

# **Fox Creek**

## **AIR QUALITY MONITORING November 2015 Monthly Report**

**Prepared by:**

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





December 8<sup>th</sup>, 2015

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

Dear Sir:

**Monthly Ambient Air Quality Monitoring Report for November 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 SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, and PM<sub>2.5</sub>.

**2. Operational times less than 90 percent:**

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

Operation of the station commenced September 29<sup>th</sup> with initial calibrations performed October 8<sup>th</sup>. October monitoring was used to correct operational deficiencies and the data collected will not be officially reported. This report represents the start of regular monitoring.

**3. Monitoring Notes:**

All analyzers and meteorological equipment returned uptimes of 95.1% in November due to power outage at the start of November. In addition, the wind instrument returned invalid readings with an uptime of 92.6%. Technicians were unable to cause the PM<sub>2.5</sub> analyzer installed in September to operate satisfactorily, so it was removed and a replacement analyzer installed on November 18<sup>th</sup>, with an uptime of 93.7%.

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  
NOVEMBER 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**

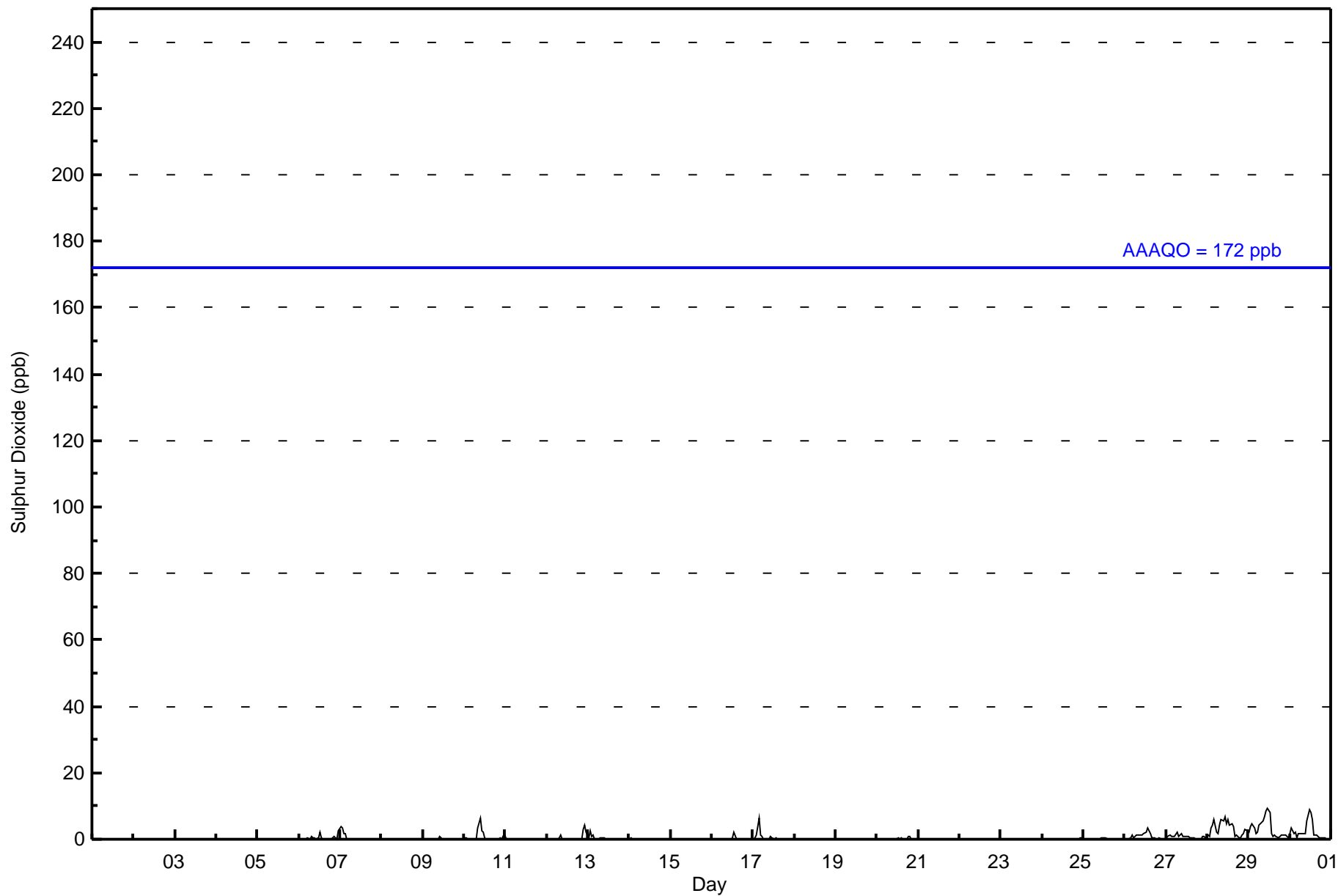
WCAS / Fox Creek													November 2015		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Max (ppm)	
							P10	Q1	Median	Q3	P90	1-hour	24-hour		
SO <sub>2</sub> (ppb)	3	682	95.1	0.473	0.0	9.3	0.0	0.0	0.0	0.2	1.4	0	0	0.003	
H <sub>2</sub> S (ppb)	3	682	95.1	0.154	0.0	5.0	0.0	0.0	0.1	0.2	0.3	0	0	0.000	
O <sub>3</sub> (ppb)	5	680	95.1	19.8	0.1	41.9	3.3	11.0	21.2	27.9	34.2	0	-	0.034	
NO (ppb)	5	680	95.1	3.8	0.0	92.1	0.0	0.0	0.6	2.9	7.4	-	-	-	
NO <sub>2</sub> (ppb)	5	680	95.1	8.1	0.0	33.5	0.6	2.0	4.7	12.9	21.5	0	0	0.022	
NO <sub>x</sub> (ppb)	5	680	95.1	12.4	0.0	126.2	1.1	2.7	6.5	16.1	27.8	-	-	-	
Particulate Matter 2.5 microns (μ/m <sup>3</sup> )	4	278	93.7	3.0	0.0	29.4	0.0	0.4	1.7	3.8	6.9	0	0	9.05 ug/m3	
Temperature (°C)	0	686	95.3	-2.1	-19.1	7.0	-10.0	-4.5	-1.1	1.2	3.6	-	-	-	
Wind Speed (kph)	0	667	92.6	6.7	0.1	18.1	2.7	4.2	6.4	8.4	11.5	-	-	-	

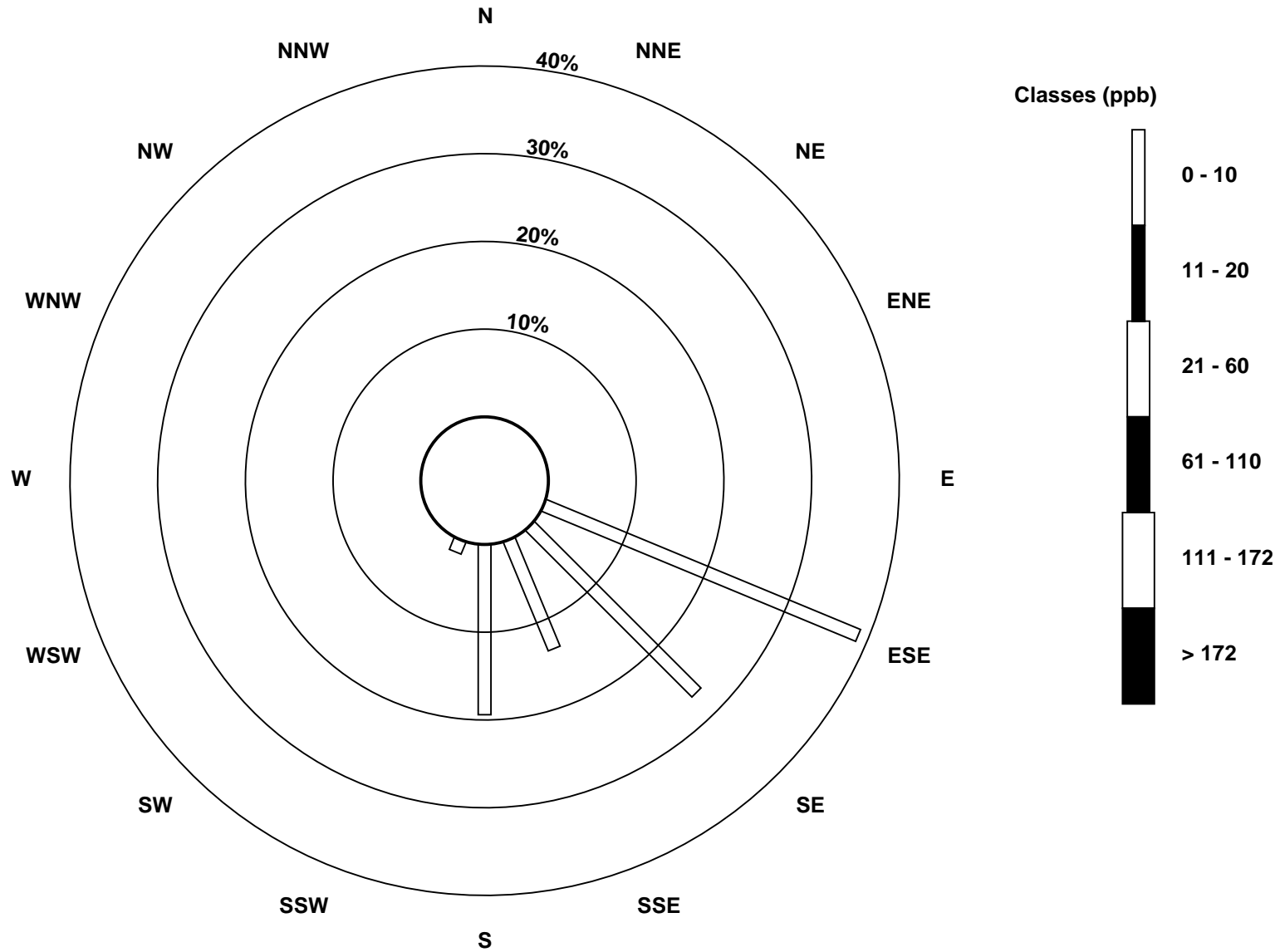


**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**November 2015**

Maximum Value: 9.30 ppb on Nov 29 12:00		Maximum Daily Average: 3.20 ppb on Nov 28		Hours in Service: 720																																													
Minimum Value: 0.0 ppb on Nov 2 12:00		Minimum Daily Average: 0.00 ppb on Nov 4		Hours of Data: 682																																													
Maximum Diurnal Average: 1.03 ppb at hour 12		Minimum Diurnal Average: 0.10 ppb at hour 18		Hours of Missing Data: 38																																													
Monthly Average: 0.473 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.4 P <sub>99</sub> = 6.6		Hours of Calibration: 3																																													
				Percent Operational Time: 95.1																																													
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--																							
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.00																							
3-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.03																							
4-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
5-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
6-Nov	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.9	0.5	0.4	0.0	0.4	2.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.4	0.0	2.7	0.37	2.69																							
7-Nov	4.0	3.2	1.6	1.8	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	0.0	0.0	0.45	3.95																							
8-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
9-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.68																							
10-Nov	0.6	0.5	0.0	0.0	0.0	0.2	0.0	0.0	3.2	6.3	2.5	2.3	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7	0.76	6.29																							
11-Nov	0.3	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.28																							
12-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	2.8	4.0	2.1	0.46	4.03																								
13-Nov	0.6	2.3	1.0	1.3	0.0	0.0	0.0	0.2	0.3	0.4	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	0.26	2.35																							
14-Nov	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.52																							
15-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
16-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11	2.20																							
17-Nov	0.0	0.6	1.1	6.4	1.2	0.7	0.0	0.0	0.0	0.2	0.9	0.5	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.50	6.41																							
18-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.02	0.12																							
19-Nov	0.2	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.21																							
20-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.2	0.1	0.9	1.0	0.1	0.0	0.0	0.0	0.13	0.96																							
21-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
23-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																							
24-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.03	0.40																							
25-Nov	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.6	0.5	0.5	0.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.12	0.63																							
26-Nov	0.1	0.0	0.0	0.4	1.3	0.5	0.8	1.1	1.1	1.5	1.2	1.8	2.2	3.3	2.5	1.7	0.6	0.3	0.2	0.1	0.2	0.2	0.0	0.1	0.88	3.27																							
27-Nov	0.1	0.8	1.1	1.0	0.8	0.9	2.0	0.9	1.2	1.6	0.9	1.0	0.7	0.7	0.6	0.3	0.3	0.1	0.0	0.0	0.0	0.9	1.0	0.4	0.73	2.02																							
28-Nov	1.1	0.9	3.5	4.2	5.9	2.2	1.6	4.0	5.9	5.4	6.7	4.8	6.1	4.2	4.6	3.8	0.9	1.2	0.5	0.5	1.3	1.9	2.9	2.4	3.20	6.69																							
29-Nov	2.0	3.7	4.8	3.2	1.9	2.0	4.1	4.6	5.4	6.9	8.3	9.3	8.0	1.8	0.8	1.2	0.7	0.6	1.0	1.5	1.1	1.2	0.9	0.5	3.14	9.30																							
30-Nov	1.7	3.4	1.5	2.3	0.6	1.8	1.7	1.8	1.8	1.8	5.7	9.1	8.0	5.9	1.1	1.3	0.9	0.6	0.4	0.4	0.3	0.1	0.1	0.0	2.18	9.11																							
																								0.39	0.57	0.52	0.74	0.42	0.32	0.38	0.52	0.76	0.91	0.98	1.03	1.00	0.67	0.36	0.29	0.13	0.10	0.11	0.12	0.14	0.27	0.32	0.37	Diurnal Average	
																								3.95	3.65	4.80	6.41	5.85	2.22	4.12	4.56	5.87	6.85	8.30	9.30	7.98	5.93	4.64	3.77	0.95	1.18	1.04	1.46	1.33	2.76	4.03	2.69	Diurnal Maximum	
C - Calibration																								PF - Power Failure																									
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	





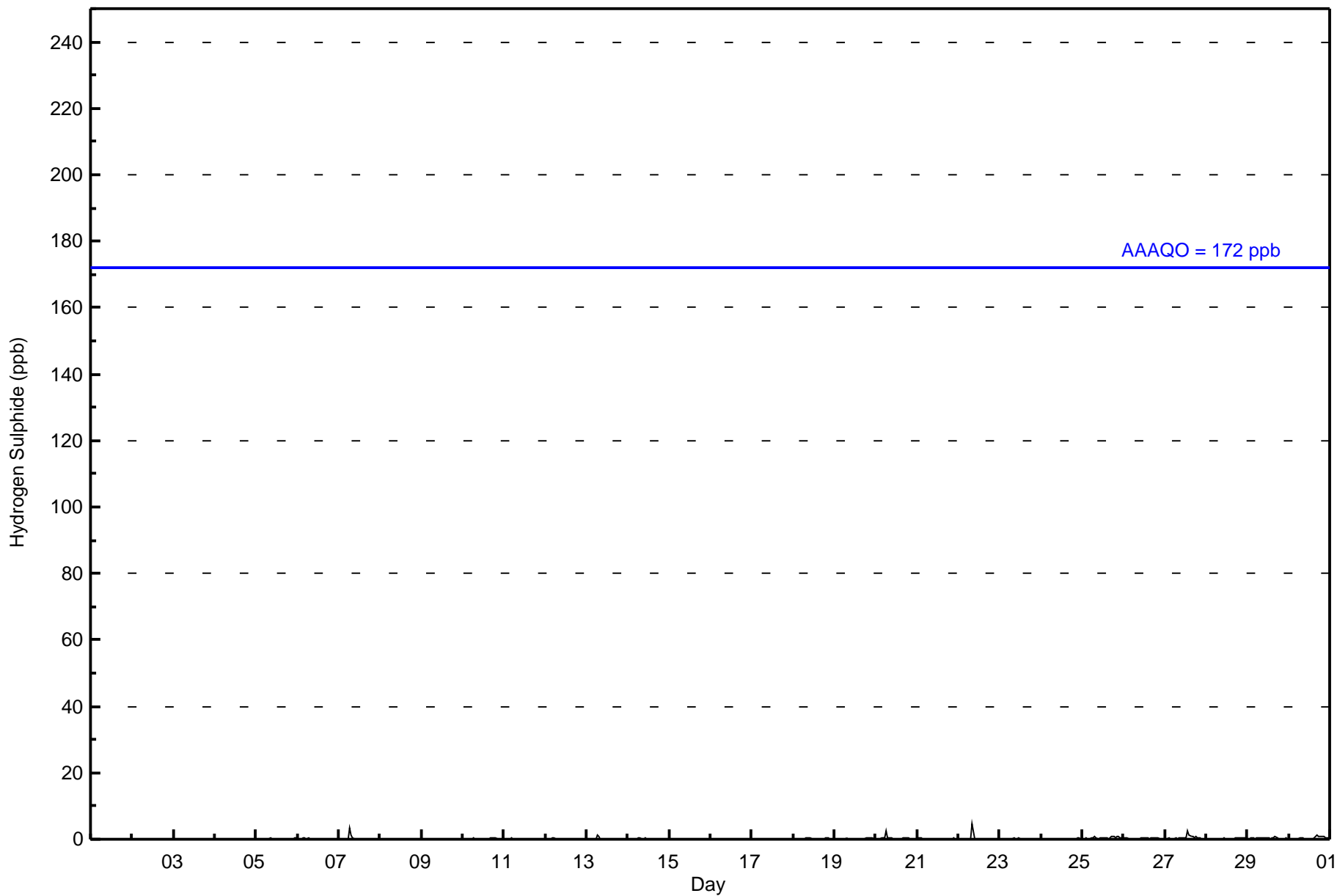


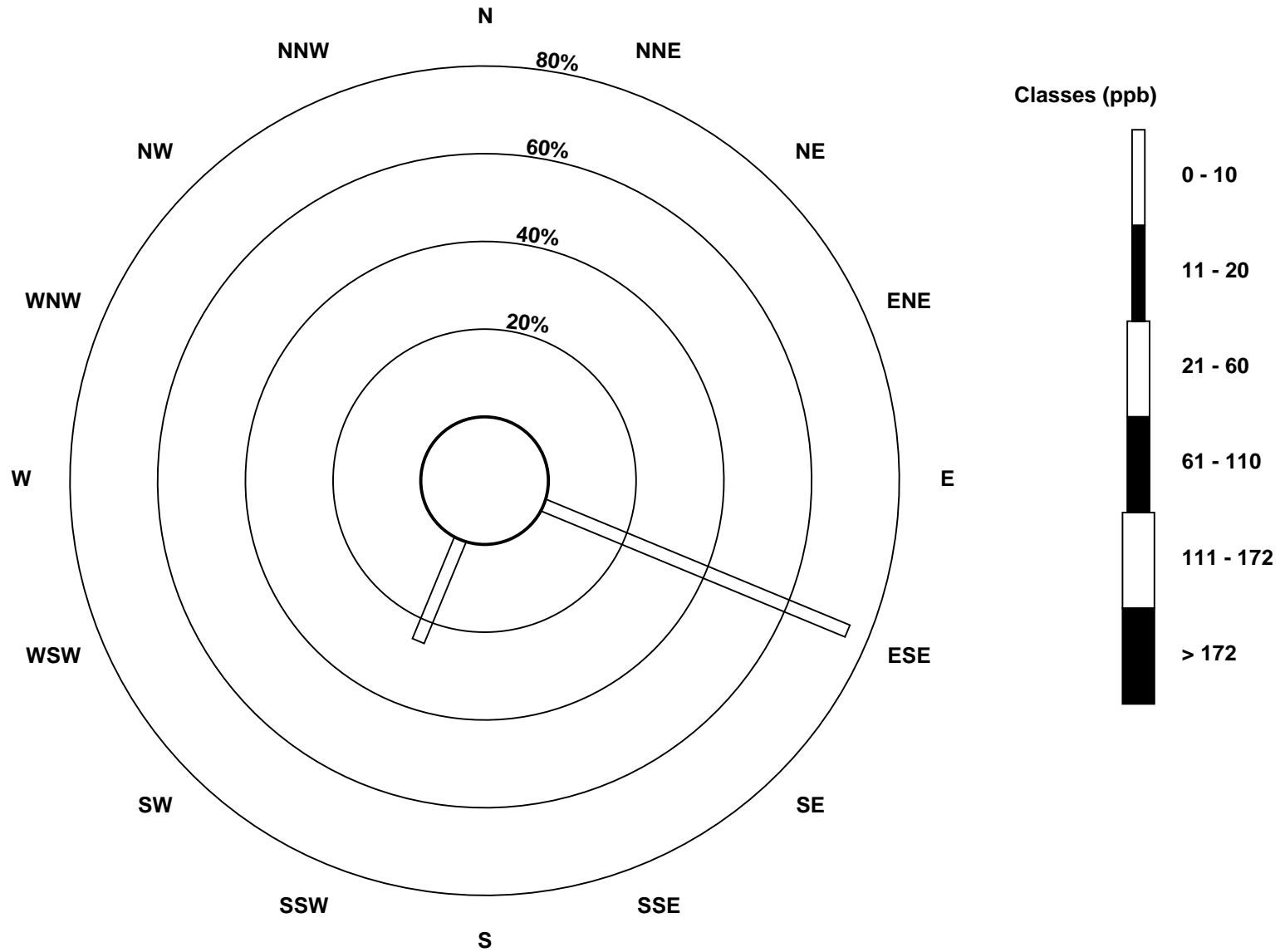
**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**November 2015**

Maximum Value: 4.72 ppb on Nov 22 09:00      Maximum Daily Average: 0.49 ppb on Nov 27		Hours in Service: 720 Hours of Data: 682 Hours of Missing Data: 38 Hours of Calibration: 3 Percent Operational Time: 95.1																								
Minimum Value: 0 ppb on Nov 2 12:00 Maximum Diurnal Average: 0.41 ppb at hour 7 Monthly Average: 0.154 ppb		Minimum Daily Average: 0.00 ppb on Nov 8 Minimum Diurnal Average: 0.09 ppb at hour 1 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 1.2																								
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0	0	0	0	0	0	0	0	0	0	0	0	0	--	0.15
3-Nov	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	0.20	
4-Nov	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	0.18	
5-Nov	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	0.33	
6-Nov	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	0.31	
7-Nov	0	0	0	0	0	0	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.24	3.60	
8-Nov	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	0.04	
9-Nov	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	0.20	
10-Nov	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13	0.54	
11-Nov	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	0.27	
12-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14	0.29	
13-Nov	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	1.23	
14-Nov	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	0.44	
15-Nov	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	0.18	
16-Nov	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	0.09	
17-Nov	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	0.08	
18-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0.14	0.49	
19-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.17	0.59	
20-Nov	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.31	2.54	
21-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.27	
22-Nov	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.28	4.72	
23-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.27	
24-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06	0.27	
25-Nov	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0.40	0.79	
26-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.22	0.40	
27-Nov	0	0	0	0	0	0	0	0	0	0	1	0	3	1	1	1	1	0	1	1	0	0	0	0.49	2.52	
28-Nov	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	0.48	
29-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0.28	0.79	
30-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0.39	1.23	
																								Diurnal Average		
																								Diurnal Maximum		
C - Calibration      PF - Power Failure Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb																										





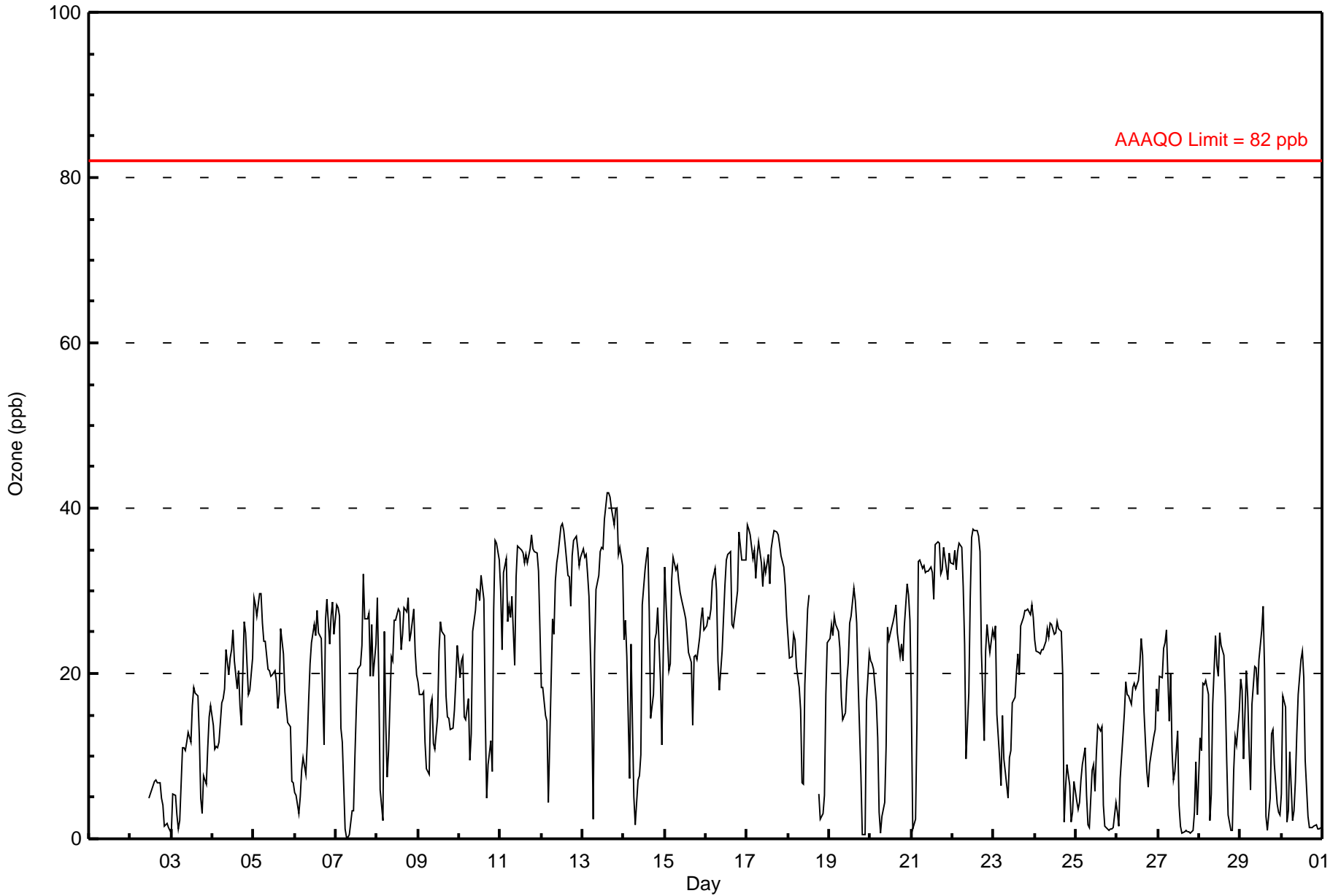


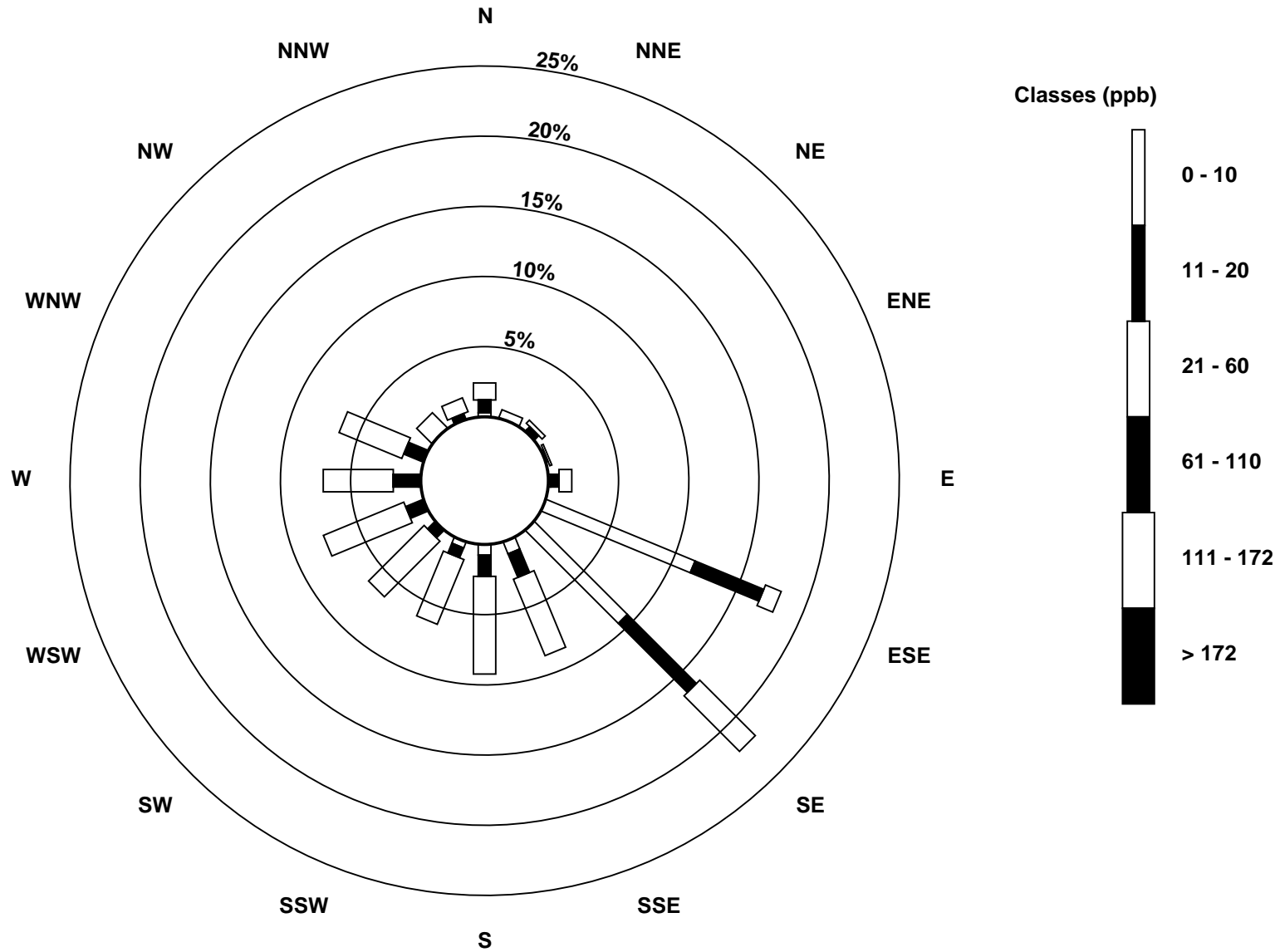


**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**November 2015**

Maximum Value: 41.92 ppb on Nov 13 16:00		Maximum Daily Average: 34.17 ppb on Nov 17		Hours in Service: 720																						
Minimum Value: 0.1 ppb on Nov 7 07:00		Minimum Daily Average: 5.73 ppb on Nov 25		Hours of Data: 680																						
Maximum Diurnal Average: 25.24 ppb at hour 14		Minimum Diurnal Average: 15.30 ppb at hour 7		Hours of Missing Data: 40																						
Monthly Average: 19.810 ppb		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 3.3 Q <sub>1</sub> = 11.0 Median = 21.2 O <sub>3</sub> = 27.9 P <sub>90</sub> = 34.2 P <sub>99</sub> = 38.2		Hours of Calibration: 5																						
				Percent Operational Time: 95.1																						
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	4.9	5.9	6.4	7.0	7.2	6.8	6.7	4.9	4.0	1.6	1.9	1.4	0.9	--	7.20
3-Nov	0.7	5.4	5.3	2.9	1.3	2.3	11.1	11.0	10.6	11.8	12.9	11.7	16.1	18.3	17.6	17.3	12.4	5.0	3.0	7.6	6.6	11.0	14.8	16.1	9.69	18.32
4-Nov	13.7	10.9	11.2	11.1	11.7	16.4	16.9	18.1	22.9	19.8	21.8	22.8	25.3	21.5	18.1	20.3	16.0	13.7	26.3	24.9	21.2	17.5	18.0	21.8	18.42	26.33
5-Nov	29.2	28.3	27.0	29.7	29.6	26.1	23.9	23.9	20.5	20.4	19.6	19.8	20.4	18.9	15.7	17.4	25.4	22.4	17.7	16.0	14.0	13.6	7.0	6.7	20.56	29.69
6-Nov	5.5	5.2	3.1	5.1	8.4	9.9	7.8	11.7	16.7	21.2	23.7	25.9	24.6	27.6	24.9	24.2	17.7	11.3	26.4	29.0	23.6	27.0	28.7	24.7	18.08	28.97
7-Nov	28.2	27.9	26.9	13.4	11.8	1.1	0.1	0.2	0.4	3.5	3.3	10.0	15.8	20.6	21.1	23.4	32.1	26.5	26.6	27.3	19.7	26.0	19.6	23.5	17.05	32.07
8-Nov	29.1	19.7	5.9	2.2	25.1	14.1	7.4	10.8	22.0	21.6	26.4	26.4	27.9	27.5	22.9	24.7	28.0	27.5	29.2	24.0	25.0	27.9	22.5	19.8	21.56	29.17
9-Nov	19.0	17.5	17.5	17.7	11.7	8.5	7.9	16.1	17.0	11.5	10.9	14.8	22.7	26.3	25.1	24.5	17.3	14.8	14.5	13.2	13.4	15.7	19.1	23.3	16.67	26.28
10-Nov	19.5	21.5	22.0	14.8	14.5	16.9	9.4	12.7	25.1	27.6	30.1	30.1	28.7	31.9	29.1	14.9	4.8	9.0	11.9	8.2	27.7	36.1	35.7	33.7	21.50	36.11
11-Nov	30.1	22.9	32.2	33.9	26.3	28.1	26.8	29.3	21.0	31.7	35.5	35.3	34.9	34.6	33.4	34.4	33.4	35.1	36.7	35.0	34.7	34.6	32.3	25.4	31.57	36.74
12-Nov	18.3	18.3	14.8	14.2	4.4	11.7	26.5	24.7	31.2	33.4	34.6	37.9	38.1	37.3	35.7	31.9	31.7	28.1	34.2	36.2	36.6	35.0	33.1	34.0	28.41	38.11
13-Nov	35.0	34.1	34.3	32.1	29.3	16.1	2.4	22.4	30.2	31.8	34.8	35.2	35.1	38.6	41.9	41.9	41.4	40.0	38.0	39.8	39.9	34.4	35.2	33.1	33.21	41.92
14-Nov	24.2	26.4	22.0	7.2	23.6	14.1	5.1	1.7	7.1	7.6	10.2	28.3	32.5	34.0	35.2	27.5	14.6	17.5	24.1	24.9	28.0	19.1	11.4	22.6	19.53	35.18
15-Nov	32.9	28.4	20.3	21.1	31.4	34.1	32.6	33.1	31.2	29.8	28.9	27.4	26.7	24.8	22.6	21.3	13.7	22.0	22.2	21.7	24.4	26.6	28.0	25.3	26.26	34.08
16-Nov	25.8	26.8	26.6	27.8	31.2	32.7	30.0	21.6	18.0	22.8	26.7	30.7	33.7	34.3	34.7	25.9	25.6	26.9	29.9	37.2	35.4	33.8	33.8	33.8	29.40	37.17
17-Nov	37.9	37.5	36.8	33.8	34.9	31.5	34.2	36.0	33.3	30.5	33.3	32.2	34.4	30.8	35.2	36.2	37.3	37.2	36.7	35.6	34.2	33.0	30.7	27.0	34.17	37.94
18-Nov	24.4	21.9	21.9	24.7	24.0	20.8	18.4	15.6	6.8	6.7	18.7	27.7	29.5	C	C	C	C	C	5.5	2.4	3.0	5.2	17.4	23.7	16.75	29.47
19-Nov	24.2	26.0	24.5	26.9	26.0	25.0	23.0	17.1	14.4	15.2	19.1	21.4	26.1	26.9	30.3	28.8	26.1	19.1	7.7	0.5	0.5	0.5	16.5	22.5	19.52	30.26
20-Nov	21.6	21.1	20.5	16.6	12.2	3.3	0.6	2.8	4.5	11.2	25.7	24.0	25.7	26.2	27.0	28.2	25.0	22.1	23.5	21.6	25.8	30.8	29.5	26.4	19.83	30.84
21-Nov	16.4	1.2	2.3	14.0	33.5	33.7	32.8	33.0	32.2	32.3	32.3	32.8	32.3	29.0	35.5	35.9	35.7	32.1	32.5	35.3	32.7	31.3	34.6	33.4	29.04	35.94
22-Nov	33.2	34.9	32.6	34.7	35.8	35.2	30.5	23.5	9.6	17.6	28.9	36.4	37.4	37.3	37.2	36.6	34.7	22.5	11.8	22.8	25.9	24.1	22.6	25.2	28.81	37.42
23-Nov	24.5	25.8	15.1	9.7	6.5	15.0	9.7	8.1	4.9	9.8	10.7	16.5	17.0	20.2	22.3	19.8	25.7	26.8	27.7	27.6	27.8	27.1	28.4	26.8	18.90	28.36
24-Nov	24.1	22.8	22.5	22.3	22.8	22.8	23.9	25.3	24.5	26.0	26.0	24.7	25.0	26.2	25.4	25.1	19.8	2.1	6.1	9.0	6.4	2.0	3.3	6.9	18.54	26.22
25-Nov	4.5	3.6	4.4	7.1	9.0	11.1	5.3	1.6	1.3	8.4	9.0	5.7	10.3	13.7	13.1	13.5	4.1	1.5	1.2	1.1	1.2	1.3	1.3	4.4	5.73	13.71
26-Nov	3.3	1.5	7.3	12.5	15.3	19.0	17.5	17.3	16.3	18.3	18.8	18.2	19.1	21.0	24.3	22.2	15.5	8.2	6.2	9.0	10.1	12.4	13.2	18.2	14.37	24.30
27-Nov	15.4	19.6	19.5	23.1	23.8	25.2	14.2	20.1	10.6	7.2	8.2	13.0	4.1	1.5	0.8	0.9	1.1	0.9	0.8	0.7	1.0	3.3	9.3	2.9	9.46	25.18
28-Nov	12.1	10.7	18.8	18.6	19.2	17.4	2.1	5.5	16.4	24.6	21.0	19.7	24.9	23.5	22.2	17.3	9.5	2.9	1.1	1.0	8.2	12.4	11.3	15.6	14.00	24.94
29-Nov	19.4	18.0	9.7	20.4	17.1	10.9	5.9	16.3	20.8	20.7	17.4	21.6	25.3	28.1	20.4	2.6	1.0	5.0	12.8	13.2	9.0	4.2	3.2	2.8	13.58	28.06
30-Nov	5.5	17.4	15.9	2.1	3.4	10.5	2.2	3.3	7.0	12.8	17.5	21.7	22.7	19.5	9.4	2.7	1.4	1.4	1.4	1.5	1.6	1.1	1.3	1.3	7.69	22.70
																								Diurnal Average		
20.62 19.83 18.61 17.85 19.41 18.34 15.30 16.53 17.02 19.13 21.65 23.34 24.91 25.24 24.57 22.38 19.92 17.44 17.96 18.28 18.60 18.93 19.42 20.07																								Diurnal Maximum		
37.94 37.49 36.80 34.70 35.82 35.18 34.19 36.01 33.35 33.39 35.47 37.87 38.11 38.60 41.86 41.92 41.36 39.99 38.04 39.83 39.93 36.11 35.73 34.04																										
C - Calibration PF - Power Failure																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82.5 ppb 24-hr -- ppb																										



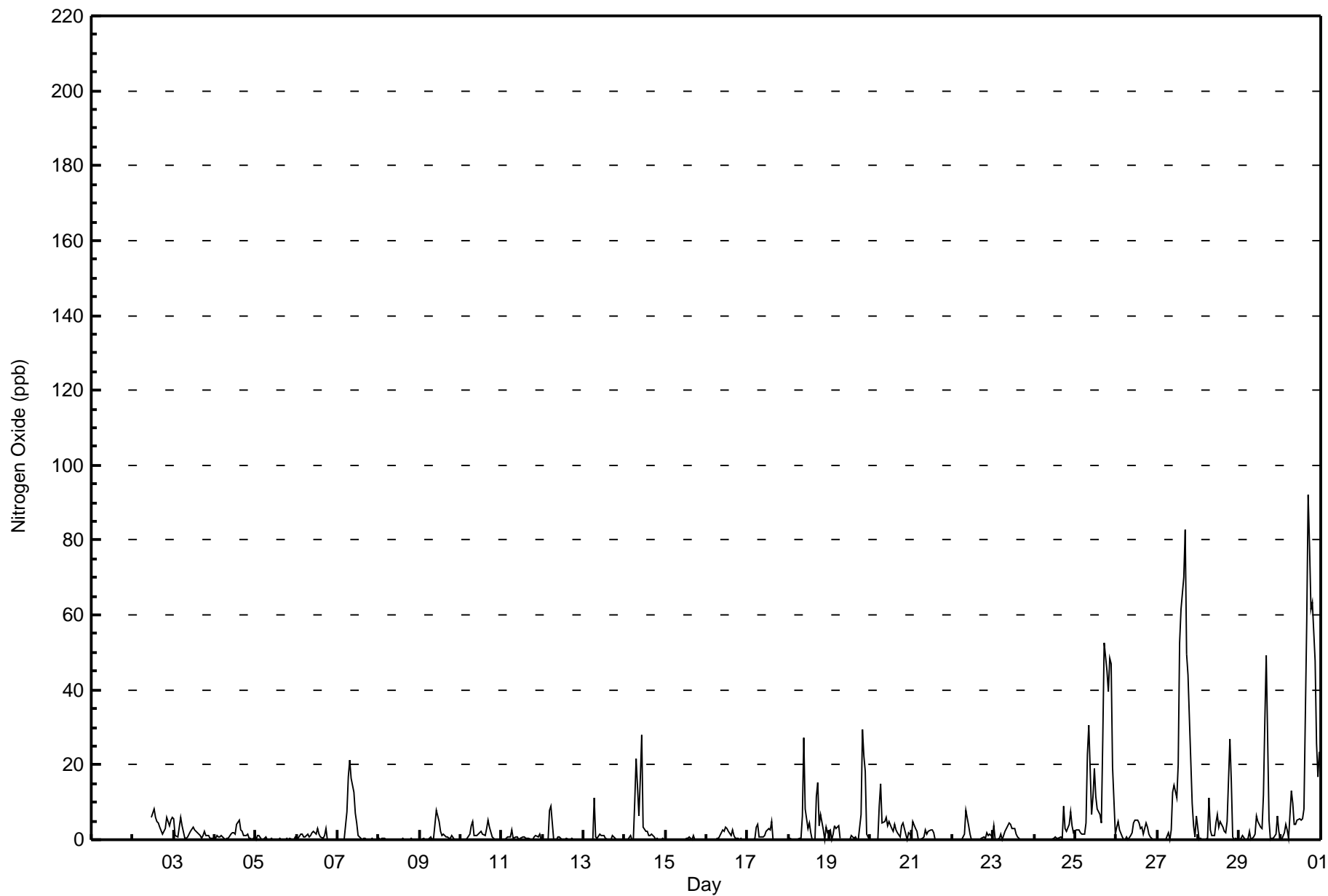


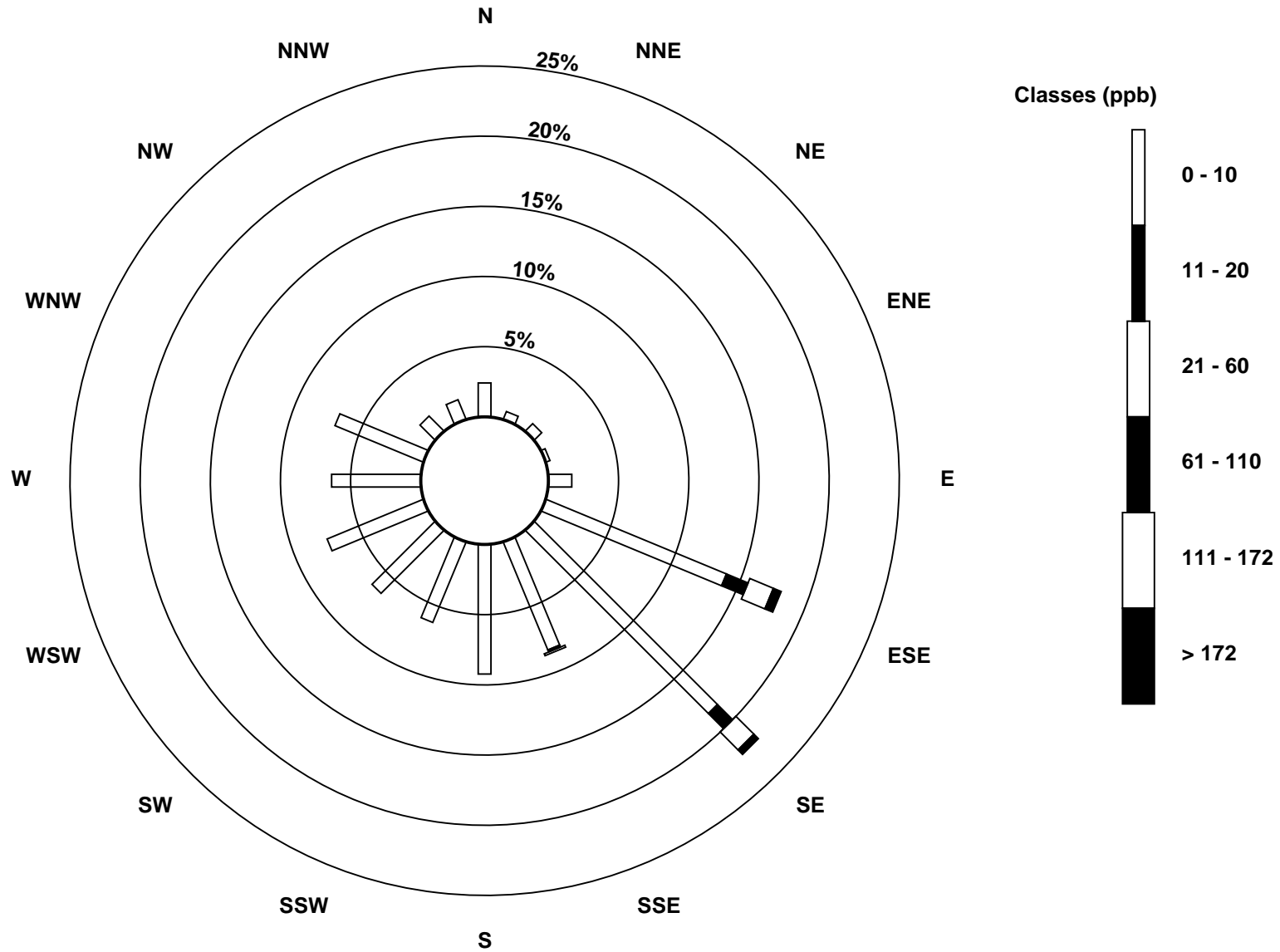


**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Nitrogen Oxide (NO) - ppb**  
**November 2015**

Maximum Value: 92.06 ppb on Nov 30 17:00      Maximum Daily Average: 22.41 ppb on Nov 30		Hours in Service: 720 Hours of Data: 680 Hours of Missing Data: 40 Hours of Calibration: 5 Percent Operational Time: 95.1																								
Minimum Value: 0.0 ppb on Nov 4 23:00 Maximum Diurnal Average: 9.82 ppb at hour 17 Monthly Average: 3.829 ppb		Minimum Daily Average: 0.08 ppb on Nov 8 Minimum Diurnal Average: 0.61 ppb at hour 2 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.6 Q <sub>3</sub> = 2.9 P <sub>90</sub> = 7.4 P <sub>99</sub> = 61.4																								
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	6.0	8.2	6.0	4.7	4.3	3.2	1.4	2.1	2.9	5.8	3.7	5.1	6.1	--	8.20
3-Nov	5.7	1.1	0.7	3.2	6.1	3.6	0.5	0.5	0.9	1.3	2.3	3.3	2.5	2.2	1.7	1.2	0.4	1.2	2.2	1.3	1.1	0.4	0.3	0.4	1.84	6.10
4-Nov	0.3	1.0	0.9	0.9	1.0	0.3	0.1	0.2	0.4	1.6	1.9	1.9	1.5	4.1	5.1	2.7	2.2	0.9	1.0	1.3	0.2	0.3	0.0	0.9	1.27	5.07
5-Nov	0.2	1.0	1.1	0.0	0.0	0.2	0.6	0.0	0.1	0.4	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.8	0.23	1.10
6-Nov	0.6	0.4	1.6	1.5	0.8	0.9	1.5	0.8	1.2	1.8	2.1	1.4	3.0	1.6	0.9	0.2	1.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	1.00	2.99
7-Nov	0.0	0.0	0.0	0.1	0.0	7.5	16.9	21.4	16.5	12.9	7.0	4.3	1.3	0.6	0.1	0.2	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	3.72	21.43
8-Nov	0.5	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.08	0.46
9-Nov	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.0	0.4	4.2	7.7	4.9	2.3	1.3	1.3	0.9	0.8	0.5	0.3	1.0	0.1	0.0	0.0	0.0	1.10	7.72
10-Nov	0.0	0.0	0.0	0.0	0.3	1.6	3.8	4.9	1.0	1.2	1.4	1.8	2.2	1.3	1.3	3.0	5.2	3.3	0.8	0.3	0.0	0.0	0.0	0.0	1.39	5.17
11-Nov	0.0	0.0	0.0	0.8	0.9	0.9	2.7	0.6	0.7	0.7	0.2	0.5	0.6	0.7	0.5	0.5	0.3	0.1	0.0	0.6	1.1	0.8	1.5	0.0	0.61	2.69
12-Nov	0.0	0.0	0.0	0.0	8.0	8.9	0.0	0.0	0.0	0.6	0.8	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.79	8.86
13-Nov	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.9	0.3	1.7	1.1	1.0	1.2	0.2	0.0	0.0	0.0	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.80	11.08
14-Nov	0.1	0.0	0.0	1.3	0.0	0.2	10.2	21.8	6.4	16.6	27.8	3.2	2.4	2.1	1.1	1.1	1.5	0.7	0.0	0.5	0.0	0.2	0.0	0.0	4.05	27.82
15-Nov	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	0.3	0.8	0.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12	1.17
16-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	1.0	2.7	2.4	3.2	2.9	2.2	1.0	2.5	1.0	0.6	0.4	0.0	0.4	0.0	0.0	0.0	0.87	3.23
17-Nov	0.0	0.1	0.1	0.0	0.2	3.5	4.1	0.6	0.6	0.7	1.2	2.3	2.9	2.5	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.98	4.71
18-Nov	0.0	0.3	0.0	0.1	0.1	0.2	0.4	0.4	6.4	27.4	8.1	3.0	4.3	2.0	0.0	0.0	11.6	15.4	3.7	6.8	2.5	0.1	3.5	1.7	4.08	27.37
19-Nov	2.5	0.0	1.6	3.8	2.9	3.8	0.3	C	C	C	C	C	0.0	1.0	0.4	0.8	0.2	0.1	6.8	29.4	22.5	18.1	1.5	0.0	5.03	29.35
20-Nov	0.0	0.0	0.0	0.0	0.2	9.0	14.8	4.5	4.9	6.0	3.7	4.8	2.9	2.2	4.0	2.7	1.7	0.8	3.6	4.3	2.9	0.1	2.0	1.3	3.19	14.80
21-Nov	0.9	4.8	2.9	2.1	0.0	0.2	0.3	0.8	2.5	1.4	2.3	2.6	2.4	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.05	4.82
22-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.4	7.9	3.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.5	1.9	1.1	1.4	0.6	0.90	7.88
23-Nov	3.8	0.0	0.0	0.4	1.4	0.0	1.1	2.3	3.7	4.3	4.0	2.8	2.8	1.4	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.21	4.30
24-Nov	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	0.4	0.4	0.7	0.5	8.9	3.0	2.2	4.2	7.5	3.6	1.9	1.44	8.85
25-Nov	2.6	2.7	2.5	2.0	1.5	1.6	4.4	22.7	30.7	6.6	11.5	19.0	11.6	8.0	6.6	4.6	26.8	52.7	45.0	39.7	48.5	46.8	19.4	1.6	17.47	52.67
26-Nov	3.4	4.9	2.5	0.6	0.0	0.0	0.8	0.0	1.2	2.0	4.6	5.2	5.2	4.4	2.9	3.3	1.6	4.5	3.5	1.4	0.6	0.1	0.0	0.0	2.20	5.23
27-Nov	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.1	2.8	12.5	14.6	11.0	20.3	52.7	61.4	70.0	82.6	49.7	44.1	32.5	9.6	3.9	0.8	6.5	19.87	82.60
28-Nov	0.2	0.5	0.0	0.0	0.0	0.5	11.1	2.6	1.0	1.3	4.6	6.5	3.3	4.9	3.2	2.4	1.7	4.7	26.7	15.6	0.8	0.1	0.3	0.0	3.84	26.74
29-Nov	0.0	0.3	1.3	0.0	0.0	0.3	2.2	0.2	0.7	1.6	6.4	4.9	3.4	3.1	12.0	31.6	49.1	5.1	0.1	0.3	0.3	1.6	6.4	2.1	5.54	49.08
30-Nov	0.2	0.0	1.7	4.1	2.7	0.4	13.2	9.8	4.2	4.0	5.2	5.4	5.2	5.7	8.3	58.6	92.1	78.3	61.5	63.3	47.8	25.7	16.9	23.4	22.41	92.06
																								Diurnal Average		
0.75 0.61 0.62 0.75 0.93 1.55 3.70 3.59 3.55 4.34 4.54 3.57 3.23 3.89 4.27 6.61 9.82 8.05 7.10 7.04 5.21 3.81 2.17 1.63																								Diurnal Maximum		
5.66 4.86 2.86 4.11 8.01 8.97 16.88 22.71 30.67 27.37 27.82 18.97 20.30 52.71 61.39 70.01 92.06 78.29 61.47 63.31 48.46 46.80 19.44 23.44																										
C - Calibration      PF - Power Failure																										
Alberta Ambient Air Quality Objectives (AAQO): 1-hr --- ppb      24-hr --- ppb																										





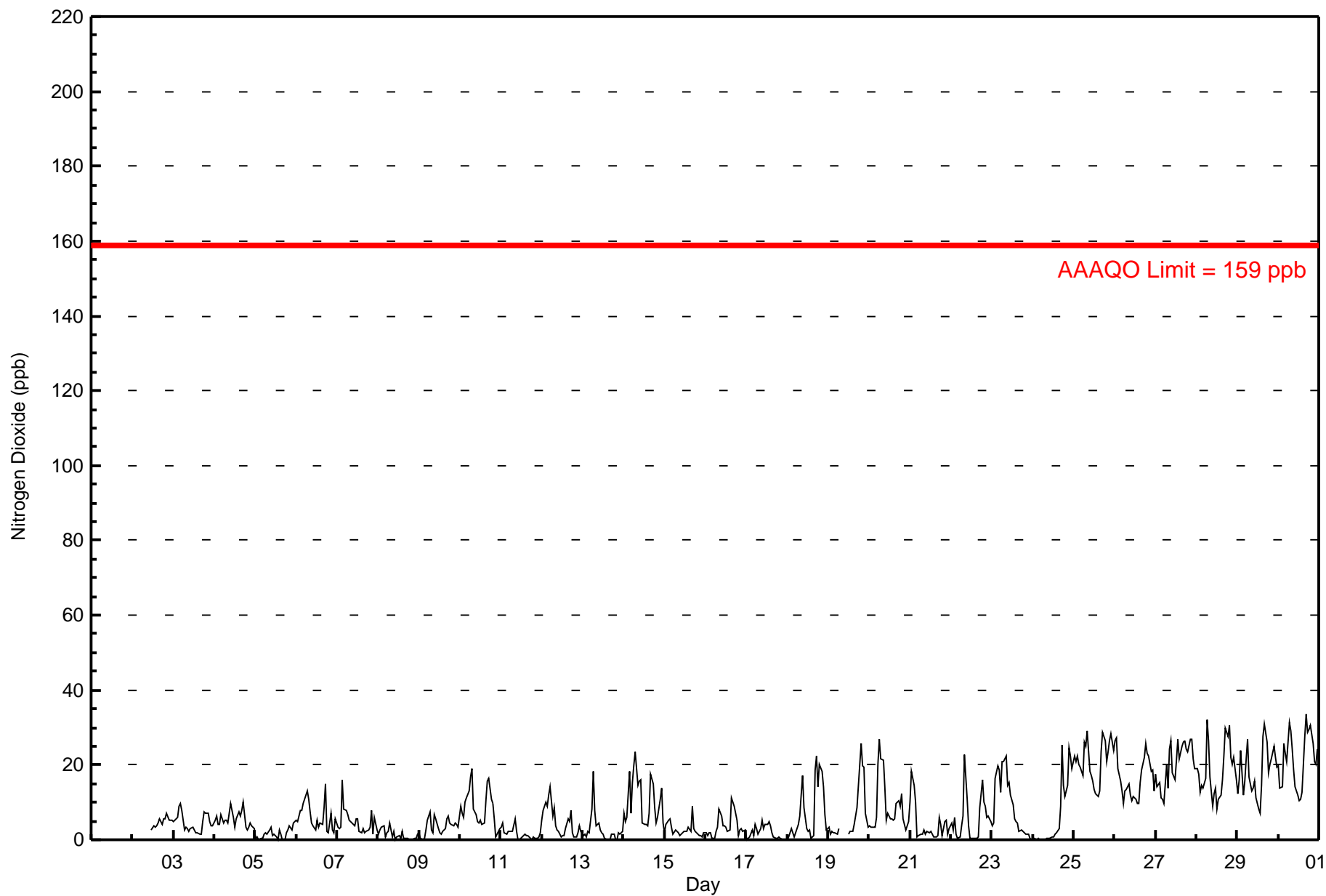


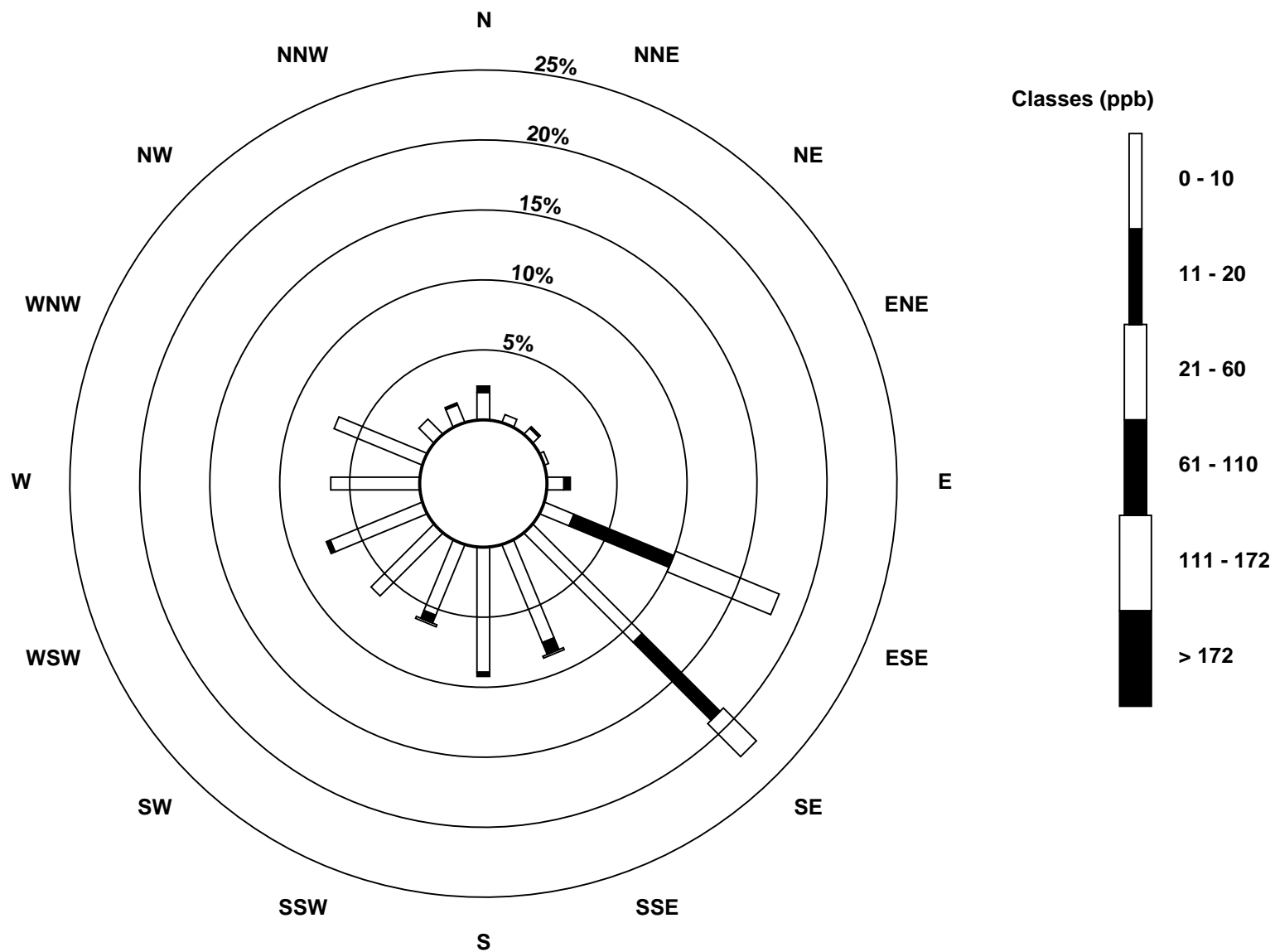


**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**November 2015**

Maximum Value: 33.50 ppb on Nov 30 17:00		Maximum Daily Average: 21.76 ppb on Nov 30		Hours in Service:	720																					
Minimum Value: 0.0 ppb on Nov 5 17:00		Minimum Daily Average: 1.32 ppb on Nov 8		Hours of Data:	680																					
Maximum Diurnal Average: 11.80 ppb at hour 18		Minimum Diurnal Average: 4.71 ppb at hour 14		Hours of Missing Data:	40																					
Monthly Average: 8.105 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 2.0 Median = 4.7 Q <sub>3</sub> = 12.9 P <sub>90</sub> = 21.5 P <sub>99</sub> = 29.6		Hours of Calibration:	5																					
				Percent Operational Time:	95.1																					
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	2.5	3.8	3.5	3.8	4.4	5.6	4.0	5.5	5.6	7.2	5.2	5.3	5.2	--	7.18
3-Nov	4.9	5.1	5.9	8.8	9.6	7.7	2.7	3.3	3.0	2.4	3.0	3.2	2.5	1.9	2.0	1.6	1.6	4.7	7.3	7.1	7.0	4.7	3.8	3.8	4.48	9.62
4-Nov	5.2	6.3	4.3	4.0	6.6	4.4	5.2	5.3	4.5	9.9	7.9	5.9	3.5	5.7	7.6	6.2	7.7	10.0	3.2	2.6	3.4	4.6	3.9	3.0	5.47	10.04
5-Nov	0.2	0.9	0.1	0.5	0.4	1.4	1.7	1.4	2.8	3.3	1.3	1.3	0.6	0.2	2.5	1.4	0.0	0.0	1.7	2.5	3.7	2.8	4.5	5.0	1.68	5.02
6-Nov	5.2	4.8	7.8	7.7	9.5	10.7	13.2	11.0	7.3	4.3	3.5	2.5	5.3	3.4	4.6	4.1	8.7	15.0	2.3	1.8	7.1	2.7	1.9	5.7	6.26	15.03
7-Nov	3.4	3.1	3.5	15.9	8.2	7.9	6.8	5.1	4.8	4.2	3.6	5.6	5.5	2.4	1.9	3.2	1.9	2.3	2.8	3.4	7.9	1.6	5.8	2.8	4.73	15.86
8-Nov	1.6	2.6	3.3	3.8	0.9	1.7	2.4	4.4	0.9	2.1	0.2	0.7	1.0	0.3	2.1	0.4	0.3	0.4	0.1	0.0	0.0	0.5	0.4	1.6	1.32	4.38
9-Nov	1.7	0.5	0.0	0.3	2.7	5.2	7.6	2.4	2.0	6.7	5.7	3.2	1.8	1.5	2.4	2.9	5.8	6.3	4.6	4.2	3.6	4.3	4.0	3.2	3.43	7.60
10-Nov	9.0	7.2	6.1	10.1	11.0	12.9	16.7	19.1	8.3	6.7	4.9	4.4	5.2	4.0	4.5	10.6	15.6	16.5	11.0	9.7	5.7	0.6	1.3	2.9	8.51	19.10
11-Nov	3.4	4.3	2.0	1.6	2.2	2.3	2.2	2.2	5.6	2.2	0.0	0.0	0.7	1.3	1.6	1.0	0.9	0.5	0.1	0.7	0.5	0.3	0.8	1.7	1.58	5.57
12-Nov	5.1	7.8	10.2	9.1	12.1	14.3	6.3	8.5	3.6	2.7	2.2	0.6	1.1	1.2	2.9	5.5	4.9	7.7	1.9	0.8	0.7	1.9	3.6	2.4	4.89	14.32
13-Nov	1.0	1.6	0.9	2.4	1.7	8.2	18.2	7.9	3.7	4.6	2.7	1.8	1.4	0.3	0.0	0.0	0.2	1.4	1.5	0.0	0.0	1.7	1.4	2.1	2.71	18.18
14-Nov	6.9	4.9	6.0	18.2	6.9	15.2	19.6	23.4	14.4	15.6	16.1	4.5	3.9	4.1	3.6	7.2	17.6	14.8	8.4	4.4	5.8	10.7	13.8	4.5	10.44	23.40
15-Nov	2.0	4.0	5.2	5.6	3.3	1.4	2.6	2.2	1.9	1.1	1.6	2.1	2.2	2.4	3.4	2.3	8.9	3.0	2.1	1.7	1.0	0.9	0.7	1.8	2.63	8.89
16-Nov	1.7	1.1	1.9	1.8	0.5	0.3	2.1	3.3	8.2	6.5	3.6	3.7	3.3	2.3	2.5	11.2	10.0	9.1	5.2	1.2	2.6	3.0	2.4	2.5	3.74	11.20
17-Nov	0.0	0.2	0.6	2.7	1.1	4.1	2.9	1.5	3.0	5.3	3.1	4.0	4.0	4.7	3.6	1.8	0.6	0.5	0.5	0.6	0.4	0.0	0.0	0.0	1.89	5.34
18-Nov	0.1	0.9	2.8	1.8	0.7	1.9	4.0	6.5	11.8	17.0	8.8	3.0	2.3	2.7	0.4	1.2	18.6	22.5	14.2	20.1	18.2	14.1	6.9	2.7	7.62	22.47
19-Nov	3.3	1.5	2.3	1.7	1.7	1.6	3.1	C	C	C	C	C	1.4	2.4	2.2	4.2	6.5	8.7	20.0	25.6	19.8	19.5	7.2	3.4	7.17	25.64
20-Nov	3.7	3.4	3.4	3.4	6.0	20.3	26.7	21.6	21.3	13.8	5.1	7.2	5.7	5.7	5.2	5.7	9.6	10.4	8.9	12.3	5.7	2.6	3.6	5.0	9.01	26.74
21-Nov	10.0	18.2	14.7	10.0	0.6	1.0	1.4	1.6	2.6	1.7	2.1	1.9	2.2	1.6	0.8	0.6	1.3	5.9	4.2	1.2	5.0	5.3	1.4	3.0	4.09	18.19
22-Nov	4.6	2.8	6.0	1.4	0.5	0.6	3.7	6.3	22.9	10.8	3.9	0.4	0.4	0.3	0.4	0.5	0.8	8.7	16.0	10.0	9.0	6.0	6.4	5.0	5.30	22.89
23-Nov	3.9	4.4	16.5	19.9	18.6	12.7	21.1	20.7	22.4	14.6	15.3	12.0	9.2	5.7	4.7	4.6	2.2	2.7	2.2	1.9	1.5	1.5	0.3	0.0	9.11	22.39
24-Nov	0.4	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.5	0.5	0.7	0.8	1.3	2.0	3.1	9.0	25.4	14.7	11.4	14.4	24.5	22.5	18.8	6.30	25.39
25-Nov	22.2	20.9	22.2	20.3	19.5	17.2	26.0	24.9	29.2	18.2	17.2	15.8	13.4	12.4	11.5	12.9	23.4	28.6	26.4	21.0	23.5	26.7	28.3	24.0	21.07	29.16
26-Nov	26.4	27.2	19.0	15.5	13.2	9.9	13.2	13.3	14.7	11.7	10.3	11.7	10.9	9.6	9.8	15.2	18.6	22.2	25.6	23.2	22.2	18.3	18.6	13.0	16.39	27.20
27-Nov	17.5	14.2	15.2	11.1	11.0	9.7	20.1	13.9	24.2	26.6	18.0	16.2	21.1	27.0	21.6	25.0	26.3	26.5	24.1	23.5	26.7	27.0	21.5	19.1	20.29	27.03
28-Nov	19.0	17.7	12.7	14.4	13.8	16.6	31.9	26.6	16.9	8.8	12.3	13.9	8.1	10.8	12.1	16.1	22.5	29.8	27.6	30.6	21.9	20.0	22.1	16.1	18.42	31.88
29-Nov	12.4	15.9	23.9	11.9	15.5	21.8	26.8	16.7	13.2	13.6	15.8	11.2	8.2	7.1	14.6	27.7	31.1	26.0	17.8	20.0	21.5	25.1	22.1	19.2	18.30	31.08
30-Nov	19.9	13.7	14.1	25.9	23.2	20.7	31.3	29.2	24.2	18.5	14.3	12.1	10.5	10.9	12.8	27.5	33.5	28.8	29.5	30.4	25.9	21.0	20.1	24.3	21.76	33.50
																								Diurnal Average		
																								Diurnal Maximum		
6.95 6.98 7.52 8.22 7.18 8.28 11.40 10.45 10.29 8.64 6.78 5.43 4.83 4.71 5.07 7.17 10.12 11.80 9.98 9.58 9.38 8.87 8.09 6.96																										
26.36 27.20 23.89 25.87 23.21 21.80 31.88 29.17 29.16 26.61 18.03 16.21 21.10 27.01 21.56 27.75 33.50 29.75 29.54 30.61 26.69 27.03 28.28 24.34																										
C - Calibration PF - Power Failure																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										





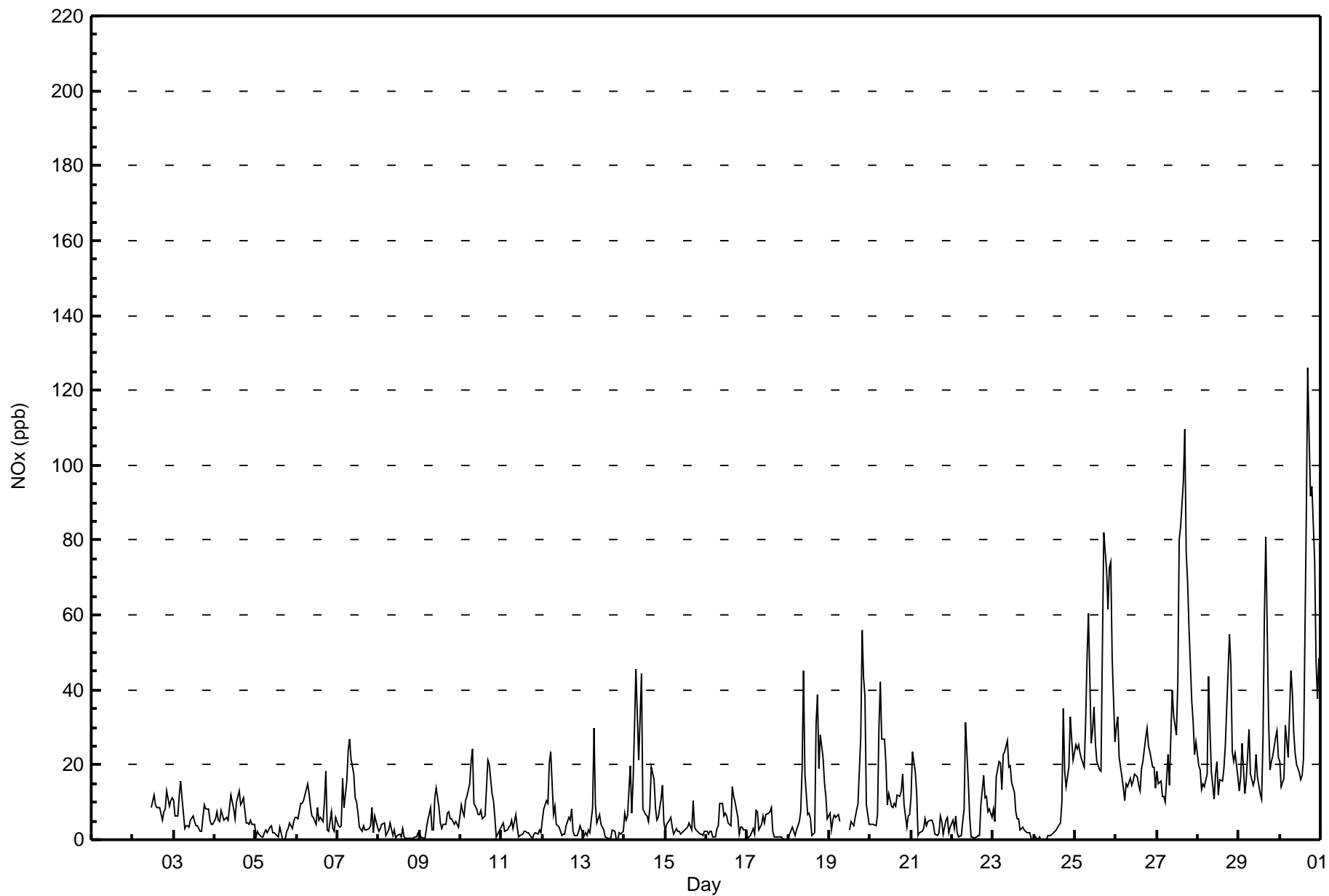


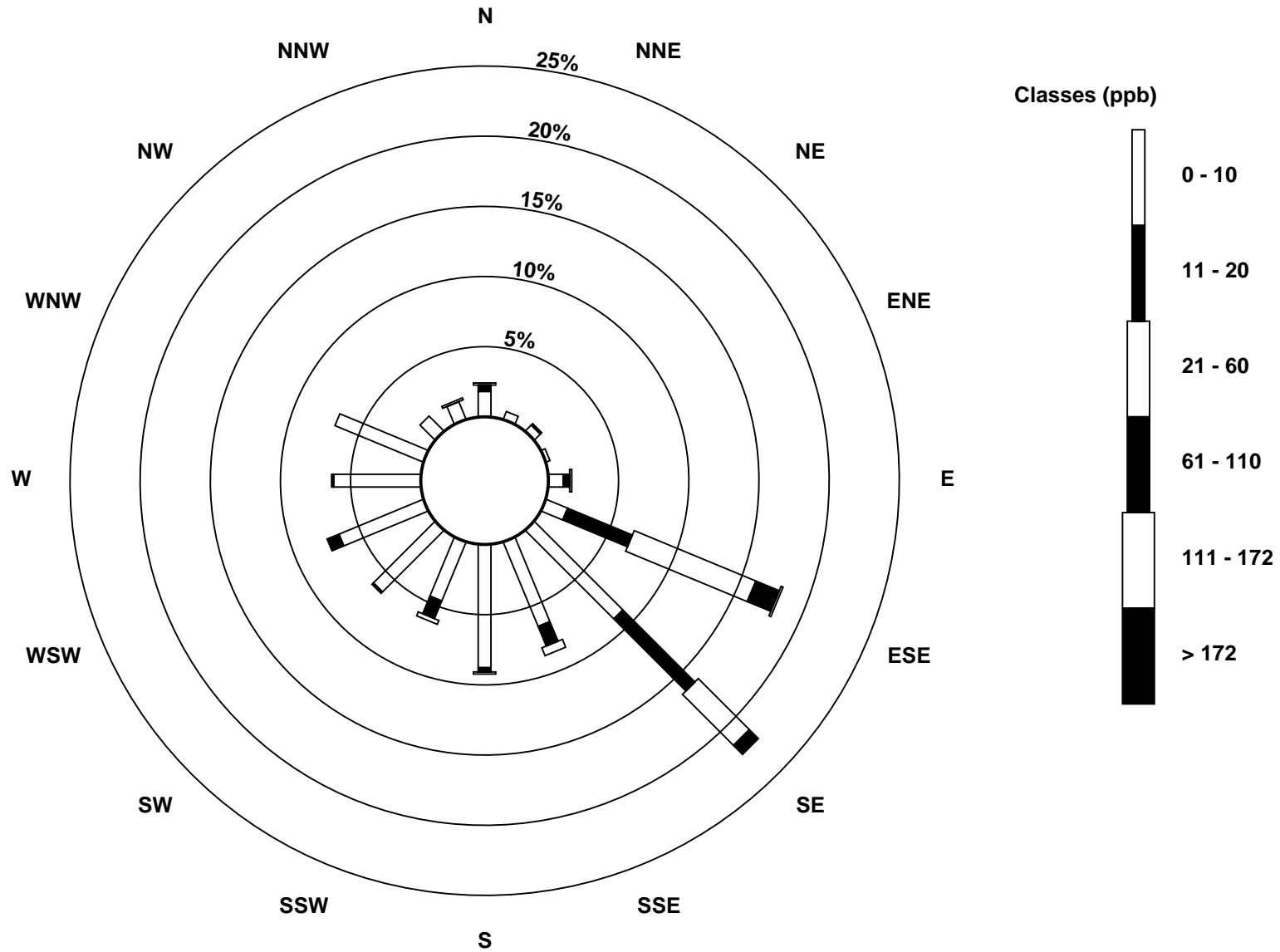
**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**NOx (NO<sub>x</sub>) - ppb**  
**November 2015**

Maximum Value: 126.20 ppb on Nov 30 17:00      Maximum Daily Average: 44.77 ppb on Nov 30 Minimum Value: 0.0 ppb on Nov 5 17:00      Minimum Daily Average: 1.67 ppb on Nov 8 Maximum Diurnal Average: 20.39 ppb at hour 17      Minimum Diurnal Average: 7.99 ppb at hour 2 Monthly Average: 12.357 ppb      Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 2.7 Median = 6.5 Q <sub>3</sub> = 16.1 P <sub>90</sub> = 27.8 P <sub>99</sub> = 85.1																								Hours in Service:	720	
																								Hours of Data:	680	
																								Hours of Missing Data:	40	
																								Hours of Calibration:	5	
																								Percent Operational Time:	95.1	
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	8.6	11.8	9.4	8.4	8.6	8.6	5.4	7.4	8.4	13.0	8.8	10.3	11.3	--	12.98
3-Nov	10.4	6.3	6.5	11.7	15.6	11.2	3.1	3.8	3.9	3.3	5.1	6.4	4.9	3.8	3.7	2.4	2.3	5.8	9.4	8.2	8.1	5.2	4.0	4.0	6.20	15.56
4-Nov	5.5	7.3	5.1	4.8	7.8	5.1	5.7	6.0	5.2	11.7	10.0	8.1	5.4	10.0	13.1	9.2	10.1	11.2	4.5	4.3	4.0	5.3	4.1	4.3	6.99	13.06
5-Nov	0.7	2.2	1.6	0.8	0.7	1.9	2.6	1.7	3.3	3.9	1.9	1.7	1.2	0.6	3.2	1.7	0.0	0.3	2.3	2.8	4.5	3.0	5.0	6.1	2.24	6.08
6-Nov	6.1	5.6	9.7	9.6	10.6	11.9	14.9	12.3	8.9	6.5	5.8	4.2	8.6	5.3	5.8	4.7	10.1	18.2	2.6	2.1	7.5	3.0	2.2	5.9	7.59	18.21
7-Nov	3.6	3.3	3.7	16.3	8.6	15.7	24.0	26.9	21.8	17.4	11.0	10.3	7.2	3.2	2.4	3.7	2.5	2.5	2.9	3.6	8.4	1.9	6.2	3.2	8.76	26.95
8-Nov	2.2	2.8	4.0	4.5	1.3	1.9	2.6	4.6	1.3	2.6	0.5	1.0	1.6	0.6	2.8	0.8	0.4	0.4	0.3	0.5	0.3	0.7	0.6	1.8	1.67	4.60
9-Nov	1.8	0.7	0.4	0.5	3.0	5.4	8.5	2.7	2.7	11.2	13.9	8.4	4.3	3.1	4.0	4.1	6.9	7.3	5.4	5.5	4.2	4.7	4.2	3.4	4.85	13.87
10-Nov	9.3	7.4	6.4	10.6	11.7	14.9	20.7	24.4	9.7	8.2	6.7	6.6	7.7	5.6	6.2	14.0	21.2	20.2	12.1	10.6	6.0	0.8	1.6	3.1	10.24	24.40
11-Nov	3.6	4.7	2.3	2.7	3.4	3.6	5.3	3.1	6.8	3.4	0.6	1.0	1.5	2.2	2.4	1.9	1.7	0.8	0.4	1.5	1.8	1.4	2.7	1.9	2.53	6.77
12-Nov	5.3	8.1	10.5	9.5	20.5	23.5	6.8	8.9	4.1	3.6	3.2	1.2	1.5	1.6	3.6	6.1	5.3	8.3	2.1	1.0	1.0	2.2	3.9	2.6	6.01	23.48
13-Nov	1.2	1.8	1.2	2.6	2.0	8.5	29.7	9.2	4.5	6.8	4.0	3.3	2.8	0.9	0.4	0.5	0.4	2.8	2.2	0.1	0.2	1.8	1.7	2.3	3.78	29.66
14-Nov	7.2	5.1	6.2	19.8	7.1	15.8	30.2	45.5	21.2	32.5	44.4	8.0	6.7	6.5	4.9	8.6	19.5	15.9	8.6	5.2	6.0	10.9	14.5	4.7	14.80	45.55
15-Nov	2.2	4.2	5.4	5.9	3.4	1.6	2.9	2.4	2.1	1.5	2.0	2.6	3.0	3.2	4.5	2.8	10.5	3.3	2.4	2.1	1.4	1.4	1.0	2.1	3.07	10.45
16-Nov	2.3	1.5	2.2	2.3	0.8	0.6	2.9	3.8	9.5	9.5	6.4	7.0	6.5	4.6	3.7	14.1	11.4	10.0	6.0	1.4	3.3	3.3	2.7	2.7	4.94	14.07
17-Nov	0.2	0.8	1.0	3.0	1.6	8.0	7.3	2.4	4.0	6.4	4.6	6.8	7.1	7.6	8.7	2.2	0.8	0.6	0.7	0.9	0.6	0.0	0.0	0.0	3.13	8.66
18-Nov	0.2	1.6	3.3	2.3	1.1	2.6	4.8	7.4	18.9	45.0	17.7	6.7	7.1	5.5	1.2	1.9	31.0	38.7	18.9	28.0	21.9	15.4	11.6	5.5	12.43	45.00
19-Nov	7.0	2.7	5.1	6.9	5.9	6.7	4.8	C	C	C	C	C	2.6	4.7	3.7	5.8	7.7	9.8	27.7	55.9	43.3	38.5	9.4	4.1	13.28	55.91
20-Nov	4.2	4.0	4.0	3.8	6.7	29.8	42.1	26.7	26.8	20.4	9.3	12.4	9.0	8.4	9.6	8.9	11.9	11.7	13.1	17.4	9.3	3.2	6.2	6.7	12.74	42.12
21-Nov	11.4	23.5	18.1	12.7	1.2	1.7	2.1	2.9	5.6	3.6	4.9	5.2	5.2	4.0	1.3	1.1	1.7	6.3	4.7	1.5	5.4	5.8	1.8	3.3	5.64	23.54
22-Nov	5.1	3.2	6.3	1.8	0.9	1.0	4.8	8.3	31.3	15.1	5.9	0.8	0.8	0.5	0.8	0.9	1.2	9.4	17.3	11.2	11.5	7.4	8.4	6.0	6.66	31.28
23-Nov	8.2	4.7	16.9	20.8	20.6	13.3	22.7	23.6	26.6	19.5	19.9	15.4	12.5	7.5	5.8	5.4	2.7	3.2	2.7	2.3	1.9	1.8	0.6	0.0	10.77	26.60
24-Nov	0.8	0.7	0.0	0.6	0.1	0.1	0.0	0.1	1.0	1.0	1.2	1.9	2.2	2.7	3.2	4.3	10.2	34.9	18.3	14.3	19.3	32.8	26.8	21.4	8.24	34.87
25-Nov	25.5	24.4	25.4	23.0	21.8	19.5	31.1	48.3	60.5	25.6	29.5	35.4	25.7	21.0	18.7	18.2	50.9	81.9	72.1	61.4	72.6	74.1	48.4	26.3	39.23	81.94
26-Nov	30.3	32.7	22.1	16.8	13.9	10.5	14.8	14.0	16.6	14.4	15.5	17.6	16.8	14.7	13.1	19.2	20.8	27.4	29.8	25.1	23.4	19.3	19.5	13.7	19.24	32.66
27-Nov	18.3	14.8	15.8	11.6	11.5	10.2	22.7	14.6	27.6	39.8	33.3	27.8	42.1	80.3	83.7	95.7	109.6	76.9	68.8	56.6	36.9	31.5	22.9	26.1	40.79	109.57
28-Nov	19.9	18.7	13.4	15.0	14.3	17.6	43.5	29.8	18.3	10.6	17.4	20.9	12.0	16.1	15.8	19.0	24.8	35.0	54.8	46.7	23.4	20.8	23.0	16.8	22.84	54.83
29-Nov	13.1	16.9	25.8	12.4	16.2	22.9	29.6	17.6	14.5	15.9	22.9	16.7	12.1	10.8	27.1	59.9	80.8	31.7	18.6	20.8	22.5	27.2	29.0	21.8	24.45	80.76
30-Nov	20.9	14.3	16.4	30.4	26.5	21.9	45.0	39.5	28.9	23.1	20.0	18.1	16.1	17.2	21.6	86.6	126.2	107.8	91.7	94.4	74.4	47.4	37.7	48.4	44.77	126.20
																								Diurnal Average	8.96	
																								Diurnal Maximum	48.45	

C - Calibration      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb      24-hr --- ppb







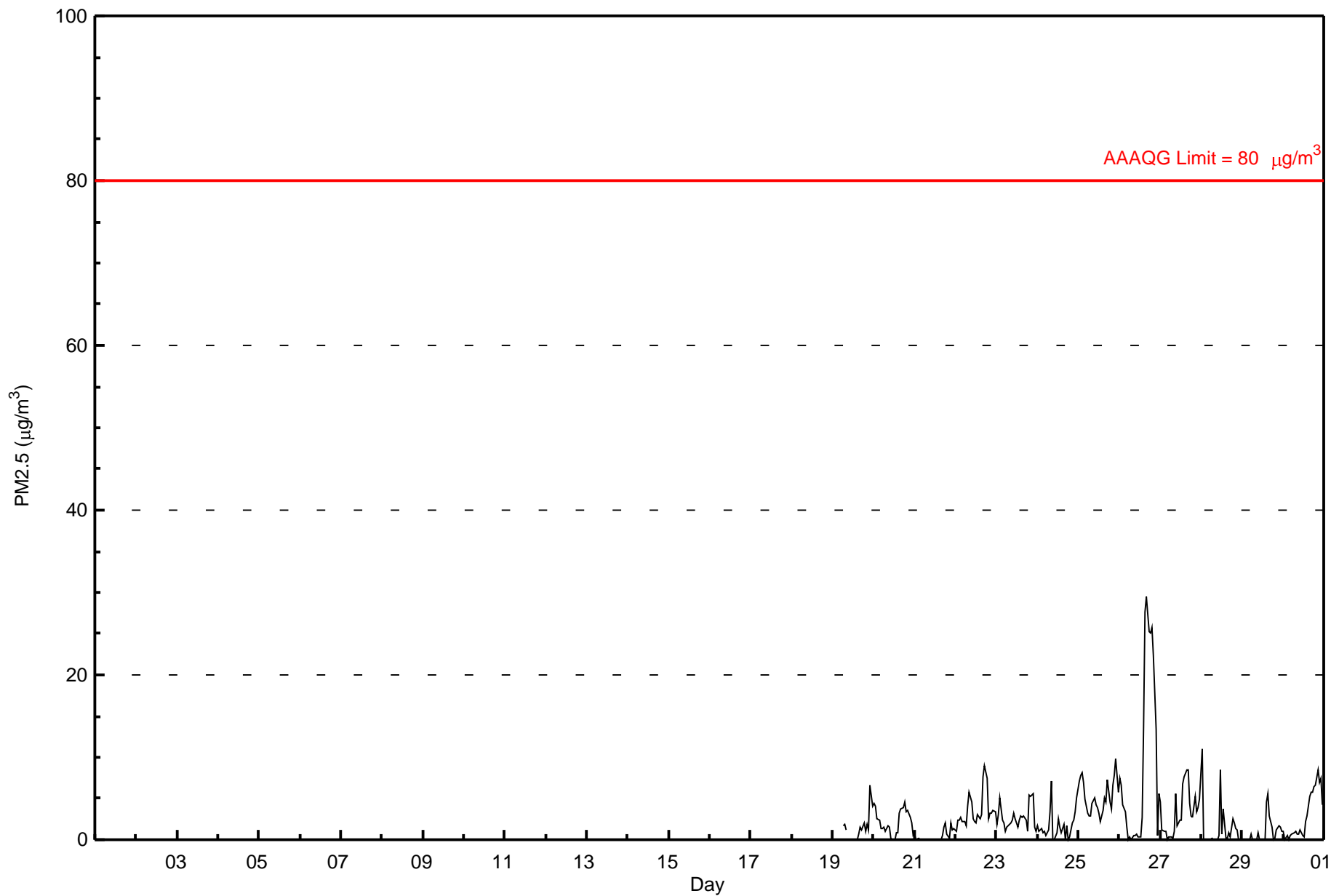
**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**PM2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**November 2015**

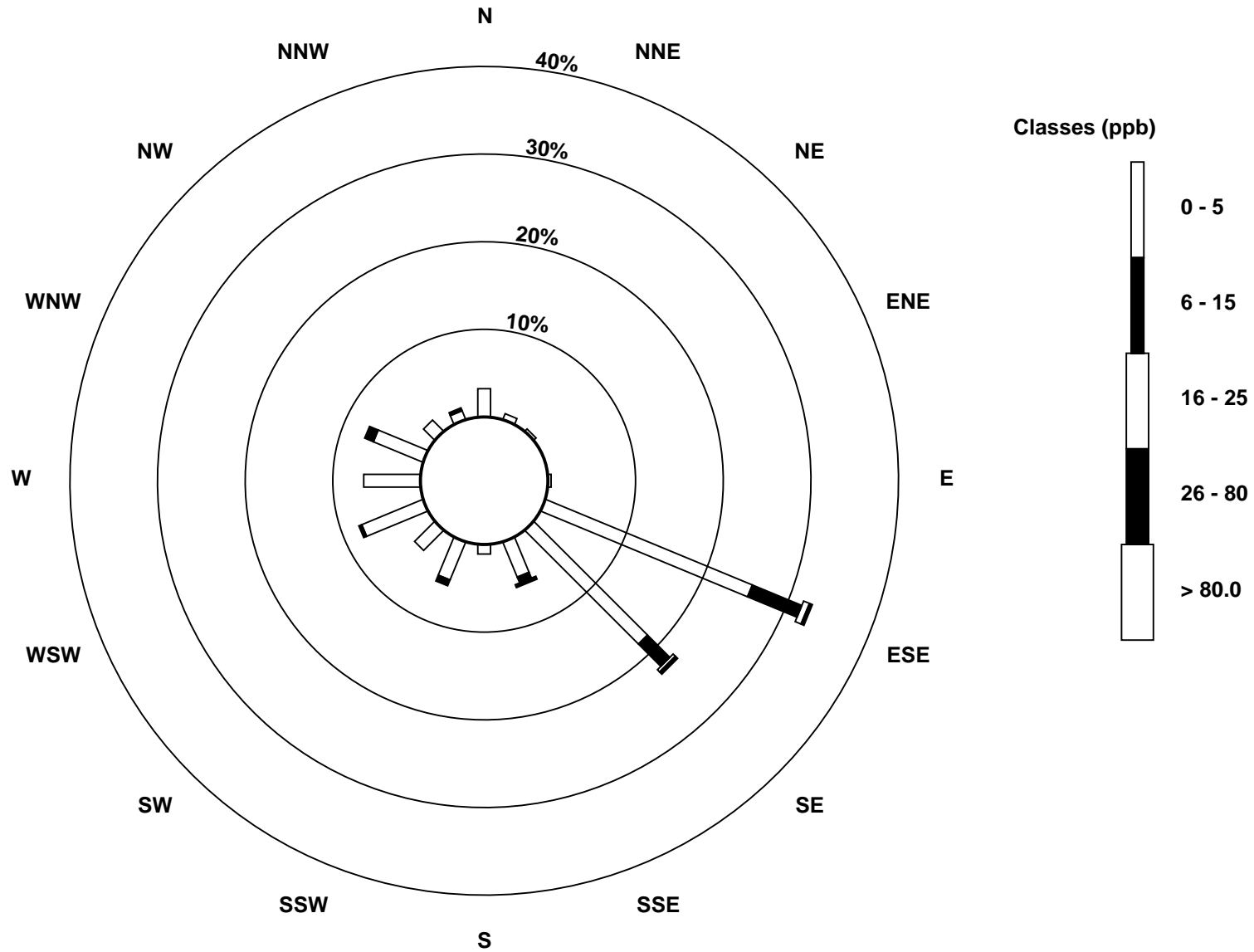
Maximum Value: 29.43 µg/m <sup>3</sup> on Nov 26 17:00	Maximum Daily Average: 9.05 µg/m <sup>3</sup> on Nov 26	Hours in Service: 301
Minimum Value: 0.0 µg/m <sup>3</sup> on Nov 19 14:00	Minimum Daily Average: 0.42 µg/m <sup>3</sup> on Nov 21	Hours of Data: 278
Maximum Diurnal Average: 5.69 µg/m <sup>3</sup> at hour 17	Minimum Diurnal Average: 0.91 µg/m <sup>3</sup> at hour 6	Hours of Missing Data: 23
Monthly Average: 2.965 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.4 Median = 1.7 Q <sub>3</sub> = 3.8 P <sub>90</sub> = 6.9 P <sub>99</sub> = 25.2	Hours of Calibration: 4
		Percent Operational Time: 93.7

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-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	
2-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
3-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
4-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
5-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
6-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
7-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
8-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
9-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
10-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
11-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
12-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
13-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
14-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
15-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
16-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
17-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--
18-Nov	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
19-Nov	M	M	M	M	M	M	1.6	1.8	1.2	C	C	C	C	0.0	0.0	0.6	1.5	1.2	2.1	1.1	1.9	1.2	6.7	4.1	--	6.66	
20-Nov	4.5	4.1	2.5	2.4	1.4	1.4	1.6	1.1	1.7	1.6	0.1	0.0	0.0	0.8	0.9	3.3	3.8	3.9	4.5	3.5	3.6	2.7	2.0	0.4	2.15	4.54	
21-Nov	0.7	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	0.4	1.5	2.0	0.6	0.1	2.0	1.2	1.4	0.42	2.03	
22-Nov	1.0	2.4	2.4	2.6	2.1	2.3	1.8	4.1	5.8	4.6	2.5	2.2	2.1	3.0	2.5	3.0	7.7	9.0	7.5	2.5	3.2	3.3	3.6	3.4	3.52	8.96	
23-Nov	1.8	3.1	5.1	2.4	2.1	1.0	1.6	1.6	2.0	2.4	3.2	2.6	1.5	2.4	2.9	2.7	2.8	2.3	1.0	5.4	5.2	5.7	1.5	1.0	2.63	5.66	
24-Nov	1.6	1.0	1.3	0.8	1.0	0.5	1.2	3.4	7.2	0.0	0.0	0.8	2.6	1.5	0.9	1.9	0.0	1.7	0.1	0.3	2.0	2.4	3.5	5.1	1.69	7.19	
25-Nov	7.1	7.9	8.2	7.0	4.9	3.3	2.9	2.9	4.4	5.2	4.3	3.8	3.2	2.3	3.6	5.0	4.5	7.3	4.5	3.8	6.6	7.8	9.8	5.7	5.25	9.83	
26-Nov	7.5	6.5	4.2	3.4	1.5	0.0	0.3	0.0	0.4	0.5	0.7	0.4	0.3	2.8	13.8	27.6	29.4	25.3	25.0	25.8	22.3	13.4	0.5	5.6	9.05	29.43	
27-Nov	4.5	1.3	1.1	0.9	0.0	0.3	0.4	0.2	1.1	5.6	1.7	2.4	2.3	6.7	7.7	8.6	8.4	4.5	2.8	2.7	5.3	3.5	3.9	4.9	3.37	8.56	
28-Nov	11.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.6	8.5	0.8	3.8	0.1	0.2	0.8	0.3	2.5	2.1	1.3	1.3	0.0	0.0	1.40	10.99	
29-Nov	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	4.6	5.5	3.0	1.4	0.0	0.3	1.2	1.7	1.5	1.0	0.91	5.52	
30-Nov	1.0	0.0	0.4	0.0	0.6	0.6	0.9	1.0	0.7	0.7	1.2	0.5	0.4	2.3	2.9	5.3	5.8	5.7	6.5	6.6	8.5	6.9	7.4	4.3	2.92	8.47	
	3.69	2.39	2.32	1.77	1.23	0.91	1.05	1.34	2.03	1.95	1.30	1.92	1.18	2.12	3.32	5.31	5.69	5.33	4.88	4.54	5.09	4.31	3.46	3.09		Diurnal Average	
	10.99	7.87	8.18	6.96	4.86	3.27	2.91	4.10	7.19	5.62	4.30	8.47	3.17	6.70	13.79	27.60	29.43	25.28	25.03	25.75	22.32	13.37	9.83	5.73		Diurnal Maximum	

C - Calibration      M - Maintenance      NS - Not in Service  
 Alberta Ambient Air Quality Objectives (AAQO): 1-hr 80 µl/m<sup>3</sup>    24-hr 30 µl/m<sup>3</sup>





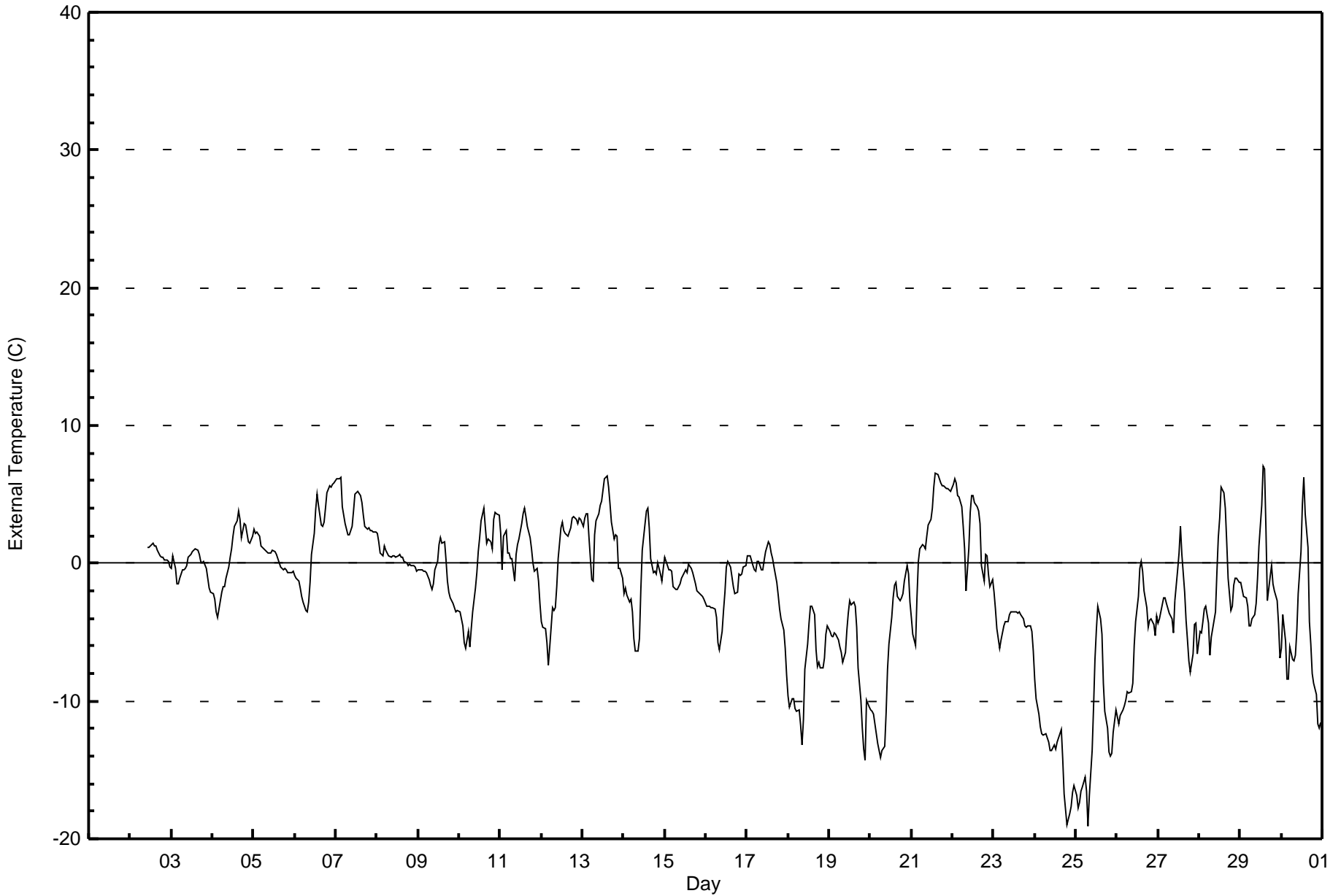




**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**External Temperature (ET) - C**  
**November 2015**

<b>Maximum Value: 7.03 C on Nov 29 14:00</b> <b>Maximum Daily Average: 3.75 C on Nov 7</b>																								<b>Hours in Service: 720</b>		
<b>Minimum Value: -19.1 C on Nov 25 08:00</b> <b>Minimum Daily Average: -13.84 C on Nov 24</b>																								<b>Hours of Data: 686</b>		
<b>Maximum Diurnal Average: 1.41 C at hour 14</b> <b>Minimum Diurnal Average: -4.28 C at hour 9</b>																								<b>Hours of Missing Data: 34</b>		
<b>Monthly Average: -2.145 C</b> <b>Percentiles: P<sub>1</sub> = -16.9 P<sub>10</sub> = -10.0 Q<sub>1</sub> = -4.5 Median = -1.1 O<sub>3</sub> = 1.2 P<sub>90</sub> = 3.6 P<sub>99</sub> = 6.2</b>																								<b>Hours of Calibration: 0</b>		
<b>Percent Operational Time: 95.3</b>																										
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-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
2-Nov	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	1.1	1.1	1.3	1.4	1.3	1.3	0.9	0.6	0.5	0.4	0.2	0.3	0.1	-0.2	--	1.43
3-Nov	-0.4	0.5	-0.4	-1.5	-1.5	-1.1	-0.4	-0.4	-0.3	-0.2	0.4	0.7	0.8	0.9	1.1	1.0	0.6	0.2	0.1	0.1	-0.4	-1.1	-1.7	-2.1	-0.21	1.08
4-Nov	-2.2	-2.6	-3.6	-3.9	-3.3	-2.1	-1.7	-1.7	-1.1	-0.2	0.4	1.0	2.0	2.7	3.1	3.8	3.2	1.8	2.9	2.8	2.2	1.6	1.4	2.0	0.35	3.81
5-Nov	2.5	2.2	2.3	2.0	1.3	1.2	1.0	0.9	0.8	0.8	0.8	1.0	0.8	0.6	0.3	0.1	-0.3	-0.4	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6	0.59	2.47
6-Nov	-0.9	-1.1	-1.3	-1.8	-2.4	-2.8	-3.4	-3.5	-2.8	-1.4	0.6	2.2	3.9	5.0	4.2	2.8	2.7	3.0	4.0	5.1	5.7	5.5	5.7	5.8	1.45	5.80
7-Nov	6.2	6.2	6.2	6.2	4.1	2.9	2.5	2.1	2.0	2.7	3.8	5.0	5.1	5.2	4.9	4.4	3.5	2.6	2.5	2.6	2.3	2.4	2.3	2.3	3.75	6.21
8-Nov	2.2	1.5	0.7	0.6	1.2	0.9	0.8	0.5	0.4	0.5	0.6	0.5	0.5	0.6	0.4	0.4	0.1	0.0	-0.2	-0.1	-0.1	-0.2	-0.3	-0.6	0.47	2.21
9-Nov	-0.5	-0.5	-0.5	-0.6	-0.6	-0.7	-1.2	-1.6	-1.9	-1.5	-0.5	0.1	1.4	1.8	1.5	1.5	0.2	-1.3	-2.1	-2.5	-3.0	-3.2	-3.6	-3.4	-0.94	1.84
10-Nov	-3.5	-4.0	-4.6	-5.8	-6.2	-5.0	-6.1	-4.8	-3.5	-1.8	-0.7	0.8	1.9	3.1	4.0	2.7	1.4	1.8	1.5	1.0	3.2	3.7	3.6	3.4	-0.57	4.01
11-Nov	2.1	-0.4	1.9	2.4	0.7	0.7	0.3	0.4	-1.3	0.6	1.4	1.8	2.8	3.6	4.0	3.4	2.7	1.8	1.1	0.1	-0.5	-0.4	-1.3	-2.9	1.04	4.00
12-Nov	-4.2	-4.7	-4.7	-5.8	-7.4	-6.0	-3.3	-3.4	-3.2	-1.7	0.3	2.6	3.0	2.4	2.1	2.0	2.3	2.5	3.3	3.4	3.1	2.9	3.3	3.2	-0.33	3.38
13-Nov	2.6	3.3	3.6	3.6	1.8	-1.2	-1.3	2.0	3.0	3.5	4.2	4.5	5.3	6.1	6.3	5.5	4.3	3.0	1.8	2.1	1.9	-0.4	-0.4	-1.1	2.67	6.30
14-Nov	-2.2	-1.8	-2.3	-2.8	-2.6	-3.5	-5.4	-6.4	-6.3	-5.5	-1.9	0.9	2.9	3.8	4.0	2.5	0.4	-0.6	-0.5	-0.8	0.0	-0.8	-1.3	-0.4	-1.28	3.95
15-Nov	0.4	0.1	-0.5	-0.4	-0.6	-1.7	-1.9	-1.9	-1.7	-1.5	-1.0	-0.7	-0.4	-0.7	-0.1	-0.4	-0.6	-1.1	-1.5	-2.0	-2.2	-2.3	-2.4	-2.7	-1.16	0.43
16-Nov	-3.1	-3.1	-3.1	-3.2	-3.2	-3.4	-4.0	-5.8	-6.2	-4.9	-3.4	-2.1	-0.3	0.1	-0.2	-0.9	-1.7	-2.2	-2.1	-0.7	-0.9	-0.7	-0.3	-0.2	-2.32	0.13
17-Nov	0.6	0.5	0.5	-0.1	-0.5	-0.5	0.1	0.1	-0.5	-0.5	0.2	0.8	1.6	1.4	0.7	0.4	-0.3	-1.4	-2.3	-3.3	-4.0	-4.8	-6.2	-8.1	-1.07	1.60
18-Nov	-9.6	-10.5	-9.8	-9.8	-10.5	-10.8	-10.6	-11.8	-13.2	-11.3	-7.7	-5.9	-4.4	-3.1	-3.1	-3.7	-6.3	-7.5	-7.2	-7.6	-7.6	-6.9	-5.1	-4.5	-7.86	-3.08
19-Nov	-4.9	-5.3	-5.4	-5.1	-5.1	-5.6	-6.1	-6.5	-7.2	-6.5	-4.8	-3.6	-2.7	-3.0	-2.8	-3.1	-4.7	-7.6	-10.0	-12.0	-13.5	-14.3	-9.9	-10.4	-6.67	-2.74
20-Nov	-10.6	-10.8	-10.9	-12.3	-13.1	-13.6	-14.1	-13.6	-13.3	-10.9	-7.7	-5.8	-4.0	-2.5	-1.6	-1.4	-2.4	-2.7	-2.5	-2.2	-1.3	-0.2	-0.8	-2.8	-6.71	-0.22
21-Nov	-3.9	-5.1	-6.0	-2.5	0.2	1.0	1.3	1.2	1.1	2.0	2.8	3.2	4.0	5.5	6.5	6.5	6.1	5.8	5.6	5.6	5.5	5.5	5.3	5.2	2.60	6.50
22-Nov	5.7	6.1	5.8	4.9	4.8	4.1	2.7	1.1	-2.0	1.0	3.7	4.9	4.9	4.4	4.1	3.8	2.9	-0.1	-1.3	0.7	0.5	-0.7	-1.7	-1.2	2.46	6.15
23-Nov	-2.1	-3.3	-4.7	-6.1	-5.6	-5.0	-4.5	-4.3	-4.2	-3.8	-3.5	-3.5	-3.6	-3.7	-3.6	-3.7	-4.0	-4.5	-4.6	-4.6	-4.5	-4.9	-6.4	-4.25	-4.25	-2.08
24-Nov	-8.4	-9.8	-11.0	-11.9	-12.3	-12.5	-12.4	-12.7	-13.0	-13.6	-13.6	-13.2	-13.5	-13.0	-12.6	-12.1	-14.2	-16.8	-17.8	-19.0	-18.2	-17.7	-16.7	-16.1	-13.84	-8.42
25-Nov	-16.8	-17.7	-17.4	-16.5	-16.2	-15.5	-16.5	-19.1	-16.9	-13.6	-10.4	-7.0	-4.8	-3.1	-4.0	-5.1	-8.7	-10.7	-12.0	-13.7	-14.0	-13.8	-12.2	-10.7	-12.36	-3.12
26-Nov	-11.2	-11.7	-11.0	-10.6	-10.3	-9.9	-9.4	-9.5	-9.3	-8.7	-5.9	-4.3	-2.4	-0.4	0.2	-0.6	-2.0	-3.2	-4.6	-4.2	-4.0	-4.5	-5.2	-3.9	-6.11	0.18
27-Nov	-4.3	-4.0	-3.0	-2.5	-2.5	-2.9	-3.6	-3.8	-4.1	-5.0	-2.7	-0.5	0.7	2.6	0.6	-2.1	-4.2	-5.6	-7.1	-7.9	-6.5	-4.5	-4.4	-6.6	-3.48	2.63
28-Nov	-4.9	-5.1	-4.2	-3.3	-3.1	-4.4	-6.6	-5.3	-4.8	-3.5	-0.6	1.9	3.3	5.5	5.1	4.0	1.6	-1.1	-3.4	-3.2	-1.6	-1.1	-1.1	-1.4	-1.55	5.55
29-Nov	-1.4	-1.9	-2.4	-2.5	-3.1	-4.6	-4.5	-4.0	-3.7	-3.0	-1.0	1.3	4.2	7.0	6.8	2.4	-2.7	-0.9	-0.2	-1.4	-2.0	-2.7	-4.4	-6.9	-1.32	7.03
30-Nov	-6.1	-3.7	-5.6	-8.4	-8.4	-6.1	-7.0	-7.0	-6.7	-5.0	-2.2	0.9	4.3	6.2	3.6	1.1	-4.2	-5.9	-8.0	-8.7	-9.6	-11.6	-12.0	-11.5	-5.08	6.25
<b>Diurnal Average</b>																								<b>Diurnal Average</b>		
<b>Diurnal Maximum</b>																								<b>Diurnal Maximum</b>		
<b>PF - Power Failure</b>																										





**WCAS - Fox Creek**  
**Summary of Hourly Averages**

**Wind Speed (WS) - kph**  
**November 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	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	
Dir	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	
2 Spd	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0.9	1.5	3.1	3.0	4.9	5.3	4.8	5.1	4.5	4.0	4.1	3.7	3.8	3.0	--	5.32	
Dir	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	N	ENE	SE	SE	SE	ESE	SE	SE	SE	ESE	SE	SE	SE	SE	--	ESE	
3 Spd	2.0	2.3	2.8	2.0	1.7	1.0	3.5	3.9	3.3	3.2	2.0	3.5	5.8	5.8	4.8	3.8	1.0	2.8	2.4	3.7	5.1	5.7	5.1	6.4	2.20	6.39	
Dir	SSE	S	SE	SE	SE	W	WNW	WSW	W	W	SW	S	SW	SW	WSW	WNW	SW	SSE	SE	S	S	SSE	SSE	S	SSW	S	
4 Spd	7.4	6.4	7.2	6.2	6.4	7.3	7.4	7.9	6.9	3.1	4.7	3.9	2.9	4.1	5.8	4.3	4.7	4.3	7.1	6.3	4.7	4.1	3.0	4.3	4.55	7.92	
Dir	S	SSE	SE	SE	SE	SSE	SSE	SE	SSE	E	ESE	SE	S	SSE	S	S	S	SSW	SW	SW	SW	SSW	S	SSW	SSE	SE	
5 Spd	7.7	5.3	6.3	11.0	6.9	3.1	5.6	8.0	5.1	5.6	6.4	7.0	7.0	8.1	6.7	7.9	5.8	3.1	3.9	4.2	2.8	1.5	2.8	3.4	4.48	10.98	
Dir	SW	SSW	SW	W	W	S	SSW	WSW	WSW	W	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	W	W	W	W	SSE	SE	W	W	
6 Spd	4.0	4.3	5.4	4.4	3.9	6.0	6.5	7.3	7.9	7.4	8.7	8.5	5.6	4.3	5.9	7.6	8.6	6.1	8.8	11.2	10.7	8.2	9.5	9.7	6.60	11.16	
Dir	SE	SE	SE	SE	SE	SE	SE	ESE	ESE	SSE	SSE	SSE	S	S	SE	SE	SE	SE	SSE	S	S	SSE	SSE	S	SSE	S	
7 Spd	11.4	9.8	8.1	3.5	2.6	1.4	1.4	2.4	1.6	2.5	0.5	1.5	4.3	5.2	0.2	7.0	6.3	3.3	6.2	6.5	4.8	6.3	3.9	6.0	2.73	11.35	
Dir	S	S	S	S	SE	SE	ESE	SE	ESE	SE	SSW	N	NNW	N	NNW	W	WSW	SSE	SSE	SSE	SSE	SSW	SSW	S	S	S	
8 Spd	2.1	1.7	1.1	0.6	2.8	2.1	0.9	1.1	2.3	1.7	3.3	4.1	4.0	3.3	9.3	12.8	AF	AF	AF	AF	AF	AF	AF	AF	--	12.80	
Dir	SSW	NE	S	NE	W	SE	SE	WSW	WNW	WNW	WNW	WNW	NNW	NNW	NE	ENE	AF	AF	AF	AF	AF	AF	AF	AF	--	ENE	
9 Spd	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	5.8	6.1	6.6	7.2	6.5	7.4	9.9	8.4	7.6	7.5	6.4	5.9	8.1	--	9.93
Dir	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	ESE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SE	SE	SSE	--	SE	
10 Spd	7.1	5.3	4.1	4.9	4.3	3.6	5.5	8.9	6.8	5.7	5.4	4.8	7.3	8.6	2.6	2.8	3.2	7.3	6.1	2.0	8.1	13.2	12.6	8.9	5.64	13.24	
Dir	S	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SSE	ESE	SE	SE	SE	ESE	E	ESE	SE	ESE	SE	S	S	S	SE	S	
11 Spd	4.2	3.4	7.4	8.1	6.0	6.9	6.1	6.8	4.4	10.9	13.7	8.6	7.6	3.8	5.0	10.2	10.2	15.6	14.2	11.1	8.2	8.0	6.0	4.2	7.63	15.60	
Dir	SSW	SSE	SSW	SW	SSW	SSW	SW	SW	SW	SW	WSW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	SW	SW	SW	SSW	S	SW	WSW	
12 Spd	4.7	4.0	3.9	5.1	4.2	4.3	8.2	10.0	10.2	11.2	9.5	14.8	13.2	15.9	12.7	9.4	10.6	8.3	8.2	10.0	12.0	12.9	13.5	15.0	9.08	15.89	
Dir	SE	SE	SSE	SE	SE	SSW	S	S	S	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	SE	SSE	SSE	S	S	S	S	SSE	SSE	
13 Spd	13.5	13.6	12.4	12.5	2.7	2.6	3.3	8.6	7.3	6.4	5.7	6.5	6.6	12.9	17.5	17.7	14.8	11.0	10.7	14.0	11.0	5.3	8.6	3.4	8.29	17.67	
Dir	S	S	S	S	S	E	SSE	S	SSW	SW	SW	SW	SSW	WSW	WSW	SW	SW	SW	SSW	SW	WSW	SSE	S	SSE	SSW	WSW	
14 Spd	3.8	4.2	4.1	3.6	2.2	2.8	3.7	3.4	2.0	1.1	5.8	10.5	9.4	8.0	7.1	7.4	5.2	4.6	3.0	1.0	5.0	4.4	4.1	7.3	4.53	10.51	
Dir	SSE	SSE	SE	ESE	SSE	E	SE	SE	ESE	SE	SE	SE	ESE	E	E	E	ESE	SE	SE	SW	ESE	ESE	ESE	SE	ESE	SE	
15 Spd	4.5	1.5	2.6	2.9	5.9	5.1	5.6	6.0	5.2	3.7	5.7	4.0	3.2	4.5	0.8	2.2	4.2	6.3	10.2	11.8	11.9	11.5	9.6	11.2	2.46	11.91	
Dir	SE	ESE	NNW	N	E	NE	NNE	N	N	NNW	N	NNE	E	E	WSW	W	WSW	W	WSW	WSW	WSW	W	W	W	WNW	WSW	
16 Spd	12.0	11.2	10.5	11.9	11.1	9.8	6.4	3.2	4.5	5.2	7.0	8.9	6.9	8.0	8.0	8.0	9.3	10.1	8.4	15.0	14.7	12.2	12.0	9.6	5.50	15.00	
Dir	W	W	W	W	WSW	WSW	SW	S	S	S	SSW	S	S	S	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	S	SE	
17 Spd	12.2	14.2	14.9	12.5	12.4	10.9	11.0	10.1	10.1	11.6	12.2	10.5	7.9	5.6	6.1	3.8	7.8	10.2	11.7	11.6	10.4	13.7	14.2	14.8	6.23	14.90	
Dir	S	S	S	S	S	SSW	SSW	S	S	S	S	SSW	SSW	S	SW	WNW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	SW	S	
18 Spd	8.3	2.7	8.5	12.1	8.2	9.7	8.8	2.8	1.1	1.3	2.6	8.7	7.3	4.7	7.7	2.1	1.8	3.9	3.2	3.7	3.7	3.0	5.3	4.1	3.15	12.07	
Dir	NW	W	W	W	WNW	W	W	N	SSW	SE	WSW	WSW	WSW	WNW	WNW	WNW	SE	SE	SE	ESE	ESE	SE	SW	S	W	W	
19 Spd	4.5	4.1	3.0	4.4	6.3	5.7	6.6	5.3	4.0	6.7	8.4	10.1	10.3	9.1	11.2	8.9	4.5	1.6	0.8	2.3	3.1	2.9	6.2	7.1	4.72	11.21	
Dir	SW	WNW	WSW	SW	WSW	SW	WSW	W	W	WSW	W	W	WNW	WSW	WSW	WSW	WSW	W	S	SE	ESE	ESE	WNW	WNW	WSW	WSW	
20 Spd	4.4	7.1	2.8	1.4	3.6	5.4	4.6	4.3	6.5	5.4	6.9	5.4	4.0	3.7	7.4	5.6	4.6	5.1	5.1	7.1	7.1	8.9	5.4	3.4	3.41	8.87	
Dir	NW	WNW	WNW	SSE	SE	SE	ESE	SE	ESE	SSE	SSW	SSW	S	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	
21 Spd	1.5	1.9	2.3	5.1	11.7	14.0	13.2	11.1	11.8	11.7	9.2	6.0	9.4	15.1	18.1	16.4	13.6	15.3	17.2	15.2	14.5	11.6	11.5	10.4	10.46	18.08	
Dir	SE	SSE	SE	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	SSW	SW	WSW	WSW	W	W	WSW	W	WSW	WSW	WSW	W	WSW	WSW	
22 Spd	10.9	11.6	8.5	7.0	10.6	7.7	6.2	5.3	3.1	7.0	9.4	13.7	15.0	14.4	12.3	10.6	3.8	0.4	2.4	5.2	4.6	2.7	3.1	4.3	7.11	14.99	
Dir	W	W	W	W	WNW	W	W	W	SSW	WSW	WSW	W	WNW	WNW	WNW	WNW	WNW	SSW	WSW	WSW	WSW	SSW	SW	WSW	W	WNW	



**WCAS - Fox Creek**  
**Summary of Hourly Averages**

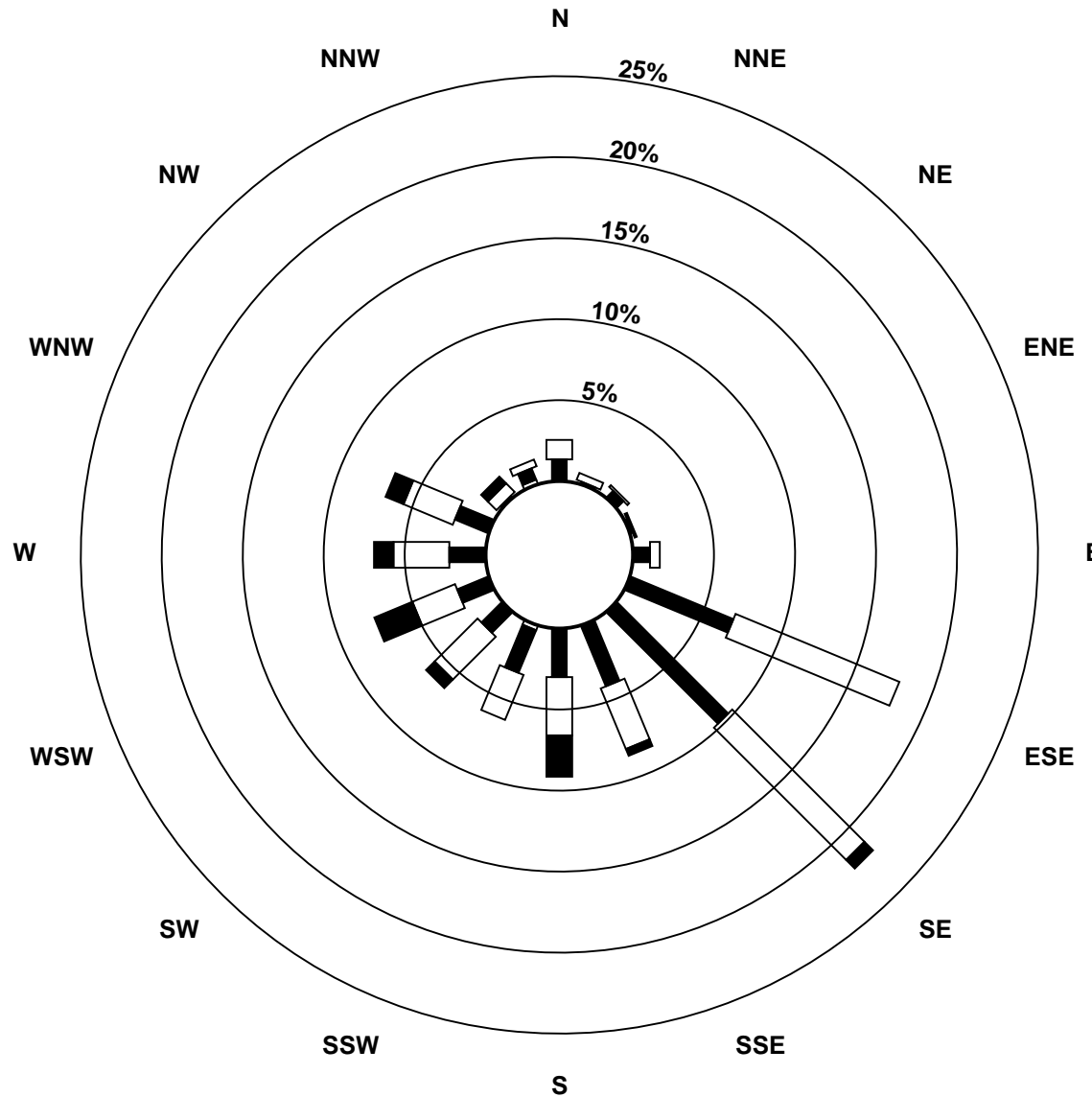
**Wind Speed (WS) - kph**  
**November 2015**

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	4.6	2.6	3.5	4.6	5.8	5.3	4.8	4.1	4.4	5.8	1.7	3.7	6.0	6.9	6.5	6.7	8.6	7.1	8.1	8.2	7.0	5.5	7.5	9.0	2.72	9.04
Dir	SW	S	ESE	ESE	ESE	ESE	ESE	SE	ESE	SE	E	N	N	N	NNW	N	NNE	N	N	N	N	NNW	NNW	NW	NNE	NW
24 Spd	11.8	11.8	12.9	13.1	10.7	8.2	9.3	10.0	8.6	9.1	7.2	7.6	9.6	5.0	4.4	1.6	1.5	3.8	6.8	7.0	9.3	5.7	7.2	7.3	3.78	13.13
Dir	NW	NW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	W	W	WNW	WNW	W	SSE	SE	SE	SE	SE	ESE	ESE	ESE	WNW	WNW
25 Spd	6.6	7.0	7.1	7.3	7.7	7.3	4.3	4.9	7.3	7.6	6.0	2.9	2.5	0.1	3.9	0.8	1.5	4.0	4.1	3.9	4.7	6.3	6.5	6.1	4.71	7.72
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	ESE	NNW	N	NE	SSE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
26 Spd	6.4	7.1	8.4	6.7	7.2	8.2	7.9	7.0	7.7	8.1	5.0	6.2	5.7	6.6	6.2	4.6	6.4	7.3	6.5	7.6	6.7	7.2	6.6	5.3	6.62	8.40
Dir	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SE	SSE	SE	SE	SSE	SSE	SSE	SE	SE	ESE	ESE	ESE	SE	ESE	SE	SE	ESE
27 Spd	9.3	8.6	9.2	7.4	7.4	5.7	6.1	6.9	8.1	7.1	6.0	5.0	4.1	4.8	3.0	3.8	3.5	3.9	5.0	5.3	6.8	7.7	7.3	9.0	6.22	9.32
Dir	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	ESE	SE	SE	ESE	SE	ESE	ESE	ESE	SE	ESE	ESE	ESE	ESE	SE	SE	SE
28 Spd	7.9	9.0	9.0	8.7	8.5	6.3	6.4	7.7	8.8	8.7	5.2	5.3	6.4	5.5	6.0	6.1	5.9	6.5	4.9	6.2	6.7	7.0	6.8	8.0	6.82	8.99
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SSE	SE	SSE	SE	SE	ESE	ESE	SE	ESE	ESE	ESE	ESE	ESE	SE	ESE
29 Spd	8.2	7.3	7.7	7.7	8.0	6.5	7.8	8.5	8.3	7.3	7.0	6.8	6.6	4.5	4.7	2.8	5.0	8.8	8.0	7.8	7.4	7.1	6.5	6.2	6.82	8.79
Dir	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SE	ESE	SE	SE
30 Spd	7.7	8.4	5.9	7.0	7.4	7.4	8.0	8.3	9.3	9.1	8.3	6.2	3.9	1.5	2.8	1.3	4.5	5.5	4.8	7.6	5.5	4.4	6.6	5.8	5.84	9.34
Dir	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	SE	SE	SSE	SSW	N	ESE	ESE	SE	ESE	SE	SE	SE	SE	SE	SE	ESE
Spd	3.43	3.05	3.16	2.73	2.49	2.46	2.71	3.29	3.50	3.66	3.15	3.08	2.79	2.57	2.44	1.81	2.19	2.87	3.17	3.39	3.68	3.55	3.56	3.56	Diurnal Average	
Dir	S	S	S	S	S	S	S	SSE	SSE	S	S	S	SSW	SSW	SSW	SSW	S	SSE	S	S	S	S	S	S	Diurnal Maximum	
Spd	13.47	14.18	14.90	13.13	12.38	13.99	13.17	11.05	11.75	11.71	13.68	14.81	14.99	15.89	18.08	17.67	14.84	15.60	17.17	15.18	14.72	13.73	14.22	15.02	Diurnal Maximum	
Dir	179.37	178.20	181.07	294.93	183.85	250.26	246.06	233.46	216.92	230.36	238.12	166.73	290.51	154.41	249.25	236.30	224.40	237.67	255.90	263.67	124.00	298.98	306.15	181.73	Diurnal Maximum	
Maximum Speed Value: 18.1 kph on Nov 21 15:00																		Minimum Speed Value: 0.1 kph on Nov 25 14:00						Hours in Service: 720		
Maximum Daily Speed Average: 10.46 kph on Nov 21																		Minimum Daily Speed Average: 2.20 kph on Nov 3						Hours of Data: 667		
Maximum Diurnal Speed Average: 3.68 kph at hour 21																		Minimum Diurnal Speed Average: 1.81 kph at hour 16						Hours of Missing Data: 53		
Monthly Average Velocity: 2.941 kph 179.39 deg																		Speed Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 2.7 Q <sub>1</sub> = 4.2 Median = 6.4 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 11.5 P <sub>99</sub> = 15.5						Percent Operational Time: 92.6		
All monthly, daily, and diurnal averages have been calculated using vector methods																										
AF - Analyzer Failure PF - Power 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	12	14	0	0	0	0	26																			
NorthEast	4	3	0	0	0	0	7																			
East	15	10	1	0	0	0	26																			
SouthEast	103	176	7	0	0	0	286																			
South	33	50	21	0	0	0	104																			
SouthWest	22	48	15	0	0	0	85																			
West	27	44	27	0	0	0	98																			
NorthWest	12	14	9	0	0	0	35																			
Total	228	359	80	0	0	0	667																			

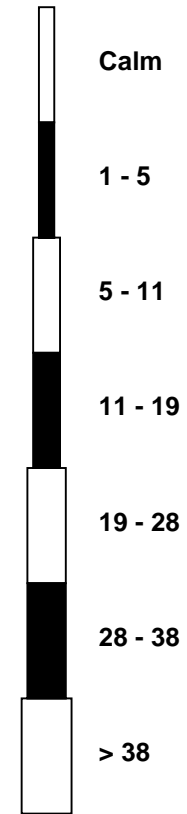
WCAS - Fox Creek  
Wind Speed Rose



Wind Speed (WS) - kph  
2015



Wind Frequency (kph)



**WEST CENTRAL AIRSHED SOCIETY**

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

**FOX CREEK  
NOVEMBER 2015**

# Calibration Report



Parameter                     SO2                      
 Air Monitoring Network                     Fox Creek                    

## Station Information

Calibration Date	Nov 19/15	Previous Calibration	Oct 8/15
Station Number	Pam12	Station Location	Fox Creek
Reason:	<input type="checkbox"/> Routine	<input type="checkbox"/> Calibration	<input type="checkbox"/> Removal
			Fox Creek

Start Time (MST)	7:15	End Time (MST)	10:10
Barometric Pressure	27.09 inches Hg	Station Temperature	20.0 Deg C
Calibrator	Sabio 2010	Serial Number	FF9469
Cal Gas Concentration	6.2 ppb SO2	Cal Gas Verified	Jan 14/15

DACS make		DACS serial No.	
DACS voltage range		DACS channel #	1

	<b>Before</b>		<b>After</b>
Calculated slope	1.000083	Calculated slope	0.997271
Calculated intercept	0.358844	Calculated intercept	0.858530

Analyzer make	Teco 431	Analyzer serial #	0700419950
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	before		after	
Concentration range	500	ppb	500	ppb
Background	12.7	ppb	12.4	ppb
Coefficient	0.860		0.821	
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	2000	0.0	0.0	0.00	N/A
P1	2107	100.6	282.5	283.00	0.9982
P2	2063	50.5	148.1	147.10	1.0068
P3	2046	325.0	96.9	95.40	1.0157
AFZ	2000	0.0	0.0	0.00	#DIV/0!
AFS	2107	100.6	282.5	293.00	0.9642
Average Correction Factor					1.0069

Calculated value of As Found Response:                     293.4 ppm                          Percent Change of As Found:                     3.9%                    

	before calibration		after calibration	
Auto zero	na	ppb	0.00	ppb
Auto span	na	ppb	294.00	ppb

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Calibration Performed By:                     Jeff McClintock







# Calibration Summary

Parameter                     H<sub>2</sub>S                    

Air Monitoring Network   Fox Creek  



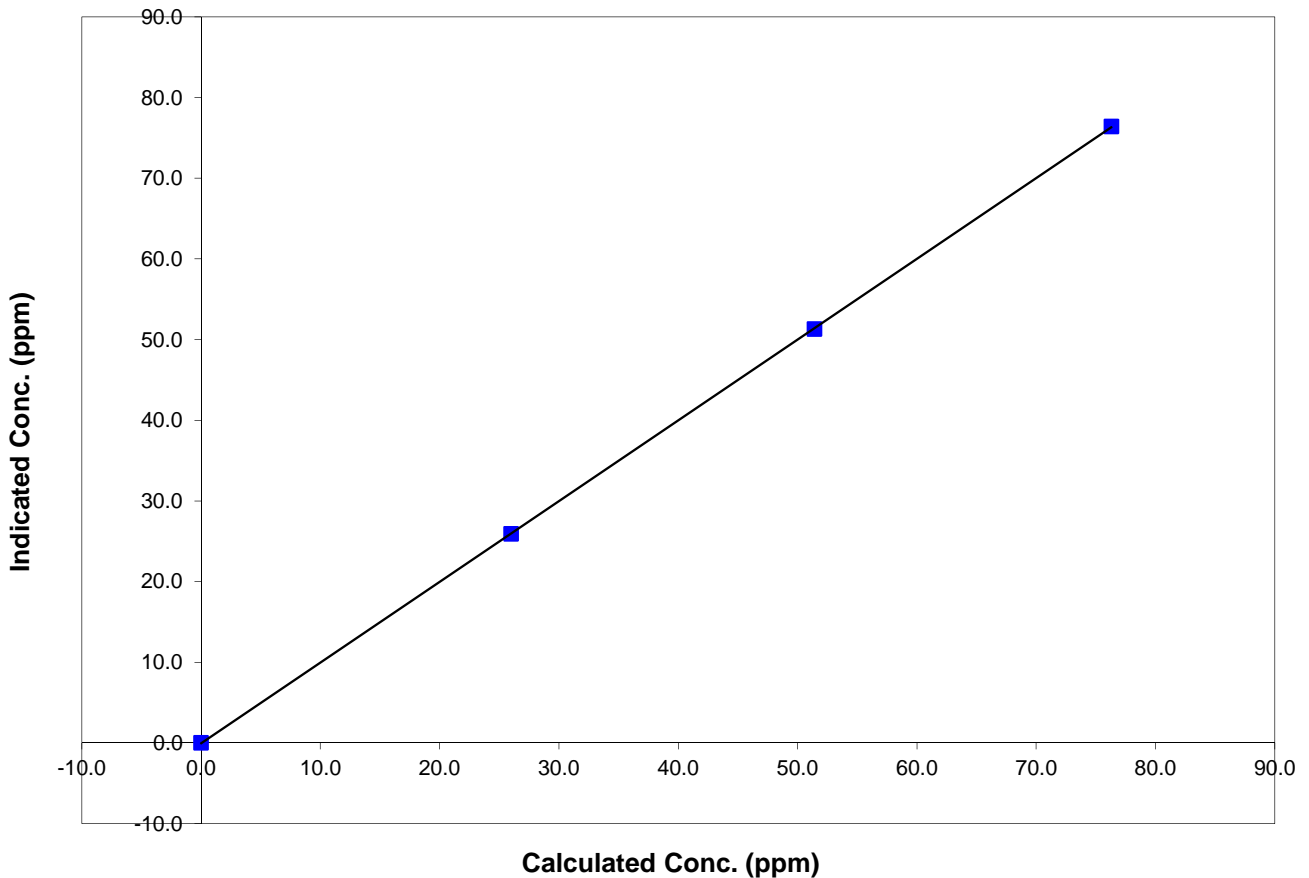
## Station Information

Calibration Date	<u>                    Nov 18/15                    </u>	Previous Calibration	<u>                    Oct 8/15                    </u>
Station Number	<u>                    Pam12                    </u>	Station Location	<u>                    Fox Creek                    </u>
Start Time (MST)	<u>                    15:00                    </u>	End Time (MST)	<u>                    18:00                    </u>
Analyzer make/model	<u>                    TecoTeco 45C                    </u>	Analyzer serial #	<u>                    0630718527                    </u>

## Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
76.3	76.4	0.9987		
51.4	51.3	1.0023	Correlation Coefficient	0.999991
26.0	25.9	1.0039		
0.0	0.0	N/A	Slope	0.999038
			Intercept	0.064456

## H<sub>2</sub>S Calibration Curve



# Calibration Report



Parameter 03  
 Air Monitoring Network Fox Creek

## Station Information

Calibration Date	Nov 18/15	Previous Calibration	Oct 8/15
Station Number	Paml 2	Station Location	Fox Creek
Reason:	<input checked="" type="checkbox"/> Routine	<input checked="" type="checkbox"/> Barrhead	<input checked="" type="checkbox"/> Calibration
		<input type="checkbox"/> Removal	

Start Time (MST)	15:00	15:00	End Time (MST)	18:00
Barometric Pressure	27.50	inches Hg	Station Temperature	19.0 Deg C
Calibrator	2B Tech 306		Serial Number	145
Cal Gas Concentration			Cal Gas Expiry Date	

DACS make		DACS serial No.	
DACS voltage range		DACS channel #	1

	Before	After
Calculated slope	0.997535	1.000152
Calculated intercept	1.535728	1.221751

Analyzer make	TECO 49i	Analyzer serial #	0630718533
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	before		after	
Concentration range	500	ppb	500	ppb
Background	-0.2	ppb	0.2	ppb
Coefficient	1.059		0.978	
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)		Ozone Set Point	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
zero	3000	0.0	0.0	0.00	N/A
P1	3000	400.0	397.0	397.00	1.0000
P2	3000	250.0	252.0	249.00	1.0120
P3	3000	100.0	101.0	99.00	1.0202
AFZ	3000	0.0	0.0	0.00	#DIV/0!
AF	3000	400.0	397.0	432.00	0.9190
Average Correction Factor					1.0108

Calculated value of As Found Response: 432.5 ppm      Percent Change of As Found: 8.9%

	before calibration		after calibration	
Auto zero	0.00	ppb	-0.10	ppb
Auto span	na	ppb	365.00	ppb

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Calibration Performed By: Jeff McClintock



# Calibration Report

Parameter **NOx-NO-NO<sub>2</sub>**  
 Air Monitoring Network **Fox Creek**



## Station Information

Calibration Date	Nov 19/15	Previous Calibration	Oct 8/15				
Station Number	Paml2	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)	7:15	End Time (MST)	11:35				
Barometric Pressure	27.50 inches Hg	Station Temperature	20.0 Deg C				
Calibrator	Sabio 2010	Serial Number	42C 60475 327				
NO Cal Gas Conc	12.6 ppb	Cal Gas Verif. Date	August 7,2014				
NOx Cal Gas Conc	12.6 ppb	Cal Gas Serial #	FF 9469				

## DACS Information

DACS make \_\_\_\_\_ DACS serial No. \_\_\_\_\_

Parameter		NO	NO2	NOx
Before	Data Slope	1.000307	1.000734	0.999940
	Data Offset	0.516854	-0.446380	0.401453
After	Data Slope	1.001906	1.000093	1.000348
	Data Offset	2.059267	-0.277734	2.073018
Channel #				
Voltage Range				

## Analyzer Information

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

Test Point	before		after	
Concentration range	1000	ppb	1000	ppb
NO background	1.3	mV	1.1	mV
NOx background	2.2	mV	1.2	mV
NO coefficient	0.938		0.906	
NO2 coefficient	1.016		1.016	
NOx coefficient	1.002		1.003	
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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Calibration Report

Parameter **NOx-NO-NO<sub>2</sub>**  
 Air Monitoring Network **Fox Creek**



## Station Information

Calibration Date: **Nov 19/15** Station Location: **Fox Creek**  
AUGUST 30, 2010

## Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NO conc (ppb)	Calculated NO <sub>2</sub> conc (ppb)	Calculated NO <sub>x</sub> conc (ppb)	Indicated NO conc (ppb)	Indicated NO <sub>2</sub> conc (ppb)	Indicated NO <sub>x</sub> conc (ppb)	NO Correction factor	NO <sub>x</sub> Correction factor
zero	<b>2000</b>	<b>0.00</b>	0.0	0.0	0.0	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	N/A	N/A
P1	<b>2107</b>	<b>100.60</b>	574.2	0.0	574.2	<b>573.00</b>	<b>0.00</b>	<b>574.00</b>	1.002	1.000
P2	<b>2063</b>	<b>50.50</b>	301.1	0.0	301.1	<b>295.00</b>	<b>0.00</b>	<b>295.00</b>	1.021	1.021
P3	<b>2046</b>	<b>32.50</b>	197.0	0.0	197.0	<b>194.00</b>	<b>0.60</b>	<b>194.60</b>	1.016	1.012
AFZ	<b>5000</b>	<b>0.00</b>	0.0	0.0	0.0	<b>-0.30</b>	<b>-0.60</b>	<b>-0.90</b>	0.000	0.000
AFS	<b>2107</b>	<b>100.60</b>	574.2	0.0	574.2	<b>595.00</b>	<b>-2.00</b>	<b>593.00</b>	0.965	0.968
								Average Correction Factor	1.013	1.011

As Found Concentrations  
 As Found Percent Change

NO= 595.7 ppb  
 NO= 3.7%

NO<sub>x</sub>= 594.3 ppb  
 NO<sub>x</sub>= 3.5%

## GPT Calibration Data

O <sub>3</sub> Setpoint (ppb)	Indicated NO <sub>x</sub> ref (ppb)	Calculated NO conc (ppb)	Calculated NO <sub>2</sub> conc (ppb)	Calculated NO <sub>x</sub> conc (ppb)	Indicated NO conc (ppb)	Indicated NO <sub>2</sub> conc (ppb)	Indicated NO <sub>x</sub> conc (ppb)	NO <sub>2</sub> Correction factor	Converter Efficiency	
<b>0</b>	0.0	0.0	0.0	0.0	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	N/A	N/A	
<b>0.65v</b>	572.0	127.3	438.0	565.3	<b>125.00</b>	<b>438.00</b>	<b>563.00</b>	0.9999	100.0%	
<b>0.4v</b>	572.0	347.7	222.6	570.3	<b>345.00</b>	<b>223.00</b>	<b>568.00</b>	0.9980	100.2%	
<b>0.34v</b>	572.0	406.8	164.4	571.3	<b>404.00</b>	<b>165.00</b>	<b>569.00</b>	0.9966	100.3%	
								Average Correction Factor	0.998	1.002

## AIC Data

Parameter	Previous calibration				Current calibration			
	NO	NO <sub>2</sub>	NO <sub>x</sub>		NO	NO <sub>2</sub>	NO <sub>x</sub>	
Auto zero	<b>na</b>	<b>na</b>	<b>na</b>	ppb	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>	ppb
Auto span	<b>na</b>	<b>na</b>	<b>na</b>	ppb	<b>447.00</b>	<b>0.00</b>	<b>447.00</b>	ppb

Calibration Performed By: Jeff McClintock

# Calibration Summary

Parameter NO

Air Monitoring Network Fox Creek



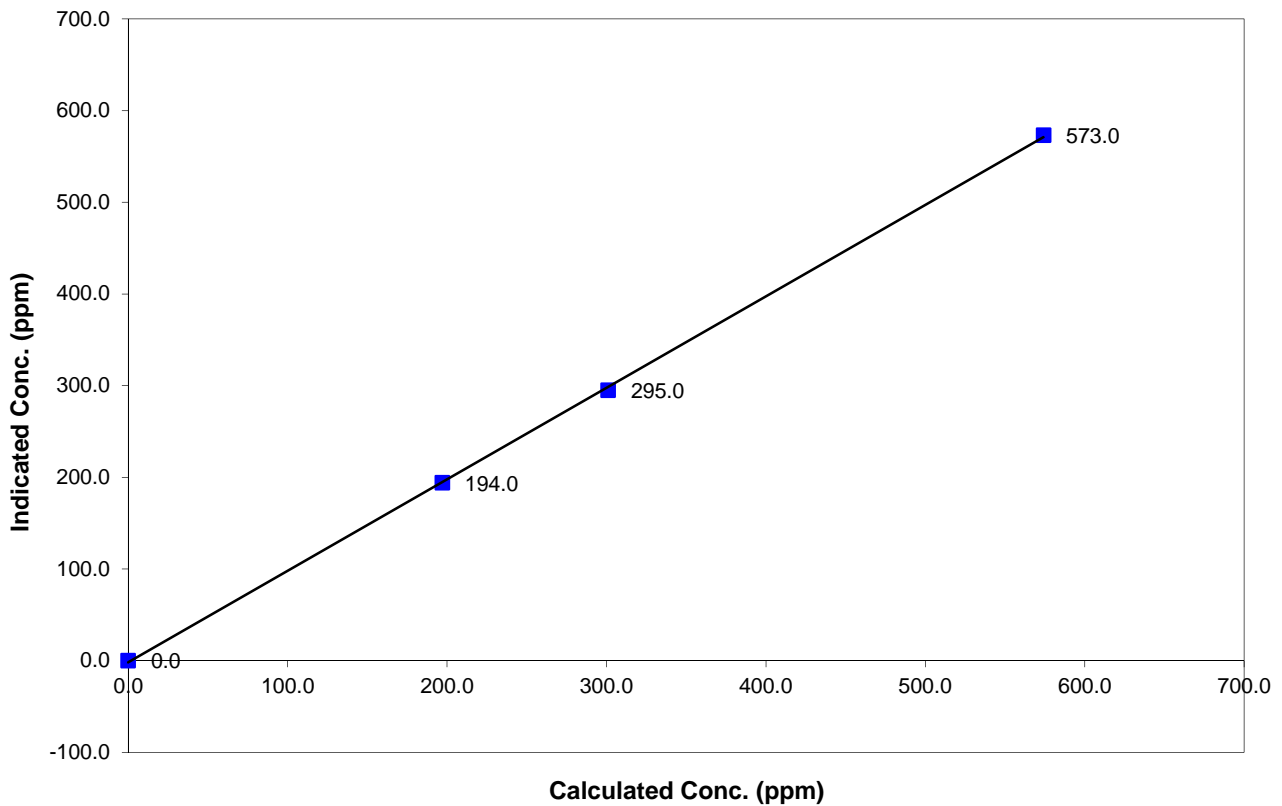
## Station Information

Calibration Date	<u>Nov 19/15</u>	Previous Calibration	<u>Oct 8/15</u>
Station Number	<u>Pam12</u>	Station Location	<u>Fox Creek</u>
Start Time (MST)	<u>7:15</u>	End Time (MST)	<u>11:35</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		
574.2	573.0	1.0021	Correlation Coefficient	0.999882
301.1	295.0	1.0206		
197.0	194.0	1.0156	Slope	1.001906
			Intercept	2.059267

## NO Calibration Curve





# Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network Fox Creek



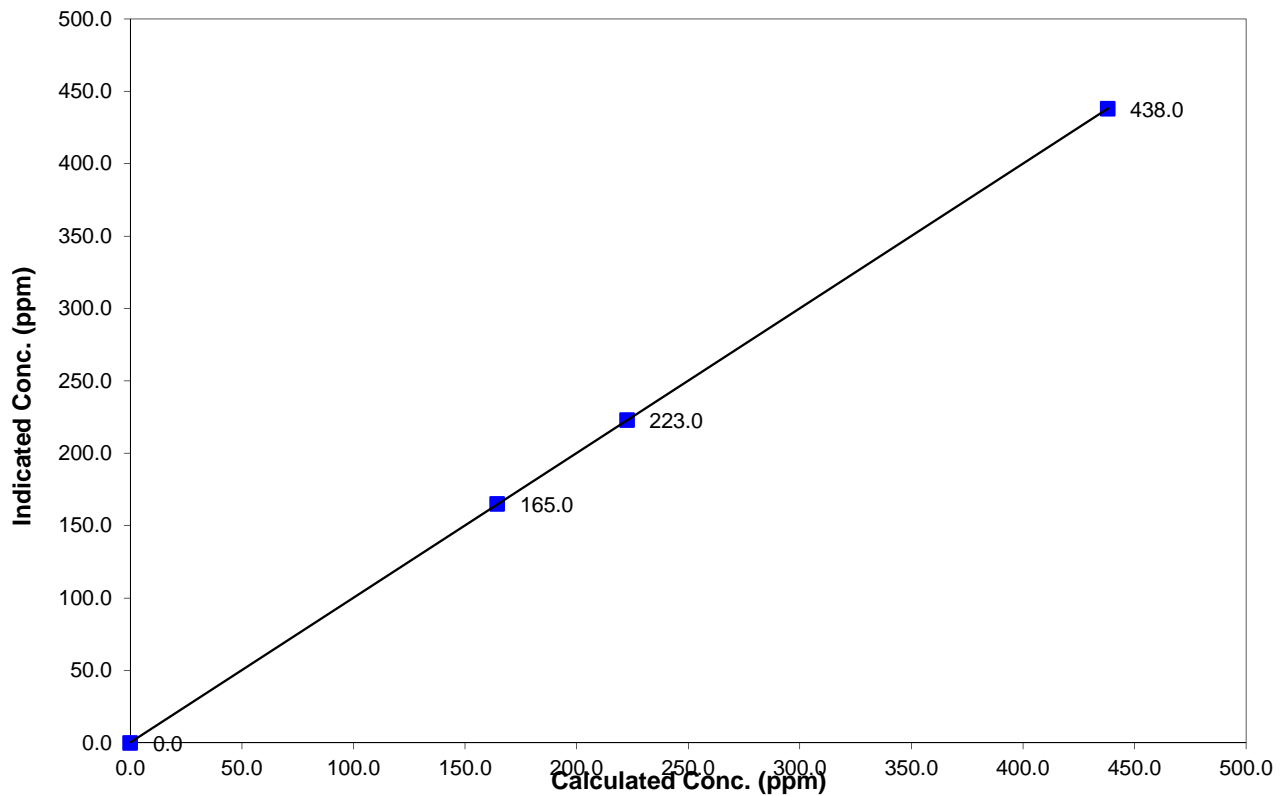
## Station Information

Calibration Date	Nov 19/15	Previous Calibration	Oct 8/15
Station Number		Station Location	Fox Creek
Start Time (MST)	7:15	End Time (MST)	11:35
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		
438.0	438.0	0.9999	Correlation Coefficient	0.999998
222.6	223.0	0.9980		
164.4	165.0	0.9966	Slope	1.000093
			Intercept	-0.277734

## NO<sub>2</sub> Calibration Curve



# Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network Fox Creek



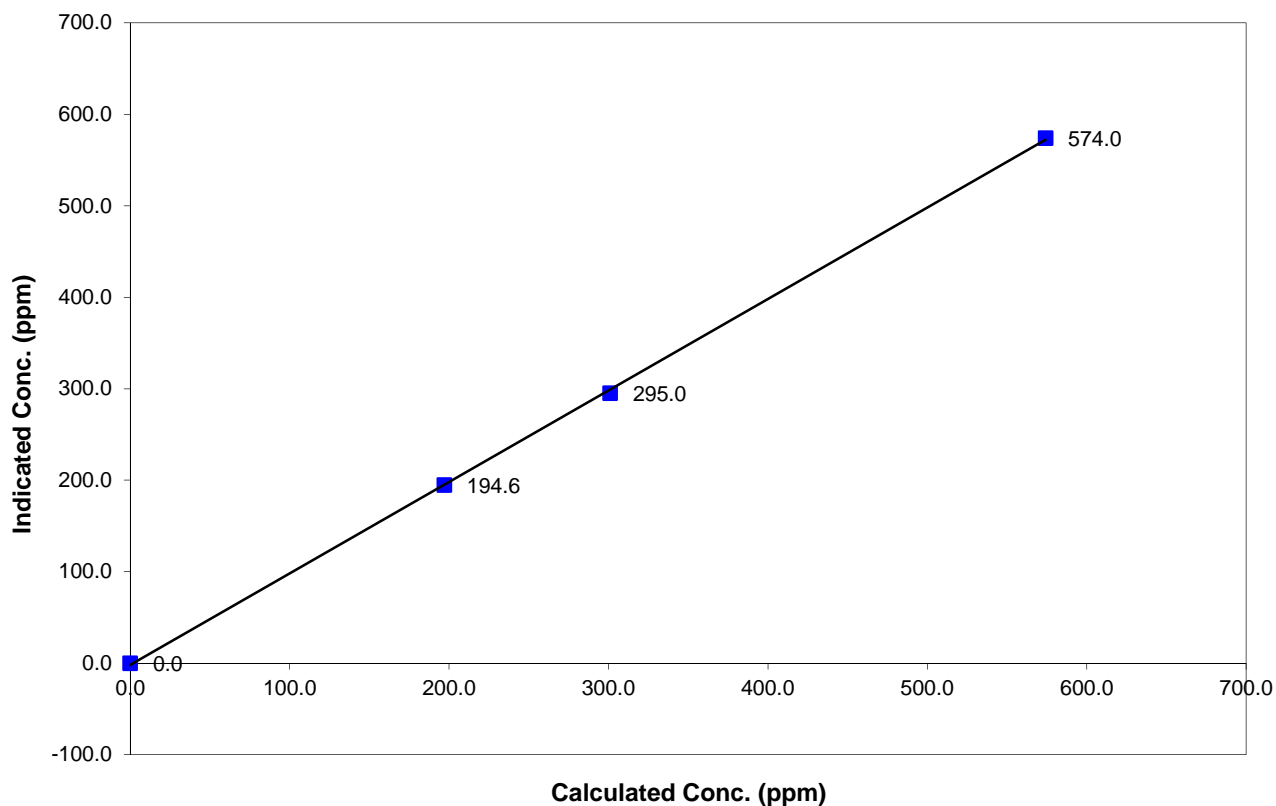
## Station Information

Calibration Date	Nov 19/15	Previous Calibration	Oct 8/15
Station Number	Pam1 2	Station Location	Fox Creek
Start Time (MST)	7:15	End Time (MST)	11:35
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		
574.2	574.0	1.0003	Correlation Coefficient	0.999861
301.1	295.0	1.0206		
197.0	194.6	1.0124		
			Slope	1.000348
			Intercept	2.073018

## NOx Calibration Curve



**WEST CENTRAL AIRSHED SOCIETY**

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

**END OF REPORT  
NOVEMBER 2015**