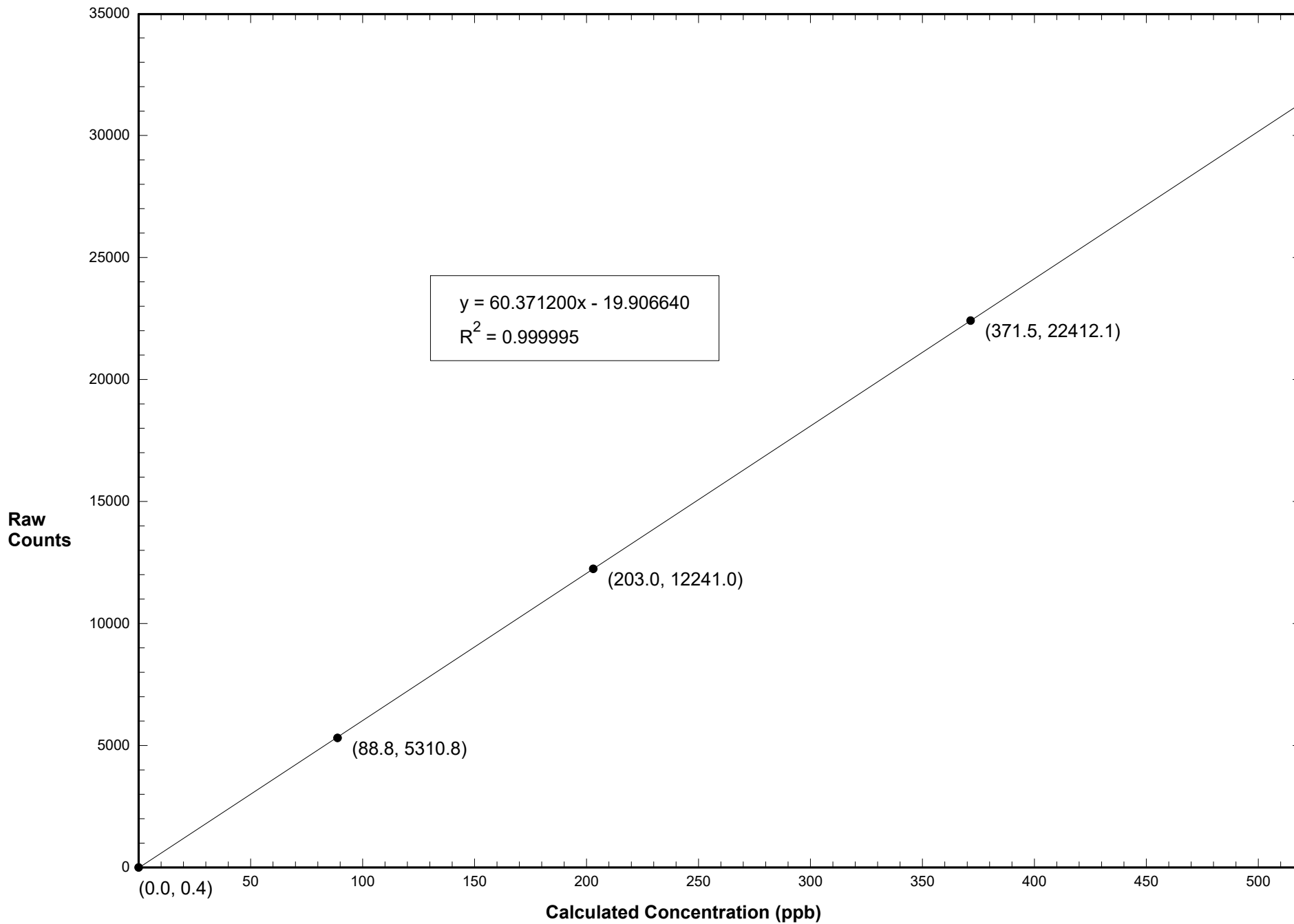
December 18, 2017 - Station 907

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		
0.07070	4.500	392.9	23598.3	392.1	1.002		
0.04500	4.510	250.9	15186.3	252.1	0.995		
0.02045	4.510	114.7	6943.6	114.9	0.998		
0.00000	4.470	0.0	0.0	-0.6			
NO Calibration					Average Correction Factor:	0.998	
0.07070	4.500	392.9	23596.7	392.1	1.002		
0.04500	4.510	250.9	15184.6	252.1	0.995		
0.02045	4.510	114.7	6946.6	115.0	0.997		
0.00000	4.470	0.0	1.5	-0.6			
NO _x Calibration					Average Correction Factor:	0.998	
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
392.8	1314.0	21.3	371.5	22412.1	371.6	1.000	1.000
392.8	11441.9	189.8	203.0	12241.0	203.1	0.999	1.001
392.8	18302.8	304.0	88.8	5310.8	88.3	1.006	0.994
			0.0	0.4	0.3		
					Average Correction Factor:	1.002	
NO ₂ Gas Phase Titration					Average Converter Efficiency: 0.998		
Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor				
NO	1.000	1.002	0.2				
NO ₂	1.001	1.000	-0.1				
NO _x	1.001	1.002	0.1				

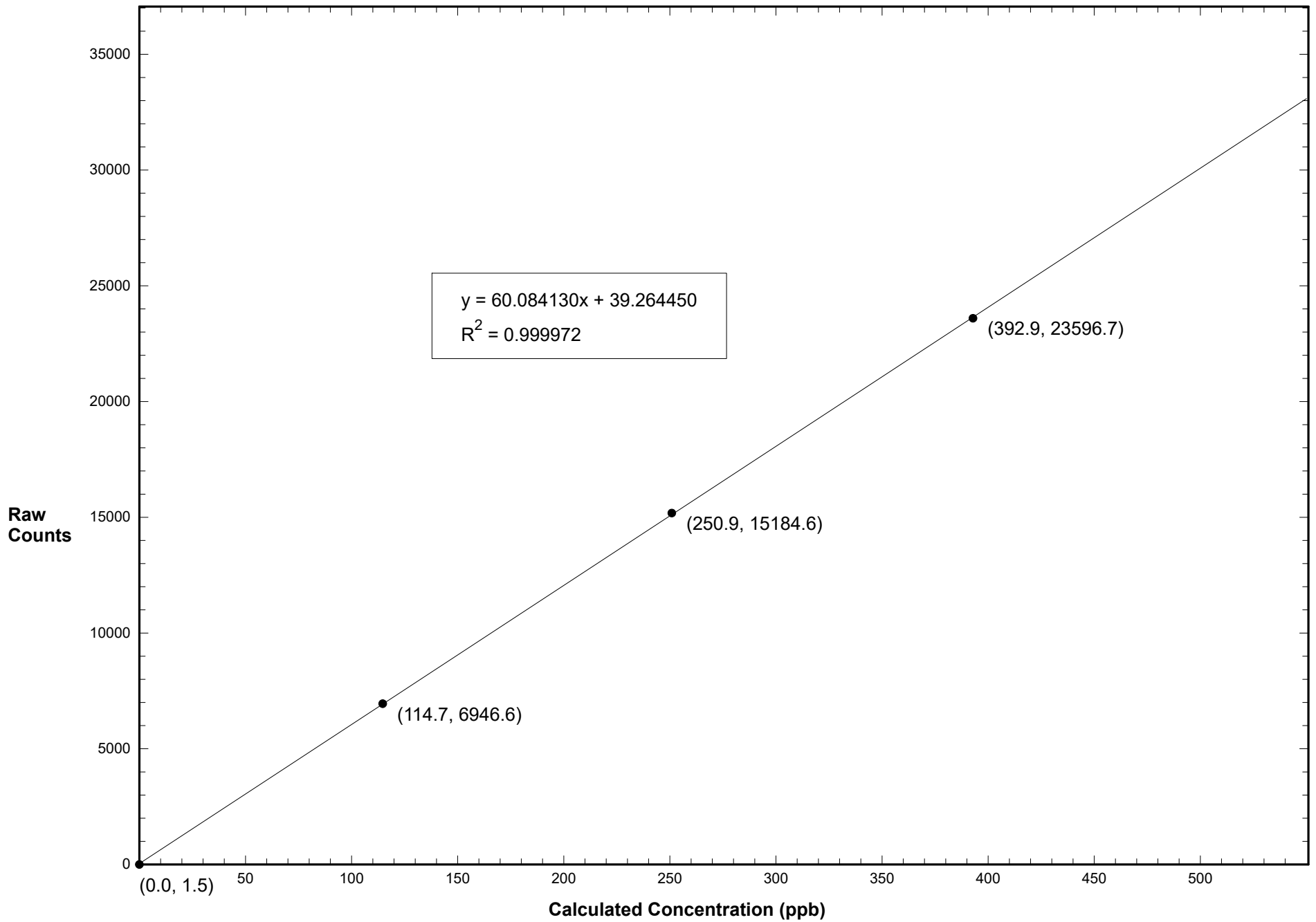
Station 907 NO December 18, 2017: Linear Regression



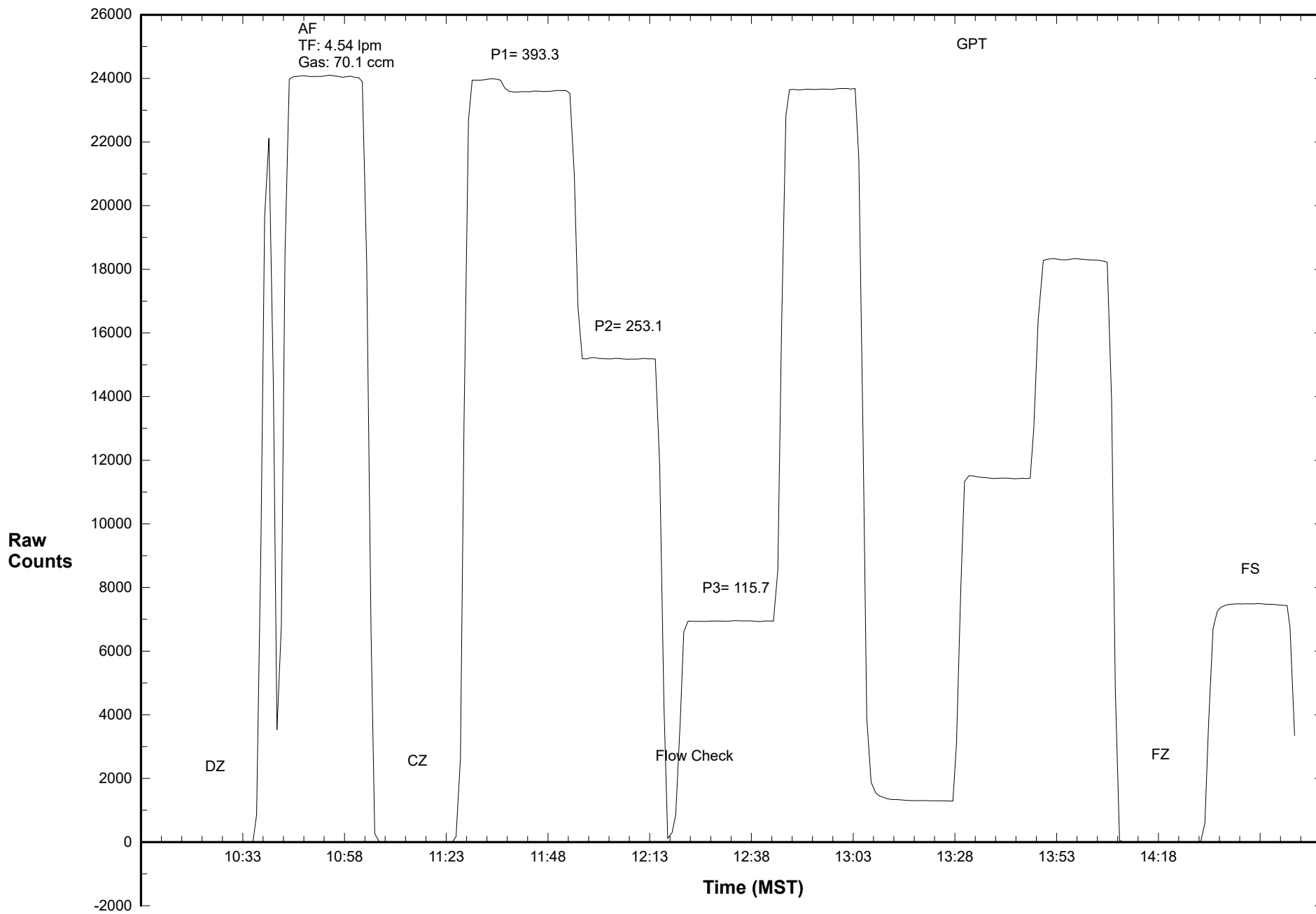
Station 907 NO2 December 18, 2017: Linear Regression



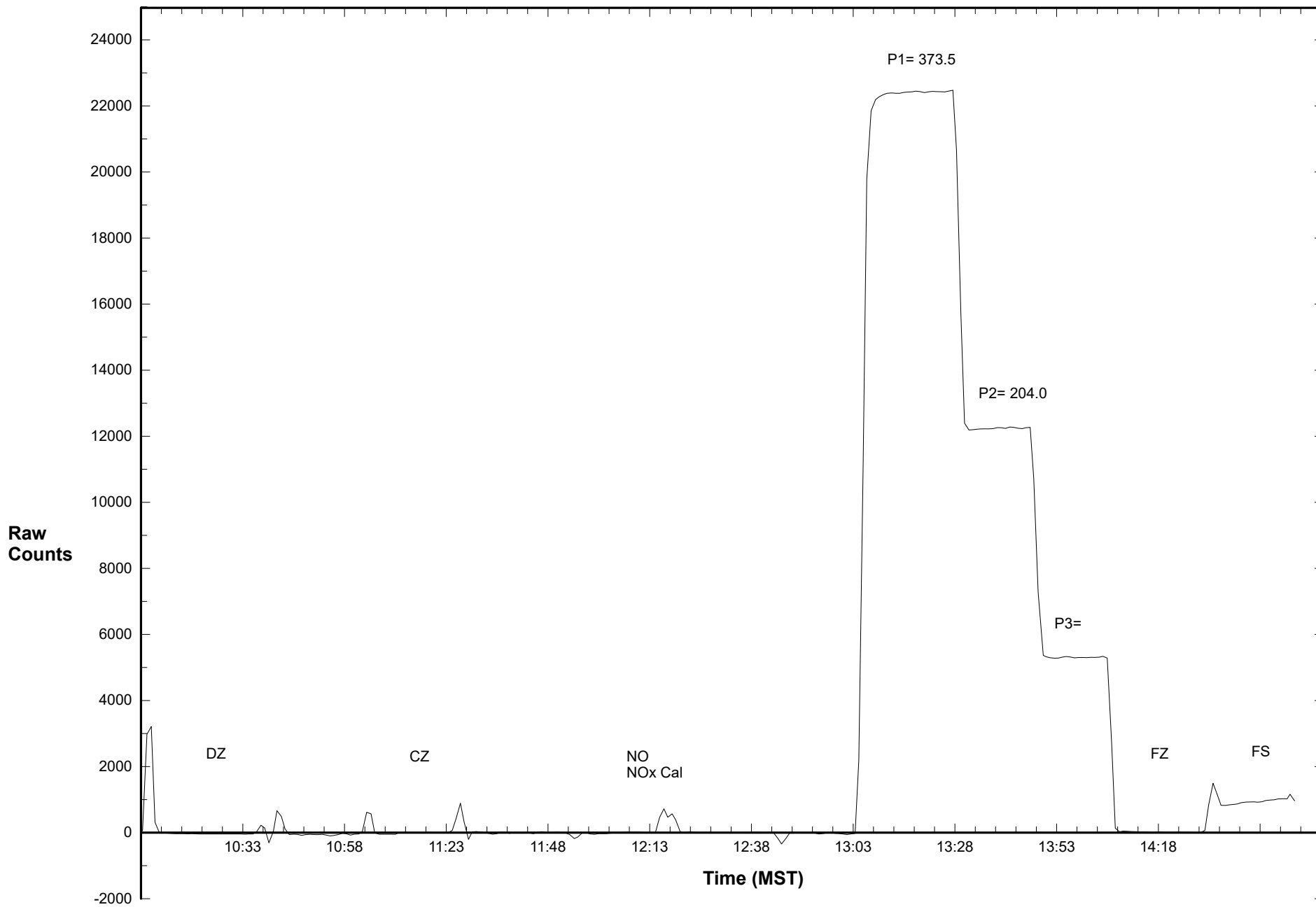
Station 907 NOX December 18, 2017: Linear Regression



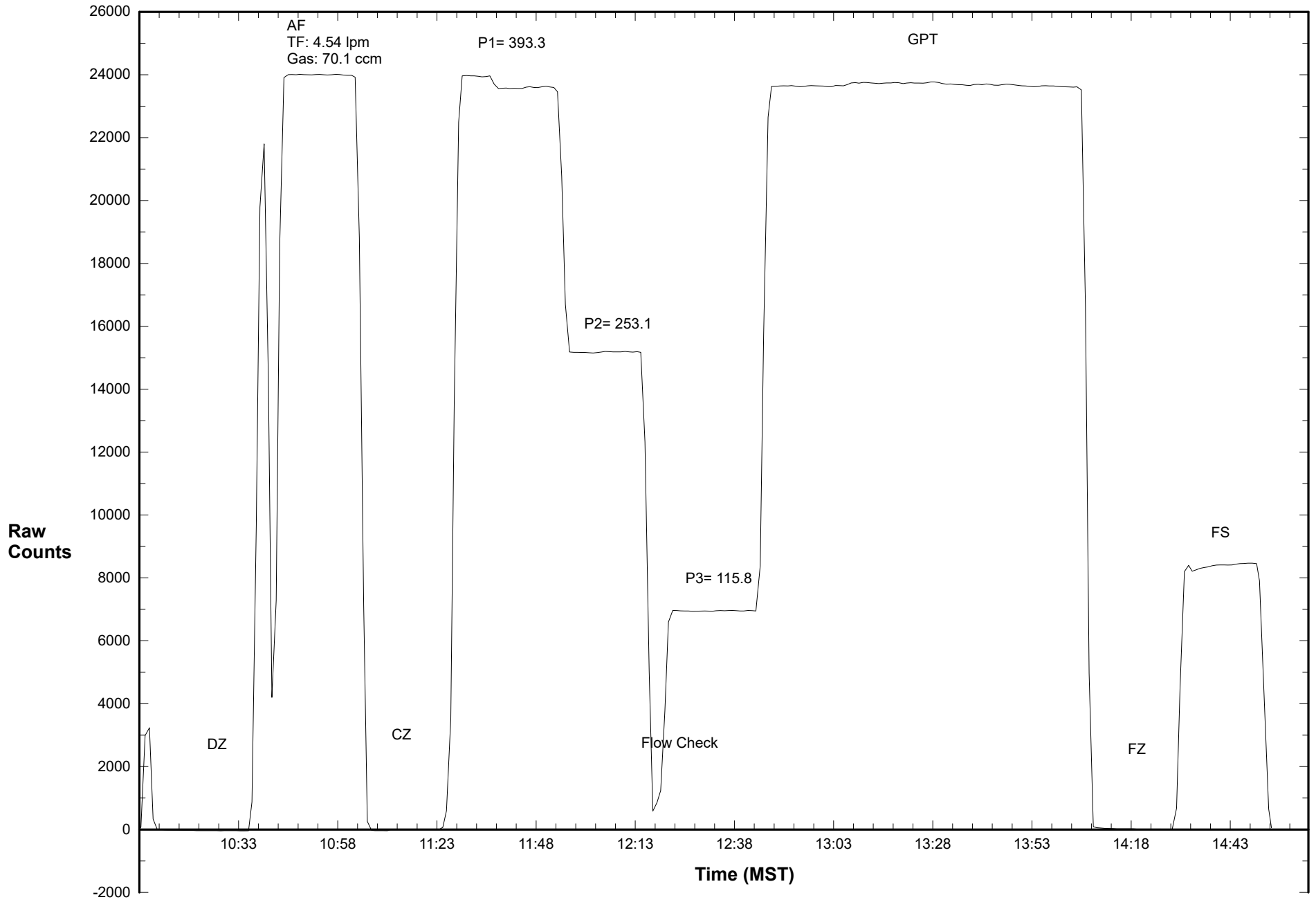
Station 907 NO December 18, 2017: Calibration Graph



Station 907 NO2 December 18, 2017: Calibration Graph



Station 907 NOX December 18, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 907, Power

Calibration Date: December 18, 2017

Parameter: SO₂

Instrument: Teco 43CTL

Serial Number: 333803284

Previous Calibration Date: November 15 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn 04300810

Barometric Pressure: 27.00" Hg

Calibration Method: Std. Gas Dilution

Cylinder ID: CC119396

Temperature: 22.0° C

Cylinder Concentration: 24.6 ppm SO₂

In Service: Oct 2 2017 Exp: Aug 2020

Technician: Dean Yustak

Instrument Settings	SO ₂ bkg ppb	SO ₂ Coefficient	Monitoring Range
Previous	4.37	0.808	500 ppb
Current	4.40	0.813	500 ppb

Final Zero: -0.1 ppb

Final Span: 59.9 ppb

As Found Correction Factor: 1.005

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
0.0707	4.500	380.5	22805.7	380.2	1.001
0.0450	4.510	243.0	14626.3	243.7	0.997
0.0205	4.510	111.0	6648.7	110.6	1.004
0.0000	4.470	0.0	17.8	0.0	

Results of Linear Regression

R _c vs C _c	Slope	Intercept	R ²
Previous	60.103320	0.320505	0.999997
Current	59.943610	16.181270	0.999991
C _i vs C _c			
Current	1.000000	-0.000076	0.999991

Average Correction Factor: 1.001

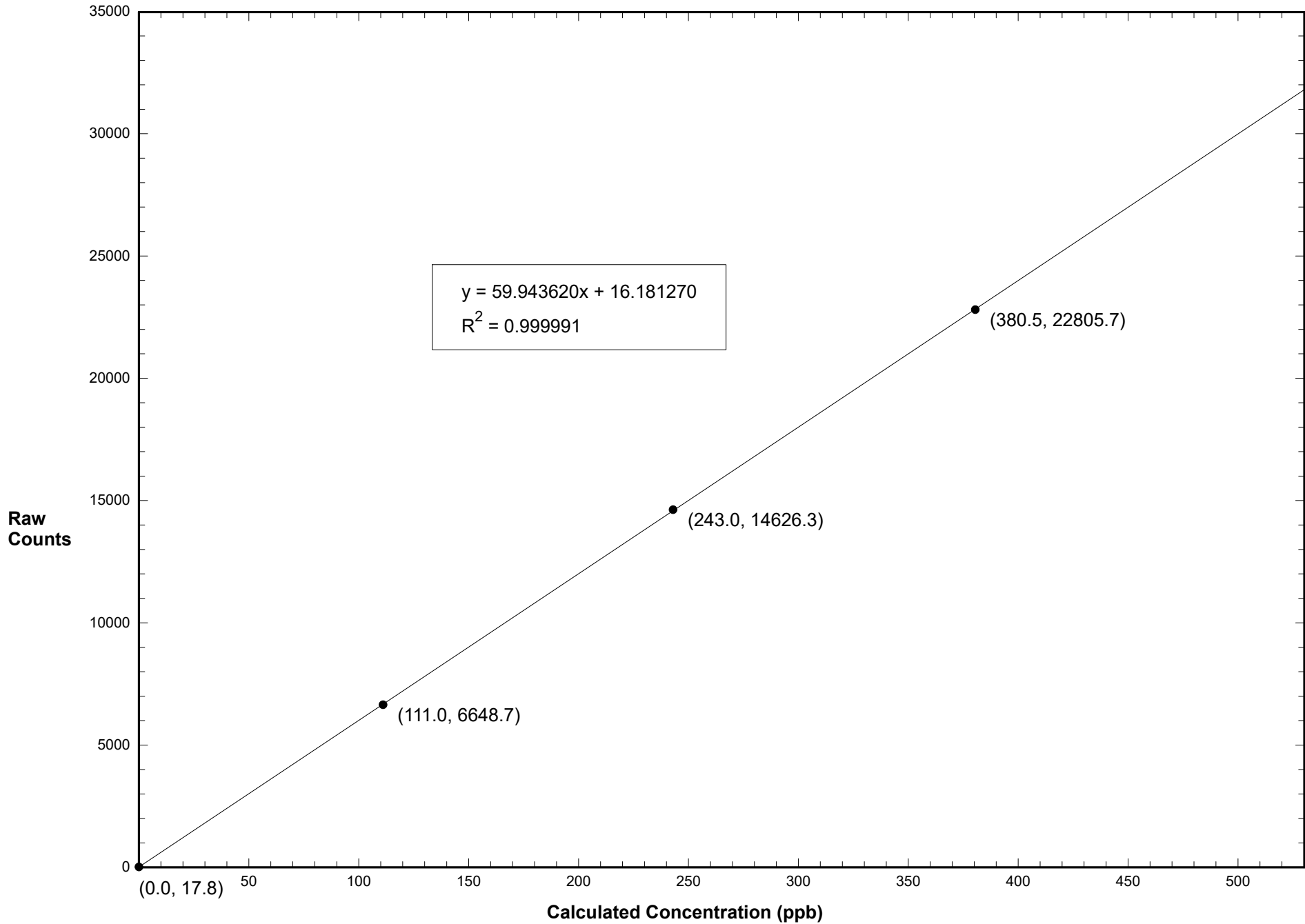
Previous Correction Factor: 1.000

Current Correction Factor: 1.001

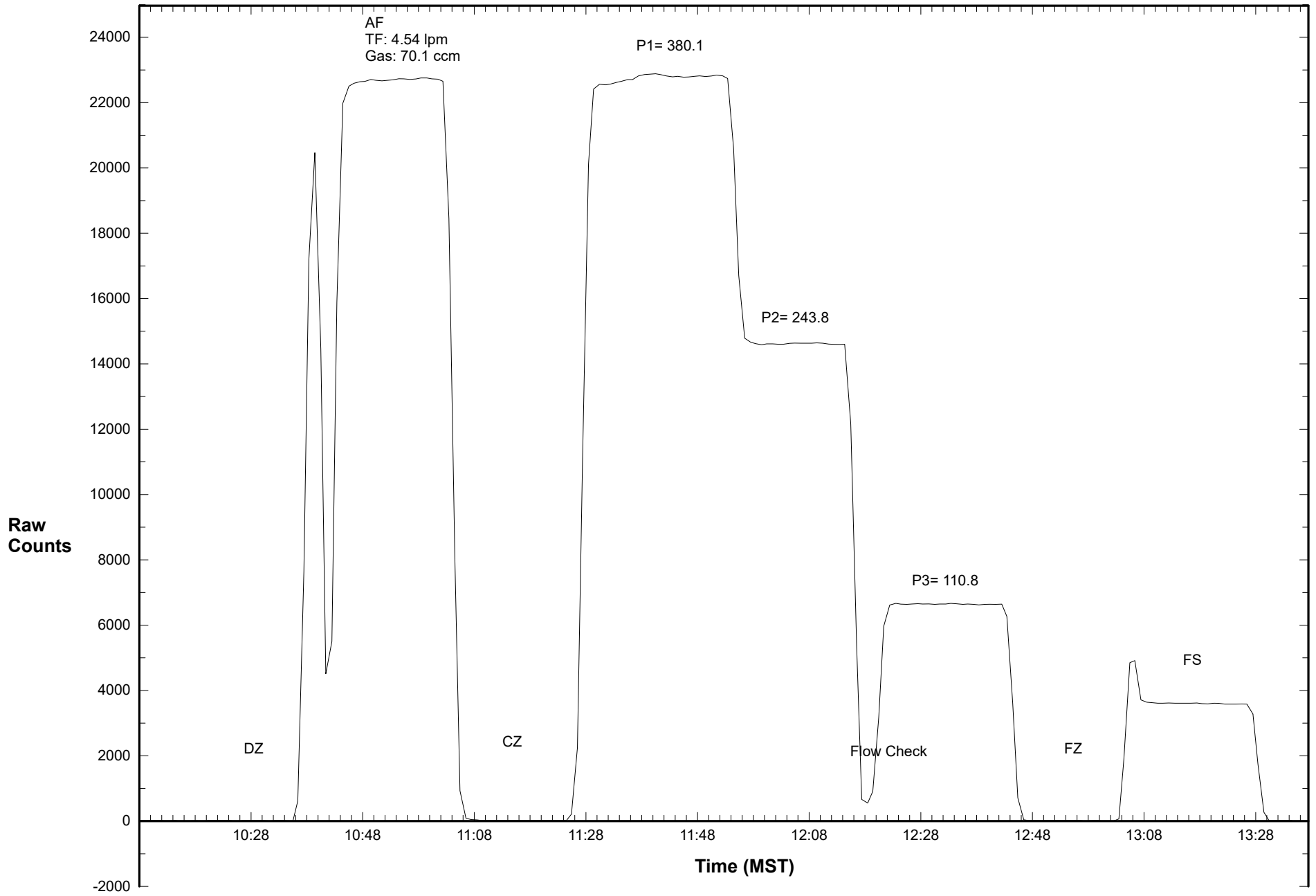
Percent Change of Correction Factor: 0.1

Comments: Sample Flow: 0.417 lpm

Station 907 SO2 December 18, 2017: Linear Regression



Station 907 SO2 December 18, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

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

**AMS 907
POWERS
DECEMBER 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 - Power
Summary of Hourly Averages

External Temperature (ET) - C
December 2017

Maximum Value: 10.57 C on Dec 9 14:00		Maximum Daily Average: 6.84 C on Dec 9		Hours in Service: 744																						
Minimum Value: -32.4 C on Dec 29 10:00		Minimum Daily Average: -29.12 C on Dec 29		Hours of Data: 744																						
Maximum Diurnal Average: -4.04 C at hour 15		Minimum Diurnal Average: -7.56 C at hour 24		Hours of Missing Data: 0																						
Monthly Average: -6.462 C		Percentiles: P ₁ = -30.6 P ₁₀ = -26.2 Q ₁ = -12.4 Median = -2.8 Q ₃ = 2.7 P ₉₀ = 5.8 P ₉₉ = 9.6		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-1.5	-2.5	-3.6	-3.4	-2.6	-3.7	-3.3	-4.3	-2.5	-1.9	-0.7	-0.5	0.0	0.7	0.4	0.7	0.8	1.7	3.5	2.7	2.0	1.2	0.0	-0.6	-0.72	3.49
2-Dec	-1.3	-1.7	-1.8	-2.0	-2.3	-2.6	-3.4	-3.1	-2.8	-2.9	-2.3	-2.1	-2.2	-1.7	-0.1	0.1	-2.4	-3.4	-3.8	-4.2	-5.4	-4.8	-4.8	-5.5	-2.76	0.12
3-Dec	-6.3	-6.7	-7.2	-8.2	-8.3	-8.3	-8.7	-9.8	-9.8	-8.6	-7.5	-7.4	-5.8	-5.1	-4.4	-4.7	-6.1	-7.4	-7.8	-7.2	-6.5	-5.9	-5.3	-5.3	-7.01	-4.38
4-Dec	-5.6	-5.4	-5.1	-4.2	-4.6	-5.0	-5.1	-5.9	-6.3	-5.8	-4.8	-3.4	-1.8	-1.2	-0.4	0.0	-0.3	-0.3	-0.3	-0.2	0.9	1.6	1.2	1.5	-2.51	1.61
5-Dec	2.3	3.2	3.2	3.2	3.0	2.9	2.8	2.6	2.4	2.3	2.7	3.0	3.6	3.9	3.8	3.2	2.0	1.2	0.5	0.2	-0.3	-0.1	-0.4	0.0	2.13	3.91
6-Dec	-0.4	-1.3	-1.8	-1.8	-1.7	-2.0	-2.1	-2.4	-2.4	-2.1	-1.3	-0.2	0.8	1.8	3.5	3.8	3.4	3.7	2.8	2.1	1.8	1.9	2.2	2.0	0.43	3.80
7-Dec	1.3	1.5	2.7	2.5	2.3	2.7	2.3	2.5	1.8	1.5	2.7	4.6	5.6	6.4	6.0	6.3	4.8	4.4	4.0	3.3	3.1	4.1	4.2	3.7	3.51	6.43
8-Dec	3.3	2.5	1.2	0.7	-0.4	1.0	0.9	1.5	2.1	1.1	2.7	5.5	6.8	7.8	9.0	9.1	8.5	8.0	7.4	7.1	7.1	7.3	7.9	7.7	4.82	9.06
9-Dec	7.2	6.3	5.3	6.8	7.0	5.8	5.8	5.0	4.8	5.3	6.6	7.4	10.1	10.6	10.5	9.4	8.6	8.4	8.0	7.0	4.7	5.3	4.2	4.3	6.84	10.57
10-Dec	2.8	3.6	4.2	5.1	6.2	6.3	6.4	7.4	8.9	8.9	8.5	9.4	9.7	8.9	8.7	8.1	7.1	6.4	6.0	5.4	4.6	3.6	2.8	2.4	6.31	9.75
11-Dec	2.1	2.2	1.9	1.9	2.9	3.5	3.3	2.6	2.7	2.0	2.8	3.7	5.3	6.0	6.3	6.3	5.2	5.5	6.4	5.5	6.1	6.1	5.7	5.4	4.22	6.43
12-Dec	5.4	5.8	4.8	4.8	6.3	6.2	6.6	8.1	8.1	8.6	9.7	10.1	10.4	9.3	8.8	8.1	7.0	6.3	5.8	5.2	4.7	4.1	4.2	3.9	6.76	10.38
13-Dec	3.7	3.6	3.3	3.2	3.1	3.1	2.9	3.7	3.8	3.7	3.8	4.4	5.2	5.8	6.1	5.5	4.3	3.4	3.1	2.5	1.6	1.0	0.0	-0.8	3.35	6.11
14-Dec	-0.7	-0.7	-1.2	-1.7	-2.4	-2.9	-3.2	-2.7	-1.7	-1.7	-0.9	0.2	1.7	3.0	3.8	2.8	2.1	2.6	3.4	3.4	4.4	5.7	5.6	4.4	0.97	5.71
15-Dec	5.4	5.4	5.4	5.4	6.4	6.4	5.9	5.8	5.7	5.4	5.2	5.2	5.4	5.2	4.8	4.2	3.0	2.0	1.0	1.1	0.6	0.7	0.1	-0.2	3.98	6.42
16-Dec	-0.8	-1.1	-1.3	-1.7	-2.2	-2.3	-2.8	-3.1	-3.3	-3.2	-1.9	-0.6	0.6	1.2	1.6	0.3	-1.3	-2.2	-2.1	-1.9	-1.7	-1.5	-1.4	-1.0	-1.42	1.58
17-Dec	-0.8	-0.9	-0.8	-0.5	-0.5	0.0	0.0	1.6	4.1	3.7	4.9	4.4	5.2	5.7	5.4	4.3	3.1	1.6	1.4	1.2	0.6	0.1	0.0	0.1	1.82	5.72
18-Dec	-0.1	-0.7	-0.9	-0.8	-0.8	-1.2	-1.5	-1.6	-1.7	-1.6	-1.0	-0.4	0.3	0.5	0.3	-0.1	-1.2	-2.1	-2.8	-3.4	-3.4	-2.5	-2.7	-2.8	-1.34	0.47
19-Dec	-3.2	-4.2	-4.4	-4.7	-5.5	-6.4	-7.0	-7.2	-7.1	-7.3	-7.6	-7.7	-8.0	-7.8	-7.9	-8.4	-8.7	-9.1	-9.0	-9.4	-10.1	-11.0	-11.9	-12.8	-7.77	-3.25
20-Dec	-12.2	-11.1	-10.6	-10.4	-10.3	-10.6	-10.7	-11.8	-12.0	-11.8	-9.7	-8.1	-7.0	-6.3	-5.9	-5.9	-7.2	-8.0	-7.9	-8.0	-8.4	-8.4	-8.1	-7.9	-9.11	-5.88
21-Dec	-7.1	-6.0	-5.7	-5.9	-5.6	-4.9	-4.0	-3.6	-4.0	-4.6	-4.7	-4.6	-4.8	-5.3	-5.9	-6.4	-6.8	-7.7	-8.2	-7.8	-7.7	-7.6	-7.7	-8.6	-6.05	-3.61
22-Dec	-9.2	-9.7	-10.1	-10.4	-10.0	-8.7	-8.2	-8.2	-8.2	-8.0	-7.8	-7.4	-7.0	-6.3	-6.4	-6.8	-7.2	-7.4	-7.5	-7.6	-7.5	-7.8	-8.2	-8.4	-8.09	-6.34
23-Dec	-8.5	-8.4	-8.6	-8.4	-8.3	-8.3	-8.4	-8.5	-8.4	-8.3	-7.4	-6.9	-6.3	-6.6	-6.8	-7.2	-7.3	-7.7	-9.7	-10.2	-10.9	-12.0	-12.3	-8.43	-6.34	
24-Dec	-11.9	-10.7	-9.9	-9.3	-9.4	-10.7	-11.3	-11.8	-12.4	-14.7	-15.9	-16.2	-15.1	-16.0	-16.7	-17.5	-18.2	-18.9	-18.8	-18.9	-18.9	-19.1	-19.0	-15.00	-9.27	
25-Dec	-18.9	-18.9	-18.8	-19.0	-19.4	-19.8	-20.9	-21.6	-21.7	-22.5	-22.4	-21.7	-21.0	-20.5	-20.3	-20.3	-23.2	-25.4	-27.9	-27.7	-27.4	-27.5	-27.6	-28.4	-22.61	-18.77
26-Dec	-27.9	-28.0	-27.9	-28.3	-27.5	-27.7	-28.2	-28.5	-28.6	-27.8	-25.0	-24.3	-22.8	-21.0	-21.1	-22.0	-23.5	-23.7	-23.8	-24.2	-23.6	-23.2	-22.6	-22.3	-25.14	-21.00
27-Dec	-22.0	-21.5	-21.2	-21.0	-20.8	-21.3	-21.4	-21.5	-21.7	-21.7	-21.4	-21.1	-20.7	-20.0	-19.8	-20.1	-20.8	-21.2	-21.3	-21.2	-20.8	-20.8	-20.8	-20.0	-21.00	-19.76
28-Dec	-19.6	-19.4	-19.5	-20.0	-20.2	-20.5	-20.8	-21.1	-22.1	-22.2	-20.6	-18.6	-18.4	-18.5	-19.5	-21.4	-23.9	-24.6	-24.8	-25.2	-25.4	-25.7	-26.2	-27.1	-21.89	-18.44
29-Dec	-28.3	-29.0	-29.7	-29.9	-30.4	-30.8	-30.9	-31.2	-32.0	-32.4	-30.7	-27.9	-25.4	-24.4	-23.9	-25.2	-27.1	-29.2	-30.1	-30.6	-30.3	-29.8	-29.8	-29.8	-29.12	-23.87
30-Dec	-29.9	-29.8	-29.6	-29.7	-29.5	-29.6	-29.8	-30.0	-29.9	-31.6	-29.7	-27.0	-25.8	-23.8	-23.8	-23.6	-26.6	-28.1	-28.5	-28.8	-28.7	-28.9	-28.8	-29.2	-28.36	-23.61
31-Dec	-29.2	-29.4	-29.8	-29.7	-29.5	-29.3	-29.5	-29.6	-29.6	-29.1	-27.3	-25.4	-24.0	-23.4	-21.8	-21.7	-23.6	-25.2	-26.1	-26.8	-27.2	-27.6	-27.9	-27.9	-27.10	-21.65
	-6.83	-6.87	-7.02	-7.02	-6.94	-7.05	-7.23	-7.32	-7.22	-7.33	-6.49	-5.59	-4.71	-4.22	-4.04	-4.48	-5.66	-6.32	-6.63	-6.96	-7.14	-7.11	-7.33	-7.56	Diurnal Average	
	7.23	6.29	5.38	6.79	6.96	6.42	6.59	8.06	8.89	8.88	9.69	10.11	10.38	10.57	10.51	9.36	8.57	8.36	8.05	7.07	7.14	7.28	7.93	7.68	Diurnal Maximum	



WCAS - Power
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1 Spd	9.5	5.7	7.9	7.9	12.0	11.3	11.6	14.5	14.6	11.7	16.2	15.6	15.4	14.1	10.0	6.4	4.6	15.0	16.1	12.1	8.0	7.6	6.8	6.5	7.67	16.21		
Dir	WSW	SW	SSW	SSW	SSW	S	S	S	S	S	SW	SW	SW	SW	WSW	SW	WNW	NNW	NW	WNW	W	WNW	W	WSW	SW	SW		
2 Spd	7.7	9.1	6.4	7.0	2.7	4.7	8.7	7.4	7.4	5.9	8.3	9.9	9.8	10.5	6.9	1.9	7.2	9.8	9.9	10.7	8.7	11.3	10.6	8.9	6.89	11.30		
Dir	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	WSW	W	WNW	WNW	W	WNW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	
3 Spd	11.8	10.3	8.3	9.8	9.4	10.4	12.3	11.4	11.0	12.7	13.6	15.4	14.1	13.3	14.2	11.8	12.0	13.8	13.3	11.7	14.8	14.7	18.2	17.4	12.25	18.23		
Dir	SW	SW	SW	WSW	WSW	W	W	WNW	WNW	W	W	WNW	WNW	WNW	W	W	W	W	W	W	WSW	WSW	W	W	W	W	W	
4 Spd	15.1	12.5	13.1	15.3	10.3	6.4	6.6	1.6	4.1	5.4	7.5	10.8	11.0	14.2	16.7	14.6	10.8	11.1	12.3	12.1	13.2	12.9	14.4	17.0	9.85	16.97		
Dir	W	W	W	WNW	WNW	NW	NW	NNE	SSE	S	SSW	SW	WSW	WSW	W	W	WSW	WSW	SW	SW	WSW	W	W	WNW	W	WNW		
5 Spd	23.6	29.6	31.8	33.1	27.6	24.4	26.6	27.7	32.3	32.4	35.7	38.9	35.2	33.4	33.5	23.0	18.0	17.1	17.0	16.3	15.0	18.0	16.5	21.5	25.84	38.85		
Dir	NW	WNW	NW	NW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	NW	WNW	WNW	WNW	NW	NW	NW	NW	
6 Spd	14.4	12.5	12.3	12.2	14.2	13.3	11.7	12.9	13.7	15.1	14.1	13.6	12.8	10.6	11.6	12.4	17.5	21.4	16.6	12.2	11.6	13.1	14.7	12.1	13.05	21.43		
Dir	WNW	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	W	WNW	WNW	W	WNW	W	W	W	W	W	WNW	
7 Spd	12.0	13.1	16.0	14.6	15.6	13.5	13.3	12.5	12.1	13.0	15.6	13.3	13.1	16.2	11.9	14.3	11.5	11.9	11.4	11.4	13.3	14.8	13.6	13.0	13.20	16.17		
Dir	WSW	W	W	W	W	WNW	W	W	WSW	WSW	W	W	W	W	W	WNW	WNW	W	W	W	W	W	W	W	W	W	W	
8 Spd	12.2	9.3	9.6	11.1	12.0	15.8	15.4	15.4	17.7	13.3	13.6	16.2	16.0	14.8	13.9	11.3	14.5	11.8	13.7	14.6	16.2	18.5	19.0	16.7	13.99	18.96		
Dir	W	W	WSW	SW	SW	WSW	WSW	WSW	W	WSW	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	WSW	W	
9 Spd	17.5	16.0	14.3	22.0	23.7	20.9	20.2	17.2	20.0	21.6	21.8	19.1	22.0	21.7	15.1	15.1	14.0	12.8	12.7	6.7	9.0	10.2	9.4	7.4	16.07	23.75		
Dir	W	WSW	WSW	W	W	W	W	W	WSW	WSW	WSW	WSW	W	W	W	W	W	W	W	W	W	WNW	W	WSW	SW	W	W	
10 Spd	7.3	9.6	12.8	12.2	11.9	10.4	13.3	8.9	16.5	21.4	19.5	26.1	35.6	35.7	25.4	18.1	20.1	23.6	20.7	18.7	15.0	12.5	10.5	12.0	15.34	35.73		
Dir	SW	SW	SW	SW	WSW	W	W	WSW	W	W	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	W	W	WNW	WNW	NW	
11 Spd	12.4	12.6	12.3	13.2	14.8	14.3	12.3	13.6	14.9	13.4	13.2	11.1	15.6	12.9	12.3	9.2	14.1	17.6	17.0	11.8	16.0	15.1	18.1	15.2	13.09	18.14		
Dir	W	W	WSW	WSW	W	W	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
12 Spd	18.2	18.6	14.0	14.7	13.8	15.3	19.5	21.6	21.1	19.2	24.4	27.6	32.3	36.2	32.9	26.4	22.9	18.5	17.5	16.7	13.3	14.5	15.2	15.3	18.24	36.20		
Dir	SW	SW	SW	WSW	WSW	WSW	W	W	W	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	W	WNW	WNW	NW	
13 Spd	12.9	10.7	11.3	11.6	13.4	15.3	17.2	19.5	19.4	21.9	23.3	23.6	23.0	20.1	19.1	18.7	19.4	16.4	17.0	13.1	13.5	10.0	10.0	16.26	23.62			
Dir	W	W	W	W	W	W	W	WNW	WNW	WNW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	WNW	WNW	W	WNW	WNW	WNW	NW	
14 Spd	11.2	11.5	9.5	7.8	8.5	7.0	6.0	8.5	13.9	14.0	15.3	17.1	14.4	10.6	16.0	14.4	16.0	16.3	15.7	17.7	16.3	14.8	13.4	14.8	12.38	17.69		
Dir	W	W	WSW	SW	SW	S	S	SSW	SSW	SW	SW	SW	SW	WSW	WSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	
15 Spd	11.6	10.1	10.5	10.7	11.2	17.1	17.9	17.7	22.8	24.4	32.1	36.5	40.1	33.6	29.9	25.3	20.1	15.7	11.3	12.9	14.8	16.7	17.3	19.2	19.32	40.10		
Dir	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	W	W	W	W	WNW	WNW	NW	NW	
16 Spd	16.2	15.5	16.0	14.9	15.1	15.7	12.6	11.8	13.0	12.6	13.1	14.0	14.5	14.1	12.2	9.4	8.8	9.2	11.3	11.6	13.5	15.3	17.0	17.8	11.42	17.81		
Dir	W	W	W	W	W	W	WSW	WSW	WSW	WSW	W	W	W	W	SW	SSW	SSW	S	S	S	SSW	SSW	SSW	SSW	WSW	SSW	SSW	
17 Spd	19.7	17.4	12.9	16.6	18.1	18.7	17.2	16.8	24.6	22.6	25.7	39.1	30.0	20.3	20.8	15.4	11.1	7.9	12.7	13.5	9.8	9.3	9.2	12.2	13.77	39.12		
Dir	SSW	SSW	SSW	SSW	SSW	SW	SW	WSW	W	W	WNW	NW	WNW	W	WNW	NW	NW	WNW	NW	NW	NW	WNW	WNW	WNW	WNW	W	NW	
18 Spd	14.4	13.4	13.6	16.9	19.8	19.0	18.6	18.8	22.3	21.9	23.3	26.6	26.6	27.5	28.4	22.1	20.2	13.7	9.5	3.6	7.5	8.5	8.6	14.6	17.25	28.38		
Dir	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	NW	WNW	WNW	NW	NW	NW	NW	WNW	WNW	W	WNW	NW	WNW	WNW	NW	NW	WNW	WNW	NW	
19 Spd	12.7	9.5	6.6	7.5	5.6	7.1	AF	AF	AF	5.9	8.2	9.6	8.3	8.7	9.6	9.1	6.3	6.3	7.3	7.6	6.5	6.1	5.0	AF	4.89	12.66		
Dir	NW	NW	NW	NNW	NNE	NE	AF	AF	AF	ENE	ENE	E	ENE	E	ESE	E	E	E	E	E	ENE	ENE	ENE	ENE	AF	ENE	NW	
20 Spd	AF	1.3	AF	AF	3.7	2.4	2.4	8.4	9.8	9.7	11.5	13.6	13.8	12.9	11.4	11.7	10.7	11.4	15.2	15.2	16.4	15.0	15.5	14.3	10.23	16.45		
Dir	AF	NNE	AF	AF	W	W	W	SW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SW	WSW	SW	WSW	SW	SW	SW	
21 Spd	11.8	14.2	15.7	16.4	11.8	13.6	16.6	17.9	18.9	22.1	18.9	21.5	22.7	19.6	17.4	14.2	15.2	14.0	13.2	18.3	18.7	18.4	15.8	10.8	13.00	22.69		
Dir	WSW	WSW	WSW	WSW	WSW	W	WNW	WNW	NW	NW	NW	NNW	N	N	N	NNW	NNW	N	N	N	NNW	NNW	NW	WNW	NW	NW	N	
22 Spd	12.4	11.9	14.1	11.8	11.1	12.7	18.9	20.6	17.4	15.0	17.6	20.2	21.5	22.3	25.1	25.7	21.8	20.1	20.8	20.5	21.5	24.0	22.9	19.9	18.62	25.66		
Dir	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW



WCAS - Power
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
23 Spd	21.6	28.1	25.0	25.1	23.1	22.3	18.1	12.1	13.5	17.2	21.6	25.3	24.7	24.3	24.4	23.3	20.5	18.7	18.4	21.8	15.1	13.7	8.9	12.5	18.60	28.08		
Dir	WNW	NW	NW	NW	NW	NW	WNW	W	W	W	NW	NW	NW	NW	NW	NW	NNW	NNW	NW	N	N	N	NW	WNW	NW	NW		
24 Spd	16.5	16.5	18.6	23.5	23.9	22.8	20.8	20.4	18.1	24.7	21.9	18.0	16.0	11.1	10.4	8.5	7.1	3.3	3.5	5.5	8.3	9.2	11.1	7.5	8.17	24.70		
Dir	WNW	WNW	WNW	NW	NW	NNW	NNW	N	N	NNE	N	NNE	NNE	NNE	NNE	NE	ENE	E	SE	SSE	SE	SSE	SSE	SSE	N	NNE		
25 Spd	3.0	1.2	5.4	11.0	13.2	12.4	12.3	9.3	16.0	17.1	11.5	10.6	10.4	7.6	6.4	4.9	2.5	2.1	5.8	7.5	8.6	8.3	7.4	6.5	4.40	17.11		
Dir	SSE	SSE	NNE	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	NNE	NNE	NNE	NE	ESE	S	SSE	SSE	S	S	S	NNE	N		
26 Spd	8.4	8.4	12.2	11.4	12.5	11.8	10.7	9.8	9.4	7.5	7.2	5.8	5.2	6.5	7.2	4.6	3.8	3.5	AF	AF	AF	AF	6.5	8.2	6.40	12.54		
Dir	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SSE	SSE	AF	AF	AF	AF	NW	NNW	SSE	SSE		
27 Spd	5.2	8.1	8.8	9.3	8.2	11.2	10.9	13.6	12.4	10.0	12.2	11.7	15.2	15.4	13.0	10.0	12.2	12.5	12.3	10.7	11.8	13.5	12.6	12.9	10.37	15.45		
Dir	NW	NW	NNW	NNW	NNW	NNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	WSW	WSW	WSW	WNW	WNW		
28 Spd	15.2	18.3	17.3	14.5	15.4	15.8	16.4	13.2	12.7	11.7	11.7	19.0	19.1	14.9	13.5	12.4	7.8	6.7	9.7	5.8	4.3	8.3	13.2	10.5	6.28	19.06		
Dir	W	W	WSW	WSW	WSW	WSW	W	W	W	W	NW	NNW	NNW	NNE	NNE	NE	NE	NE	NE	ENE	NE	NE	NNE	NNE	NW	NNW		
29 Spd	8.5	7.1	6.7	7.7	5.8	5.9	4.9	4.7	2.3	AF	AF	AF	AF	4.4	3.8	5.6	4.1	7.3	7.7	9.5	13.2	17.3	17.6	16.7	3.21	17.64		
Dir	NNE	N	N	N	NNW	NNW	N	N	NNE	AF	AF	AF	AF	NNE	NE	NE	SE	SSE	SE	SE	SE	SE	SE	SE	E	SE		
30 Spd	18.1	17.4	15.7	17.6	13.8	11.0	14.8	12.4	10.2	2.5	6.5	8.1	8.5	7.0	9.9	9.2	9.9	11.1	14.5	13.6	14.3	12.8	13.5	12.0	11.41	18.12		
Dir	SE	SE	SE	SE	ESE	ESE	ESE	SE	E	NE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SE	SE		
31 Spd	12.2	12.0	11.5	13.1	14.3	14.8	13.9	16.7	12.8	14.1	13.9	13.5	10.5	11.5	11.9	11.7	8.0	7.5	7.6	8.6	9.8	7.7	7.2	7.5	11.13	16.73		
Dir	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SSE	SSE	SSE	S	S	S	S	SSE	SSE		
Spd	9.40	9.22	9.07	9.03	8.70	8.46	9.30	9.11	10.07	10.18	11.33	12.69	13.22	11.66	10.32	7.93	7.45	7.27	7.35	6.37	7.16	7.80	7.83	8.74	Diurnal Average			
Dir	W	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	W	W	Diurnal Maximum			
Spd	23.62	29.63	31.84	33.08	27.62	24.36	26.62	27.71	32.32	32.42	35.71	39.12	40.10	36.20	33.50	26.44	22.89	23.62	20.77	21.82	21.45	24.01	22.89	21.53	Diurnal Maximum			
Dir	306.79	303.31	303.76	308.29	303.29	302.44	303.09	303.85	311.13	312.42	318.34	309.30	314.00	312.93	318.07	305.63	310.80	311.66	298.17	1.42	294.63	296.87	296.36	306.65	Diurnal Maximum			
Maximum Speed Value: 40.1 kph on Dec 15 13:00																				Minimum Speed Value: 1.2 kph on Dec 25 02:00					Hours in Service:			744
Maximum Daily Speed Average: 25.84 kph on Dec 5																				Minimum Daily Speed Average: 3.21 kph on Dec 19					Hours of Data:			729
Maximum Diurnal Speed Average: 13.22 kph at hour 13																				Minimum Diurnal Speed Average: 6.37 kph at hour 20					Hours of Missing Data:			15
Monthly Average Velocity: 8.944 kph 278.09 deg										Speed Percentiles: P ₁ = 2.4 P ₁₀ = 7.2 Q ₁ = 10.2 Median = 13.3 Q ₃ = 17.2 P ₉₀ = 22.0 P ₉₉ = 35.7										Percent Operational Time:			98.0					
All monthly, daily, and diurnal averages have been calculated using vector methods																												
AF - Analyzer Failure																												
Frequency Distribution																												
		Speed Range (kph)																										
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total																					
North	3	12	22	10	0	0	47																					
NorthEast	9	15	4	0	0	0	28																					
East	2	10	2	0	0	0	14																					
SouthEast	4	21	29	0	0	0	54																					
South	4	31	20	0	0	0	55																					
SouthWest	2	35	81	2	0	0	120																					
West	5	34	177	26	1	0	243																					
NorthWest	1	21	58	65	20	3	168																					
Total	30	179	393	103	21	3	729																					



WCAS - Power
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2017

Maximum Value: 95.70 % on Dec 3 00:00																								Hours in Service: 744			
Maximum Daily Average: 81.61 % on Dec 20																								Hours of Data: 720			
Minimum Value: 23.9 % on Dec 9 14:00																								Hours of Missing Data: 24			
Minimum Daily Average: 30.38 % on Dec 9																								Hours of Calibration: 0			
Maximum Diurnal Average: 65.60 % at hour 4																								Percent Operational Time: 96.8			
Minimum Diurnal Average: 53.17 % at hour 15																											
Monthly Average: 61.932 %																											
Percentiles: P ₁ = 27.6 P ₁₀ = 40.4 Q ₁ = 51.3 Median = 64.3 Q ₃ = 73.3 P ₉₀ = 79.2 P ₉₉ = 90.3																											
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	56.7	61.2	67.5	70.0	66.3	68.5	66.3	69.3	59.2	58.4	54.9	53.3	52.2	50.2	53.1	53.4	53.4	56.0	56.7	57.8	61.7	63.7	68.0	69.8	60.31	69.97	
2-Dec	69.4	68.9	71.6	71.8	71.2	67.9	71.4	73.6	73.9	78.1	73.6	71.4	69.7	63.1	55.2	53.2	63.4	70.4	78.9	85.0	91.6	91.5	94.5	95.7	73.96	95.70	
3-Dec	95.3	94.7	94.0	93.4	89.2	89.2	87.2	83.8	81.3	75.9	72.8	73.3	71.4	72.5	66.1	65.0	68.1	73.3	74.5	69.7	65.3	64.3	61.7	62.3	76.86	95.34	
4-Dec	63.7	64.2	63.7	61.7	63.3	64.9	65.3	76.4	79.0	73.3	67.5	60.0	52.7	52.1	54.2	64.5	71.5	69.4	66.4	66.0	59.3	57.1	57.0	57.7	63.78	78.98	
5-Dec	57.5	55.7	54.7	54.1	54.0	52.8	51.9	52.1	53.4	52.7	49.7	48.3	45.2	43.4	43.3	44.6	45.5	44.6	47.2	49.3	51.9	52.5	54.8	54.0	50.55	57.51	
6-Dec	53.8	56.7	59.1	58.4	57.1	58.9	59.3	60.7	62.7	64.5	63.7	61.1	58.2	55.7	50.4	50.1	50.9	51.1	54.2	55.4	54.9	53.9	52.2	51.4	56.43	64.52	
7-Dec	53.6	52.1	47.8	48.8	49.3	47.8	48.8	47.0	47.9	47.5	43.3	37.6	35.0	34.0	34.4	33.0	36.3	36.9	38.4	40.5	41.9	39.8	39.5	41.2	42.59	53.60	
8-Dec	42.4	44.7	47.9	49.5	52.8	47.5	47.9	44.8	42.7	45.0	40.5	33.3	31.5	29.6	26.9	26.2	27.5	28.6	30.0	30.7	30.4	30.6	28.6	29.3	37.05	52.79	
9-Dec	29.9	31.3	33.2	30.0	29.3	31.9	31.7	33.1	33.4	31.9	30.1	30.9	24.7	23.9	24.9	27.0	28.2	27.7	28.1	29.9	35.2	32.1	35.3	35.6	30.38	35.56	
10-Dec	39.7	37.3	39.0	37.8	35.5	36.5	39.7	44.0	40.0	34.5	35.7	35.7	36.6	39.0	39.5	41.1	43.5	47.2	49.5	52.3	54.6	57.5	60.5	61.3	43.25	61.29	
11-Dec	61.5	60.0	60.0	60.6	55.5	53.4	55.0	56.9	56.0	59.2	56.0	53.8	46.2	45.0	45.4	46.2	49.2	46.2	43.1	45.9	45.4	45.8	48.2	50.4	51.88	61.53	
12-Dec	51.3	52.7	56.3	57.4	54.4	55.4	51.3	42.1	41.9	39.6	34.9	33.6	34.4	39.5	43.8	46.3	50.1	52.3	54.9	57.1	58.6	60.7	60.8	61.0	49.60	60.95	
13-Dec	61.2	60.7	60.7	60.3	59.4	60.0	62.4	61.9	62.8	64.1	64.5	62.7	59.2	56.4	55.9	58.9	63.3	66.9	66.1	68.2	72.2	75.4	79.1	82.0	64.35	82.03	
14-Dec	80.4	80.0	81.9	84.1	86.2	88.6	90.7	89.2	86.3	83.9	78.5	73.4	67.8	64.3	AF	AF	66.4	61.0	57.5	57.4	52.8	46.4	46.9	51.5	71.60	90.75	
15-Dec	49.7	50.9	53.7	63.2	61.8	65.0	64.9	57.0	50.4	50.7	48.1	45.3	39.7	38.6	39.2	AF	AF	42.5	44.3	46.3	45.7	46.5	46.8	48.6	49.0	49.91	65.00
16-Dec	51.0	51.3	51.2	53.1	54.9	54.8	56.7	57.9	59.0	59.2	54.7	50.8	47.1	42.8	AF	AF	48.8	49.6	47.1	46.2	47.0	44.0	43.8	38.8	50.44	59.23	
17-Dec	37.6	39.4	42.2	43.8	45.6	47.2	49.1	48.4	43.0	45.0	46.9	64.2	52.6	AF	AF	AF	AF	AF	AF	56.2	54.3	AF	AF	AF	AF	--	64.15
18-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	48.6	46.5	43.4	42.8	41.8	44.1	47.8	50.5	54.0	56.4	58.4	56.8	57.8	62.3	--	62.32	
19-Dec	65.0	72.9	78.0	81.1	84.1	77.2	70.7	71.6	74.0	76.0	76.6	75.2	71.2	68.6	72.0	74.7	75.0	78.0	79.6	81.1	83.6	86.4	86.8	87.9	76.98	87.92	
20-Dec	88.7	86.7	86.0	85.9	86.7	88.3	88.8	89.7	89.5	89.0	85.2	80.5	75.4	71.4	68.9	70.7	75.2	79.5	81.3	81.5	82.7	79.3	75.3	72.5	81.61	89.66	
21-Dec	69.8	65.7	64.9	64.2	63.3	59.9	57.7	57.9	65.1	74.2	75.9	74.4	71.9	68.8	70.6	77.1	82.7	82.2	83.0	75.0	72.1	71.8	71.7	74.8	70.61	83.03	
22-Dec	78.2	80.9	82.3	83.5	82.6	77.7	76.3	77.8	79.7	79.6	78.0	75.3	71.8	65.0	59.6	58.1	58.5	60.1	63.7	66.7	64.9	67.9	70.6	73.9	72.19	83.53	
23-Dec	73.6	70.2	73.3	73.5	72.5	77.0	80.8	85.5	89.0	89.0	81.8	74.8	76.2	67.3	70.2	74.2	78.5	71.0	75.3	85.7	82.6	81.2	86.1	74.6	77.66	89.01	
24-Dec	66.4	73.3	74.6	70.1	73.2	84.3	75.9	78.0	81.2	76.3	65.3	61.7	57.9	63.4	66.0	65.9	66.8	69.7	70.3	71.2	71.7	73.2	75.0	76.8	71.17	84.28	
25-Dec	77.7	78.4	79.4	79.6	77.3	74.9	75.4	76.7	72.0	71.2	69.5	65.5	60.1	57.5	56.3	55.9	66.6	73.6	74.8	75.4	75.0	75.5	75.6	75.0	71.63	79.57	
26-Dec	75.6	75.2	75.9	75.8	76.2	75.7	74.8	74.6	74.1	73.7	73.4	73.8	70.2	64.6	64.3	66.5	72.7	74.3	74.3	76.1	76.0	75.7	77.8	79.0	73.77	78.99	
27-Dec	78.9	78.2	78.6	79.2	78.9	77.2	76.7	75.5	75.1	74.4	71.1	70.7	67.5	64.6	63.7	66.2	69.3	70.5	70.9	69.9	68.1	68.3	68.4	66.9	72.03	79.17	
28-Dec	66.2	65.5	65.7	66.3	66.3	66.9	67.4	68.6	72.1	73.7	70.3	61.5	57.7	58.0	58.3	60.0	65.1	65.2	69.0	67.8	67.0	68.8	69.5	71.4	66.18	73.74	
29-Dec	74.4	74.8	74.4	74.4	73.5	73.1	73.0	72.4	71.6	70.2	69.9	69.6	66.1	57.6	54.5	57.5	63.2	69.7	71.6	72.2	71.5	71.6	72.0	71.8	69.60	74.82	
30-Dec	70.5	69.5	67.3	66.9	66.9	68.1	70.5	71.0	71.1	70.0	68.5	62.9	60.1	55.5	55.9	55.0	64.1	69.4	71.1	72.2	72.0	71.5	70.6	70.9	67.15	72.18	
31-Dec	70.5	70.2	70.0	69.7	69.5	69.0	69.3	70.0	70.1	68.9	64.7	61.6	59.3	58.3	54.3	54.7	61.2	66.9	69.9	72.3	72.9	73.4	73.7	74.2	67.27	74.24	
63.67 64.10 65.16 65.60 65.23 65.31 65.23 65.58 65.25 65.00 61.76 59.43 55.90 53.78 53.17 55.19 58.51 60.20 61.42 62.42 62.93 62.78 63.68 64.10																								Diurnal Average			
95.34 94.73 94.05 93.42 89.25 89.24 90.75 89.66 89.53 89.02 85.25 80.46 76.17 72.52 72.04 77.09 82.66 82.17 83.03 85.73 91.61 91.45 94.54 95.70																								Diurnal Maximum			
AF - Analyzer Failure																											



WCAS - Power
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2017

Maximum Value: 9.17 kph on Dec 12 13:00		Maximum Daily Average: 5.44 kph on Dec 5		Hours in Service: 744																																													
Minimum Value: 0.6 kph on Dec 29 08:00		Minimum Daily Average: 1.50 kph on Dec 26		Hours of Data: 729																																													
Maximum Diurnal Average: 3.81 kph at hour 13		Minimum Diurnal Average: 2.23 kph at hour 21		Hours of Missing Data: 15																																													
Monthly Average: 2.876 kph		Percentiles: P ₁ = 0.8 P ₁₀ = 1.5 Q ₁ = 1.9 Median = 2.5 Q ₃ = 3.5 P ₉₀ = 4.8 P ₉₉ = 7.7		Hours of Calibration: 0																																													
				Percent Operational Time: 98.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	1.1	3.0	1.6	2.4	3.3	2.2	2.2	3.0	3.3	2.9	2.6	2.0	2.2	2.5	3.6	3.9	4.6	5.7	3.7	5.2	1.1	0.8	0.9	3.8	2.81	5.72																							
2-Dec	1.3	2.4	2.4	2.0	3.1	3.5	0.8	0.9	1.6	2.3	2.6	1.9	1.8	1.9	3.8	2.6	1.4	1.8	1.2	1.6	1.6	2.1	2.8	2.4	2.07	3.77																							
3-Dec	2.1	1.2	1.1	1.5	1.8	1.8	1.6	1.1	1.7	2.7	2.8	2.9	2.4	2.7	2.2	1.6	2.1	2.2	2.4	2.4	2.6	3.5	3.2	2.14	3.49																								
4-Dec	2.7	2.0	2.6	2.8	2.3	1.8	1.2	2.4	0.9	1.0	2.1	1.4	2.3	3.0	3.4	2.7	2.1	1.5	1.3	1.2	2.0	2.2	2.4	3.4	2.12	3.39																							
5-Dec	4.9	6.8	7.7	7.4	6.8	5.3	6.0	5.7	6.4	6.6	7.3	9.0	7.0	6.1	6.2	4.9	3.1	3.4	3.7	3.5	2.6	3.3	3.0	3.5	5.44	9.03																							
6-Dec	3.0	2.3	2.0	2.1	2.5	1.9	1.7	2.1	1.9	1.7	1.5	1.8	1.7	1.4	2.4	2.3	4.0	4.2	4.6	1.9	1.7	2.3	2.8	2.1	2.32	4.57																							
7-Dec	2.1	2.1	3.0	3.8	2.4	2.4	2.4	2.1	1.8	2.1	2.7	2.8	2.7	2.8	2.7	4.7	2.0	3.0	2.1	1.7	1.8	2.5	2.0	2.1	2.48	4.67																							
8-Dec	1.5	1.6	1.1	2.1	2.0	1.7	1.8	2.0	3.5	2.1	3.2	3.0	2.8	3.0	2.9	2.4	2.0	1.6	2.4	2.3	2.5	3.5	3.4	3.3	2.40	3.49																							
9-Dec	2.9	2.4	2.7	4.5	4.2	3.7	4.1	3.2	3.1	4.4	3.4	3.4	4.0	3.9	3.0	2.7	2.2	2.3	2.3	4.4	3.2	1.7	1.8	1.2	3.11	4.54																							
10-Dec	2.7	1.3	3.0	1.8	2.1	1.9	2.5	3.4	5.1	3.5	3.5	5.5	7.8	7.4	5.9	3.9	4.4	3.9	3.7	3.3	2.4	2.0	1.8	1.8	3.52	7.79																							
11-Dec	1.7	1.6	1.9	1.8	2.0	2.2	1.8	1.5	1.7	1.4	1.9	1.8	2.2	2.8	2.3	2.3	4.2	2.1	1.8	3.3	1.9	1.9	2.4	3.2	2.16	4.15																							
12-Dec	2.3	2.1	2.5	2.7	3.1	3.9	3.4	4.3	3.9	5.5	6.4	6.5	9.2	7.3	7.8	5.1	4.9	3.6	3.8	3.9	2.5	3.5	2.8	2.5	4.31	9.17																							
13-Dec	2.1	1.9	2.1	1.9	2.4	2.5	3.0	3.8	4.0	4.7	4.6	4.4	4.8	5.0	4.3	3.9	3.6	3.6	3.3	2.9	2.5	1.9	1.5	1.0	3.16	5.02																							
14-Dec	1.4	1.4	1.1	2.7	1.0	2.4	2.4	3.5	1.9	1.8	2.1	2.7	2.4	3.4	2.3	2.1	2.1	1.9	1.8	2.3	2.0	3.5	3.5	3.5	2.24	3.53																							
15-Dec	2.8	2.2	2.3	3.3	2.9	5.0	4.1	4.1	4.8	5.8	6.8	8.1	8.2	7.3	6.5	5.8	4.4	3.1	2.2	2.8	2.7	3.1	3.1	3.6	4.36	8.24																							
16-Dec	2.9	2.6	2.6	2.8	2.6	2.7	2.2	1.9	2.0	2.0	2.6	2.6	3.1	3.1	2.2	2.6	2.1	2.0	2.1	2.5	2.7	2.8	2.7	2.8	2.51	3.13																							
17-Dec	3.0	3.1	2.6	3.5	2.9	2.7	3.2	4.1	4.9	4.3	7.0	8.8	7.6	5.0	5.7	4.2	3.1	3.3	2.9	2.5	1.8	1.6	1.9	2.9	3.87	8.76																							
18-Dec	3.1	2.6	2.8	3.8	4.1	4.3	3.9	4.5	5.0	4.6	4.9	6.3	6.1	6.0	6.5	4.6	3.9	3.2	2.1	3.0	1.9	1.9	3.7	3.0	4.00	6.54																							
19-Dec	2.4	2.3	1.7	1.4	2.9	1.9	AF	AF	AF	2.5	2.1	2.5	2.3	2.1	2.3	2.2	2.8	2.6	1.5	2.3	2.3	1.4	1.4	AF	2.15	2.86																							
20-Dec	AF	1.7	AF	AF	0.9	1.5	2.1	2.4	1.0	0.9	1.5	1.9	2.5	2.4	2.6	2.9	1.8	2.1	2.3	2.0	1.9	1.4	1.5	1.7	1.87	2.91																							
21-Dec	1.4	2.8	2.4	2.1	2.3	2.8	3.8	3.3	4.2	4.2	3.2	4.1	4.2	4.5	4.5	2.5	4.2	3.2	3.2	3.5	3.4	3.7	3.0	1.9	3.27	4.54																							
22-Dec	2.4	2.3	2.1	1.9	2.1	3.6	3.8	4.5	3.5	3.1	4.4	4.4	4.3	5.3	6.5	5.3	4.6	4.5	4.7	5.0	4.5	4.9	4.7	4.3	4.03	6.54																							
23-Dec	5.3	5.7	5.2	5.3	5.0	4.5	4.5	2.3	2.4	3.5	5.2	4.7	4.6	4.9	5.2	4.8	4.5	4.5	3.0	4.8	2.9	2.4	1.9	3.2	4.18	5.65																							
24-Dec	3.0	3.2	4.3	5.6	5.0	4.8	4.2	4.2	7.1	5.5	4.9	3.8	3.6	2.6	2.1	2.9	2.0	3.0	2.9	2.2	1.4	2.2	2.3	3.4	3.59	7.14																							
25-Dec	1.7	1.9	3.9	2.3	2.8	2.2	2.6	1.9	3.1	2.9	2.4	2.0	2.1	1.6	1.5	1.3	1.6	2.9	0.8	0.9	1.0	1.3	1.0	0.9	1.94	3.88																							
26-Dec	1.1	1.4	1.4	0.7	1.0	1.6	1.3	1.7	1.7	0.8	1.6	1.6	1.7	1.7	1.0	1.8	1.8	2.4	AF	AF	AF	AF	1.7	1.9	1.50	2.44																							
27-Dec	1.2	1.7	1.3	1.5	1.5	3.6	2.1	3.9	2.6	2.2	2.8	2.7	3.4	3.6	4.0	1.9	2.0	2.1	2.1	1.7	2.4	2.5	2.1	2.5	2.39	3.98																							
28-Dec	2.5	3.2	3.2	2.8	3.4	2.6	2.5	2.2	1.9	1.5	1.9	4.5	3.2	3.5	3.0	2.5	2.1	1.7	2.5	1.7	1.8	3.6	3.6	2.7	2.67	4.52																							
29-Dec	2.7	1.5	2.3	1.0	1.1	0.8	1.0	0.6	1.5	AF	AF	AF	AF	1.2	2.9	2.6	2.4	1.1	0.8	2.0	2.0	2.3	2.0	2.3	1.72	2.93																							
30-Dec	2.5	2.6	3.1	2.9	2.7	1.9	2.3	2.3	2.0	3.1	3.2	2.9	1.8	1.4	1.7	1.6	1.3	1.4	1.6	1.6	2.1	1.9	2.2	2.2	2.18	3.21																							
31-Dec	2.0	1.9	1.4	2.2	2.4	2.6	2.0	2.1	2.1	2.0	2.1	2.4	1.7	1.8	2.4	2.2	1.7	1.5	1.1	1.2	1.7	2.8	2.7	1.5	1.98	2.83																							
																								2.40	2.41	2.58	2.76	2.73	2.78	2.69	2.84	3.00	3.02	3.43	3.74	3.81	3.58	3.68	3.15	2.86	2.76	2.46	2.64	2.23	2.41	2.46	2.59	Diurnal Average	
																								5.29	6.80	7.67	7.44	6.78	5.29	6.04	5.65	7.14	6.57	7.35	9.03	9.17	7.43	7.85	5.82	4.91	5.72	4.73	5.18	4.55	4.90	4.74	4.33	Diurnal Maximum	
AF - Analyzer Failure																																																	



WCAS - Power
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2017

Maximum Value: 72.70 deg on Dec 1 17:00 Maximum Daily Average: 16.33 deg on Dec 1 Minimum Value: 3.3 deg on Dec 26 04:00 Minimum Daily Average: 8.38 deg on Dec 26 Maximum Diurnal Average: 14.74 deg at hour 17 Minimum Diurnal Average: 9.70 deg at hour 22 Monthly Average: 11.190 deg Percentiles: P ₁ = 5.4 P ₁₀ = 7.4 Q ₁ = 8.9 Median = 10.4 Q ₃ = 12.0 P ₉₀ = 15.2 P ₉₉ = 31.2																								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 Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	5.8	14.0	9.8	13.9	11.0	11.5	11.2	8.9	10.3	12.8	12.0	8.1	8.5	10.3	15.4	54.9	72.7	25.7	19.6	16.1	10.7	9.8	8.1	10.9	16.33	72.70																							
2-Dec	9.5	11.3	19.9	12.3	10.0	17.9	7.6	11.6	20.2	14.5	10.4	6.8	7.1	7.8	10.1	22.8	14.5	7.0	8.1	9.8	5.9	7.2	10.2	25.5	12.00	25.46																							
3-Dec	9.4	7.8	8.4	6.8	9.4	12.2	7.2	6.4	6.3	8.0	9.8	9.6	11.1	11.1	9.6	10.3	10.6	14.5	9.2	8.6	10.5	9.4	11.6	10.7	9.52	14.47																							
4-Dec	9.6	9.1	11.4	9.5	10.1	11.5	19.2	15.1	25.1	7.9	18.5	7.1	12.1	12.1	10.8	10.1	11.8	8.1	8.3	7.0	11.4	9.9	9.0	15.4	11.68	25.08																							
5-Dec	11.6	12.1	12.5	11.3	11.9	10.9	11.2	12.3	10.8	10.8	11.2	11.0	11.0	10.6	9.6	9.3	10.0	10.8	12.2	10.7	10.9	10.4	9.4	9.5	10.91	12.53																							
6-Dec	11.9	7.8	7.9	9.3	8.8	8.0	7.9	9.3	9.4	6.2	7.7	9.2	7.9	6.4	9.5	12.0	13.1	10.2	10.5	9.4	8.2	9.1	8.4	11.5	9.14	13.07																							
7-Dec	10.4	8.5	10.6	10.9	9.0	10.4	11.8	8.9	8.5	9.4	9.6	10.7	9.5	9.6	16.5	13.4	9.4	13.9	9.1	7.4	8.3	8.5	11.7	8.3	10.18	16.47																							
8-Dec	7.8	8.9	10.7	9.1	6.3	6.9	7.5	8.7	9.4	8.1	9.2	10.1	9.9	11.5	10.1	11.2	8.2	7.1	8.3	9.3	9.4	10.6	9.8	9.8	9.08	11.47																							
9-Dec	9.9	12.1	10.1	9.9	9.3	10.3	9.7	10.2	9.9	10.3	11.0	9.6	10.3	11.3	10.0	9.8	10.0	9.8	14.3	37.5	9.5	7.0	12.3	6.5	11.28	37.54																							
10-Dec	11.3	9.6	7.5	6.6	11.9	11.6	20.1	33.6	13.6	9.8	10.8	12.0	11.4	11.1	11.1	11.6	12.6	10.0	10.2	9.4	8.5	9.6	10.1	7.5	11.73	33.58																							
11-Dec	8.4	7.1	6.9	10.5	8.0	8.4	10.9	7.4	7.5	6.3	9.8	10.8	8.2	13.0	9.9	21.6	13.7	8.1	7.3	7.4	6.7	7.0	7.2	6.5	9.11	21.59																							
12-Dec	6.6	6.2	7.1	9.6	11.6	10.7	12.3	9.6	9.6	15.9	12.2	11.9	15.0	11.2	11.3	11.2	10.2	10.1	9.7	9.4	11.2	10.1	12.9	9.2	10.62	15.88																							
13-Dec	8.8	11.0	9.7	8.4	8.8	9.0	11.2	10.4	11.0	11.3	10.0	10.1	10.0	11.8	12.2	11.0	10.6	9.6	11.3	9.3	9.2	7.8	7.4	6.1	9.84	12.21																							
14-Dec	8.1	7.4	8.3	16.0	11.4	16.3	13.8	14.3	7.9	7.5	7.8	9.4	8.5	12.9	7.8	8.3	10.6	7.2	7.3	6.6	8.5	10.0	12.9	8.7	9.89	16.34																							
15-Dec	17.4	12.0	16.2	12.6	13.9	10.3	11.0	10.8	10.9	11.1	11.4	11.1	11.4	11.6	11.6	12.7	10.8	10.4	9.8	12.7	9.8	10.3	10.6	10.1	11.69	17.44																							
16-Dec	9.6	10.1	10.2	9.8	10.1	9.2	9.6	10.2	9.6	9.7	12.7	11.2	11.9	14.7	10.2	13.7	11.8	10.6	12.4	12.3	12.3	10.7	9.0	9.5	10.87	14.67																							
17-Dec	9.7	9.7	16.4	10.5	10.5	9.2	10.1	12.8	10.6	10.5	16.9	12.8	12.2	12.6	14.6	10.6	10.2	17.3	13.8	8.5	10.5	9.8	11.5	10.7	11.75	17.33																							
18-Dec	10.6	11.6	9.8	10.8	11.4	11.7	11.4	11.0	11.1	11.1	11.9	12.8	12.2	12.5	11.8	12.9	10.4	10.1	8.3	17.5	14.1	16.4	9.3	10.3	11.70	17.50																							
19-Dec	9.1	9.2	17.0	8.8	12.4	17.7	AF	AF	AF	14.3	13.8	21.8	15.6	18.0	15.6	14.6	13.3	12.7	16.8	14.7	11.1	8.9	10.5	AF	13.79	21.77																							
20-Dec	AF	29.9	AF	AF	8.3	12.1	20.6	6.2	11.7	7.1	10.2	8.7	12.1	14.9	17.5	11.5	8.5	9.4	7.9	7.9	8.8	7.3	6.5	6.9	11.16	29.93																							
21-Dec	7.8	9.9	9.3	8.4	11.5	13.8	12.6	10.2	12.7	9.7	10.2	14.0	21.6	15.8	13.3	10.3	12.8	11.3	9.4	15.0	12.8	15.3	10.2	14.2	12.17	21.57																							
22-Dec	9.8	8.8	8.4	8.7	11.6	12.7	12.2	11.0	10.7	10.9	11.6	11.4	11.7	12.6	11.8	12.5	11.5	11.1	11.4	10.9	11.7	11.2	11.5	11.6	11.14	12.70																							
23-Dec	11.4	11.6	10.8	11.8	10.6	11.3	11.3	12.4	10.9	12.4	13.5	10.8	10.8	10.8	10.2	9.8	10.8	11.2	13.1	20.8	11.8	14.2	21.8	12.0	12.34	21.78																							
24-Dec	9.0	11.2	11.8	11.3	11.3	15.4	12.3	19.6	19.5	19.1	19.3	15.8	14.2	9.5	11.2	18.3	14.9	27.3	25.0	16.2	10.3	10.2	8.9	11.1	14.70	27.33																							
25-Dec	8.4	32.2	19.0	15.1	12.2	14.2	14.9	12.7	16.2	16.2	14.6	10.2	10.5	13.3	13.6	7.2	37.2	14.3	5.4	7.7	7.0	6.6	6.5	7.0	13.43	37.18																							
26-Dec	4.7	7.5	4.5	3.3	4.1	4.5	4.4	5.9	5.7	7.8	9.8	9.0	16.0	10.1	8.0	8.6	15.5	18.1	AF	AF	AF	AF	10.1	10.0	8.38	18.10																							
27-Dec	20.3	14.2	6.7	7.1	8.7	9.4	12.8	10.6	9.7	10.9	12.7	12.4	11.4	12.1	13.0	7.6	7.0	7.5	9.7	8.6	10.2	7.9	10.9	9.1	10.44	20.32																							
28-Dec	9.5	8.8	8.6	9.0	10.6	11.4	8.6	11.5	6.9	10.8	23.8	13.0	10.2	20.0	10.9	9.7	10.3	17.0	11.7	12.8	15.4	11.6	11.1	12.5	11.90	23.81																							
29-Dec	10.6	10.6	9.1	7.3	7.8	9.3	8.4	7.0	6.0	AF	AF	AF	AF	12.2	11.5	4.8	40.9	13.2	12.8	7.2	7.8	7.6	7.5	9.0	10.52	40.86																							
30-Dec	8.4	9.3	12.0	9.7	10.7	11.3	11.1	16.0	9.9	17.9	24.5	21.2	10.3	10.5	9.4	7.7	7.3	7.5	6.6	8.2	8.1	8.5	10.2	9.4	11.07	24.53																							
31-Dec	9.7	9.3	8.5	8.3	7.9	8.8	8.0	6.8	8.7	7.4	8.2	9.4	12.1	10.1	9.9	10.1	5.8	5.7	5.9	7.2	6.4	7.9	9.6	9.6	8.38	12.09																							
																								9.84	11.25	10.64	9.90	10.04	11.22	11.37	11.39	11.00	10.86	12.51	11.40	11.49	12.00	11.55	12.90	14.74	11.83	10.84	11.54	9.89	9.70	10.20	10.30	Diurnal Average	
																								20.32	32.24	19.89	15.96	13.94	17.93	20.65	33.58	25.08	19.11	24.53	21.77	21.57	19.97	17.47	54.87	72.70	27.33	24.97	37.54	15.37	16.39	21.78	25.46	Diurnal Maximum	
AF - Analyzer Failure																																																	

WEST CENTRAL AIRSHED SOCIETY

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

**AMS 908
MEADOWS
DECEMBER 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

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Meadows Station 908													December 2017		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Max (ppm)	
							P10	Q1	Median	Q3	P90	1-hour	24-hour		
SO ₂ (ppb)	37	707	100.0	0.1	0.0	2.3	0.0	0.0	0.0	0.2	0.3	0	0	0.001	
NO (ppb)	37	707	100.0	1.8	0.0	37.2	0.0	0.0	0.2	1.7	5.2	-	-	-	
NO ₂ (ppb)	37	707	100.0	6.9	0.0	23.9	0.8	2.3	5.5	10.4	15.0	0	0	0.015	
NO _x (ppb)	37	707	100.0	8.6	0.0	53.0	0.9	2.3	5.9	12.5	19.3	-	-	-	
Wind Speed (kph)	0	744	100.0	10.7	0.0	34.8	2.3	6.0	10.0	15.1	19.3	-	-	-	
Temperature (°C)	0	744	100.0	-7.0	-31.0	10.3	-25.9	-12.1	-4.1	0.9	4.2	-	-	-	
Relative Humidity (%)	0	744	100.0	65.7	32.0	96.0	45.0	58.1	68.8	73.3	79.9	-	-	-	
Std Dev Wind Direction (deg)	0	744	100.0	18.6	2.3	92.0	6.0	8.2	11.4	17.7	47.8	-	-	-	
Std Dev Wind Speed (kph)	0	744	100.0	2.6	0.0	7.5	1.2	1.6	2.3	3.2	4.4	-	-	-	



WCAS - Meadows
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2017

Maximum Value: 2.29 ppb on Dec 30 15:00		Maximum Daily Average: 0.79 ppb on Dec 30		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 4 02:00		Minimum Daily Average: 0.01 ppb on Dec 28		Hours of Data: 707																													
Maximum Diurnal Average: 0.17 ppb at hour 12		Minimum Diurnal Average: 0.08 ppb at hour 9		Hours of Missing Data: 37																													
Monthly Average: 0.123 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.3 P ₉₉ = 1.3		Hours of Calibration: 37																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.2	0.3	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.0	0.2	0.16	0.31							
2-Dec	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.1	0.0	0.1	0.1	0.14	0.23							
3-Dec	0.0	0.2	Z	0.1	0.0	0.5	0.5	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.14	0.55							
4-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.07	0.23							
5-Dec	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	0.5	1.2	0.3	0.2	0.2	0.10	1.21							
6-Dec	0.2	0.1	Z	0.3	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.14	0.29							
7-Dec	0.1	0.1	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.6	0.3	0.3	0.2	0.1	0.15	0.60							
8-Dec	0.5	0.2	Z	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.9	0.8	0.2	0.2	0.1	0.6	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.26	0.90							
9-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.2	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.8	0.3	0.16	0.75							
10-Dec	0.3	0.4	Z	0.2	0.4	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	0.1	0.1	0.2	0.2	0.3	0.11	0.41							
11-Dec	0.3	0.3	Z	0.3	0.1	0.1	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.18	0.45							
12-Dec	0.1	0.0	Z	0.1	0.3	0.5	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	0.0	0.0	0.2	0.0	0.07	0.48							
13-Dec	0.4	0.3	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.06	0.36							
14-Dec	0.2	0.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.13	0.40							
15-Dec	0.2	0.2	Z	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.26							
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.15							
17-Dec	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.7	0.1	0.06	0.70							
18-Dec	0.0	0.0	Z	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.14							
19-Dec	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	0.1	0.5	0.6	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.11	0.63							
20-Dec	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.20	0.53							
21-Dec	0.0	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.10							
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.05	0.16							
23-Dec	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.17							
24-Dec	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	0.1	0.0	0.1	0.2	0.2	0.03	0.20							
25-Dec	0.2	0.2	Z	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	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.07	0.21							
26-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.20	0.31							
27-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	C	C	C	C	C	C	0.0	0.1	0.1	0.1	0.0	--	0.40							
28-Dec	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	0.01	0.03							
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.04	0.25							
30-Dec	0.7	1.3	Z	1.6	1.0	0.7	0.3	0.6	0.3	0.3	0.7	1.4	2.0	2.1	2.3	1.3	1.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.79	2.29							
31-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.26							
		0.13	0.15	--	0.13	0.10	0.12	0.10	0.09	0.08	0.11	0.15	0.17	0.16	0.15	0.15	0.14	0.15	0.11	0.09	0.10	0.12	0.10	0.13	0.09	Diurnal Average							
		0.69	1.30	--	1.57	0.96	0.67	0.55	0.60	0.53	0.52	0.90	1.35	1.96	2.07	2.29	1.28	1.28	0.63	0.42	0.60	1.21	0.36	0.75	0.28	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
December 2017

Maximum Value: 37.22 ppb on Dec 8 11:00		Maximum Daily Average: 8.93 ppb on Dec 8		Hours in Service: 744																									
Minimum Value: 0.0 ppb on Dec 10 17:00		Minimum Daily Average: 0.01 ppb on Dec 24		Hours of Data: 707																									
Maximum Diurnal Average: 3.33 ppb at hour 11		Minimum Diurnal Average: 0.92 ppb at hour 8		Hours of Missing Data: 37																									
Monthly Average: 1.770 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 1.7 P ₉₀ = 5.2 P ₉₉ = 19.7		Hours of Calibration: 37																									
				Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Dec	5.8	11.8	Z	5.6	4.0	3.4	1.3	1.5	1.7	2.4	3.2	6.0	6.6	5.2	2.6	2.4	2.3	0.8	4.0	2.7	1.8	3.0	0.3	4.2	3.59	11.78			
2-Dec	2.4	0.8	Z	0.2	1.1	3.7	1.2	5.0	3.6	1.7	3.9	1.0	0.8	1.1	2.4	5.8	4.2	4.9	0.4	4.5	1.5	1.0	3.3	1.2	2.42	5.75			
3-Dec	0.6	6.4	Z	1.8	1.2	18.8	21.0	5.7	6.3	5.1	1.8	1.1	0.9	0.7	0.5	0.2	0.1	0.1	0.3	0.5	0.8	0.7	0.6	0.0	3.28	21.03			
4-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	1.3	5.3	8.4	4.5	2.0	1.3	0.2	0.2	0.1	0.2	0.3	0.2	0.1	6.0	5.8	0.2	1.60	8.38			
5-Dec	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.12			
6-Dec	0.0	0.0	Z	9.7	1.8	3.1	2.2	1.2	2.6	7.4	4.3	2.4	1.9	2.1	1.4	1.4	4.0	7.3	2.4	0.2	0.2	0.1	0.1	0.6	2.46	9.73			
7-Dec	0.5	0.1	Z	0.1	0.1	1.9	2.2	0.4	0.3	2.4	5.2	5.4	0.4	0.3	0.5	1.5	3.0	9.4	13.2	23.4	9.9	10.2	4.1	1.5	4.17	23.40			
8-Dec	17.5	2.4	Z	1.7	1.1	10.3	5.6	5.7	5.7	5.2	37.2	35.3	6.0	1.5	4.2	23.3	18.9	9.1	2.8	1.4	1.5	1.9	3.1	4.0	8.93	37.22			
9-Dec	0.7	0.2	Z	0.2	0.3	0.3	0.1	0.1	0.1	4.7	8.0	3.5	2.5	1.0	4.3	12.6	10.3	6.2	2.3	3.0	12.5	12.4	32.0	8.1	5.45	32.02			
10-Dec	10.7	15.5	Z	4.9	12.6	5.0	2.9	0.4	0.4	1.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2	6.0	4.8	8.0	3.29	15.46			
11-Dec	12.2	12.5	Z	11.6	2.2	2.4	16.2	1.7	1.6	1.2	6.4	5.5	4.4	2.5	2.2	1.1	0.5	0.5	0.5	1.7	0.9	2.6	1.2	0.3	3.99	16.19			
12-Dec	2.1	0.3	Z	0.8	8.7	17.3	3.6	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	6.2	1.4	1.83	17.32			
13-Dec	13.2	9.9	Z	4.4	0.8	0.3	0.2	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	1.2	0.1	2.3	1.51	13.18			
14-Dec	8.0	15.7	Z	0.1	0.1	0.4	0.8	1.3	0.5	1.3	2.0	2.5	6.7	4.2	3.1	1.3	0.5	0.4	0.2	0.3	1.0	0.7	0.4	0.7	2.27	15.72			
15-Dec	2.7	3.6	Z	3.1	7.3	1.2	1.0	0.2	0.1	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.5	0.0	0.0	0.0	0.0	0.95	7.32			
16-Dec	0.0	0.0	Z	0.1	0.1	0.0	0.5	0.2	0.2	2.5	1.2	1.5	1.1	1.0	0.5	0.7	0.4	0.2	0.3	0.1	0.3	0.6	0.6	0.4	0.54	2.53			
17-Dec	0.4	0.2	Z	0.2	0.2	0.4	0.4	0.1	0.4	0.1	0.1	0.1	0.2	0.3	0.2	0.4	0.1	0.1	0.0	0.0	8.2	5.4	29.3	5.6	2.27	29.35			
18-Dec	0.1	1.1	Z	3.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	4.6	0.8	0.1	1.0	0.2	0.3	0.0	0.54	4.55			
19-Dec	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.6	0.8	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.16	0.84			
20-Dec	0.0	0.0	Z	0.0	0.0	0.0	2.6	3.0	5.1	11.1	9.3	2.2	1.2	1.2	1.2	0.8	1.5	0.6	0.5	0.2	0.5	0.9	0.9	0.3	1.88	11.08			
21-Dec	0.1	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.10			
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.19			
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.06			
24-Dec	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	0.01	0.04			
25-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	2.1	0.9	0.1	0.0	0.0	0.14	2.14			
26-Dec	0.0	0.3	Z	1.7	0.0	0.3	0.4	0.4	0.1	1.0	2.7	2.2	1.7	1.9	1.3	1.0	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.69	2.72			
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	C	C	C	C	C	C	0.6	0.1	1.9	3.1	0.5	--	3.07			
28-Dec	0.9	0.7	Z	0.0	0.0	1.0	1.1	0.0	0.0	0.1	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	1.07			
29-Dec	0.0	0.0	Z	0.0	0.0	1.1	0.1	0.0	0.4	3.5	6.1	0.6	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.55	6.08			
30-Dec	0.0	0.1	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	1.7	2.3	2.3	2.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.48	2.33			
31-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	1.7	2.3	2.1	1.6	1.0	0.3	1.8	0.7	0.3	0.9	1.3	1.7	0.4	0.76	2.31			
		2.52	2.64	--	1.62	1.35	2.30	2.05	0.92	1.00	1.86	3.33	2.55	1.38	1.00	0.99	1.86	1.60	1.57	1.07	1.33	1.43	1.82	3.17	1.28	Diurnal Average			
		17.46	15.72	--	11.56	12.56	18.76	21.03	5.72	6.28	11.08	37.22	35.26	6.69	5.24	4.28	23.34	18.91	9.44	13.18	23.40	12.51	12.42	32.02	8.08	Diurnal Maximum			
Z - zerospan		C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb				24-hr --- ppb																							



WCAS - Meadows
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2017

Maximum Value: 23.94 ppb on Dec 7 20:00		Maximum Daily Average: 15.40 ppb on Dec 8		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Dec 24 11:00		Minimum Daily Average: 1.05 ppb on Dec 24		Hours of Data: 707																						
Maximum Diurnal Average: 9.17 ppb at hour 22		Minimum Diurnal Average: 3.40 ppb at hour 14		Hours of Missing Data: 37																						
Monthly Average: 6.874 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.8 Q ₁ = 2.3 Median = 5.5 Q ₃ = 10.4 P ₉₀ = 15.0 P ₉₉ = 21.8		Hours of Calibration: 37																						
Percent Operational Time: 100.0																										
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	14.0	15.3	Z	13.9	13.1	12.9	12.2	12.7	11.3	8.7	6.4	7.0	7.3	7.5	9.3	10.2	12.1	11.6	13.6	12.2	10.3	12.9	7.7	15.0	11.19	15.31
2-Dec	12.5	6.0	Z	8.1	10.7	12.0	8.1	13.2	13.5	7.8	7.6	4.3	3.6	3.5	5.5	10.3	7.3	11.3	9.0	12.4	12.2	12.0	12.3	11.5	9.34	13.50
3-Dec	8.8	11.0	Z	8.0	8.4	11.0	11.2	8.7	10.4	9.4	4.5	3.7	2.8	2.6	2.4	1.6	2.6	4.8	4.3	8.5	7.2	7.5	5.6	2.7	6.43	11.19
4-Dec	1.2	0.8	Z	1.0	0.9	0.7	1.2	5.5	12.1	13.5	14.4	9.4	5.7	4.8	2.6	1.9	3.8	8.3	5.4	3.8	8.0	15.5	16.9	5.4	6.21	16.94
5-Dec	4.5	1.6	Z	0.1	0.2	0.4	0.9	1.0	1.0	0.7	0.4	0.3	0.4	0.5	0.6	0.4	1.2	1.7	2.0	1.9	2.2	2.3	2.3	2.0	1.24	4.46
6-Dec	2.2	2.5	Z	16.8	16.6	13.8	14.4	13.2	13.9	18.7	15.9	8.7	6.0	6.3	7.2	11.5	17.6	23.0	19.7	10.8	9.7	10.1	9.3	12.7	12.20	22.99
7-Dec	12.2	5.1	Z	6.1	5.2	14.6	17.4	11.0	11.5	14.9	11.4	10.8	9.0	7.1	6.8	11.1	18.3	21.8	21.8	23.9	21.1	19.2	15.8	13.7	13.48	23.94
8-Dec	19.8	15.0	Z	15.8	13.3	16.9	16.1	14.2	15.6	14.4	16.1	17.9	8.5	4.6	9.8	21.0	21.5	22.0	11.0	12.3	11.2	16.2	20.9	20.4	15.40	21.97
9-Dec	12.8	6.9	Z	7.7	6.5	7.6	6.6	7.0	5.7	14.7	13.5	8.0	10.0	7.2	12.4	16.4	19.9	20.3	17.4	22.3	21.6	21.2	21.3	19.5	13.33	22.30
10-Dec	19.1	17.3	Z	14.7	16.0	15.7	14.5	12.3	12.7	14.0	8.2	3.4	1.0	0.4	0.3	0.7	0.7	1.1	1.6	2.4	12.8	18.9	18.8	19.3	9.82	19.29
11-Dec	21.4	22.6	Z	21.8	9.4	9.3	19.8	16.1	15.0	11.9	13.8	13.5	8.4	9.2	8.6	8.9	9.3	10.3	9.3	15.3	12.1	15.6	13.2	11.1	13.30	22.60
12-Dec	12.5	10.3	Z	11.9	10.9	15.1	13.9	9.2	7.3	4.7	4.4	2.5	1.3	0.7	0.5	0.9	1.4	2.6	4.8	4.3	5.5	4.2	15.6	13.5	6.87	15.62
13-Dec	21.7	20.8	Z	16.6	13.5	11.6	9.9	13.1	7.4	6.2	5.8	2.6	2.4	2.0	1.8	1.9	2.7	4.0	2.9	4.0	5.6	14.1	8.0	9.6	8.18	21.71
14-Dec	15.8	19.3	Z	6.0	5.2	6.3	8.1	7.0	7.2	6.0	6.8	8.2	8.3	6.7	6.4	6.7	9.6	8.1	6.1	10.4	11.4	11.4	9.2	9.4	8.68	19.27
15-Dec	13.6	15.2	Z	14.8	15.5	13.2	11.0	6.9	4.7	3.8	6.2	1.2	0.4	0.4	0.9	1.0	1.5	2.7	12.6	11.5	3.6	2.2	2.4	2.4	6.43	15.48
16-Dec	2.4	2.6	Z	6.3	5.9	4.8	7.6	8.5	6.7	16.2	11.7	11.2	7.7	7.8	4.8	3.8	4.1	6.1	5.7	5.7	5.0	4.6	4.7	5.0	6.48	16.19
17-Dec	4.6	6.3	Z	3.8	5.9	7.3	6.8	5.3	6.2	6.3	3.6	3.1	4.2	5.3	4.5	7.1	5.0	3.5	1.3	3.2	13.0	17.0	19.9	11.8	6.73	19.88
18-Dec	6.0	9.8	Z	10.3	5.2	2.8	2.8	3.7	3.4	3.7	3.3	2.5	1.7	1.8	1.3	1.0	1.8	12.3	11.4	5.6	8.9	9.9	9.6	3.0	5.30	12.30
19-Dec	2.7	5.0	Z	4.3	3.6	2.5	1.8	1.0	0.7	1.4	3.0	2.1	1.4	2.6	8.1	12.0	15.4	14.4	13.2	13.0	12.2	12.2	12.4	5.8	6.55	15.36
20-Dec	6.2	4.8	Z	4.8	4.1	5.3	8.6	13.0	13.8	13.6	9.7	9.8	8.1	4.6	5.2	4.4	6.7	7.5	8.0	8.8	8.8	8.7	7.8	7.3	7.80	13.77
21-Dec	6.9	2.0	Z	3.4	4.2	7.7	5.3	4.0	3.3	2.2	1.4	1.0	0.8	0.5	0.7	0.8	1.2	1.2	0.9	1.6	1.4	2.1	1.5	2.2	2.45	7.70
22-Dec	4.3	2.8	Z	2.7	2.6	2.4	3.1	2.4	2.2	2.3	2.7	2.4	2.0	1.7	1.6	1.2	1.5	1.7	1.6	1.7	1.7	1.5	1.7	2.1	2.18	4.28
23-Dec	1.7	1.3	Z	1.3	1.2	1.2	1.9	3.1	3.7	3.1	2.0	1.4	1.0	0.8	0.8	0.7	0.6	0.6	0.7	0.8	0.3	0.3	0.7	0.8	1.30	3.69
24-Dec	1.0	1.3	Z	1.0	0.9	0.5	0.2	0.5	0.2	0.1	0.0	0.1	0.2	0.6	0.5	0.9	0.9	1.1	1.7	1.4	2.5	3.0	3.0	2.5	1.05	3.03
25-Dec	3.7	3.5	Z	1.9	0.7	0.2	0.0	0.3	0.3	0.6	0.3	0.3	0.2	0.1	0.2	0.4	1.0	4.3	15.0	13.1	9.9	5.9	4.8	5.2	3.14	15.02
26-Dec	6.0	8.9	Z	13.1	8.3	8.6	10.0	11.5	9.8	7.7	7.3	5.7	3.9	3.7	4.2	5.0	4.8	6.5	7.3	8.9	8.7	9.4	7.7	6.2	7.52	13.08
27-Dec	5.3	5.0	Z	5.1	4.4	2.1	2.1	2.2	2.1	2.4	2.4	1.9	1.8	C	C	C	C	C	C	8.0	4.4	11.1	9.5	8.5	--	11.07
28-Dec	9.1	10.5	Z	2.6	2.5	9.2	6.3	4.1	4.2	4.2	3.3	2.2	0.5	0.4	0.5	0.3	0.5	0.4	0.7	0.7	0.6	0.6	0.7	0.3	2.80	10.47
29-Dec	0.4	0.8	Z	0.4	0.4	7.0	2.0	3.2	7.6	11.0	10.2	2.4	1.2	1.1	0.9	1.0	1.6	4.2	5.4	3.1	3.1	3.3	3.0	3.8	3.34	10.98
30-Dec	5.5	5.7	Z	5.1	3.5	3.1	2.6	2.8	1.8	1.6	2.8	3.8	4.1	4.0	4.8	3.7	4.3	2.3	2.6	3.8	3.4	3.4	6.7	6.0	3.81	6.70
31-Dec	6.8	4.2	Z	3.4	3.2	3.3	4.0	4.0	4.2	5.3	3.3	3.7	3.8	3.7	3.7	3.8	4.7	8.3	9.5	7.2	7.5	8.1	9.3	8.7	5.38	9.48
8.54		7.88	--	7.51	6.52	7.39	7.43	7.12	7.08	7.46	6.52	5.01	3.80	3.40	3.90	5.02	6.12	7.60	7.54	7.83	7.92	9.17	9.11	7.97	Diurnal Average	
21.71		22.60	--	21.85	16.58	16.94	19.84	16.09	15.56	18.71	16.07	17.88	10.01	9.24	12.36	20.99	21.46	22.99	21.76	23.94	21.64	21.20	21.35	20.42	Diurnal Maximum	
Z - zerospan		C - Calibration																								
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										



WCAS - Meadows
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2017

Maximum Value: 52.97 ppb on Dec 9 23:00		Maximum Daily Average: 24.11 ppb on Dec 8		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 24 11:00		Minimum Daily Average: 1.04 ppb on Dec 24		Hours of Data: 707																							
Maximum Diurnal Average: 12.16 ppb at hour 23		Minimum Diurnal Average: 4.36 ppb at hour 14		Hours of Missing Data: 37																							
Monthly Average: 8.559 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.9 Q ₁ = 2.3 Median = 5.9 Q ₃ = 12.5 P ₉₀ = 19.3 P ₉₉ = 37.8		Hours of Calibration: 37																							
Percent Operational Time: 100.0																											
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	19.5	26.9	Z	19.3	16.9	16.2	13.3	14.1	12.8	10.9	9.4	12.9	13.8	12.6	11.7	12.5	14.3	12.3	17.4	14.8	12.0	15.8	7.9	19.0	14.62	26.87	
2-Dec	14.7	6.7	Z	8.2	11.6	15.5	9.2	18.1	16.9	9.3	11.4	5.2	4.4	4.5	7.8	15.9	11.4	16.1	9.3	16.8	13.5	12.8	15.4	12.5	11.62	18.06	
3-Dec	9.2	17.2	Z	9.7	9.5	29.5	32.0	14.3	16.5	14.3	6.2	4.7	3.7	3.3	2.9	1.8	2.7	4.9	4.5	8.9	8.0	8.1	6.1	2.7	9.60	31.97	
4-Dec	1.3	0.9	Z	1.0	0.9	0.8	1.3	6.0	13.3	18.6	22.5	13.8	7.6	6.0	2.8	2.1	3.9	8.5	5.6	3.9	8.0	21.2	22.5	5.6	7.74	22.54	
5-Dec	4.5	1.6	Z	0.1	0.2	0.4	0.9	1.0	1.1	0.8	0.4	0.4	0.5	0.6	0.7	0.5	1.2	1.7	2.0	1.9	2.2	2.3	2.3	2.0	1.27	4.53	
6-Dec	2.2	2.5	Z	26.3	18.2	16.7	16.4	14.3	16.4	25.9	19.9	11.0	7.8	8.3	8.4	12.8	21.4	30.0	21.8	10.9	9.7	10.1	9.4	13.1	14.50	29.99	
7-Dec	12.6	5.1	Z	6.1	5.2	16.3	19.4	11.2	11.7	17.1	16.4	16.1	9.3	7.4	7.2	12.5	21.1	31.0	34.7	47.0	30.8	29.1	19.6	15.0	17.48	46.98	
8-Dec	36.9	17.2	Z	17.3	14.2	27.0	21.5	19.7	21.1	19.4	52.9	52.8	14.3	6.0	13.8	44.0	40.1	30.8	13.6	13.5	12.5	17.8	23.8	24.1	24.11	52.90	
9-Dec	13.3	7.0	Z	7.7	6.7	7.8	6.6	7.0	5.7	19.2	21.3	11.3	12.3	8.2	16.5	28.8	29.9	26.3	19.4	25.0	33.9	33.3	53.0	27.4	18.60	52.97	
10-Dec	29.5	32.5	Z	19.5	28.3	20.4	17.2	12.5	13.0	15.5	8.4	3.5	1.1	0.4	0.4	0.7	0.7	1.1	1.6	2.4	14.8	24.7	23.4	27.1	12.99	32.53	
11-Dec	33.3	34.8	Z	33.1	11.5	11.7	35.7	17.6	16.5	12.9	20.0	18.7	12.6	11.6	10.7	9.9	9.7	10.6	9.7	16.9	12.8	18.0	14.2	11.2	17.12	35.75	
12-Dec	14.5	10.5	Z	12.6	19.4	32.2	17.3	9.5	7.5	4.7	4.4	2.7	1.4	0.7	0.5	1.0	1.4	2.6	4.8	4.3	5.5	4.3	21.6	14.8	8.62	32.18	
13-Dec	34.6	30.5	Z	20.9	14.1	11.8	10.0	13.3	7.4	6.3	6.0	2.8	2.5	2.1	1.9	1.9	2.7	4.0	2.9	4.0	6.2	15.0	8.1	11.8	9.60	34.62	
14-Dec	23.6	34.7	Z	6.1	5.3	6.5	8.8	8.2	7.5	7.2	8.6	10.5	14.8	10.8	9.4	7.9	10.0	8.5	6.2	10.6	12.2	11.9	9.5	10.0	10.82	34.71	
15-Dec	16.2	18.6	Z	17.8	22.6	14.3	11.8	7.0	4.8	4.0	6.5	1.3	0.5	0.4	1.0	1.1	1.5	2.8	13.5	11.9	3.5	2.2	2.4	2.4	7.31	22.59	
16-Dec	2.4	2.6	Z	6.3	5.9	4.8	8.0	8.6	6.8	18.5	12.7	12.6	8.7	8.7	5.3	4.4	4.5	6.2	5.9	5.7	5.2	5.1	5.2	5.3	6.94	18.53	
17-Dec	4.9	6.4	Z	3.9	6.0	7.6	7.1	5.3	6.5	6.4	3.6	3.2	4.4	5.5	4.6	7.4	5.0	3.5	1.4	3.2	21.0	22.1	48.9	17.2	8.92	48.89	
18-Dec	6.1	10.8	Z	13.6	5.3	2.9	2.8	3.7	3.4	3.8	3.3	2.6	1.8	1.9	1.5	1.0	1.8	16.7	12.1	5.6	9.8	10.1	9.8	3.0	5.80	16.71	
19-Dec	2.7	5.0	Z	4.4	3.7	2.6	1.8	1.1	0.7	1.5	3.1	2.3	1.6	2.9	8.6	12.7	15.8	14.3	13.1	13.0	12.1	12.1	12.2	5.7	6.65	15.79	
20-Dec	6.1	4.7	Z	4.7	4.0	5.2	11.0	15.8	18.7	24.4	18.8	11.9	9.1	5.7	6.3	5.1	8.1	8.0	8.5	8.9	9.2	9.5	8.6	7.5	9.57	24.45	
21-Dec	6.9	2.0	Z	3.4	4.2	7.7	5.3	4.0	3.2	2.2	1.4	1.1	0.9	0.5	0.7	0.9	1.2	1.2	0.9	1.6	1.4	2.1	1.5	2.2	2.46	7.71	
22-Dec	4.3	2.8	Z	2.6	2.6	2.4	3.1	2.4	2.2	2.3	2.8	2.6	2.1	1.8	1.7	1.2	1.5	1.7	1.6	1.7	1.7	1.5	1.8	2.1	2.20	4.25	
23-Dec	1.8	1.3	Z	1.4	1.2	1.2	1.9	3.0	3.7	3.1	2.0	1.5	1.1	0.8	0.8	0.7	0.6	0.6	0.7	0.8	0.3	0.3	0.7	0.8	1.32	3.70	
24-Dec	1.0	1.3	Z	1.0	0.9	0.5	0.2	0.4	0.2	0.1	0.0	0.1	0.2	0.6	0.5	0.9	0.9	1.1	1.6	1.4	2.5	3.0	3.0	2.4	1.04	3.03	
25-Dec	3.7	3.5	Z	1.9	0.7	0.2	0.0	0.3	0.3	0.6	0.3	0.3	0.2	0.1	0.2	0.4	1.0	4.3	17.0	13.8	9.9	5.9	4.8	5.1	3.24	16.96	
26-Dec	5.9	9.1	Z	14.6	8.2	8.7	10.3	11.7	9.8	8.6	9.8	7.7	5.5	5.5	5.4	5.9	5.0	6.8	7.2	8.8	8.6	9.4	7.6	6.1	8.11	14.59	
27-Dec	5.3	5.0	Z	5.1	4.4	2.1	2.2	2.3	2.2	2.5	2.5	2.2	2.2	C	C	C	C	C	C	8.5	4.4	12.9	12.5	8.9	--	12.86	
28-Dec	9.9	11.0	Z	2.6	2.5	10.1	7.3	4.1	4.1	4.3	3.7	2.5	0.6	0.5	0.6	0.3	0.5	0.4	0.7	0.7	0.6	0.5	0.6	0.3	2.98	11.02	
29-Dec	0.4	0.7	Z	0.3	0.4	8.0	2.0	3.2	8.0	14.4	16.2	2.9	1.4	1.3	1.1	1.1	1.7	4.2	5.5	3.1	3.0	3.2	3.0	3.7	3.86	16.16	
30-Dec	5.4	5.8	Z	5.3	3.5	3.0	2.6	2.8	1.7	1.7	3.4	5.5	6.4	6.2	7.1	4.5	4.7	2.2	2.6	3.8	3.3	3.3	6.6	5.9	4.24	7.10	
31-Dec	6.7	4.1	Z	3.3	3.2	3.2	3.9	4.0	4.1	5.7	4.2	5.4	6.0	5.7	5.3	4.8	5.0	10.0	10.1	7.5	8.2	9.2	10.9	9.0	6.06	10.90	
		10.95	10.42	--	9.04	7.79	9.60	9.39	7.95	7.99	9.22	9.76	7.48	5.13	4.36	4.84	6.82	7.65	9.09	8.53	9.06	9.26	10.87	12.16	9.16	Diurnal Average	
		36.94	34.81	--	33.12	28.35	32.18	35.75	19.70	21.07	25.90	52.90	52.75	14.79	12.60	16.47	43.99	40.05	30.97	34.65	46.98	33.87	33.33	52.97	27.39	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: December 27, 2017

Parameter: NO/NO₂/NO_x

Instrument: Teco 42i

Serial Number: 1170050135

Previous Calibration Date: November 18 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 04300810

Barometric Pressure: 27.70" Hg

Calibration Method: Standard Gas Dilution/GPT

Cylinder ID: EX0012497

Temperature: 20.0° C

Cylinder Concentration: 27.4 ppm NO / 27.5 ppm NO_x

In Service: Dec 6 2017 Exp: Oct 2020

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	6.8	7.3	na	0.989	1.001	1.000	500 ppb
Current	6.0	6.5	na	0.877	1.001	1.000	500 ppb

NO	Final Zero: 1.4 ppb	Final Span: 352.9 ppb	As Found Correction Factor: 0.920
NO ₂	Final Zero: 2.3 ppb	Final Span: 2.9 ppb	As Found Correction Factor: NA
NO _x	Final Zero: 2.3 ppb	Final Span: 355.3 ppb	As Found Correction Factor: 0.925

Results of Linear Regression			Slope	Intercept	R ²
NO	R _c vs C _c	Previous	59.895700	74.366110	0.999991
		Current	59.741540	-79.956490	0.999805
	C _i vs C _c	Current	1.000000	0.000045	0.999805
NO ₂	R _c vs C _c	Previous	59.554330	159.961900	0.999991
		Current	59.159530	-72.634490	0.999934
	C _i vs C _c	Current	1.000000	0.000000	0.999934
NO _x	R _c vs C _c	Previous	59.718770	94.084920	0.999991
		Current	59.605870	-80.841550	0.999815
	C _i vs C _c	Current	1.000000	-0.000037	0.999815

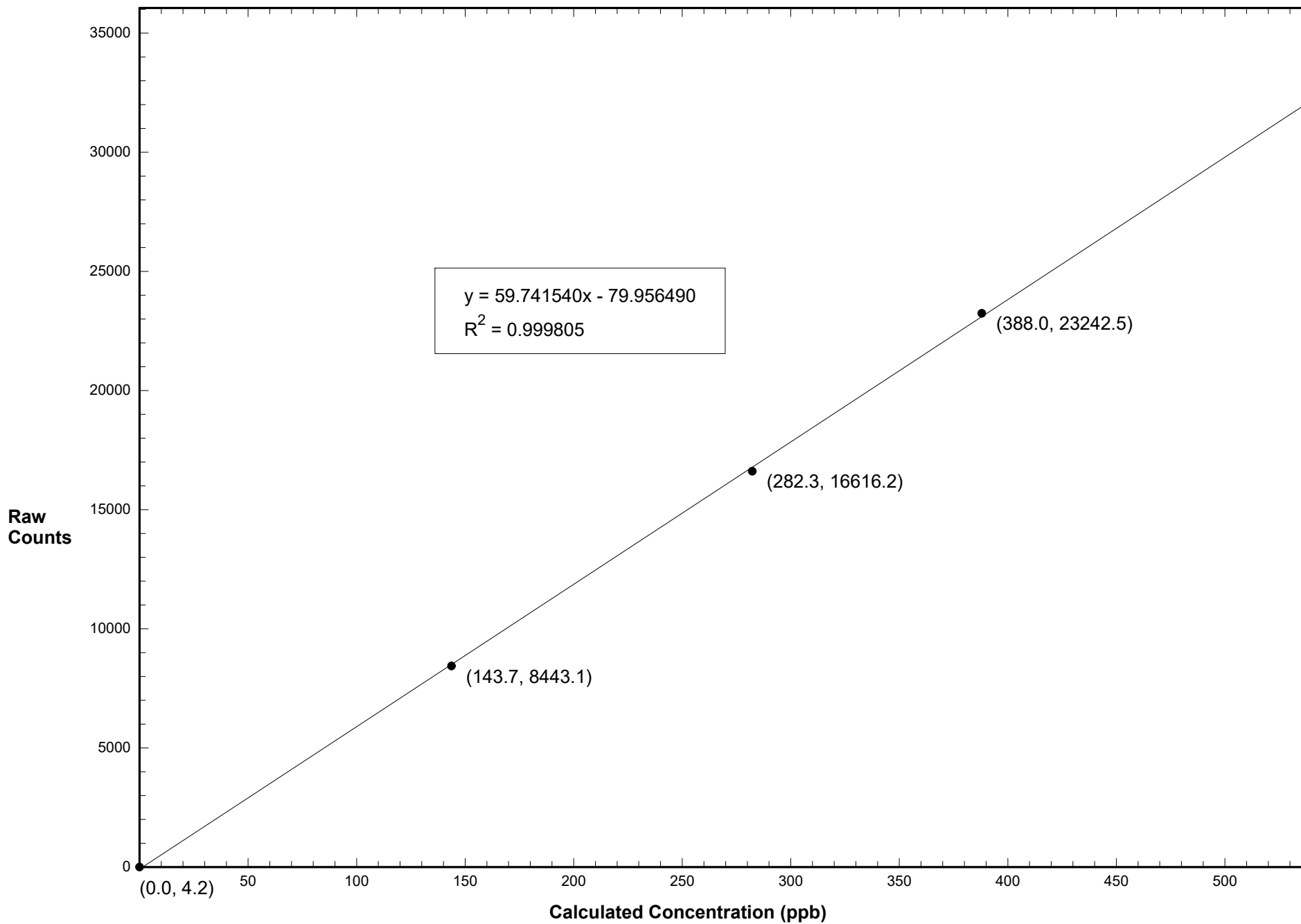
Comments: Sample Flow: 0.644 lpm

Calibration Data Summary (Page 2)

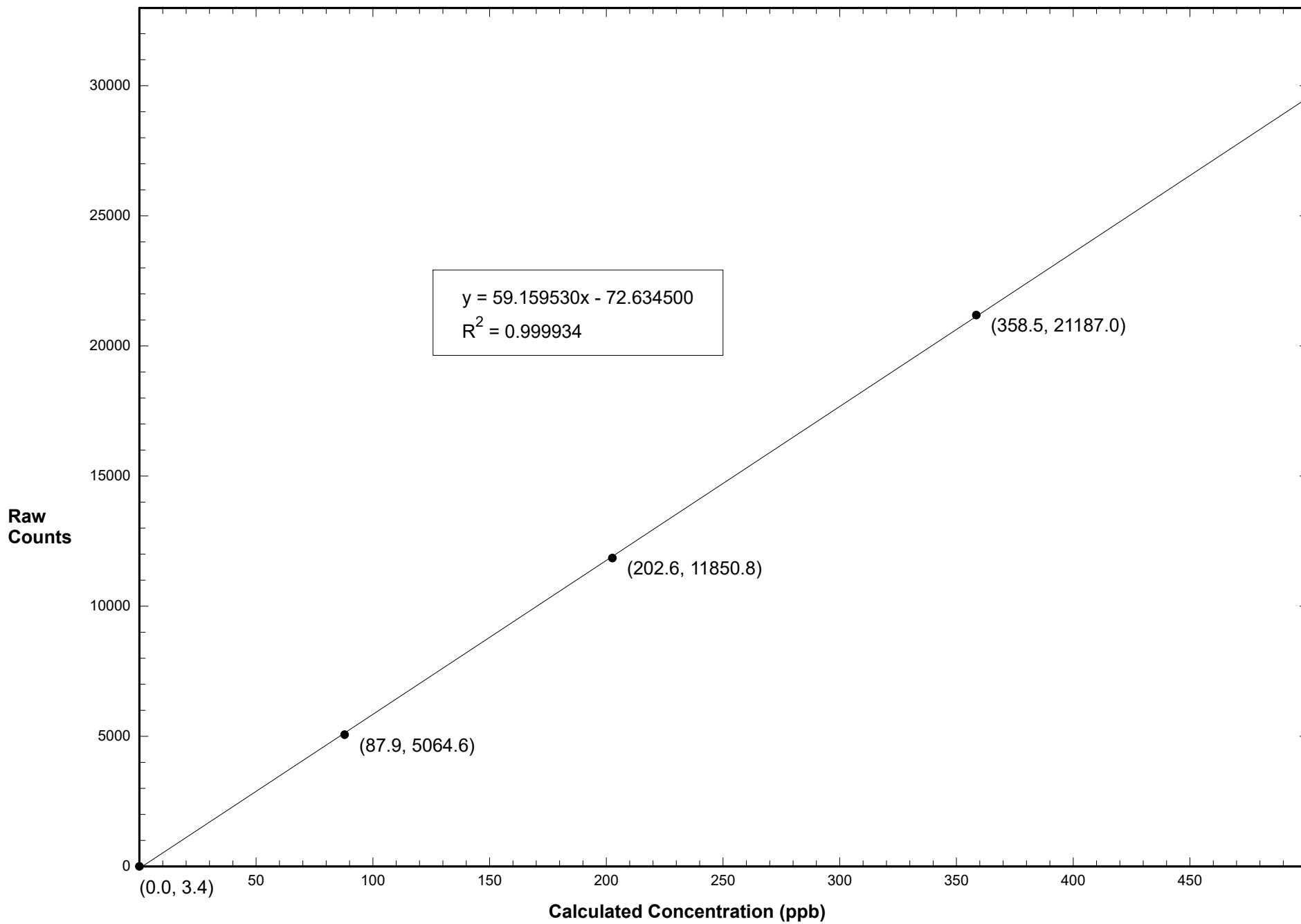
December 27, 2017 - Station 908

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		
0.06880	4.790	388.0	23242.5	390.4	0.994		
0.04916	4.723	282.3	16616.2	279.5	1.010		
0.02490	4.723	143.7	8443.1	142.7	1.007		
0.00000	4.600	0.0	4.2	1.4			
NO Calibration					Average Correction Factor:	1.004	
0.06880	4.790	389.4	23270.0	391.8	0.994		
0.04916	4.723	283.3	16639.6	280.5	1.010		
0.02490	4.723	144.2	8460.8	143.3	1.006		
0.00000	4.600	0.0	-1.3	1.3			
NO _x Calibration					Average Correction Factor:	1.003	
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
392.2	1933.4	33.7	358.5	21187.0	359.4	0.998	1.002
392.2	11245.0	189.6	202.6	11850.8	201.5	1.005	0.995
392.2	18097.5	304.3	87.9	5064.6	86.8	1.012	0.988
			0.0	3.4	1.3		
					Average Correction Factor:	1.005	
NO ₂ Gas Phase Titration					Average Converter Efficiency: 0.995		
Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor				
NO	0.999	0.994	-0.5				
NO ₂	1.003	0.998	-0.5				
NO _x	0.999	0.994	-0.5				

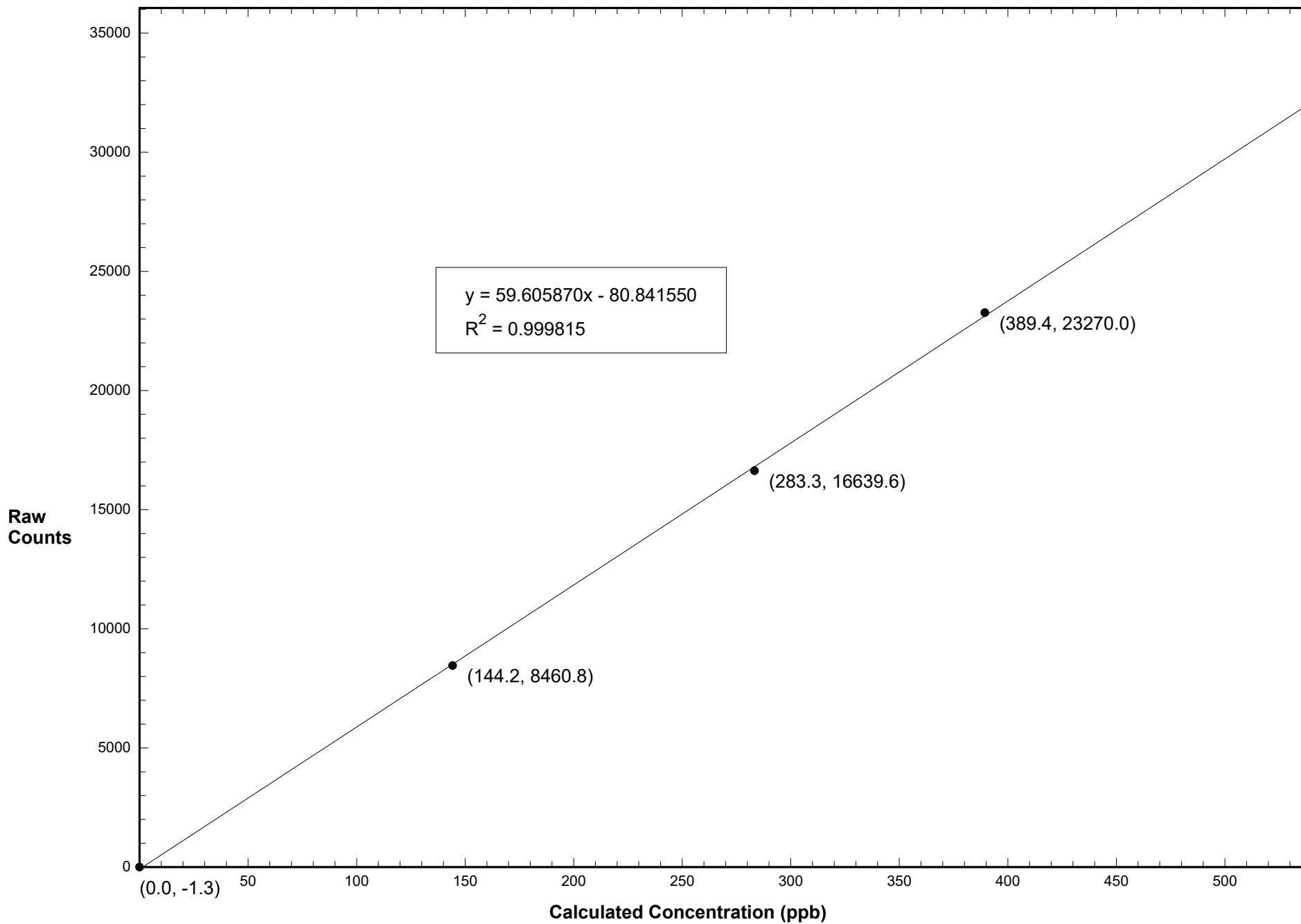
Station 908 NO December 27, 2017: Linear Regression



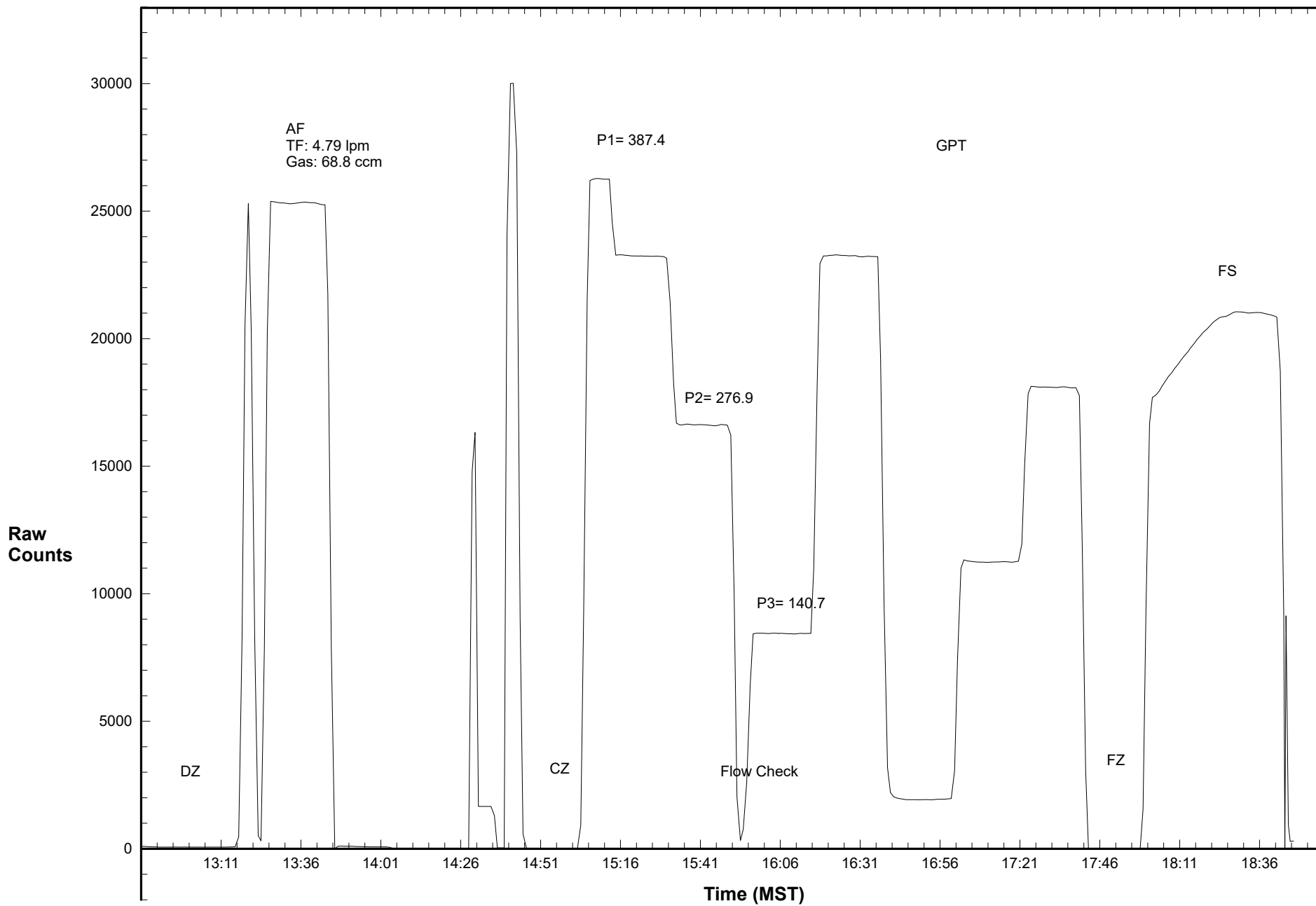
Station 908 NO2 December 27, 2017: Linear Regression



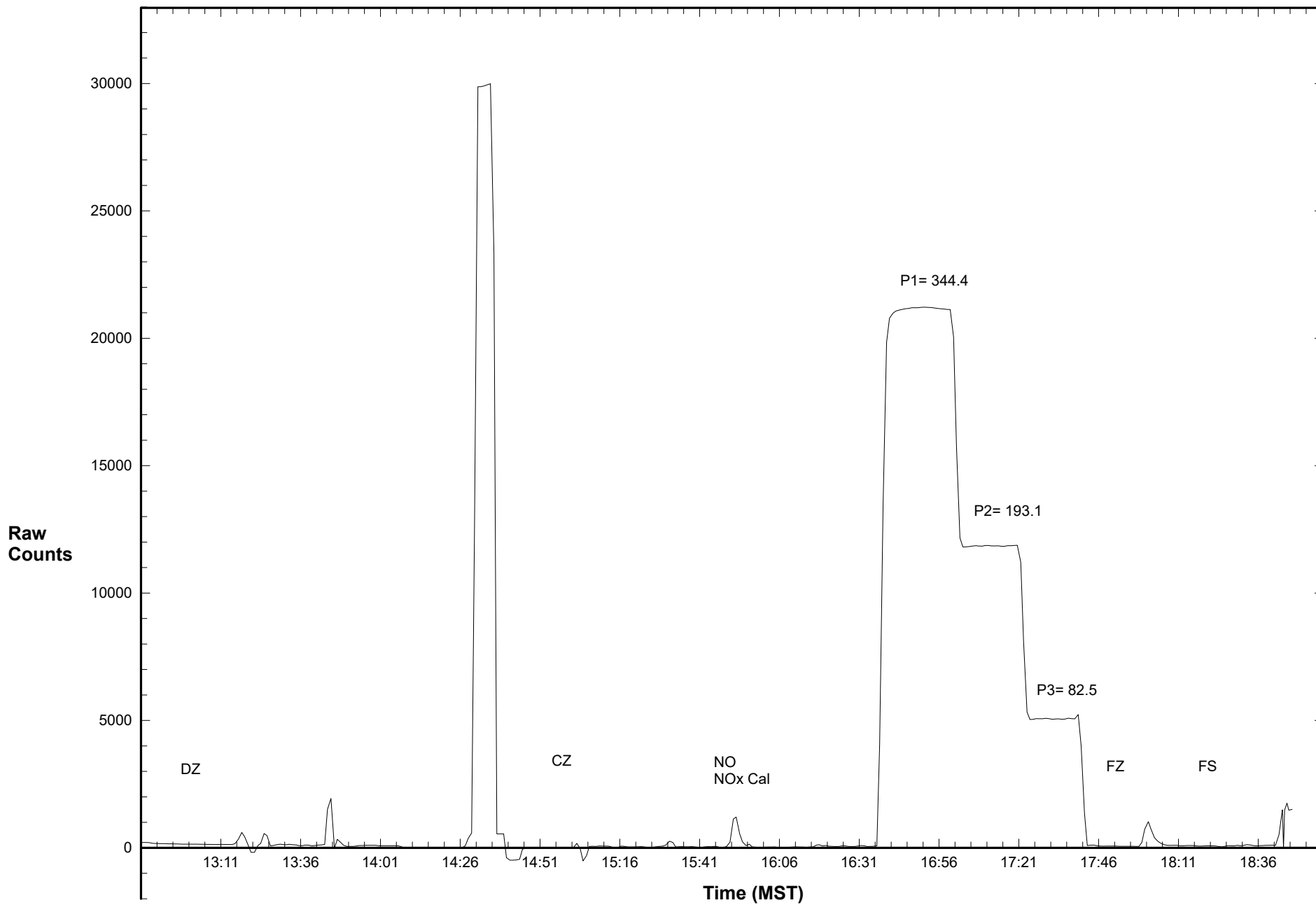
Station 908 NOX December 27, 2017: Linear Regression



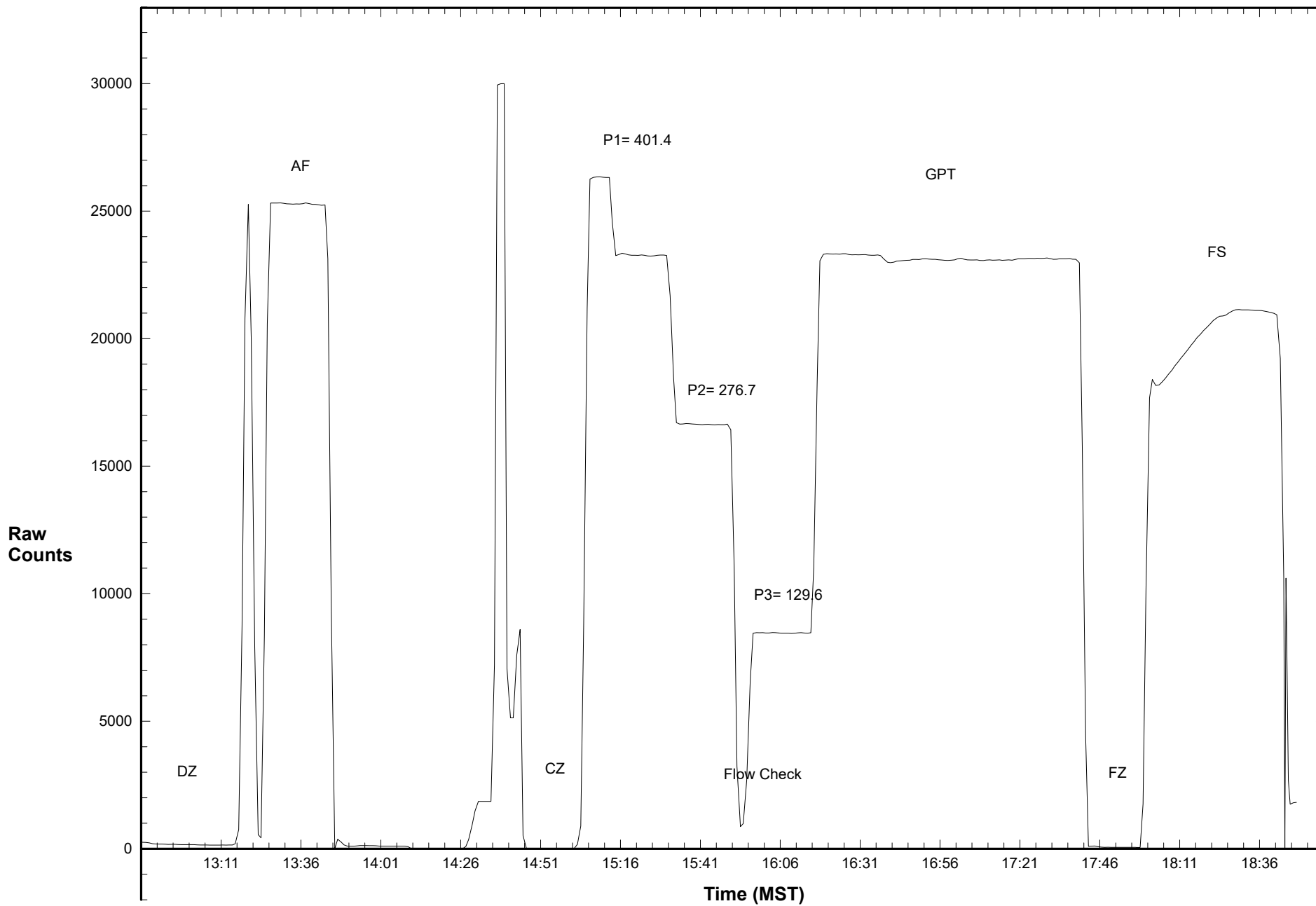
Station 908 NO December 27, 2017: Calibration Graph



Station 908 NO2 December 27, 2017: Calibration Graph



Station 908 NOX December 27, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 908, Meadows

Calibration Date: December 27, 2017

Parameter: SO₂

Instrument: Teco 43 C

Serial Number: 0333803285

Previous Calibration Date: November 18 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 04300810

Barometric Pressure: 27.70" Hg

Calibration Method: Standard Gas Dilution

Cylinder ID: EX0012497

Temperature: 20.0° C

Cylinder Concentration: 24.4 ppm SO₂

In Service: Dec 6 2017 Exp: Oct 2020

Technician: Dean Yustak

Instrument Settings	SO ₂ bkg ppb	SO ₂ Coefficient	Monitoring Range
Previous	3.46	1.551	500 ppb
Current	3.15	1.440	500 ppb

Final Zero: 1.0 ppb

Final Span: 58.4 ppb

As Found Correction Factor: 0.968

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
0.0688	4.790	345.5	20730.5	346.8	0.996
0.0492	4.723	251.4	14947.6	250.3	1.004
0.0249	4.723	128.0	7526.7	126.5	1.011
0.0000	4.600	0.0	11.7	1.2	

Results of Linear Regression

R _c vs C _c	Slope	Intercept	R ²
Previous	59.794010	40.326030	0.999990
Current	59.950040	-59.111260	0.999909
C _i vs C _c			
Current	1.000000	0.000042	0.999909

Average Correction Factor: 1.004

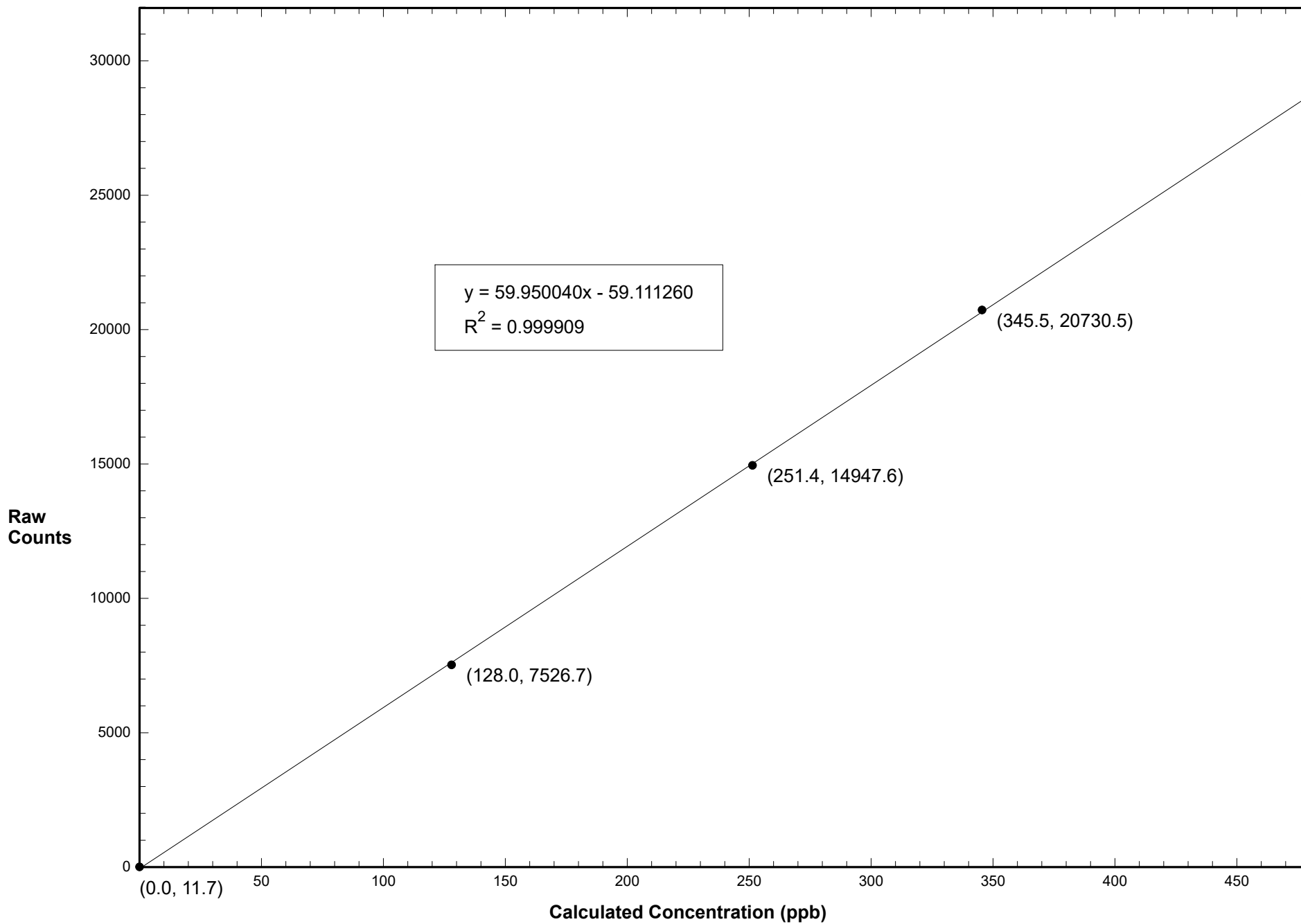
Previous Correction Factor: 1.001

Current Correction Factor: 0.996

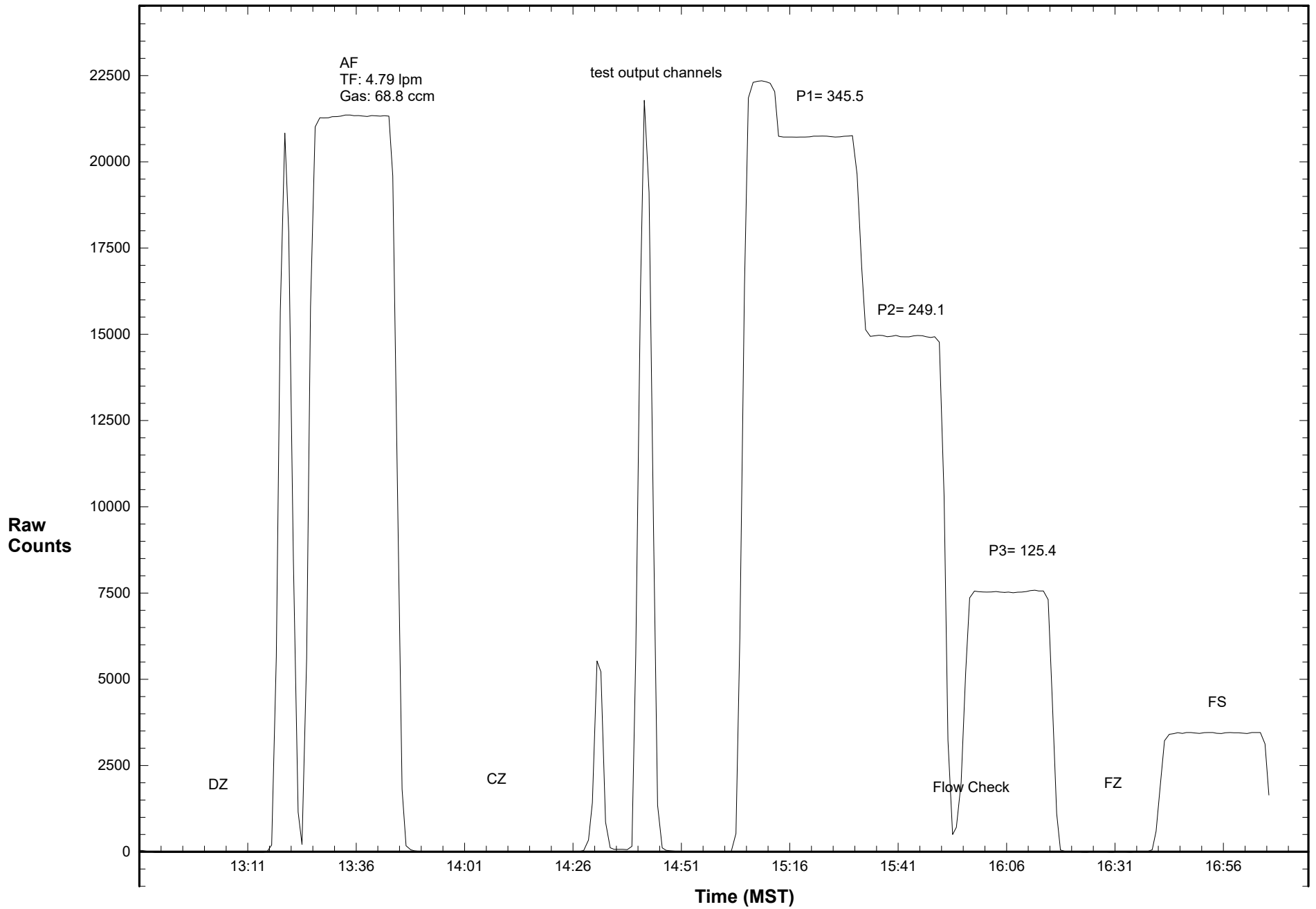
Percent Change of Correction Factor: -0.5

Comments: Sample Flow: 0.345 lpm

Station 908 SO2 December 27, 2017: Linear Regression



Station 908 SO2 December 27, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

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

**AMS 908
MEADOWS
DECEMBER 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
December 2017

Maximum Value: 10.35 C on Dec 12 14:00 Maximum Daily Average: 4.90 C on Dec 12																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -31.0 C on Dec 29 10:00 Minimum Daily Average: -28.24 C on Dec 30																						Hours of Missing Data: 0 Hours of Calibration: 0				
Maximum Diurnal Average: -4.21 C at hour 15 Minimum Diurnal Average: -8.27 C at hour 9																						Percent Operational Time: 100.0				
Monthly Average: -7.013 C Percentiles: P₁ = -30.0 P₁₀ = -25.9 Q₁ = -12.1 Median = -4.1 Q₃ = 0.9 P₉₀ = 4.2 P₉₉ = 8.1																										
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-6.5	-5.8	-7.4	-7.3	-8.1	-8.7	-8.0	-8.0	-8.0	-7.3	-5.6	-4.1	-3.1	-0.8	-1.2	-1.3	-1.6	-2.5	-1.7	-1.1	-0.4	-0.9	-1.5	-2.3	-4.31	-0.39
2-Dec	-3.0	-2.4	-2.5	-2.6	-3.1	-3.5	-3.2	-3.2	-3.2	-3.5	-3.9	-2.6	-1.9	-1.5	0.0	0.2	-1.9	-3.4	-5.3	-6.7	-7.7	-8.5	-9.0	-9.6	-3.83	0.21
3-Dec	-9.4	-10.0	-11.0	-10.9	-12.0	-12.9	-12.9	-12.4	-11.7	-10.5	-9.1	-7.8	-6.6	-5.0	-4.9	-5.0	-6.8	-7.2	-8.1	-8.8	-7.8	-6.6	-5.4	-4.7	-8.65	-4.71
4-Dec	-4.7	-4.6	-4.1	-3.9	-4.7	-4.7	-4.2	-4.7	-4.8	-4.7	-4.0	-2.6	-1.1	-0.4	0.9	0.9	0.4	0.4	0.3	0.1	0.6	-0.1	-1.5	-0.7	-2.16	0.94
5-Dec	-0.4	2.5	4.0	4.3	4.1	3.3	1.5	1.3	2.3	3.3	3.8	3.8	3.8	4.1	4.3	4.0	3.1	1.9	-0.4	1.0	0.7	-1.2	-0.1	-0.4	2.28	4.34
6-Dec	-0.1	-2.4	-3.4	-4.2	-4.1	-4.6	-4.5	-4.2	-4.2	-2.6	-1.3	0.3	1.2	2.7	3.0	3.8	2.4	0.8	0.9	0.6	0.7	0.9	-1.1	-0.7	-0.84	3.83
7-Dec	1.2	1.8	-0.1	1.1	-0.2	-1.9	-1.4	-1.4	-1.0	-1.6	-0.7	3.2	6.6	6.9	6.2	5.0	4.5	2.6	-1.0	0.3	0.7	0.2	-0.3	0.2	1.28	6.88
8-Dec	-0.4	-1.8	-3.2	-3.9	-4.6	-5.1	-4.8	-5.3	-6.5	-5.3	-3.3	0.5	3.0	7.7	8.6	8.1	6.1	5.9	6.4	5.0	4.4	4.5	3.7	3.0	0.94	8.56
9-Dec	4.2	3.8	2.2	3.7	2.7	3.9	4.1	2.3	2.4	2.1	3.5	5.7	8.2	6.5	7.8	6.5	4.5	4.7	3.2	3.0	2.0	2.2	2.7	0.8	3.86	8.16
10-Dec	-1.0	-1.4	-1.8	-0.7	1.1	3.1	5.1	6.8	7.0	5.0	6.5	8.2	9.6	9.7	8.6	8.3	7.5	6.8	6.9	5.7	2.2	1.1	1.3	0.4	4.43	9.67
11-Dec	0.5	0.0	-0.3	0.3	-0.5	-0.2	0.5	0.4	-0.2	0.3	0.8	2.6	3.4	4.8	4.4	5.1	5.0	4.3	2.2	2.5	1.1	1.1	0.0	-0.3	1.58	5.13
12-Dec	0.9	-0.6	0.8	1.5	-0.7	1.7	2.5	4.2	6.8	8.0	7.7	9.5	10.2	10.3	9.4	8.7	8.2	6.6	5.8	4.8	4.2	3.8	1.6	1.9	4.90	10.35
13-Dec	1.7	1.6	1.9	2.4	1.8	2.2	1.6	1.9	2.2	2.7	4.0	5.3	5.8	6.2	6.5	6.1	5.1	3.4	3.4	2.4	1.3	0.0	0.3	-1.7	2.84	6.48
14-Dec	-1.5	-1.5	-1.8	-3.2	-3.3	-4.8	-5.1	-5.6	-5.4	-5.5	-3.0	-0.4	-0.4	0.2	2.9	0.8	1.7	1.5	1.6	2.8	3.7	2.7	2.5	1.5	-0.82	3.71
15-Dec	1.8	2.5	2.4	3.3	3.5	5.0	5.6	6.1	5.6	5.2	4.6	5.7	6.0	5.4	4.6	4.5	3.5	1.8	-1.3	0.3	1.4	1.5	0.4	-0.1	3.31	6.14
16-Dec	-0.5	-0.5	-0.7	-1.6	-2.5	-2.5	-3.1	-3.4	-4.7	-3.6	-1.5	0.3	1.4	2.0	2.1	0.6	-1.5	-2.3	-3.6	-4.2	-2.3	-1.3	-1.2	-0.8	-1.48	2.13
17-Dec	-1.1	-1.0	-0.4	-0.2	-0.2	0.0	0.4	-0.7	-0.7	2.7	4.0	4.1	4.5	5.1	4.6	3.7	2.9	3.6	3.6	1.7	-0.4	-0.5	-1.1	0.2	1.45	5.13
18-Dec	-0.7	-2.2	-2.5	-1.8	-0.1	-0.4	-1.2	-2.2	-3.1	-3.3	-1.3	-0.1	0.5	1.0	1.0	0.3	-0.9	-4.1	-3.6	-3.4	-2.5	-2.5	-2.5	-2.3	-1.57	1.04
19-Dec	-2.5	-3.7	-4.1	-5.1	-4.2	-4.4	-5.0	-5.9	-6.1	-6.1	-6.2	-6.3	-6.3	-6.5	-6.7	-7.1	-7.7	-7.9	-8.1	-8.2	-8.2	-8.5	-9.1	-10.0	-6.40	-2.51
20-Dec	-10.0	-9.9	-9.6	-9.3	-9.3	-9.4	-10.0	-11.7	-11.7	-11.3	-9.6	-7.1	-6.1	-5.1	-4.8	-5.3	-6.7	-8.2	-8.2	-8.0	-8.5	-8.1	-8.2	-8.8	-8.53	-4.78
21-Dec	-6.8	-5.5	-5.7	-6.5	-5.7	-4.3	-4.1	-4.1	-4.0	-3.8	-3.6	-3.6	-3.7	-3.7	-4.5	-5.3	-5.6	-6.3	-7.3	-7.6	-7.1	-7.1	-7.2	-7.4	-5.44	-3.61
22-Dec	-8.5	-8.6	-9.4	-9.3	-8.4	-8.3	-8.5	-7.7	-7.8	-7.7	-7.4	-7.1	-6.5	-5.9	-5.8	-5.8	-6.3	-6.6	-6.4	-6.4	-6.6	-7.0	-7.5	-7.7	-7.39	-5.80
23-Dec	-8.0	-7.6	-7.6	-7.6	-7.4	-7.4	-7.7	-7.9	-7.7	-7.4	-6.8	-6.5	-6.3	-5.9	-5.9	-6.0	-6.4	-6.7	-6.7	-7.0	-9.3	-8.8	-8.9	-9.5	-7.36	-5.87
24-Dec	-9.5	-9.4	-8.7	-8.6	-8.8	-8.9	-9.9	-10.6	-10.8	-12.0	-14.4	-15.3	-15.5	-15.6	-15.6	-16.0	-16.4	-16.7	-17.2	-17.5	-17.5	-17.6	-17.5	-17.5	-13.64	-8.64
25-Dec	-17.5	-17.4	-17.2	-17.5	-17.8	-18.4	-19.0	-19.7	-20.0	-20.3	-21.2	-21.5	-21.0	-20.7	-21.0	-21.1	-22.4	-23.6	-24.5	-25.3	-25.7	-25.6	-25.3	-26.4	-21.25	-17.15
26-Dec	-27.6	-27.1	-27.2	-27.6	-27.8	-28.3	-28.1	-28.6	-28.7	-28.3	-25.3	-24.9	-25.0	-24.1	-23.9	-23.3	-23.5	-23.8	-23.3	-22.9	-22.3	-22.1	-21.6	-21.3	-25.28	-21.25
27-Dec	-20.7	-20.3	-20.2	-19.7	-19.4	-19.8	-20.1	-20.5	-20.7	-20.7	-20.5	-19.9	-19.5	-19.1	-18.4	-18.7	-19.9	-21.3	-22.2	-21.7	-21.8	-21.5	-20.5	-20.8	-20.32	-18.37
28-Dec	-20.1	-20.9	-20.8	-20.1	-20.1	-21.7	-21.6	-21.2	-21.6	-21.7	-20.3	-18.8	-18.2	-18.2	-18.3	-19.9	-21.6	-22.6	-23.2	-23.4	-23.5	-24.0	-24.6	-25.3	-21.32	-18.16
29-Dec	-26.1	-26.8	-27.3	-28.0	-28.3	-29.2	-28.9	-29.6	-31.0	-31.0	-28.7	-27.2	-27.3	-26.2	-26.4	-26.0	-26.3	-27.2	-28.3	-28.5	-28.6	-29.1	-28.8	-29.1	-28.08	-26.04
30-Dec	-28.8	-29.2	-29.5	-29.4	-29.3	-29.6	-29.5	-29.2	-29.2	-29.1	-28.7	-27.6	-26.7	-25.9	-25.2	-25.4	-26.2	-27.1	-27.7	-28.4	-28.9	-29.0	-29.2	-28.9	-28.24	-25.21
31-Dec	-29.4	-29.5	-29.7	-30.3	-30.0	-30.1	-30.1	-30.0	-30.0	-30.0	-28.3	-26.1	-24.9	-23.5	-22.9	-22.7	-22.7	-24.9	-26.1	-26.7	-26.8	-27.8	-27.2	-27.2	-27.37	-22.66
																								Diurnal Average		
																								Diurnal Maximum		



WCAS - Meadows
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1 Spd	0.8	2.9	0.7	3.3	2.1	4.2	4.2	5.0	2.8	4.7	1.1	3.2	0.5	0.8	1.4	1.9	0.8	2.4	7.9	7.9	6.6	7.8	9.1	6.5	1.06	9.07
Dir	E	SE	NE	E	ESE	E	E	ENE	E	E	WSW	WSW	NNW	NNW	NW	ESE	W	NW	WSW	WSW	WSW	SW	WSW	WSW	SW	WSW
2 Spd	7.6	4.5	6.0	0.9	1.8	3.9	5.0	5.7	0.7	5.1	7.3	7.9	4.6	6.6	4.0	2.3	8.2	4.2	2.8	0.7	1.0	0.1	0.6	0.4	3.01	8.17
Dir	WSW	SW	SW	NNE	WSW	WSW	WSW	W	S	W	WSW	W	W	W	WNW	WSW	S	S	NE	SW	WSW	NE	W	N	WSW	S
3 Spd	5.1	8.7	3.7	6.7	6.4	7.6	6.7	9.1	7.9	6.7	7.9	13.2	18.5	18.2	20.4	20.1	15.0	17.4	13.2	6.5	11.8	13.9	18.6	19.1	11.62	20.43
Dir	W	W	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	WSW	WSW	W	W	W
4 Spd	16.3	8.7	12.7	15.0	17.0	16.4	11.1	12.0	7.5	7.1	6.5	4.3	3.3	6.3	16.5	14.6	9.0	6.5	10.8	12.7	7.4	6.7	9.7	17.5	10.38	17.48
Dir	W	WNW	WNW	WNW	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	WSW	WSW	W	W	W	W	W	W
5 Spd	14.8	22.0	26.6	27.3	25.9	21.2	20.0	21.1	21.5	23.6	27.5	27.7	27.3	27.0	21.8	21.5	18.5	19.7	22.7	19.9	15.5	18.8	16.4	13.5	21.39	27.66
Dir	W	WNW	WNW	WNW	WNW	WNW	W	W	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	W	W	W	WNW	W	WNW	WNW	WNW	NW
6 Spd	15.6	15.1	12.0	7.5	11.7	8.2	8.9	9.4	8.9	7.2	11.4	4.5	2.4	0.5	4.9	9.8	7.6	16.1	17.4	13.5	12.5	10.2	15.5	15.0	9.99	17.41
Dir	WNW	W	W	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	NE	SW	SW	W	WSW	WSW	WSW	W	W	W	W	WSW	WSW
7 Spd	15.9	14.1	15.6	19.2	15.0	13.6	11.4	9.5	7.1	7.3	2.6	8.5	11.3	14.5	15.0	10.0	6.5	4.2	11.5	11.1	9.6	8.5	11.3	5.6	10.68	19.20
Dir	W	W	W	W	W	WSW	W	WSW	WSW	W	W	W	W	W	W	W	W	W	WNW	WSW	W	W	W	W	W	W
8 Spd	4.5	8.4	3.2	0.9	5.9	6.9	6.7	2.7	6.7	8.5	5.4	8.0	1.5	8.0	4.3	7.0	7.5	0.8	9.0	15.7	9.0	8.7	9.3	13.8	6.58	15.73
Dir	W	WSW	WSW	S	W	WSW	W	WSW	W	WSW	W	W	NW	NW	W	W	WSW	WNW	W	WSW	W	WSW	WSW	W	W	WSW
9 Spd	11.2	6.7	15.9	16.0	15.2	19.4	19.5	13.8	10.7	6.4	0.8	1.7	10.2	14.6	11.3	7.4	7.7	7.4	8.2	9.7	7.8	8.8	5.1	1.1	9.53	19.48
Dir	W	W	W	W	W	W	W	W	W	W	W	WSW	E	W	W	W	WSW	WSW	WSW	WSW	W	WSW	W	SE	W	W
10 Spd	2.9	4.8	0.9	0.3	4.6	9.3	14.1	11.5	12.3	15.0	20.9	23.1	25.2	29.2	23.0	22.5	16.5	15.3	18.0	12.8	11.1	11.3	10.3	5.9	12.08	29.23
Dir	ESE	WSW	E	E	WSW	W	W	WSW	WSW	W	W	W	WNW	NW	NW	NW	NW	NW	WNW	WNW	W	W	WSW	WSW	WNW	NW
11 Spd	7.9	9.7	11.2	8.9	3.9	3.0	3.9	10.9	7.7	7.6	6.0	2.4	1.1	1.9	2.7	1.5	2.5	6.7	1.5	1.5	2.0	0.0	2.4	1.9	3.65	11.24
Dir	WSW	WSW	WSW	WSW	WNW	WNW	WSW	WSW	WSW	WSW	WSW	WSW	ENE	WSW	NE	NE	SSW	WSW	WSW	WSW	WSW	ENE	NE	ESE	WSW	WSW
12 Spd	5.2	3.7	7.9	7.8	2.0	8.5	7.1	8.4	16.3	16.0	19.4	25.9	28.9	28.7	29.0	23.4	21.2	16.4	14.0	11.6	14.8	16.1	13.2	11.1	13.98	28.96
Dir	SW	E	WSW	WSW	W	WSW	W	W	WNW	WNW	W	WNW	WNW	WNW	NW	WNW	WNW	W	WNW	WNW	W	W	WSW	W	WNW	NW
13 Spd	10.9	12.0	6.7	5.3	8.5	16.2	15.7	14.3	11.4	13.4	14.1	15.7	14.8	17.6	20.3	19.0	13.8	16.5	14.5	12.2	9.8	10.4	10.8	10.2	12.82	20.34
Dir	W	WSW	W	WSW	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	W	W	W	WNW
14 Spd	7.6	7.5	5.3	1.3	5.6	0.9	1.8	1.2	0.1	1.7	2.8	6.5	0.7	2.4	0.7	3.3	7.8	8.3	3.2	9.6	9.4	15.7	12.9	11.0	4.27	15.68
Dir	WSW	WSW	WSW	SE	WSW	ENE	ENE	ENE	NNE	WSW	WSW	WSW	ENE	ENE	ESE	ENE	W	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	SW
15 Spd	7.6	8.3	9.2	8.5	9.4	8.6	9.9	14.0	15.1	14.0	17.1	24.5	34.8	27.2	22.0	23.2	16.8	12.5	12.0	15.7	19.9	20.1	21.1	20.1	15.73	34.82
Dir	WSW	WSW	W	WSW	WSW	W	W	WNW	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	W	W	WNW	WNW
16 Spd	20.6	17.7	19.1	16.6	15.6	15.1	15.5	15.7	14.2	14.9	13.0	16.3	19.2	15.7	13.3	11.1	2.9	0.8	0.9	0.3	9.4	15.0	19.3	19.8	11.78	20.65
Dir	W	W	W	W	W	W	W	W	W	WSW	W	W	W	WSW	SW	SSW	S	WSW	SSW	NE	SSW	SSW	SSW	SSW	WSW	W
17 Spd	12.8	9.9	7.7	9.9	11.1	16.0	24.6	13.0	9.8	16.9	16.8	14.8	13.4	14.8	15.3	13.6	12.4	15.3	15.1	8.5	7.3	4.0	7.9	11.8	11.61	24.56
Dir	SW	WSW	WSW	SW	WSW	SW	SW	WSW	WSW	W	W	WNW	W	W	W	W	W	WNW	WNW	WNW	W	WSW	W	WNW	W	SW
18 Spd	9.2	7.5	8.6	9.2	15.5	13.5	12.1	17.5	16.0	15.8	18.5	17.7	20.6	17.7	18.4	14.9	11.8	11.4	12.9	12.7	14.4	14.4	13.1	8.2	13.49	20.63
Dir	W	WSW	WSW	W	WNW	WNW	W	W	W	W	W	WNW	W	WNW	WNW	NW	WNW	WSW	W	W	W	W	W	WNW	W	W
19 Spd	6.9	9.9	10.1	9.7	6.9	4.3	7.1	7.7	5.0	8.2	9.9	9.6	11.5	12.2	13.6	12.7	11.4	11.6	11.9	9.9	10.2	10.6	8.6	5.5	5.57	13.59
Dir	WNW	W	W	W	WNW	NW	NE	E	E	E	E	E	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	ENE
20 Spd	6.5	3.8	1.6	1.4	4.1	4.6	6.5	9.0	8.0	2.5	3.7	12.1	13.2	10.6	10.1	10.7	12.3	4.9	6.2	10.9	12.6	16.2	12.2	8.9	6.54	16.16
Dir	NE	NE	E	WNW	W	W	WSW	SW	WSW	W	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	WSW	WSW	WSW	SW	WSW	SW	SW
21 Spd	8.0	4.9	10.0	8.2	5.9	11.7	20.2	17.8	15.8	12.7	14.7	13.4	15.5	15.8	14.2	14.4	13.9	11.4	10.1	9.4	9.9	11.9	12.8	12.9	10.70	20.22
Dir	W	W	WSW	SW	W	W	W	W	WNW	NW	NW	NW	NNW	NNW	NNW	NW	NW	NNW	NW	NW	NW	WNW	WNW	WNW	WNW	W
22 Spd	17.0	16.6	17.2	17.8	16.9	12.6	13.3	16.2	18.7	19.0	15.6	18.4	19.2	20.9	22.6	19.8	16.8	15.1	18.7	19.3	22.0	20.4	21.1	19.0	17.97	22.59
Dir	W	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	WNW



WCAS - Meadows
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
23 Spd	21.0	20.5	21.1	17.6	19.3	18.0	14.0	14.2	18.8	19.9	21.5	18.5	20.6	21.8	22.3	20.2	20.7	19.6	19.5	18.8	13.4	18.3	18.6	16.1	18.05	22.29	
Dir	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	N	NW	NW	WNW	WNW	NW	
24 Spd	18.4	20.6	20.7	19.4	18.4	20.4	17.1	13.5	13.9	17.2	18.8	16.5	11.7	8.6	6.2	8.8	6.8	6.6	10.3	10.1	6.6	6.9	6.7	6.2	6.32	20.75	
Dir	WNW	W	WNW	WNW	WNW	WNW	NNW	NNW	N	N	NNE	NNE	N	NNE	NE	ENE	ENE	E	E	E	SE	ESE	SE	SE	NNW	WNW	
25 Spd	1.3	0.0	0.9	7.9	10.7	12.1	15.0	12.0	11.0	8.2	12.1	9.2	6.9	5.2	5.8	4.3	4.3	5.3	5.3	0.2	1.5	0.1	1.2	1.1	4.88	15.02	
Dir	ESE	E	WNW	NNE	NNE	NNE	NNE	N	N	N	NNE	NNE	N	NNE	NNE	NNE	E	E	SE	SSE	SSW	SSE	SSE	ENE	NNE	NNE	
26 Spd	2.0	0.5	0.3	2.8	2.6	3.0	1.7	2.1	0.4	0.7	0.0	1.0	5.0	4.7	4.2	4.9	3.6	2.2	2.0	1.5	5.6	6.2	7.8	9.1	0.70	9.12	
Dir	ESE	S	SE	ESE	ESE	ESE	SE	ESE	ESE	WSW	W	NNE	ENE	E	ENE	ENE	ESE	ESE	E	NE	NNW	WNW	WNW	WNW	ENE	WNW	
27 Spd	8.5	9.5	8.8	8.5	10.9	14.0	12.0	15.2	14.3	12.0	14.4	15.0	16.1	14.4	15.6	16.1	12.4	7.2	8.0	5.0	3.1	8.6	9.5	5.1	10.49	16.06	
Dir	W	WNW	WNW	W	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WNW	W	
28 Spd	13.6	13.2	12.4	12.3	13.7	11.9	11.6	12.8	12.8	12.8	11.4	13.1	20.0	16.2	12.7	11.4	11.7	11.8	9.8	6.4	8.5	11.7	10.8	9.6	6.38	20.05	
Dir	WSW	W	W	W	W	WSW	W	W	W	W	WNW	WNW	NW	NW	NW	NE	NE	ENE	ENE	ENE	ENE	NE	NNE	NNE	NW	NW	
29 Spd	11.0	8.3	7.1	8.0	6.8	1.7	3.5	1.9	4.3	5.3	3.3	1.4	2.3	2.5	7.5	5.1	9.0	8.0	6.2	7.5	8.1	7.8	11.9	13.8	3.59	13.81	
Dir	NE	NNE	NNE	NNE	NNE	N	N	NNW	WSW	WSW	WSW	N	E	NE	NE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	E	ENE	E	
30 Spd	15.3	15.9	15.5	18.3	17.0	15.8	13.5	15.0	15.5	14.4	10.8	9.1	9.1	10.3	9.9	11.1	10.8	10.0	11.5	10.5	9.1	7.8	5.2	6.0	11.87	18.34	
Dir	ESE	E	E	E	E	E	E	E	E	E	E	E	E	ENE	E	E	E	E	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E
31 Spd	6.1	5.6	5.6	7.5	6.2	4.5	6.0	7.6	5.5	5.7	7.8	7.1	5.4	5.3	4.4	3.5	1.3	3.1	4.5	5.0	3.0	3.0	1.7	0.0	3.30	7.76	
Dir	ESE	E	E	E	E	E	E	E	ESE	ESE	ESE	ESE	ESE	SE	SE	E	N	WSW	WSW	SW	WSW	WSW	S	WSW	ESE	ESE	
Spd	7.00	7.09	7.59	6.43	7.49	7.69	7.52	7.42	7.48	7.48	7.84	8.68	9.37	9.43	8.62	6.87	5.57	5.35	5.93	6.19	5.88	6.60	7.20	6.66	Diurnal Average		
Dir	W	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	W	W	W	W			
Spd	21.03	22.03	26.61	27.29	25.91	21.19	24.56	21.11	21.50	23.55	27.46	27.66	34.82	29.23	28.96	23.44	21.21	19.73	22.73	19.90	21.96	20.37	21.11	20.11	Diurnal Maximum		
Dir	284.46	284.00	288.18	295.48	289.40	283.16	229.96	272.95	281.58	289.50	299.38	303.76	300.07	305.59	304.77	299.76	294.19	278.43	271.72	280.76	282.80	285.76	282.36	274.85			
Maximum Speed Value: 34.8 kph on Dec 15 13:00		Minimum Speed Value: 0.0 kph on Jan 1 00:00														Hours in Service: 744											
Maximum Daily Speed Average: 21.39 kph on Dec 5		Minimum Daily Speed Average: 0.70 kph on Dec 26														Hours of Data: 744											
Maximum Diurnal Speed Average: 9.43 kph at hour 14		Minimum Diurnal Speed Average: 5.35 kph at hour 18														Hours of Missing Data: 0											
Monthly Average Velocity: 7.117 kph 278.89 deg		Speed Percentiles: P ₁ = 0.2 P ₁₀ = 2.3 Q ₁ = 6.0 Median = 10.0 Q ₃ = 15.1 P ₉₀ = 19.3 P ₉₉ = 27.3														Percent Operational Time: 100.0											
All monthly, daily, and diurnal averages have been calculated using vector methods																											
Frequency Distribution																											
		Speed Range (kph)																									
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total																				
North	7	11	11	0	0	0	29																				
NorthEast	18	15	6	0	0	0	39																				
East	33	38	20	0	0	0	91																				
SouthEast	13	13	0	0	0	0	26																				
South	11	3	2	1	0	0	17																				
SouthWest	22	30	16	2	0	0	70																				
West	36	135	165	49	1	0	386																				
NorthWest	9	6	40	27	4	0	86																				
Total	149	251	260	79	5	0	744																				



WCAS - Meadows
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2017

Maximum Value: 96.04 % on Dec 14 09:00 Maximum Daily Average: 80.07 % on Dec 3 Minimum Value: 32.0 % on Dec 8 14:00 Minimum Daily Average: 42.49 % on Dec 9 Maximum Diurnal Average: 69.97 % at hour 8 Minimum Diurnal Average: 57.11 % at hour 15 Monthly Average: 65.653 % Percentiles: P ₁ = 35.1 P ₁₀ = 45.0 Q ₁ = 58.1 Median = 68.8 Q ₃ = 73.3 P ₉₀ = 79.9 P ₉₉ = 92.9																								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 Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	79.5	77.5	80.9	85.8	83.6	88.0	84.3	85.7	83.9	82.0	76.6	76.4	75.3	65.0	63.9	67.4	69.8	76.4	70.6	68.9	70.5	73.0	74.9	77.7	76.56	87.98																							
2-Dec	79.6	77.1	77.5	80.1	83.5	82.0	80.0	82.3	81.1	79.6	82.6	78.1	73.3	67.6	60.2	59.5	66.0	75.3	82.7	87.4	93.3	93.9	93.1	92.7	79.52	93.93																							
3-Dec	92.6	92.8	91.6	91.7	90.6	89.8	89.9	90.1	90.4	90.8	90.6	82.0	72.2	69.1	68.8	67.7	72.6	70.7	71.8	75.1	72.5	69.8	66.2	62.4	80.07	92.76																							
4-Dec	61.9	61.9	58.7	58.2	63.0	65.4	64.8	68.5	70.4	70.6	69.5	63.6	58.3	56.0	58.8	69.2	72.8	68.2	68.6	69.1	66.1	71.0	71.8	65.3	65.50	72.76																							
5-Dec	63.5	54.3	49.8	48.5	47.9	49.8	55.9	55.9	50.6	45.8	43.7	44.7	44.1	42.3	41.0	39.1	40.0	43.9	52.4	46.4	46.9	55.3	52.5	53.6	48.67	63.49																							
6-Dec	53.2	61.4	63.6	67.3	65.9	68.5	69.2	68.9	71.5	67.9	66.3	61.5	60.5	55.3	57.4	55.1	60.9	66.4	63.6	63.7	60.3	58.1	65.1	63.7	63.14	71.45																							
7-Dec	55.9	52.0	58.9	55.1	58.8	65.4	63.2	63.1	59.8	60.4	57.5	45.7	34.8	35.1	38.3	43.9	42.6	47.3	62.9	56.8	54.4	56.4	59.1	56.1	53.47	65.37																							
8-Dec	57.9	63.3	66.5	70.9	70.6	72.1	68.7	70.6	73.4	68.4	65.3	59.0	49.3	32.0	32.4	35.2	39.4	35.9	34.8	43.3	41.5	39.1	42.3	45.7	53.22	73.45																							
9-Dec	38.4	38.4	45.1	40.7	43.1	39.0	40.2	43.1	40.7	42.1	40.8	38.4	33.0	43.6	37.9	40.6	47.1	41.6	45.6	46.2	49.4	47.5	44.5	52.9	42.49	52.87																							
10-Dec	59.5	64.2	69.9	65.5	62.1	56.3	48.8	53.2	52.4	53.4	46.9	39.9	34.5	35.7	39.8	40.5	43.1	46.5	46.0	50.7	66.2	71.4	67.9	69.6	53.50	71.38																							
11-Dec	68.3	70.2	71.1	68.2	70.8	69.2	69.3	67.7	67.1	67.6	69.8	63.3	58.7	56.2	58.7	54.8	52.0	53.6	61.9	58.5	67.2	65.9	73.0	73.2	64.85	73.24																							
12-Dec	69.3	74.3	70.0	68.7	77.5	72.3	69.5	60.6	47.7	41.9	43.7	35.2	34.1	35.9	40.3	44.1	46.2	52.9	55.9	59.1	62.2	63.3	73.8	72.5	57.13	77.45																							
13-Dec	72.6	73.1	70.5	66.6	68.1	65.9	68.8	68.3	68.4	67.7	64.7	60.2	58.7	56.7	55.9	57.4	60.7	67.4	66.0	69.7	73.6	78.6	75.5	82.3	67.40	82.29																							
14-Dec	81.9	81.8	82.7	87.6	88.2	91.8	95.8	95.6	96.0	94.7	89.4	79.7	80.3	78.2	69.9	74.1	69.7	68.8	68.5	62.6	56.4	62.3	62.3	65.9	78.52	96.04																							
15-Dec	65.6	65.2	68.0	68.7	71.6	66.2	65.2	59.6	56.8	57.2	58.9	40.9	35.3	37.8	38.9	37.3	40.9	46.5	61.0	54.1	45.7	44.7	47.9	48.8	53.45	71.60																							
16-Dec	49.5	49.1	50.7	55.4	59.0	58.2	61.2	62.9	68.3	65.3	59.4	52.2	46.3	42.1	41.1	44.5	49.6	50.5	55.9	63.9	49.6	43.3	42.2	40.3	52.52	68.28																							
17-Dec	42.3	43.7	43.9	44.9	47.8	49.0	49.5	56.1	59.3	50.1	46.6	47.2	49.2	46.4	49.8	53.2	56.7	48.3	40.3	53.6	61.0	63.3	64.9	51.4	50.78	64.92																							
18-Dec	51.5	60.4	61.5	55.7	42.4	44.6	48.7	52.8	55.7	58.0	51.2	46.6	46.7	46.5	42.8	46.1	50.9	64.0	63.0	63.8	59.8	60.3	62.1	62.5	54.05	63.98																							
19-Dec	63.9	71.8	74.6	78.8	77.2	79.7	82.3	72.3	73.3	74.2	74.2	73.3	73.7	71.3	72.1	74.5	76.4	76.6	78.4	80.2	82.0	82.7	83.7	85.7	76.37	85.69																							
20-Dec	85.2	84.4	83.7	83.7	84.7	86.3	86.6	86.5	87.3	85.6	80.6	76.7	72.2	67.7	66.4	68.0	73.8	78.6	79.5	81.1	82.5	78.3	76.3	76.5	79.68	87.29																							
21-Dec	69.6	65.9	68.8	71.3	68.5	62.4	61.4	62.4	65.5	73.3	74.3	72.6	70.9	68.8	69.5	70.5	75.9	76.5	76.0	81.7	78.2	70.9	71.8	72.8	70.81	81.75																							
22-Dec	77.3	77.1	79.1	77.5	74.9	74.9	75.9	74.7	76.1	78.1	73.4	71.7	69.5	66.2	63.0	56.6	55.4	58.0	61.9	60.5	61.6	64.2	66.5	69.2	69.30	79.14																							
23-Dec	72.9	69.9	68.4	71.0	70.0	72.7	82.4	85.9	86.6	85.7	81.8	80.6	78.9	71.2	70.5	69.8	70.1	70.8	71.1	72.0	87.4	74.6	64.1	62.3	74.60	87.40																							
24-Dec	66.0	72.2	67.0	69.9	76.5	72.2	79.6	85.4	79.2	79.0	76.0	68.8	64.1	63.5	65.3	68.1	68.2	69.5	70.7	73.2	76.0	76.0	76.8	76.3	72.49	85.42																							
25-Dec	76.9	77.8	78.2	79.7	76.1	73.8	70.9	69.9	69.8	72.6	70.7	67.7	64.3	61.8	62.7	62.6	68.0	70.7	73.2	74.9	75.1	75.4	75.4	75.0	71.80	79.70																							
26-Dec	74.1	74.2	74.3	73.6	73.4	72.9	73.0	72.5	72.4	72.5	74.4	74.9	75.6	75.1	76.2	76.8	76.3	76.2	76.4	76.3	75.8	76.6	77.6	78.1	74.96	78.07																							
27-Dec	77.1	77.1	78.0	78.6	77.5	74.0	72.9	72.3	71.9	71.9	70.2	66.6	64.7	62.3	61.8	64.0	67.7	71.5	73.2	73.6	72.3	70.8	69.4	70.6	71.26	78.64																							
28-Dec	68.1	69.9	69.3	67.3	66.6	70.0	69.5	68.8	69.5	71.0	70.0	65.0	58.1	57.5	57.5	64.0	66.3	64.8	63.2	61.8	60.9	63.0	64.8	65.1	65.50	71.02																							
29-Dec	67.8	70.6	71.6	72.5	71.2	71.3	71.4	70.9	70.1	70.0	69.3	67.1	66.5	62.5	65.6	68.1	71.3	71.7	70.7	72.1	72.4	71.9	72.3	72.0	70.03	72.48																							
30-Dec	72.3	71.6	71.4	71.2	70.7	70.5	70.7	71.1	71.0	70.9	71.0	71.6	71.5	71.6	71.3	71.1	71.2	71.0	72.3	72.6	72.1	72.1	71.9	72.2	71.45	72.57																							
31-Dec	71.7	71.7	71.3	70.9	71.1	71.1	71.0	71.2	71.1	71.1	72.1	73.6	73.0	71.9	72.6	73.5	72.6	73.6	74.0	72.9	72.8	72.8	72.1	71.8	72.15	73.97																							
																								67.29	68.21	68.92	69.21	69.45	69.20	69.70	69.97	69.60	69.01	67.15	62.74	59.60	57.19	57.11	58.63	61.10	63.02	64.90	65.99	66.63	66.66	67.17	67.23	Diurnal Average	
																								92.60	92.76	91.57	91.66	90.58	91.82	95.80	95.64	96.04	94.69	90.59	81.95	80.31	78.22	76.24	76.78	76.44	78.62	82.69	87.43	93.29	93.93	93.11	92.71	Diurnal Maximum	



WCAS - Meadows
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2017

Maximum Value: 7.53 kph on Dec 17 01:00		Maximum Daily Average: 4.30 kph on Dec 23		Hours in Service: 744																							
Minimum Value: 0.0 kph on Dec 11 22:00		Minimum Daily Average: 1.11 kph on Dec 31		Hours of Data: 744																							
Maximum Diurnal Average: 3.47 kph at hour 13		Minimum Diurnal Average: 2.04 kph at hour 2		Hours of Missing Data: 0																							
Monthly Average: 2.560 kph		Percentiles: P ₁ = 0.6 P ₁₀ = 1.2 Q ₁ = 1.6 Median = 2.3 Q ₃ = 3.2 P ₉₀ = 4.4 P ₉₉ = 6.7		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1.2	2.3	1.8	2.3	1.7	2.0	1.5	2.6	2.1	1.2	2.5	3.0	1.4	1.2	1.5	2.0	2.3	4.3	3.5	2.2	2.9	1.7	2.6	1.3	2.13	4.30	
2-Dec	2.6	4.2	1.9	2.5	2.8	2.7	2.8	1.9	2.2	1.7	1.0	0.9	2.8	1.1	2.5	1.9	1.8	3.0	2.2	1.6	1.8	0.6	1.6	1.1	2.05	4.25	
3-Dec	2.6	1.7	1.9	1.2	1.2	1.1	0.7	0.9	0.6	0.9	1.2	3.4	4.1	3.4	2.5	2.2	2.9	1.6	2.5	2.2	2.9	2.0	2.0	2.6	2.01	4.11	
4-Dec	2.8	1.8	2.7	2.6	2.2	2.7	2.4	0.9	3.9	2.2	1.8	2.3	2.1	2.4	4.3	3.9	2.2	1.7	2.1	1.6	3.0	2.5	3.5	1.2	2.46	4.26	
5-Dec	3.6	4.8	5.7	5.6	5.4	3.5	2.7	2.5	3.4	4.8	6.7	6.8	6.5	6.1	5.3	4.7	3.0	2.7	2.9	3.6	3.4	2.4	2.4	2.4	4.21	6.78	
6-Dec	2.3	2.1	2.2	1.8	1.1	1.6	1.1	1.4	1.1	1.3	2.6	4.0	2.9	1.4	3.6	1.9	2.1	1.4	1.8	1.1	2.4	1.4	2.9	1.6	1.95	3.97	
7-Dec	1.5	1.6	1.7	1.7	3.1	1.0	4.2	4.2	2.1	2.8	2.2	3.1	2.6	4.7	3.0	1.8	3.8	2.4	3.5	3.9	2.1	2.9	3.2	3.6	2.77	4.67	
8-Dec	2.3	1.4	1.9	2.1	1.6	2.2	1.9	1.2	2.3	1.7	1.6	1.1	2.7	2.4	1.8	2.7	5.2	1.4	6.3	3.3	2.2	2.2	1.4	1.7	2.27	6.34	
9-Dec	2.7	2.5	5.3	1.9	1.8	3.8	5.1	3.3	1.4	3.0	1.7	2.2	7.3	2.3	2.6	1.8	1.1	1.5	0.9	1.7	2.6	1.6	2.2	1.5	2.58	7.28	
10-Dec	2.7	2.7	1.6	0.7	3.9	1.9	5.3	2.4	3.8	4.1	3.3	4.4	5.9	6.7	5.4	4.6	5.5	4.4	3.5	2.5	1.9	1.5	0.9	2.3	3.42	6.71	
11-Dec	1.5	1.4	1.7	2.3	1.8	1.8	2.7	2.0	1.9	2.1	1.0	3.3	2.0	2.8	2.3	2.0	2.4	3.7	3.6	3.2	2.3	0.0	2.4	2.9	2.21	3.67	
12-Dec	4.9	2.2	6.2	2.6	2.1	3.4	3.2	4.9	3.1	4.0	2.7	6.2	5.9	6.6	7.5	4.6	4.5	3.4	1.9	1.6	2.6	2.3	1.0	2.3	3.74	7.50	
13-Dec	1.3	1.3	2.8	1.1	3.8	1.6	1.3	1.8	3.1	2.3	2.4	3.6	3.5	4.2	4.9	4.1	2.6	2.5	4.1	3.1	2.5	1.7	1.2	1.7	2.61	4.93	
14-Dec	1.0	1.4	1.6	2.2	3.3	1.4	1.6	1.7	0.2	2.5	3.3	3.7	1.8	1.9	1.2	2.8	4.1	1.9	3.0	1.3	2.7	3.1	2.7	1.9	2.18	4.11	
15-Dec	1.4	1.4	2.1	2.5	1.4	2.7	2.5	2.9	2.7	2.6	4.0	6.4	7.3	6.7	5.7	5.8	3.5	2.5	1.1	2.3	3.1	3.0	2.6	2.9	3.30	7.32	
16-Dec	2.5	2.2	2.1	2.0	1.5	1.3	1.1	1.0	1.2	1.1	1.3	3.0	2.8	2.6	2.1	2.9	3.2	1.5	2.5	1.3	7.2	3.0	2.1	3.1	2.28	7.24	
17-Dec	7.5	3.2	4.3	4.8	3.5	4.6	4.3	2.8	1.6	6.7	4.0	2.7	2.0	2.0	2.5	2.1	1.3	4.8	4.5	1.6	0.8	3.4	1.3	2.4	3.29	7.53	
18-Dec	2.4	1.3	2.0	2.8	2.8	2.2	2.3	2.0	2.0	2.6	2.4	3.5	4.1	3.7	4.2	4.1	2.4	1.7	1.6	1.1	1.4	1.5	1.6	2.8	2.44	4.19	
19-Dec	1.6	0.9	1.4	1.5	1.2	1.9	1.8	2.3	2.5	1.6	2.6	2.3	2.0	2.0	2.3	2.1	1.7	1.9	2.0	1.8	1.6	1.7	1.4	1.3	1.81	2.55	
20-Dec	1.4	2.0	1.8	1.9	0.9	0.8	1.5	2.1	2.0	2.3	1.4	2.6	2.5	1.7	2.0	2.6	1.5	2.2	1.9	2.3	2.7	2.3	1.9	1.2	1.90	2.72	
21-Dec	1.4	1.0	1.8	4.4	1.2	4.9	2.7	2.6	3.5	3.7	3.4	3.8	4.4	3.6	3.5	3.3	3.3	3.2	2.5	2.4	2.4	2.6	2.8	2.3	2.94	4.89	
22-Dec	1.9	2.4	1.5	1.8	2.5	1.9	2.1	2.8	2.9	3.7	3.3	4.0	4.8	4.8	4.9	5.1	3.4	3.2	5.0	3.6	4.4	4.8	4.4	3.9	3.47	5.13	
23-Dec	4.3	4.5	4.9	4.2	4.2	4.1	3.3	2.1	2.6	3.0	4.7	4.1	4.9	5.2	4.8	5.3	4.7	4.5	4.5	4.6	4.5	6.3	4.5	3.6	4.30	6.31	
24-Dec	4.0	3.6	4.2	4.1	5.1	4.3	5.0	3.6	4.0	5.8	5.0	3.9	3.7	2.2	4.5	1.6	1.6	2.0	1.7	1.7	1.6	1.7	2.2	1.4	3.27	5.82	
25-Dec	1.4	0.1	2.3	3.1	2.7	3.1	3.6	3.4	2.7	2.3	2.9	2.3	2.1	2.3	1.4	2.0	0.9	0.5	1.5	0.7	1.9	0.5	1.8	1.7	1.96	3.56	
26-Dec	2.0	1.2	1.0	2.7	2.3	2.1	1.8	2.5	1.6	1.5	0.3	2.6	2.0	1.3	0.9	1.5	1.7	1.7	1.3	1.2	2.0	1.3	1.3	1.8	1.65	2.68	
27-Dec	1.4	1.8	1.4	1.3	2.5	3.0	3.0	3.3	3.4	2.6	4.0	3.8	3.8	3.2	4.2	2.3	1.8	1.4	1.3	3.2	2.3	1.9	4.4	4.2	2.72	4.37	
28-Dec	3.0	1.3	1.4	2.3	1.8	1.2	2.3	1.7	2.3	1.7	2.1	3.8	4.5	3.6	3.0	2.7	2.4	2.4	2.2	1.2	2.0	2.2	2.1	2.2	2.31	4.52	
29-Dec	2.2	2.0	1.9	1.6	1.8	2.3	2.0	2.4	0.9	0.8	0.8	1.5	2.0	1.9	1.3	1.4	1.6	1.5	1.7	1.6	3.4	3.0	2.5	2.7	1.87	3.44	
30-Dec	2.7	2.0	2.2	2.9	2.9	2.4	2.5	2.7	2.7	2.7	3.5	1.9	1.8	2.1	2.0	1.7	2.0	2.5	1.5	1.4	1.1	1.2	1.2	1.3	2.11	3.49	
31-Dec	0.8	0.8	1.3	0.8	1.0	1.1	1.7	1.0	1.3	0.7	1.7	1.3	1.4	1.3	1.3	1.1	0.9	1.7	1.0	0.9	0.8	1.5	1.4	0.0	1.11	1.70	
		2.43	2.04	2.46	2.43	2.43	2.40	2.58	2.35	2.30	2.57	2.62	3.27	3.47	3.14	3.19	2.86	2.63	2.43	2.57	2.12	2.53	2.19	2.25	2.17	Diurnal Average	
		7.53	4.82	6.19	5.61	5.44	4.89	5.26	4.87	4.03	6.70	6.72	6.78	7.32	6.71	7.50	5.84	5.49	4.85	6.34	4.56	7.24	6.31	4.46	4.23	Diurnal Maximum	



WCAS - Meadows
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2017

Maximum Value: 92.04 deg on Dec 26 11:00		Maximum Daily Average: 44.70 deg on Dec 1		Hours in Service: 744																							
Minimum Value: 2.3 deg on Dec 6 18:00		Minimum Daily Average: 8.30 deg on Dec 18		Hours of Data: 744																							
Maximum Diurnal Average: 24.28 deg at hour 13		Minimum Diurnal Average: 14.09 deg at hour 10		Hours of Missing Data: 0																							
Monthly Average: 18.633 deg		Percentiles: P ₁ = 3.8 P ₁₀ = 6.0 Q ₁ = 8.2 Median = 11.4 Q ₃ = 17.7 P ₉₀ = 47.8 P ₉₉ = 87.2		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	55.0	43.6	87.8	29.7	54.9	29.0	23.9	21.1	63.5	13.8	90.1	58.2	90.5	46.6	53.9	70.2	79.0	38.0	15.4	31.3	32.5	15.5	17.1	12.2	44.70	90.54	
2-Dec	11.6	25.8	10.3	74.2	65.5	17.2	37.3	32.6	81.1	15.6	11.1	9.0	19.8	16.1	36.8	15.9	12.2	64.5	33.8	51.3	53.3	47.1	88.3	54.8	36.89	88.34	
3-Dec	31.6	8.0	28.4	11.0	13.7	7.2	8.6	6.3	6.0	6.7	9.8	7.7	9.3	8.7	6.0	5.1	8.3	4.6	7.2	13.6	8.1	6.0	12.1	6.6	10.02	31.59	
4-Dec	6.3	9.8	9.3	8.5	6.8	6.1	6.8	8.1	9.6	7.7	9.1	30.4	42.1	11.5	8.9	7.6	8.2	14.6	7.8	8.9	17.1	12.5	7.6	5.0	11.27	42.15	
5-Dec	7.2	8.8	11.0	10.8	9.5	8.1	7.1	6.4	8.6	10.8	11.7	11.4	11.6	11.4	11.9	10.8	8.7	7.0	4.3	8.2	10.0	6.5	9.3	9.7	9.20	11.95	
6-Dec	7.9	7.6	8.1	14.5	9.4	9.9	6.1	4.6	4.5	7.9	16.0	25.0	67.1	79.2	28.8	13.2	11.6	2.3	3.4	3.6	5.2	4.4	6.0	5.0	14.64	79.22	
7-Dec	6.9	8.5	8.2	5.3	8.0	4.9	45.2	19.2	14.2	12.7	72.0	10.2	8.7	11.7	7.9	7.9	10.8	16.9	9.9	10.0	10.3	17.9	6.0	14.2	14.49	72.04	
8-Dec	39.5	7.7	69.1	68.6	10.8	15.1	11.5	33.7	14.3	15.9	11.8	8.1	77.3	17.0	18.2	11.2	57.1	81.0	12.4	3.2	9.4	7.2	5.6	8.2	25.59	80.97	
9-Dec	9.4	9.3	4.7	4.1	4.8	6.5	4.7	6.6	8.1	14.1	71.4	80.5	36.3	4.8	17.0	16.4	8.2	16.2	5.8	7.8	13.2	12.4	32.5	87.6	20.10	87.56	
10-Dec	62.6	26.8	69.2	50.7	65.4	23.5	14.6	14.5	16.6	6.2	4.8	7.7	10.1	11.3	11.3	12.0	13.7	13.7	10.4	14.1	5.1	4.9	10.1	6.2	20.24	69.24	
11-Dec	6.4	3.3	7.9	15.2	19.9	22.4	18.2	7.3	13.0	10.8	13.7	86.5	33.6	82.9	14.7	33.8	66.0	15.5	67.5	82.6	69.3	76.5	81.5	79.7	38.67	86.45	
12-Dec	65.9	42.9	40.2	16.2	58.6	16.5	42.2	29.2	12.4	12.0	7.4	8.8	8.8	11.1	11.5	11.0	12.8	11.8	9.7	9.3	10.1	9.5	5.1	4.9	19.50	65.92	
13-Dec	4.3	5.2	7.5	9.4	9.3	4.5	3.9	5.4	14.6	6.6	12.7	12.1	12.7	11.4	10.3	10.3	11.0	6.1	10.9	10.8	14.6	9.3	6.8	14.4	9.34	14.63	
14-Dec	8.0	5.8	12.3	74.0	22.2	74.5	11.7	59.0	48.0	82.1	80.8	28.1	76.8	21.9	75.8	35.0	30.7	12.7	30.0	14.6	11.6	7.0	11.0	11.2	35.19	82.06	
15-Dec	9.0	8.8	21.8	23.1	6.9	16.7	14.6	10.6	13.2	15.2	14.1	11.6	10.8	11.8	11.9	10.8	11.2	19.0	4.0	7.7	7.2	6.7	5.5	6.3	11.60	23.14	
16-Dec	5.9	6.2	6.1	5.3	5.2	4.1	3.9	3.8	3.8	3.3	5.0	5.6	8.4	10.6	7.4	16.9	71.6	61.7	82.1	88.4	59.8	9.7	5.9	6.5	20.31	88.38	
17-Dec	35.2	26.6	24.4	31.4	21.8	17.7	8.6	7.5	8.2	16.6	12.5	10.1	8.8	8.4	8.5	6.7	5.3	8.9	12.1	16.7	10.6	26.5	9.9	13.8	14.88	35.18	
18-Dec	7.9	3.9	6.3	12.5	9.1	8.5	9.8	5.7	5.7	5.3	6.8	9.3	9.6	11.3	11.3	12.1	11.4	8.6	8.2	4.3	5.2	4.8	5.7	16.1	8.30	16.05	
19-Dec	11.6	4.8	4.9	9.1	11.5	29.7	15.0	10.1	41.5	6.9	12.1	11.1	12.3	10.3	8.9	8.2	8.2	8.4	7.5	9.4	7.5	9.3	10.0	11.7	11.67	41.49	
20-Dec	10.8	25.6	43.7	66.3	12.3	7.9	12.9	5.2	12.7	32.5	17.8	8.4	8.4	9.8	13.6	8.8	8.8	29.4	17.4	13.8	12.3	5.6	8.0	9.5	16.73	66.29	
21-Dec	12.9	18.5	12.2	29.1	20.9	15.6	7.7	7.2	10.9	13.1	12.1	15.2	13.0	13.9	12.3	12.9	11.8	10.7	14.7	15.5	13.6	13.3	10.8	13.9	13.82	29.06	
22-Dec	4.9	7.0	5.4	5.1	6.9	8.2	8.5	8.2	8.1	8.2	9.9	10.7	12.1	11.4	10.4	12.3	9.9	11.2	13.4	8.9	9.0	10.2	9.5	10.2	9.15	13.41	
23-Dec	9.2	10.8	11.2	11.2	11.2	11.4	13.5	9.0	6.3	11.9	10.0	11.6	11.0	11.2	10.9	12.4	11.2	11.6	11.8	22.3	21.5	13.8	11.7	11.3	12.00	22.33	
24-Dec	11.5	7.6	8.9	9.9	11.3	11.1	25.1	14.6	18.1	23.4	15.7	17.6	20.6	16.2	53.6	11.9	10.7	21.8	11.6	8.4	22.4	19.7	20.6	14.0	16.93	53.63	
25-Dec	39.9	83.8	60.8	26.8	17.6	15.4	18.1	21.3	18.0	21.9	18.2	17.0	17.4	34.3	19.2	17.4	17.7	7.3	9.9	31.5	60.5	32.0	53.2	87.5	31.11	87.52	
26-Dec	17.0	46.7	29.6	10.3	9.1	11.1	33.5	62.1	63.8	10.5	92.0	67.5	15.4	21.8	20.8	20.3	15.6	25.3	28.3	35.2	13.6	14.3	10.0	11.4	28.55	92.04	
27-Dec	11.0	9.6	7.5	11.6	13.8	11.9	13.5	10.5	12.1	11.3	10.3	12.8	11.1	13.1	13.8	7.4	4.4	7.7	4.3	45.1	25.3	21.5	21.2	44.1	14.79	45.10	
28-Dec	10.6	4.8	4.1	5.7	7.6	5.1	9.1	8.7	8.0	7.7	10.5	18.9	11.8	12.6	18.1	28.9	10.4	10.5	11.1	11.3	12.9	9.1	11.9	15.7	11.04	28.90	
29-Dec	10.1	12.8	14.3	10.7	10.0	49.5	16.3	51.1	10.8	10.4	16.6	53.4	47.9	38.6	15.9	15.2	14.7	15.4	20.5	9.2	11.8	10.9	9.6	9.0	20.19	53.35	
30-Dec	6.4	8.6	6.3	6.9	7.5	7.5	9.0	9.1	7.3	8.5	8.0	14.1	11.6	15.5	12.6	7.8	7.4	9.7	6.6	4.7	6.2	5.9	8.0	9.3	8.51	15.50	
31-Dec	9.7	7.4	6.9	5.9	4.2	9.8	6.7	4.4	6.1	7.3	6.2	18.5	17.8	16.0	19.3	26.9	17.5	46.3	9.4	12.2	19.8	19.4	49.6	89.6	18.21	89.64	
		17.62	16.35	20.91	21.71	17.60	15.69	15.09	16.22	18.36	14.09	22.59	22.49	24.28	19.76	18.76	16.05	18.89	19.95	16.18	19.80	19.00	15.15	18.08	22.57	Diurnal Average	
		65.92	83.84	87.75	74.20	65.52	74.53	45.23	62.07	81.09	82.06	92.04	86.45	90.54	82.92	75.83	70.19	79.01	80.97	82.15	88.38	69.33	76.54	88.34	89.64	Diurnal Maximum	

WEST CENTRAL AIRSHED SOCIETY

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

**AMS 959
WAGNER2
DECEMBER 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

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Wagner2 Station 959												December 2017		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Max (ppm)
							P10	Q1	Median	Q3	P90	1-hour	24-hour	
SO ₂ (ppb)	35	709	100.0	0.3	0.0	6.3	0.0	0.0	0.0	0.2	1.1	0	0	0.002
NO (ppb)	37	707	100.0	0.4	0.0	6.5	0.0	0.0	0.0	0.3	1.1	-	-	-
NO ₂ (ppb)	37	707	100.0	3.2	0.0	16.8	0.5	1.5	3.0	4.6	6.0	0	0	0.005
NO _x (ppb)	37	707	100.0	3.6	0.0	19.9	0.5	1.6	3.3	5.2	6.8	-	-	-
Wind Speed (kph)	0	736	98.9	3.7	0.0	16.1	0.2	0.6	2.4	5.6	9.4	-	-	-
Temperature (°C)	0	744	100.0	-8.0	-32.0	11.3	-25.8	-13.8	-5.4	-0.6	3.2	-	-	-
Relative Humidity (%)	0	744	100.0	65.4	27.8	93.8	45.9	57.2	66.3	75.0	82.3	-	-	-
Std Dev Wind Direction (deg)	0	736	98.9	50.1	10.3	102.8	19.6	24.3	41.7	79.3	90.8	-	-	-
Std Dev Wind Speed (kph)	0	736	98.9	2.1	0.3	8.1	0.7	1.0	1.6	2.7	4.4	-	-	-



WCAS - Wagner2
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2017

Maximum Value: 6.30 ppb on Dec 23 05:00		Maximum Daily Average: 1.62 ppb on Dec 5		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.00 ppb on Dec 1		Hours of Data: 709																													
Maximum Diurnal Average: 1.00 ppb at hour 13		Minimum Diurnal Average: 0.06 ppb at hour 24		Hours of Missing Data: 35																													
Monthly Average: 0.334 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 1.1 P ₉₉ = 4.5		Hours of Calibration: 35																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	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	0.0	0.00	0.00						
2-Dec	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	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.61						
3-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.1	1.5	0.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.27	3.14							
4-Dec	0.0	0.0	Z	1.0	0.7	0.8	0.8	0.1	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.2	0.6	0.1	0.0	0.0	0.0	0.0	0.22	0.95							
5-Dec	0.4	1.5	Z	1.0	1.6	1.4	2.5	3.5	2.3	1.1	3.7	0.5	0.9	0.5	4.9	0.5	1.2	1.1	3.0	1.1	2.2	1.1	0.6	0.8	1.62	4.89							
6-Dec	0.3	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.09	1.23							
7-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.18							
8-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.12							
9-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.09	0.76							
10-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	6.3	0.5	0.0	0.0	0.0	0.0	0.0	0.7	1.5	0.2	0.1	0.0	0.48	6.30							
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.3	0.6	0.3	1.1	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.17	1.09							
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.9	2.5	2.5	3.5	0.3	0.4	3.8	0.8	0.3	0.4	0.3	0.4	0.4	0.0	0.74	3.79							
13-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.6	4.5	6.0	1.6	1.4	1.0	0.2	0.1	0.2	0.2	0.4	0.1	0.4	0.1	0.87	6.03							
14-Dec	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.6	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.11	0.56							
15-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.6	0.8	0.8	1.6	0.8	1.2	0.5	1.7	1.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.43	1.66							
16-Dec	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.25							
17-Dec	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.2	1.7	1.8	1.0	0.1	0.1	0.1	0.1	0.8	0.2	0.0	0.0	0.1	0.3	0.30	1.83							
18-Dec	0.7	0.6	Z	0.1	0.5	0.2	0.0	0.0	0.1	0.3	0.6	1.1	1.0	0.6	1.6	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.34	1.62								
19-Dec	0.0	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	1.6	0.8	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.27	2.10								
20-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.5	0.7	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.11	0.65							
21-Dec	0.2	0.2	Z	0.1	0.0	0.0	1.6	1.2	3.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.31	3.69								
22-Dec	0.2	0.0	Z	0.8	1.9	2.6	0.2	0.5	0.1	0.5	2.3	1.4	2.6	2.4	0.8	1.9	2.3	2.1	1.7	1.0	0.3	1.1	1.2	0.2	1.22	2.61							
23-Dec	0.6	2.5	Z	3.2	6.3	3.5	2.1	0.2	0.1	0.0	1.9	4.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.09	6.30								
24-Dec	1.2	0.2	Z	2.3	1.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.30	2.26								
25-Dec	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	0.01	0.02								
26-Dec	0.0	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	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.04	0.17							
27-Dec	0.2	0.3	Z	0.2	0.1	0.1	0.0	0.0	0.7	0.6	1.4	5.8	4.0	0.3	0.5	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.69	5.82								
28-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	C	C	C	C	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.04	0.18								
29-Dec	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	0.1	0.01	0.14								
30-Dec	0.4	0.7	Z	0.8	1.3	0.7	0.4	0.3	0.3	0.2	0.3	0.5	0.6	0.6	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.38	1.34								
31-Dec	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.07								
		0.14	0.21	--	0.31	0.47	0.35	0.26	0.22	0.28	0.16	0.57	0.90	1.00	0.55	0.64	0.38	0.33	0.20	0.21	0.14	0.16	0.11	0.10	0.06	Diurnal Average							
		1.21	2.50	--	3.19	6.30	3.54	2.54	3.54	3.69	1.15	3.69	5.82	6.30	3.49	4.89	1.95	3.79	2.13	2.98	1.07	2.21	1.10	1.20	0.77	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
December 2017

Maximum Value: 6.50 ppb on Dec 27 12:00																								Hours in Service: 744																								
Maximum Daily Average: 0.76 ppb on Dec 13																								Hours of Data: 707																								
Minimum Value: 0.0 ppb on Dec 1 01:00																								Hours of Missing Data: 37																								
Maximum Diurnal Average: 1.73 ppb at hour 12																								Hours of Calibration: 37																								
Monthly Average: 0.352 ppb																								Percent Operational Time: 100.0																								
Minimum Daily Average: 0.01 ppb on Dec 25																																																
Minimum Diurnal Average: 0.00 ppb at hour 24																																																
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.3 P ₉₀ = 1.1 P ₉₉ = 4.3																																																
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.5	0.2	1.1	2.6	3.3	3.7	3.1	1.5	0.8	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.75	3.65																						
2-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.5	0.7	1.0	0.7	1.1	1.4	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28	1.44																						
3-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.9	2.2	2.6	2.2	3.5	2.0	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.62	3.52																						
4-Dec	0.0	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.7	0.9	3.3	4.3	1.2	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.51	4.30																						
5-Dec	0.0	0.2	Z	0.1	0.3	0.2	0.3	0.4	0.4	0.4	2.3	0.4	0.8	0.5	4.5	0.3	0.1	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.51	4.47																						
6-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.0	1.6	1.4	1.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28	1.63																						
7-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.4	1.0	1.3	1.0	0.7	0.7	0.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.33	2.03																						
8-Dec	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.1	1.1	3.1	2.4	1.8	1.6	1.2	0.7	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.54	3.07																						
9-Dec	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6	3.0	1.7	1.1	1.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.37	2.98																						
10-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	1.2	0.2	1.0	4.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29	3.96																						
11-Dec	0.0	0.0	Z	0.1	0.0	1.3	0.0	0.1	0.7	0.3	0.9	1.0	1.4	1.2	0.9	1.0	1.8	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.47	1.78																						
12-Dec	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.5	0.6	2.1	2.3	4.7	0.2	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.50	4.68																						
13-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.8	2.8	4.9	5.8	1.5	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.76	5.81																						
14-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.5	0.2	0.6	1.3	1.7	1.5	1.3	0.8	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.38	1.74																						
15-Dec	0.0	0.0	Z	0.1	0.1	0.7	0.1	0.1	0.0	0.1	0.5	0.5	1.0	0.5	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22	1.01																						
16-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.7	0.6	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	0.70																						
17-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.6	1.7	1.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.24	1.68																						
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.0	1.0	0.6	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	1.13																						
19-Dec	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.1	1.1	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	1.08																						
20-Dec	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.5	2.1	3.6	5.5	2.3	0.8	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.70	5.51																						
21-Dec	0.0	0.0	Z	0.1	0.0	0.1	0.4	0.2	0.8	0.0	0.0	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13	0.82																						
22-Dec	0.0	0.0	Z	0.1	0.2	0.3	0.0	0.0	0.2	0.2	0.9	1.0	1.8	1.9	0.5	0.6	0.3	0.2	0.4	0.2	0.0	0.3	0.3	0.0	0.41	1.87																						
23-Dec	0.1	0.4	Z	0.6	2.8	0.8	0.8	0.0	0.0	0.0	0.7	2.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.40	2.84																						
24-Dec	0.0	0.0	Z	0.2	0.1	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	0.0	0.0	0.0	0.0	0.03	0.24																						
25-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.06																						
26-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.8	1.1	1.2	1.5	1.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.33	1.52																						
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	6.5	4.4	0.5	0.3	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.57	6.50																						
28-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	1.7	2.1	C	C	C	C	C	C	0.1	0.1	0.0	0.0	0.0	0.0	0.0	--	2.07																						
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.50																						
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.7	0.7	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15	0.72																						
31-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.9	1.2	1.3	1.2	1.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29	1.29																						
																								0.01	0.02	--	0.09	0.14	0.12	0.07	0.05	0.12	0.44	1.01	1.73	1.71	1.13	0.83	0.38	0.23	0.03	0.05	0.02	0.01	0.01	0.01	0.00	Diurnal Average
																								0.13	0.39	--	0.61	2.84	1.28	0.83	0.45	0.82	2.06	3.57	6.50	5.81	4.68	4.47	1.03	2.03	0.40	0.74	0.17	0.29	0.27	0.31	0.02	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 (NO₂) - ppb
December 2017

Maximum Value: 16.83 ppb on Dec 23 05:00		Maximum Daily Average: 5.21 ppb on Dec 5		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 25 11:00		Minimum Daily Average: 0.29 ppb on Dec 25		Hours of Data: 707																							
Maximum Diurnal Average: 3.80 ppb at hour 13		Minimum Diurnal Average: 2.60 ppb at hour 8		Hours of Missing Data: 37																							
Monthly Average: 3.238 ppb		Percentiles: P₁ = 0.0 P₁₀ = 0.5 Q₁ = 1.5 Median = 3.0 Q₃ = 4.6 P₉₀ = 6.0 P₉₉ = 10.2		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	3.7	3.8	Z	3.5	3.3	3.0	3.1	3.6	3.7	2.9	2.8	3.4	4.3	4.4	4.4	4.7	5.3	5.8	5.3	4.3	4.8	4.9	5.6	5.3	4.17	5.78	
2-Dec	4.9	4.6	Z	4.1	3.7	4.2	5.1	3.5	3.5	3.0	2.9	3.2	3.4	3.1	3.1	3.8	4.2	6.0	7.9	6.5	4.8	3.9	3.6	3.5	4.21	7.95	
3-Dec	3.1	2.5	Z	2.6	2.7	2.6	2.7	3.1	3.2	2.8	2.8	2.9	3.6	5.8	4.7	2.7	2.1	1.5	1.8	1.5	2.3	4.5	3.9	2.6	2.95	5.83	
4-Dec	1.5	1.1	Z	5.6	5.2	4.1	3.8	2.0	4.1	5.1	4.7	9.8	8.0	4.7	3.6	3.7	3.0	2.0	3.5	5.6	3.0	2.4	1.7	0.9	3.87	9.76	
5-Dec	2.9	7.3	Z	3.5	4.8	6.6	7.7	7.9	7.0	4.6	8.0	1.5	2.5	1.7	11.0	1.7	4.0	6.1	8.1	3.5	4.3	5.9	4.5	4.5	5.21	11.04	
6-Dec	9.9	4.6	Z	2.0	2.6	2.2	1.9	1.9	2.2	1.9	2.1	3.9	6.0	5.2	4.8	4.9	6.5	5.1	3.8	4.2	3.7	3.3	6.6	4.9	4.10	9.86	
7-Dec	4.7	4.9	Z	3.8	4.0	5.9	5.3	2.2	3.1	4.5	3.7	3.7	3.3	3.0	3.6	4.4	5.8	7.0	8.0	6.7	5.9	5.2	5.6	4.7	4.74	7.98	
8-Dec	5.4	5.5	Z	5.5	6.2	6.6	5.4	4.7	4.8	3.6	3.7	3.0	2.9	3.4	3.9	4.4	4.7	5.0	4.5	4.4	3.7	3.5	3.6	3.8	4.44	6.58	
9-Dec	3.5	3.0	Z	4.8	3.6	2.4	3.0	2.3	2.2	2.9	3.1	3.7	4.7	4.7	5.5	5.5	6.8	9.4	9.9	8.0	5.6	4.4	4.3	3.6	4.65	9.94	
10-Dec	3.4	3.0	Z	2.8	2.8	2.7	2.7	2.6	3.5	5.2	1.7	4.1	10.2	1.4	0.4	0.4	0.5	0.5	0.5	2.6	5.2	4.7	3.5	2.3	2.89	10.20	
11-Dec	2.1	2.4	Z	2.2	1.9	3.6	2.7	3.5	5.5	5.7	5.6	4.8	4.1	4.3	4.4	7.9	7.2	5.4	4.7	5.4	4.5	3.9	3.5	3.4	4.30	7.89	
12-Dec	3.0	3.1	Z	2.6	2.4	2.9	3.6	5.0	4.9	3.3	4.1	5.3	5.6	7.8	0.9	1.9	10.9	3.5	2.9	3.0	2.9	4.7	5.7	1.0	3.96	10.94	
13-Dec	2.5	4.2	Z	3.9	3.5	1.3	2.4	2.2	2.6	6.2	9.9	9.7	10.3	5.2	5.1	4.2	3.5	3.0	1.8	2.7	3.2	2.0	5.9	4.2	4.32	10.25	
14-Dec	4.2	3.1	Z	1.8	3.2	1.7	1.4	1.3	1.7	1.2	1.5	2.2	4.1	4.5	5.0	5.4	7.4	6.9	7.0	5.1	6.8	7.6	6.9	7.2	4.23	7.61	
15-Dec	6.0	4.2	Z	3.7	3.7	3.2	3.1	4.2	5.1	4.2	5.7	2.9	3.2	1.7	5.3	4.7	0.5	3.1	4.6	0.9	0.4	0.3	0.4	0.4	3.11	6.04	
16-Dec	0.4	0.3	Z	0.3	0.6	0.6	0.6	0.7	1.2	2.2	3.1	1.9	2.4	2.4	2.6	2.0	2.6	1.5	1.4	2.0	1.2	1.2	1.2	1.2	1.45	3.08	
17-Dec	1.2	1.2	Z	1.5	1.8	1.9	2.7	3.4	3.5	3.2	2.0	5.8	5.1	4.1	2.4	3.0	2.2	4.7	4.6	1.3	0.8	1.3	1.8	3.3	2.75	5.81	
18-Dec	3.3	5.4	Z	1.4	3.9	2.9	3.0	2.2	2.5	5.6	3.6	3.4	3.1	2.3	3.9	1.4	0.8	2.8	2.0	1.0	0.9	1.3	1.0	1.9	2.60	5.57	
19-Dec	1.0	3.7	Z	3.7	1.8	1.2	1.3	0.4	0.5	0.6	1.4	3.1	6.2	7.3	9.0	7.4	8.4	8.5	4.1	1.6	1.7	2.3	2.5	2.0	3.46	9.04	
20-Dec	1.7	1.6	Z	1.4	1.3	1.2	2.8	5.2	9.7	8.1	6.4	6.1	4.0	2.3	2.2	2.9	3.9	4.0	3.7	5.9	6.2	7.1	5.8	5.4	4.31	9.74	
21-Dec	5.1	4.7	Z	5.2	3.8	5.3	6.6	4.5	9.5	1.2	0.8	1.0	0.7	0.6	0.5	0.6	0.8	0.8	0.5	0.5	0.5	0.4	0.6	0.6	2.39	9.53	
22-Dec	2.3	1.1	Z	3.6	7.6	10.7	4.0	2.4	1.3	2.2	4.4	3.5	4.7	4.2	1.9	4.5	5.3	5.4	3.9	2.8	1.2	3.4	3.2	1.4	3.70	10.75	
23-Dec	2.5	7.2	Z	8.4	16.8	10.2	6.0	1.0	1.7	0.9	4.1	8.5	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.1	0.2	0.2	0.2	3.09	16.83	
24-Dec	4.1	1.3	Z	5.6	5.4	4.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.5	0.6	0.5	0.3	0.1	0.3	1.07	5.57	
25-Dec	0.6	0.6	Z	0.7	0.7	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.5	0.29	0.72	
26-Dec	0.6	0.6	Z	0.9	0.9	1.0	1.0	1.3	1.9	1.6	1.5	1.5	1.7	1.8	2.3	3.3	6.2	6.8	6.7	6.5	6.1	6.0	5.8	5.7	3.12	6.85	
27-Dec	3.4	3.0	Z	3.1	2.8	2.4	1.9	1.2	2.5	2.3	4.2	7.6	5.8	1.2	1.0	1.3	1.4	1.8	1.9	1.4	1.6	3.1	5.0	3.1	2.73	7.55	
28-Dec	4.6	4.0	Z	6.0	3.6	3.7	3.6	2.5	5.8	4.9	4.2	C	C	C	C	C	C	0.6	0.8	0.9	0.5	0.5	0.5	0.4	--	6.01	
29-Dec	0.3	0.2	Z	0.4	0.4	0.3	0.5	0.6	0.9	0.8	0.9	0.8	0.3	0.0	0.1	0.2	0.3	0.4	0.4	0.6	0.8	1.0	1.7	2.8	0.65	2.82	
30-Dec	3.3	3.4	Z	3.0	2.8	2.5	2.3	1.7	1.7	1.7	1.5	1.4	1.1	1.0	1.0	1.3	1.5	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.91	3.38	
31-Dec	2.0	2.1	Z	2.8	2.8	3.0	3.2	3.1	3.1	2.8	2.2	1.9	1.9	2.0	2.2	2.5	2.8	2.6	2.9	3.8	3.4	3.4	3.9	4.0	2.80	3.96	
		3.14	3.16	--	3.23	3.57	3.37	3.02	2.60	3.33	3.08	3.31	3.69	3.80	3.01	3.18	3.05	3.66	3.64	3.56	3.09	2.87	3.07	3.27	2.82	Diurnal Average	
		9.86	7.34	--	8.37	16.83	10.75	7.67	7.86	9.74	8.12	9.88	9.76	10.25	7.77	11.04	7.89	10.94	9.44	9.94	8.00	6.84	7.61	6.86	7.24	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 159 ppb						24-hr 106 ppb																			



WCAS - Wagner2
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2017

Maximum Value: 19.89 ppb on Dec 23 05:00		Maximum Daily Average: 5.80 ppb on Dec 5		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 24 13:00		Minimum Daily Average: 0.30 ppb on Dec 25		Hours of Data: 707																							
Maximum Diurnal Average: 5.61 ppb at hour 13		Minimum Diurnal Average: 2.68 ppb at hour 8		Hours of Missing Data: 37																							
Monthly Average: 3.639 ppb		Percentiles: P₁ = 0.1 P₁₀ = 0.5 Q₁ = 1.6 Median = 3.3 Q₃ = 5.2 P₉₀ = 6.8 P₉₉ = 12.7		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	3.8	3.9	Z	3.6	3.4	3.1	3.2	4.1	4.0	4.1	5.5	6.7	8.1	7.6	6.0	5.6	5.6	6.3	5.4	4.4	4.9	5.0	5.7	5.4	5.01	8.09	
2-Dec	5.0	4.7	Z	4.2	3.8	4.3	5.2	3.6	3.6	3.6	3.7	4.2	4.3	4.3	4.7	4.6	4.4	6.1	8.1	6.6	4.9	4.0	3.7	3.6	4.58	8.12	
3-Dec	3.2	2.5	Z	2.7	2.8	2.6	2.8	3.2	3.3	3.8	5.1	5.6	5.9	9.5	6.8	3.2	2.2	1.5	2.1	1.6	2.3	4.6	3.9	2.6	3.63	9.46	
4-Dec	1.5	1.1	Z	5.8	5.3	4.2	3.8	2.0	4.2	5.9	5.7	13.3	12.4	6.1	4.3	4.0	3.1	2.0	3.5	5.7	3.0	2.4	1.7	0.8	4.44	13.27	
5-Dec	3.0	7.6	Z	3.7	5.2	6.9	8.1	8.4	7.5	5.1	10.4	2.0	3.4	2.2	15.7	2.0	4.1	6.2	9.0	3.5	4.3	6.0	4.6	4.6	5.80	15.67	
6-Dec	10.0	4.7	Z	2.1	2.6	2.3	2.0	2.0	2.3	2.1	2.6	5.1	7.7	6.7	6.1	5.4	6.7	5.2	3.9	4.2	3.8	3.3	6.7	5.0	4.45	10.04	
7-Dec	4.8	4.9	Z	4.0	4.1	6.0	5.4	2.3	3.2	5.0	4.8	5.0	4.4	3.8	4.3	5.0	7.9	7.1	8.1	6.8	6.0	5.3	5.7	4.8	5.16	8.09	
8-Dec	5.5	5.6	Z	5.6	6.4	6.7	5.6	4.7	4.9	4.8	6.9	5.5	4.8	5.1	5.1	5.2	4.9	5.3	4.5	4.4	3.8	3.5	3.7	3.9	5.06	6.85	
9-Dec	3.7	3.0	Z	4.9	3.7	2.4	3.1	2.4	2.2	3.2	3.7	6.4	6.6	5.9	6.6	6.3	7.0	9.6	10.1	8.2	5.8	4.5	4.3	3.6	5.10	10.11	
10-Dec	3.5	3.1	Z	2.9	2.9	2.8	2.7	2.6	3.7	6.4	1.9	5.2	14.3	1.7	0.4	0.4	0.4	0.4	0.5	2.6	5.2	4.7	3.5	2.3	3.22	14.32	
11-Dec	2.1	2.4	Z	2.3	1.9	5.0	2.7	3.6	6.3	6.1	6.6	5.9	5.7	5.6	5.4	9.1	9.1	5.5	4.9	5.6	4.7	4.0	3.6	3.5	4.86	9.06	
12-Dec	3.1	3.2	Z	2.8	2.5	3.1	3.7	5.1	5.0	3.9	4.9	7.5	8.0	12.6	1.2	2.0	11.6	3.6	2.9	3.0	2.9	4.8	5.7	1.0	4.52	12.59	
13-Dec	2.5	4.2	Z	4.1	3.6	1.3	2.4	2.2	2.6	7.1	12.8	14.8	16.2	6.8	6.4	4.7	3.6	3.0	1.8	2.8	3.2	2.0	6.0	4.3	5.15	16.23	
14-Dec	4.3	3.2	Z	1.9	3.3	1.8	1.5	1.3	2.3	1.3	2.1	3.6	6.0	6.2	6.5	6.3	8.1	7.0	7.2	5.2	7.0	7.8	7.0	7.4	4.70	8.09	
15-Dec	6.1	4.3	Z	3.9	3.8	4.0	3.3	4.3	5.2	4.3	6.3	3.5	4.3	2.2	6.2	5.4	0.5	3.2	4.6	0.9	0.4	0.3	0.4	0.4	3.38	6.32	
16-Dec	0.3	0.2	Z	0.4	0.6	0.6	0.6	0.7	1.1	2.3	3.6	2.4	3.1	3.1	3.2	2.1	2.8	1.5	1.3	2.0	1.2	1.1	1.2	1.2	1.61	3.62	
17-Dec	1.2	1.2	Z	1.6	1.9	1.9	2.8	3.5	3.6	3.3	2.3	7.5	6.9	5.4	2.7	3.3	2.3	4.7	4.7	1.3	1.2	1.3	1.8	3.4	3.03	7.48	
18-Dec	3.3	5.5	Z	1.5	4.0	2.9	3.1	2.3	2.6	5.9	4.2	4.5	4.2	2.9	5.1	1.5	0.9	2.9	2.0	0.9	0.9	1.3	0.9	1.9	2.83	5.92	
19-Dec	1.0	3.8	Z	3.9	1.9	1.2	1.4	0.4	0.5	0.6	1.5	3.5	7.3	8.4	9.9	7.9	8.7	8.6	4.2	1.6	1.7	2.3	2.6	2.0	3.67	9.93	
20-Dec	1.6	1.6	Z	1.5	1.3	1.2	2.9	5.4	10.4	10.3	10.0	11.7	6.5	3.2	2.7	3.3	4.1	4.1	3.8	6.0	6.3	7.2	5.9	5.5	5.07	11.72	
21-Dec	5.2	4.7	Z	5.4	3.9	5.5	7.2	4.8	10.5	1.2	0.8	1.4	1.5	0.6	0.5	0.6	0.8	0.8	0.5	0.5	0.5	0.4	0.5	0.5	2.54	10.49	
22-Dec	2.3	1.1	Z	3.7	7.8	11.1	4.1	2.5	1.5	2.4	5.5	4.7	6.6	6.1	2.3	5.2	5.6	5.6	4.4	3.0	1.2	3.7	3.6	1.4	4.15	11.15	
23-Dec	2.7	7.7	Z	9.1	19.9	11.2	6.9	1.0	1.7	0.9	4.9	11.2	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.2	0.1	0.1	3.52	19.89	
24-Dec	4.1	1.3	Z	5.9	5.6	4.5	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.5	0.6	0.4	0.3	0.1	0.3	1.10	5.86	
25-Dec	0.6	0.6	Z	0.8	0.7	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.5	0.5	0.30	0.81	
26-Dec	0.5	0.5	Z	0.9	0.9	1.0	1.0	1.3	1.9	1.9	2.4	2.6	3.0	3.5	3.7	4.4	6.8	6.9	6.7	6.6	6.1	6.1	5.9	5.7	3.50	6.93	
27-Dec	3.4	3.1	Z	3.2	2.9	2.4	1.9	1.2	2.6	2.5	5.3	14.2	10.2	1.7	1.3	1.5	1.4	1.8	1.8	1.5	1.6	3.1	5.1	3.1	3.34	14.22	
28-Dec	4.7	4.0	Z	6.2	3.7	3.7	3.6	2.5	5.9	6.7	6.3	C	C	C	C	C	C	0.7	0.8	0.9	0.5	0.4	0.5	0.3	--	6.67	
29-Dec	0.2	0.2	Z	0.4	0.3	0.2	0.4	0.5	0.8	0.8	1.2	1.3	0.5	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.8	0.9	1.7	2.8	0.65	2.82	
30-Dec	3.3	3.4	Z	3.1	2.9	2.5	2.3	1.7	1.7	1.9	2.0	2.1	1.9	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.8	1.9	1.9	2.0	2.09	3.40	
31-Dec	2.0	2.1	Z	2.9	2.9	3.1	3.3	3.1	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.2	3.0	2.6	2.9	3.9	3.4	3.4	4.0	4.0	3.15	4.00	
		3.17	3.20	--	3.38	3.77	3.55	3.14	2.68	3.50	3.59	4.40	5.49	5.61	4.22	4.09	3.49	3.95	3.71	3.65	3.14	2.91	3.10	3.31	2.84	Diurnal Average	
		10.04	7.70	--	9.10	19.89	11.17	8.06	8.39	10.49	10.30	12.85	14.77	16.23	12.59	15.67	9.06	11.61	9.56	10.11	8.15	7.01	7.78	6.98	7.36	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: December 28, 2017

Parameter: NO/NO₂/NO_x

Instrument: Teco 42i

Serial Number: 1004840574

Previous Calibration Date: November 14 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn# 04300810

Barometric Pressure: 28.00" Hg

Calibration Method: Standard Gas Dilution/GPT

Cylinder ID: EX0012497

Temperature: 20.0° C

Cylinder Concentration: 27.4 ppm NO / 27.5 ppm NO_x

In Service: Dec 6/17 Exp: Oct 2020

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	7.3	9.0	na	0.978	1.000	1.000	500 ppb
Current	7.7	8.2	na	1.017	1.005	1.000	500 ppb

NO	Final Zero: 0.8 ppb	Final Span: 255.4 ppb	As Found Correction Factor: 1.036
NO ₂	Final Zero: 3.8 ppb	Final Span: 4.7 ppb	As Found Correction Factor: NA
NO _x	Final Zero: 0.8 ppb	Final Span: 256.3 ppb	As Found Correction Factor: 1.040

Results of Linear Regression			Slope	Intercept	R ²
NO	R _c vs C _c	Previous	59.938760	-17.039620	0.999996
		Current	60.026110	-25.108650	0.999992
	C _i vs C _c	Current	1.000000	-0.000045	0.999991
NO ₂	R _c vs C _c	Previous	59.964660	27.187130	0.999996
		Current	60.590690	-222.836300	0.999359
	C _i vs C _c	Current	1.000000	0.000000	0.999358
NO _x	R _c vs C _c	Previous	60.023040	-18.710370	0.999996
		Current	60.068070	-19.318490	0.999993
	C _i vs C _c	Current	1.000000	-0.000081	0.999993

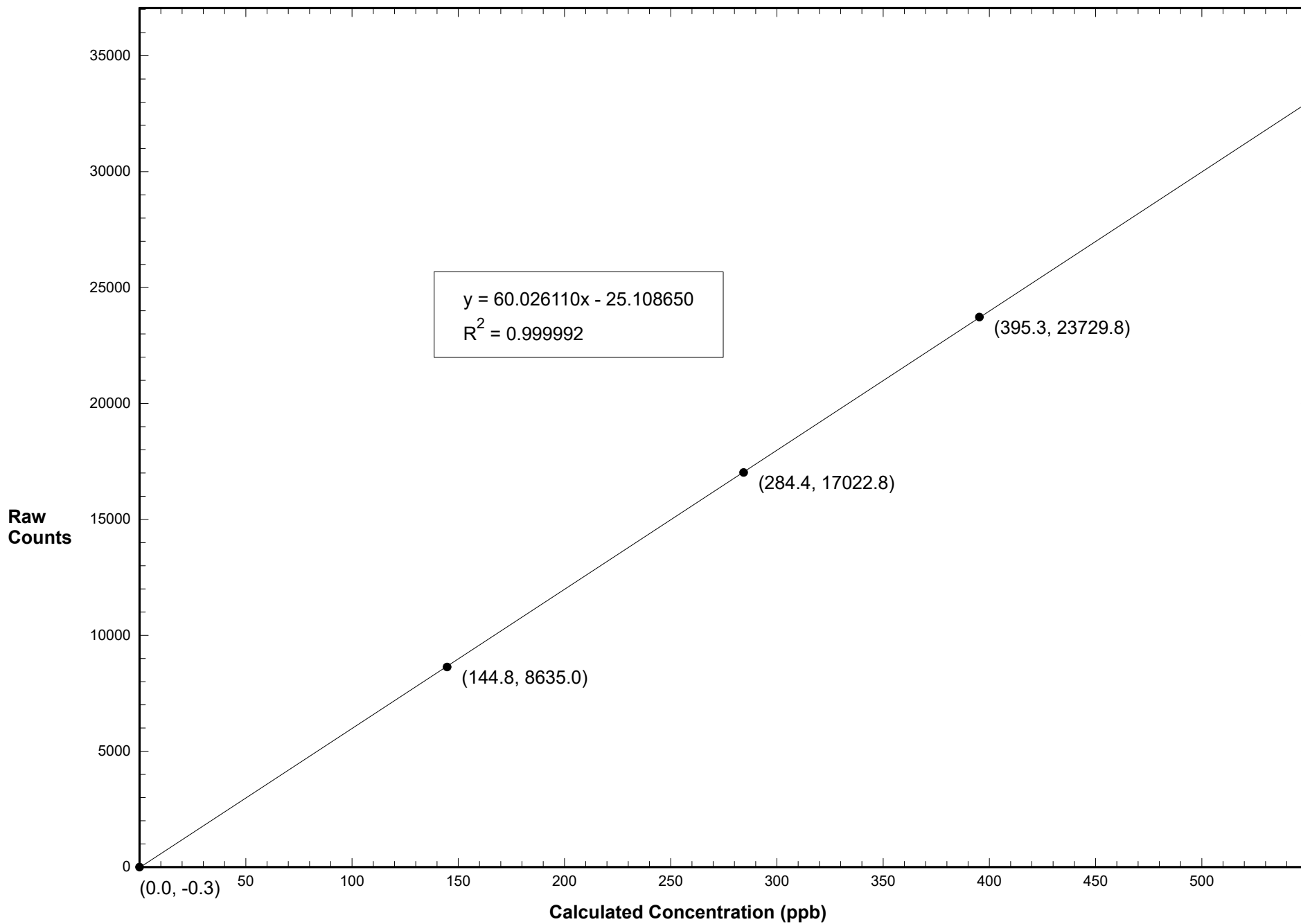
Comments: Sample Flow: 0.520 lpm

Calibration Data Summary (Page 2)

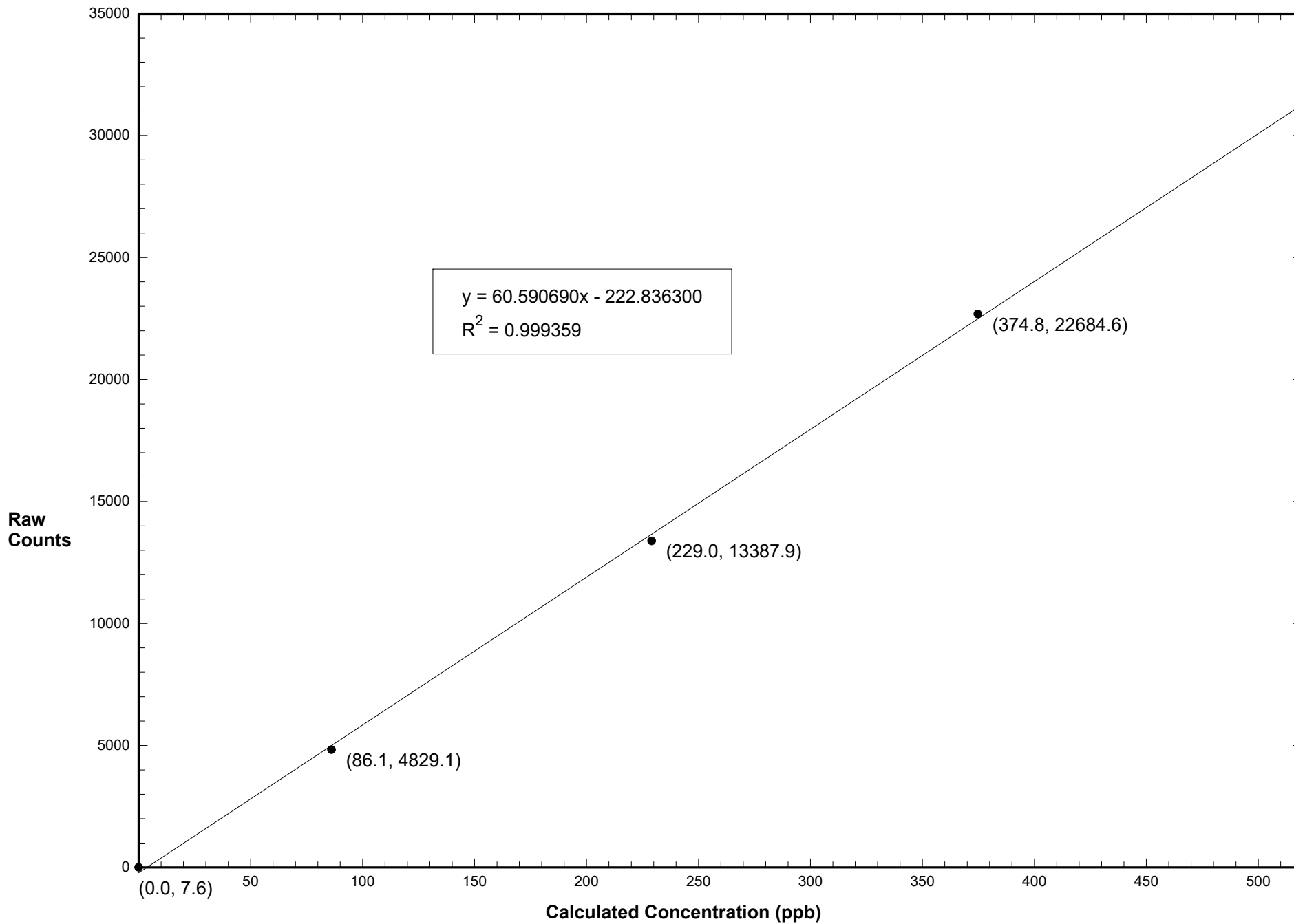
December 28, 2017 - Station 959

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		
0.06880	4.700	395.3	23729.8	395.7	0.999		
0.04950	4.720	284.4	17022.8	284.0	1.001		
0.02507	4.720	144.8	8635.0	144.3	1.003		
0.00000	4.620	0.0	-0.3	0.4			
NO Calibration					Average Correction Factor:	1.001	
0.06880	4.700	396.7	23835.7	397.1	0.999		
0.04950	4.720	285.4	17108.4	285.1	1.001		
0.02507	4.720	145.3	8676.3	144.8	1.004		
0.00000	4.620	0.0	5.4	0.4			
NO _x Calibration					Average Correction Factor:	1.001	
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
402.5	1641.9	27.8	374.8	22684.6	378.1	0.991	1.009
402.5	10388.4	173.5	229.0	13387.9	224.6	1.020	0.981
402.5	18969.1	316.4	86.1	4829.1	83.4	1.033	0.968
			0.0	7.6	3.8		
					Average Correction Factor:	1.014	
NO ₂ Gas Phase Titration					Average Converter Efficiency: 0.986		
Parameter	Correction Factor (Previous)	Correction Factor: (Current)	Percent Change of Correction Factor				
NO	1.000	0.999	-0.1				
NO ₂	1.001	0.991	-1.0				
NO _x	1.000	0.999	-0.1				

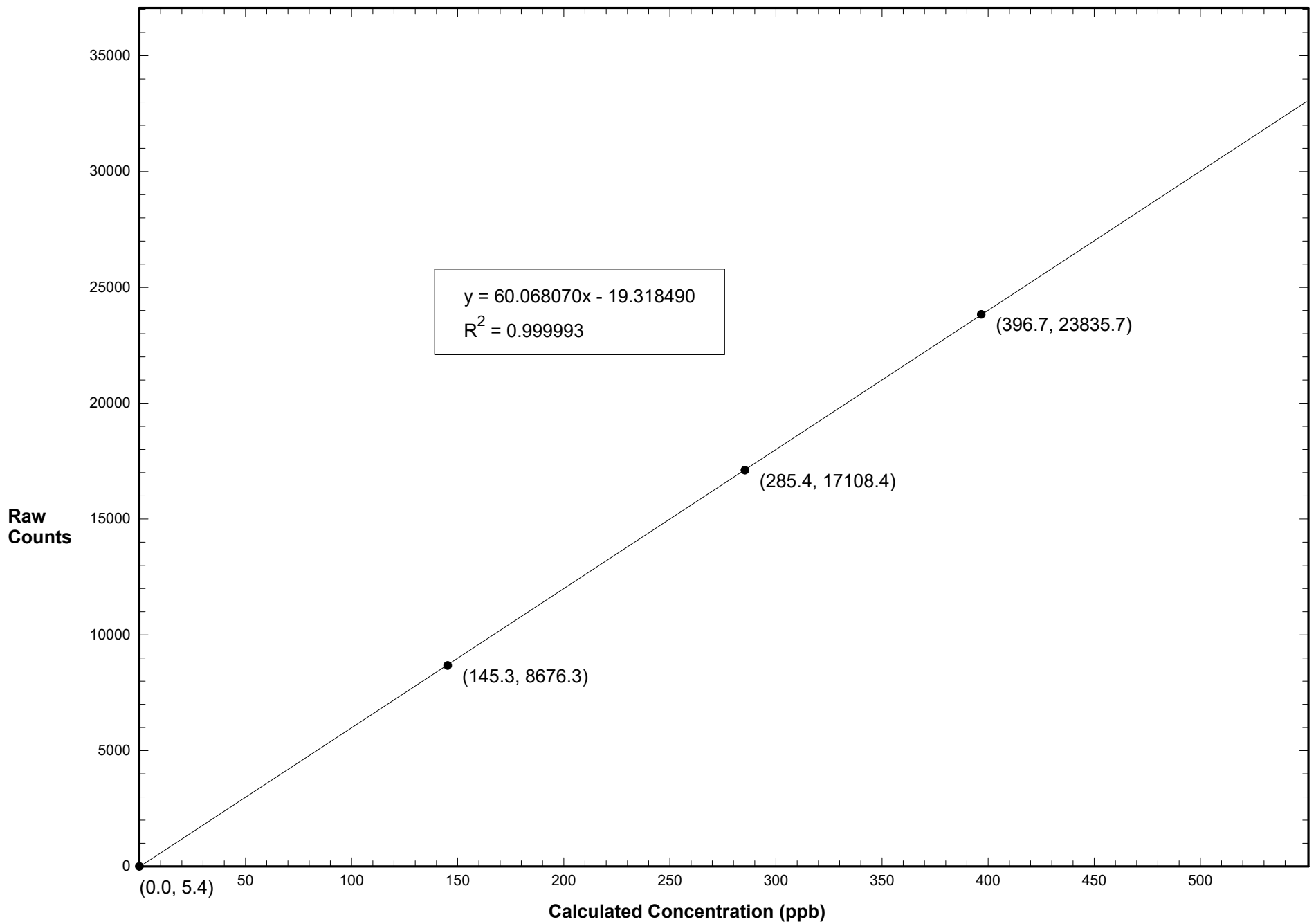
Station 959 NO December 28, 2017: Linear Regression



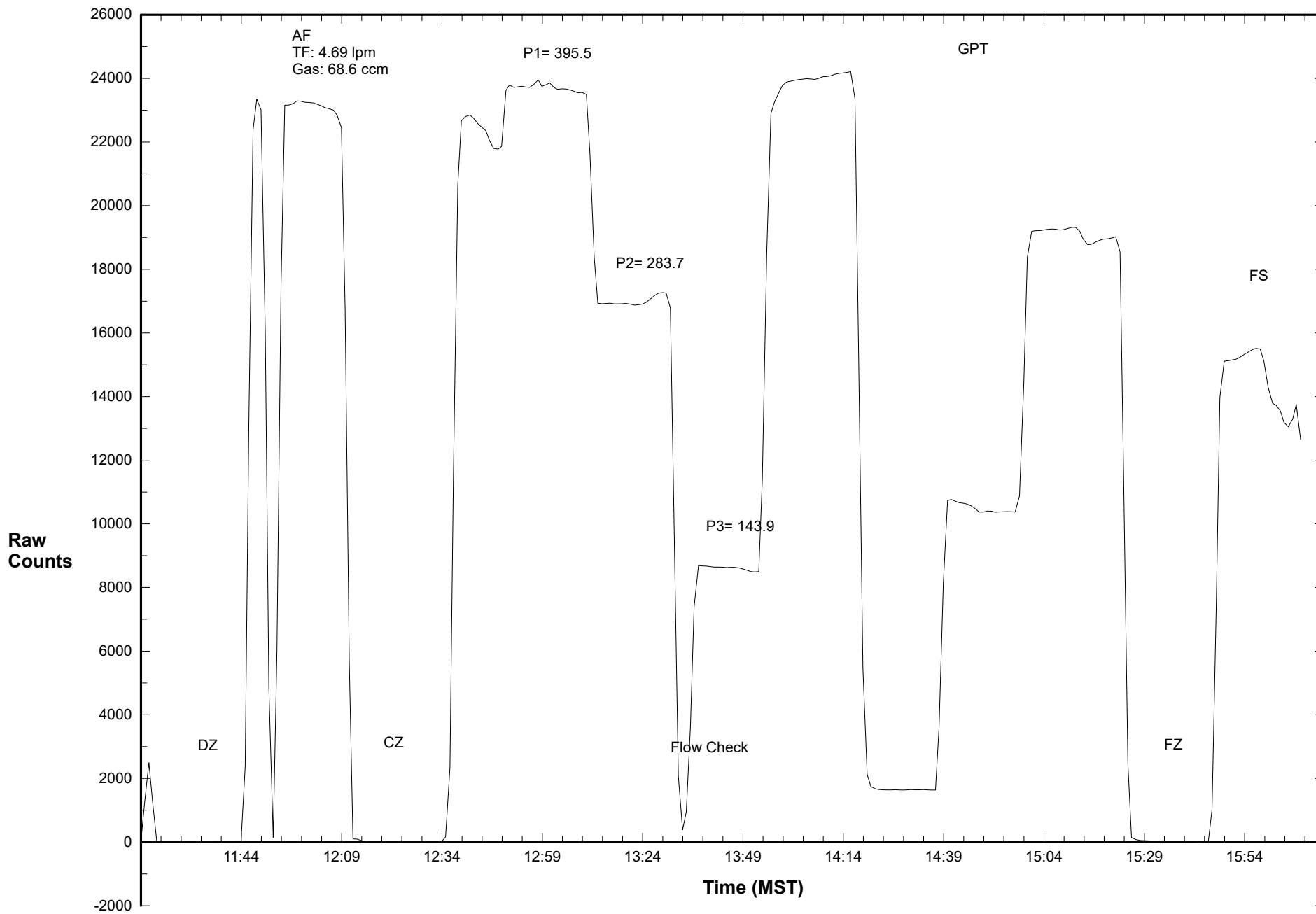
Station 959 NO2 December 28, 2017: Linear Regression



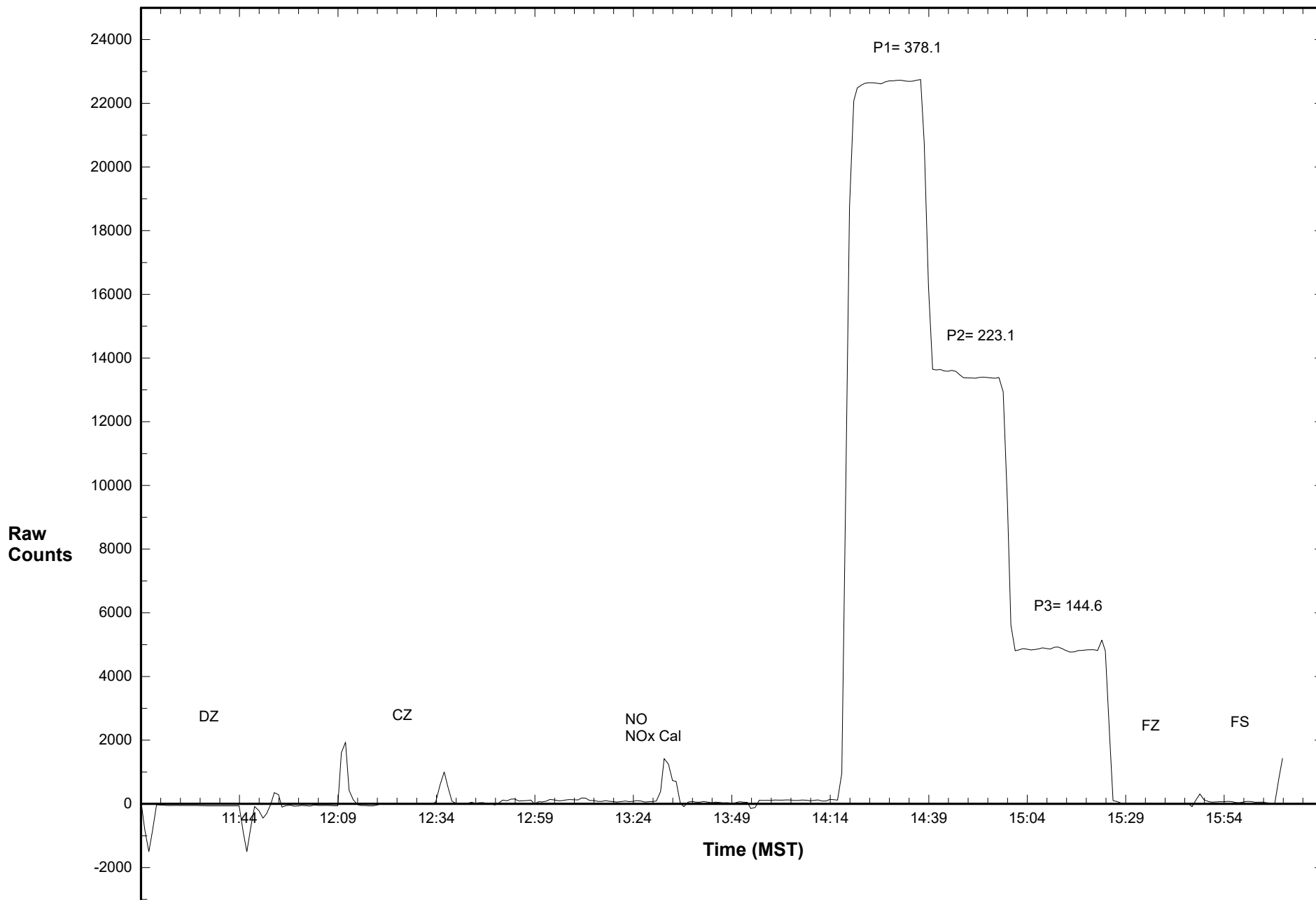
Station 959 NOX December 28, 2017: Linear Regression



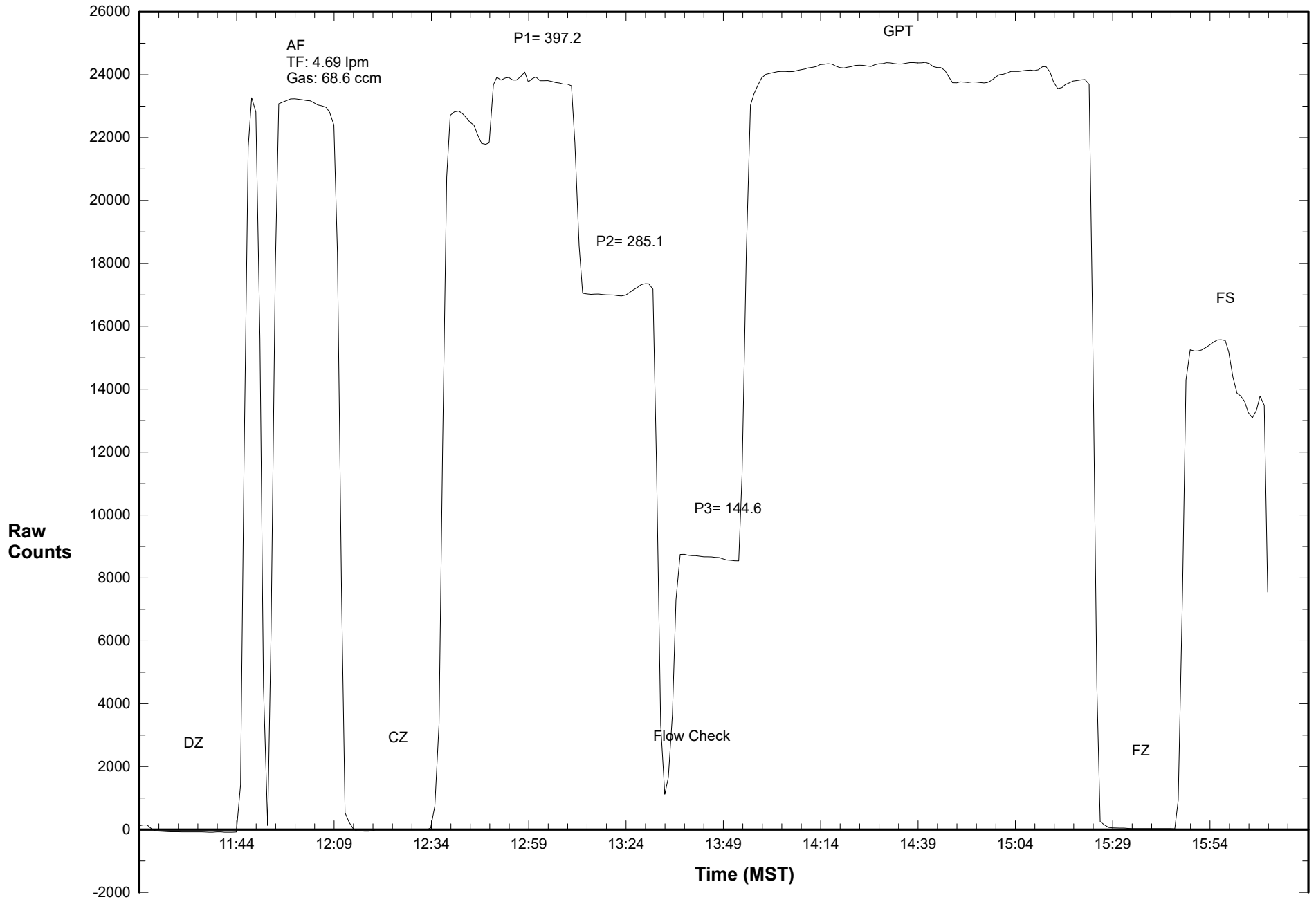
Station 959 NO December 28, 2017: Calibration Graph



Station 959 NO2 December 28, 2017: Calibration Graph



Station 959 NOX December 28, 2017: Calibration Graph



Calibration Data Summary

West Central Airshed Society

Operator: WCAS

Location: Station 959, Wagner

Calibration Date: December 28, 2017

Parameter: SO₂

Instrument: Teco 43i

Serial Number: 1170150139

Previous Calibration Date: November 14 2017

Calibration: Routine

Calibration Equipment: SABIO 2010 sn# 04300810

Barometric Pressure: 28.00" Hg

Calibration Method: Standard Gas Dilution

Cylinder ID: EX0012497

Temperature: 20.0° C

Cylinder Concentration: 24.4 ppm SO₂

In Service: Dec 6/17 Exp: Oct 2020

Technician: Dean Yustak

Instrument Settings	SO ₂ bkg ppb	SO ₂ Coefficient	Monitoring Range
Previous	14.6	0.983	500 ppb
Current	13.5	0.929	500 ppb

Final Zero: -0.3 ppb

Final Span: 117.0 ppb

As Found Correction Factor: 0.956

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
0.0688	4.700	352.0	21203.2	351.7	1.001
0.0495	4.720	253.2	15281.2	253.5	0.999
0.0251	4.720	128.9	7785.8	129.2	0.998
0.0000	4.620	0.0	-19.3	-0.3	

Results of Linear Regression

R _c vs C _c	Slope	Intercept	R ²
Previous	60.114170	22.754140	0.999996
Current	60.295140	-3.995827	0.999996
C _i vs C _c			
Current	1.000000	-0.000004	0.999995

Average Correction Factor: 0.999

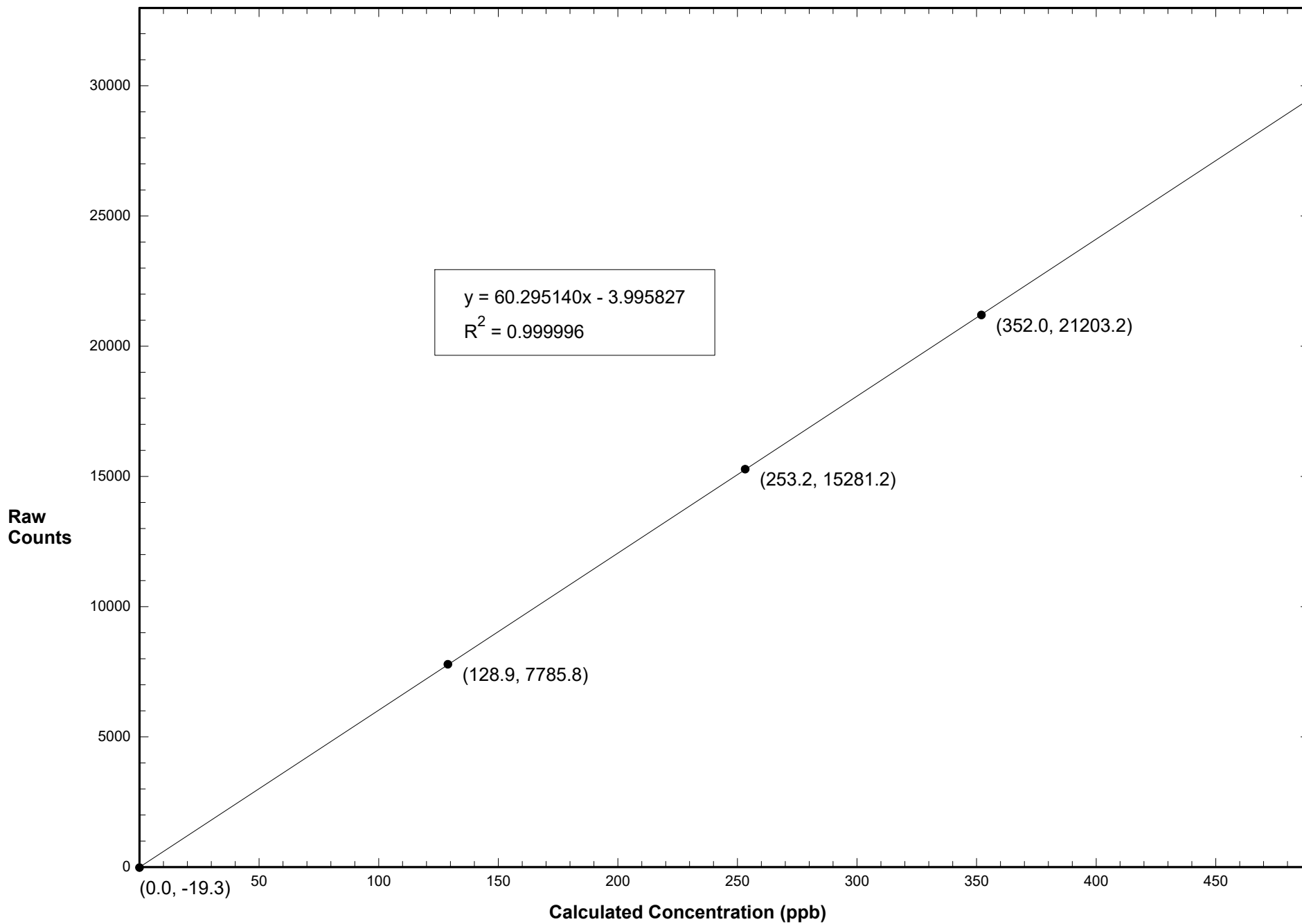
Previous Correction Factor: 1.001

Current Correction Factor: 1.001

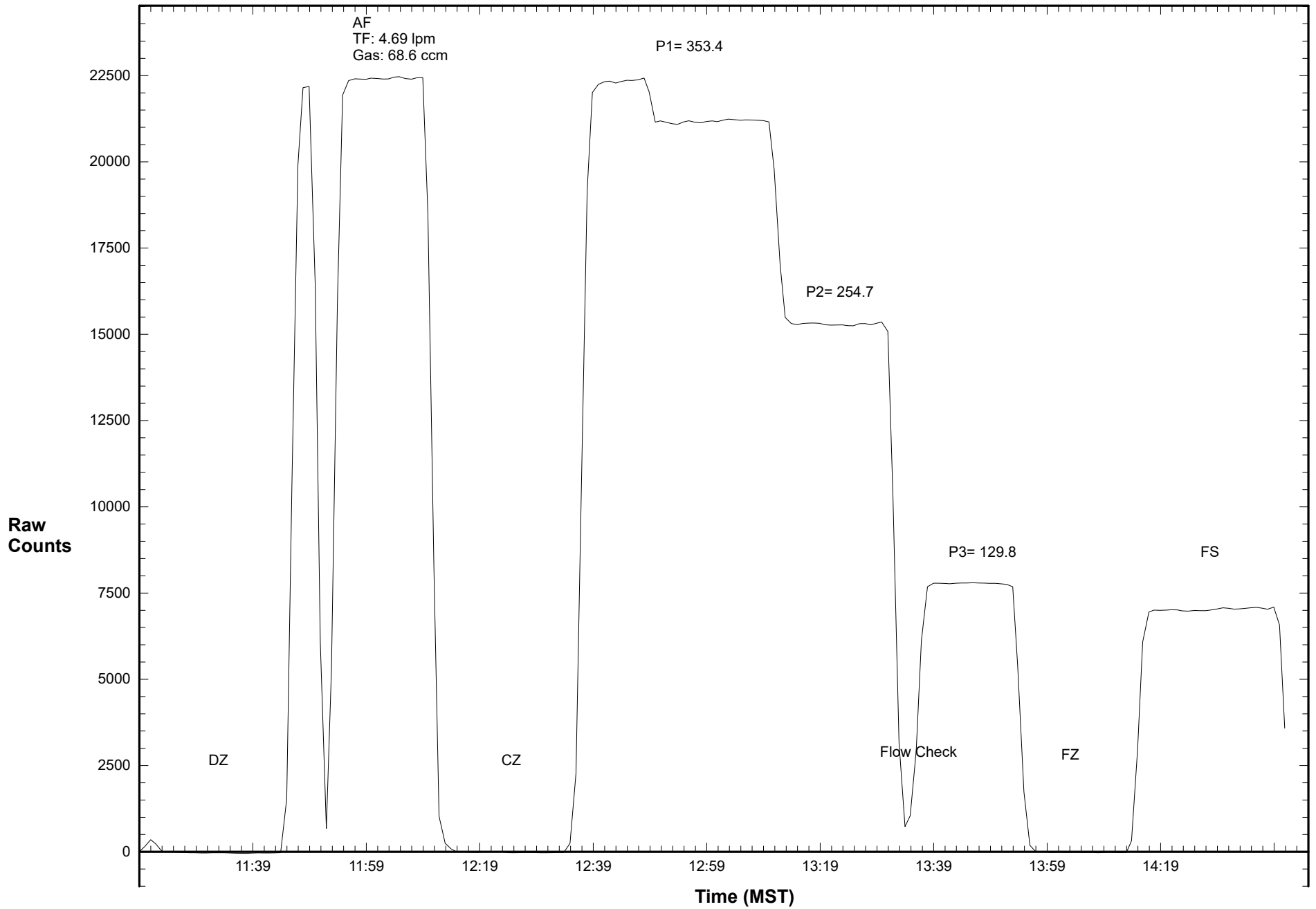
Percent Change of Correction Factor: 0.0

Comments: Sample Flow: 0.437 lpm

Station 959 SO2 December 28, 2017: Linear Regression



Station 959 SO2 December 28, 2017: Calibration Graph



WEST CENTRAL AIRSHED SOCIETY

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

**AMS 959
WAGNER2
DECEMBER 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 - Wagner2
Summary of Hourly Averages

External Temperature (ET) - C
December 2017

Maximum Value: 11.32 C on Dec 12 13:00 Maximum Daily Average: 3.15 C on Dec 12 Minimum Value: -32.0 C on Dec 29 09:00 Minimum Daily Average: -28.48 C on Dec 29 Maximum Diurnal Average: -3.92 C at hour 14 Minimum Diurnal Average: -9.84 C at hour 24 Monthly Average: -7.998 C Percentiles: P ₁ = -31.2 P ₁₀ = -25.8 Q ₁ = -13.8 Median = -5.4 Q ₃ = -0.6 P ₉₀ = 3.2 P ₉₉ = 9.5																								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 Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-8.5	-9.5	-10.0	-10.4	-11.0	-11.5	-11.9	-12.1	-12.0	-9.8	-8.1	-6.6	-5.5	-4.0	-3.6	-3.3	-3.6	-3.5	-0.7	1.1	-2.4	-4.4	-5.7	-5.8	-6.79	1.08
2-Dec	-5.1	-4.9	-5.0	-5.6	-5.2	-4.8	-5.0	-4.6	-4.3	-4.1	-3.4	-2.4	-2.0	-1.7	-0.9	-0.3	-3.5	-6.3	-8.0	-8.8	-9.7	-10.7	-11.4	-11.8	-5.39	-0.26
3-Dec	-11.3	-12.3	-13.2	-13.8	-14.4	-13.7	-13.7	-14.3	-14.2	-12.3	-9.7	-6.0	-3.5	-3.1	-3.6	-3.6	-5.3	-7.2	-7.8	-8.0	-6.7	-5.7	-4.9	-4.7	-8.88	-3.13
4-Dec	-4.1	-3.8	-3.8	-2.9	-2.8	-2.7	-2.6	-3.8	-4.4	-4.4	-3.7	-2.4	-1.4	-0.6	0.5	0.8	0.1	-0.8	-1.4	-0.9	-0.4	0.5	-1.0	0.8	-1.87	0.84
5-Dec	1.0	3.0	3.9	4.2	3.9	3.4	3.2	3.3	2.9	3.3	4.6	4.7	4.8	4.8	4.6	4.3	3.3	1.8	2.7	2.2	0.5	0.1	-0.1	0.1	2.93	4.79
6-Dec	-1.3	-3.7	-4.2	-6.1	-6.4	-7.1	-7.7	-8.3	-8.3	-6.7	-4.8	-1.4	0.7	1.8	2.5	2.9	0.5	0.1	-0.1	-0.9	-2.0	-3.7	-4.0	-4.7	-3.04	2.91
7-Dec	-5.1	-5.6	-6.2	-6.2	-6.4	-5.6	-2.3	-2.0	-4.3	-4.7	-1.0	4.3	6.7	7.7	4.8	2.7	0.1	-2.1	-3.2	-4.1	-4.8	-5.4	-4.9	-5.3	-2.21	7.66
8-Dec	-5.7	-6.3	-7.2	-7.9	-8.5	-9.1	-9.4	-9.6	-9.6	-7.7	-3.8	0.0	2.4	4.2	3.2	2.6	-0.7	-2.6	-3.9	-4.9	-5.5	-5.9	-5.9	-5.6	-4.48	4.22
9-Dec	-5.1	-5.5	-5.7	-5.2	-3.2	-5.7	-5.8	-5.4	-3.9	-1.4	2.7	6.0	7.4	7.2	7.4	4.1	0.4	-1.5	-2.7	-3.5	-3.9	-4.3	-3.9	-3.9	-1.48	7.42
10-Dec	-4.7	-5.1	-4.4	-3.7	-2.7	-2.1	-1.6	-0.9	-0.1	0.9	8.3	10.3	10.1	10.2	9.4	8.7	7.4	6.6	6.6	6.1	4.7	1.7	-0.9	-2.2	2.61	10.31
11-Dec	-3.1	-3.7	-4.1	-3.8	-3.6	-3.2	-2.1	-1.9	-1.2	-0.6	0.9	2.8	4.5	6.2	6.5	6.5	3.3	1.0	-0.1	-1.1	-1.7	-2.2	-2.6	-2.9	-0.26	6.48
12-Dec	-3.2	-3.3	-3.5	-3.9	-3.5	-3.0	-2.0	-0.3	-1.0	2.7	9.4	10.9	11.3	10.7	9.8	9.1	8.1	6.9	5.1	5.0	2.2	3.1	3.4	1.4	3.15	11.32
13-Dec	0.3	-0.4	0.2	-0.5	-0.5	0.1	-0.3	0.5	-0.1	-0.4	5.5	6.1	6.6	6.9	6.7	6.4	4.9	4.2	2.8	1.1	1.2	0.9	0.2	-1.8	2.12	6.93
14-Dec	-2.9	-4.0	-4.4	-5.0	-5.4	-5.9	-6.2	-6.6	-6.9	-5.7	-3.1	-0.3	2.0	3.0	3.5	3.4	1.3	-0.7	-0.6	-0.5	0.8	0.0	-0.3	1.2	-1.81	3.49
15-Dec	-0.2	0.2	0.2	0.8	0.6	0.6	0.6	5.2	5.3	5.8	6.0	5.8	6.8	6.3	5.0	4.9	3.7	0.6	-1.4	0.2	2.1	2.6	1.9	1.4	2.71	6.77
16-Dec	0.9	0.0	-0.8	-1.2	-1.5	-2.0	-3.0	-4.4	-5.0	-3.6	-0.9	0.7	1.5	1.5	1.6	1.2	-2.7	-3.9	-5.1	-5.9	-6.1	-6.4	-6.3	-6.1	-2.39	1.65
17-Dec	-5.7	-5.1	-4.0	-3.2	-1.4	-2.1	-2.3	-2.2	-0.7	0.7	2.6	5.2	5.0	6.0	4.3	3.0	0.9	1.7	2.1	-0.3	-2.6	-3.1	-3.2	-2.3	-0.27	6.03
18-Dec	1.2	-0.1	-1.0	-0.2	0.4	-0.3	-1.3	-3.7	-3.2	-1.6	-0.1	1.2	1.5	1.5	1.4	0.9	-0.5	-2.6	-2.5	-2.5	-2.6	-3.0	-2.1	-1.6	-0.87	1.51
19-Dec	-2.0	-4.1	-4.7	-4.9	-3.6	-3.6	-4.7	-5.4	-5.5	-5.6	-5.6	-5.8	-5.5	-5.5	-5.8	-6.1	-6.6	-7.2	-7.2	-7.6	-8.0	-8.3	-8.4	-8.5	-5.84	-1.99
20-Dec	-8.7	-8.7	-8.7	-8.7	-8.7	-9.0	-9.3	-9.7	-12.0	-11.3	-7.4	-6.7	-5.8	-5.2	-4.9	-4.7	-6.5	-8.9	-10.3	-11.1	-11.4	-11.2	-11.1	-11.0	-8.78	-4.72
21-Dec	-10.1	-8.8	-8.3	-7.4	-7.2	-6.1	-3.7	-2.2	-2.6	-3.0	-2.9	-2.9	-3.0	-3.3	-4.0	-5.0	-5.8	-6.3	-8.2	-8.9	-7.1	-6.6	-6.5	-6.8	-5.70	-2.16
22-Dec	-8.0	-8.1	-7.9	-7.5	-7.1	-7.3	-7.8	-7.4	-7.5	-7.2	-6.5	-6.1	-5.5	-5.3	-4.9	-5.2	-5.7	-6.1	-6.0	-6.1	-6.1	-6.4	-6.8	-7.1	-6.66	-4.94
23-Dec	-7.2	-7.1	-6.8	-7.0	-6.8	-6.9	-7.2	-7.4	-7.5	-7.4	-6.3	-5.7	-6.0	-5.5	-5.4	-5.6	-6.0	-6.3	-6.4	-7.0	-8.8	-9.2	-10.5	-13.2	-7.21	-5.39
24-Dec	-9.5	-9.0	-8.2	-7.8	-8.2	-8.4	-10.1	-10.4	-10.8	-11.9	-13.9	-14.5	-14.9	-14.5	-15.4	-16.5	-17.0	-17.5	-17.7	-17.8	-18.1	-18.2	-18.2	-18.0	-13.47	-7.83
25-Dec	-17.8	-17.9	-17.9	-17.8	-17.8	-18.2	-18.7	-19.6	-20.2	-20.5	-20.5	-20.2	-21.0	-21.0	-21.0	-23.1	-25.6	-26.6	-27.5	-27.8	-28.2	-28.2	-27.9	-28.5	-21.85	-17.77
26-Dec	-29.2	-29.1	-30.2	-30.9	-31.3	-31.0	-31.4	-31.3	-31.7	-30.8	-27.4	-27.0	-25.9	-24.4	-24.3	-23.9	-24.5	-25.4	-24.4	-23.7	-23.3	-23.0	-22.2	-21.6	-26.99	-21.59
27-Dec	-20.5	-19.8	-19.6	-19.2	-19.0	-19.4	-19.7	-19.7	-19.9	-19.9	-19.7	-19.0	-18.5	-18.0	-17.7	-17.6	-18.7	-21.2	-22.4	-22.3	-23.1	-22.9	-22.0	-23.0	-20.11	-17.61
28-Dec	-21.9	-20.3	-21.3	-22.0	-23.1	-22.5	-21.7	-23.7	-23.6	-22.5	-18.5	-16.9	-16.5	-16.8	-17.7	-19.6	-21.1	-22.4	-22.6	-23.0	-23.4	-23.9	-24.4	-24.8	-21.43	-16.46
29-Dec	-25.4	-27.0	-28.4	-29.0	-30.1	-30.5	-31.2	-31.6	-32.0	-31.2	-27.9	-25.8	-24.9	-25.0	-25.8	-25.8	-26.6	-27.4	-28.9	-29.4	-29.7	-30.2	-30.2	-29.5	-28.48	-24.86
30-Dec	-29.4	-29.7	-29.5	-29.1	-29.0	-29.3	-29.4	-29.4	-29.1	-28.7	-27.0	-26.1	-24.7	-24.5	-25.1	-25.1	-25.8	-27.1	-28.0	-28.4	-28.6	-29.4	-29.9	-30.1	-28.03	-24.53
31-Dec	-30.5	-30.7	-30.7	-30.5	-30.7	-30.7	-30.8	-30.9	-30.8	-29.5	-25.9	-23.9	-22.1	-21.3	-21.7	-21.2	-22.3	-23.6	-25.2	-26.2	-27.1	-28.0	-28.7	-29.2	-27.17	-21.22
																								Diurnal Average	-9.12	
																								Diurnal Maximum	1.16	



WCAS - Wagner2
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1 Spd	0.4	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.6	0.8	1.7	0.8	1.8	1.7	0.9	0.6	0.7	2.4	5.8	0.9	0.5	1.0	0.1	0.25	5.80	
Dir	N	NNW	ENE	WSW	WNW	NNW	NNW	N	NNW	S	S	SSE	S	SE	ESE	SE	NW	NNE	W	WNW	SW	E	NW	N	WSW	NNW	
2 Spd	0.4	0.5	0.3	0.3	0.3	1.1	0.1	0.2	0.8	0.1	0.3	0.9	1.4	1.1	1.0	1.2	0.7	0.6	0.3	0.6	0.1	0.1	0.0	0.6	0.11	1.38	
Dir	NNE	NNE	NNW	NW	SSE	NE	SSW	NE	NNE	NE	ENE	SSE	SSE	S	SE	S	NW	NNW	N	NNW	N	W	E	NE	E	SSE	
3 Spd	0.5	0.5	0.1	0.5	0.6	0.5	0.5	0.3	0.2	0.7	1.7	1.1	3.6	10.1	9.6	6.9	5.7	4.0	4.7	3.4	3.1	3.4	4.7	5.0	2.64	10.13	
Dir	NW	WNW	NE	N	N	N	NNW	NW	NNE	SSE	SSE	SSE	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WSW	W	W	W	WNW	WNW	
4 Spd	5.6	5.0	4.6	7.1	7.9	4.9	2.9	1.0	0.6	0.3	1.2	1.7	3.0	3.7	3.8	4.1	1.5	0.3	0.3	1.4	0.9	2.0	2.7	5.6	2.54	7.85	
Dir	W	W	W	WNW	WNW	WNW	NW	W	S	NNE	SE	S	WSW	W	WNW	W	SW	S	NE	NNE	N	WNW	WNW	W	W	WNW	
5 Spd	5.3	9.6	12.3	10.6	9.6	10.4	10.8	11.9	11.3	10.2	14.2	14.4	14.0	13.9	14.3	10.1	9.0	8.1	11.7	6.4	5.6	5.5	5.6	6.3	9.94	14.44	
Dir	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	W	WNW	WNW	WNW	NW	
6 Spd	4.8	2.6	3.8	0.8	0.2	0.3	0.0	0.1	0.1	0.3	0.5	2.3	5.8	2.4	1.9	3.0	2.8	2.3	1.0	2.3	1.1	0.2	0.4	0.2	1.36	5.77	
Dir	WNW	WNW	WNW	WNW	NE	E	NNE	NNW	E	ESE	WSW	WSW	W	SW	WSW	W	WSW	WSW	SSW	WNW	NW	NNW	ENE	NE	W	W	
7 Spd	0.6	0.2	0.4	0.4	0.3	1.1	2.3	1.9	0.6	0.9	0.4	0.6	1.9	2.1	1.4	0.4	0.6	0.5	0.2	0.3	0.1	0.2	1.2	0.3	0.14	2.35	
Dir	ENE	N	E	NE	E	W	W	W	NE	NE	E	S	SW	SW	SSE	ENE	NNW	NNW	N	N	WNW	NE	NE	ENE	WNW	W	
8 Spd	0.3	0.2	0.2	0.2	0.0	0.3	0.0	0.0	0.0	0.2	0.6	1.9	2.0	1.8	1.9	0.3	0.3	0.2	0.2	0.1	0.3	0.2	1.0	0.1	0.41	1.97	
Dir	ENE	NW	E	ENE	N	ENE	WNW	ENE	ESE	E	S	ESE	ESE	ESE	ESE	E	NNW	N	W	ENE	E	SE	E	WNW	ESE	ESE	
9 Spd	0.6	0.3	0.3	1.2	0.5	0.8	0.6	0.2	0.4	3.0	2.4	2.9	4.6	2.6	4.6	2.2	0.8	0.8	0.2	0.5	0.1	0.3	0.1	0.3	0.82	4.64	
Dir	NW	ESE	W	W	N	NE	N	ENE	W	SSW	SSW	WSW	WSW	WSW	W	NW	NW	N	WNW	NE	NE	NW	E	E	W	WSW	
10 Spd	0.3	0.3	0.4	0.2	0.1	0.4	0.4	0.8	1.4	2.3	3.0	9.9	13.2	10.9	9.4	7.5	4.5	5.1	8.2	7.3	4.8	3.5	0.2	0.4	3.59	13.16	
Dir	NW	ENE	E	E	SE	ENE	NW	ENE	NNE	NNW	W	WNW	WNW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	W	NNW	NNE	WNW	WNW	
11 Spd	0.3	0.5	0.2	0.2	0.4	0.1	0.6	0.6	1.7	0.1	0.5	3.1	2.9	2.5	2.7	1.9	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.48	3.12	
Dir	NNW	NNW	E	ENE	E	SSE	SSE	WNW	WNW	SW	S	SSW	S	WSW	WSW	W	NW	NNE	E	ENE	N	WSW	ESE	E	SW	SSW	
12 Spd	0.5	0.1	0.2	0.2	0.3	0.4	0.4	0.4	1.2	2.6	8.7	11.2	16.1	14.4	13.0	12.7	9.3	6.1	3.7	4.3	4.8	5.6	2.9	1.3	4.73	16.12	
Dir	E	ENE	SE	ENE	E	N	N	NE	ENE	NW	WNW	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	W	W	WNW	W	WNW	WNW	WNW	
13 Spd	0.1	0.3	0.1	0.3	0.5	0.4	2.2	1.8	1.7	2.2	11.2	12.2	11.4	10.0	10.0	8.3	8.5	7.1	4.1	3.8	4.3	3.8	3.4	2.1	4.50	12.16	
Dir	WSW	W	NNW	NNW	WSW	W	WNW	NW	WNW	NW	WNW	NW	NW	NW	NW	WNW	WNW	WNW	W	WNW	WNW	WNW	WNW	NW	WNW	NW	
14 Spd	0.5	0.2	0.6	0.2	0.3	0.1	0.2	0.1	0.3	0.6	1.9	2.1	2.7	1.6	3.1	1.1	1.0	0.3	0.4	0.6	3.3	0.9	1.5	3.4	0.41	3.41	
Dir	W	ENE	NE	N	ENE	SE	SE	W	ENE	ESE	ESE	ESE	WSW	SW	WSW	WSW	NW	NE	NE	NNE	WNW	N	SW	W	WSW	W	
15 Spd	0.0	0.3	0.2	0.9	0.6	0.3	0.5	6.4	4.3	5.3	7.8	10.4	15.2	11.5	9.3	9.4	5.6	3.6	3.0	5.2	8.0	10.1	9.4	9.5	5.52	15.25	
Dir	NW	N	NE	NNE	WNW	ENE	SW	WNW	W	WNW	WNW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	
16 Spd	7.1	5.1	4.8	5.1	5.4	5.2	2.8	0.4	1.1	1.5	4.7	4.7	4.9	5.1	4.6	1.5	0.4	AF	AF	AF	AF	AF	AF	AF	--	7.12	
Dir	WNW	WNW	W	W	WNW	W	W	NW	WNW	WSW	WSW	W	W	WSW	WSW	WNW	NNW	AF	AF	AF	AF	AF	AF	AF	--	WNW	
17 Spd	AF	0.0	1.3	1.3	3.4	0.4	0.6	2.0	0.7	3.9	3.9	5.1	3.9	6.9	3.8	2.6	2.4	4.1	4.2	0.9	0.3	0.1	0.3	1.7	1.91	6.88	
Dir	AF	WNW	ESE	W	WSW	WSW	NNE	NE	NNW	NW	WNW	NW	W	W	W	NW	WNW	NW	WNW	NNE	E	NW	WNW	WNW	W		
18 Spd	5.0	3.8	3.7	5.0	7.9	6.8	5.9	2.9	5.3	6.5	9.4	12.8	13.6	11.9	11.0	7.4	6.4	5.4	5.6	3.9	2.0	1.3	3.9	3.5	6.23	13.63	
Dir	WNW	WNW	W	WNW	WNW	WNW	WNW	NW	WNW	W	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	W	WNW	WNW	W	WNW	WNW	WNW	
19 Spd	2.0	0.5	0.2	0.3	1.6	2.0	4.2	5.3	3.3	5.2	6.7	7.1	8.9	9.4	10.5	8.9	7.7	5.7	8.2	8.8	7.5	6.5	5.4	6.0	5.04	10.45	
Dir	NW	W	W	NW	WNW	NNE	E	ESE	ESE	ESE	E	E	E	ESE	ESE	E	E	E	ESE	ESE	E	E	E	ESE	E	ESE	
20 Spd	4.2	3.3	1.8	2.3	0.7	0.8	0.8	1.5	0.7	0.6	1.2	5.2	4.9	3.9	3.7	2.9	1.2	0.6	0.1	0.2	1.4	0.7	0.5	0.1	0.55	5.16	
Dir	E	ESE	E	ESE	NNW	NW	WNW	WNW	NNW	N	SW	WSW	WSW	SW	SW	SSW	WNW	NNW	NNW	E	NE	ENE	NNE	S	SW	WSW	
21 Spd	2.2	1.5	1.9	4.0	1.7	2.5	5.7	10.8	10.2	6.0	6.8	8.2	5.5	6.3	5.8	4.5	3.0	2.2	0.8	2.0	4.7	6.0	5.8	6.0	3.94	10.79	
Dir	S	S	WSW	W	WSW	SW	WNW	WNW	WNW	NW	NW	NNW	NNW	N	NNW	NNW	NW	NNW	N	W	WNW	WNW	NW	NW	NW	WNW	
22 Spd	5.6	5.4	8.5	9.5	9.0	6.0	5.3	9.0	8.3	8.6	11.0	13.3	13.3	13.3	13.3	15.3	12.4	10.7	10.0	10.9	11.2	12.9	13.8	13.4	10.9	10.28	15.28
Dir	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	



WCAS - Wagner2
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2017

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
23 Spd	12.6	11.2	14.3	11.6	11.4	10.5	10.0	5.8	4.9	6.0	9.8	11.6	7.6	7.3	7.7	7.7	6.8	6.3	7.3	6.1	3.9	2.1	1.1	1.9	7.40	14.31		
Dir	WNW	WNW	NW	NW	NW	NW	NW	W	WSW	W	WNW	NW	NW	NW	NW	NW	NW	NW	NW	NNW	N	NW	N	WNW	NW	NW		
24 Spd	7.6	10.4	12.1	10.2	10.9	11.5	5.4	3.6	4.0	6.2	7.6	7.0	5.9	3.5	4.0	3.6	3.4	3.3	5.7	6.3	5.2	5.9	5.1	4.6	2.28	12.06		
Dir	WNW	WNW	WNW	WNW	NW	NW	NNW	NNW	NNW	NNE	NNE	NNE	NNE	N	NE	NNE	E	E	SE	SE	SE	SSE	SE	SE	NNW	WNW		
25 Spd	4.4	2.4	1.8	2.8	3.2	4.1	3.9	2.1	2.2	2.2	3.5	4.1	4.3	4.5	3.0	2.4	1.2	1.6	1.2	0.9	0.8	0.5	1.0	2.1	2.13	4.48		
Dir	SE	NE	NNE	NNE	NNE	NE	NE	NNE	NNE	NNE	N	N	NNE	NNE	NNE	NE	N	N	NNW	N	NNW	N	NNW	NNW	NNE	NNE		
26 Spd	1.6	0.7	1.1	1.4	0.7	0.7	1.8	0.9	1.6	0.1	1.6	2.0	1.2	2.6	1.3	0.6	1.1	1.4	2.1	2.0	2.0	0.2	1.1	2.1	0.42	2.61		
Dir	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NE	SE	SSE	ESE	SSE	S	NNW	N	NNW	N	NNE	N	NW	S	N	N	SSE		
27 Spd	3.3	2.9	0.9	2.1	3.7	2.3	3.4	5.1	4.4	6.5	8.5	7.7	8.7	8.8	9.8	7.5	5.5	3.2	1.8	1.9	1.0	1.1	1.6	0.4	4.03	9.84		
Dir	NW	NW	NNW	NW	NW	N	NNW	NW	NW	NW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	N	W	W	NNE	WNW	WNW		
28 Spd	3.1	5.9	4.3	3.7	0.4	3.0	2.2	0.7	0.6	0.5	2.9	7.0	6.5	6.9	4.8	4.8	3.7	3.6	2.8	3.0	3.7	3.7	2.4	2.8	1.93	7.01		
Dir	NW	W	W	W	NNW	W	W	N	NW	NNE	WNW	NW	NNW	NNW	N	NE	ENE	NE	E	E	NNE	NE	NNE	NE	NNW	NW		
29 Spd	2.7	2.9	2.9	3.9	0.9	1.0	1.3	1.3	1.3	0.6	3.5	3.4	4.3	3.5	5.0	6.7	5.7	4.0	2.6	2.7	2.9	1.8	2.5	4.8	1.68	6.75		
Dir	N	N	N	N	NNW	N	N	N	NNW	NE	SE	SE	SE	SE	ESE	SE	SSE	SSE	E	E	E	ESE	E	ESE	ESE	SE		
30 Spd	5.3	5.5	7.2	8.9	6.0	5.3	5.1	4.2	6.2	5.4	6.9	7.5	7.8	7.2	7.4	7.6	8.1	2.6	2.3	2.4	1.8	0.6	0.3	0.3	4.87	8.90		
Dir	E	E	ESE	ESE	ESE	E	E	E	E	E	SE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	E	E	ENE	NE	NE	ESE	ESE		
31 Spd	0.6	0.7	0.3	1.5	1.0	0.8	0.6	0.4	0.8	0.5	3.2	4.3	4.1	4.3	6.6	7.4	4.0	2.6	0.3	0.1	0.1	0.1	0.1	0.8	1.52	7.43		
Dir	N	NNW	N	ESE	ESE	E	NNE	N	NNW	ESE	SE	SE	ESE	SE	ESE	ESE	ENE	ESE	NNE	S	N	NE	NW	WNW	ESE	ESE		
Spd	1.68	1.78	1.92	1.97	2.13	1.80	1.74	1.77	1.61	1.54	2.38	3.25	3.78	3.59	3.08	2.42	1.87	1.71	1.64	1.38	1.35	1.43	1.39	1.37	Diurnal Average			
Dir	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	NW	WNW	WNW	WNW	Diurnal Maximum			
Spd	12.62	11.23	14.31	11.64	11.41	11.54	10.85	11.93	11.33	10.19	14.24	14.44	16.12	14.42	15.28	12.69	10.66	9.99	11.75	11.15	12.93	13.82	13.41	10.91	Diurnal Maximum			
Dir	290.46	302.39	310.25	304.61	308.96	311.43	294.55	295.11	295.46	294.41	307.58	309.63	295.88	302.54	294.32	306.25	300.88	297.89	296.11	291.45	290.55	294.77	294.89	289.98	Diurnal Maximum			
Maximum Speed Value: 16.1 kph on Dec 12 13:00																			Minimum Speed Value: 0.0 kph on Dec 8 07:00					Hours in Service:				744
Maximum Daily Speed Average: 10.28 kph on Dec 22																			Minimum Daily Speed Average: 0.11 kph on Dec 8					Hours of Data:				736
Maximum Diurnal Speed Average: 3.78 kph at hour 13																			Minimum Diurnal Speed Average: 1.35 kph at hour 21					Hours of Missing Data:				8
Monthly Average Velocity: 2.022 kph 302.58 deg																			Speed Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.6 Median = 2.4 Q ₃ = 5.6 P ₉₀ = 9.4 P ₉₉ = 14.2					Percent Operational Time:				98.9
All monthly, daily, and diurnal averages have been calculated using vector methods																												
AF - Analyzer Failure																												
Frequency Distribution																												
Speed Range (kph)																												
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total																					
North	92	3	0	0	0	0	95																					
NorthEast	67	4	0	0	0	0	71																					
East	74	23	0	0	0	0	97																					
SouthEast	37	19	0	0	0	0	56																					
South	26	0	0	0	0	0	26																					
SouthWest	36	1	0	0	0	0	37																					
West	95	62	5	0	0	0	162																					
NorthWest	90	66	36	0	0	0	192																					
Total	517	178	41	0	0	0	736																					



WCAS - Wagner2
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2017

Maximum Value: 93.84 % on Dec 14 06:00 Maximum Daily Average: 81.66 % on Dec 2 Minimum Value: 27.8 % on Dec 9 13:00 Minimum Daily Average: 45.88 % on Dec 5 Maximum Diurnal Average: 71.88 % at hour 6 Minimum Diurnal Average: 50.56 % at hour 14 Monthly Average: 65.443 % Percentiles: P ₁ = 30.8 P ₁₀ = 45.9 Q ₁ = 57.2 Median = 66.3 Q ₃ = 75.0 P ₉₀ = 82.3 P ₉₉ = 91.9																								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 Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	86.5	86.3	88.1	89.3	88.5	87.6	86.6	86.3	85.5	84.2	80.0	76.2	71.3	69.3	73.2	73.4	74.1	74.9	65.2	58.5	72.5	77.8	80.3	84.2	79.16	89.27																							
2-Dec	84.7	84.4	84.2	85.2	87.2	83.8	85.5	86.7	83.6	82.6	80.1	75.1	74.5	72.7	70.7	63.5	71.3	78.6	83.9	87.3	88.7	88.9	88.1	88.4	81.66	88.94																							
3-Dec	90.5	87.0	84.1	83.0	82.1	83.0	82.6	82.3	82.5	82.5	76.5	67.7	63.7	59.0	60.0	57.6	61.8	67.0	67.4	67.7	65.1	61.7	59.4	57.9	72.16	90.50																							
4-Dec	55.3	55.3	56.2	54.9	54.2	56.0	55.6	63.3	68.1	68.4	63.1	58.5	51.5	48.7	48.0	57.3	64.3	69.2	73.2	70.0	66.6	62.6	66.4	58.0	60.20	73.22																							
5-Dec	57.4	51.2	49.1	49.2	48.9	48.0	47.6	46.0	46.8	46.8	40.3	39.6	38.6	38.1	39.1	37.4	40.2	44.7	38.3	43.4	48.9	51.9	55.6	53.8	45.88	57.35																							
6-Dec	56.0	64.0	62.8	69.9	77.3	78.6	80.5	81.2	82.2	82.5	78.1	63.8	52.7	50.0	48.3	48.2	57.7	58.9	61.1	63.2	66.8	72.2	75.6	79.2	67.12	82.46																							
7-Dec	80.5	81.6	80.2	82.5	83.5	83.0	66.0	64.2	75.0	76.3	65.6	45.3	33.7	30.9	42.0	48.8	56.6	65.8	70.2	73.3	76.7	79.0	77.4	79.1	67.38	83.52																							
8-Dec	78.8	78.0	80.4	81.0	82.5	84.7	87.5	89.0	89.5	87.8	72.2	59.7	52.0	42.9	45.8	49.7	62.8	67.7	72.3	76.4	81.7	83.5	84.7	81.5	73.85	89.46																							
9-Dec	76.9	77.8	78.3	74.0	65.1	78.1	77.0	79.5	66.5	53.0	39.0	29.6	27.8	30.9	30.4	47.8	60.4	66.4	70.3	75.0	74.6	75.7	78.8	78.9	62.99	79.49																							
10-Dec	76.3	81.2	80.1	80.1	80.0	77.9	75.1	71.3	74.2	70.9	39.8	30.8	31.9	32.3	33.6	36.3	40.8	43.8	44.8	48.7	54.1	64.3	74.2	78.3	59.20	81.15																							
11-Dec	80.2	82.6	84.7	85.3	84.1	82.9	76.8	74.2	68.1	68.1	63.9	53.7	48.0	39.8	38.3	39.5	55.5	68.7	71.7	76.5	79.4	82.5	83.6	84.5	69.71	85.33																							
12-Dec	87.1	86.5	87.0	89.7	91.3	89.2	85.6	79.5	81.6	66.3	35.2	29.9	29.3	33.1	36.3	40.2	44.2	49.3	57.8	56.4	69.1	65.3	61.6	70.1	63.39	91.26																							
13-Dec	75.1	78.1	73.9	76.4	75.7	71.4	71.7	68.4	72.2	78.1	56.9	54.1	53.0	51.7	51.9	52.3	57.6	59.9	64.4	71.8	71.4	72.6	75.1	81.9	67.32	81.88																							
14-Dec	86.5	90.6	92.2	93.0	93.4	93.8	93.8	93.0	92.1	91.7	83.4	74.5	63.0	58.1	54.8	56.3	66.3	75.2	77.7	78.1	66.7	70.5	71.4	62.0	78.27	93.84																							
15-Dec	70.1	71.2	73.0	73.6	88.1	90.9	91.8	64.3	58.0	52.0	50.2	42.3	32.9	32.9	37.0	35.2	39.0	50.9	58.0	48.4	39.4	36.9	38.5	39.9	54.76	91.80																							
16-Dec	41.2	44.0	46.5	47.7	48.4	50.1	55.2	61.5	63.7	59.3	49.2	44.6	42.0	39.3	36.8	38.0	54.8	60.9	66.8	70.8	73.9	75.9	78.3	82.0	55.44	82.01																							
17-Dec	79.1	76.9	74.7	66.4	52.0	57.1	60.9	61.4	56.0	51.9	48.0	42.5	49.0	42.6	45.8	50.7	59.6	56.6	45.4	59.2	70.8	74.9	76.4	69.4	59.46	79.08																							
18-Dec	42.0	45.9	47.1	41.7	38.6	41.4	45.6	55.9	53.5	49.1	43.3	39.6	38.9	40.6	40.9	41.3	45.9	53.7	52.8	54.1	56.0	59.3	53.1	55.7	47.34	59.32																							
19-Dec	61.6	69.1	71.7	73.7	72.9	71.5	69.0	63.4	62.4	63.7	65.3	66.0	65.0	64.2	64.4	66.8	70.2	72.3	75.2	76.0	76.2	76.1	76.1	75.8	69.51	76.25																							
20-Dec	75.3	75.2	75.4	76.1	76.4	79.3	82.0	79.9	81.8	82.0	72.1	70.7	66.7	63.1	61.4	60.2	66.2	74.8	80.0	83.9	85.7	85.3	85.5	84.9	76.00	85.72																							
21-Dec	85.1	81.6	80.9	73.6	73.1	69.4	60.3	51.7	58.2	64.7	66.3	64.3	62.2	59.5	59.2	65.7	70.4	73.2	77.0	80.6	74.0	66.0	64.0	64.7	68.57	85.14																							
22-Dec	68.7	69.5	68.4	68.0	68.1	68.1	68.8	68.3	69.1	73.3	67.1	63.9	61.6	59.6	54.2	53.0	50.6	52.2	56.4	55.7	55.5	58.9	60.0	65.2	62.68	73.31																							
23-Dec	64.8	67.2	62.7	67.3	65.6	67.9	74.1	76.7	80.0	82.3	78.6	72.6	78.8	65.2	64.6	65.3	64.9	65.7	64.6	70.6	78.1	74.7	75.5	76.1	71.00	82.32																							
24-Dec	60.1	64.7	61.1	62.3	69.1	66.2	76.8	75.0	72.2	71.4	61.3	56.0	54.3	53.8	55.2	56.3	59.7	60.9	62.6	62.9	63.8	67.0	67.5	67.8	63.68	76.80																							
25-Dec	70.5	72.1	72.4	72.1	70.3	66.9	65.1	65.4	66.7	66.5	61.4	56.0	55.5	54.7	56.8	56.9	60.9	67.2	68.0	69.9	69.1	69.2	69.9	70.2	65.57	72.43																							
26-Dec	68.2	67.9	66.3	65.8	65.5	65.6	65.2	65.3	64.7	66.1	68.6	69.0	69.9	71.2	72.0	71.9	70.8	70.8	71.5	71.4	71.0	71.2	71.1	73.8	68.95	73.77																							
27-Dec	73.0	71.7	71.7	71.7	71.6	70.8	69.4	67.6	66.9	66.0	65.9	64.7	61.8	56.7	55.8	55.9	59.3	64.9	69.3	69.9	70.4	72.3	70.0	73.3	67.10	73.33																							
28-Dec	70.9	63.9	65.8	67.7	69.3	70.4	66.0	70.7	72.2	70.3	63.5	58.4	49.4	48.6	52.2	57.2	58.3	58.2	59.2	59.9	57.6	57.7	57.9	58.7	61.83	72.21																							
29-Dec	60.9	64.3	66.1	66.4	66.2	66.0	65.4	65.0	64.4	65.2	64.8	59.6	55.4	53.5	58.1	59.7	61.9	65.2	66.3	66.5	66.6	65.9	66.5	66.9	63.61	66.89																							
30-Dec	66.0	64.6	65.4	64.6	62.9	63.1	64.1	64.7	65.2	63.8	59.5	58.3	55.2	55.0	57.7	57.8	60.7	62.6	64.7	66.3	66.1	66.4	66.3	66.3	62.80	66.35																							
31-Dec	65.7	65.7	65.6	65.5	65.4	65.4	65.2	65.0	65.4	65.2	57.7	53.5	50.7	49.3	53.1	53.5	54.9	60.0	65.0	68.3	68.7	68.5	68.0	67.3	62.18	68.75																							
																								70.80	71.61	71.48	71.53	71.53	71.88	71.51	70.53	70.59	69.42	61.84	56.14	52.91	50.56	51.53	53.35	58.76	63.23	65.19	67.12	68.57	69.50	70.22	70.84	Diurnal Average	
																								90.50	90.64	92.21	92.97	93.43	93.84	93.79	93.03	92.06	91.67	83.42	76.17	78.80	72.68	73.18	73.40	74.14	78.57	83.92	87.26	88.69	88.94	88.09	88.45	Diurnal Maximum	



WCAS - Wagner2
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2017

Maximum Value: 8.11 kph on Dec 15 13:00		Maximum Daily Average: 4.73 kph on Dec 5		Hours in Service: 744																							
Minimum Value: 0.3 kph on Dec 31 21:00		Minimum Daily Average: 0.83 kph on Dec 8		Hours of Data: 736																							
Maximum Diurnal Average: 3.38 kph at hour 13		Minimum Diurnal Average: 1.59 kph at hour 2		Hours of Missing Data: 8																							
Monthly Average: 2.094 kph		Percentiles: P ₁ = 0.4 P ₁₀ = 0.7 Q ₁ = 1.0 Median = 1.6 Q ₃ = 2.7 P ₉₀ = 4.4 P ₉₉ = 6.4		Hours of Calibration: 0																							
				Percent Operational Time: 98.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.7	1.0	1.0	0.8	0.8	0.8	0.8	0.5	0.5	0.9	1.0	1.1	1.1	1.1	1.0	1.1	1.2	1.6	3.1	2.6	1.5	0.7	1.3	1.4	1.15	3.07	
2-Dec	0.8	1.3	0.9	1.0	1.1	2.1	0.9	0.9	1.0	0.7	0.7	1.1	0.8	0.7	0.9	1.3	0.8	0.7	0.7	0.9	0.5	0.5	0.5	0.7	0.90	2.12	
3-Dec	0.9	0.8	0.3	0.8	0.8	0.7	0.7	0.7	0.5	0.8	0.7	1.0	3.9	4.0	3.8	2.7	2.2	1.4	1.6	1.5	1.7	2.4	2.7	2.4	1.62	3.95	
4-Dec	2.4	1.9	1.8	2.7	3.0	2.4	2.1	1.5	1.0	0.6	1.2	1.4	1.7	2.0	2.5	2.0	1.3	1.2	1.3	1.1	1.4	1.6	1.5	2.1	1.73	2.98	
5-Dec	3.8	3.7	5.6	4.9	4.6	4.0	4.7	4.8	4.8	4.7	7.4	7.1	7.6	7.0	6.6	5.7	4.2	3.6	4.7	3.1	2.9	3.0	2.0	2.9	4.73	7.57	
6-Dec	3.8	1.9	1.6	1.1	0.7	0.7	0.6	0.4	0.3	0.6	1.3	2.1	2.2	2.0	2.1	1.8	1.5	2.3	1.7	1.1	1.1	0.6	0.7	1.0	1.38	3.80	
7-Dec	1.0	1.0	0.8	0.8	0.7	1.2	2.2	2.2	0.9	0.9	1.1	1.4	1.8	1.9	1.6	1.0	0.8	0.9	1.2	1.5	1.2	0.6	1.3	0.7	1.20	2.25	
8-Dec	0.9	0.6	0.6	0.5	0.3	0.6	0.7	0.4	0.8	0.6	0.9	1.3	1.0	1.3	1.7	0.8	0.7	0.5	0.6	0.5	0.7	0.7	1.8	1.4	0.83	1.83	
9-Dec	1.2	0.8	0.6	1.9	1.3	0.9	1.0	1.0	1.2	3.1	1.6	2.4	2.3	1.6	3.0	1.9	1.0	1.5	1.0	1.0	1.3	1.2	0.8	1.2	1.45	3.07	
10-Dec	0.8	0.9	0.7	0.7	1.3	1.0	1.3	1.5	1.1	2.5	2.0	5.5	6.4	5.9	5.9	4.2	2.4	2.5	3.2	2.9	2.0	2.6	0.4	0.7	2.44	6.40	
11-Dec	0.7	0.9	0.8	0.5	1.0	0.6	1.4	1.2	2.1	1.3	1.1	2.1	1.7	2.1	1.9	1.4	0.8	0.7	0.9	0.6	0.7	0.5	0.4	0.8	1.09	2.12	
12-Dec	0.9	1.2	0.8	0.7	1.1	1.5	1.5	1.1	1.3	3.7	4.4	5.4	6.7	6.6	7.4	6.3	4.2	3.1	2.2	2.0	1.3	2.1	2.9	1.3	2.90	7.37	
13-Dec	0.8	0.8	0.8	0.6	0.8	0.8	1.2	1.7	1.1	2.7	5.6	5.7	5.3	4.3	4.1	3.5	3.4	3.1	1.8	1.9	1.8	2.3	1.7	1.8	2.40	5.74	
14-Dec	1.4	0.5	0.7	0.5	0.6	0.5	0.6	0.4	0.7	1.0	1.4	1.4	2.5	1.5	2.7	1.3	1.5	1.3	0.8	0.9	2.1	1.1	1.4	2.0	1.20	2.67	
15-Dec	0.9	1.0	0.6	1.5	1.3	0.9	1.0	3.5	2.3	2.9	3.4	5.9	8.1	6.4	4.5	4.7	3.0	1.4	1.3	3.4	3.6	4.4	3.8	3.9	3.07	8.11	
16-Dec	3.5	2.6	2.0	2.1	2.2	1.9	1.8	0.7	1.2	1.2	2.2	2.5	3.2	3.1	2.5	1.3	0.7	AF	AF	AF	AF	AF	AF	AF	2.03	3.48	
17-Dec	AF	0.6	1.3	1.4	2.3	1.0	1.2	1.4	1.8	2.9	3.6	3.9	2.7	3.8	1.7	1.5	1.0	2.1	3.3	0.9	0.6	0.7	1.1	3.3	1.92	3.87	
18-Dec	2.2	1.6	1.8	2.8	3.2	2.4	2.1	1.5	2.4	2.9	3.7	5.3	5.3	4.9	5.0	3.4	2.4	1.8	2.1	1.6	1.6	1.5	1.7	2.5	2.72	5.32	
19-Dec	1.8	1.0	0.7	0.6	1.8	1.6	3.0	2.7	1.9	2.4	3.0	2.5	2.7	2.7	2.6	3.0	2.8	2.6	2.7	2.3	2.2	2.4	2.3	1.7	2.20	3.03	
20-Dec	2.2	1.9	1.4	1.6	0.9	0.8	0.6	1.2	0.8	0.9	2.2	2.8	2.7	2.4	2.2	2.2	1.0	1.0	0.4	0.7	1.1	1.1	0.9	1.0	1.41	2.78	
21-Dec	1.6	1.7	1.6	1.5	1.6	2.3	5.2	4.4	5.6	4.1	4.2	5.0	4.4	3.8	4.2	3.0	2.5	2.6	1.2	1.5	2.3	3.3	3.5	2.9	3.08	5.62	
22-Dec	2.2	2.4	3.5	4.3	4.4	3.4	2.4	3.9	3.2	3.7	4.2	5.3	5.5	5.7	5.9	6.0	4.8	4.6	5.8	4.7	5.6	5.8	5.8	4.7	4.50	5.99	
23-Dec	5.3	5.0	6.7	5.5	5.6	5.1	4.8	3.0	2.5	2.9	4.9	5.6	4.5	4.3	4.5	4.4	4.2	4.3	4.1	4.5	3.1	1.8	1.1	1.6	4.14	6.68	
24-Dec	3.9	4.3	5.0	5.1	5.2	5.7	4.1	3.0	2.9	5.0	4.4	4.0	3.5	2.3	2.7	2.6	2.0	2.0	1.6	1.6	1.5	1.3	1.4	1.2	3.18	5.75	
25-Dec	1.4	1.3	1.2	1.6	2.3	2.8	2.6	1.9	1.5	1.8	2.7	2.4	2.8	2.8	1.7	1.7	1.2	0.6	0.7	0.9	0.7	0.6	0.8	0.5	1.61	2.84	
26-Dec	0.7	0.5	0.6	0.7	0.6	0.6	0.8	0.6	0.7	0.9	1.1	1.2	1.5	1.3	1.3	0.9	1.1	0.9	1.4	1.6	1.3	0.6	1.1	1.9	1.00	1.93	
27-Dec	2.2	2.1	1.2	2.1	2.4	2.2	2.6	3.5	3.0	3.5	3.9	3.8	4.0	4.2	3.8	3.1	2.6	1.1	0.8	1.2	0.9	1.8	2.1	0.8	2.45	4.20	
28-Dec	3.1	2.7	2.4	2.1	1.3	3.3	2.2	1.1	1.1	0.9	3.0	3.5	4.0	3.4	3.0	3.0	2.1	2.1	1.9	1.9	1.8	2.3	1.6	1.8	2.31	3.99	
29-Dec	1.8	1.2	0.9	1.1	0.8	0.7	0.7	0.7	0.7	1.1	1.2	1.2	1.5	2.0	2.0	1.6	1.2	2.0	1.8	1.6	1.6	1.3	1.5	2.2	1.35	2.21	
30-Dec	2.4	1.8	2.1	2.7	3.0	2.1	2.4	1.6	2.2	2.2	1.7	2.1	1.9	1.9	1.9	1.6	3.2	1.1	1.4	1.4	1.1	0.9	0.6	0.6	1.83	3.21	
31-Dec	0.7	0.7	0.7	1.3	1.3	1.1	0.8	0.6	0.8	1.0	1.1	2.0	1.5	1.5	1.8	2.4	1.4	1.5	0.6	0.5	0.3	0.5	0.7	0.9	1.07	2.42	
		1.86	1.59	1.63	1.79	1.88	1.79	1.87	1.72	1.67	2.07	2.61	3.16	3.38	3.17	3.11	2.63	2.03	1.87	1.86	1.73	1.66	1.68	1.65	1.73	Diurnal Average	
		5.31	4.97	6.68	5.49	5.56	5.75	5.20	4.77	5.62	4.99	7.43	7.14	8.11	7.04	7.37	6.26	4.78	4.59	5.84	4.71	5.59	5.77	5.84	4.73	Diurnal Maximum	
AF - Analyzer Failure																											



WCAS - Wagner2
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2017

Maximum Value: 102.75 deg on Dec 9 00:00 Maximum Daily Average: 80.20 deg on Dec 8																							Hours in Service:	744																								
Minimum Value: 10.3 deg on Dec 26 00:00 Minimum Daily Average: 21.76 deg on Dec 22																							Hours of Data:	736																								
Maximum Diurnal Average: 63.03 deg at hour 5 Minimum Diurnal Average: 32.62 deg at hour 14																							Hours of Missing Data:	8																								
Monthly Average: 50.088 deg Percentiles: P ₁ = 14.3 P ₁₀ = 19.6 Q ₁ = 24.3 Median = 41.7 Q ₃ = 79.3 P ₉₀ = 90.8 P ₉₉ = 100.2																							Hours of Calibration:	0																								
																							Percent Operational Time:	98.9																								
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	83.5	85.5	85.4	98.1	98.1	80.8	80.2	85.2	94.8	79.7	64.9	52.7	66.2	36.7	30.0	78.7	85.7	89.9	67.9	26.3	87.9	70.5	63.6	99.8	74.67	99.82																						
2-Dec	78.9	85.9	92.6	87.0	99.5	87.0	88.6	84.8	81.6	83.7	84.3	73.3	27.3	34.2	67.4	68.4	82.0	73.9	91.2	87.8	82.6	99.0	81.4	58.1	78.36	99.48																						
3-Dec	94.2	89.7	73.5	74.7	86.8	84.7	77.1	79.3	89.6	74.5	15.4	57.0	86.5	20.2	19.4	18.5	17.2	14.6	17.0	25.2	20.6	35.6	32.7	30.6	51.45	94.18																						
4-Dec	22.0	18.5	21.6	19.5	19.7	22.6	42.3	77.6	89.3	84.2	51.7	40.1	32.9	30.8	40.1	25.5	41.5	91.1	92.1	64.0	69.1	30.1	27.0	18.7	44.67	92.14																						
5-Dec	25.6	19.3	22.1	23.7	23.2	20.0	21.3	21.5	21.7	22.6	26.9	27.4	30.0	28.3	25.0	32.9	24.1	19.6	21.7	24.5	27.9	24.6	20.0	22.0	24.00	32.95																						
6-Dec	29.6	19.0	17.5	63.4	95.5	85.3	90.2	86.3	64.7	89.8	92.0	53.8	21.9	41.8	54.8	23.4	28.2	64.5	84.2	21.7	76.6	98.3	77.0	87.9	61.14	98.30																						
7-Dec	84.2	82.7	76.4	90.8	83.7	62.1	57.4	81.5	78.2	64.3	89.5	97.1	51.7	48.8	64.5	83.8	74.3	74.6	86.7	87.6	90.7	76.0	58.5	91.8	76.53	97.10																						
8-Dec	81.7	91.1	84.3	77.2	89.6	80.9	85.4	87.3	98.7	92.7	87.7	46.8	26.9	50.0	59.5	75.2	86.0	92.1	85.9	89.6	83.4	98.0	72.0	102.8	80.20	102.75																						
9-Dec	82.0	84.3	92.8	64.9	77.9	75.7	71.6	100.6	90.1	63.5	37.0	54.2	28.4	28.5	25.7	43.3	75.0	79.6	99.1	95.4	100.5	95.8	89.6	87.8	72.65	100.61																						
10-Dec	88.2	98.4	93.8	97.9	101.8	83.2	89.7	84.6	41.9	59.3	42.1	25.3	22.6	30.7	36.6	32.7	33.3	27.6	21.8	21.4	21.7	67.7	92.7	87.7	58.45	101.80																						
11-Dec	89.3	77.2	84.3	88.8	99.6	92.1	85.4	80.1	66.0	97.8	88.0	37.2	34.3	57.5	51.5	54.6	81.6	97.1	95.0	101.3	90.6	73.1	77.7	87.5	78.66	101.32																						
12-Dec	88.5	96.0	101.1	96.1	83.6	90.9	93.9	95.7	49.2	92.7	22.9	23.2	20.8	25.3	30.6	28.3	25.2	24.3	30.3	27.5	17.6	19.1	52.1	62.8	54.08	101.13																						
13-Dec	95.3	102.2	101.8	89.4	87.1	91.1	30.4	47.8	35.3	40.4	24.8	25.0	26.3	22.9	21.0	20.6	18.3	19.2	22.8	19.9	20.9	27.0	21.2	53.0	44.32	102.23																						
14-Dec	61.2	82.9	83.8	78.9	84.3	91.2	94.2	92.3	92.9	88.9	59.6	52.1	57.4	46.6	43.2	61.1	84.2	87.9	81.2	70.7	30.7	60.4	53.3	29.3	69.51	94.16																						
15-Dec	91.4	90.5	89.9	81.9	76.1	98.2	91.3	29.4	25.6	24.9	23.5	28.8	27.6	32.3	26.8	30.1	32.4	21.0	21.7	23.6	22.2	20.6	19.9	20.2	43.74	98.21																						
16-Dec	21.7	23.6	20.7	22.2	27.6	19.2	38.0	80.9	50.5	42.2	18.7	27.6	35.5	34.0	35.8	49.3	91.0	AF	AF	AF	AF	AF	AF	AF	37.56	90.97																						
17-Dec	AF	91.1	63.8	56.4	33.1	92.9	83.7	53.4	91.1	51.6	42.3	42.3	42.3	27.3	21.1	30.2	21.5	24.4	64.1	60.8	95.1	87.2	97.6	93.7	59.45	97.61																						
18-Dec	22.6	21.0	20.0	23.6	21.0	18.2	17.7	19.1	21.8	20.1	20.4	19.6	20.4	20.7	19.9	26.6	23.0	14.5	16.7	17.7	46.4	61.7	23.5	39.9	24.02	61.69																						
19-Dec	43.5	86.3	82.7	88.2	69.3	52.7	37.1	21.0	42.3	20.7	26.1	18.7	13.1	19.4	12.3	16.0	17.0	21.1	16.5	15.6	13.9	17.3	20.8	15.7	32.80	88.17																						
20-Dec	31.5	36.2	46.8	48.5	88.1	64.7	59.7	54.2	56.2	76.2	69.8	30.1	32.9	37.8	33.5	39.6	47.0	86.7	77.5	88.3	46.0	67.4	91.6	96.2	58.61	96.19																						
21-Dec	31.3	49.4	45.3	16.8	51.0	48.7	67.6	21.4	27.8	37.3	37.3	35.4	48.2	38.4	42.3	37.4	41.9	69.6	71.5	48.4	26.8	33.6	33.1	26.7	41.14	71.48																						
22-Dec	20.2	23.4	20.2	23.2	27.0	25.7	23.2	20.4	19.3	22.2	19.5	19.0	20.1	21.4	20.0	23.8	23.4	23.6	23.6	19.3	19.9	21.4	21.4	21.0	21.76	26.97																						
23-Dec	21.0	24.5	25.1	25.3	26.7	26.3	25.6	25.7	25.5	24.7	25.6	33.1	34.5	32.8	34.0	34.8	38.7	32.0	49.0	50.8	48.4	60.9	32.6	32.54	60.90																							
24-Dec	26.2	21.5	20.6	25.5	24.7	29.3	49.7	44.1	38.2	46.1	34.7	31.0	37.4	43.9	41.3	38.6	27.7	37.3	18.7	18.2	20.6	15.0	16.3	19.2	30.24	49.69																						
25-Dec	28.3	40.0	40.5	30.0	37.9	40.9	37.3	60.7	51.1	44.0	45.1	38.1	41.9	43.5	27.9	42.9	65.0	20.0	40.7	68.4	66.3	82.9	36.5	10.3	43.35	82.93																						
26-Dec	13.1	58.0	17.2	26.5	62.9	68.4	25.2	43.7	20.9	94.4	35.2	45.1	74.0	28.2	60.9	77.3	58.3	47.7	35.0	37.8	59.2	95.0	62.7	45.7	49.68	95.02																						
27-Dec	53.5	36.1	70.0	54.2	34.4	54.1	42.0	37.6	38.6	27.9	22.3	26.9	23.8	24.7	20.6	18.6	21.7	22.4	26.0	29.3	75.8	78.9	82.6	96.1	42.42	96.08																						
28-Dec	44.0	23.0	24.3	28.1	76.6	70.9	57.2	71.2	75.3	77.5	75.2	26.3	30.8	30.1	45.5	35.8	33.4	29.3	46.2	38.0	23.3	28.9	39.2	27.9	44.09	77.54																						
29-Dec	43.0	16.8	16.9	15.8	60.4	63.0	36.4	32.4	30.8	80.1	15.8	22.2	23.2	32.5	26.5	16.4	12.5	40.5	37.5	25.0	28.5	35.0	33.5	28.1	32.20	80.09																						
30-Dec	18.4	15.6	19.7	17.3	23.7	20.2	22.1	23.6	16.9	20.0	19.7	16.7	16.2	15.5	15.2	13.9	15.0	19.3	26.8	22.3	28.0	79.9	91.6	95.9	28.07	95.92																						
31-Dec	79.3	64.9	81.7	46.8	82.7	60.2	83.8	87.3	57.9	79.3	18.4	23.2	26.9	24.8	15.5	14.3	18.7	39.4	78.1	88.9	86.1	95.5	92.6	72.8	59.13	95.47																						
																							53.12	56.61	56.01	54.22	63.03	61.34	58.25	59.06	54.32	58.77	43.08	36.83	34.86	32.62	34.43	38.45	43.26	47.06	50.98	47.12	50.97	58.14	54.76	55.40	Diurnal Average	
																							95.32	102.23	101.75	98.09	101.80	98.21	94.16	100.61	98.70	97.78	92.04	97.10	86.52	57.55	67.44	83.78	90.97	97.08	99.11	101.32	100.46	98.96	97.61	102.75	Diurnal Maximum	
AF - Analyzer Failure																																																

WEST CENTRAL AIRSHED SOCIETY

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

**END OF REPORT
DECEMBER 2017**