

Fox Creek

AIR QUALITY MONITORING December 2015 Monthly Report

Prepared by:

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





January 13th, 2016

Director, Central Region
Alberta Environmental Protection
4th Floor, Oxbridge Place
9820 106 Street
Edmonton, Alberta T5K 2J6

Dear Sir:

Monthly Ambient Air Quality Monitoring Report for December 2015 for Fox Creek

Enclosed is the report for the Fox Creek continuous ambient air quality monitoring station of the West Central Airshed Society network.

The person responsible for this reporting is Robert Scotten, 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 guidelines as indicated in Air Monitoring Directive Section III.A.3. (a&b) for SO₂, NO₂, O₃, and PM_{2.5}.

2. Operational times less than 90 percent:

There were no operational times less than 90 percent in December.

3. Monitoring Notes:

The PM_{2.5} analyzer experienced unstable operation, returning an uptime of 99.9%. All other analyzers and meteorological equipment returned uptimes of 100% in December.

If additional information is required please contact Patrick Andersen at (780) 514-3533 or (403) 505-1041.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Scotten'.

Robert Scotten
Executive Director

A handwritten signature in black ink, appearing to read 'Patrick Andersen'.

Patrick Andersen
Environmental Specialist

WEST CENTRAL AIRSHED SOCIETY

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

**FOX CREEK
DECEMBER 2015**

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

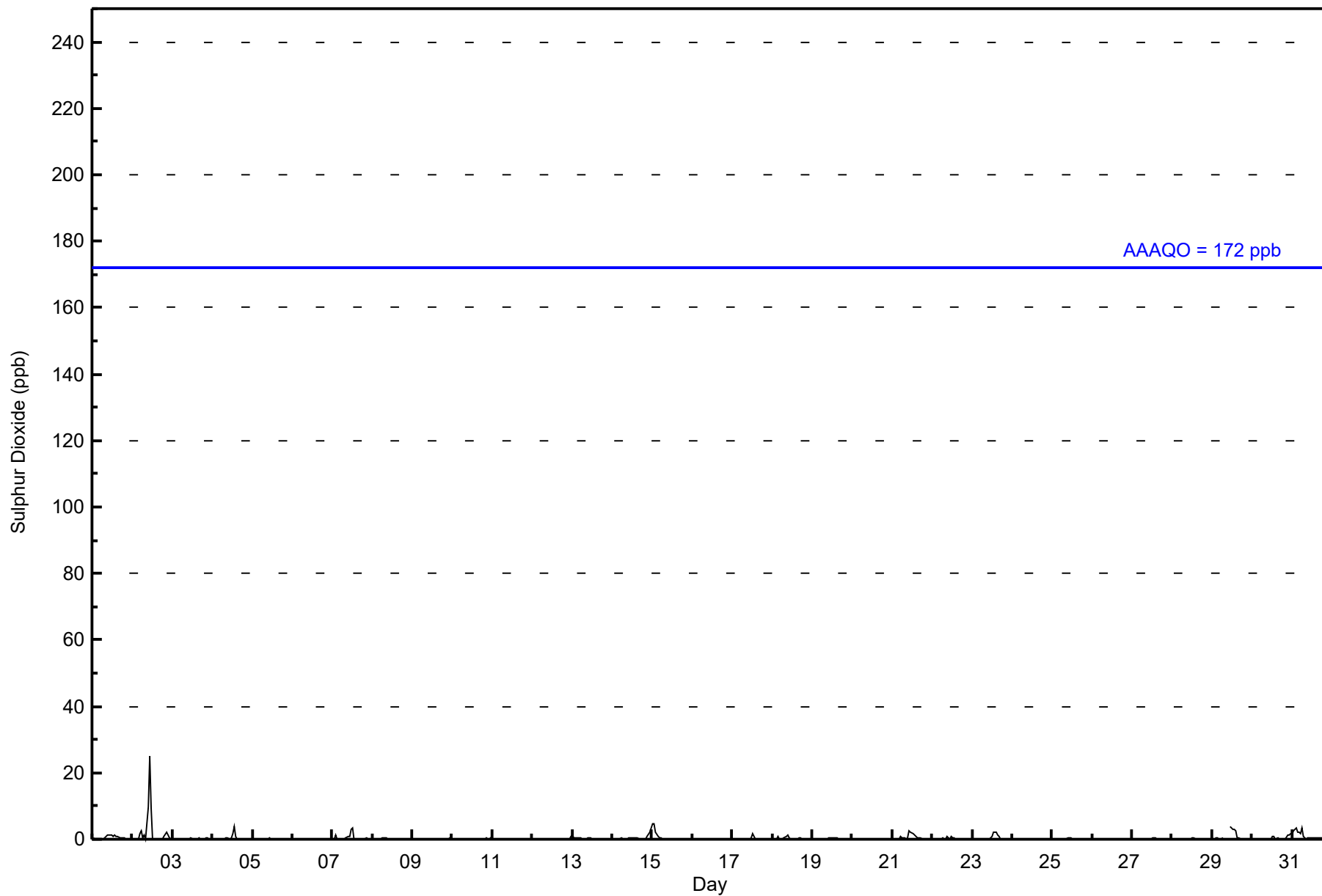
WCAS / Fox Creek													December 2015		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Max (ppm)	
							P10	Q1	Median	Q3	P90	1-hour	24-hour		
SO ₂ (ppb)	4	740	100.0	0.286	0.0	25.0	0.0	0.0	0.0	0.2	0.6	0	0	0.002	
H ₂ S (ppb)	3	741	100.0	0.232	0.0	2.0	0.0	0.1	0.2	0.3	0.5	0	0	0.001	
O ₃ (ppb)	6	738	100.0	9.9	0.0	34.5	0.7	2.3	8.0	15.3	22.5	0	-	0.025	
NO (ppb)	5	739	100.0	8.5	0.0	100.0	0.0	0.5	2.4	9.8	25.3	-	-	-	
NO ₂ (ppb)	5	739	100.0	12.4	0.3	36.1	3.8	7.0	11.0	17.0	23.1	0	0	0.022	
NO _x (ppb)	5	739	100.0	21.5	1.0	132.5	5.4	9.1	14.3	27.1	47.3	-	-	-	
Particulate Matter 2.5 microns (μ/m ³)	2	741	99.9	3.2	0.0	28.3	0.0	0.9	2.5	4.5	6.6	0	0	7.38 ug/m3	
Temperature (°C)	0	744	100.0	-7.3	-21.3	8.6	-15.6	-12.8	-6.8	-2.7	1.4	-	-	-	
Wind Speed (kph)	0	744	100.0	6.6	0.3	21.9	1.9	3.8	6.0	8.6	11.8	-	-	-	

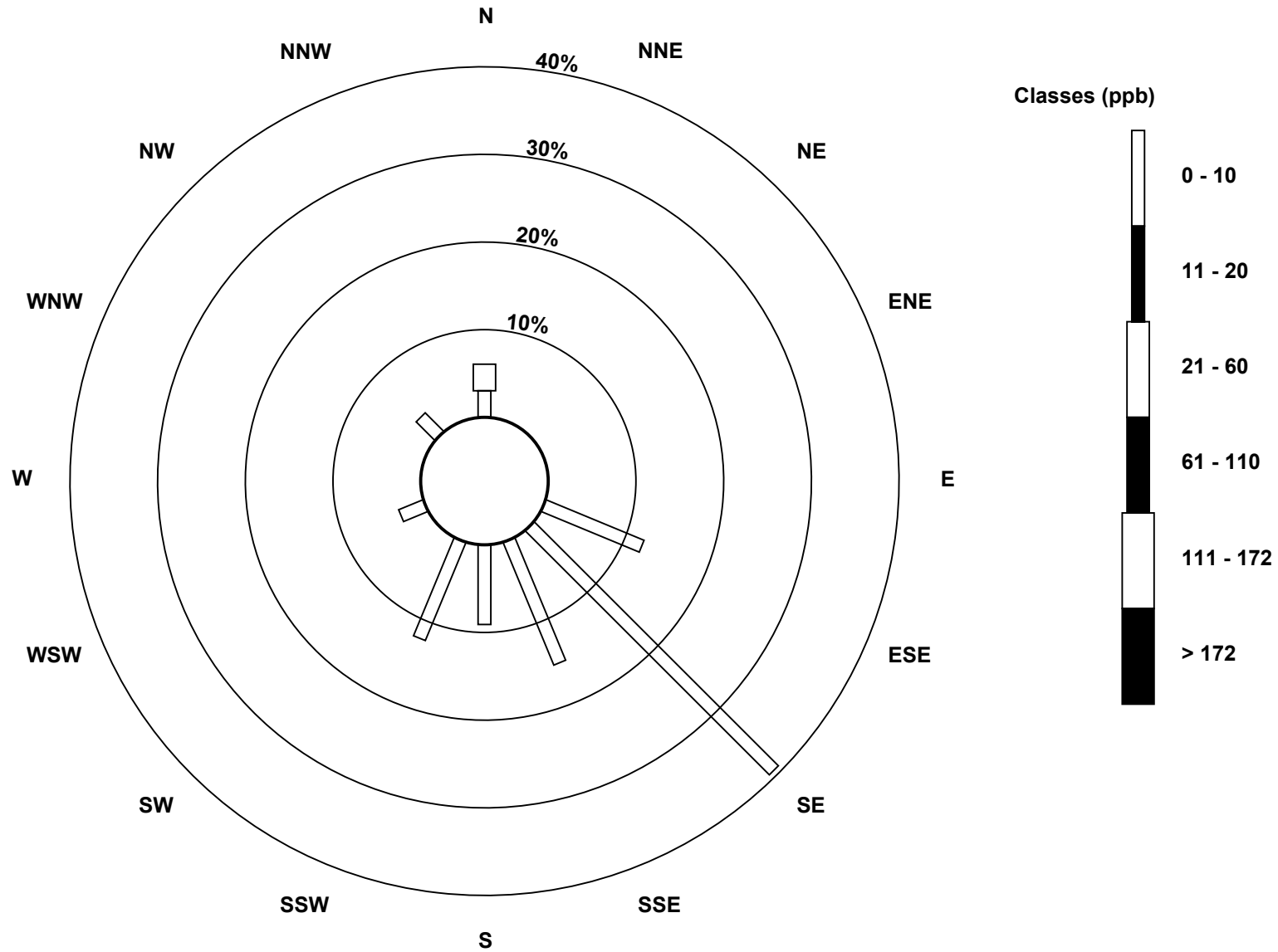


WCAS - Fox Creek
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2015

Maximum Value: 25.05 ppb on Dec 2 11:00 Minimum Value: 0.0 ppb on Dec 1 02:00 Maximum Diurnal Average: 1.10 ppb at hour 11 Monthly Average: 0.286 ppb		Maximum Daily Average: 2.32 ppb on Dec 2 Minimum Daily Average: 0.00 ppb on Dec 16 Minimum Diurnal Average: 0.04 ppb at hour 19 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.6 P ₉₉ = 3.7		Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 4 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	0.0	0.0	0.1	0.2	0.0	0.2	0.4	0.8	1.1	1.3	1.3	1.0	1.2	1.0	0.8	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.48	1.30
2-Dec	0.2	0.2	0.1	0.2	1.9	2.6	0.6	1.2	0.2	9.7	25.0	9.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	2.3	1.1	0.3	0.0	2.32	25.05
3-Dec	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.2	0.4	0.3	0.2	0.2	0.14	0.36
4-Dec	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.3	0.2	0.4	1.5	3.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.34	3.75
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.05	0.29
6-Dec	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.19
7-Dec	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.8	3.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.40	3.22
8-Dec	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.38
9-Dec	0.0	0.0	0.0	0.0	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	0.1	0.5	0.4	0.05	0.50
10-Dec	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	0.2	0.1	0.0	0.2	0.1	0.1	0.3	0.05	0.30
11-Dec	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.16
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.04	1.06
13-Dec	1.2	0.6	0.6	0.5	0.5	0.6	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22	1.18
14-Dec	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.1	0.3	0.5	0.3	0.3	0.2	0.5	0.0	0.0	0.1	0.1	0.7	2.3	3.3	0.39	3.30
15-Dec	4.6	4.5	2.1	0.7	0.2	0.2	0.2	0.1	0.2	0.1	0.1	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	0.55	4.60
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8	0.9	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.13	1.85
18-Dec	0.0	0.0	0.1	0.6	0.0	0.0	0.0	0.5	0.7	1.3	0.4	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.19	1.29
19-Dec	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.2	0.3	0.5	0.4	0.5	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.15	0.47
20-Dec	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.0	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	0.05	0.18
21-Dec	0.0	0.1	0.0	0.1	0.1	0.9	0.5	0.3	0.2	0.5	2.5	2.3	1.5	1.2	1.0	0.6	0.4	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.54	2.46
22-Dec	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.1	0.1	0.7	0.0	0.7	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	0.71
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	2.3	2.0	1.4	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.32	2.32
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.09	0.38
26-Dec	0.0	0.0	0.0	0.2	0.1	0.1	0.2	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	0.1	0.1	0.0	0.05	0.21
27-Dec	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.41
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.04	0.28
29-Dec	0.2	0.0	0.2	0.2	0.2	0.2	0.6	C	C	C	C	3.7	3.0	2.8	2.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.71	3.72
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.7	0.2	0.3	0.1	0.2	0.0	0.0	0.1	1.2	1.4	1.7	0.29	1.70
31-Dec	1.9	2.8	3.3	2.3	2.3	1.9	3.2	0.7	0.1	0.4	0.5	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.4	0.2	0.2	0.1	0.0	0.0	0.98	3.29
																								Diurnal Average		
																								Diurnal Maximum		
																								0.28 0.28 0.26 0.16 0.20 0.25 0.23 0.14 0.13 0.54 1.10 0.79 0.55 0.52 0.31 0.18 0.10 0.07 0.04 0.07 0.13 0.14 0.17 0.24		
																								4.60 4.51 3.29 2.30 2.26 2.59 3.20 1.15 0.78 9.68 25.05 9.13 3.22 3.75 2.40 1.43 0.65 0.31 0.42 0.97 2.27 1.19 2.32 3.30		
C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																										



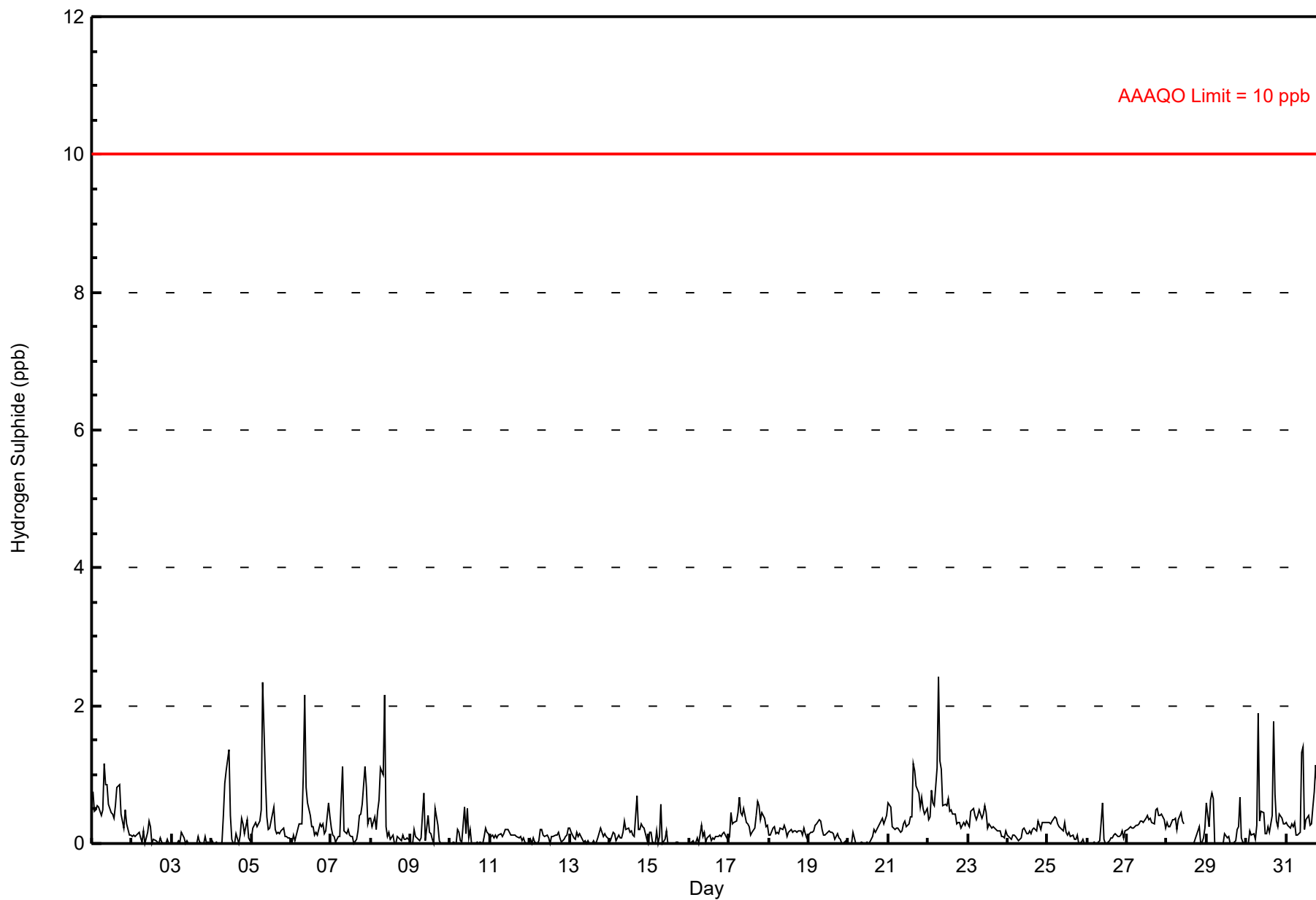


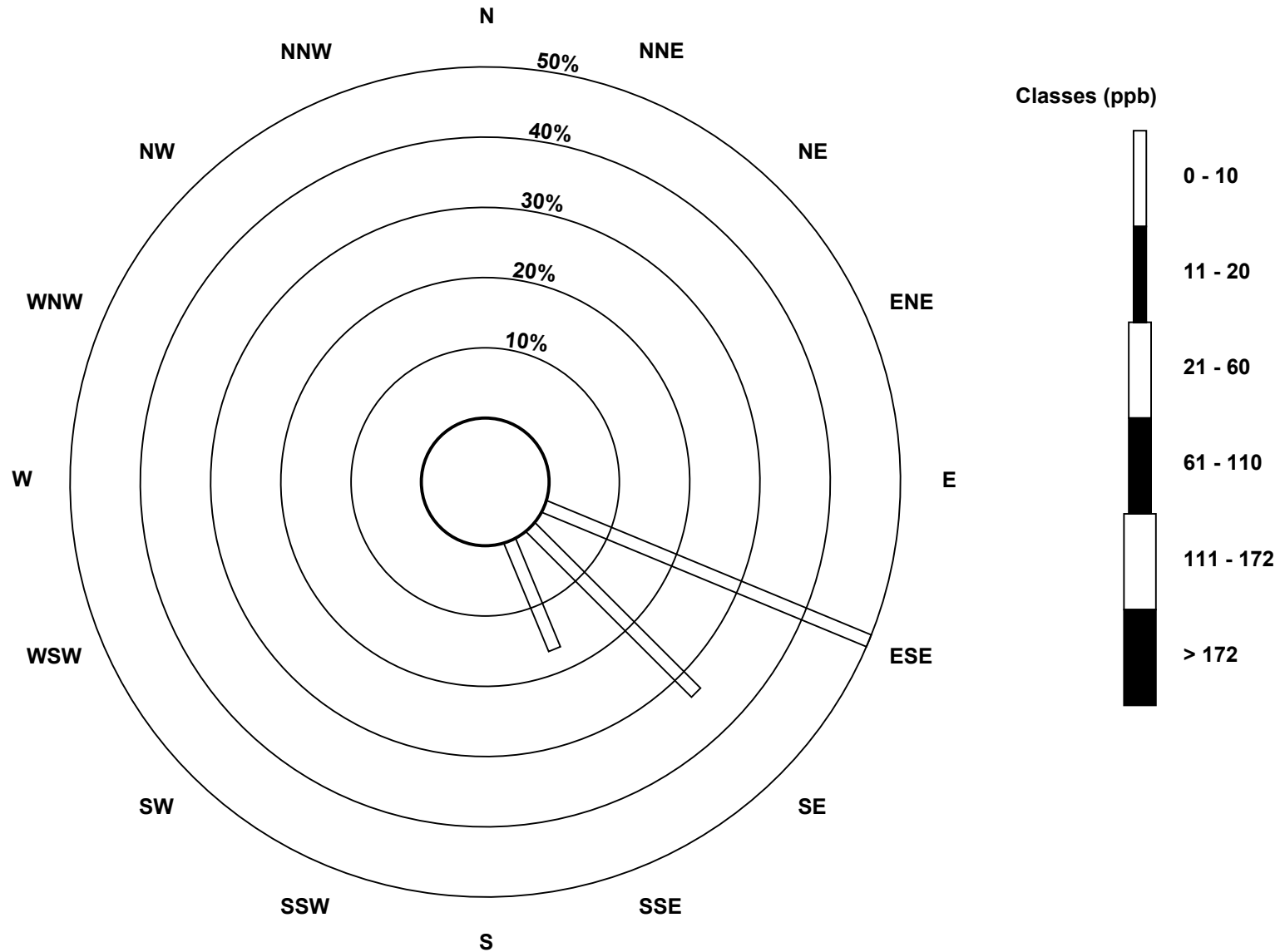


WCAS - Fox Creek
Summary of Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
December 2015

Maximum Value: 2.41 ppb on Dec 22 07:00		Maximum Daily Average: 0.61 ppb on Dec 22		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 2 13:00		Minimum Daily Average: 0.02 ppb on Dec 3		Hours of Data: 741																							
Maximum Diurnal Average: 0.48 ppb at hour 8		Minimum Diurnal Average: 0.14 ppb at hour 15		Hours of Missing Data: 3																							
Monthly Average: 0.232 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.5 P ₉₉ = 1.1		Hours of Calibration: 3																							
				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	0	0	1	1	0	0	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0.52	1.16
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08	0.33
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.16
4-Dec	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.24	1.37
5-Dec	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.35	2.35
6-Dec	0	0	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.38	2.16
7-Dec	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0.31	1.13
8-Dec	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32	2.15
9-Dec	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.14	0.74
10-Dec	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.52
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.21
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.22
13-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08	0.23
14-Dec	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	0.17	0.69
15-Dec	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	0.06	0.57
16-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08	0.26
17-Dec	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0.35	0.67
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0.26
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.36
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.40
21-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	0.45	1.16
22-Dec	0	0	1	1	1	1	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.61	2.41
23-Dec	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30	0.54
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0.32
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.18	0.39
26-Dec	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	0.09	0.59
27-Dec	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	0.32	0.51
28-Dec	0	0	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.20	0.46
29-Dec	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.18	0.72
30-Dec	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0.39	1.89
31-Dec	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0.42	1.41
																								Diurnal Average			
																								Diurnal Maximum			
0.18 0.17 0.20 0.20 0.21 0.21 0.30 0.48 0.43 0.33 0.33 0.20 0.16 0.17 0.14 0.20 0.27 0.23 0.24 0.20 0.23 0.20 0.15 0.15																											
0.75 0.54 0.77 0.72 0.65 1.09 2.41 2.35 2.16 1.33 1.41 0.55 0.64 0.54 0.54 1.16 1.77 0.84 1.13 0.57 1.13 0.82 0.60 0.51																											
C - Calibration Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											



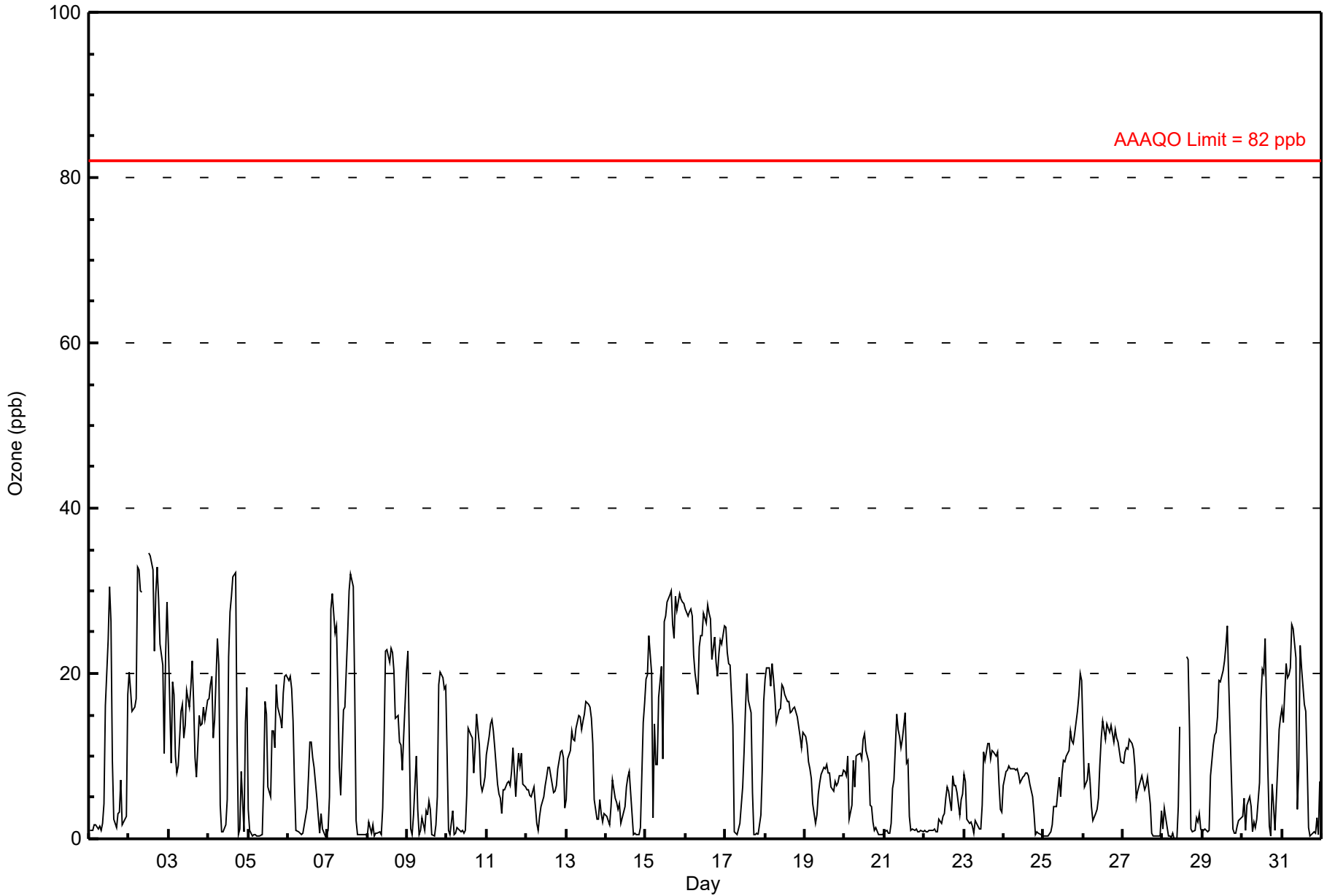


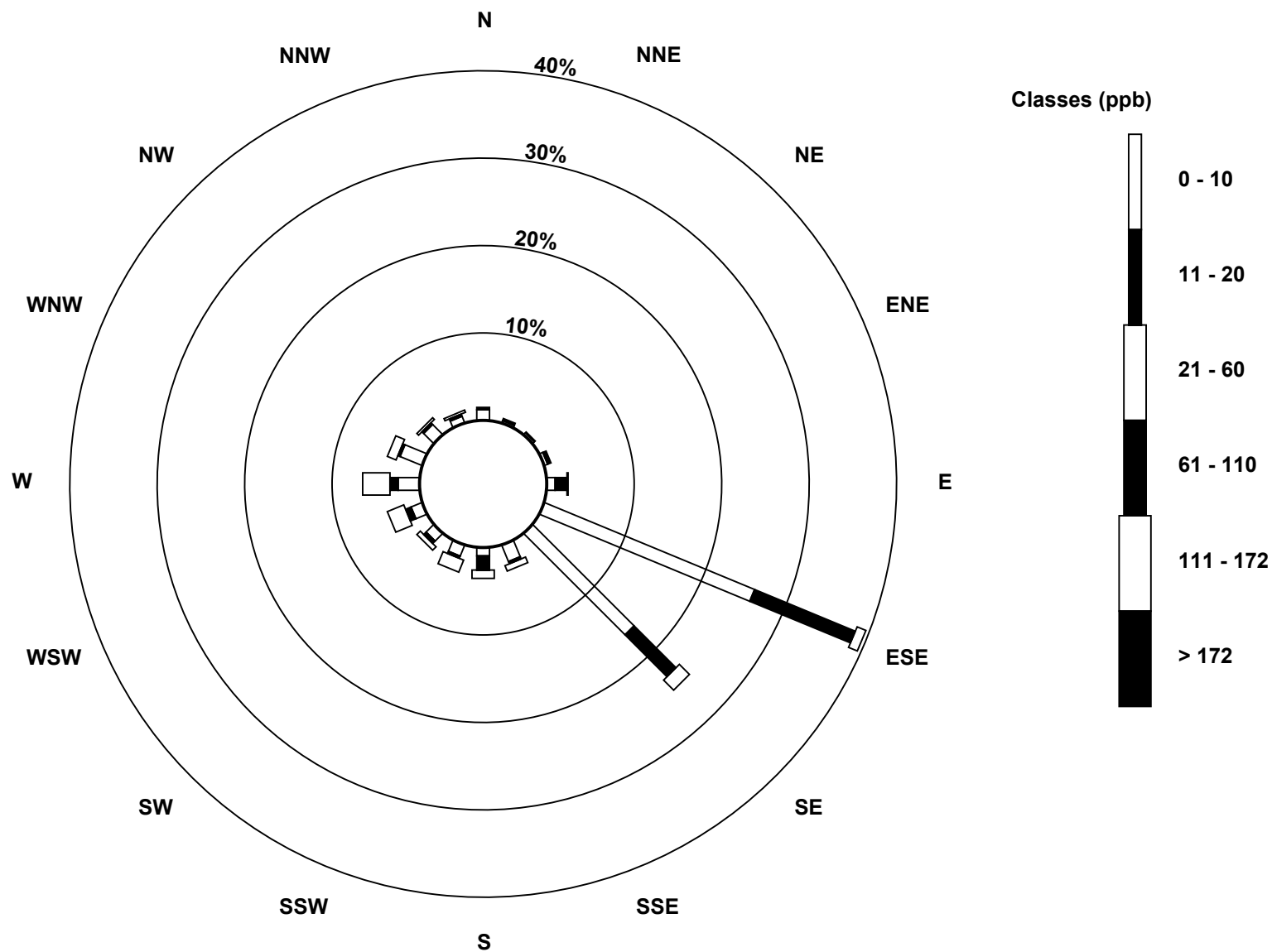


WCAS - Fox Creek
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2015

Maximum Value: 34.51 ppb on Dec 2 13:00		Maximum Daily Average: 25.38 ppb on Dec 2		Hours in Service:	744																					
Minimum Value: 0.0 ppb on Dec 28 09:00		Minimum Daily Average: 3.25 ppb on Dec 22		Hours of Data:	738																					
Maximum Diurnal Average: 15.66 ppb at hour 15		Minimum Diurnal Average: 7.21 ppb at hour 10		Hours of Missing Data:	6																					
Monthly Average: 9.854 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.7 Q ₁ = 2.3 Median = 8.0 Q ₃ = 15.3 P ₉₀ = 22.5 P ₉₉ = 31.9		Hours of Calibration:	6																					
				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	1.1	1.0	1.0	1.7	1.6	1.2	1.5	1.0	1.8	4.3	16.2	24.0	30.5	26.3	9.5	2.4	1.3	3.1	3.3	7.1	1.7	2.0	2.6	17.4	6.82	30.52
2-Dec	20.2	18.0	15.4	16.0	17.0	32.8	32.5	30.0	29.8	C	C	C	34.5	34.2	32.6	22.6	29.7	33.0	29.0	23.5	21.0	10.4	22.2	28.6	25.38	34.51
3-Dec	23.5	9.1	19.0	17.5	10.0	8.0	8.8	15.4	16.3	12.1	13.8	18.0	16.0	18.4	21.5	16.6	9.8	7.4	14.9	13.8	13.9	16.0	14.3	16.8	14.62	23.46
4-Dec	16.9	18.6	19.7	12.2	14.3	24.3	21.1	4.0	0.8	0.9	1.7	4.8	22.0	27.5	29.3	31.8	32.2	12.5	0.6	1.2	8.1	0.9	14.0	18.3	14.07	32.20
5-Dec	3.6	1.1	0.4	0.5	0.5	0.4	0.4	0.4	0.5	6.7	16.5	15.1	6.2	5.0	13.0	13.0	11.0	18.7	15.9	14.6	13.3	17.7	19.7	19.9	8.92	19.91
6-Dec	19.2	19.7	18.2	14.3	6.8	1.0	0.9	0.7	0.5	0.7	1.8	3.8	7.5	11.7	11.6	9.8	8.6	4.9	2.6	0.7	3.0	1.1	0.4	0.5	6.24	19.70
7-Dec	0.9	5.0	27.8	29.7	24.9	25.8	17.9	8.6	5.2	15.6	15.9	20.6	24.9	30.0	32.1	30.5	18.1	2.3	0.4	0.5	0.6	0.5	0.5	0.5	14.12	32.07
8-Dec	0.4	2.1	0.7	1.7	0.4	0.6	0.6	0.8	0.6	3.8	12.1	22.7	22.9	21.4	23.0	22.6	20.4	14.5	14.9	11.8	11.4	8.3	12.5	20.4	10.43	23.00
9-Dec	22.8	11.9	1.1	0.6	3.0	10.0	3.5	0.4	0.9	2.6	1.0	3.4	2.9	4.6	3.6	0.6	0.4	1.7	5.0	18.6	20.2	19.5	18.2	18.5	7.29	22.76
10-Dec	10.0	1.0	0.6	3.4	0.6	0.6	1.4	1.2	0.8	1.0	0.7	1.1	5.3	13.3	12.6	12.3	8.0	11.0	15.0	11.4	6.6	5.8	6.4	7.4	5.72	15.01
11-Dec	10.2	12.4	13.9	14.5	13.1	11.1	6.6	5.4	4.9	3.1	5.9	5.9	6.8	6.9	6.4	8.1	11.0	5.1	8.1	10.4	8.8	10.3	6.7	6.3	8.40	14.45
12-Dec	5.9	5.9	5.3	5.1	6.2	4.1	1.9	1.1	2.8	3.9	5.1	6.5	7.5	8.7	8.6	6.6	5.6	5.8	6.4	8.5	10.4	10.7	9.8	3.7	6.09	10.68
13-Dec	4.8	9.7	10.7	13.1	12.0	11.9	13.4	14.9	14.7	13.2	14.3	15.2	16.6	16.3	15.9	14.5	11.5	4.7	2.4	2.3	4.8	3.1	2.0	3.0	10.21	16.62
14-Dec	2.7	2.3	1.8	3.9	7.1	4.9	4.5	3.6	4.2	1.9	2.5	3.9	6.2	7.5	8.2	5.6	0.5	0.6	0.5	0.4	0.6	1.4	14.1	16.4	4.38	16.42
15-Dec	19.2	19.9	24.6	20.0	2.5	13.9	9.0	9.0	17.1	20.8	9.6	26.3	26.9	28.7	29.4	29.9	26.0	24.3	29.2	27.7	29.6	29.0	28.7	28.4	22.08	29.93
16-Dec	27.8	27.0	27.5	27.8	26.9	22.3	20.0	17.4	23.2	24.5	24.5	27.3	26.2	28.4	27.3	26.6	21.8	24.4	21.4	19.7	22.3	24.1	23.6	25.7	24.49	28.37
17-Dec	25.7	22.5	21.2	21.0	13.8	0.8	0.7	0.6	1.2	1.9	6.3	10.6	15.7	20.1	16.7	15.3	5.6	0.5	0.5	0.7	0.6	3.0	8.5	16.7	9.58	25.66
18-Dec	19.4	20.6	20.7	18.4	21.2	19.4	17.2	14.0	15.6	15.7	18.7	18.3	17.4	16.6	16.6	15.2	15.4	15.8	15.9	14.8	13.6	12.3	11.1	12.9	16.54	21.16
19-Dec	12.3	11.3	9.3	8.4	7.3	4.2	1.9	2.8	5.5	6.8	7.8	8.7	8.4	9.0	8.0	8.0	6.3	5.8	6.9	6.4	6.7	7.7	7.7	8.3	7.32	12.34
20-Dec	8.2	7.6	10.0	2.3	4.0	9.5	6.3	10.1	10.2	10.4	9.7	12.0	12.7	10.7	9.3	4.0	3.9	2.0	1.1	1.4	0.6	0.5	0.6	0.6	6.15	12.73
21-Dec	0.8	1.0	0.7	0.7	1.9	6.1	7.1	15.1	13.2	12.3	10.9	12.0	15.3	9.2	9.4	2.7	1.0	1.2	1.1	1.2	0.8	0.8	1.0	0.9	5.27	15.33
22-Dec	1.0	0.9	0.9	1.0	1.0	1.0	1.1	0.9	0.8	2.3	1.8	2.7	3.0	5.0	6.3	5.7	3.5	7.6	6.5	6.5	5.6	3.0	4.8	5.4	3.25	7.60
23-Dec	7.8	7.0	2.4	1.8	2.0	1.5	0.6	2.2	1.5	1.3	1.2	4.0	10.6	9.5	11.5	11.6	9.7	10.6	10.4	9.9	10.4	6.7	3.5	3.2	5.88	11.60
24-Dec	6.5	8.1	8.3	8.7	8.6	8.5	8.4	8.4	8.5	7.8	6.7	7.4	7.6	8.0	7.9	7.7	6.6	5.2	3.1	0.5	0.8	0.7	0.4	0.4	6.04	8.74
25-Dec	0.4	0.4	0.4	0.4	0.8	1.7	3.9	4.0	4.0	7.5	5.1	7.9	9.5	9.4	10.0	10.7	13.0	11.9	11.6	12.7	15.4	17.3	20.0	19.2	8.20	20.04
26-Dec	12.8	6.3	7.1	9.1	6.9	3.9	2.2	3.1	3.5	4.9	8.9	12.2	14.2	12.0	13.8	13.5	12.9	13.8	11.8	13.3	12.2	11.8	10.6	9.3	9.58	14.18
27-Dec	9.1	10.5	11.0	10.8	12.0	11.5	10.9	8.8	4.9	5.7	6.4	7.7	6.7	6.0	6.4	7.5	4.2	0.6	0.3	0.3	0.3	0.3	0.4	3.3	6.07	12.03
28-Dec	1.1	3.8	2.5	0.4	0.3	0.1	0.7	0.0	0.0	3.9	13.6	C	C	C	22.0	21.7	13.4	1.2	0.9	1.1	2.5	2.0	3.1	1.2	4.54	22.01
29-Dec	0.9	1.3	1.0	0.8	1.0	7.6	11.4	12.5	13.0	14.8	19.1	19.0	20.3	21.5	23.4	25.8	18.9	7.0	1.1	0.6	0.7	1.5	2.2	2.6	9.50	25.76
30-Dec	2.8	5.0	1.0	4.1	5.0	4.0	0.8	2.0	1.3	2.4	6.7	16.8	20.4	20.0	24.2	8.0	1.5	0.4	6.6	4.1	1.0	8.8	13.3	14.7	7.28	24.22
31-Dec	15.7	14.1	21.2	19.5	19.9	20.7	25.9	25.4	21.8	3.6	8.5	23.4	20.7	16.2	15.4	9.3	1.4	0.3	0.6	0.8	0.7	2.5	0.6	7.0	12.30	25.86
10.12 9.20 9.85 9.33 8.14 8.81 7.84 7.22 7.39 7.21 9.11 12.45 14.85 15.39 15.66 13.55 10.74 8.32 8.00 7.95 8.01 7.73 9.14 10.89																								Diurnal Average		
27.80 27.03 27.79 29.73 26.90 32.81 32.51 30.01 29.76 24.53 24.52 27.25 34.51 34.24 32.62 31.77 32.20 32.96 29.25 27.70 29.58 29.03 28.72 28.60																								Diurnal Maximum		
C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82.5 ppb 24-hr -- ppb																										



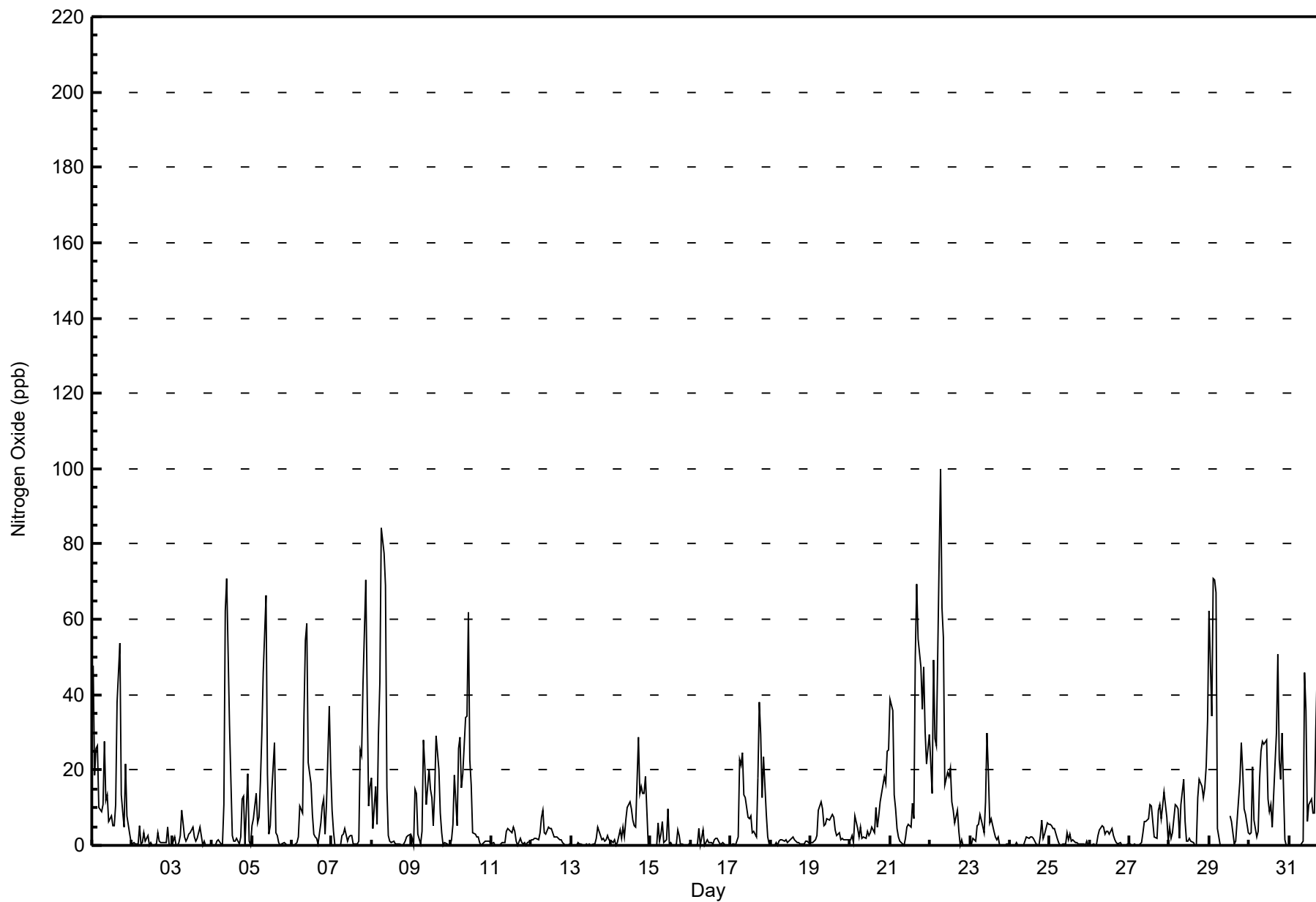


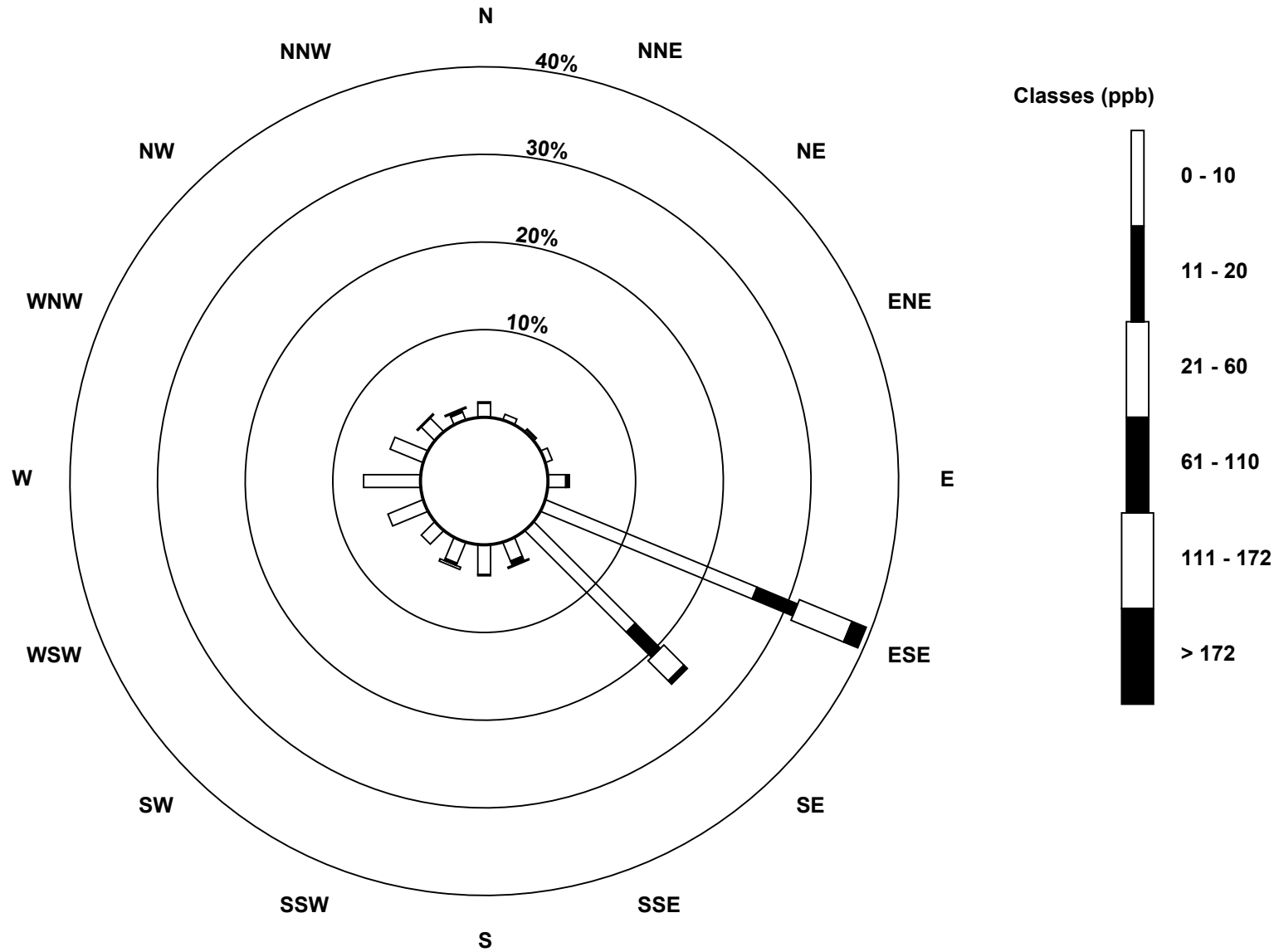


WCAS - Fox Creek
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2015

Maximum Value: 100.03 ppb on Dec 22 07:00																								Hours in Service: 744		
Maximum Daily Average: 22.92 ppb on Dec 22																								Hours of Data: 739		
Minimum Value: 0.0 ppb on Dec 3 00:00																								Hours of Missing Data: 5		
Minimum Daily Average: 0.87 ppb on Dec 18																								Hours of Calibration: 5		
Maximum Diurnal Average: 15.60 ppb at hour 9																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 3.75 ppb at hour 15																										
Monthly Average: 8.452 ppb																										
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.5 Median = 2.4 Q ₃ = 9.8 P ₉₀ = 25.3 P ₉₉ = 70.8																										
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	47.6	18.5	25.9	26.4	10.1	8.8	11.0	27.4	11.8	13.6	6.3	7.9	5.4	5.1	10.7	37.9	53.7	13.3	9.1	4.8	21.8	7.7	2.9	0.9	16.20	53.70
2-Dec	0.2	0.7	0.2	0.3	5.3	0.3	0.7	3.4	1.1	2.6	0.1	0.6	0.1	0.2	0.3	3.4	1.2	0.6	0.7	0.8	0.9	4.8	0.4	0.0	1.20	5.27
3-Dec	0.0	2.2	0.0	0.1	0.8	2.7	9.4	2.1	1.1	1.9	3.1	3.5	5.0	2.3	1.2	2.0	3.4	4.8	0.1	1.0	0.2	0.2	0.1	0.2	1.97	9.36
4-Dec	0.2	0.0	0.0	1.0	1.5	0.4	0.3	10.9	62.4	70.9	32.0	17.3	2.6	1.1	1.1	1.7	0.6	2.3	12.2	12.9	0.5	18.9	1.0	0.0	10.49	70.90
5-Dec	5.2	7.2	13.7	6.0	7.3	16.7	29.3	46.0	66.5	19.0	2.9	5.0	13.8	27.1	3.2	2.5	0.6	0.0	0.3	0.7	0.4	0.0	0.0	0.0	11.39	66.47
6-Dec	0.0	0.0	0.4	0.6	2.4	10.4	8.8	34.7	54.3	58.8	22.1	16.6	8.1	3.0	2.3	2.0	0.4	5.9	10.4	12.3	3.0	10.8	36.9	20.6	13.53	58.84
7-Dec	9.1	3.7	0.1	0.0	0.0	0.0	2.5	2.9	4.4	1.1	2.2	2.4	2.6	0.6	0.2	0.2	1.0	25.3	23.7	43.1	70.3	39.1	10.3	15.6	10.85	70.32
8-Dec	17.7	4.5	15.7	5.4	29.3	43.2	84.1	77.5	69.1	15.1	2.7	1.3	0.9	0.9	0.3	0.3	0.2	0.4	0.0	0.3	1.3	2.4	2.6	2.9	15.76	84.12
9-Dec	2.0	0.2	14.8	13.9	2.8	0.5	3.6	28.0	20.8	10.8	20.2	15.1	12.6	5.3	14.2	29.1	20.1	8.7	3.4	0.0	0.7	0.4	0.0	0.0	9.46	29.09
10-Dec	1.4	5.7	18.7	5.3	25.9	28.9	15.2	18.9	34.1	34.2	62.0	22.8	16.1	3.5	3.0	2.1	2.1	0.7	0.0	0.7	1.0	1.3	1.0	1.0	12.73	62.01
11-Dec	0.6	0.6	0.1	0.0	0.0	0.0	0.9	0.6	0.9	3.7	4.3	4.2	3.4	4.7	3.8	1.2	0.2	1.7	0.8	0.4	0.8	0.1	0.7	1.1	1.45	4.72
12-Dec	1.4	1.6	1.9	2.0	1.5	3.5	7.4	9.3	3.2	3.2	5.0	4.4	4.5	3.5	2.3	2.4	2.0	1.4	1.4	0.8	0.1	0.1	0.0	0.3	2.63	9.29
13-Dec	0.4	0.0	0.0	0.0	0.9	0.3	0.2	0.1	0.0	0.4	0.2	0.3	0.0	0.2	0.6	1.8	4.7	3.9	1.4	1.7	1.1	1.5	2.7	1.6	1.00	4.70
14-Dec	1.1	0.7	1.4	0.0	0.7	3.9	1.8	4.9	2.4	6.9	10.1	11.6	9.6	6.6	5.3	5.0	28.8	13.7	15.8	13.9	13.8	18.4	0.1	0.1	7.36	28.75
15-Dec	0.0	0.0	0.0	0.1	5.8	1.2	2.9	6.4	0.8	1.6	9.8	0.5	0.8	0.1	0.0	0.2	4.0	2.5	0.0	0.3	0.1	0.0	0.1	0.3	1.56	9.78
16-Dec	0.2	0.1	0.0	0.0	0.3	4.4	0.0	4.3	0.1	0.6	1.3	0.8	0.9	0.4	1.5	1.7	2.0	0.5	0.5	0.9	0.3	0.1	0.1	0.1	0.88	4.45
17-Dec	0.1	0.3	0.4	0.2	2.3	22.7	21.2	24.6	13.5	12.8	7.5	7.0	7.7	3.4	3.7	2.3	17.9	38.2	29.5	12.5	23.6	8.2	2.4	0.5	10.93	38.17
18-Dec	0.1	0.0	0.0	0.6	0.0	1.2	1.4	1.5	1.1	1.3	0.9	1.1	1.6	2.1	1.4	1.3	0.7	0.7	0.3	0.4	0.5	1.0	1.1	0.6	0.87	2.14
19-Dec	0.7	0.9	1.1	1.4	2.5	9.3	11.6	9.7	5.3	5.5	7.0	6.8	7.5	8.1	7.4	4.2	2.6	3.4	1.5	1.9	1.6	1.5	1.5	1.4	4.35	11.64
20-Dec	1.6	2.5	0.9	8.0	4.6	2.3	4.7	2.0	2.1	1.9	3.7	2.6	3.5	4.7	3.4	9.9	4.9	7.8	11.6	14.0	18.2	16.4	24.9	25.3	7.56	25.31
21-Dec	38.8	35.9	13.3	9.7	4.3	2.3	0.9	0.4	0.1	2.0	4.8	5.8	4.8	11.2	7.2	50.0	69.3	55.0	47.3	36.1	47.2	30.2	21.5	29.5	21.98	69.33
22-Dec	22.1	14.0	49.2	28.5	26.3	76.3	100.0	63.0	55.0	16.2	19.3	18.3	20.5	11.4	9.3	6.0	9.4	3.6	0.0	1.6	0.0	0.0	0.0	0.0	22.92	100.03
23-Dec	0.0	0.3	1.7	1.1	5.3	5.6	8.3	6.6	3.3	11.7	29.9	19.3	6.1	7.1	3.8	2.4	1.6	2.1	0.0	0.0	0.0	0.0	0.3	0.4	4.87	29.86
24-Dec	0.1	0.0	0.0	0.0	0.6	0.2	0.0	0.1	0.0	1.2	2.1	1.9	2.1	2.1	1.8	1.0	0.4	0.0	2.7	6.9	1.8	2.8	5.8	5.7	1.65	6.86
25-Dec	5.7	5.4	4.3	4.5	2.0	0.7	0.1	0.2	0.3	0.5	3.5	1.6	2.9	1.3	1.5	0.9	0.8	0.3	0.3	0.3	0.3	0.2	1.2	0.0	1.61	5.71
26-Dec	0.0	0.0	0.2	0.0	0.5	2.6	4.3	5.1	5.0	3.0	3.6	3.7	3.0	4.5	2.6	1.3	0.8	0.3	0.7	0.0	0.1	0.1	0.1	0.2	1.73	5.14
27-Dec	0.5	0.0	0.0	0.2	0.1	0.2	0.5	0.8	3.4	6.2	6.2	7.1	10.6	10.5	6.4	2.2	1.8	9.4	10.8	7.0	10.4	14.2	7.6	1.3	4.89	14.23
28-Dec	5.0	2.0	3.2	10.7	10.5	9.8	2.0	10.8	17.4	6.4	1.0	1.3	1.7	1.3	0.8	0.0	0.0	12.8	17.7	15.7	12.5	15.2	21.0	33.2	8.82	33.20
29-Dec	62.3	34.3	70.8	70.3	67.0	4.4	0.0	C	C	C	C	C	8.0	6.4	3.5	0.2	1.1	12.1	17.2	27.0	19.8	9.7	8.0	3.3	22.39	70.85
30-Dec	2.9	3.5	20.9	6.6	2.4	3.7	17.7	24.8	27.6	26.9	28.1	12.3	8.8	11.0	5.0	21.5	29.7	50.6	22.8	17.4	29.7	1.5	0.0	0.0	15.65	50.58
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	45.9	35.7	6.3	10.7	12.4	8.4	8.4	30.9	46.9	77.4	40.0	24.5	20.7	18.7	1.1	16.21	77.37
7.32 4.66 8.36 6.54 7.20 8.60 11.32 14.23 15.60 12.86 11.25 6.98 6.00 5.24 3.75 6.62 9.57 10.61 10.31 8.88 9.88 7.33 5.58 4.75																								Diurnal Average		
62.27 35.94 70.85 70.35 66.98 76.32 100.03 77.55 69.05 70.90 62.01 22.80 20.49 27.05 14.16 50.01 69.33 54.97 77.37 43.07 70.32 39.10 36.93 33.20																								Diurnal Maximum		
C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb																										



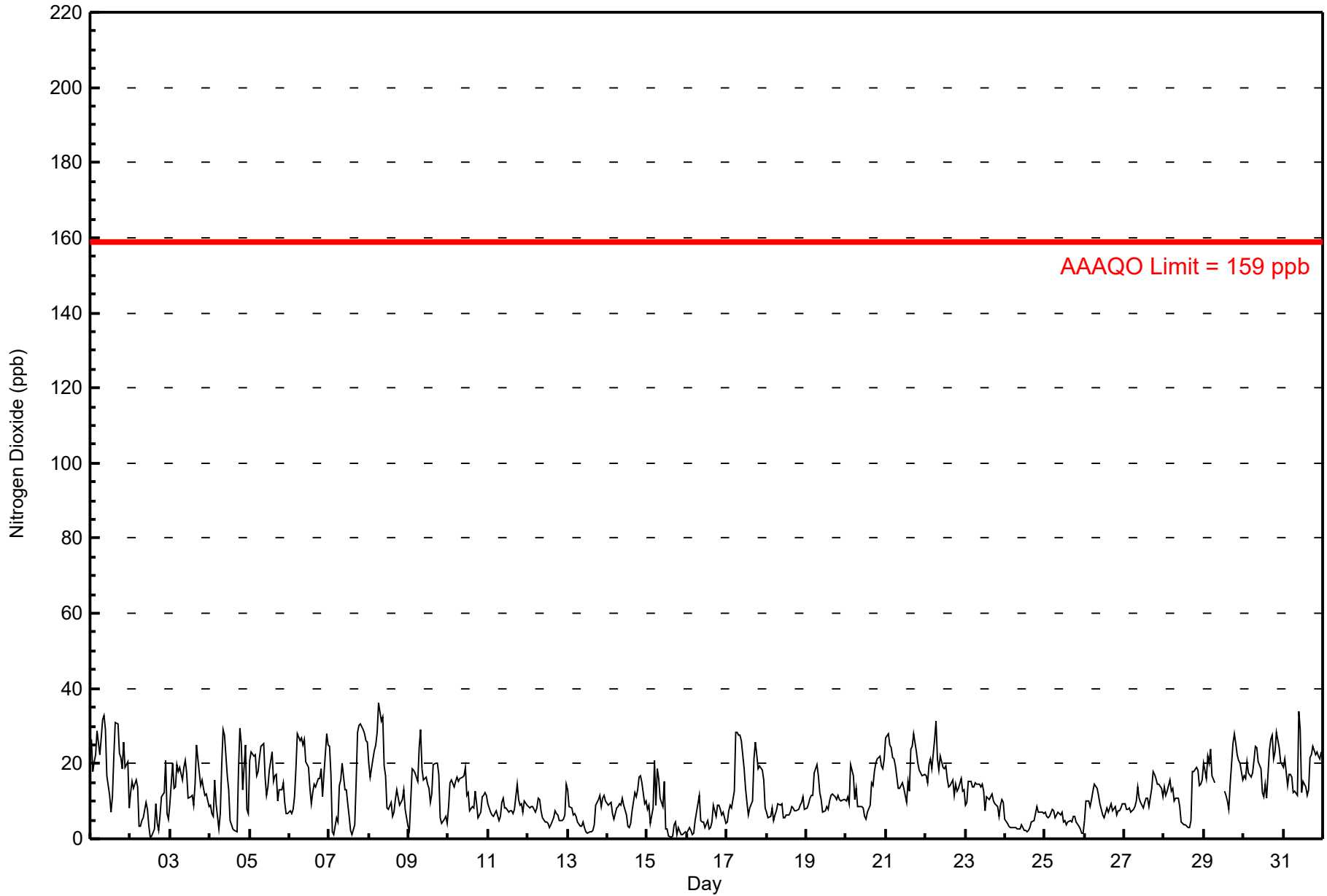




WCAS - Fox Creek
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2015

Maximum Value: 36.12 ppb on Dec 8 07:00		Maximum Daily Average: 21.88 ppb on Dec 1		Hours in Service: 744																																												
Minimum Value: 0.3 ppb on Dec 2 13:00		Minimum Daily Average: 4.14 ppb on Dec 24		Hours of Data: 739																																												
Maximum Diurnal Average: 15.47 ppb at hour 8		Minimum Diurnal Average: 7.86 ppb at hour 15		Hours of Missing Data: 5																																												
Monthly Average: 12.427 ppb		Percentiles: P ₁ = 1.1 P ₁₀ = 3.8 Q ₁ = 7.0 Median = 11.0 Q ₃ = 17.0 P ₉₀ = 23.1 P ₉₉ = 31.2		Hours of Calibration: 5																																												
				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	26.4	17.7	20.7	22.5	28.8	22.5	26.7	31.6	32.9	29.0	16.6	11.6	7.2	11.1	22.1	30.8	30.7	22.9	21.6	18.6	25.7	18.9	20.4	8.1	21.88	32.85																						
2-Dec	12.1	15.1	13.3	15.8	13.7	3.5	3.5	4.9	5.7	9.8	7.9	3.2	0.3	0.6	2.6	9.3	4.1	2.2	6.3	11.1	12.2	21.0	6.7	5.2	7.93	20.98																						
3-Dec	9.3	20.3	13.3	13.8	19.7	17.8	19.1	15.6	18.9	20.8	17.6	11.0	11.1	11.5	9.0	14.6	24.9	21.4	14.0	15.8	13.4	11.5	12.0	8.4	15.20	24.86																						
4-Dec	9.0	6.8	6.1	15.7	9.2	2.8	6.6	19.5	29.1	27.4	17.0	13.0	4.9	3.8	2.6	2.3	1.8	18.1	29.3	25.2	13.2	25.2	7.9	6.6	12.64	29.35																						
5-Dec	20.9	23.2	22.0	22.4	16.9	18.0	21.7	24.7	25.4	16.6	11.5	13.7	18.3	23.3	15.4	16.6	17.2	9.9	13.0	13.2	15.0	9.8	6.9	6.6	16.76	25.40																						
6-Dec	7.4	6.8	7.9	11.3	18.7	27.9	26.2	26.7	25.1	26.5	20.6	19.0	13.5	9.3	12.3	14.4	13.7	15.9	16.1	18.6	11.2	17.0	28.1	24.8	17.47	28.12																						
7-Dec	24.5	17.0	2.0	1.1	5.5	4.5	14.0	15.5	20.2	13.2	13.2	9.3	6.1	2.1	1.3	3.6	15.2	28.5	30.3	30.5	29.0	28.0	26.2	25.8	15.28	30.55																						
8-Dec	20.1	16.4	21.2	23.7	24.9	28.5	36.1	31.3	32.3	19.5	16.9	8.0	7.9	9.8	6.0	7.0	10.3	13.0	9.0	9.6	10.4	13.2	7.7	3.3	16.08	36.12																						
9-Dec	2.3	10.6	18.6	18.3	17.5	15.1	24.2	29.2	18.7	15.5	16.5	14.5	13.5	9.7	11.8	19.9	20.1	20.0	17.3	5.8	4.2	5.3	6.1	4.2	14.12	29.23																						
10-Dec	8.5	14.8	15.8	13.8	15.4	16.3	15.4	15.9	16.3	16.9	18.9	11.6	12.1	7.3	8.7	8.1	12.5	9.1	5.5	7.2	11.1	11.6	12.5	11.4	12.37	18.92																						
11-Dec	9.2	7.2	6.4	5.8	6.7	7.4	4.8	6.1	9.8	10.7	8.1	8.1	7.2	7.5	7.3	6.7	7.8	14.7	10.5	8.8	9.5	7.0	10.1	9.0	8.19	14.72																						
12-Dec	8.5	8.3	8.6	8.5	7.1	8.1	10.7	10.5	7.6	5.5	4.5	4.6	3.9	2.9	3.7	5.7	7.4	6.8	6.5	5.0	4.7	5.1	6.3	14.5	6.88	14.55																						
13-Dec	13.2	8.5	8.2	6.3	6.6	6.0	4.4	3.5	3.4	4.5	3.1	2.0	1.6	1.9	2.0	2.3	3.8	8.8	10.6	11.7	8.6	11.0	11.6	10.1	6.40	13.15																						
14-Dec	9.0	9.3	9.7	6.9	5.4	8.4	8.6	9.3	8.8	10.7	9.0	6.2	3.3	3.1	4.3	7.6	12.4	11.2	13.1	16.6	16.8	15.1	9.4	9.9	9.33	16.79																						
15-Dec	7.8	9.0	4.1	8.3	21.0	9.1	18.5	16.1	10.7	8.7	15.2	2.7	2.5	0.9	0.5	0.6	3.9	4.3	1.3	3.0	1.1	1.2	1.6	1.8	6.40	21.01																						
16-Dec	1.5	3.1	2.1	1.0	1.4	5.0	7.3	11.4	4.8	4.6	4.4	2.8	4.9	2.5	3.0	4.5	9.1	6.0	9.1	9.1	7.9	6.5	7.0	4.2	5.13	11.39																						
17-Dec	4.4	7.3	9.0	8.2	12.6	28.4	28.2	27.7	27.5	26.2	18.6	13.3	9.7	6.5	8.3	10.1	21.3	25.6	22.4	18.7	19.2	18.2	15.7	8.3	16.47	28.35																						
18-Dec	7.2	5.5	6.1	8.1	4.7	6.2	7.6	9.2	8.9	9.1	5.7	5.8	6.2	6.3	7.1	8.7	8.3	7.6	7.4	7.9	9.1	9.8	11.1	7.9	7.56	11.13																						
19-Dec	8.2	9.2	10.8	11.5	11.6	17.7	19.8	16.9	12.2	10.3	7.0	7.5	8.5	8.0	9.9	11.6	12.1	11.4	10.5	11.5	10.6	10.0	10.3	10.4	11.13	19.81																						
20-Dec	10.2	11.1	9.2	19.9	16.8	10.3	13.5	8.5	8.7	8.5	8.3	6.0	5.1	7.2	9.1	14.8	14.2	17.8	20.3	21.2	22.1	19.3	18.5	21.4	13.41	22.13																						
21-Dec	26.9	27.9	25.1	24.3	21.6	21.3	19.5	13.3	13.3	14.0	15.0	13.5	9.7	15.3	12.8	23.7	24.4	28.1	23.1	20.2	18.3	17.7	16.9	17.2	19.30	28.09																						
22-Dec	16.8	15.0	19.8	21.4	18.6	26.4	31.3	21.3	18.2	21.9	18.9	18.8	19.5	15.9	13.7	14.4	15.8	11.7	14.4	12.7	13.3	15.9	12.6	13.1	17.55	31.25																						
23-Dec	9.0	9.7	15.2	15.2	13.7	13.9	15.1	14.6	14.6	13.6	14.7	12.8	7.5	11.3	10.3	11.3	12.0	9.9	9.3	8.6	6.1	8.9	10.5	9.7	11.57	15.24																						
24-Dec	5.1	4.0	3.3	2.8	2.9	2.9	3.0	2.7	2.6	2.7	3.9	2.3	2.1	2.0	2.2	2.8	4.3	4.8	6.7	8.5	7.0	7.0	6.9	6.7	4.14	8.50																						
25-Dec	6.9	6.0	5.7	5.9	7.7	7.6	5.8	6.3	7.1	6.3	7.0	4.5	4.9	3.7	4.6	4.8	4.5	6.0	5.9	4.5	3.5	2.8	1.5	1.3	5.20	7.69																						
26-Dec	4.9	10.0	10.1	8.7	10.3	12.7	14.5	13.3	11.4	9.2	7.8	6.4	5.8	8.2	6.9	8.2	9.2	7.6	8.6	6.2	7.6	7.6	8.3	9.1	8.87	14.47																						
27-Dec	9.4	8.0	7.7	8.2	7.0	7.9	8.6	10.2	13.9	11.0	9.8	8.0	9.6	11.0	10.7	8.6	13.4	18.1	17.1	16.0	14.5	14.5	13.4	11.4	11.16	18.05																						
28-Dec	14.0	11.7	12.7	15.5	12.6	13.4	10.2	11.0	10.6	8.6	4.5	3.9	3.8	3.8	3.2	3.1	4.7	17.9	17.7	19.1	18.2	14.3	14.7	15.7	11.03	19.06																						
29-Dec	20.1	16.2	21.9	20.0	23.9	16.7	14.8	C	C	C	C	C	12.6	11.7	10.0	7.7	14.6	25.4	27.8	25.3	22.3	20.9	20.1	15.8	18.31	27.84																						
30-Dec	16.8	16.2	20.4	17.7	16.5	17.6	20.8	24.7	24.2	20.7	18.8	12.2	11.3	14.5	10.7	23.5	26.5	27.7	21.2	23.2	28.4	24.4	20.4	19.8	19.93	28.42																						
31-Dec	19.1	21.1	14.1	17.2	17.0	16.6	12.2	12.8	11.7	33.9	29.0	12.4	15.4	13.9	11.5	13.1	21.7	22.2	24.6	22.3	22.9	22.1	21.2	23.2	18.80	33.86																						
																								11.89	12.03	11.96	12.90	13.43	13.56	15.24	15.47	15.15	14.53	12.33	8.96	8.07	7.96	7.86	10.33	12.96	14.67	14.54	14.05	13.46	13.56	12.34	11.13	Diurnal Average
																								26.86	27.86	25.10	24.34	28.83	28.48	36.12	31.56	32.85	33.86	28.96	18.96	19.53	23.28	22.08	30.78	30.66	28.50	30.30	30.55	29.00	27.96	28.12	25.77	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																																																



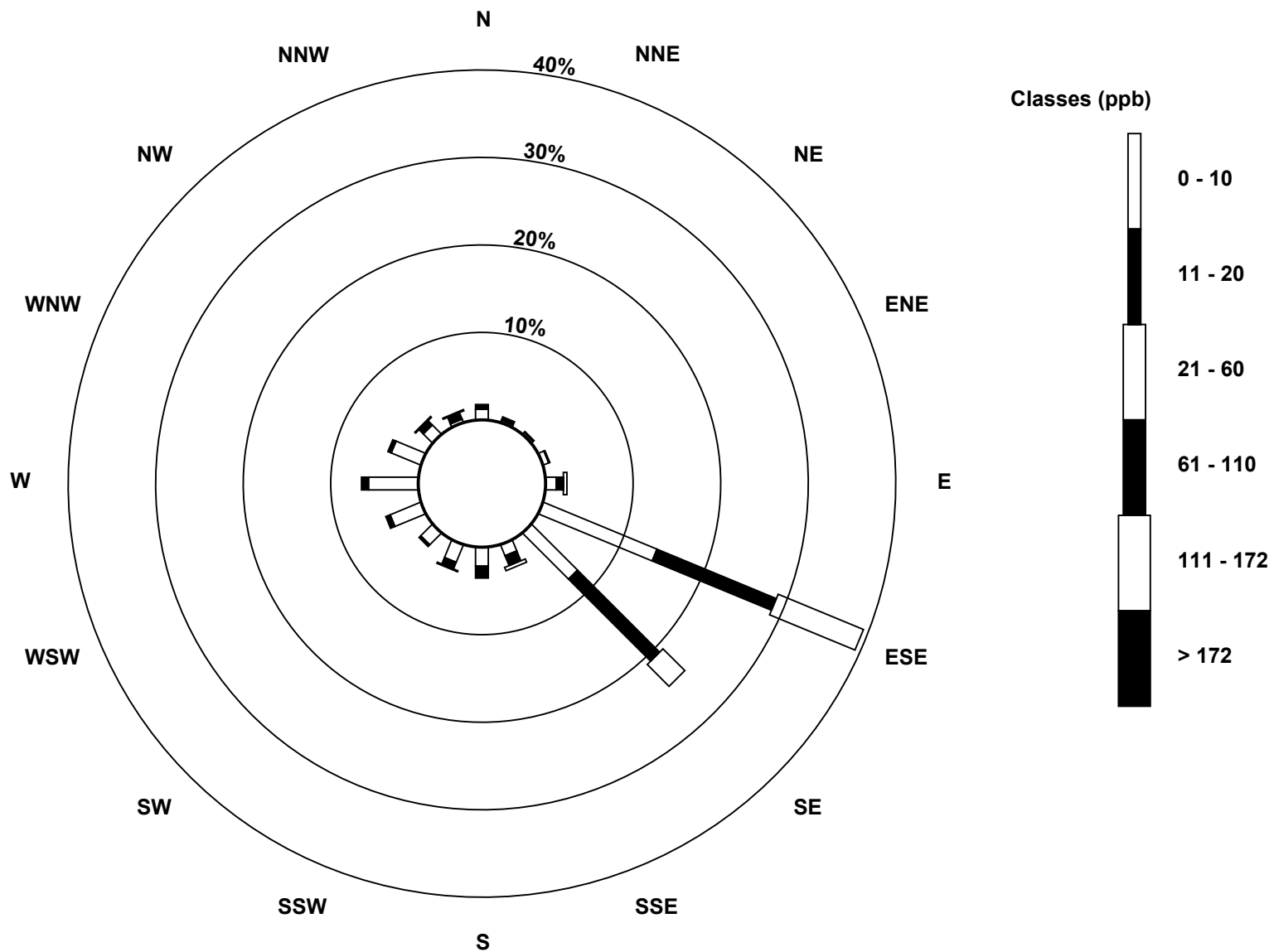


West Central Airshed Society

Rose

Nitrogen Dioxide (NO₂) - ppb

Fox Creek - December 2015

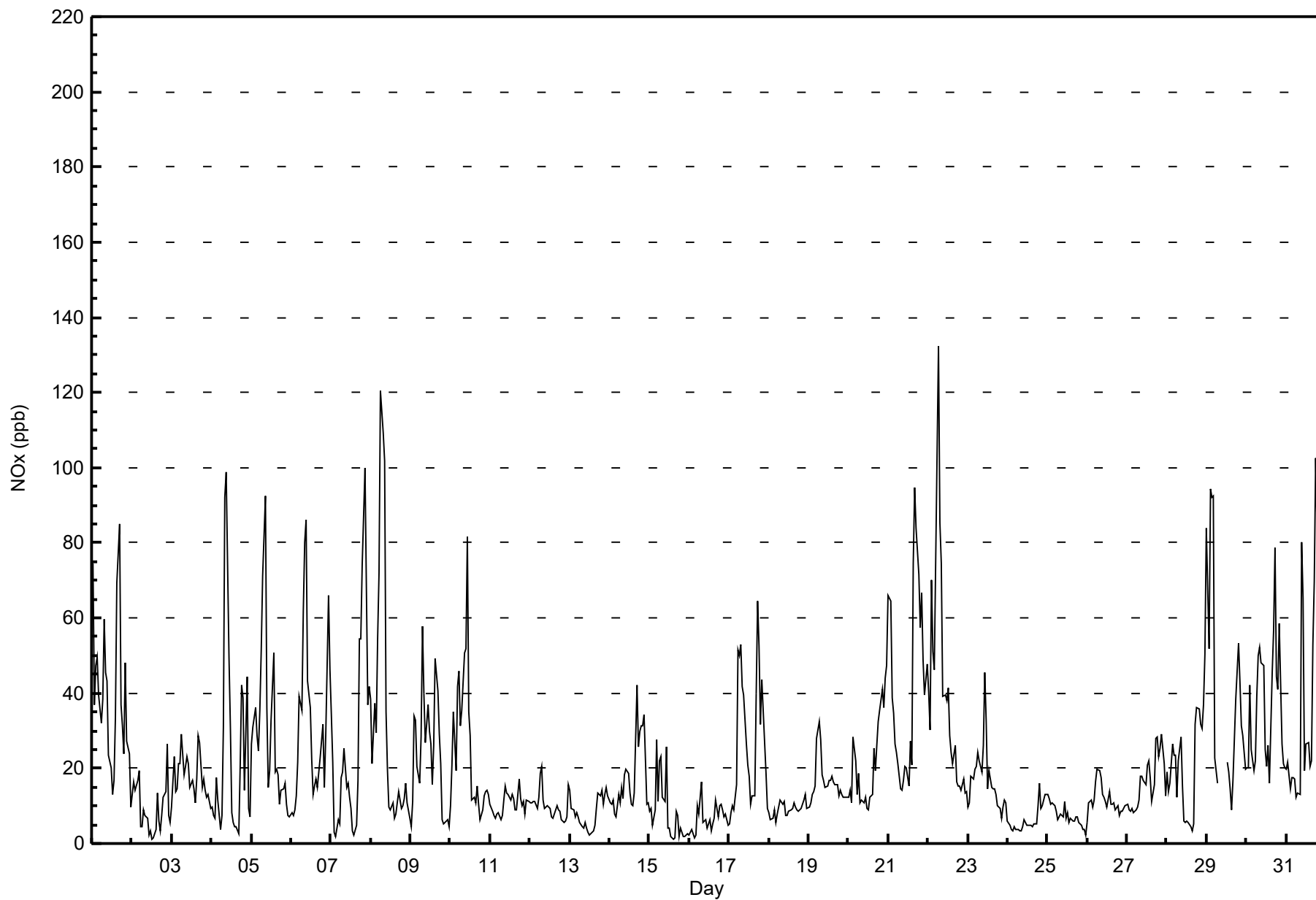


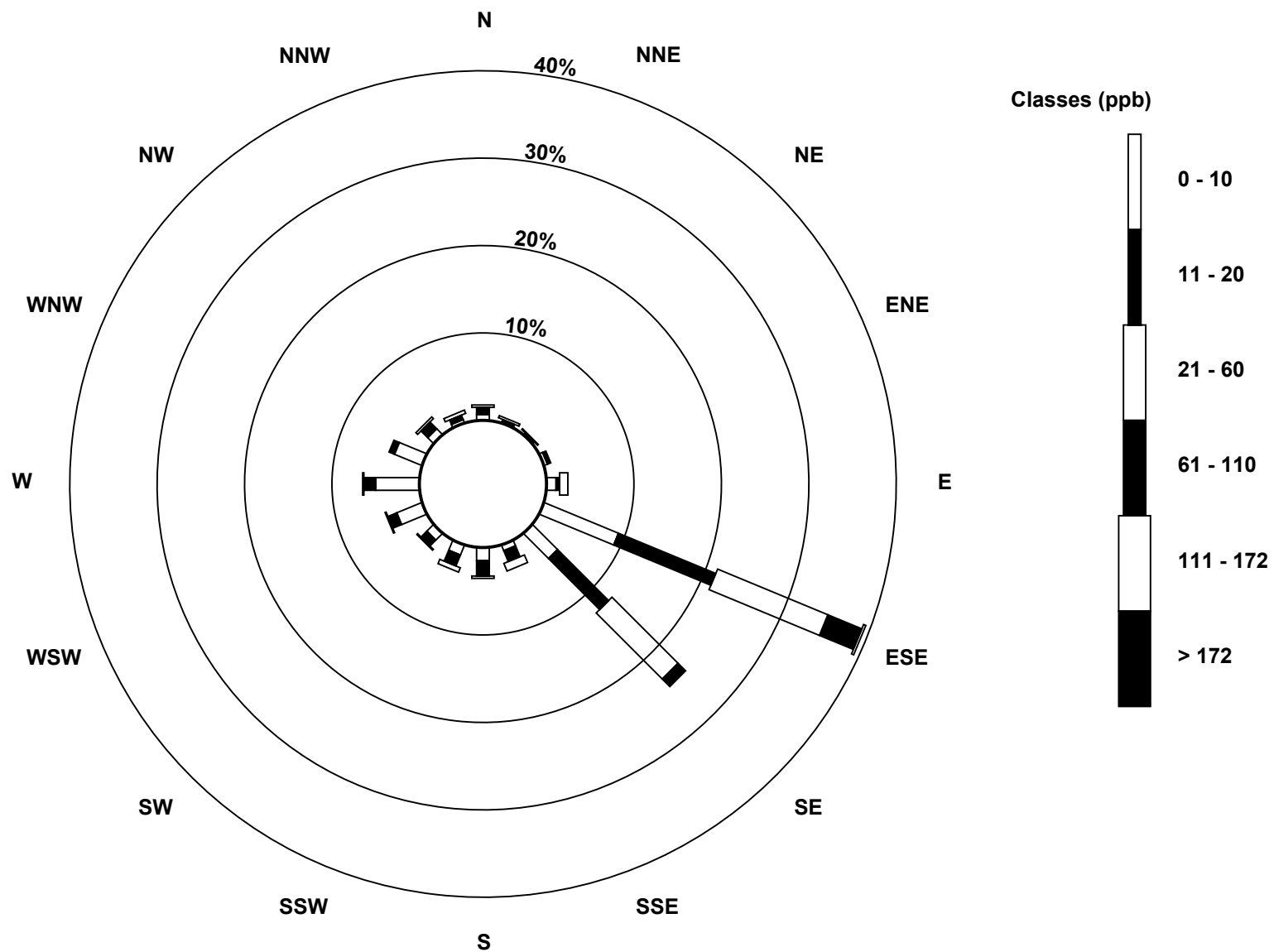


WCAS - Fox Creek
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2015

Maximum Value: 132.45 ppb on Dec 22 07:00 Maximum Daily Average: 42.10 ppb on Dec 21																						Hours in Service: 744 Hours of Data: 739				
Minimum Value: 1.0 ppb on Dec 2 13:00 Minimum Daily Average: 6.39 ppb on Dec 24 Maximum Diurnal Average: 31.43 ppb at hour 9 Minimum Diurnal Average: 12.27 ppb at hour 15 Monthly Average: 21.535 ppb Percentiles: P₁ = 1.8 P₁₀ = 5.4 Q₁ = 9.1 Median = 14.3 Q₃ = 27.1 P₉₀ = 47.3 P₉₉ = 98.2																						Hours of Missing Data: 5 Hours of Calibration: 5 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	74.7	36.9	47.3	49.7	39.7	31.9	38.3	59.7	45.3	43.2	23.6	20.2	13.1	16.9	33.4	69.4	85.0	36.8	31.4	24.0	48.1	27.2	23.8	9.5	38.71	84.97
2-Dec	12.9	16.5	14.1	16.7	19.5	4.4	4.7	8.9	7.4	6.6	2.2	3.2	1.0	1.5	3.6	13.3	5.9	3.4	7.5	12.5	13.7	26.3	7.6	5.7	9.12	26.33
3-Dec	9.8	23.0	13.8	14.6	21.1	21.1	29.1	18.3	20.5	23.2	21.3	15.0	16.7	14.4	10.8	17.1	28.8	26.7	14.9	17.3	14.3	12.4	12.9	9.3	17.77	29.06
4-Dec	9.7	7.4	6.6	17.4	11.4	3.7	7.4	31.0	92.0	98.9	49.6	30.8	8.1	5.5	4.3	4.7	2.8	20.9	42.0	38.7	14.4	44.5	9.4	7.0	23.68	98.91
5-Dec	26.6	30.9	36.2	28.9	24.7	35.3	51.6	71.3	92.5	36.1	15.0	19.3	32.7	50.9	19.2	19.7	18.4	10.5	14.0	14.5	16.1	10.6	7.5	7.2	28.74	92.48
6-Dec	8.0	7.5	8.9	12.5	21.8	39.0	35.6	62.0	80.2	86.1	43.4	36.3	22.4	13.1	15.3	17.1	15.0	22.7	27.3	31.7	14.9	28.7	65.9	46.3	31.74	86.10
7-Dec	34.5	21.5	3.0	1.7	6.3	5.3	17.4	19.1	25.4	15.0	16.0	12.4	9.4	3.3	2.2	4.7	16.9	54.4	54.5	74.2	99.8	67.5	37.0	41.8	26.81	99.85
8-Dec	38.2	21.2	37.2	29.4	54.5	72.0	120.5	109.1	101.7	34.9	19.9	9.8	9.0	11.0	6.6	7.8	10.9	13.8	9.4	10.1	12.1	15.9	10.7	6.6	32.18	120.54
9-Dec	4.6	11.1	33.8	32.6	20.6	16.0	28.2	57.6	39.9	26.7	37.0	30.0	26.6	15.5	26.2	49.4	40.5	29.1	21.1	6.2	5.3	6.1	6.4	4.5	23.96	57.62
10-Dec	10.3	20.8	34.9	19.4	41.7	45.7	31.1	35.3	50.9	51.7	81.5	35.0	28.8	11.4	12.4	10.9	15.3	10.6	6.3	8.8	12.8	13.6	14.2	13.2	25.70	81.52
11-Dec	10.6	8.6	7.5	6.8	7.8	8.2	6.5	7.4	11.7	15.3	13.3	13.1	11.5	13.0	11.9	8.9	8.9	17.3	12.1	10.0	11.0	7.9	11.6	11.0	10.49	17.30
12-Dec	10.8	10.7	11.3	11.1	9.3	12.3	18.8	20.6	11.7	9.4	10.2	9.8	9.1	7.0	6.6	8.8	10.2	8.9	8.6	6.5	5.7	6.0	7.1	15.7	10.27	20.64
13-Dec	14.3	9.2	9.0	7.0	8.3	7.1	5.6	4.3	4.2	5.7	4.3	3.1	2.3	2.9	3.3	4.8	9.2	13.3	12.7	14.2	10.3	13.1	14.9	12.6	8.15	14.88
14-Dec	10.8	10.6	11.7	7.7	6.9	13.2	11.0	15.0	11.8	18.2	19.9	18.6	13.6	10.4	10.2	13.3	42.0	25.7	29.7	31.2	31.4	34.2	10.3	10.7	17.43	41.97
15-Dec	8.4	9.5	4.7	9.1	27.6	11.1	22.1	23.2	12.2	11.2	25.7	4.0	4.0	1.7	1.3	1.6	8.5	7.5	1.9	4.1	1.8	2.0	2.3	2.6	8.67	27.58
16-Dec	2.3	3.8	2.6	1.6	2.3	10.0	8.0	16.4	5.8	5.9	6.2	4.1	6.3	3.4	5.3	6.8	11.6	7.1	10.2	10.5	9.0	7.3	7.8	5.0	6.64	16.41
17-Dec	5.2	8.2	10.1	8.9	15.5	51.6	50.0	52.9	41.6	39.6	26.7	20.9	18.1	10.3	12.5	12.8	39.8	64.4	52.4	31.8	43.5	26.9	18.5	9.3	27.98	64.37
18-Dec	8.0	6.3	6.8	9.0	5.5	7.9	9.6	11.4	10.5	11.2	7.5	7.6	8.5	9.1	9.3	10.8	9.7	9.1	8.6	9.3	10.5	11.7	13.2	9.5	9.19	13.16
19-Dec	9.8	10.8	13.0	13.9	15.1	28.0	32.5	27.5	18.3	16.7	15.0	15.2	16.9	16.9	18.0	16.5	15.5	15.6	12.7	14.1	12.9	12.1	12.3	12.3	16.31	32.50
20-Dec	12.3	14.2	10.7	28.5	22.1	13.0	18.8	11.0	11.4	11.0	12.4	9.2	9.1	12.5	13.0	25.2	19.6	26.2	32.5	35.6	40.9	36.2	43.9	47.3	21.52	47.28
21-Dec	66.2	64.3	38.9	34.6	26.5	24.3	21.1	14.4	14.2	16.7	20.6	20.1	15.3	27.3	20.8	74.6	94.7	84.0	71.4	57.5	66.6	49.0	39.5	47.9	42.10	94.69
22-Dec	40.1	30.2	70.3	51.2	46.2	104.0	132.5	85.5	74.6	39.2	39.5	38.2	41.2	28.6	24.2	21.4	26.2	16.4	15.2	15.4	14.3	17.0	13.3	13.9	41.60	132.45
23-Dec	9.9	10.8	17.8	17.1	19.8	20.5	24.2	22.0	18.9	26.2	45.4	33.0	14.5	19.4	15.0	14.5	14.5	12.9	10.1	9.3	6.9	9.7	11.7	11.0	17.29	45.43
24-Dec	6.1	4.7	3.8	3.4	4.4	3.8	3.7	3.4	3.3	4.5	6.5	4.7	4.8	4.8	4.7	4.5	5.2	5.3	10.0	15.9	9.3	10.2	13.2	12.9	6.39	15.94
25-Dec	13.0	11.8	10.3	10.8	10.1	8.8	6.4	7.0	7.8	7.3	11.0	6.6	8.4	5.7	6.6	6.0	6.1	7.1	7.0	5.7	4.7	3.9	3.6	2.1	7.41	12.96
26-Dec	5.7	11.0	11.4	9.8	11.7	16.4	19.8	19.5	17.4	13.2	12.4	11.1	9.7	13.6	10.4	10.6	10.9	8.9	10.0	7.3	8.7	8.6	9.2	10.2	11.56	19.77
27-Dec	10.6	8.9	8.6	9.3	8.1	8.8	9.8	11.5	17.9	17.7	16.7	15.6	20.8	22.1	17.7	11.2	15.6	27.8	28.4	23.2	25.3	29.0	21.3	12.8	16.62	29.02
28-Dec	19.1	13.9	16.0	26.3	23.3	23.5	12.4	22.1	28.4	15.4	5.9	5.6	5.9	5.5	4.5	3.5	5.2	31.5	36.4	35.9	31.8	30.7	36.9	50.2	20.40	50.20
29-Dec	83.8	51.9	94.2	92.0	92.4	22.6	16.1	C	C	C	C	C	21.6	19.1	14.5	8.9	16.8	38.4	45.9	53.2	43.0	31.5	28.9	19.8	41.82	94.22
30-Dec	20.3	20.3	42.0	24.9	19.3	21.9	39.0	50.0	52.3	48.1	47.5	25.0	20.6	26.0	16.2	45.5	56.8	78.8	44.5	41.1	58.6	26.3	21.1	20.3	36.10	78.82
31-Dec	19.6	21.7	14.4	17.7	17.5	17.0	12.5	13.2	13.2	80.3	65.1	19.3	26.5	26.7	20.4	22.0	53.1	69.6	102.5	62.8	48.0	43.3	40.4	24.8	35.50	102.54
19.89 17.35 21.00 20.11 21.32 22.85 27.23 30.37 31.43 27.83 24.03 16.56 14.73 13.85 12.27 17.63 23.22 25.96 25.53 23.63 24.06 21.60 18.59 16.55																								Diurnal Average		
83.82 64.33 94.22 91.99 92.35 103.97 132.45 109.14 101.70 98.91 81.52 38.19 41.21 50.89 33.43 74.61 94.69 83.99 102.54 74.17 99.85 67.52 65.91 50.20																								Diurnal Maximum		
C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb																										



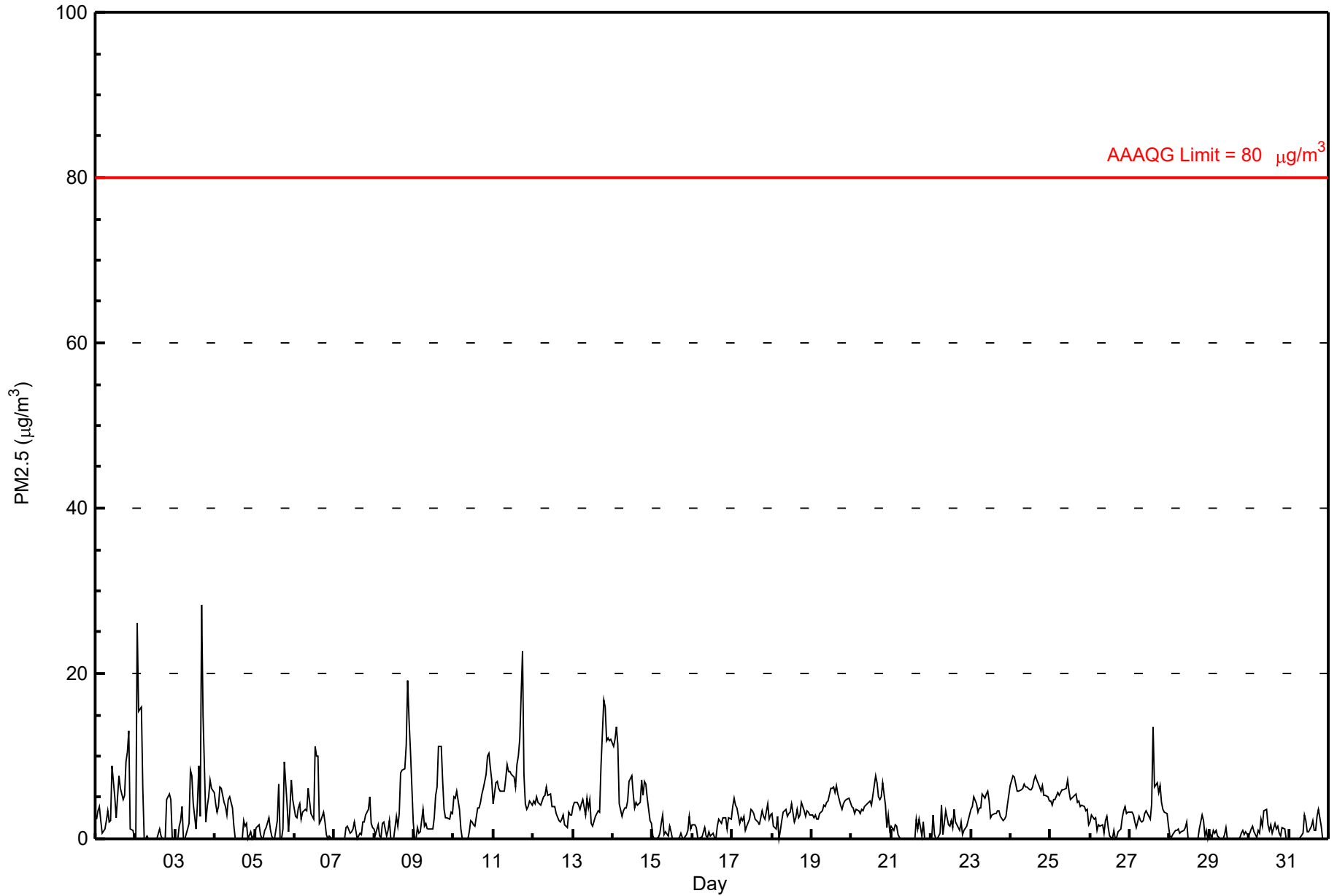


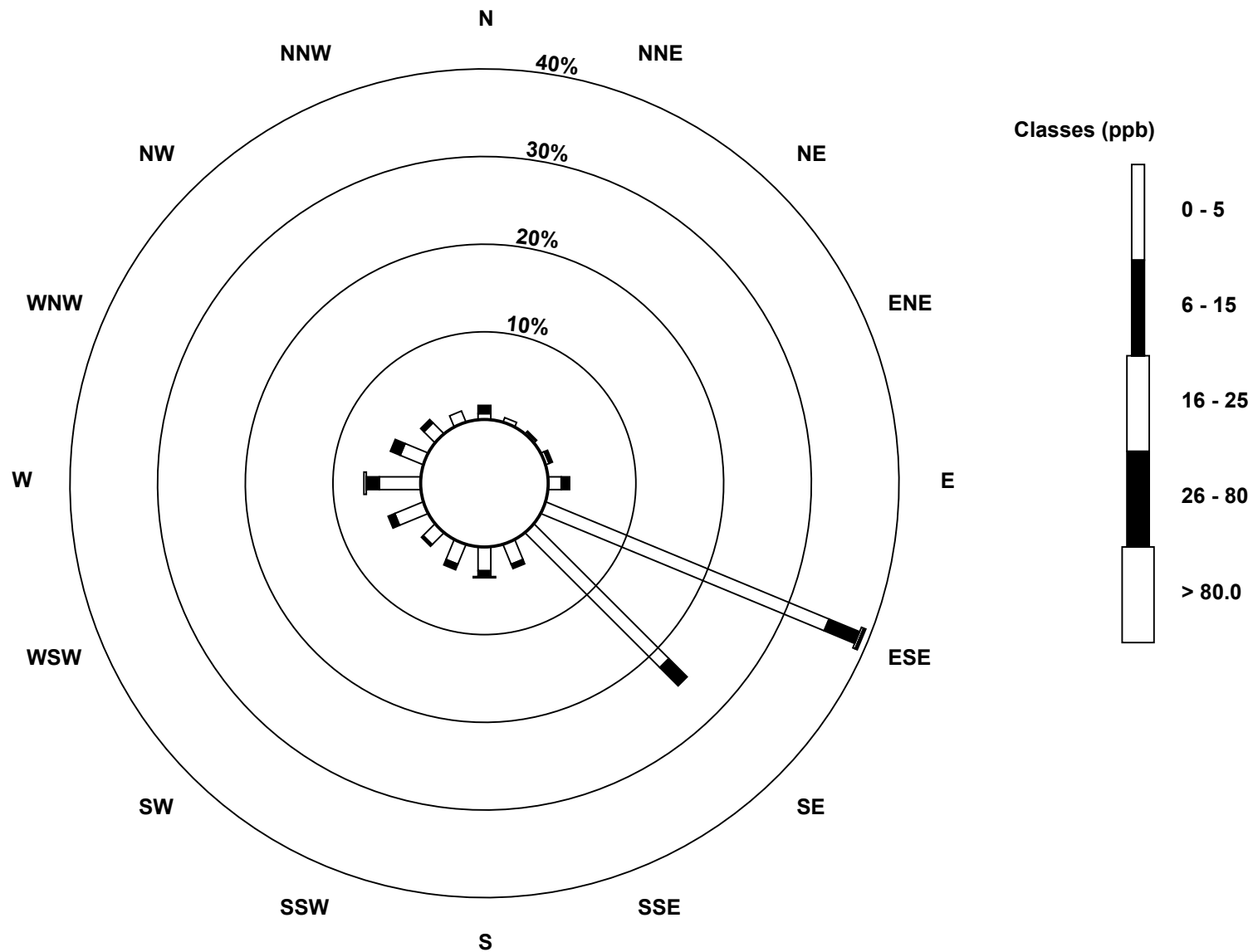


WCAS - Fox Creek
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2015

Maximum Value: 28.33 µg/m ³ on Dec 3 17:00		Maximum Daily Average: 7.38 µg/m ³ on Dec 11		Hours in Service: 744																						
Minimum Value: 0.0 µg/m ³ on Dec 2 00:00		Minimum Daily Average: 0.40 µg/m ³ on Dec 29		Hours of Data: 741																						
Maximum Diurnal Average: 4.38 µg/m ³ at hour 18		Minimum Diurnal Average: 2.12 µg/m ³ at hour 6		Hours of Missing Data: 3																						
Monthly Average: 3.187 µg/m ³		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.9 Median = 2.5 Q ₃ = 4.5 P ₉₀ = 6.6 P ₉₉ = 15.8		Hours of Calibration: 2																						
				Percent Operational Time: 99.9																						
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	2.4	3.4	3.9	2.3	0.7	1.2	2.2	3.4	2.0	2.2	8.8	5.1	2.5	5.1	7.6	6.1	4.8	5.2	9.3	10.5	13.1	1.2	0.9	0.0	4.33	13.11
2-Dec	0.1	26.1	15.4	15.9	6.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.3	0.0	0.0	0.0	4.7	5.4	4.7	0.2	0.0	3.36	26.10
3-Dec	0.0	0.0	1.6	2.1	3.9	0.0	0.0	1.2	1.8	8.3	7.7	4.3	1.3	4.3	8.8	2.8	28.3	14.9	2.1	3.9	5.0	7.2	6.2	5.5	5.05	28.33
4-Dec	4.2	3.3	4.0	6.2	6.1	4.4	3.9	2.8	4.8	5.0	3.8	1.5	0.0	0.0	0.0	0.0	0.0	2.2	1.6	1.9	0.1	0.9	0.0	0.3	2.38	6.22
5-Dec	0.9	1.3	1.6	0.6	0.0	0.1	1.0	1.3	2.5	1.1	0.4	0.0	0.0	2.1	6.6	0.0	0.0	1.1	9.2	4.1	0.9	3.7	7.2	4.8	2.10	9.25
6-Dec	2.7	2.5	3.7	4.2	2.4	3.2	3.6	3.4	6.1	4.7	3.0	2.4	11.2	9.9	10.1	1.9	2.2	3.2	2.0	0.5	0.0	0.3	0.0	0.0	3.46	11.17
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.5	0.6	0.9	1.1	2.0	1.1	0.0	0.7	0.5	2.1	2.1	2.9	3.5	5.1	1.8	1.4	1.19	5.15
8-Dec	1.3	0.6	1.7	0.3	0.2	1.9	2.0	0.4	1.0	2.2	0.0	0.0	0.0	2.7	1.4	3.1	7.9	8.3	8.5	11.4	19.1	14.4	10.6	1.9	4.20	19.11
9-Dec	0.0	0.0	1.3	0.7	0.8	3.5	1.5	1.8	1.1	1.1	1.2	1.2	2.6	5.3	6.2	11.2	11.2	6.9	3.6	2.5	2.5	2.4	3.2	3.1	3.13	11.23
10-Dec	5.0	5.0	5.8	3.5	1.2	0.0	0.0	0.0	0.0	0.8	2.3	2.0	1.7	1.5	3.7	3.7	4.4	5.4	6.1	7.8	10.0	10.4	8.6	7.1	4.00	10.42
11-Dec	4.3	6.9	6.9	6.2	5.7	5.8	5.7	7.3	8.9	8.1	8.1	7.8	7.4	6.3	9.0	10.1	12.0	22.7	7.8	4.2	3.5	3.9	4.5	4.0	7.38	22.71
12-Dec	4.6	4.2	5.0	4.3	4.0	4.5	5.1	5.2	6.3	5.3	5.4	3.9	3.8	3.8	3.0	2.2	2.1	2.4	2.9	1.7	1.4	3.3	2.9	2.8	3.77	6.32
13-Dec	3.9	4.5	4.5	4.1	3.6	4.3	4.7	2.9	4.8	3.7	4.7	1.9	1.6	2.8	3.0	3.3	3.2	8.9	16.7	15.9	11.8	12.2	11.9	12.0	6.29	16.74
14-Dec	11.2	12.0	13.5	11.3	4.2	2.7	3.3	3.7	3.8	4.5	7.0	7.7	5.5	3.8	4.4	4.1	4.4	7.2	5.3	7.0	6.7	4.9	2.1	1.9	5.93	13.53
15-Dec	0.3	0.0	0.0	0.1	0.6	1.9	2.9	0.5	0.9	0.4	1.6	0.9	0.0	0.0	0.0	0.0	0.1	0.7	0.2	0.0	0.5	1.0	2.7	1.2	0.69	2.93
16-Dec	1.8	1.8	1.3	0.2	0.0	0.2	0.2	1.3	0.4	0.2	0.8	0.4	0.7	0.1	0.0	1.5	2.3	1.8	2.6	2.6	2.5	1.2	2.5	2.3	1.19	2.62
17-Dec	3.9	5.0	4.0	3.7	1.9	2.5	2.1	2.7	1.0	1.6	2.4	3.6	3.4	3.0	2.4	2.0	1.6	2.6	3.4	2.8	2.5	4.3	2.4	2.9	2.82	4.97
18-Dec	3.0	1.5	1.2	2.8	0.0	1.0	2.2	3.3	3.6	2.7	3.1	3.2	4.3	2.0	2.6	3.6	2.6	2.9	4.4	3.4	2.8	3.4	3.3	3.0	2.74	4.37
19-Dec	2.9	2.6	2.8	2.4	2.4	3.0	3.4	4.0	4.0	4.4	4.6	6.0	6.2	6.3	5.6	6.4	5.4	4.1	3.6	4.3	4.6	4.7	5.0	4.4	4.29	6.37
20-Dec	3.9	3.7	3.0	3.5	3.4	3.1	3.6	3.4	3.8	4.3	4.4	4.6	4.0	5.2	7.7	6.8	5.2	4.8	5.1	6.8	4.0	1.3	2.9	1.0	4.15	7.70
21-Dec	1.5	1.0	1.7	1.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.2	2.4	0.4	2.0	0.0	0.0	0.0	0.0	0.63	2.40
22-Dec	0.0	2.9	0.5	0.0	0.0	0.7	4.0	0.4	1.9	3.4	1.7	1.5	2.1	1.3	3.5	2.0	1.4	1.0	2.0	0.5	1.1	1.5	2.2	2.8	1.60	4.03
23-Dec	3.5	3.9	5.1	4.3	3.2	3.8	3.7	5.5	5.0	5.5	5.7	4.5	2.6	2.8	3.1	3.1	3.3	3.3	2.8	2.2	2.3	2.7	4.0	5.3	3.81	5.71
24-Dec	6.4	7.7	7.5	6.7	5.8	5.7	6.0	6.2	6.6	6.3	6.3	5.9	5.9	6.3	7.2	7.6	7.1	6.3	5.8	6.5	5.3	5.3	5.1	4.5	6.24	7.71
25-Dec	4.5	4.1	4.7	4.8	5.6	5.2	5.5	5.9	6.1	7.1	5.8	4.8	4.9	5.1	5.5	4.4	4.6	3.8	4.0	3.9	3.5	3.5	1.7		4.79	7.08
26-Dec	2.1	2.9	2.3	2.6	1.0	1.7	1.5	1.8	0.6	2.1	2.7	1.4	0.3	0.0	1.0	0.0	0.1	0.8	1.2	2.5	3.5	4.0	3.0	3.2	1.75	3.97
27-Dec	3.3	3.3	2.8	2.1	1.4	2.6	2.2	2.1	2.3	3.1	3.4	2.7	2.4	4.3	13.6	6.2	6.7	5.6	6.5	4.5	3.6	3.3	3.0	1.6	3.85	13.55
28-Dec	0.3	0.2	0.5	1.0	1.1	1.1	0.7	0.9	1.0	1.3	2.1	0.0	C	C	0.0	0.0	0.0	0.0	1.2	3.0	2.3	0.3	0.9	0.1	0.81	2.96
29-Dec	0.8	0.2	1.1	0.7	1.0	0.4	0.0	0.0	0.0	0.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	1.0	0.5	0.8	0.4	0.40	1.42
30-Dec	0.7	1.2	1.5	0.9	0.1	0.9	0.7	2.3	1.5	3.3	3.5	1.6	1.1	1.7	0.7	1.9	1.1	1.4	0.6	0.3	1.4	1.3	0.0	0.0	1.25	3.51
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	2.8	2.2	0.9	0.9	1.6	2.3	1.1	1.0	2.6	3.5	1.5	0.0	0.0	0.0	UC	0.92	3.53
																								Diurnal Average		
																								Diurnal Maximum		
2.56 3.60 3.52 3.19 2.16 2.12 2.32 2.44 2.70 3.09 3.43 2.65 2.60 2.93 3.87 3.21 4.02 4.38 4.03 4.07 4.00 3.64 3.27 2.64																								Diurnal Average		
11.20 26.10 15.42 15.85 6.18 5.84 5.98 7.35 8.91 8.29 8.81 7.85 11.17 9.93 13.55 11.23 28.33 22.71 16.74 15.89 19.11 14.41 11.93 11.98																								Diurnal Maximum		
C - Calibration UO - Unstable Operation Alberta Ambient Air Quality Objectives (AAQO): 1-hr 80 ul/m ³ 24-hr 30 ul/m ³																										



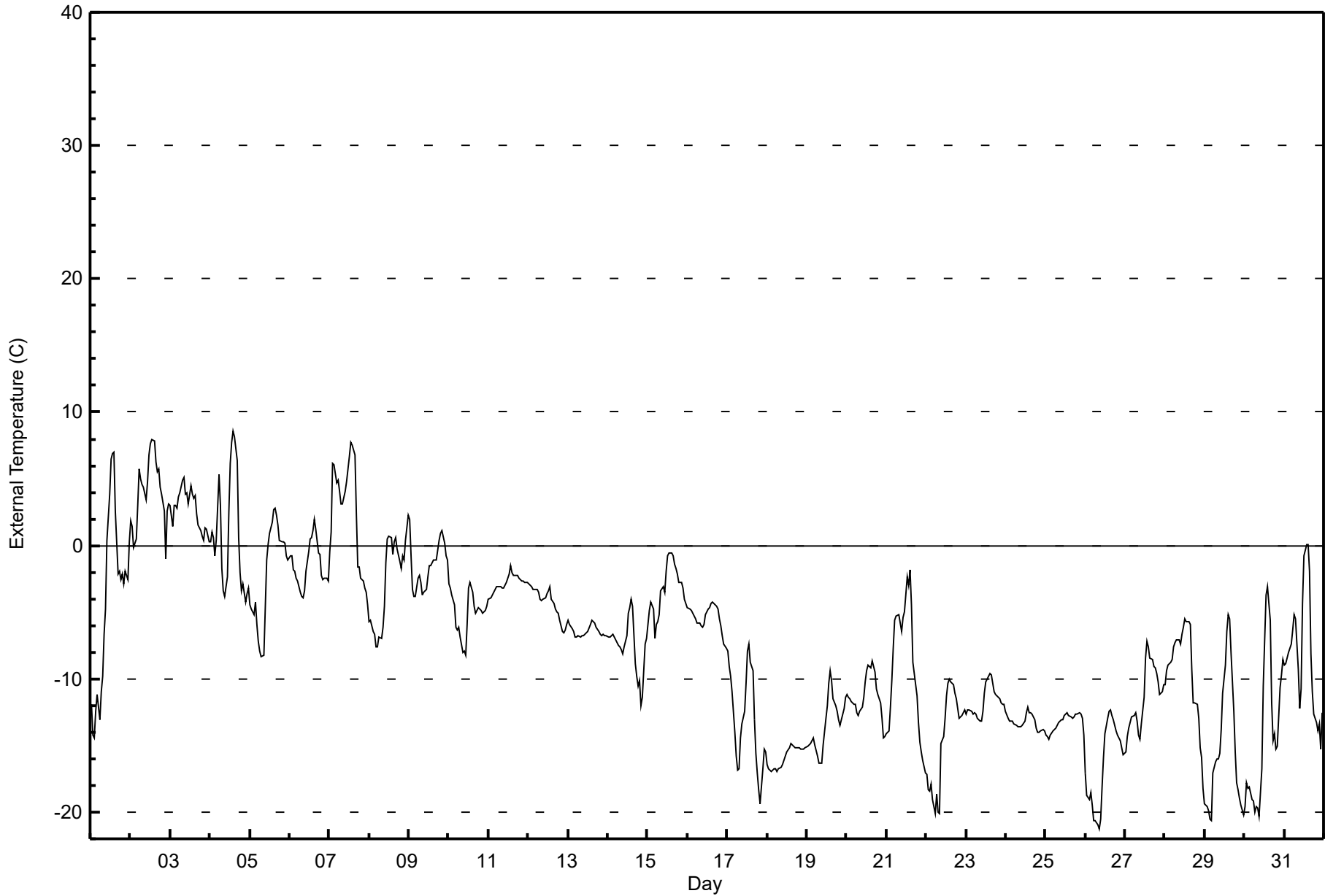




WCAS - Fox Creek
Summary of Hourly Averages

External Temperature (ET) - C
December 2015

Maximum Value: 8.59 C on Dec 4 15:00 Maximum Daily Average: 4.08 C on Dec 2																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -21.3 C on Dec 26 09:00 Minimum Daily Average: -16.53 C on Dec 26 Maximum Diurnal Average: -3.56 C at hour 15 Minimum Diurnal Average: -8.79 C at hour 9 Monthly Average: -7.325 C Percentiles: P₁ = -20.3 P₁₀ = -15.6 Q₁ = -12.8 Median = -6.8 Q₃ = -2.7 P₉₀ = 1.4 P₉₉ = 7.6																										
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	-11.9	-14.2	-14.5	-12.5	-11.2	-13.0	-11.0	-9.8	-6.6	-4.8	0.4	3.8	6.5	6.9	7.0	2.6	-2.2	-1.9	-2.6	-2.2	-2.9	-1.9	-2.5	0.3	-4.09	7.02
2-Dec	1.8	1.4	-0.2	0.5	3.0	5.7	5.0	4.6	4.4	3.4	4.8	6.8	7.7	8.0	7.9	6.2	5.6	5.7	4.4	3.8	2.6	-1.0	2.6	3.1	4.08	7.97
3-Dec	3.0	1.5	3.0	3.0	2.8	3.6	3.9	4.9	5.1	3.9	4.0	3.1	4.5	3.8	3.6	3.7	2.4	1.5	1.1	0.7	0.4	1.3	1.2	0.3	2.76	5.09
4-Dec	0.3	1.1	0.6	-0.8	0.3	5.3	3.0	-1.8	-3.4	-3.9	-2.4	2.5	6.2	7.7	8.6	8.2	6.4	0.6	-2.0	-3.4	-2.9	-4.2	-3.6	-3.2	0.80	8.59
5-Dec	-4.5	-4.8	-5.1	-4.3	-5.9	-7.2	-7.9	-8.4	-8.2	-4.7	-1.1	0.1	0.9	1.7	2.7	2.8	2.2	1.5	0.4	0.2	0.3	0.2	-0.8	-1.1	-2.12	2.76
6-Dec	-0.7	-0.8	-1.8	-1.9	-2.5	-2.7	-3.5	-3.8	-3.9	-3.4	-1.9	-0.4	0.5	0.6	1.1	1.9	1.2	-0.5	-0.7	-2.2	-2.5	-2.4	-2.5	-2.6	-1.48	1.91
7-Dec	-0.5	1.0	6.1	6.1	4.7	4.9	4.1	3.1	3.1	4.1	4.7	5.8	6.6	7.8	7.6	6.8	2.3	-1.6	-1.6	-2.4	-2.7	-3.2	-3.5	-4.5	2.45	7.79
8-Dec	-5.7	-5.6	-6.4	-6.7	-7.6	-7.6	-6.9	-7.0	-6.1	-4.6	-1.3	0.5	0.7	0.6	-0.6	0.3	0.6	-0.3	-1.2	-1.7	-0.7	-1.0	0.3	2.3	-2.75	2.28
9-Dec	2.0	-0.8	-3.3	-3.8	-3.8	-2.4	-2.2	-2.7	-3.7	-3.6	-3.3	-2.3	-1.5	-1.5	-1.3	-1.1	-1.1	-0.4	0.4	0.9	1.1	0.1	-0.8	-1.1	-1.50	1.99
10-Dec	-2.9	-3.1	-3.7	-4.4	-6.1	-6.3	-6.2	-6.9	-8.1	-7.9	-8.2	-5.9	-3.2	-2.7	-3.6	-4.6	-5.1	-4.9	-4.6	-4.8	-5.1	-5.0	-4.8	-4.5	-5.11	-2.73
11-Dec	-4.0	-3.9	-3.7	-3.5	-3.3	-3.1	-3.1	-3.1	-3.2	-3.2	-3.0	-2.7	-2.1	-1.5	-2.0	-2.3	-2.2	-2.3	-2.4	-2.5	-2.6	-2.7	-2.7	-2.8	-2.84	-1.49
12-Dec	-2.9	-2.9	-3.1	-3.3	-3.3	-3.3	-3.5	-4.1	-4.1	-4.0	-3.9	-3.6	-3.4	-3.1	-4.0	-4.3	-4.7	-5.0	-5.1	-5.7	-6.4	-6.5	-6.3	-5.9	-4.27	-2.85
13-Dec	-5.7	-5.9	-6.2	-6.5	-6.8	-6.9	-6.7	-6.9	-6.8	-6.8	-6.6	-6.5	-6.4	-5.9	-5.6	-5.8	-5.8	-6.1	-6.5	-6.6	-6.7	-6.7	-6.7	-6.7	-6.42	-5.63
14-Dec	-6.8	-6.9	-6.8	-6.7	-6.9	-7.3	-7.5	-7.6	-7.8	-8.1	-7.6	-6.8	-5.1	-4.7	-4.0	-4.5	-8.8	-9.8	-10.6	-10.1	-12.0	-11.4	-7.4	-7.0	-7.59	-4.00
15-Dec	-5.9	-4.9	-4.2	-4.7	-6.9	-5.9	-5.8	-5.2	-3.4	-3.1	-3.5	-2.0	-0.7	-0.6	-0.5	-0.8	-1.4	-1.7	-2.2	-2.7	-2.8	-3.2	-4.0	-4.4	-3.35	-0.51
16-Dec	-4.7	-4.8	-4.9	-5.1	-5.3	-5.5	-5.9	-5.8	-6.0	-6.1	-5.9	-5.2	-4.8	-4.7	-4.4	-4.3	-4.4	-4.6	-4.8	-5.5	-6.0	-6.8	-7.4	-7.7	-5.43	-4.28
17-Dec	-8.0	-9.1	-9.8	-10.9	-14.0	-15.8	-16.8	-16.7	-14.5	-13.3	-12.4	-10.3	-7.9	-7.3	-8.7	-9.4	-13.1	-15.5	-17.1	-18.3	-19.3	-16.7	-15.2	-15.5	-13.16	-7.35
18-Dec	-16.4	-16.7	-16.9	-16.9	-16.7	-16.8	-16.9	-16.7	-16.7	-16.5	-16.2	-15.8	-15.5	-15.1	-14.9	-14.9	-15.1	-15.1	-15.2	-15.2	-15.2	-15.3	-15.2	-15.2	-15.88	-14.89
19-Dec	-15.1	-15.0	-14.9	-14.6	-14.5	-15.0	-15.8	-16.3	-16.3	-16.3	-15.0	-12.9	-12.0	-10.3	-9.4	-10.2	-11.5	-12.0	-12.4	-13.0	-13.5	-13.0	-12.3	-11.4	-13.45	-9.42
20-Dec	-11.2	-11.4	-11.5	-11.7	-12.0	-11.9	-12.5	-12.7	-12.4	-12.1	-11.3	-10.2	-9.4	-8.9	-9.2	-8.6	-9.1	-9.5	-10.8	-11.2	-11.8	-13.0	-14.4	-14.3	-11.29	-8.61
21-Dec	-14.1	-13.9	-12.1	-10.1	-7.7	-5.6	-5.3	-5.2	-5.9	-6.4	-5.4	-5.0	-2.4	-2.9	-1.9	-4.5	-8.7	-9.6	-11.2	-13.3	-14.8	-15.5	-16.1	-17.1	-8.95	-1.87
22-Dec	-17.2	-18.3	-18.4	-17.9	-19.1	-20.1	-18.7	-20.0	-20.1	-14.9	-14.4	-13.0	-11.3	-10.3	-10.1	-10.2	-10.5	-11.1	-11.5	-12.2	-13.0	-12.7	-12.5	-12.3	-14.57	-10.06
23-Dec	-12.6	-12.3	-12.3	-12.4	-12.6	-12.6	-12.7	-13.0	-13.1	-13.2	-12.4	-11.1	-10.3	-10.0	-9.6	-9.7	-10.3	-10.9	-11.2	-11.3	-11.5	-11.8	-11.9	-12.0	-11.70	-9.61
24-Dec	-12.5	-13.0	-13.2	-13.1	-13.2	-13.4	-13.5	-13.6	-13.6	-13.6	-13.4	-13.2	-12.6	-12.1	-12.5	-12.6	-12.6	-13.0	-13.7	-14.0	-14.0	-13.9	-13.8	-13.9	-13.25	-12.14
25-Dec	-14.2	-14.4	-14.6	-14.3	-13.9	-13.8	-13.7	-13.4	-13.3	-13.0	-13.1	-12.8	-12.7	-12.5	-12.7	-12.9	-12.9	-12.9	-12.6	-12.6	-12.6	-12.6	-12.9	-14.3	-13.28	-12.52
26-Dec	-17.0	-18.7	-19.1	-18.6	-19.5	-20.7	-20.6	-21.0	-21.3	-20.5	-18.1	-15.9	-14.1	-12.9	-12.4	-12.3	-12.8	-13.1	-13.9	-14.2	-14.5	-14.6	-15.2	-15.7	-16.53	-12.35
27-Dec	-15.5	-14.3	-13.7	-13.3	-12.9	-12.8	-12.5	-13.2	-14.2	-14.5	-13.4	-11.4	-8.5	-7.2	-7.6	-8.5	-8.5	-9.1	-9.2	-9.6	-10.2	-11.2	-11.0	-10.4	-11.37	-7.22
28-Dec	-10.4	-9.4	-9.0	-8.8	-8.6	-7.6	-7.3	-7.1	-7.1	-7.4	-6.6	-6.1	-5.5	-5.7	-5.7	-6.0	-9.3	-11.8	-11.8	-11.9	-12.9	-15.2	-15.9	-18.2	-9.38	-5.47
29-Dec	-19.3	-19.6	-19.9	-20.5	-20.7	-17.1	-16.2	-16.0	-16.0	-15.6	-13.8	-11.1	-9.0	-6.4	-5.2	-5.5	-8.0	-12.4	-15.5	-17.8	-18.4	-19.0	-19.4	-20.3	-15.12	-5.15
30-Dec	-19.6	-17.8	-18.2	-18.1	-19.1	-19.2	-20.0	-19.6	-19.7	-20.3	-16.8	-10.6	-7.0	-3.7	-3.1	-5.6	-11.8	-14.6	-14.1	-15.3	-15.1	-10.6	-9.7	-8.6	-14.09	-3.10
31-Dec	-8.9	-8.8	-8.1	-7.7	-7.3	-6.3	-5.1	-5.5	-9.2	-12.3	-10.8	-4.4	-0.7	0.0	0.1	-2.0	-8.1	-11.0	-12.6	-13.3	-14.0	-13.4	-15.3	-12.5	-8.22	0.10
																								Diurnal Average		
																								Diurnal Maximum		





WCAS - Fox Creek
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2015

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	4.2	2.8	5.6	7.5	5.9	6.7	5.5	6.7	6.1	5.1	4.4	9.2	6.8	3.9	3.7	4.5	4.7	8.5	8.8	6.9	4.6	6.8	8.0	9.0	5.54	9.22
Dir	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SSW	SSW	SE	SE	ESE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SSW
2 Spd	6.6	10.9	8.4	8.2	9.7	13.8	13.3	9.2	9.3	1.6	4.8	4.3	19.1	15.9	8.7	6.1	8.0	13.7	9.3	8.4	3.6	3.1	12.3	9.6	6.48	19.13
Dir	SE	ESE	SE	ESE	SSE	S	S	SSW	SSW	NW	N	WSW	WSW	WSW	W	SW	SW	SSW	SSW	S	SSE	ESE	S	SSE	SSW	WSW
3 Spd	7.6	7.4	8.5	7.1	5.0	5.2	3.9	7.7	7.7	4.1	7.8	11.4	6.6	8.7	11.8	9.6	7.5	9.3	12.2	14.5	13.9	14.5	12.1	15.1	9.00	15.11
Dir	SE	ESE	ESE	SE	SE	SE	ESE	SE	ESE	E	E	ESE	E	ESE	SE	ESE	ESE	SE	ESE	ESE	ESE	ESE	SE	ESE	ESE	SE
4 Spd	11.8	10.4	10.3	7.7	5.8	8.0	3.4	1.1	2.3	2.8	4.8	4.8	7.3	7.5	10.8	9.4	10.0	6.0	3.7	4.5	5.1	4.3	10.2	4.9	4.80	11.81
Dir	SE	SE	SE	SE	S	W	NW	SE	ESE	ESE	ESE	S	S	S	SW	SW	SSW	S	SSE	SE	SE	ESE	SE	ESE	SSE	SE
5 Spd	3.6	3.6	4.1	3.8	3.1	3.8	4.0	3.7	5.2	6.6	5.4	4.6	5.5	6.6	5.3	6.2	6.0	10.7	9.5	10.7	9.4	10.9	11.7	12.2	6.43	12.15
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	SE	ESE	ESE	ESE	ESE
6 Spd	9.2	10.3	11.4	7.6	3.8	1.5	1.2	2.1	4.1	5.5	6.5	5.3	3.8	3.7	8.6	7.0	0.7	1.2	6.3	5.1	6.3	7.1	8.1	9.8	5.49	11.41
Dir	ESE	ESE	ESE	SE	SE	ESE	E	ESE	SE	SE	SE	SE	E	ENE	E	ESE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE
7 Spd	10.4	9.4	12.0	8.1	9.2	8.6	8.3	6.3	4.8	4.8	6.2	8.1	7.6	10.6	10.6	7.1	1.2	2.1	0.4	1.0	2.0	3.4	2.4	2.5	4.31	12.04
Dir	SE	SE	S	SE	SE	SE	SE	SSE	SSE	SE	S	SSW	SSW	WSW	WSW	WSW	S	SSW	NW	ESE	ESE	ESE	ESE	E	SSE	S
8 Spd	2.0	3.7	4.3	3.8	4.5	5.5	7.0	6.1	4.7	7.3	7.0	11.0	13.6	11.4	11.0	8.2	9.7	6.5	7.0	7.4	5.1	3.3	6.1	6.6	5.89	13.64
Dir	SSW	SSW	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	ESE	ESE	ESE	ESE	E	SE	SE	ESE	SE	SE	S	S	SSW	SW	SE	ESE
9 Spd	5.3	2.5	7.0	5.7	6.5	6.1	5.8	6.1	7.7	4.1	5.3	0.7	1.9	1.5	3.9	4.4	5.2	4.1	8.3	8.3	8.8	5.4	2.4	4.35	8.85	
Dir	SSW	SE	SE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	NNW	NW	SE	SE	SE	SSE	S	S	S	SE	SE	SE	SE	S
10 Spd	0.3	1.7	3.3	2.2	4.0	6.1	7.8	8.3	6.9	6.0	3.2	4.2	7.8	11.0	12.9	14.9	10.7	13.3	14.9	18.1	16.4	13.3	13.4	11.6	8.74	18.09
Dir	E	SE	ESE	ENE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
11 Spd	12.9	12.4	10.0	9.0	6.3	1.1	1.5	1.7	1.4	2.1	1.8	2.6	0.7	0.7	3.1	2.8	4.5	5.6	6.0	5.8	6.4	4.1	5.7	5.9	3.86	12.87
Dir	ESE	ESE	ESE	ESE	ESE	S	W	SW	SSE	SSW	SSE	SW	NW	WSW	N	NE	E	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE
12 Spd	6.9	7.1	7.9	7.5	8.8	8.8	8.7	8.5	8.0	8.6	12.7	10.2	11.4	14.0	16.0	15.1	14.4	16.5	15.1	21.9	20.9	17.8	18.9	19.6	12.62	21.87
Dir	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
13 Spd	19.7	19.9	19.1	18.7	16.0	16.8	14.6	13.9	10.5	9.5	8.4	8.0	7.0	2.6	2.3	3.7	3.6	4.8	5.2	4.2	3.7	2.6	3.1	3.2	6.21	19.90
Dir	ESE	ESE	ESE	ESE	E	ESE	ESE	E	E	ESE	E	ENE	ENE	E	NW	WNW	WNW	W	W	W	WNW	WSW	WSW	WSW	ESE	ESE
14 Spd	3.2	3.6	3.0	5.3	5.9	4.3	5.4	5.0	3.4	3.3	3.4	4.3	6.2	6.6	4.6	3.2	4.4	9.3	8.0	6.8	2.4	5.5	4.9	5.9	2.65	9.31
Dir	WSW	W	W	WNW	WSW	WSW	SW	SW	SSW	SSE	S	SSW	SSW	SW	SW	SSE	SE	SE	SE	ESE	E	ESE	ESE	SE	S	SE
15 Spd	6.5	6.2	5.8	7.1	5.6	6.5	4.1	5.8	3.1	0.6	3.8	12.6	9.7	10.1	10.0	9.8	8.6	7.5	7.2	7.8	9.1	7.7	8.2	9.5	3.63	12.64
Dir	SE	SE	SSE	SE	SE	SE	ESE	SE	SW	WNW	WSW	W	W	WNW	WNW	WNW	WNW	W	WNW	W	WNW	WNW	W	WSW	WSW	W
16 Spd	8.2	8.6	9.3	8.3	9.9	5.5	4.0	7.3	10.5	9.7	7.9	11.0	9.2	11.2	10.1	9.4	7.5	6.4	4.3	4.7	8.2	8.4	6.9	6.5	7.97	11.22
Dir	WSW	W	W	W	WSW	W	WSW	W	WSW	W	WSW	WSW	W	WSW	WSW	W	W	WSW	WSW	WSW	W	W	W	W	WSW	WSW
17 Spd	6.1	5.1	5.5	3.8	1.4	4.3	3.9	4.8	5.6	5.1	4.5	2.4	5.1	3.6	6.1	3.0	1.3	2.2	2.9	3.2	3.5	8.0	9.0	11.3	2.24	11.35
Dir	W	W	W	W	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SSW	NNW	NNE	NE	SSE	ESE	ESE	ESE	SE	SE	SE	ESE	SE	ESE
18 Spd	13.0	13.4	13.9	12.9	15.0	14.5	16.7	17.6	17.9	20.1	20.7	20.6	18.4	20.0	17.6	14.8	14.5	12.8	10.7	9.5	9.4	8.7	7.4	6.1	14.39	20.68
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE
19 Spd	6.1	6.5	5.4	6.7	7.0	5.6	7.4	7.5	9.4	10.9	10.8	11.1	10.6	10.3	9.8	8.7	10.9	12.0	11.8	10.8	10.9	11.1	10.6	10.0	9.20	12.00
Dir	SE	ESE	ESE	ESE	SE	ESE	ESE	SE	ESE	SE	ESE	ESE	ESE	E	ESE	ESE	ESE	SE	ESE	ESE	ESE	SE	SE	SE	ESE	SE
20 Spd	10.4	10.7	7.9	5.5	7.6	10.3	9.3	11.9	12.5	12.6	13.3	13.0	13.8	8.8	4.3	7.0	8.3	7.9	6.4	7.4	6.9	6.1	6.2	5.2	8.75	13.78
Dir	SE	SE	SE	ESE	ESE	ESE	ESE	SE	ESE	ESE	SE	SE	ESE	ENE	ESE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE
21 Spd	5.8	6.4	5.6	5.6	4.4	3.8	4.5	4.8	4.7	4.7	6.6	7.1	3.8	4.0	4.8	3.6	4.5	5.4	3.9	4.3	4.0	4.5	4.6	5.9	4.69	7.13
Dir	ESE	ESE	ESE	ESE	SE	SE	SE	S	S	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE
22 Spd	4.7	2.8	6.7	5.5	2.3	4.9	6.4	4.3	4.2	6.0	4.1	4.6	2.6	2.1	2.2	1.9	2.5	3.0	2.1	3.6	1.5	0.7	0.9	2.0	1.64	6.75
Dir	SE	ESE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	NNW	N	NW	W	NW	NW	WNW	WSW	W	NW	NNW	ESE	SE



WCAS - Fox Creek
Summary of Hourly Averages

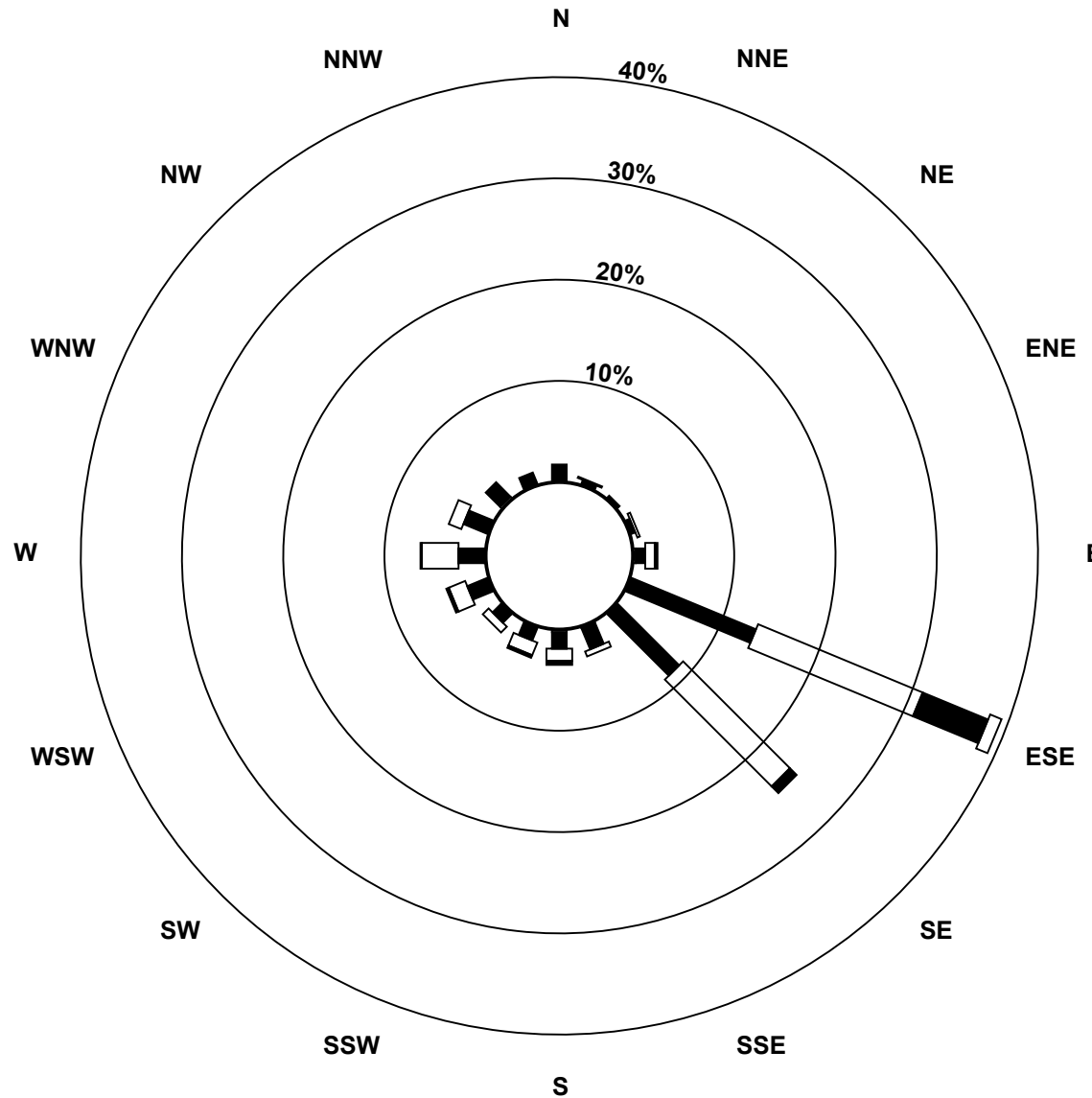
Wind Speed (WS) - kph
December 2015

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	1.5	0.6	2.1	1.8	1.3	1.0	1.0	1.8	1.3	0.3	1.0	2.5	0.9	2.0	1.4	0.9	4.0	2.9	3.1	2.9	2.4	4.2	3.1	3.4	1.12	4.20	
Dir	WNW	S	N	WNW	WNW	NNW	NNE	NNE	S	E	SSW	SSE	S	SSW	N	NNE	NNW	NW	WNW	WNW	WNW	WNW	W	W	WNW	WNW	
24 Spd	6.2	6.2	4.6	3.4	4.1	6.0	5.2	4.9	3.3	3.1	4.3	6.2	3.9	2.2	4.0	3.3	2.3	0.5	1.0	1.3	1.0	0.6	0.6	1.8	2.43	6.24	
Dir	WNW	WNW	NW	WNW	W	W	WNW	WNW	W	WSW	W	WNW	WNW	NW	N	N	ENE	W	S	SE	SE	SSE	SW	SE	WNW	WNW	
25 Spd	0.4	0.7	0.5	0.4	2.7	2.2	2.0	0.7	0.9	1.6	3.5	3.4	3.8	4.7	8.0	6.7	5.2	5.4	7.3	6.8	7.7	5.5	3.4	1.5	2.87	8.02	
Dir	SW	SSE	S	NW	W	WNW	W	SSE	SSW	N	N	NW	NW	WNW	W	W	WSW	WSW	W	W	W	WSW	SW	SSE	W	W	
26 Spd	2.1	2.8	6.7	6.7	7.9	8.9	8.4	6.8	4.4	5.8	6.0	7.2	6.4	7.9	7.8	8.6	9.3	10.3	10.1	10.6	9.2	9.8	9.4	9.7	7.53	10.55	
Dir	ESE	ESE	ESE	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	ESE	
27 Spd	10.1	12.0	11.9	10.1	10.8	10.3	10.7	8.6	6.5	9.5	7.4	6.9	4.0	1.3	3.5	3.1	2.8	3.8	2.8	3.3	2.2	3.1	3.0	3.7	5.78	12.00	
Dir	SE	SE	ESE	ESE	ESE	ESE	SE	ESE	ESE	SE	SE	SE	ESE	NE	N	N	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	
28 Spd	3.9	5.9	0.9	1.8	2.5	1.7	1.9	1.4	0.5	2.5	1.1	3.1	3.1	5.2	4.0	2.8	1.4	1.5	1.5	3.0	3.8	4.2	4.7	2.9	1.17	5.94	
Dir	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	SSE	WNW	W	WSW	NNE	N	NNW	NNW	W	SE	SE	ESE	SE	SE	SE	SE	ESE	SE	
29 Spd	3.4	3.3	4.9	2.8	5.0	7.1	6.8	7.5	7.2	7.7	6.2	5.1	6.3	4.6	5.1	6.0	7.0	7.5	3.7	5.2	6.0	5.7	5.6	3.9	5.51	7.73	
Dir	ESE	ESE	SE	ESE	ESE	SE	SE	SE	SE	SE	ESE	SE	SE	SSE	SSE	SE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	
30 Spd	6.0	5.4	5.0	5.4	5.9	4.7	4.2	6.0	4.5	4.6	5.2	5.0	3.9	1.5	1.2	2.1	1.4	3.9	8.3	7.8	6.1	7.8	7.7	6.8	4.72	8.28	
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	NW	NNW	SSE	ESE	SE	ESE	SE	ESE	SE	ESE	SE	ESE	
31 Spd	6.1	7.5	7.7	6.5	6.0	7.5	7.1	4.4	0.4	5.2	6.1	6.5	5.5	0.7	2.4	0.7	1.2	2.3	3.9	4.3	5.3	5.8	5.7	7.3	4.51	7.67	
Dir	SE	SE	SE	ESE	SE	SE	SE	SE	S	ESE	ESE	ESE	ESE	ESE	N	NNW	SW	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	
Spd	4.93	5.19	5.36	4.80	4.67	4.59	4.70	4.68	4.28	4.71	4.63	4.17	3.39	2.30	1.97	2.57	3.25	4.46	4.45	5.03	4.39	4.78	5.30	5.31	Diurnal Average		
Dir	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	Diurnal Maximum	
Spd	19.66	19.90	19.07	18.70	16.00	16.84	16.70	17.61	17.86	20.06	20.68	20.56	19.13	20.05	17.65	15.11	14.48	16.48	15.11	21.87	20.89	17.78	18.95	19.61	Diurnal Maximum		
Dir	112.35	104.63	108.17	105.34	100.73	102.07	110.71	105.73	105.32	106.00	107.40	106.65	241.10	110.94	109.10	111.10	101.26	114.83	119.00	107.97	111.33	112.94	108.53	106.20	Diurnal Maximum		
Maximum Speed Value: 21.9 kph on Dec 12 20:00		Minimum Speed Value: 0.3 kph on Dec 23 10:00																Hours in Service: 744									
Maximum Daily Speed Average: 14.39 kph on Dec 18		Minimum Daily Speed Average: 1.12 kph on Dec 23																Hours of Data: 744									
Maximum Diurnal Speed Average: 5.36 kph at hour 3		Minimum Diurnal Speed Average: 1.97 kph at hour 15																Hours of Missing Data: 0									
Monthly Average Velocity: 4.316 kph 129.45 deg		Speed Percentiles: P ₁ = 0.5 P ₁₀ = 1.9 Q ₁ = 3.8 Median = 6.0 Q ₃ = 8.6 P ₉₀ = 11.8 P ₉₉ = 19.8																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	19	1	0	0	0	0	20																				
NorthEast	8	1	0	0	0	0	9																				
East	30	45	33	10	0	0	118																				
SouthEast	130	229	36	0	0	0	395																				
South	23	14	5	0	0	0	42																				
SouthWest	20	19	1	1	0	0	41																				
West	31	51	3	0	0	0	85																				
NorthWest	33	1	0	0	0	0	34																				
Total	294	361	78	11	0	0	744																				

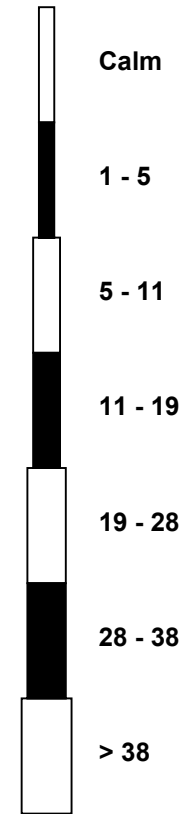
WCAS - Fox Creek
Wind Speed Rose



Wind Speed (WS) - kph
2015



Wind Frequency (kph)



WEST CENTRAL AIRSHED SOCIETY

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

**FOX CREEK
DECEMBER 2015**

Calibration Summary

Parameter SO2

Air Monitoring Network Fox Creek

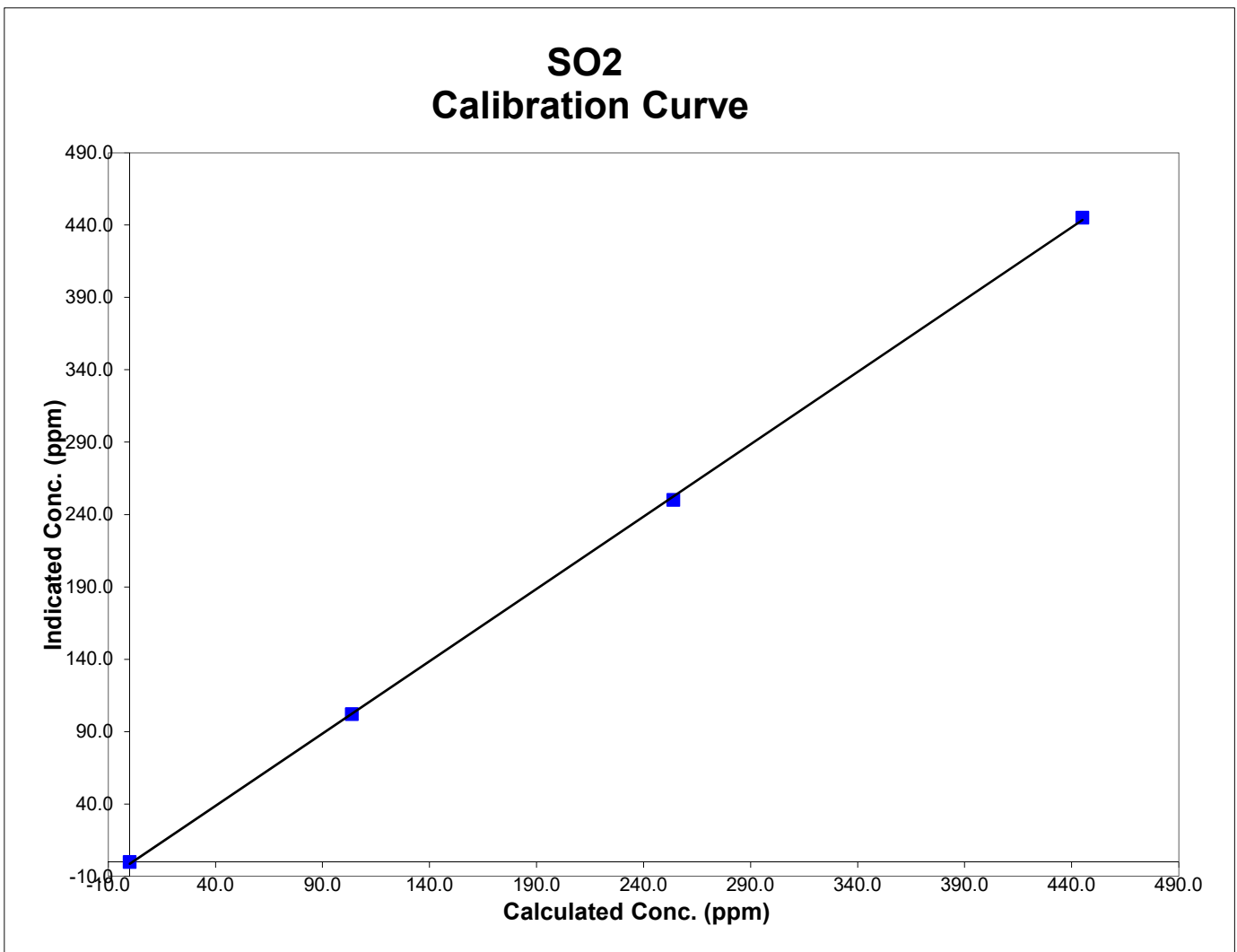


Station Information

Calibration Date	Dec 29/15	Previous Calibration	Nov.19/15
Station Number	Pam12	Station Location	Fox Creek
Start Time (MST)	7:10	End Time (MST)	10:45
Analyzer make/model	Teco 431	Analyzer serial #	0700419950

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
445.0	445.0	1.0000	Correlation Coefficient	0.999905
254.0	250.0	1.0160		
103.7	102.1	1.0157		
0.0	0.0	N/A		
			Slope	1.000423
			Intercept	1.315709



Calibration Report



Parameter _____ 03
Air Monitoring Network _____ Fox Creek

Station Information

Calibration Date	<u>Dec 28/15</u>	Previous Calibration	<u>Nov18/15</u>
Station Number	<u>Paml 2</u>	Station Location	<u>Fox Creek</u>
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Barrhead	<input checked="" type="checkbox"/> Calibration
		<input type="checkbox"/> Removal	

Start Time (MST)	<u>11:00</u>	End Time (MST)	<u>14:15</u>
Barometric Pressure	<u>27.24</u> inches Hg	Station Temperature	<u>19.0</u> Deg C
Calibrator	<u>2B Tech 306</u>	Serial Number	<u>145</u>
Cal Gas Concentration		Cal Gas Expiry Date	

DACS make		DACS serial No.	
DACS voltage range		DACS channel #	<u>1</u>

	<u>Before</u>		<u>After</u>
Calculated slope	<u>1.000152</u>	Calculated slope	<u>0.997334</u>
Calculated intercept	<u>1.221751</u>	Calculated intercept	<u>0.774126</u>

Analyzer make	<u>TECO 49i</u>	Analyzer serial #	<u>0630718533</u>
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	<u>before</u>		<u>after</u>	
Concentration range	<u>500</u>	<u>ppb</u>	<u>500</u>	<u>ppb</u>
Background	<u>0.2</u>	<u>ppb</u>	<u>-0.5</u>	<u>ppb</u>
Coefficient	<u>0.978</u>		<u>0.984</u>	
Intensity A		<u>Hz</u>		<u>Hz</u>
Intensity B		<u>Hz</u>		<u>Hz</u>
Pressure		<u>mmHg</u>		<u>mmHg</u>
Sample Flow A		<u>Lpm</u>		<u>Lpm</u>
Sample Flow B		<u>Lpm</u>		<u>Lpm</u>

Calibration Data

Dilution air flow rate (cc/min)	Ozone Set Point	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
zero	3000	0.0	0.00	N/A
P1	3000	400.0	398.00	0.9975
P2	3000	250.0	251.00	1.0040
P3	3000	100.0	99.90	1.0110
AFZ	3000	0.0	0.00	#DIV/0!
AF	3000	400.0	397.00	1.0000
Average Correction Factor				1.0042

Calculated value of As Found Response: 398.3 ppm Percent Change of As Found: 0.3%

	<u>before calibration</u>		<u>after calibration</u>	
Auto zero	<u>0.00</u>	<u>ppb</u>	<u>0.40</u>	<u>ppb</u>
Auto span	<u>na</u>	<u>ppb</u>	<u>373.00</u>	<u>ppb</u>

Notes: _____

Calibration Performed By: Jeff McClintock

Calibration Report

Parameter **NOx-NO-NO₂**
 Air Monitoring Network **Fox Creek**



Station Information

Calibration Date	Dec 29/15	Previous Calibration	Nov 19/15				
Station Number	Pam12	Station Location	Fox Creek				
Reason:	<table border="1"> <tr> <td><input type="checkbox"/> Routine</td> <td><input type="checkbox"/> Installation</td> <td><input type="checkbox"/> Removal</td> <td><input type="checkbox"/> Other:</td> </tr> </table>			<input type="checkbox"/> Routine	<input type="checkbox"/> Installation	<input type="checkbox"/> Removal	<input type="checkbox"/> Other:
<input type="checkbox"/> Routine	<input type="checkbox"/> Installation	<input type="checkbox"/> Removal	<input type="checkbox"/> Other:				
Start Time (MST)	7:10	End Time (MST)	11:40				
Barometric Pressure	27.28 inches Hg	Station Temperature	21.0 Deg C				
Calibrator	Sabio 2010	Serial Number	42C 60475 327				
NO Cal Gas Conc	25.4 ppm	Cal Gas Verif. Date	Dec 2,2015				
NOx Cal Gas Conc	25.4 ppm	Cal Gas Serial #	SX17611				

DACS Information

DACS make _____ DACS serial No. _____

Parameter		NO	NO2	NOx
Before	Data Slope	1.001906	1.000093	1.000348
	Data Offset	2.059267	-0.277734	2.073018
After	Data Slope	1.000377	1.000409	1.000306
	Data Offset	1.613742	-0.003679	1.650224
Channel #				
Voltage Range				

Analyzer Information

Analyzer make/model **42C** Analyzer serial # **60475327**

Test Point	before		after	
Concentration range	1000	ppb	1000	ppb
NO background	1.1	mV	1.1	mV
NOx background	1.2	mV	1.4	mV
NO coefficient	0.906		0.947	
NO2 coefficient	1.016		1.016	
NOx coefficient	1.003		0.999	
Internal Temp		Deg C		Deg C
Chamber Temp		Deg C		Deg C
Cooler Temp				
Perm Temp		Deg C		Deg C
Pressure		inches Hg		inches Hg
Sample Flow		ccm		ccm

Notes: DS ran for 20 minutes.

Calibration Report



Parameter **NOx-NO-NO₂**
 Air Monitoring Network **Fox Creek**

Station Information

Calibration Date: **Dec 29/15** Station Location: **Fox Creek**
 August 30, 2010

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Calculated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	Indicated NOx conc (ppb)	NO Correction factor	NOx Correction factor
zero	5000	0.00	0.0	0.0	0.0	0.00	0.01	0.01	N/A	N/A
P1	5100	91.00	445.3	0.0	445.3	445.00	0.00	445.00	1.001	1.001
P2	5047	51.00	254.1	0.0	254.1	250.00	-1.00	250.00	1.016	1.016
P3	5021	20.60	103.8	0.0	103.8	101.40	0.00	101.30	1.024	1.025
AFZ	5000	0.00	0.0	0.0	0.0	-0.10	0.00	-0.10	0.000	0.000
AFS	5100	91.00	445.3	0.0	445.3	429.00	0.00	428.00	1.038	1.040
								Average Correction Factor	1.014	1.014

As Found Concentrations
 As Found Percent Change

NO= 431.3 ppb
 NO= -3.1%

NO_x= 430.3 ppb
 NO_x= -3.4%

GPT Calibration Data

O3 Setpoint (ppb)	Indicated NOx ref (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Calculated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	Indicated NOx conc (ppb)	NO2 Correction factor	Converter Efficiency
0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	N/A	N/A
1.2 v	445.0	46.6	387.2	433.8	45.00	387.00	432.00	1.0004	100.0%
0.7 v	445.0	232.7	207.1	439.8	231.00	207.00	438.00	1.0004	100.0%
0.36 v	445.0	363.8	81.0	444.8	362.00	81.00	443.00	1.0004	100.0%
								Average Correction Factor	1.000

AIC Data

Parameter	Previous calibration				Current calibration			
	NO	NO2	NOx		NO	NO2	NOx	
Auto zero	na	na	na	ppb	0.00	0.10	0.10	ppb
Auto span	na	na	na	ppb	447.00	-1.00	446.00	ppb

Calibration Performed By: Jeff McClintock

Calibration Summary

Parameter NO

Air Monitoring Network Fox Creek



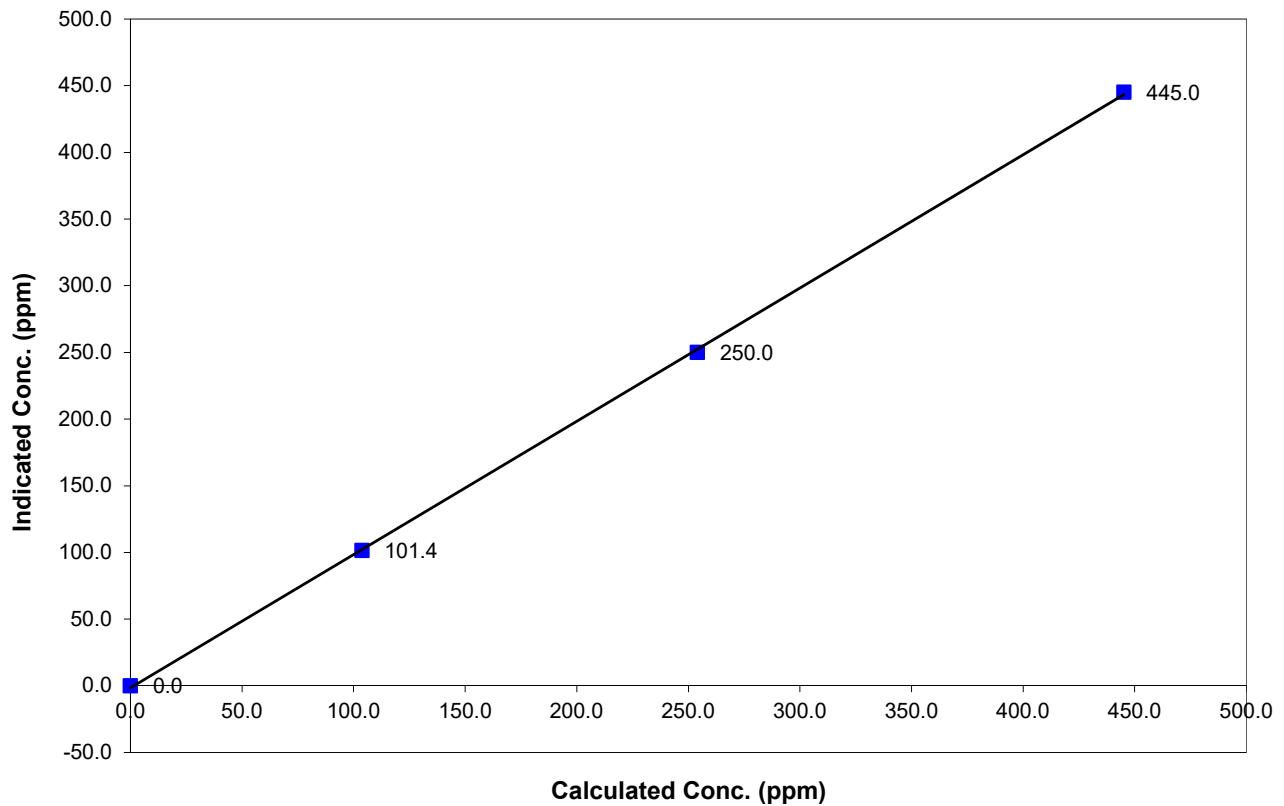
Station Information

Calibration Date	<u>Dec 29/15</u>	Previous Calibration	<u>Nov 19/15</u>
Station Number	<u>Pam12</u>	Station Location	<u>Fox Creek</u>
Start Time (MST)	<u>7:10</u>	End Time (MST)	<u>11:40</u>
Analyzer make	<u>42C</u>	Analyzer serial #	<u>60475327</u>

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
445.3	445.0	1.0006	Correlation Coefficient	0.999901
254.1	250.0	1.0164		
103.8	101.4	1.0235	Slope	1.000377
			Intercept	1.613742

NO Calibration Curve



Calibration Summary

Parameter NO₂

Air Monitoring Network Fox Creek



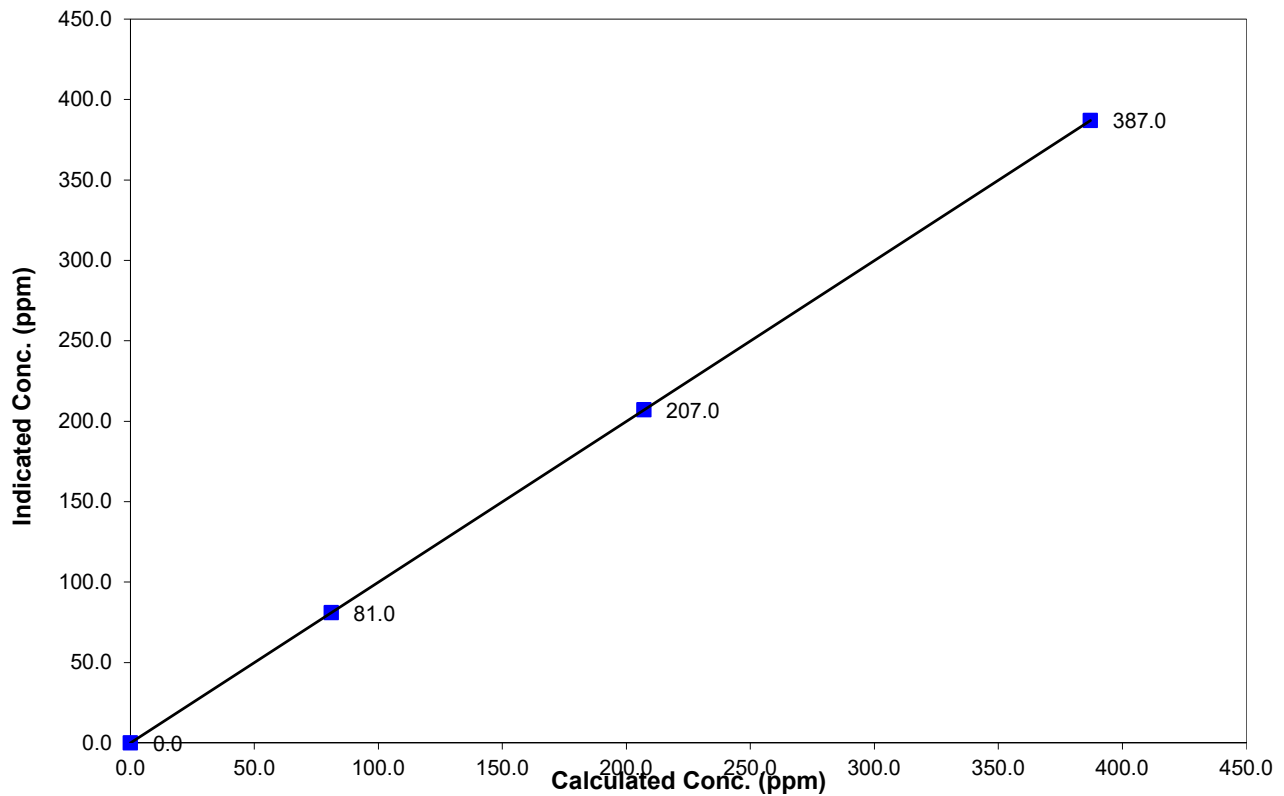
Station Information

Calibration Date	Dec 29/15	Previous Calibration	Nov 19/15
Station Number		Station Location	Fox Creek
Start Time (MST)	7:10	End Time (MST)	11:40
Analyzer make	42C	Analyzer serial #	60475327

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
387.2	387.0	1.0004	Correlation Coefficient	1.000000
207.1	207.0	1.0004		
81.0	81.0	1.0004	Slope	1.000409
			Intercept	-0.003679

NO₂ Calibration Curve



Calibration Summary

Parameter NO_x

Air Monitoring Network Fox Creek



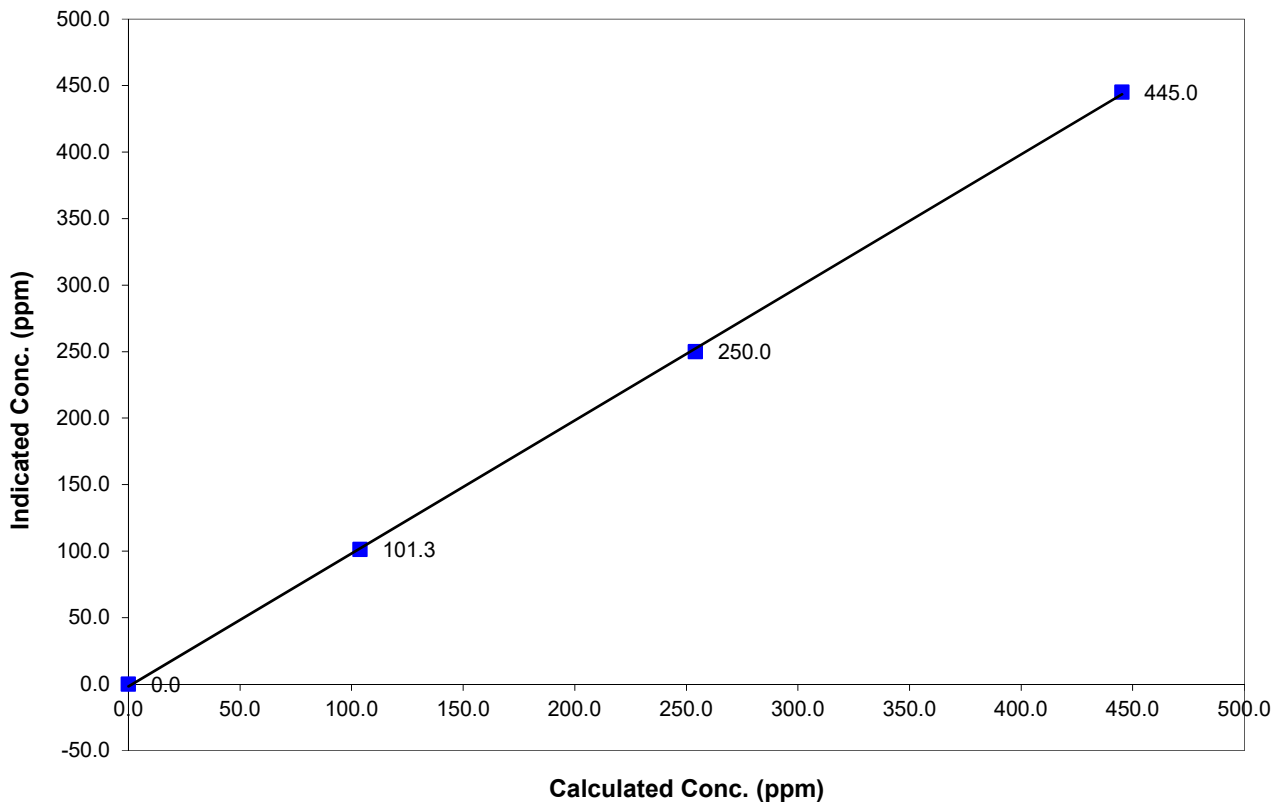
Station Information

Calibration Date	Dec 29/15	Previous Calibration	Nov 19/15
Station Number	Pam1 2	Station Location	Fox Creek
Start Time (MST)	7:10	End Time (MST)	11:40
Analyzer make	42C	Analyzer serial #	60475327

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
445.3	445.0	1.0006	Correlation Coefficient	0.999899
254.1	250.0	1.0164		
103.8	101.3	1.0245	Slope	1.000306
			Intercept	1.650224

NOx Calibration Curve



Calibration Report



Parameter TRS
Air Monitoring Network Fox Creek

Station Information

Calibration Date	Dec 28/15	Previous Calibration	Nov.18/15
Station Number	Paml2	Station Location	Fox Creek
Reason:	<input type="checkbox"/> Routine	<input checked="" type="checkbox"/> Calibration	<input type="checkbox"/> Removal
			Fox Creek

Start Time (MST)	11:00	End Time (MST)	14:15
Barometric Pressure	27.24 inches Hg	Station Temperature	19.0 Deg C
Calibrator	Sabio 2010	Serial Number	5200311
Cal Gas Concentration	5.19 ppm SV15550	Cal Gas Verified	07/27/15

DACS make		DACS serial No.	
DACS voltage range		DACS channel #	1
	Before		After
Calculated slope	0.999038	Calculated slope	0.998208
Calculated intercept	0.064456	Calculated intercept	0.333661

Analyzer make	TecoTeco 45C	Analyzer serial #	0630718527
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	before		after	
Concentration range	100	ppb	100	ppb
Background	16.7	ppb	17.8	ppb
Coefficient	1.102		1.149	
Intensity A	*	Hz		Hz
Intensity B	*	Hz		Hz
Pressure	*	mmHg		mmHg
Sample Flow A	*	Lpm		Lpm
Sample Flow B	*	Lpm		Lpm

Calibration Data

Dilution air flow rate (cc/min)		Source Gas Flow	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
zero	5000	0.0	0.0	0.00	N/A
P1	5104	76.4	76.5	76.60	0.9992
P2	5056	50.7	51.5	51.10	1.0082
P3	5034	25.7	26.3	25.60	1.0273
AFZ	na	0.0		0.00	
AFS	5000	0.1	76.5	74.50	1.0274
Average Correction Factor					1.0116

Calculated value of As Found Response: 74.5 ppm Percent Change of As Found: -2.7%

	before calibration		after calibration	
Auto zero	0.00	ppb	0.00	ppb
Auto span	na	ppb	62.50	ppb

Notes: _____

Calibration Performed By: Jeff McClintock

WEST CENTRAL AIRSHED SOCIETY

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

**END OF REPORT
DECEMBER 2015**