

**WEST CENTRAL AIRSHED
SOCIETY
December 2014
Monthly Report**

The West Central Airshed Society (WCAS)

The WCAS is a non-profit organization registered under the Societies Act of Alberta in 1994, and governed by its by-laws. Membership, participation and funding throughout the West Central Airshed Zone, includes a host of industry players, the Alberta Provincial Government, Municipal Governments, environmental organizations and the public. The WCAS operates under the guidelines of the Clean Air Strategic Alliance and is recognized by Alberta Environmental Protection and the Alberta Energy and Utilities Board who have granted concessions on ambient air monitoring requirements for several licensed facilities with participation in the program.

Success of the WCAS is based on full participation and support from all members and stakeholders who contribute air emissions into the airshed zone.

One of the objectives of the WCAS is to strengthen cooperative relationships between all parties within the zone whether citizens, industrial representatives, or regulators. The goal of WCAS is to provide sound, credible, and scientifically defensible air quality data as a basis for sound decision making aimed at the protection of the environment, agricultural crops, and human health from adverse health effects of atmospheric emissions.

To achieve this goal, the WCAS presently operates eleven continuous air quality-monitoring stations, five agricultural bio-monitoring sites, twelve passive monitoring sites and two forestry bio-monitoring sites.

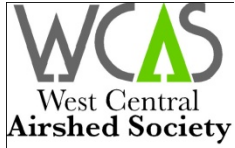
The air monitoring stations monitor concentrations of a wide range of common atmospheric pollutant such as sulphur dioxide and nitrogen oxide as well as ozone, hydrocarbons and fine particles. Meteorological data is collected to assist in the interpretation of the information. The acidity of precipitation is measured and the amounts of total acidic deposition in different areas of the zone are calculated.

The agricultural bio-monitoring sites contain test plots of alfalfa, a forage crop widely grown in the zone, and Saskatoon bushes, a shrub that occurs naturally and is used as a commercial crop. The test crops are inspected for visible symptoms of stress and, at three sites, intensive measurements are made of growth and yield. The resulting information is being incorporated into a computer model that, over the long-term, will detect any influence of emissions on productivity.

The forestry bio-monitoring program consists of two sites that were established in cooperation with the Canadian Forest Service. Baseline information on the trees, shrubs, groundcover, and soils has been collected and the "forest health" documented. Any changes in forest health will be monitored over a several year period.

Our future success rests with Albertans who actively participate and support the WCAS principles and who conduct activities in the West Central zone.

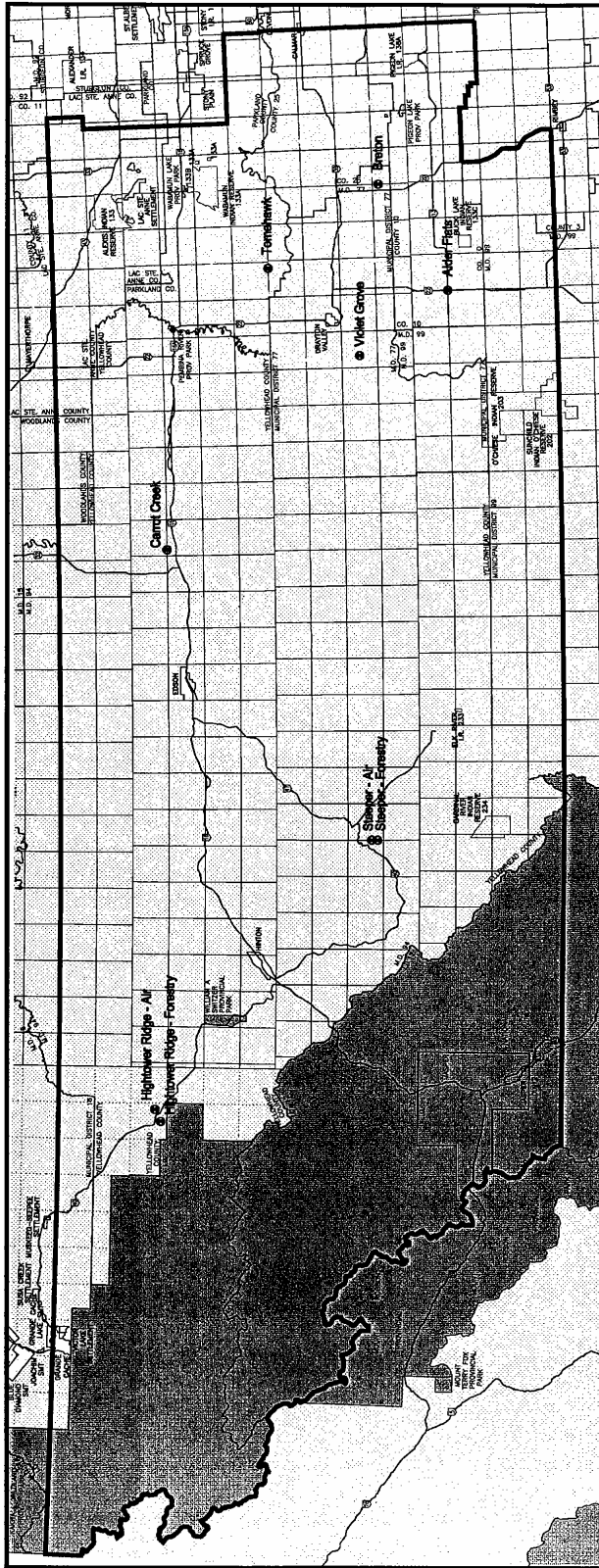
Further information on the zone can be found in the WCAS annual report or from the sector representatives. A list of sector representatives follows. Specific air quality data can be obtained from the Executive Director, Robert Scotten, (780) 514-3533.



Board of Directors 2013

Sector Director & Alternate

Agriculture:	Cecil Andersen (Chairman) Cliff Whitlock, Pembina Agriculture Protection Assoc.
Electrical Utilities	Kent Brandt, TransAlta Generation Partnership Barb Shmidtke, Capital Power Corp.
Environmental NGO's	Susan Kelly
Forestry	Phil Whitney/Jennifer Fowler, West Fraser Mills - Hinton Pulp
Oil & Gas Producers (Treasurer)	JoAnne Volk, Talisman Energy
Provincial Government (Secretary)	David Helmer, Alberta Environment Mesbah Ahmed, Alberta Environment
Public-at-Large (Vice-Chair)	Audrey Kelto, Leduc County
Municipalities	Reeve Wes Tweedle, Brazeau County
Transportation/Foothills Coal	Ben Ludwig, Sherritt International
Coal Operations	Chris Blurton, Teck Coal, Cardinal River Operations
Health	Vacant



Scale: 1:1,000,000
 0 20,000 40,000 60,000 80,000 100,000 120,000 Metres

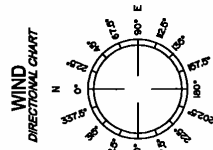
West Central Airshed Society Geographical Boundary

- Bottom of Twp. 43 & Hwy. 20
- North along Hwy 20 to intersection of Northern Boundary of Penobscot County
- East along Hwy 20 to intersection of Hwy 755
- North along Hwy 755 to intersection of Hwy 39
- Directly north of Hwy 39 to Hwy 627
- West along Hwy 627 to intersection of Hwy 777
- North to connect Hwy 777 and continued North to top of Twp. 56
- West along Twp 56 to the EC border

West Central Airshed Society Stations

- Site 1 - Violet Grove (SE17-48-3-W5) - Air monitoring / Agricultural bio-monitoring
- Site 2 - Hightower Ridge (SE17-48-3-W5) - Air monitoring / Agricultural bio-monitoring
- Site 3 - Tomahawk (SE22-51-6-W5) - Air monitoring / Agricultural bio-monitoring
- Site 4 - Steeper (SW12-48-22-W5) - Air monitoring / Agricultural bio-monitoring
- Site 5 - Carrot Creek (SE37-55-13-W5) - Air monitoring / Agricultural bio-monitoring
- Site 6 - Alter Falls (SE36-45-1-W5) - Air monitoring / Agricultural bio-monitoring
- Site 7 - Steeper (NW25-47-4-W5) - Agricultural bio-monitoring

- Municipality Boundaries
- WCAS Boundaries shown thus
- Station
- Primary Highways shown thus



Drawn by: KC

Date: May 2003

Scale: 1:1,000,000

Job No. 100750-70

FILE No.

Dwg. No. 100750-70



**TOMAHAWK
STATION #901**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

WCAS / Tomahawk Station 901													December 2014
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	P10	Q1	Percentile Median	Q3	P90	24 Hour Average Max (ppm)
SO ₂ (ppb)	35	709	100.0	0.447	-	0.0	13.4	0.1	0.2	0.3	0.5	0.9	0.002
O ₃ (ppb)	35	709	100.0	18.6	-	0.6	42.4	4.3	11.0	18.3	26.0	32.8	0.039
NO (ppb)	37	707	100.0	2.4	-	0.0	28.2	0.0	0.0	0.2	2.1	8.4	-
NO ₂ (ppb)	37	707	100.0	9.7	-	0.8	33.1	2.4	4.5	8.7	13.8	19.0	0.019
NO _x (ppb)	37	707	100.0	12.0	-	0.8	42.9	2.4	4.7	10.1	17.3	24.2	-
Particulate Matter 2.5 microns (μm ³)	0	744	100.0	6.6	-	1.1	35.4	1.8	2.5	4.6	8.8	13.7	24.92 ug/m3
Wind Speed (kph)	0	744	100.0	6.9	-	0.0	24.0	1.1	3.7	6.8	9.4	12.4	-
Temperature (°C)	0	744	100.0	-7.6	-	-23.7	9.8	-15.1	-11.6	-8.4	-3.5	1.2	-
Relative Humidity (%)	0	744	100.0	80.7	-	38.6	95.2	60.7	74.9	86.2	89.6	91.4	-
Photosynthetically Active Radiation (W/m ²)	0	744	100.0	11.7	-	0.0	113.6	0.0	0.0	0.5	14.1	47.5	-
Precipitation (mm)	0	744	100.0	-	2.4	0.0	2.2	0.0	0.0	0.0	0.0	0.0	-
Std Dev Wind Direction (deg)	0	744	100.0	21.5	-	5.5	92.0	8.2	10.9	15.1	24.8	43.8	-
Std Dev Wind Speed (kph)	0	744	100.0	1.8	-	0.0	6.4	0.8	1.2	1.8	2.4	2.9	-



WCAS - Tomahawk
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 13.36 ppb on Dec 27 23:00		Maximum Daily Average: 2.25 ppb on Dec 27		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 15 05:00		Minimum Daily Average: 0.10 ppb on Dec 28		Hours of Data: 709																													
Maximum Diurnal Average: 0.82 ppb at hour 23		Minimum Diurnal Average: 0.26 ppb at hour 7		Hours of Missing Data: 35																													
Monthly Average: 0.447 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.5 P ₉₀ = 0.9 P ₉₉ = 2.5		Hours of Calibration: 35																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.4	0.3	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.31	0.60							
2-Dec	0.2	0.2	Z	0.2	0.3	0.5	0.3	0.3	0.2	0.3	0.5	0.4	0.2	0.2	0.2	0.3	0.8	0.6	0.4	0.2	0.2	0.3	0.3	0.4	0.33	0.77							
3-Dec	0.5	0.6	Z	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.4	0.5	0.6	1.0	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.37	1.04								
4-Dec	0.2	0.5	Z	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.6	0.7	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.32	0.68								
5-Dec	0.4	0.2	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.3	0.4	0.6	0.5	0.5	0.3	0.4	0.5	0.4	0.3	0.6	1.5	1.5	0.44	1.51							
6-Dec	1.4	1.4	Z	1.1	1.4	1.5	1.6	0.9	0.9	1.7	3.8	2.5	1.5	0.8	0.9	0.6	0.4	0.5	0.3	0.9	0.8	0.8	0.6	0.5	1.17	3.76							
7-Dec	0.4	0.3	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.6	0.5	0.6	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.28	0.60							
8-Dec	0.2	0.2	Z	0.3	0.3	0.8	0.3	0.4	0.7	0.8	0.8	1.0	0.9	1.8	2.2	1.9	1.0	0.9	2.2	2.0	1.5	2.4	0.9	0.6	1.06	2.39							
9-Dec	0.8	0.7	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.2	0.26	0.77							
10-Dec	0.3	0.3	Z	0.2	0.3	0.1	0.2	0.1	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.4	0.1	0.2	0.1	0.22	0.44							
11-Dec	0.1	0.3	Z	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	1.2	0.7	1.0	0.7	1.0	2.7	1.2	1.1	0.52	2.66							
12-Dec	1.8	1.1	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.5	0.8	0.5	0.3	0.3	0.6	0.2	0.3	0.2	0.2	0.3	0.44	1.85							
13-Dec	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.6	0.8	0.6	0.5	0.5	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.26	0.84								
14-Dec	0.3	0.4	Z	0.5	0.5	0.4	0.3	0.5	0.3	0.2	0.4	0.4	0.5	0.8	0.8	0.9	0.4	0.5	0.5	0.4	0.4	0.3	0.2	0.1	0.45	0.87							
15-Dec	0.0	0.1	Z	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.4	0.5	0.6	0.6	0.5	0.6	0.6	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.27	0.64							
16-Dec	0.3	0.3	Z	0.2	0.1	0.0	0.1	0.6	0.5	0.4	0.3	0.4	0.3	0.2	0.6	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.25	0.80							
17-Dec	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.6	0.5	0.2	0.1	0.1	0.16	0.55							
18-Dec	0.1	0.3	Z	0.2	0.2	0.3	0.3	0.4	0.3	0.8	0.8	0.7	0.8	0.7	0.5	0.4	0.5	0.5	0.3	0.3	0.3	0.4	0.4	0.5	0.44	0.81							
19-Dec	0.4	0.5	Z	0.3	0.4	0.3	0.4	0.9	0.5	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	1.0	1.1	1.0	0.8	0.9	0.9	0.76	1.13							
20-Dec	0.6	0.5	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.4	0.7	0.5	0.4	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.5	3.4	0.54	3.43							
21-Dec	2.3	0.5	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.7	1.0	0.8	1.1	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.3	0.45	2.33							
22-Dec	0.2	0.1	Z	0.1	0.1	0.3	0.2	0.2	0.3	0.3	0.4	0.5	0.4	0.2	0.3	0.3	0.2	0.1	0.2	0.4	0.3	0.5	0.5	0.4	0.28	0.46							
23-Dec	0.3	0.3	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.6	0.6	0.6	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.30	0.63							
24-Dec	0.2	0.3	Z	0.1	0.1	0.2	0.2	0.2	1.0	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.6	0.7	0.23	0.95							
25-Dec	0.6	0.3	Z	2.0	0.5	0.6	0.8	0.7	0.5	0.5	0.6	0.7	1.3	1.0	0.8	0.7	0.8	0.7	1.3	0.9	0.5	0.4	0.4	0.4	0.74	2.00							
26-Dec	0.3	0.4	Z	0.6	0.3	0.2	0.2	0.4	0.4	0.2	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.5	0.4	0.5	0.6	0.4	0.34	0.62							
27-Dec	0.2	0.3	Z	0.5	0.6	0.9	0.2	0.4	0.2	0.2	0.3	0.3	0.4	C	C	C	C	6.9	1.4	2.4	1.0	10.8	13.4	2.4	2.25	13.36							
28-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.10	0.18							
29-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.4	0.4	0.1	0.2	0.12	0.43							
30-Dec	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.18	0.35							
31-Dec	0.2	0.3	Z	0.6	0.4	0.8	0.3	0.3	0.4	0.2	0.8	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.3	0.2	0.34	0.79							
		0.43	0.36	--	0.35	0.28	0.31	0.26	0.28	0.29	0.36	0.52	0.51	0.53	0.53	0.50	0.44	0.38	0.54	0.42	0.46	0.38	0.79	0.82	0.53	Diurnal Average							
		2.33	1.37	--	2.00	1.40	1.51	1.56	0.93	0.95	1.74	3.76	2.53	1.52	1.78	2.24	1.90	1.18	6.94	2.25	2.44	1.52	10.82	13.36	3.43	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb				24-hr 48 ppb																											



WCAS - Tomahawk
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2014

Maximum Value: 42.42 ppb on Dec 31 00:00		Maximum Daily Average: 38.67 ppb on Dec 31		Hours in Service: 744																									
Minimum Value: 0.6 ppb on Dec 20 07:00		Minimum Daily Average: 1.98 ppb on Dec 19		Hours of Data: 709																									
Maximum Diurnal Average: 23.09 ppb at hour 15		Minimum Diurnal Average: 15.35 ppb at hour 9		Hours of Missing Data: 35																									
Monthly Average: 18.550 ppb		Percentiles: P ₁ = 0.6 P ₁₀ = 4.3 Q ₁ = 11.0 Median = 18.3 O ₃ = 26.0 P ₉₀ = 32.8 P ₉₉ = 41.0		Hours of Calibration: 35																									
				Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Dec	25.2	24.7	Z	22.4	22.1	21.5	20.5	19.7	18.7	18.3	18.9	20.3	21.4	22.0	20.6	18.8	13.7	13.8	14.2	8.9	5.6	3.7	4.5	10.2	16.94	25.20			
2-Dec	12.9	12.7	Z	14.6	15.4	21.1	30.1	33.2	30.4	30.9	29.6	31.9	34.3	35.5	36.0	33.3	31.7	30.5	29.3	27.5	22.4	20.7	24.3	26.2	26.71	35.95			
3-Dec	29.0	29.5	Z	27.8	25.0	23.2	22.0	20.8	21.0	22.5	24.2	26.0	27.8	28.5	29.8	25.2	22.7	22.2	20.5	17.4	14.6	12.7	12.4	8.9	22.33	29.83			
4-Dec	9.0	12.2	Z	10.8	9.2	10.8	11.5	16.3	12.4	14.6	15.1	16.4	13.9	17.0	24.7	21.8	14.1	10.6	9.0	9.3	16.4	19.9	18.4	17.9	14.42	24.73			
5-Dec	12.1	7.7	Z	6.6	9.2	7.5	5.7	6.3	5.7	9.9	10.9	12.1	13.0	10.2	13.0	16.2	15.0	16.6	22.8	22.9	19.5	15.2	15.1	15.1	12.54	22.89			
6-Dec	15.4	15.4	Z	13.5	12.6	13.0	11.9	10.0	9.5	10.2	11.6	12.7	13.5	15.5	15.1	13.6	12.6	11.1	10.0	9.3	10.5	10.2	8.1	5.9	11.80	15.55			
7-Dec	4.0	1.9	Z	2.4	1.2	0.8	1.2	1.6	2.5	8.1	9.7	11.6	12.9	18.5	19.8	11.5	7.1	6.5	7.4	3.7	6.1	4.4	7.7	11.7	7.05	19.81			
8-Dec	12.2	10.9	Z	9.4	9.4	7.9	3.7	2.3	4.3	7.2	10.6	11.6	11.8	9.8	10.9	9.2	2.4	0.9	0.9	0.8	1.7	2.3	0.9	0.8	6.16	12.19			
9-Dec	0.8	0.8	Z	2.1	4.6	2.5	5.4	7.3	9.5	16.5	14.6	14.7	16.2	24.2	25.3	25.1	28.9	27.7	28.9	30.1	28.1	30.0	31.1	28.4	17.51	31.08			
10-Dec	28.1	25.4	Z	28.4	27.2	19.9	21.9	19.8	17.5	25.4	23.3	29.2	32.8	30.7	30.9	30.0	30.0	29.3	30.9	29.2	28.7	30.6	23.4	26.8	26.94	32.80			
11-Dec	32.2	31.0	Z	30.0	31.4	31.6	29.3	29.8	33.8	36.5	35.9	37.2	37.9	39.6	33.9	32.0	32.4	33.1	33.6	33.6	35.0	34.8	32.7	31.1	33.40	39.65			
12-Dec	29.0	27.8	Z	24.1	22.5	20.3	18.6	16.0	16.2	14.6	16.7	13.4	16.0	14.7	15.4	14.2	7.6	7.7	10.6	7.4	6.2	5.3	8.9	10.4	14.95	28.98			
13-Dec	10.0	7.0	Z	9.6	6.7	5.5	16.9	22.2	21.7	21.4	23.6	24.8	26.0	27.8	28.7	29.5	29.8	35.0	33.6	32.4	32.1	26.9	27.0	25.4	22.77	35.04			
14-Dec	26.2	24.0	Z	22.5	21.6	14.9	15.4	13.6	12.1	12.2	14.3	17.0	18.9	22.5	25.2	24.5	15.4	15.6	17.4	13.7	14.6	11.7	10.4	6.8	16.99	26.24			
15-Dec	5.6	6.6	Z	8.2	5.8	7.7	5.6	4.2	5.3	8.9	10.2	11.4	12.1	15.2	18.7	22.1	21.0	19.1	19.6	20.4	20.9	21.5	21.1	21.8	13.61	22.05			
16-Dec	21.3	21.2	Z	24.9	23.5	20.7	16.8	13.3	10.1	6.0	11.2	14.8	16.6	17.8	17.9	15.3	12.9	16.0	12.7	12.3	8.7	9.2	8.0	9.6	14.82	24.94			
17-Dec	9.9	10.2	Z	9.9	12.5	15.5	17.8	14.9	13.0	13.7	15.5	19.4	19.9	19.4	18.9	17.7	13.2	15.5	15.0	18.1	17.9	12.8	10.7	9.4	14.82	19.92			
18-Dec	7.5	2.3	Z	3.3	5.2	1.0	0.8	0.8	1.5	4.1	7.2	10.2	11.6	13.2	13.5	10.3	4.0	0.9	0.8	1.6	1.0	0.8	0.8	0.8	4.48	13.50			
19-Dec	0.8	0.8	Z	0.8	0.7	0.7	0.8	0.8	1.0	2.8	5.0	5.7	6.2	6.0	4.8	2.9	1.2	0.7	0.7	0.6	0.6	0.6	0.6	0.7	1.98	6.19			
20-Dec	0.6	0.8	Z	0.6	0.6	0.6	0.6	0.6	0.8	4.5	8.7	13.0	16.0	15.9	13.0	9.5	11.7	13.9	11.7	17.9	19.8	17.8	14.3	8.9	8.77	19.83			
21-Dec	6.4	11.5	Z	3.8	4.6	3.4	1.9	2.0	2.5	7.1	10.4	11.0	13.3	13.0	21.1	21.7	24.8	30.4	30.4	29.7	27.0	23.7	23.3	22.9	15.04	30.44			
22-Dec	22.7	21.4	Z	24.7	28.0	28.5	28.9	26.2	24.3	30.8	29.0	30.1	34.0	34.7	34.4	33.7	32.8	33.4	32.9	29.1	24.8	26.3	26.2	28.6	28.94	34.74			
23-Dec	28.0	26.1	Z	19.8	16.8	16.3	14.9	14.0	15.0	18.5	16.1	16.9	18.8	18.0	15.6	20.5	15.0	13.2	15.0	15.0	13.5	13.8	14.8	16.7	17.05	28.00			
24-Dec	17.7	21.6	Z	28.7	28.0	29.3	34.9	34.1	35.5	36.2	36.1	36.4	36.8	35.8	34.5	33.2	31.7	30.2	27.7	26.8	24.2	20.8	18.6	19.5	29.48	36.85			
25-Dec	20.4	24.4	Z	22.5	26.0	25.0	24.1	23.6	21.6	18.9	21.4	21.5	20.5	20.1	19.7	19.0	17.8	15.6	15.2	13.5	13.4	13.6	17.8	19.5	19.80	26.05			
26-Dec	19.0	19.2	Z	17.5	14.1	12.1	13.5	16.2	14.6	14.7	16.5	19.6	20.6	22.1	22.8	21.1	18.6	18.9	19.8	20.7	24.5	26.4	28.0	27.0	19.47	28.03			
27-Dec	26.5	25.9	Z	25.4	24.3	23.7	20.0	18.7	16.6	15.9	15.8	17.7	18.3	C	C	C	C	19.8	27.5	29.5	31.5	19.9	18.4	29.8	22.38	31.54			
28-Dec	32.0	29.6	Z	28.9	22.7	13.4	12.0	13.2	13.0	14.9	19.2	20.8	20.7	20.6	21.4	24.2	21.5	21.6	20.8	18.6	27.6	28.1	26.8	26.1	21.64	31.98			
29-Dec	27.0	25.2	Z	24.2	24.3	24.9	25.4	26.0	25.9	26.3	26.0	26.0	26.1	26.4	27.0	26.3	25.6	22.3	21.7	23.2	20.0	15.7	16.2	16.4	23.84	27.01			
30-Dec	17.4	18.2	Z	17.5	17.4	19.0	20.1	20.2	21.5	22.3	23.2	25.6	33.0	36.1	39.6	40.2	41.0	41.0	41.3	41.6	40.8	39.2	41.9	42.4	30.46	42.42			
31-Dec	41.7	39.5	Z	39.3	40.4	39.7	37.2	35.6	38.6	40.4	37.4	37.5	38.4	39.2	40.7	40.2	39.6	38.7	37.9	38.2	38.0	36.6	36.7	37.8	38.67	41.73			
		17.76	17.27	--	16.92	16.56	15.55	15.79	15.59	15.35	17.24	18.32	19.89	21.27	22.34	23.09	22.09	19.86	19.74	19.99	19.46	19.23	17.91	17.71	18.17	Diurnal Average			
		41.73	39.52	--	39.27	40.40	39.73	37.22	35.63	38.61	40.41	37.41	37.49	38.38	39.65	40.71	40.25	40.97	40.97	41.27	41.64	40.79	39.24	41.86	42.42	Diurnal Maximum			
Z - zerospan		C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 82.5 ppb		24-hr -- ppb																									



WCAS - Tomahawk
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 28.18 ppb on Dec 19 13:00		Maximum Daily Average: 17.72 ppb on Dec 19		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 9 19:00		Minimum Daily Average: 0.03 ppb on Dec 24		Hours of Data: 707																							
Maximum Diurnal Average: 6.42 ppb at hour 12		Minimum Diurnal Average: 0.78 ppb at hour 5		Hours of Missing Data: 37																							
Monthly Average: 2.362 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 2.1 P ₉₀ = 8.4 P ₉₉ = 20.5		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.6	3.6	7.0	8.2	8.9	9.0	8.5	6.3	1.9	0.9	0.1	0.4	1.9	4.6	2.1	0.4	2.85	9.02	
2-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.4	0.9	3.1	2.3	0.8	0.5	0.4	0.6	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.48	3.12	
3-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.4	2.3	5.0	6.2	5.8	5.2	3.6	2.3	0.6	0.1	0.1	0.1	0.2	0.2	0.1	0.1	1.45	6.17	
4-Dec	0.1	0.1	Z	0.1	0.2	0.1	0.1	1.2	2.2	4.1	7.9	8.1	15.5	11.1	3.8	2.8	1.2	0.2	0.2	0.4	0.1	0.1	0.2	0.1	2.60	15.51	
5-Dec	0.2	0.2	Z	0.3	0.1	0.2	0.2	0.2	1.6	5.6	9.5	10.9	11.7	17.9	10.3	3.8	1.2	0.4	0.3	0.3	0.3	0.2	0.2	0.2	3.29	17.87	
6-Dec	0.3	0.2	Z	0.1	0.1	0.1	0.9	1.9	2.3	5.9	8.7	7.7	5.8	4.1	2.9	2.2	0.6	0.1	0.1	0.1	0.1	0.2	0.1	0.3	1.96	8.74	
7-Dec	0.3	0.9	Z	0.9	1.7	1.7	0.9	0.5	1.5	7.0	12.2	12.0	11.9	6.7	4.6	5.5	1.9	0.3	0.2	0.7	0.4	0.4	0.6	0.4	3.18	12.20	
8-Dec	0.2	0.2	Z	0.2	0.3	0.3	0.5	0.5	2.6	10.4	12.8	15.1	12.9	24.6	12.4	10.0	9.8	5.5	9.8	15.0	5.4	0.8	6.8	6.0	7.05	24.57	
9-Dec	12.8	10.6	Z	3.5	0.6	0.6	0.3	0.6	2.0	3.2	4.9	3.7	6.9	4.6	3.6	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.57	12.78	
10-Dec	0.0	0.0	Z	0.0	0.4	0.1	0.0	0.2	3.2	0.7	2.1	1.4	0.8	0.8	0.6	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.49	3.20	
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.1	0.8	0.1	2.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28	2.34	
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.9	3.3	10.7	7.9	8.1	5.3	4.0	2.3	0.2	0.0	0.4	0.1	0.0	0.0	0.0	1.93	10.73	
13-Dec	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	0.4	0.6	1.1	1.6	1.7	1.7	0.7	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.38	1.73	
14-Dec	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.0	0.2	2.4	5.4	6.6	5.8	4.2	2.3	1.3	0.7	0.1	0.1	0.1	0.1	0.2	0.2	0.2	1.39	6.55	
15-Dec	0.1	0.2	Z	0.1	0.1	0.3	1.5	0.9	0.8	4.2	10.8	11.7	12.1	8.0	5.6	2.3	0.5	0.6	0.7	0.2	0.3	0.1	0.1	0.1	2.66	12.08	
16-Dec	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.6	9.4	7.5	7.2	6.1	4.4	3.9	3.3	1.8	0.9	1.0	0.1	0.1	0.1	0.0	0.0	2.05	9.44	
17-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.9	2.0	1.6	1.6	2.1	2.1	1.4	0.8	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.59	2.11	
18-Dec	0.2	1.9	Z	2.1	1.7	6.9	6.2	6.4	3.1	18.4	18.3	17.0	17.1	14.6	11.9	8.7	6.7	6.5	4.9	2.1	3.6	7.6	8.2	11.9	8.09	18.41	
19-Dec	9.8	13.1	Z	8.8	9.6	8.4	8.4	18.9	11.4	21.0	25.6	27.1	28.2	26.0	20.4	17.5	16.3	17.1	18.4	21.8	20.5	19.4	20.7	19.0	17.72	28.18	
20-Dec	12.5	10.2	Z	7.6	8.5	8.0	7.0	5.6	6.2	9.4	12.0	10.3	8.5	7.6	6.8	6.0	2.1	0.1	0.0	0.0	0.1	0.0	0.3	0.2	5.61	12.55	
21-Dec	0.8	0.0	Z	0.2	0.0	0.1	0.2	0.1	0.5	5.4	8.5	9.4	7.6	7.1	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.84	9.42	
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.3	0.6	0.4	0.4	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.20	1.30	
23-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.7	1.3	4.8	5.9	4.5	4.6	7.2	1.0	0.4	0.1	0.1	0.0	0.0	0.1	0.0	0.0	1.36	7.17	
24-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.18	
25-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.8	1.0	1.5	1.4	1.3	0.8	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.35	1.52	
26-Dec	0.1	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.1	1.2	2.0	2.5	2.9	2.6	1.8	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.65	2.86	
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.5	3.7	4.5	5.3	C	C	C	C	C	C	0.0	0.0	1.3	1.2	0.0	--	5.27	
28-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.6	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13	0.66	
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.10	0.41	
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.0	3.1	2.9	1.2	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.41	3.12	
31-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.0	1.0	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.17	0.97	
		1.22	1.24	--	0.79	0.78	0.89	0.87	1.22	1.31	3.98	5.96	6.42	6.34	6.00	4.23	2.86	1.68	1.12	1.21	1.43	1.08	1.16	1.34	1.27	Diurnal Average	
		12.78	13.10	--	8.75	9.58	8.37	8.39	18.89	11.43	21.01	25.60	27.14	28.18	26.03	20.45	17.50	16.33	17.08	18.42	21.83	20.45	19.37	20.71	19.04	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb					24-hr --- ppb																				



WCAS - Tomahawk
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2014

Maximum Value: 42.91 ppb on Dec 19 20:00																						Maximum Daily Average: 36.78 ppb on Dec 19																						Hours in Service: 744	
Minimum Value: 0.8 ppb on Dec 29 04:00																						Minimum Daily Average: 2.53 ppb on Dec 31																						Hours of Data: 707	
Maximum Diurnal Average: 14.34 ppb at hour 11																						Minimum Diurnal Average: 10.39 ppb at hour 4																						Hours of Missing Data: 37	
Monthly Average: 12.027 ppb																						Percentiles: P ₁ = 1.1 P ₁₀ = 2.4 Q ₁ = 4.7 Median = 10.1 Q ₃ = 17.3 P ₉₀ = 24.2 P ₉₉ = 40.2																						Hours of Calibration: 37	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	9.9	9.6	Z	11.2	11.2	12.0	12.2	12.5	13.4	16.1	19.1	19.7	20.9	22.6	23.5	22.8	23.4	24.5	22.8	26.0	31.4	37.6	33.1	21.8	19.89	37.62																			
2-Dec	18.9	19.1	Z	15.6	14.9	10.9	5.6	3.6	6.8	6.0	9.6	6.4	2.6	2.0	1.9	4.2	4.4	5.8	6.6	7.7	11.7	12.5	8.1	5.9	8.29	19.12																			
3-Dec	4.9	5.5	Z	5.9	7.8	8.9	9.2	10.3	10.3	11.4	13.6	14.4	13.4	13.1	12.1	12.6	13.5	12.7	13.8	16.9	17.5	18.8	18.2	21.8	12.45	21.78																			
4-Dec	20.5	16.0	Z	14.8	15.9	12.9	12.6	12.7	17.0	14.4	18.1	18.5	29.1	23.7	11.7	13.3	18.7	20.1	21.3	22.1	14.7	11.2	12.5	11.9	16.68	29.12																			
5-Dec	16.8	19.9	Z	19.3	15.5	18.1	21.5	20.4	20.3	17.1	18.9	19.0	20.0	29.0	20.9	15.9	17.1	17.3	12.5	12.7	15.7	18.0	16.7	15.8	18.20	29.00																			
6-Dec	14.9	14.0	Z	13.4	14.5	13.6	15.0	16.2	17.8	21.3	22.4	19.8	15.4	12.8	12.2	13.2	12.8	13.1	13.5	14.2	12.1	11.9	13.3	14.5	14.87	22.44																			
7-Dec	16.2	19.4	Z	17.8	21.1	21.5	20.6	20.8	20.1	20.3	22.8	20.6	20.7	14.5	13.2	19.2	19.6	17.8	16.4	20.1	18.1	19.6	16.6	12.2	18.65	22.77																			
8-Dec	11.3	12.8	Z	13.1	12.5	19.3	18.8	20.0	20.2	25.2	24.3	27.3	24.6	40.5	26.3	25.4	31.1	28.0	33.9	38.3	26.9	22.5	27.6	25.8	24.16	40.50																			
9-Dec	32.8	30.6	Z	21.9	17.4	17.5	16.2	15.4	15.0	14.3	19.3	14.7	19.9	15.4	13.1	8.0	4.9	4.8	4.6	3.7	4.1	3.8	3.1	3.5	13.22	32.77																			
10-Dec	4.2	4.8	Z	6.3	7.0	10.9	7.8	10.1	17.3	7.9	11.8	8.5	6.1	5.9	5.4	6.4	5.9	7.6	6.4	7.1	6.9	5.3	11.9	7.4	7.78	17.32																			
11-Dec	3.3	4.8	Z	4.0	3.3	3.8	4.5	4.8	4.2	3.5	5.6	5.1	4.2	1.9	10.0	7.7	6.3	5.1	4.4	4.1	4.3	4.6	5.1	4.9	4.76	10.00																			
12-Dec	5.3	4.1	Z	4.6	5.1	6.0	6.9	8.3	9.4	11.9	11.7	22.3	17.4	18.1	14.9	15.6	21.7	18.7	15.2	16.8	17.1	17.3	12.7	11.0	12.70	22.28																			
13-Dec	10.3	12.8	Z	9.0	10.6	11.8	5.3	3.5	3.4	3.8	3.8	4.7	5.9	6.8	6.9	5.6	5.5	2.5	3.0	3.1	2.9	5.5	6.7	6.9	6.10	12.83																			
14-Dec	5.2	6.0	Z	5.6	6.0	10.2	9.3	8.7	9.5	11.2	13.0	13.7	12.2	10.4	8.3	8.3	14.3	12.8	12.2	17.2	12.8	16.3	16.1	19.9	11.26	19.87																			
15-Dec	18.3	17.0	Z	12.3	13.9	12.9	16.3	17.8	16.1	15.3	20.6	19.4	19.9	15.5	14.0	11.1	11.3	12.3	10.8	8.9	8.8	6.8	6.5	5.5	13.53	20.56																			
16-Dec	5.5	5.4	Z	3.6	4.6	6.9	8.9	9.0	11.8	23.6	16.4	13.9	11.7	9.7	10.1	13.0	14.7	11.4	14.3	12.2	13.1	13.0	13.0	11.7	11.20	23.58																			
17-Dec	10.8	10.0	Z	9.1	8.3	6.4	5.5	7.7	8.2	8.9	8.7	6.2	5.7	6.6	7.1	7.4	11.8	8.4	8.4	5.5	5.3	8.9	9.2	11.2	8.06	11.85																			
18-Dec	12.5	19.2	Z	16.8	14.3	24.3	25.0	26.3	21.4	34.3	32.1	28.6	27.8	26.2	25.3	25.1	29.5	31.5	29.5	23.4	25.7	31.2	31.3	33.9	25.87	34.32																			
19-Dec	32.7	34.0	Z	28.7	28.4	27.5	27.8	38.9	30.0	38.7	41.4	41.6	42.8	41.5	37.5	36.7	37.3	38.0	39.0	42.9	40.6	38.9	41.3	39.9	36.78	42.91																			
20-Dec	33.2	31.8	Z	27.4	27.6	26.5	25.3	23.9	24.5	24.2	22.9	20.0	17.2	16.9	18.7	20.0	17.8	15.4	15.6	11.7	10.7	11.6	14.3	18.8	20.69	33.18																			
21-Dec	20.5	12.6	Z	18.6	18.2	20.8	23.0	23.0	22.0	21.4	20.6	20.2	17.7	17.9	8.7	7.0	4.7	2.2	2.3	2.0	2.5	5.2	4.4	4.1	13.02	23.00																			
22-Dec	4.0	3.9	Z	3.0	3.0	3.8	3.6	4.4	5.8	3.6	5.7	6.0	3.6	3.0	3.2	3.2	3.4	2.9	3.3	5.7	8.6	6.7	6.5	4.5	4.41	8.61																			
23-Dec	4.4	5.7	Z	7.3	7.5	8.2	9.0	9.4	11.4	12.3	18.2	18.4	15.7	17.5	23.1	12.1	15.4	15.1	13.3	12.5	13.0	12.7	11.8	10.7	12.38	23.11																			
24-Dec	9.2	7.5	Z	4.1	4.3	3.8	2.2	2.4	2.1	1.7	2.0	1.9	1.6	1.9	2.1	2.3	2.7	2.3	2.5	2.6	1.8	2.1	2.5	2.6	2.96	9.20																			
25-Dec	2.6	2.1	Z	6.4	2.8	2.5	2.5	2.4	4.0	6.4	4.3	3.8	4.8	5.1	5.2	5.4	5.7	7.1	6.8	7.6	7.0	6.5	3.6	2.7	4.66	7.64																			
26-Dec	2.8	3.0	Z	4.0	6.3	8.1	8.1	7.0	7.4	7.7	7.6	8.0	9.4	9.0	7.9	8.5	9.9	9.2	8.0	7.3	4.4	4.3	4.0	3.7	6.76	9.87																			
27-Dec	4.4	5.0	Z	4.8	4.8	5.0	6.0	8.1	8.7	9.6	10.6	10.0	11.2	C	C	C	C	C	C	4.9	3.1	17.8	19.7	4.7	--	19.65																			
28-Dec	2.1	2.5	Z	1.8	2.7	4.5	4.8	4.1	4.1	3.4	2.4	2.3	2.4	2.4	2.1	3.4	2.5	2.7	2.9	1.5	1.1	1.2	1.3	2.64	4.81																				
29-Dec	1.4	1.4	Z	0.8	1.0	0.8	0.8	0.8	1.2	1.0	1.1	1.3	1.5	1.7	1.7	1.8	2.2	6.2	6.0	4.0	6.9	10.4	9.3	9.3	3.16	10.42																			
30-Dec	8.0	7.4	Z	8.8	9.7	9.6	9.5	10.4	9.8	10.0	12.4	11.3	6.4	4.3	2.4	2.5	2.5	2.4	2.0	1.6	2.0	2.2	1.5	1.4	6.01	12.42																			
31-Dec	1.4	2.0	Z	2.1	2.1	2.3	3.0	3.7	2.5	2.1	3.6	4.1	3.9	4.0	1.8	1.8	2.2	2.5	2.6	1.9	1.9	2.7	2.5	1.7	2.53	4.14																			
11.24 11.29 -- 10.39 10.40 11.34 11.19 11.83 12.12 13.17 14.34 13.92 13.41 13.33 11.73 11.28 12.46 12.00 11.78 11.86 11.39 12.48 12.39 11.32																						Diurnal Average																							
33.18 34.02 -- 28.74 28.39 27.46 27.84 38.88 29.97 38.67 41.39 41.55 42.81 41.53 37.48 36.67 37.33 38.00 38.96 42.91 40.58 38.92 41.28 39.88																						Diurnal Maximum																							
Z - zerospan C - Calibration																																													
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb																																													



WCAS - Tomahawk
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2014

Maximum Value: 35.45 µg/m ³ on Dec 6 14:00		Maximum Daily Average: 24.92 µg/m ³ on Dec 6		Hours in Service: 744																																													
Minimum Value: 1.1 µg/m ³ on Dec 31 00:00		Minimum Daily Average: 1.79 µg/m ³ on Dec 22		Hours of Data: 744																																													
Maximum Diurnal Average: 7.33 µg/m ³ at hour 5		Minimum Diurnal Average: 5.70 µg/m ³ at hour 16		Hours of Missing Data: 0																																													
Monthly Average: 6.641 µg/m ³		Percentiles: P ₁ = 1.4 P ₁₀ = 1.8 Q ₁ = 2.5 Median = 4.6 Q ₃ = 8.8 P ₉₀ = 13.7 P ₉₉ = 25.2		Hours of Calibration: 0																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	5.7	6.1	6.1	6.0	5.5	5.2	4.8	4.6	4.5	4.7	4.4	4.5	5.0	5.8	5.0	4.8	5.4	7.7	8.4	8.7	14.7	18.5	13.5	11.7	7.13	18.51																							
2-Dec	12.6	13.8	10.8	11.1	9.4	7.6	5.5	4.7	4.6	4.6	4.2	3.1	2.8	2.8	2.9	3.2	4.0	4.6	4.1	3.9	4.0	4.0	3.2	4.2	5.66	13.81																							
3-Dec	4.8	4.9	5.5	5.8	6.1	6.5	6.5	6.5	6.2	5.5	5.0	4.7	4.2	4.2	10.3	4.6	5.0	6.2	6.5	19.4	8.7	10.1	13.9	11.7	7.19	19.39																							
4-Dec	13.8	9.5	9.4	9.3	13.0	10.4	8.5	8.3	7.2	7.1	8.6	7.2	6.8	5.5	4.8	5.7	6.5	8.3	8.6	8.9	10.1	10.5	9.8	8.7	8.60	13.83																							
5-Dec	8.4	8.2	7.7	7.8	7.6	8.6	9.5	9.2	8.7	6.9	6.4	6.3	5.7	6.4	6.4	6.6	9.2	9.8	9.0	11.1	13.7	16.4	16.6	17.9	9.34	17.89																							
6-Dec	19.1	19.1	19.6	21.6	21.7	22.0	22.7	20.8	22.3	25.7	32.5	29.3	27.2	35.4	32.9	31.8	29.5	26.4	23.4	24.4	25.8	23.1	20.0	21.6	24.92	35.45																							
7-Dec	23.4	20.4	18.7	15.7	16.9	14.2	11.7	9.7	9.6	8.1	9.1	8.2	7.3	4.5	3.5	4.7	4.6	4.2	4.0	3.3	4.5	3.3	5.4	7.7	9.28	23.44																							
8-Dec	8.5	9.7	9.6	10.7	10.9	9.3	10.9	11.6	13.6	14.7	14.0	13.4	13.4	13.2	12.0	11.0	12.8	12.7	11.3	12.1	11.9	9.2	10.3	9.6	11.52	14.69																							
9-Dec	9.2	7.4	5.9	4.9	3.9	3.7	3.6	3.0	2.7	2.2	2.4	2.4	2.6	2.2	1.9	1.6	1.3	1.5	1.5	1.4	1.4	1.5	1.6	2.0	2.99	9.15																							
10-Dec	2.6	2.7	3.1	2.7	2.3	2.3	2.5	2.2	2.5	1.8	2.3	2.0	1.7	1.7	1.6	1.6	1.6	1.8	2.6	2.5	2.1	2.3	2.6	3.2	2.26	3.18																							
11-Dec	3.8	3.5	3.2	3.0	2.8	2.7	2.5	2.4	2.0	1.6	1.7	1.7	2.1	2.2	2.1	2.0	2.1	2.1	2.0	2.0	1.7	1.7	1.9	1.9	2.27	3.79																							
12-Dec	1.9	1.9	2.1	2.5	2.5	2.4	2.3	2.4	3.1	3.3	3.7	3.9	4.0	3.7	4.0	4.0	4.4	4.9	5.4	5.9	6.7	6.6	6.2	8.3	4.00	8.31																							
13-Dec	11.5	12.0	14.0	17.7	15.1	12.6	8.8	7.3	7.1	7.1	8.0	6.9	5.4	5.9	5.0	4.5	3.9	3.2	3.7	3.8	3.4	6.1	22.0	13.8	8.70	22.02																							
14-Dec	5.4	5.3	4.1	5.2	7.4	6.9	7.4	6.2	5.8	5.5	4.8	4.1	3.7	3.3	3.3	3.5	4.7	4.7	5.1	5.3	5.7	6.9	6.0	7.0	5.30	7.40																							
15-Dec	7.3	6.8	6.0	6.5	7.0	6.1	6.5	6.0	6.5	7.7	8.7	9.8	9.2	11.7	9.1	7.0	6.1	6.0	6.2	5.9	5.9	6.3	7.5	7.7	7.23	11.75																							
16-Dec	7.4	7.4	7.1	7.3	7.7	8.3	8.3	15.3	24.2	22.3	26.7	20.2	18.1	13.6	11.4	9.9	9.8	7.8	8.4	10.1	15.3	13.1	14.3	13.8	12.82	26.69																							
17-Dec	15.7	17.9	17.3	15.4	13.6	10.9	9.7	10.4	11.3	10.6	9.8	8.8	9.6	11.8	11.7	11.5	11.9	9.8	9.7	8.0	5.9	8.8	12.9	11.1	11.43	17.91																							
18-Dec	13.7	15.2	15.2	15.5	13.6	12.4	11.5	10.5	10.1	10.6	10.1	10.8	10.7	10.3	6.8	5.8	6.2	7.6	7.7	8.9	8.8	8.1	8.3	9.5	10.32	15.46																							
19-Dec	5.0	4.1	4.2	4.3	4.8	5.4	7.3	10.7	9.8	12.0	12.6	16.8	19.1	23.0	19.8	19.2	19.3	19.2	16.6	13.6	11.7	8.9	9.7	8.5	11.90	22.96																							
20-Dec	6.5	6.6	6.1	5.8	5.8	5.3	4.7	4.3	4.2	3.9	3.3	2.8	2.5	2.5	3.2	3.8	3.2	3.4	3.7	3.1	2.8	3.0	3.3	3.5	4.05	6.65																							
21-Dec	4.2	4.8	5.6	7.3	13.5	14.3	14.6	14.8	15.2	15.1	14.1	12.6	10.7	8.8	4.2	2.9	2.4	1.7	1.6	1.4	1.4	1.4	1.4	1.7	7.32	15.23																							
22-Dec	1.7	1.6	1.8	2.0	1.8	1.8	1.9	1.9	1.9	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7	2.3	2.1	2.4	2.3	2.1	1.79	2.38																							
23-Dec	2.5	2.6	2.9	3.0	3.8	4.4	4.7	4.4	4.4	3.7	4.0	3.4	3.0	2.5	2.2	2.0	2.1	2.5	2.4	2.7	3.0	2.8	2.9	2.9	3.12	4.67																							
24-Dec	2.7	3.1	2.7	2.3	2.3	2.2	1.9	2.0	3.3	2.4	2.2	1.8	1.5	1.4	1.5	1.6	1.7	2.1	2.7	3.0	3.3	3.6	5.8	4.2	2.55	5.80																							
25-Dec	3.6	2.9	2.9	2.9	2.9	4.1	4.6	4.9	4.2	4.7	6.1	6.2	6.8	7.1	7.8	8.1	8.3	8.9	8.7	8.6	7.7	6.2	3.7	3.6	5.64	8.85																							
26-Dec	4.1	3.8	3.9	4.0	4.2	4.6	4.3	4.0	3.7	3.3	2.9	2.4	2.4	2.0	1.5	1.6	1.6	1.6	1.7	1.5	1.5	1.5	1.5	2.6	2.75	4.55																							
27-Dec	3.6	3.5	4.2	3.8	3.5	3.6	3.2	3.5	3.2	2.9	2.4	2.0	2.1	2.1	2.5	2.6	3.8	5.3	3.7	3.2	3.3	4.5	4.5	4.3	3.39	5.35																							
28-Dec	4.4	5.9	6.5	5.9	9.5	14.2	12.8	10.0	9.2	7.3	5.1	4.5	4.4	4.1	3.9	3.5	3.5	3.4	3.4	3.9	3.3	2.6	2.7	2.5	5.69	14.15																							
29-Dec	2.4	2.4	2.3	2.1	2.1	2.0	2.2	2.1	2.1	1.9	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	2.0	2.1	2.2	2.9	2.7	2.8	2.15	3.37																							
30-Dec	3.8	3.8	4.1	4.1	4.3	3.9	3.9	3.0	2.5	2.7	2.5	2.0	1.7	1.7	1.8	1.7	1.6	1.6	1.6	1.5	1.7	1.9	1.3	1.1	2.49	4.29																							
31-Dec	1.1	1.3	1.9	1.9	1.8	2.0	1.9	2.0	2.1	1.9	2.0	2.1	2.3	2.3	2.3	2.5	2.6	2.4	2.3	2.3	2.2	2.1	2.0	1.8	2.05	2.58																							
																								7.12	7.04	6.91	7.03	7.33	7.09	6.81	6.72	7.02	6.90	7.19	6.68	6.42	6.62	6.09	5.70	5.88	5.96	5.80	6.28	6.36	6.45	7.09	6.89	Diurnal Average	
																								23.44	20.44	19.58	21.59	21.74	22.03	22.74	20.75	24.16	25.72	32.45	29.29	27.18	35.45	32.89	31.83	29.45	26.45	23.44	24.43	25.80	23.08	22.02	21.63	Diurnal Maximum	

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

**TOMAHAWK
STATION #901**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Tomahawk
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 9.77 C on Dec 11 15:00 Maximum Daily Average: 6.02 C on Dec 11 Minimum Value: -23.7 C on Dec 29 22:00 Minimum Daily Average: -18.69 C on Dec 29 Maximum Diurnal Average: -4.13 C at hour 15 Minimum Diurnal Average: -10.10 C at hour 9 Monthly Average: -7.559 C Percentiles: P ₁ = -22.7 P ₁₀ = -15.1 Q ₁ = -11.6 Median = -8.4 Q ₃ = -3.5 P ₉₀ = 1.2 P ₉₉ = 7.2																								Hours in Service:	744	
																								Hours of Data:	744	
																								Hours of Missing Data:	0	
																								Hours of Calibration:	0	
																								Percent Operational Time:	100.0	
Day	Hourly Period Ending At																								Daily 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	-20.3	-20.8	-20.4	-19.5	-19.0	-18.4	-18.7	-18.5	-18.6	-18.8	-17.7	-16.0	-14.2	-12.4	-11.4	-11.4	-12.0	-12.4	-13.0	-14.2	-14.9	-14.6	-13.3	-14.1	-16.02	-11.39
2-Dec	-14.0	-13.5	-12.6	-14.0	-13.8	-13.4	-11.6	-10.9	-11.5	-11.2	-10.4	-8.7	-7.5	-7.3	-7.5	-8.8	-9.7	-10.2	-10.0	-10.7	-10.8	-10.0	-8.4	-8.1	-10.60	-7.32
3-Dec	-7.5	-7.4	-7.6	-7.9	-8.3	-8.9	-10.4	-11.2	-12.0	-11.6	-9.7	-7.5	-5.7	-4.0	-3.3	-2.8	-4.4	-5.6	-6.1	-7.0	-7.6	-8.0	-9.1	-10.2	-7.67	-2.81
4-Dec	-10.7	-10.6	-10.9	-11.5	-12.6	-13.0	-13.6	-12.7	-13.3	-13.0	-12.3	-9.9	-7.7	-5.9	-5.1	-4.3	-7.1	-8.3	-9.5	-11.0	-11.1	-11.8	-11.5	-12.5	-10.42	-4.34
5-Dec	-13.2	-13.6	-13.7	-14.5	-15.1	-16.2	-16.0	-16.9	-18.2	-17.3	-16.1	-14.3	-11.2	-12.8	-11.7	-10.4	-10.9	-9.9	-8.2	-8.0	-8.5	-9.4	-9.5	-9.8	-12.72	-8.02
6-Dec	-9.9	-9.9	-10.1	-11.0	-11.1	-11.0	-11.1	-12.1	-12.3	-12.2	-10.4	-9.9	-9.2	-8.6	-8.5	-8.6	-8.9	-8.9	-9.0	-8.1	-6.7	-5.9	-5.5	-5.8	-9.35	-5.50
7-Dec	-6.3	-6.2	-6.5	-9.1	-9.0	-8.7	-8.4	-8.4	-8.4	-7.8	-8.2	-6.3	-3.3	-1.3	0.5	-0.7	-2.0	-3.3	-3.6	-5.5	-8.1	-9.5	-10.2	-11.0	-6.29	0.49
8-Dec	-10.6	-11.3	-12.3	-13.2	-14.0	-12.5	-14.3	-14.7	-14.7	-15.1	-12.8	-11.2	-10.8	-9.8	-8.8	-7.9	-9.3	-10.3	-10.2	-10.9	-11.7	-10.3	-11.5	-10.8	-11.64	-7.88
9-Dec	-9.9	-8.5	-7.5	-6.6	-5.7	-6.3	-6.2	-4.9	-4.7	-3.3	-2.5	-2.4	-0.2	2.7	4.1	6.0	7.7	6.8	7.5	7.8	6.9	7.2	6.7	5.7	0.02	7.78
10-Dec	4.7	1.9	4.1	2.7	2.5	0.4	-0.3	-0.2	0.2	1.3	2.7	5.5	6.9	6.1	6.5	6.8	6.7	7.1	6.0	6.6	5.9	5.5	5.1	3.8	4.09	7.14
11-Dec	4.9	5.7	4.0	4.2	5.1	6.8	6.0	6.2	6.3	6.6	7.0	8.1	8.8	9.6	9.8	6.0	5.9	5.4	5.5	4.8	5.0	4.9	4.3	3.8	6.02	9.77
12-Dec	3.1	1.8	0.7	-0.8	-0.9	-1.1	-1.0	-2.1	-2.1	-2.7	-2.6	-2.0	-0.8	0.4	0.6	0.9	-0.3	-1.5	-1.7	-4.0	-4.4	-4.2	-3.9	-3.9	-1.36	3.11
13-Dec	-4.2	-3.9	-4.0	-3.3	-3.4	-3.5	-1.5	0.0	-0.5	-0.6	0.5	0.9	1.4	1.6	2.5	2.7	1.2	1.1	0.1	-1.0	-1.8	-4.5	-5.7	-6.7	-1.35	2.70
14-Dec	-6.1	-7.0	-4.6	-8.4	-9.2	-10.2	-10.0	-9.8	-9.9	-10.9	-9.5	-7.0	-4.5	-1.0	0.6	-1.0	-4.1	-4.9	-6.3	-8.0	-8.9	-9.9	-11.1	-11.7	-7.23	0.64
15-Dec	-12.0	-13.0	-13.7	-15.2	-14.8	-16.8	-15.7	-17.1	-18.2	-18.3	-16.1	-14.3	-8.3	-7.6	-5.3	-4.2	-5.1	-6.4	-7.7	-7.8	-8.5	-10.7	-11.2	-11.1	-11.62	-4.16
16-Dec	-11.4	-11.8	-11.7	-11.7	-13.1	-14.5	-16.5	-19.9	-19.4	-19.8	-17.6	-16.3	-13.4	-9.8	-9.2	-9.3	-10.3	-9.2	-9.5	-9.7	-10.6	-10.1	-9.9	-9.5	-12.67	-9.15
17-Dec	-9.4	-9.2	-8.9	-8.4	-8.0	-7.5	-7.1	-7.2	-7.4	-7.5	-7.4	-7.4	-7.4	-7.5	-7.0	-6.7	-9.1	-10.0	-10.4	-10.6	-11.6	-12.7	-13.7	-13.9	-8.99	-6.67
18-Dec	-14.6	-14.6	-14.8	-14.9	-15.5	-14.3	-14.1	-13.9	-14.0	-14.8	-11.8	-10.7	-9.2	-6.3	-4.0	-3.8	-6.6	-8.7	-8.8	-9.3	-9.7	-10.5	-11.7	-11.7	-11.17	-3.76
19-Dec	-12.4	-12.2	-13.8	-13.0	-13.0	-13.8	-14.4	-13.6	-14.4	-13.4	-13.2	-12.3	-9.6	-9.0	-8.7	-8.3	-8.0	-7.9	-8.1	-8.0	-8.3	-7.9	-7.2	-6.9	-10.74	-6.95
20-Dec	-6.8	-7.1	-7.3	-7.9	-8.7	-9.4	-9.5	-9.7	-10.1	-9.6	-8.7	-7.1	-5.4	-4.0	-4.9	-6.1	-5.5	-4.9	-7.8	-6.6	-6.4	-7.1	-8.1	-7.8	-7.35	-3.95
21-Dec	-8.9	-9.8	-9.4	-8.7	-9.3	-9.2	-10.1	-10.0	-10.0	-9.6	-8.8	-7.2	-5.7	-4.5	-1.8	-1.0	-0.1	1.5	1.2	1.0	0.2	-1.4	-1.3	-0.8	-5.15	1.54
22-Dec	-0.7	-1.6	-2.1	-3.2	-2.8	-3.0	-2.8	-2.9	-2.6	-1.2	-1.2	-0.4	1.4	2.1	2.2	2.1	0.3	-0.4	-1.3	-2.9	-3.9	-4.4	-4.5	-3.9	-1.57	2.16
23-Dec	-3.5	-3.4	-3.9	-4.5	-5.4	-5.8	-5.9	-5.8	-6.1	-6.1	-6.4	-5.8	-4.9	-3.8	-3.7	-3.3	-4.3	-5.0	-4.6	-4.3	-4.7	-4.2	-4.4	-4.0	-4.75	-3.32
24-Dec	-4.5	-4.0	-4.0	-2.7	-3.5	-3.2	-1.1	-1.4	-0.9	-1.7	-1.7	-0.9	-0.3	-0.7	-1.2	-1.9	-2.6	-3.4	-3.9	-4.7	-5.7	-6.9	-7.7	-8.6	-3.22	-0.33
25-Dec	-9.0	-9.5	-9.6	-10.1	-10.6	-10.7	-10.7	-10.8	-11.5	-11.9	-11.1	-10.3	-9.6	-8.8	-7.8	-8.0	-8.8	-9.3	-8.9	-9.3	-9.9	-9.5	-9.8	-11.2	-9.86	-7.76
26-Dec	-12.5	-12.9	-12.8	-13.7	-14.3	-16.1	-15.8	-15.8	-15.5	-15.3	-13.9	-11.9	-10.3	-8.9	-8.0	-7.7	-7.3	-7.1	-6.8	-6.3	-5.5	-4.9	-4.7	-5.1	-10.54	-4.69
27-Dec	-5.3	-5.4	-6.3	-6.6	-8.1	-8.7	-9.8	-10.1	-10.5	-10.1	-9.2	-8.3	-7.0	-6.0	-5.9	-8.0	-8.2	-8.4	-8.4	-8.4	-8.8	-9.4	-9.9	-10.0	-8.21	-5.35
28-Dec	-10.4	-10.7	-10.9	-11.1	-11.2	-11.6	-11.7	-11.9	-12.0	-12.1	-12.4	-12.4	-11.8	-11.7	-12.3	-12.4	-13.4	-13.6	-13.1	-13.1	-13.8	-14.7	-15.0	-15.3	-12.44	-10.40
29-Dec	-15.5	-15.7	-16.0	-16.4	-16.8	-17.5	-18.2	-18.8	-18.8	-18.7	-18.4	-18.0	-17.5	-17.2	-16.8	-15.9	-17.2	-19.5	-20.7	-21.3	-22.6	-23.7	-23.7	-23.6	-18.69	-15.46
30-Dec	-23.5	-23.5	-23.4	-22.8	-22.4	-20.8	-20.4	-19.8	-18.8	-18.3	-16.8	-14.5	-9.2	-6.5	-4.0	-2.9	-2.4	-2.6	-2.2	-2.4	-1.9	-1.9	-2.9	-3.8	-11.99	-1.88
31-Dec	-3.9	-3.9	-2.5	-2.8	-1.7	-1.9	-3.5	-4.6	-3.4	-2.6	-4.1	-2.9	-1.4	0.4	2.2	2.3	2.3	1.4	0.9	2.0	1.2	1.2	1.8	3.5	-0.84	3.54
																								Diurnal Average		
																								Diurnal Maximum		



WCAS - Tomahawk
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	8.4	7.1	7.9	9.2	5.0	6.7	6.8	6.2	6.2	6.6	6.4	6.3	5.8	5.0	5.4	5.1	4.3	2.9	3.0	6.1	8.3	9.0	8.3	9.1	5.74	9.15	
Dir	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	SW	WSW	SSW	SSW	SW	SW	WSW	WSW	WSW	N	WSW	SW	
2 Spd	6.8	8.9	7.8	7.4	6.8	7.2	8.1	8.6	2.4	8.7	8.2	11.7	13.9	13.5	8.6	5.5	7.6	7.2	7.7	6.3	6.4	9.1	12.7	10.2	7.06	13.86	
Dir	W	W	W	WSW	SW	SW	WNW	NNW	W	W	W	NW	NW	NW	WNW	W	W	W	W	WSW	WSW	WSW	SW	SW	W	NW	
3 Spd	14.5	13.5	10.4	10.8	10.5	10.8	11.3	11.7	12.1	14.4	14.1	13.2	12.5	10.8	9.1	8.1	8.6	8.4	8.6	7.0	7.8	7.1	8.9	6.3	10.33	14.47	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	W	WSW	SW	
4 Spd	5.8	4.8	4.4	3.4	5.2	4.1	9.1	10.5	2.2	6.5	5.8	1.2	0.1	0.5	6.3	3.5	4.8	8.1	7.0	11.0	9.6	9.2	4.2	4.6	5.14	11.03	
Dir	WSW	WSW	WSW	WSW	WSW	W	W	WNW	W	WSW	W	W	S	NNW	NNW	W	WSW	WSW	WSW	W	W	WNW	WSW	WSW	W	W	
5 Spd	4.9	5.0	4.0	5.5	6.3	4.5	4.6	3.8	4.4	2.9	4.3	4.0	0.9	1.1	2.8	3.9	5.7	11.9	15.7	13.6	13.0	9.6	9.1	3.36	15.72		
Dir	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	E	ESE	ESE	ESE	SE	SE	SE	SE	ESE	ESE	ESE	ESE	SSE	SE	
6 Spd	9.1	7.5	5.8	1.8	4.5	0.2	0.1	2.6	2.4	4.7	3.5	5.0	3.9	5.7	4.7	4.7	5.0	9.3	10.0	7.4	4.5	5.6	2.7	3.0	1.66	9.99	
Dir	ESE	ESE	SE	SSW	SE	S	SE	NE	ENE	ESE	E	NE	NE	E	NE	NE	N	NNW	N	NNW	NW	SW	W	WSW	NE	N	
7 Spd	3.8	6.3	4.2	2.1	7.2	6.5	6.7	5.3	4.0	3.5	4.2	3.1	4.1	5.1	4.0	2.3	3.7	5.0	3.5	4.2	3.4	0.4	2.5	4.5	3.28	7.21	
Dir	SW	SW	SW	NNE	WSW	WSW	WSW	WSW	W	W	WSW	WSW	WSW	W	WSW	SW	WSW	WSW	W	S	S	S	SSE	SE	WSW	WSW	
8 Spd	3.9	4.6	4.6	2.2	3.3	7.5	2.0	2.6	0.7	4.0	0.6	2.3	1.1	0.1	0.1	2.8	2.5	0.4	3.0	2.5	8.7	1.4	2.6	5.2	1.03	8.67	
Dir	SSW	SE	ESE	SSW	ENE	ESE	WSW	W	WSW	S	WSW	ESE	N	ESE	N	S	SSW	N	S	SSW	NNE	NE	SW	WSW	SSE	NNE	
9 Spd	6.2	4.1	3.7	6.0	4.8	0.3	0.3	2.2	3.4	3.0	2.5	7.5	4.0	6.8	5.2	12.1	15.4	12.2	14.1	11.7	12.3	9.0	9.3	7.1	5.73	15.40	
Dir	SW	WSW	SW	WSW	SSW	WSW	SSW	SW	SW	SSW	SW	SW	S	SSE	SE	SW	SW	SW	SSW	SW	SW	W	NW	WSW	SW	SW	
10 Spd	7.9	6.6	2.4	6.2	7.9	7.1	6.4	6.3	4.6	7.2	7.3	10.0	8.6	11.7	9.7	9.1	11.4	8.0	6.9	11.3	7.3	7.8	7.8	2.3	6.61	11.71	
Dir	W	WSW	S	S	S	S	S	S	SSE	SE	S	SSE	S	SW	SSW	SSW	SW	S	SE	S	S	S	S	SE	S	SW	
11 Spd	6.1	11.1	5.0	8.5	10.8	12.1	11.6	11.5	13.6	12.4	14.5	12.7	7.5	8.1	5.0	9.4	12.7	12.2	13.7	14.7	19.4	19.7	16.2	22.5	4.55	22.53	
Dir	SSE	SSW	WSW	SW	WSW	W	WSW	WSW	WSW	WSW	W	WNW	W	N	E	ESE	SE	SE	SE	E	ESE	ESE	ESE	ESE	S	ESE	
12 Spd	14.4	2.3	5.4	7.4	7.7	4.5	6.7	8.4	8.9	5.2	3.7	1.2	4.1	2.1	4.7	5.2	1.5	0.6	5.1	2.7	5.1	0.8	7.8	4.8	1.60	14.44	
Dir	SE	SSE	WNW	SSW	SW	SW	SW	WSW	WSW	SW	WNW	SSE	W	SW	N	ENE	SE	W	WNW	NNW	N	NNW	N	N	WSW	SE	
13 Spd	4.9	7.6	9.1	5.3	3.6	1.9	8.7	14.1	12.3	11.8	12.8	7.5	7.0	6.6	6.9	5.7	7.0	11.4	9.9	9.0	10.1	4.7	8.1	8.3	6.66	14.12	
Dir	N	N	N	N	SSW	W	NW	NNW	NNW	NNW	NNW	W	WNW	W	WNW	W	NNW	NW	NNW	NNW	NNW	W	W	W	NW	NNW	
14 Spd	6.4	2.9	12.9	7.6	5.4	8.1	4.7	3.0	5.6	7.9	7.3	5.7	2.5	0.1	0.0	0.0	0.3	0.1	0.1	0.1	1.1	0.1	0.1	0.2	3.00	12.89	
Dir	WNW	NW	NW	WNW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	ENE	WSW	SW	SSW	S	ESE	SE	SSW	SW	SSW	W	NW	
15 Spd	1.7	1.1	0.1	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.5	5.4	9.0	11.2	11.3	10.2	11.0	10.7	8.6	11.8	10.0	9.0	4.23	11.83	
Dir	WSW	WSW	WSW	W	W	N	SSE	SW	WSW	ENE	SSW	W	E	ESE	ESE	SSE	SSE	S	SSE	SE	ESE	ESE	ESE	SE	SE	ESE	
16 Spd	9.4	9.9	11.3	11.7	9.2	5.9	1.9	3.2	1.9	1.6	0.1	0.1	0.1	0.1	2.1	1.6	6.9	8.7	5.5	0.8	3.1	0.1	4.7	4.9	2.77	11.67	
Dir	SSE	SE	SE	SE	ESE	ESE	ESE	N	NNW	W	NW	W	N	NNW	NNE	ENE	ESE	SSE	S	S	NNE	ESE	N	NNE	ESE	SE	
17 Spd	6.3	1.9	0.1	0.1	0.5	0.6	0.1	0.8	1.0	4.5	6.3	7.4	7.6	5.2	3.3	0.8	1.0	5.4	2.1	0.2	0.1	0.6	1.2	1.0	0.89	7.55	
Dir	NNE	NNE	WSW	NNW	WSW	WSW	WSW	W	SW	SW	SW	SSW	SSW	SSW	SW	NNE	ENE	ENE	NE	ESE	NW	N	WSW	WSW	SSW	SSW	
18 Spd	0.3	0.1	0.1	1.2	0.2	5.7	5.6	6.4	2.8	1.2	0.8	3.4	0.9	2.6	3.5	0.1	1.5	1.9	0.1	0.6	0.1	0.8	2.3	1.8	1.57	6.42	
Dir	W	SW	W	WSW	SW	SW	SW	SW	WSW	S	SW	WSW	WSW	WSW	SSW	SSW	SW	ESE	SSE	SSE	SSW	ESE	SSW	S	SW	SW	
19 Spd	3.7	2.0	1.1	0.3	2.2	1.9	4.9	1.6	3.1	2.5	3.6	5.2	2.7	5.5	1.7	1.1	2.0	1.7	3.4	3.2	8.1	7.4	2.4	9.0	1.23	8.98	
Dir	SW	SSW	WSW	SW	NE	NNE	NE	E	N	N	N	N	N	N	NNW	ENE	WSW	SW	SW	WSW	SW	WSW	WSW	WSW	WNW	WSW	
20 Spd	11.9	11.7	10.5	8.1	6.5	9.4	10.3	11.7	9.7	7.6	7.3	9.1	7.1	0.7	0.4	2.0	9.2	5.4	3.3	7.8	7.4	1.2	8.5	10.0	4.34	11.94	
Dir	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	WSW	E	NE	SE	S	E	ESE	ESE	ENE	E	ESE	SSW	WSW	
21 Spd	9.2	5.2	4.3	10.3	14.1	9.3	8.9	6.7	2.8	4.1	4.3	5.8	8.1	8.9	12.1	10.7	12.6	15.8	17.6	11.5	6.6	7.1	9.7	8.7	6.59	17.63	
Dir	E	NE	N	NNW	N	NNE	NW	NW	NW	W	W	WSW	W	W	NNW	NNW	NNW	NNW	N	NNW	WNW	W	W	W	NW	NNW	
22 Spd	9.2	6.0	5.5	8.1	8.2	7.3	3.3	8.0	5.9	9.2	6.6	7.7	8.9	11.8	8.0	8.5	6.8	6.8	6.8	6.7	8.2	7.4	7.4	9.7	6.86	11.77	
Dir	W	WSW	WSW	WSW	W	W	W	W	W	WNW	W	W	NW	NNW	NW	NW	WNW	NW	W	WSW	WSW	W	W	W	W	W	NNW



WCAS - Tomahawk
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	6.6	7.6	7.9	7.0	9.0	8.5	6.7	6.4	1.4	3.5	4.5	0.2	2.6	0.5	1.9	3.8	0.0	1.1	3.2	1.8	2.4	7.4	10.4	7.7	4.19	10.45	
Dir	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SSW	SSW	SSW	SW	S	S	SE	SSE	ESE	NW	WNW	SW	W	WSW	WSW	WSW	SW	WSW	
24 Spd	9.2	8.5	3.1	9.1	8.5	9.3	12.6	9.9	12.3	9.8	9.9	16.0	19.2	16.6	14.6	11.8	8.8	9.4	6.9	10.2	10.8	9.0	7.7	7.3	6.57	19.25	
Dir	WSW	WSW	WSW	W	WSW	W	NNW	NW	NW	NNW	NNW	NNW	NNW	N	N	N	NNE	NE	ENE	NE	NE	NE	ENE	ENE	NNW	NNW	
25 Spd	3.7	7.6	5.2	5.8	7.6	4.9	4.1	6.3	5.0	7.0	6.1	7.0	8.2	5.5	1.9	1.4	4.9	1.1	3.2	1.2	6.0	5.7	11.5	7.6	2.32	11.47	
Dir	NNE	NNE	ENE	ESE	SE	SE	ESE	SE	ESE	ESE	ESE	ESE	E	ESE	SE	N	N	NNW	NW	NNW	WNW	WNW	NNW	N	ENE	NNW	
26 Spd	5.3	7.8	5.6	5.5	4.5	6.9	7.1	6.1	6.1	4.6	5.9	5.2	5.9	7.3	7.1	5.3	4.3	6.3	7.5	9.0	9.0	11.0	10.6	8.4	6.59	11.05	
Dir	WNW	W	WSW	WSW	SW	WSW	WSW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	W	W	W	WSW	WSW	WSW	
27 Spd	6.8	7.5	9.3	11.2	9.7	8.5	9.8	9.8	7.9	2.7	4.2	4.7	5.0	7.5	11.7	12.0	11.0	10.5	8.5	9.6	9.2	9.3	9.0	7.6	0.47	11.96	
Dir	WSW	W	W	WNW	W	WSW	WSW	W	WSW	S	SW	W	NNE	ENE	E	E	ESE	ESE	ESE	E	ENE	NE	NE	NE	E	E	
28 Spd	10.9	8.9	8.9	8.3	9.7	9.3	9.3	10.3	8.8	11.0	12.0	8.6	8.9	11.3	15.0	12.7	8.2	6.7	11.6	13.4	16.3	17.3	13.3	11.3	10.71	17.34	
Dir	N	NNE	NNE	N	N	N	N	N	N	NNE	NNE	NE	NNE	N	N	NNE	NNE	N	NNE	N	NNE	NNE	NNE	N	NNE	NNE	
29 Spd	12.8	11.6	11.1	13.6	14.4	16.5	14.8	11.5	12.9	12.0	11.2	12.3	9.2	9.7	8.5	4.1	0.5	2.3	5.4	5.5	6.1	7.6	7.5	8.0	6.89	16.46	
Dir	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NW	NW	NNW	N	NE	SSW	SSW	WSW	WSW	SW	WSW	SW	NNW	N	
30 Spd	9.9	9.9	9.6	12.3	11.8	15.1	14.6	16.0	12.3	10.5	13.7	14.9	14.5	7.8	12.5	18.9	18.6	19.0	15.6	11.5	11.9	13.0	24.0	13.0	8.83	23.95	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	W	WNW	NW	NNW	NNW	NNW	NNW	NNW	NW	NNW	N	N	WNW	N	
31 Spd	4.6	6.7	11.3	8.1	11.7	11.9	5.8	8.7	12.9	15.1	13.6	6.8	6.1	6.5	17.8	16.7	15.1	12.4	11.4	13.7	10.5	11.2	10.5	16.1	10.51	17.77	
Dir	WNW	W	NW	W	WNW	NW	W	W	WNW	WNW	WNW	W	W	W	NW	NW	NW	WNW	WNW	NW	WNW	WNW	WNW	NNW	WNW	NW	
Spd	2.84	2.96	2.74	3.55	3.29	3.72	4.10	4.43	3.83	3.42	3.91	3.57	3.10	2.48	2.36	1.32	1.06	1.20	1.27	0.88	1.09	1.59	1.91	1.20	Diurnal Average		
Dir	WSW	WSW	W	WSW	WSW	WSW	W	W	W	W	W	W	WNW	WNW	NW	NW	W	W	W	W	W	WNW	W	WNW	WNW	Diurnal Maximum	
Spd	14.47	13.49	12.89	13.58	14.41	16.46	14.84	16.04	13.63	15.10	14.50	16.02	19.25	16.61	17.77	18.85	18.61	19.01	17.63	14.67	19.39	19.69	23.95	22.53	Diurnal Maximum		
Dir	236.25	235.83	314.63	1.87	0.78	355.27	354.11	227.93	251.10	297.43	263.79	342.06	346.90	348.83	313.20	326.81	340.42	335.19	348.69	98.47	104.83	115.03	351.85	118.45			
Maximum Speed Value: 24.0 kph on Dec 30 23:00		Minimum Speed Value: 0.0 kph on Dec 23 17:00														Hours in Service: 744											
Maximum Daily Speed Average: 10.71 kph on Dec 30		Minimum Daily Speed Average: 0.47 kph on Dec 18														Hours of Data: 744											
Maximum Diurnal Speed Average: 4.43 kph at hour 8		Minimum Diurnal Speed Average: 0.88 kph at hour 20														Hours of Missing Data: 0											
Monthly Average Velocity: 2.448 kph 269.80 deg		Speed Percentiles: P ₁ = 0.1 P ₁₀ = 1.1 Q ₁ = 3.7 Median = 6.8 Q ₃ = 9.4 P ₉₀ = 12.4 P ₉₉ = 18.7														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	33	30	31	2	0	0	96																				
NorthEast	17	19	4	0	0	0	40																				
East	16	15	4	1	0	0	36																				
SouthEast	23	33	13	2	0	0	71																				
South	34	20	3	0	0	0	57																				
SouthWest	72	97	29	0	0	0	198																				
West	55	108	15	0	0	0	178																				
NorthWest	11	28	28	1	0	0	68																				
Total	261	350	127	6	0	0	744																				



WCAS - Tomahawk
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2014

Maximum Value: 95.18 % on Dec 7 19:00																								Hours in Service: 744		
Maximum Daily Average: 91.83 % on Dec 7																								Hours of Data: 744		
Minimum Value: 38.6 % on Dec 31 14:00																								Hours of Missing Data: 0		
Minimum Daily Average: 50.97 % on Dec 31																								Hours of Calibration: 0		
Maximum Diurnal Average: 84.97 % at hour 2																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 72.33 % at hour 15																										
Monthly Average: 80.702 %																										
Percentiles: P ₁ = 43.7 P ₁₀ = 60.7 Q ₁ = 74.9 Median = 86.2 Q ₃ = 89.6 P ₉₀ = 91.4 P ₉₉ = 94.2																										
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-Dec	82.6	83.3	82.6	81.5	81.8	81.9	82.0	82.7	84.1	83.9	81.5	80.0	78.0	75.8	76.6	72.6	79.2	80.8	82.0	87.2	87.7	87.1	87.2	87.8	82.08	87.83
2-Dec	88.4	89.5	88.6	88.9	88.0	87.2	89.3	87.7	88.9	89.3	84.6	73.9	64.4	62.0	60.7	66.4	75.0	76.5	77.1	80.8	85.2	85.6	80.9	80.3	80.80	89.54
3-Dec	74.2	72.3	74.6	75.1	77.7	78.4	81.2	82.1	82.9	81.2	74.9	68.2	64.8	61.3	60.3	62.0	68.5	73.3	77.3	81.7	85.4	87.3	90.1	91.9	76.11	91.87
4-Dec	92.2	91.3	91.0	90.8	89.9	89.6	89.1	88.4	89.4	88.2	88.0	88.3	86.6	82.2	75.2	71.4	82.2	87.5	91.0	91.9	91.0	90.7	90.1	89.2	87.72	92.20
5-Dec	88.5	88.2	87.8	87.2	86.6	85.6	85.7	84.8	83.7	84.8	85.5	87.0	89.5	85.2	86.8	88.3	89.2	90.6	89.6	88.8	89.6	90.3	90.6	90.7	87.70	90.67
6-Dec	90.8	91.2	90.6	91.2	91.4	90.7	90.5	89.3	89.1	89.6	89.6	89.4	89.4	88.8	89.0	89.9	90.5	90.6	90.1	91.0	92.4	93.2	93.3	93.5	90.63	93.46
7-Dec	93.8	94.3	94.1	92.5	92.3	92.3	92.5	92.4	92.2	92.5	92.1	92.2	90.7	88.5	83.0	87.4	91.8	94.4	95.2	94.2	92.5	91.4	90.6	90.8	91.83	95.18
8-Dec	90.3	89.9	88.8	88.7	87.7	90.1	87.7	87.6	87.4	87.3	89.4	89.1	89.7	90.7	91.3	91.2	91.4	91.0	91.0	90.6	89.9	91.1	89.7	90.8	89.67	91.41
9-Dec	91.3	92.1	92.3	92.4	92.0	91.8	92.7	92.0	91.4	91.0	88.2	87.0	82.1	75.0	71.5	66.2	60.2	64.0	59.5	56.9	59.4	56.0	57.0	60.0	77.57	92.66
10-Dec	61.1	71.4	58.0	60.9	62.0	71.9	76.1	75.5	72.6	69.8	63.9	52.3	47.9	55.3	57.0	56.3	56.2	53.5	56.9	55.3	58.3	58.6	61.4	67.1	61.63	76.09
11-Dec	62.8	59.2	63.8	62.9	59.6	54.5	58.7	60.7	61.0	58.0	55.9	51.2	48.7	44.5	44.6	58.6	60.1	62.4	61.6	65.0	64.1	63.8	66.8	68.7	59.05	68.66
12-Dec	71.1	76.3	80.2	86.2	86.1	86.3	85.5	90.1	88.4	89.8	89.5	83.5	79.7	75.1	72.8	72.4	78.7	86.5	87.0	91.8	94.1	94.2	94.1	94.2	84.73	94.24
13-Dec	95.1	94.7	94.6	94.1	93.6	93.6	93.5	90.8	90.8	90.0	83.3	77.9	71.0	65.6	60.1	57.4	61.5	55.2	58.5	63.4	66.5	76.0	80.6	84.8	78.86	95.06
14-Dec	80.7	86.9	73.8	84.4	87.2	89.5	89.4	89.4	89.5	88.7	84.2	75.6	67.5	55.7	49.7	55.9	69.3	74.9	81.1	86.8	92.0	92.0	91.9	91.4	80.31	92.01
15-Dec	90.6	89.5	88.6	87.2	87.5	86.1	86.8	85.1	84.2	84.1	86.0	87.4	89.7	83.9	78.8	72.6	74.5	79.7	83.4	83.9	86.1	90.7	92.6	91.8	85.44	92.60
16-Dec	91.2	90.3	89.9	89.7	89.8	88.5	87.6	83.8	83.5	83.3	85.2	86.6	86.6	85.0	82.5	83.4	89.5	91.0	88.8	90.1	89.1	89.9	89.8	90.1	87.72	91.17
17-Dec	90.2	90.3	90.3	90.7	91.1	90.7	90.9	91.1	91.7	92.1	92.0	91.9	91.5	90.8	88.2	81.6	90.1	92.5	92.1	91.4	90.9	89.5	88.3	88.3	90.35	92.49
18-Dec	87.2	87.5	87.0	86.8	86.6	87.6	87.7	87.8	86.9	87.5	88.6	88.5	85.7	78.2	63.9	63.7	76.6	85.7	88.6	89.2	91.3	92.1	91.5	90.9	85.30	92.08
19-Dec	90.0	89.6	88.0	88.5	87.8	87.7	87.1	88.4	87.2	88.0	87.6	88.3	89.0	89.2	89.1	89.3	88.9	89.6	89.3	89.4	89.2	89.5	88.3	87.4	88.59	89.97
20-Dec	87.0	87.5	88.4	89.5	91.7	91.9	90.9	89.7	89.6	87.6	82.6	75.1	68.8	62.8	67.2	73.5	72.3	69.8	80.6	79.7	75.6	80.4	85.3	86.7	81.43	91.90
21-Dec	88.5	90.9	91.5	90.6	89.8	89.0	88.6	88.5	88.4	88.0	85.2	82.7	80.5	81.3	88.6	92.0	90.2	83.7	82.5	83.5	86.2	91.9	92.8	88.7	87.65	92.75
22-Dec	86.4	89.9	88.0	88.4	81.9	79.1	77.4	77.7	75.4	71.1	73.7	71.5	63.3	62.2	61.1	58.9	65.8	67.9	71.0	77.2	80.5	81.9	79.0	72.5	75.07	89.85
23-Dec	70.7	70.8	72.9	76.4	80.1	80.2	79.8	80.7	81.4	79.1	78.2	76.9	74.5	70.7	69.1	67.9	72.2	76.1	74.0	73.6	75.7	73.3	71.9	69.9	74.84	81.35
24-Dec	73.5	73.6	73.8	69.7	73.6	71.0	60.4	60.8	58.2	59.6	59.2	60.7	66.5	70.4	80.0	90.4	91.7	90.2	90.9	90.2	89.8	88.1	88.7	88.3	75.80	91.66
25-Dec	88.9	88.9	88.4	87.3	86.6	88.3	89.4	88.2	88.7	89.7	88.5	86.5	85.4	85.3	84.0	83.1	87.0	88.8	89.0	88.8	90.7	89.9	84.3	87.1	87.60	90.66
26-Dec	89.9	91.1	90.3	89.8	88.3	86.4	86.4	86.3	86.4	86.1	87.2	88.4	89.4	90.2	89.8	87.2	85.4	85.0	86.3	86.6	86.2	86.8	85.9	87.3	87.61	91.06
27-Dec	88.1	84.7	85.4	84.2	89.3	90.6	92.2	91.8	92.0	90.0	86.4	83.5	74.5	73.2	77.5	85.3	91.5	93.0	92.6	92.0	92.1	92.1	91.4	91.0	87.68	93.04
28-Dec	90.0	89.0	89.0	87.3	87.7	87.7	87.7	87.0	87.2	86.2	84.4	83.2	81.7	80.2	80.6	80.7	82.5	86.2	85.4	83.1	81.2	79.5	80.2	81.3	84.54	89.96
29-Dec	82.7	82.6	83.4	81.6	79.7	78.1	76.3	75.9	76.6	74.2	73.0	71.8	70.6	69.3	68.0	64.0	69.2	79.1	83.5	84.6	84.5	82.5	81.2	80.1	77.19	84.59
30-Dec	79.5	79.0	78.7	78.4	78.6	77.7	76.9	75.7	74.4	75.1	73.4	71.2	58.7	54.3	51.6	49.9	46.9	45.8	44.0	45.9	45.3	47.9	71.1	87.8	65.33	87.85
31-Dec	86.4	78.4	50.0	50.4	41.6	38.7	45.5	47.0	43.0	41.8	45.2	42.8	39.9	38.6	43.8	44.8	46.1	50.1	52.9	54.2	58.1	61.1	62.6	60.3	50.97	86.45
	84.63	84.97	83.37	83.65	83.47	83.31	83.40	83.19	82.78	82.18	80.87	78.47	75.69	73.27	72.33	73.04	76.59	78.56	79.77	80.93	81.95	82.72	83.52	84.21		Diurnal Average
	95.06	94.71	94.64	94.13	93.56	93.62	93.47	92.43	92.24	92.50	92.10	92.22	91.54	90.78	91.26	91.97	91.76	94.44	95.18	94.24	94.13	94.24	94.06	94.18		Diurnal Maximum



WCAS - Tomahawk
Summary of Hourly Averages

Photosynthetically Active Radiation (PAR) - W/m2

December 2014

Maximum Value: 113.60 W/m2 on Dec 3 13:00		Maximum Daily Average: 22.37 W/m2 on Dec 3		Hours in Service: 744																							
Minimum Value: 0.0 W/m2 on Dec 2 00:00		Minimum Daily Average: 3.63 W/m2 on Dec 30		Hours of Data: 744																							
Maximum Diurnal Average: 56.14 W/m2 at hour 13		Minimum Diurnal Average: 0.20 W/m2 at hour 3		Hours of Missing Data: 0																							
Monthly Average: 11.747 W/m2		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.5 Q ₃ = 14.1 P ₉₀ = 47.5 P ₉₉ = 84.2		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.3	0.1	0.4	0.1	0.1	0.6	0.3	0.5	3.2	22.2	51.2	69.5	73.6	71.6	53.2	30.6	3.6	0.4	1.0	0.9	0.6	0.4	0.3	0.0	16.03	73.62	
2-Dec	0.2	0.1	0.0	0.1	0.2	0.0	0.0	0.1	2.8	26.0	78.6	103.6	110.0	73.0	58.5	21.6	3.6	0.5	0.6	0.6	0.6	0.5	0.7	0.4	20.10	109.96	
3-Dec	0.0	0.0	0.0	0.2	0.0	0.7	0.7	0.6	3.2	33.7	77.7	104.0	113.6	98.2	67.9	29.1	3.8	0.6	0.5	0.5	0.3	0.2	0.7	0.5	22.37	113.60	
4-Dec	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	28.1	44.5	54.0	64.6	66.5	56.5	29.4	2.9	0.2	0.1	0.1	0.4	0.0	0.3	0.0	14.59	66.52	
5-Dec	0.2	0.0	0.0	0.2	0.0	0.2	0.0	0.0	1.8	22.1	43.8	54.3	51.0	46.5	47.8	21.0	2.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	12.13	54.33	
6-Dec	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	14.5	29.1	35.7	38.7	34.9	22.2	12.0	1.7	0.3	0.2	0.2	0.1	0.5	0.5	0.4	8.01	38.68	
7-Dec	0.1	0.3	0.0	0.1	0.1	0.1	0.0	0.6	2.3	24.0	62.9	90.0	96.2	85.3	82.8	29.8	2.7	0.2	0.0	0.0	0.0	0.7	0.5	0.4	19.97	96.17	
8-Dec	0.1	0.1	0.1	0.0	0.4	0.1	0.0	0.0	1.3	14.8	48.1	49.2	39.1	43.4	41.1	30.3	2.1	0.0	0.0	0.2	0.4	0.4	0.1	0.2	11.31	49.23	
9-Dec	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.6	9.2	16.5	22.8	35.5	46.8	51.7	46.7	4.2	0.2	0.1	0.3	0.0	0.0	0.0	0.1	9.80	51.66	
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	6.4	20.7	25.1	29.3	33.0	29.5	17.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.84	32.97	
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	20.8	57.6	81.0	78.9	63.4	46.8	11.7	1.1	0.2	0.2	0.2	0.2	0.3	0.9	0.1	15.19	81.04	
12-Dec	0.1	0.6	0.8	1.1	1.0	0.8	0.9	0.8	1.8	9.9	26.0	49.4	66.4	59.4	43.8	27.5	3.3	1.2	1.3	1.1	1.0	1.2	1.1	0.7	12.54	66.38	
13-Dec	0.9	1.0	0.8	0.4	0.7	0.7	0.3	0.4	1.1	13.0	32.9	45.8	61.4	49.8	60.5	23.4	2.9	0.9	1.3	1.2	0.6	1.0	0.8	0.2	12.58	61.39	
14-Dec	0.1	0.3	0.4	0.4	1.3	1.0	1.3	1.3	2.5	18.8	55.9	80.6	85.8	82.0	59.0	24.4	3.3	1.3	1.0	1.3	1.4	1.6	1.8	1.3	17.84	85.84	
15-Dec	1.3	1.2	1.3	1.5	1.5	1.6	1.5	1.4	2.1	14.2	36.1	51.6	41.5	63.2	56.4	25.0	3.0	0.7	0.8	0.7	0.8	0.7	0.9	0.9	12.91	63.17	
16-Dec	1.0	0.9	0.6	0.8	0.7	0.8	0.9	1.1	1.9	15.1	38.5	64.5	70.3	77.9	57.6	22.5	2.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	14.90	77.94	
17-Dec	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.8	7.5	23.4	38.7	48.6	49.7	46.7	21.8	2.3	0.0	0.1	0.1	0.3	0.3	0.3	0.0	10.04	49.75	
18-Dec	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.7	10.6	39.7	63.9	57.2	83.8	59.1	24.8	2.8	0.1	0.2	0.0	0.0	0.0	0.0	0.0	14.30	83.81	
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	11.4	29.7	46.5	57.2	43.3	20.3	9.0	1.5	0.1	0.1	0.5	0.7	0.6	0.8	0.4	9.29	57.22	
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	12.3	39.7	53.0	60.0	52.6	25.9	15.5	2.6	0.0	0.0	0.0	0.0	0.1	0.1	0.0	10.93	59.99	
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1	36.6	53.1	49.3	40.3	26.0	14.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.82	53.07	
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	12.6	28.6	59.5	53.4	46.1	37.9	25.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.07	59.52	
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	7.5	25.5	32.1	35.8	29.2	21.3	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.66	35.81	
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	12.7	30.6	39.1	33.2	31.8	30.0	17.8	1.6	0.5	0.0	0.0	0.0	0.0	0.1	0.1	8.23	39.11	
25-Dec	0.3	0.6	0.5	0.3	0.0	0.3	0.6	0.6	0.8	5.6	15.6	24.8	32.3	25.6	24.8	10.2	1.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	6.02	32.25	
26-Dec	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.6	11.4	20.3	29.7	31.0	30.4	23.3	9.5	1.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	6.59	30.96	
27-Dec	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	15.0	43.8	71.3	71.7	78.8	59.0	17.4	0.7	0.0	0.0	0.0	0.2	0.5	0.5	0.3	15.00	78.78	
28-Dec	0.3	0.3	0.0	0.1	0.0	0.2	0.0	0.0	0.2	3.2	10.9	17.6	36.5	32.7	19.1	12.8	1.6	0.0	0.0	0.0	0.0	0.3	0.1	0.0	5.67	36.48	
29-Dec	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	3.0	9.4	16.6	20.6	23.7	22.6	18.4	2.7	0.3	0.6	0.7	0.9	0.6	0.9	0.8	5.10	23.65	
30-Dec	1.0	1.0	1.1	1.0	1.0	1.1	1.1	0.9	1.0	4.1	15.4	16.0	13.5	12.5	9.5	4.6	1.7	0.0	0.0	0.2	0.1	0.2	0.0	0.0	3.63	15.95	
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	12.5	52.9	74.8	84.3	70.3	38.7	16.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.69	84.34	
		0.21	0.24	0.20	0.22	0.23	0.27	0.27	0.28	1.17	14.11	36.84	52.19	56.14	53.09	41.92	20.30	2.23	0.26	0.27	0.29	0.28	0.33	0.37	0.22	Diurnal Average	
		1.25	1.21	1.27	1.50	1.50	1.56	1.50	1.35	3.24	33.67	78.55	104.01	113.60	98.16	82.78	46.71	4.21	1.25	1.27	1.27	1.35	1.62	1.79	1.29	Diurnal Maximum	



WCAS - Tomahawk
Summary of Hourly Averages

Precipitation (PR) - mm
December 2014

Maximum Value: 2.20 mm on Dec 7 14:00		Maximum Daily Total: 2.40 mm on Dec 7		Hours in Service: 744																							
Minimum Value: 0.0 mm on Dec 1 01:00		Minimum Daily Total: 0.00 mm on Dec 1		Hours of Data: 744																							
Maximum Diurnal Total: 2.20 mm at hour 14		Minimum Diurnal Total: 0.00 mm at hour 1		Hours of Missing Data: 0																							
Monthly Total: 2.400 mm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Total	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
4-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	0.0	0.00	0.00
5-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	0.0	0.00	0.00
6-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	0.0	0.00	0.00
7-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	2.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.40	2.20
8-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	0.0	0.00	0.00
9-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	0.0	0.00	0.00
10-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	0.0	0.00	0.00
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	0.0	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
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	0.0	0.0	0.00	0.00
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	0.0	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
14-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	0.0	0.00	0.00
15-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	0.0	0.00	0.00
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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
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	0.0	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
21-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	0.0	0.00	0.00
22-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	0.0	0.00	0.00
23-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	0.0	0.00	0.00
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	0.0	0.00	0.00
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	0.0	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
26-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	0.0	0.00	0.00
27-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	0.0	0.00	0.00
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
29-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	0.0	0.00	0.00
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
31-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	0.0	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Diurnal Average
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Diurnal Maximum



WCAS - Tomahawk
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 6.43 kph on Dec 30 23:00 Minimum Value: 0.0 kph on Dec 6 07:00 Maximum Diurnal Average: 2.15 kph at hour 23 Monthly Average: 1.849 kph		Maximum Daily Average: 2.92 kph on Dec 11 Minimum Daily Average: 1.04 kph on Dec 15 Minimum Diurnal Average: 1.69 kph at hour 11 Percentiles: P ₁ = 0.0 P ₁₀ = 0.8 Q ₁ = 1.2 Median = 1.8 Q ₃ = 2.4 P ₉₀ = 2.9 P ₉₉ = 4.6		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1.7	2.2	1.1	1.2	3.5	1.7	1.2	1.4	0.8	0.8	0.8	1.7	1.0	0.8	0.7	0.9	0.7	2.1	2.3	1.0	1.2	1.1	1.5	2.3	1.41	3.52	
2-Dec	1.9	1.3	1.5	1.4	1.3	1.1	1.8	1.6	2.7	1.4	1.1	3.6	2.7	3.1	1.5	1.5	1.1	0.8	0.8	1.0	1.1	2.1	2.5	1.6	1.69	3.56	
3-Dec	4.1	2.4	1.9	2.5	1.8	1.5	1.4	1.5	1.4	1.7	1.6	1.5	1.7	1.4	1.7	1.5	1.3	1.2	0.9	0.9	1.4	1.3	1.0	1.4	1.63	4.14	
4-Dec	1.1	1.2	0.8	1.2	2.9	2.2	1.8	2.8	2.7	1.8	2.4	1.8	0.0	1.7	0.9	1.3	2.0	1.0	0.8	1.3	0.8	1.3	1.8	1.2	1.54	2.85	
5-Dec	1.0	0.7	2.1	0.9	1.0	0.9	1.4	0.6	0.8	0.9	0.8	0.9	1.0	1.5	1.4	0.8	1.8	2.1	2.1	1.7	1.6	1.5	2.9	0.8	1.30	2.95	
6-Dec	0.8	2.1	2.7	2.0	2.7	0.6	0.0	2.6	2.6	2.2	1.8	1.6	2.2	2.0	2.1	1.2	0.8	3.0	2.2	1.7	1.5	1.1	2.7	2.3	1.85	3.01	
7-Dec	2.2	1.1	1.3	2.7	1.3	1.0	2.1	1.1	2.2	1.4	0.7	2.5	1.9	2.2	1.6	2.3	1.7	1.0	2.3	1.8	0.7	1.0	1.7	0.8	1.61	2.71	
8-Dec	1.1	1.5	1.7	1.4	1.8	1.8	1.8	2.2	1.5	0.9	1.2	2.4	1.8	0.0	0.0	2.7	1.6	1.1	2.2	2.9	2.1	2.0	2.3	1.2	1.64	2.86	
9-Dec	1.1	1.6	2.1	2.4	3.2	0.8	0.9	2.6	2.5	2.6	2.8	1.7	3.3	2.7	2.5	2.6	4.0	2.5	2.4	2.4	4.0	1.9	2.7	2.0	2.39	4.04	
10-Dec	1.1	3.1	2.8	1.3	1.6	1.9	1.5	1.6	1.2	1.6	1.5	2.4	1.5	2.0	2.0	1.6	2.2	2.0	1.8	2.1	3.2	1.5	2.2	2.6	1.93	3.16	
11-Dec	3.0	2.4	3.7	4.1	2.3	5.0	2.2	2.4	2.6	2.8	3.1	2.1	2.9	3.0	3.8	2.2	1.7	1.8	2.3	2.2	2.9	4.7	3.0	3.9	2.92	5.05	
12-Dec	3.5	4.3	4.0	1.4	2.2	3.2	2.6	1.5	1.5	2.1	1.7	2.4	2.6	3.0	2.5	3.1	1.9	1.5	1.9	2.0	4.4	1.7	1.4	2.2	2.43	4.37	
13-Dec	3.7	2.1	2.0	2.3	1.6	2.2	2.9	2.3	1.5	1.6	1.9	2.7	1.2	1.3	1.1	0.8	1.6	1.9	1.6	1.1	1.7	2.4	0.8	1.1	1.81	3.67	
14-Dec	3.2	3.6	3.2	3.6	2.5	3.3	2.4	2.9	1.4	1.5	2.2	1.1	2.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	2.0	0.0	0.0	0.3	1.50	3.63	
15-Dec	2.5	1.7	0.0	1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	1.3	1.4	2.3	2.5	1.5	0.9	1.2	1.2	0.9	1.6	1.4	1.04	2.49	
16-Dec	1.6	2.4	1.2	1.6	1.5	2.1	1.8	1.5	1.2	0.5	0.0	0.0	0.0	0.0	2.5	2.2	2.4	2.0	3.1	1.8	2.5	0.0	2.2	1.9	1.50	3.14	
17-Dec	0.9	2.6	0.5	0.0	1.6	1.5	0.0	1.7	1.9	2.8	1.5	2.2	2.2	2.0	2.6	1.3	1.8	0.5	2.2	0.6	0.0	1.1	1.4	1.8	1.44	2.81	
18-Dec	0.7	0.0	0.5	1.8	0.7	0.9	1.5	1.7	2.6	1.6	1.2	2.0	1.5	2.4	1.9	0.0	2.1	2.7	0.0	1.7	0.0	1.9	2.4	1.7	1.41	2.72	
19-Dec	1.2	1.8	1.7	0.5	2.2	2.3	1.5	1.1	1.5	1.6	2.5	1.0	1.6	1.5	2.2	2.9	3.3	2.7	2.4	1.8	2.1	1.7	2.9	1.6	1.91	3.30	
20-Dec	1.5	1.5	1.4	1.3	1.7	1.0	1.8	1.8	1.5	2.0	1.9	1.9	1.3	1.6	1.3	2.8	4.6	3.0	2.9	2.1	2.9	2.0	2.6	2.2	2.01	4.64	
21-Dec	1.7	2.2	2.6	2.9	3.5	5.1	2.1	2.5	2.5	2.0	2.9	2.0	1.7	1.9	2.7	2.1	4.7	3.2	3.3	2.9	1.3	1.0	1.1	1.2	2.46	5.08	
22-Dec	1.2	1.4	0.8	1.6	3.4	1.1	3.0	2.0	1.4	2.2	1.0	2.1	2.8	2.4	2.4	1.8	1.3	1.5	1.0	2.4	1.1	1.1	2.2	2.1	1.81	3.39	
23-Dec	1.0	0.9	1.3	1.0	1.0	1.2	0.7	1.7	2.0	2.0	1.2	0.8	2.3	1.3	2.4	2.5	0.2	2.0	2.6	4.8	3.1	3.3	2.4	1.5	1.81	4.75	
24-Dec	1.4	3.1	3.5	0.9	1.2	2.1	3.0	2.8	2.3	2.8	1.9	3.1	3.4	2.7	2.4	2.3	2.9	3.1	1.6	2.5	2.4	2.4	2.6	3.4	2.49	3.50	
25-Dec	3.0	1.5	1.5	1.8	1.1	2.1	3.5	1.8	2.4	1.3	1.3	1.5	1.4	1.5	2.0	1.5	1.4	1.6	0.9	1.7	2.1	2.8	1.8	2.0	1.81	3.49	
26-Dec	1.1	1.0	0.9	1.0	1.5	0.8	0.7	0.6	1.1	0.7	0.9	1.1	1.0	0.9	1.1	0.7	1.2	1.4	1.4	0.9	1.2	1.7	1.6	1.2	1.08	1.70	
27-Dec	1.5	1.1	1.2	1.4	0.7	0.9	1.3	1.1	2.0	2.4	2.8	1.4	2.5	1.6	1.8	1.9	2.0	1.3	1.4	2.1	2.0	2.2	2.3	2.4	1.73	2.82	
28-Dec	2.0	1.6	1.7	1.4	2.1	2.0	2.2	1.7	1.5	1.7	1.7	1.9	2.2	2.2	2.3	2.7	2.5	0.8	2.1	3.1	3.6	3.3	2.4	2.2	2.13	3.65	
29-Dec	2.2	2.1	2.5	2.6	3.5	3.0	3.0	2.1	2.3	2.6	2.6	2.7	2.3	2.1	2.3	1.5	0.7	2.3	0.7	0.7	1.0	1.1	1.1	1.0	2.00	3.47	
30-Dec	1.6	1.6	1.3	1.9	1.9	2.3	2.1	2.4	4.4	1.9	2.5	1.8	2.9	2.8	2.9	3.2	3.1	3.1	2.7	1.7	2.2	5.3	6.4	2.4	2.68	6.43	
31-Dec	2.1	1.6	2.4	1.2	2.0	4.1	1.2	1.7	2.8	2.6	3.1	1.6	2.3	2.3	4.0	3.0	2.5	1.7	1.9	2.6	1.5	2.2	2.9	3.2	2.36	4.14	
																								1.82		Diurnal Average	
																								4.14		Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																											



WCAS - Tomahawk
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 92.03 deg on Dec 4 14:00 Minimum Value: 5.5 deg on Dec 3 08:00 Maximum Diurnal Average: 26.56 deg at hour 9 Monthly Average: 21.457 deg		Maximum Daily Average: 44.58 deg on Dec 8 Minimum Daily Average: 9.16 deg on Dec 3 Minimum Diurnal Average: 16.72 deg at hour 1 Percentiles: P ₁ = 6.3 P ₁₀ = 8.2 Q ₁ = 10.9 Median = 15.1 Q ₃ = 24.8 P ₉₀ = 43.8 P ₉₉ = 85.0		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																						
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	9.8	10.9	9.1	7.8	11.9	12.1	13.5	9.7	10.1	8.2	8.4	8.8	11.7	12.1	9.7	15.3	10.4	15.9	11.2	9.9	11.0	8.2	16.6	20.9	11.38	20.85
2-Dec	27.0	9.0	12.7	17.3	15.2	13.6	18.8	12.8	47.5	12.9	9.6	25.3	14.9	14.0	12.4	30.9	8.3	8.7	9.0	12.2	7.1	6.6	9.5	7.5	15.12	47.54
3-Dec	11.0	8.3	8.3	8.3	7.3	7.0	6.7	5.5	5.5	6.0	6.8	6.6	6.6	6.5	7.8	7.2	8.1	8.5	6.5	7.8	11.5	22.5	19.0	20.3	9.16	22.48
4-Dec	15.1	15.0	7.9	18.9	24.7	35.2	12.7	27.4	83.9	13.0	15.3	19.2	33.9	92.0	10.2	35.3	7.8	7.4	9.3	7.2	7.8	11.1	24.8	8.9	22.67	92.03
5-Dec	11.8	8.3	11.1	12.2	11.2	13.2	10.1	12.4	10.5	16.1	11.3	9.8	46.3	35.2	21.6	20.4	24.9	14.2	12.0	10.4	10.9	13.1	14.2	13.1	15.60	46.34
6-Dec	14.1	13.1	23.6	44.3	27.4	40.2	32.6	76.8	36.6	30.2	16.0	28.4	29.8	17.5	25.7	24.6	17.1	8.5	8.9	19.8	26.0	21.7	30.6	12.3	26.07	76.78
7-Dec	11.6	11.8	8.4	77.4	16.8	11.4	20.0	13.3	25.0	40.3	23.0	13.6	10.7	17.1	11.1	25.9	22.8	9.4	7.5	50.5	21.0	36.2	37.5	29.3	22.99	77.38
8-Dec	23.7	32.2	31.9	50.8	60.2	12.4	59.4	59.1	79.5	16.9	81.0	25.2	44.0	70.3	53.6	33.5	24.6	90.0	44.9	65.3	11.0	63.2	23.4	13.6	44.58	89.97
9-Dec	12.8	20.4	28.8	53.5	33.1	64.0	33.3	23.2	58.5	34.9	21.6	15.0	64.1	31.0	39.9	11.4	13.9	16.8	6.8	9.6	10.8	13.2	20.3	33.1	27.91	64.09
10-Dec	15.7	12.5	26.0	18.5	9.4	8.8	9.6	9.7	26.0	18.7	11.0	12.9	19.7	8.2	8.1	11.0	8.7	23.2	30.5	8.3	33.0	14.7	11.9	39.6	16.48	39.61
11-Dec	26.4	18.8	44.3	21.0	12.3	21.6	21.3	12.6	11.8	11.5	12.5	13.1	21.2	25.1	15.1	18.1	10.8	13.9	10.7	17.1	14.0	13.6	14.5	12.6	17.26	44.32
12-Dec	14.5	73.0	50.7	18.7	13.0	41.8	16.6	8.9	18.0	35.4	27.7	72.3	38.7	69.5	43.8	55.8	64.4	30.2	27.3	62.8	39.4	66.7	14.9	24.2	38.68	73.03
13-Dec	22.9	15.7	18.0	14.6	23.1	26.1	12.3	9.2	7.1	9.1	13.8	11.7	12.3	10.6	11.9	11.7	18.4	10.9	12.8	10.5	9.1	29.6	7.0	12.1	14.18	29.60
14-Dec	12.0	28.5	13.5	11.6	11.3	18.9	15.4	15.3	11.7	10.4	8.6	6.8	12.1	14.9	82.2	79.8	7.5	15.5	12.2	43.9	36.6	14.3	16.7	12.7	21.35	82.20
15-Dec	19.2	17.6	27.2	20.7	10.3	44.3	42.5	28.6	47.1	66.1	54.5	11.1	79.8	16.2	9.1	17.1	10.7	8.5	12.4	11.3	12.5	9.1	8.9	9.1	24.75	79.81
16-Dec	8.4	14.2	10.6	11.2	12.7	15.1	69.5	16.5	36.4	8.5	62.2	34.3	22.1	28.7	26.0	15.0	28.0	10.3	29.3	70.1	41.6	26.1	31.4	24.0	27.18	70.08
17-Dec	18.3	35.9	69.9	64.6	89.9	47.0	61.8	36.5	21.9	17.9	11.6	18.1	17.4	21.0	56.8	22.3	19.1	13.2	22.2	45.6	33.5	40.8	31.4	11.4	34.51	89.89
18-Dec	22.8	10.5	88.0	80.8	32.6	10.6	9.5	8.0	43.6	57.4	27.9	22.3	12.2	15.2	13.6	18.1	22.2	52.9	41.0	45.9	28.3	46.0	54.6	51.4	33.98	87.96
19-Dec	14.9	8.2	20.0	26.1	80.1	32.6	25.0	54.9	39.2	20.6	33.8	11.4	17.0	15.8	49.8	69.5	78.5	88.4	15.9	28.6	17.7	13.7	31.7	12.4	33.58	88.43
20-Dec	6.7	7.1	8.6	7.7	8.6	7.1	8.6	6.8	6.3	11.6	11.6	7.5	8.3	24.4	83.2	75.9	24.0	15.4	34.6	14.1	11.5	28.6	12.0	9.9	18.34	83.21
21-Dec	12.4	31.1	34.7	19.4	19.2	23.3	20.2	24.6	42.4	16.0	25.2	12.4	14.1	13.3	15.6	12.2	12.5	10.7	8.3	19.8	24.1	8.3	12.2	16.8	18.71	42.41
22-Dec	13.1	10.7	8.2	7.5	10.5	9.7	7.4	8.6	22.8	15.8	16.9	15.5	19.2	12.6	17.0	13.4	10.4	18.7	16.3	14.9	11.7	9.7	28.2	13.7	13.86	28.24
23-Dec	17.5	6.5	6.9	6.5	6.7	5.9	11.2	17.2	32.5	7.8	28.1	25.6	34.9	35.5	37.5	24.2	84.6	41.9	60.7	86.0	57.5	19.1	8.7	11.5	28.10	85.96
24-Dec	10.5	35.4	47.8	6.9	10.9	26.7	17.9	19.3	11.1	8.4	10.9	9.4	7.2	7.9	8.0	8.9	27.4	17.8	17.2	17.3	14.1	13.9	14.3	15.1	16.01	47.76
25-Dec	25.4	15.6	29.2	14.6	11.2	17.1	20.9	11.7	17.3	29.2	23.5	17.8	16.8	16.9	50.8	30.9	17.7	85.5	19.9	45.8	12.0	17.0	11.5	18.8	24.04	85.48
26-Dec	28.6	9.8	14.0	14.8	15.8	6.2	5.7	6.8	6.7	11.9	11.0	12.3	9.9	8.2	7.4	7.2	13.3	7.7	7.6	6.3	7.8	9.1	13.6	12.5	10.59	28.61
27-Dec	14.5	10.4	10.2	10.4	8.2	11.5	11.6	11.4	15.9	64.2	15.0	15.4	12.6	18.6	18.5	14.5	14.4	10.8	11.8	12.6	20.3	14.6	20.2	19.0	16.11	64.25
28-Dec	18.2	18.1	17.7	14.5	13.3	8.9	13.4	19.8	16.3	16.0	13.4	13.6	17.4	18.1	21.6	14.6	20.8	15.3	18.0	22.5	23.4	23.3	20.3	15.3	17.24	23.35
29-Dec	9.7	22.6	23.0	21.2	20.7	6.6	9.9	11.3	7.9	10.5	11.5	13.5	18.3	16.2	15.3	22.9	25.5	77.0	11.8	6.1	7.6	6.6	7.2	7.9	16.28	76.99
30-Dec	10.0	8.2	9.5	10.9	9.4	9.7	10.0	8.9	10.2	10.5	12.6	10.2	11.0	19.1	17.0	12.4	10.6	11.6	11.9	11.4	13.4	16.6	13.9	15.0	11.84	19.15
31-Dec	39.4	19.4	15.8	9.2	11.8	15.3	22.4	11.6	14.1	13.6	11.9	17.2	20.5	16.6	16.6	16.4	19.0	13.3	13.6	16.0	15.5	13.7	20.9	16.1	16.66	39.40
16.72 18.02 23.73 23.29 20.92 20.13 20.96 19.30 26.56 20.96 20.92 17.29 22.73 23.50 26.35 25.05 22.14 24.90 18.14 26.12 19.41 21.00 19.42 17.42																								Diurnal Average		
39.40 73.03 87.96 80.78 89.89 63.98 69.49 76.78 83.91 66.10 80.99 72.32 79.81 92.03 83.21 79.75 84.62 89.97 60.71 85.96 57.48 66.71 54.61 51.42																								Diurnal Maximum		
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																										

**VIOLET GROVE
STATION #902**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

WCAS / Violet Grove Station 902													December 2014	
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	----- P10	----- Q1	Percentile Median	----- Q3	----- P90	24 Hour Average Max (ppm)	
SO ₂ (ppb)	35	709	100.0	0.4	-	0.0	6.5	0.1	0.1	0.3	0.4	0.7	0.002	
O ₃ (ppb)	35	709	100.0	21.1	-	0.4	39.3	7.7	15.2	21.9	27.1	34.0	0.036	
NO (ppb)	36	708	100.0	1.6	-	0.0	36.8	0.0	0.0	0.1	1.3	4.3	-	
NO ₂ (ppb)	36	708	100.0	9.2	-	1.2	26.3	3.0	4.9	7.9	12.4	17.7	0.020	
NO _x (ppb)	36	708	100.0	10.6	-	1.2	55.1	3.1	5.2	8.8	13.5	20.6	-	
THC (ppm)	37	707	100.0	2.6	-	2.0	7.4	2.2	2.3	2.5	2.8	3.1	3.32	
Wind Speed (kph)	0	744	100.0	8.9	-	0.0	25.6	3.0	5.6	8.5	11.6	15.1	-	
Temperature (°C)	0	744	100.0	-5.5	-	-22.3	11.0	-12.2	-9.5	-6.2	-1.9	2.7	-	
Delta Temperature (oC)	0	744	100.0	-0.3	-	-6.4	1.0	-1.9	-0.6	0.1	0.5	0.7	-	
Relative Humidity (%)	0	744	100.0	76.3	-	37.1	94.7	55.2	67.9	80.1	87.6	90.5	-	
Global Solar Radiation (W/m ²)	0	744	100.0	29.4	-	0.0	385.3	0.0	0.0	0.0	29.5	120.7	-	
Precipitation (mm)	0	744	100.0	-	177.8	0.0	101.6	0.0	0.0	0.0	0.0	0.0	-	
Photosynthetically Active Radiation (V)	0	744	100.0	10.9	-	0.0	104.4	0.0	0.0	0.0	11.6	42.1	-	
Std Dev Wind Direction (deg)	0	744	100.0	17.5	-	3.5	94.0	7.4	8.9	11.5	18.8	37.2	-	
Std Dev Wind Speed (kph)	0	744	100.0	2.2	-	0.3	5.9	1.2	1.5	2.1	2.7	3.5	-	



WCAS - Violet Grove
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 6.49 ppb on Dec 27 22:00		Maximum Daily Average: 1.70 ppb on Dec 27		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 9 08:00		Minimum Daily Average: 0.08 ppb on Dec 17		Hours of Data: 709																													
Maximum Diurnal Average: 0.56 ppb at hour 21		Minimum Diurnal Average: 0.26 ppb at hour 9		Hours of Missing Data: 35																													
Monthly Average: 0.386 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.4 P ₉₀ = 0.7 P ₉₉ = 4.5		Hours of Calibration: 35																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.5	Z	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.34	0.54							
2-Dec	0.4	Z	0.3	0.3	0.5	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.3	0.8	1.2	1.1	0.37	1.24							
3-Dec	1.4	Z	0.7	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.44	1.40								
4-Dec	0.3	Z	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.6	0.7	0.5	0.3	0.3	0.5	0.6	0.5	0.4	0.4	0.4	0.41	0.66							
5-Dec	0.3	Z	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.6	0.6	0.6	0.4	0.3	0.4	0.8	1.5	1.2	1.0	1.5	1.2	1.1	1.1	1.0	0.66	1.54							
6-Dec	0.9	Z	0.7	0.6	0.6	0.9	1.1	1.2	0.8	0.8	0.9	0.7	0.6	3.3	2.7	1.5	1.3	1.5	1.1	1.2	1.3	0.7	0.8	0.5	1.12	3.30							
7-Dec	0.4	Z	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.37	0.50							
8-Dec	0.4	Z	0.5	0.5	0.7	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.39	0.76							
9-Dec	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.12	0.28							
10-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.4	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.15	0.40							
11-Dec	0.4	Z	0.4	0.4	0.4	0.2	0.1	0.0	0.0	0.1	C	C	C	C	0.1	0.0	0.0	1.3	1.2	0.8	0.7	0.4	0.4	0.4	0.37	1.30							
12-Dec	0.3	Z	0.5	0.7	0.4	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.7	0.8	0.7	0.3	0.4	0.5	0.4	0.2	0.2	0.39	0.84							
13-Dec	0.3	Z	0.3	0.4	0.4	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.29	0.45							
14-Dec	0.1	Z	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.16	0.49							
15-Dec	0.1	Z	0.2	0.2	0.4	0.8	0.6	0.7	0.9	0.5	0.7	0.5	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.42	0.90							
16-Dec	0.1	Z	0.1	0.1	0.3	0.4	0.2	0.1	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.12	0.38							
17-Dec	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.08	0.20							
18-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.1	0.1	0.0	0.1	0.2	0.6	0.3	0.3	0.19	0.56							
19-Dec	0.4	Z	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.4	0.3	0.26	0.44							
20-Dec	0.3	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.7	0.2	0.1	0.1	0.4	0.3	0.3	0.3	0.21	0.67							
21-Dec	0.3	Z	0.3	0.7	1.4	4.7	1.8	0.9	0.8	0.5	0.4	0.5	0.4	0.4	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.3	0.65	4.66							
22-Dec	0.2	Z	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.30	0.46							
23-Dec	0.3	Z	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.23	0.35							
24-Dec	0.4	Z	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.18	0.44							
25-Dec	0.2	Z	0.4	3.3	1.3	0.7	0.6	0.6	0.5	0.5	0.9	0.9	0.7	0.6	0.5	0.3	0.3	0.3	0.3	0.9	1.5	0.3	0.2	0.2	0.71	3.30							
26-Dec	0.1	Z	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.20	0.29							
27-Dec	0.1	Z	0.1	0.2	0.3	0.4	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.6	0.7	2.7	6.4	6.4	6.5	6.1	5.6	1.70	6.49							
28-Dec	4.6	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.33	4.59							
29-Dec	0.1	Z	0.1	0.8	0.6	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.2	1.0	0.7	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.26	0.98							
30-Dec	0.2	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.4	0.2	0.3	0.5	0.23	0.62							
31-Dec	0.4	Z	0.4	0.2	0.3	0.3	0.4	0.3	0.1	0.2	0.4	0.2	0.7	1.1	0.4	0.2	0.3	0.5	0.1	0.2	0.1	0.3	0.1	0.2	0.32	1.13							
		0.45	--	0.28	0.40	0.35	0.44	0.33	0.28	0.26	0.26	0.32	0.31	0.31	0.43	0.37	0.38	0.36	0.37	0.41	0.55	0.56	0.50	0.49	0.45	Diurnal Average							
		4.59	--	0.67	3.30	1.39	4.66	1.75	1.23	0.90	0.82	0.88	0.89	0.74	3.30	2.66	1.52	1.53	1.48	2.71	6.42	6.42	6.49	6.07	5.65	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb				24-hr 48 ppb																											



WCAS - Violet Grove
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2014

Maximum Value: 39.28 ppb on Dec 11 08:00		Maximum Daily Average: 35.55 ppb on Dec 10		Hours in Service: 744																							
Minimum Value: 0.4 ppb on Dec 19 18:00		Minimum Daily Average: 4.86 ppb on Dec 19		Hours of Data: 709																							
Maximum Diurnal Average: 23.08 ppb at hour 14		Minimum Diurnal Average: 19.31 ppb at hour 5		Hours of Missing Data: 35																							
Monthly Average: 21.096 ppb		Percentiles: P ₁ = 0.6 P ₁₀ = 7.7 Q ₁ = 15.2 Median = 21.9 O ₃ = 27.1 P ₉₀ = 34.0 P ₉₉ = 37.1		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	32.6	33.2	Z	25.3	23.9	23.4	22.6	15.2	17.5	18.1	23.4	29.7	31.4	25.8	30.9	30.7	27.5	23.5	26.5	22.0	18.4	16.5	11.2	15.2	23.69	33.25	
2-Dec	24.5	24.3	Z	24.1	24.2	32.3	31.7	33.1	31.2	32.8	33.4	34.4	34.3	34.8	34.8	34.7	33.3	32.6	31.7	30.6	28.3	28.1	28.1	31.4	30.82	34.85	
3-Dec	29.4	26.5	Z	25.8	26.5	26.5	27.6	29.2	28.5	27.1	27.9	29.3	30.1	30.2	29.9	28.8	26.0	24.4	23.1	22.3	19.5	17.8	21.6	18.1	25.92	30.18	
4-Dec	20.3	17.7	Z	16.8	15.1	16.1	18.4	14.3	16.1	21.3	24.3	22.1	22.6	25.4	22.0	23.4	23.9	27.1	25.5	24.3	23.7	21.9	21.8	24.1	21.23	27.09	
5-Dec	22.7	19.3	Z	18.0	16.9	18.1	20.1	19.5	14.4	16.7	17.4	17.9	27.2	29.7	17.8	25.7	27.0	25.5	28.5	26.5	22.2	22.5	20.9	18.4	21.42	29.68	
6-Dec	15.7	13.2	Z	10.8	9.8	10.2	7.0	3.3	3.3	8.8	12.3	10.4	10.9	11.2	10.2	10.9	9.1	6.7	7.6	7.0	5.4	2.9	2.2	2.8	8.33	15.67	
7-Dec	4.4	7.0	Z	8.1	9.9	10.2	14.5	12.2	16.7	20.4	21.0	22.3	23.7	25.1	26.2	24.2	16.4	12.2	11.6	10.6	19.7	24.6	24.6	24.1	16.95	26.19	
8-Dec	23.9	29.8	Z	29.2	26.4	25.8	24.1	22.1	20.3	20.5	21.5	20.7	19.4	18.1	20.1	22.8	20.7	17.4	20.1	21.7	24.0	24.3	27.8	21.9	22.72	29.77	
9-Dec	27.1	33.1	Z	29.6	31.5	32.4	34.5	34.9	35.9	34.6	34.0	33.7	33.2	32.1	33.5	32.9	33.7	32.2	31.1	32.9	35.6	37.6	38.8	37.0	33.57	38.81	
10-Dec	35.8	36.9	Z	34.9	33.1	34.1	36.3	37.6	37.0	35.8	35.6	35.7	36.3	36.7	35.6	33.8	35.3	35.4	34.6	35.4	34.7	36.3	35.4	35.4	35.55	37.59	
11-Dec	35.2	36.1	Z	35.1	33.2	30.3	36.3	39.3	38.0	38.8	C	C	C	C	32.7	32.3	35.8	32.6	33.4	32.5	32.0	32.6	31.9	30.1	34.11	39.28	
12-Dec	27.4	25.3	Z	24.6	21.8	21.8	18.6	13.8	10.1	12.3	19.2	16.1	17.9	16.5	17.8	12.5	7.4	12.0	12.1	15.6	11.5	11.0	6.1	7.7	15.61	27.37	
13-Dec	9.6	2.8	Z	5.5	10.7	15.6	11.8	9.1	10.3	11.6	13.7	14.3	17.7	17.6	21.4	19.8	21.5	26.0	23.3	22.0	22.8	19.1	12.2	15.2	15.37	26.04	
14-Dec	12.8	14.7	Z	15.4	13.3	11.0	12.3	13.6	14.4	19.0	22.2	23.5	23.3	23.9	24.8	23.5	20.7	20.5	18.9	17.2	16.4	18.2	24.1	24.2	18.60	24.83	
15-Dec	21.9	21.3	Z	22.8	21.6	18.3	16.7	16.9	15.7	15.8	17.8	20.4	22.0	16.6	9.3	7.5	12.7	15.2	13.9	14.0	14.3	14.7	16.2	15.0	16.55	22.84	
16-Dec	15.4	14.2	Z	17.7	19.3	20.0	20.8	19.6	16.3	12.6	6.0	7.6	9.4	14.6	15.2	8.7	2.5	2.6	10.1	16.7	3.8	19.4	19.7	19.2	13.54	20.79	
17-Dec	16.9	16.8	Z	9.2	4.2	10.1	5.8	14.1	13.5	12.0	12.6	13.1	13.5	13.3	11.9	9.6	5.0	4.2	3.7	1.7	0.5	0.5	1.1	0.7	8.43	16.94	
18-Dec	2.3	6.5	Z	5.0	5.1	6.4	7.6	11.8	13.1	22.9	15.9	12.0	7.9	11.5	8.9	5.8	10.1	11.3	7.6	12.6	12.2	17.6	10.3	12.6	10.30	22.90	
19-Dec	11.7	10.2	Z	7.5	7.3	5.6	4.6	4.4	3.2	7.2	13.3	9.0	6.5	5.3	3.8	2.9	0.9	0.4	0.4	0.5	1.4	0.7	2.8	2.0	4.86	13.27	
20-Dec	2.2	2.3	Z	2.2	1.7	0.5	2.2	10.1	18.8	18.7	23.9	26.0	23.6	24.7	26.2	28.2	26.4	25.2	25.1	23.3	22.4	24.9	25.7	26.4	17.86	28.16	
21-Dec	18.2	15.0	Z	10.9	10.0	7.8	7.0	2.8	3.1	7.7	9.9	13.2	17.1	20.2	23.6	29.8	31.6	32.3	30.3	29.3	26.3	23.7	22.1	20.6	17.94	32.34	
22-Dec	19.7	20.1	Z	20.2	20.0	19.3	19.7	22.8	24.8	25.4	27.9	28.1	29.2	28.8	29.2	27.8	26.7	29.2	28.4	27.5	23.4	23.5	24.1	26.4	24.88	29.18	
23-Dec	26.4	25.8	Z	23.6	20.5	18.2	18.0	18.4	23.0	27.8	28.8	29.0	26.2	29.0	28.6	27.3	26.3	25.2	20.5	17.2	15.4	19.9	18.1	18.3	23.10	28.99	
24-Dec	19.8	20.3	Z	25.3	25.5	24.7	28.6	27.0	23.3	25.9	25.4	25.9	25.7	26.6	26.3	29.2	33.5	32.0	31.2	29.1	26.3	25.9	26.2	20.9	26.29	33.52	
25-Dec	18.1	17.7	Z	12.7	14.7	14.6	15.5	16.5	19.0	18.1	18.0	16.5	15.9	15.3	14.4	9.8	6.9	8.0	7.3	11.7	11.7	17.0	17.9	17.8	14.57	18.95	
26-Dec	17.3	18.2	Z	22.1	23.8	26.5	25.8	25.2	25.9	25.3	25.7	23.0	22.3	23.4	23.8	23.9	22.6	21.8	23.3	22.2	23.8	23.7	21.8	23.0	23.23	26.46	
27-Dec	22.6	25.7	Z	20.6	19.1	20.5	21.2	17.6	15.5	16.4	17.7	18.5	19.3	21.0	20.9	21.4	14.6	21.5	23.7	17.6	20.3	20.5	21.4	23.2	20.04	25.70	
28-Dec	24.7	31.0	Z	29.8	30.7	30.8	30.2	28.7	26.8	27.1	27.6	27.2	26.1	20.9	16.2	15.8	17.3	16.6	15.5	17.0	19.6	25.1	26.1	25.3	24.17	30.96	
29-Dec	23.6	22.8	Z	23.1	23.2	24.7	24.2	23.5	23.0	23.4	23.8	23.4	23.3	24.1	23.6	22.4	22.2	22.3	24.3	24.1	21.9	20.0	20.0	19.6	22.89	24.65	
30-Dec	16.6	15.9	Z	19.5	19.3	21.6	22.7	21.5	22.2	23.9	25.3	27.4	30.4	34.1	37.2	37.3	36.7	36.6	36.2	35.1	35.4	36.3	36.3	35.1	28.81	37.28	
31-Dec	35.2	34.4	Z	36.1	36.2	36.3	35.7	35.3	34.4	34.5	35.6	36.4	36.1	35.9	35.6	34.3	31.7	32.5	34.9	34.9	35.0	33.9	33.8	34.0	34.90	36.36	
		20.45	20.59	--	19.73	19.31	19.80	20.07	19.79	19.84	21.38	22.03	22.22	22.75	23.08	22.98	22.52	21.48	21.45	21.43	21.13	20.26	21.31	20.98	20.82	Diurnal Average	
		35.82	36.85	--	36.11	36.23	36.35	36.33	39.28	37.99	38.79	35.59	36.36	36.32	36.74	37.17	37.28	36.73	36.57	36.16	35.43	35.64	37.64	38.81	36.96	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr	82.5 ppb	24-hr	--	ppb																					



WCAS - Violet Grove
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 36.82 ppb on Dec 16 11:00		Maximum Daily Average: 7.53 ppb on Dec 19		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.14 ppb on Dec 9		Hours of Data: 708																													
Maximum Diurnal Average: 5.16 ppb at hour 13		Minimum Diurnal Average: 0.18 ppb at hour 7		Hours of Missing Data: 36																													
Monthly Average: 1.551 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 1.3 P ₉₀ = 4.3 P ₉₉ = 19.4		Hours of Calibration: 36																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.0	Z	0.0	0.0	0.1	0.5	0.0	3.7	1.9	6.5	6.0	4.1	3.6	5.4	3.2	2.0	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	1.67	6.54							
2-Dec	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.3	1.2	1.2	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	1.30							
3-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.6	2.7	3.3	2.9	2.7	2.1	1.3	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.76	3.34							
4-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	1.7	0.5	2.2	5.6	6.1	5.6	3.2	4.7	2.0	0.4	0.0	0.1	0.1	0.1	0.1	0.1	0.1	1.42	6.06							
5-Dec	0.1	Z	0.1	0.1	0.0	0.0	0.1	0.1	1.0	2.4	6.6	9.3	3.7	2.4	11.3	1.8	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.76	11.31							
6-Dec	0.1	Z	0.1	0.1	0.3	0.2	0.3	12.1	5.2	4.9	4.2	8.5	8.4	8.0	7.7	3.6	1.4	1.0	0.9	0.1	0.1	0.5	1.0	1.0	3.03	12.09							
7-Dec	0.6	Z	0.2	1.0	0.1	0.1	0.1	0.2	0.3	1.7	3.9	3.8	3.8	3.7	2.6	1.6	0.7	0.2	0.0	0.1	0.1	0.0	0.0	0.0	1.08	3.94							
8-Dec	0.1	Z	0.0	0.1	0.5	0.1	0.1	0.1	0.2	1.1	2.3	3.2	5.3	8.0	5.2	2.1	0.4	0.4	0.1	0.0	0.1	0.1	0.0	1.0	1.32	8.01							
9-Dec	0.1	Z	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.5	0.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	0.77							
10-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.4	0.4	0.3	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35	6.21							
11-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	C	C	C	C	C	0.9	0.7	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.21	0.90							
12-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	1.7	5.6	2.3	6.2	7.5	6.8	4.1	7.2	5.0	0.0	0.2	0.0	0.0	0.0	1.1	0.0	2.10	7.46							
13-Dec	0.5	Z	0.6	0.1	0.0	0.0	0.0	0.0	0.2	1.6	2.6	3.3	3.3	3.9	2.4	1.5	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.89	3.90							
14-Dec	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.3	1.0	2.3	2.8	3.4	3.8	2.6	1.3	0.3	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.87	3.80							
15-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.7	3.4	3.7	3.6	10.5	18.2	12.7	1.7	0.1	0.1	0.1	0.1	0.1	0.1	0.0	2.45	18.15							
16-Dec	0.1	Z	0.1	0.0	0.0	0.0	0.0	1.3	9.2	36.8	31.8	22.0	9.7	9.1	10.7	7.7	1.5	0.8	0.3	2.8	0.0	0.0	0.0	0.0	6.27	36.82							
17-Dec	0.0	Z	0.0	0.7	1.0	0.5	0.6	0.0	0.1	1.3	2.7	4.8	6.6	8.2	9.4	6.3	3.1	0.5	0.2	0.7	2.5	5.1	3.3	4.4	2.69	9.36							
18-Dec	2.5	Z	0.7	0.2	0.4	0.2	0.2	0.1	0.3	0.7	4.9	14.5	26.9	22.7	20.3	24.9	1.5	0.7	1.4	0.1	0.1	0.1	0.1	0.1	5.37	26.91							
19-Dec	0.1	Z	0.1	0.0	0.1	0.2	1.7	2.2	11.9	4.8	4.3	18.9	18.2	18.9	17.8	16.7	15.2	8.4	9.1	9.1	6.8	5.4	1.3	2.0	7.53	18.94							
20-Dec	2.7	Z	2.9	2.6	3.0	4.3	1.6	0.5	0.2	1.5	1.9	1.7	3.3	2.6	1.2	0.5	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.1	1.35	4.27							
21-Dec	0.2	Z	0.1	0.1	0.2	0.2	0.4	4.3	2.2	3.7	8.6	7.9	6.8	2.8	0.7	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.67	8.57							
22-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	1.4	1.2	1.1	1.1	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.30	1.40							
23-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.4	0.6	0.9	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.15	0.85							
24-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	1.4	1.6	1.2	1.0	0.4	0.0	0.0	0.6	0.4	0.3	0.3	0.4	0.3	0.41	1.58							
25-Dec	0.3	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	1.2	2.4	3.2	3.3	2.8	2.8	1.3	0.1	1.2	0.8	0.2	0.1	0.0	0.0	0.89	3.27							
26-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	1.2	2.0	1.6	1.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.33	2.00							
27-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	3.7	6.7	6.2	4.1	3.6	1.7	1.8	0.3	0.1	0.3	0.1	0.2	0.4	0.2	1.33	6.68							
28-Dec	0.6	Z	0.5	0.9	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.9	1.6	1.2	1.0	0.9	0.1	0.2	0.2	0.1	0.1	0.0	0.41	1.62							
29-Dec	0.0	Z	0.0	0.1	0.4	0.9	0.2	0.2	0.1	0.1	0.3	0.6	0.9	0.7	1.2	1.3	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.33	1.34							
30-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.5	2.0	0.9	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	2.03							
31-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.7	0.8	0.7	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.84							
		0.26	--	0.19	0.22	0.22	0.25	0.18	0.84	0.91	1.83	3.77	5.11	5.16	4.65	4.57	3.65	1.44	0.48	0.57	0.42	0.46	0.41	0.29	0.31	Diurnal Average							
		2.70	--	2.91	2.60	2.97	4.27	1.69	12.09	11.86	9.20	36.82	31.83	26.91	22.75	20.32	24.86	15.21	8.35	9.11	9.12	6.76	5.37	3.29	4.44	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb				24-hr --- ppb																											



WCAS - Violet Grove
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2014

Maximum Value: 26.26 ppb on Dec 6 08:00																				Maximum Daily Average: 19.78 ppb on Dec 19					Hours in Service:	744
Minimum Value: 1.2 ppb on Dec 29 03:00																				Minimum Daily Average: 2.67 ppb on Dec 28					Hours of Data:	708
Maximum Diurnal Average: 10.15 ppb at hour 21																				Minimum Diurnal Average: 7.80 ppb at hour 13					Hours of Missing Data:	36
Monthly Average: 9.160 ppb																				Percentiles: P ₁ = 1.4 P ₁₀ = 3.0 Q ₁ = 4.9 Median = 7.9 Q ₃ = 12.4 P ₉₀ = 17.7 P ₉₉ = 24.2					Hours of Calibration:	36
																									Percent Operational Time:	100.0
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	7.0	Z	10.5	10.8	12.5	12.5	12.5	19.5	18.2	20.1	15.1	9.7	8.6	12.3	9.0	10.4	12.4	15.2	11.6	15.3	17.1	18.5	24.8	20.7	14.10	24.82
2-Dec	11.4	Z	12.2	10.4	11.1	5.8	6.1	5.0	7.0	5.8	4.6	3.4	3.1	2.5	2.9	2.8	3.6	3.8	4.2	5.4	6.3	5.7	6.2	4.8	5.83	12.23
3-Dec	6.4	Z	7.4	7.9	7.7	7.0	6.2	5.9	6.4	8.9	6.8	6.2	5.9	6.1	6.7	8.0	10.1	12.8	13.8	13.1	14.4	14.5	10.9	12.1	8.92	14.51
4-Dec	9.2	Z	10.7	11.1	12.4	12.8	11.4	16.4	13.2	10.8	11.0	12.8	11.5	8.8	12.0	10.1	10.0	8.9	11.1	11.1	9.9	10.7	10.2	8.0	11.04	16.37
5-Dec	9.4	Z	14.0	12.0	13.3	13.9	11.3	8.6	11.8	10.1	10.3	10.4	7.5	6.0	16.1	10.6	10.4	11.8	9.5	10.9	13.3	12.6	14.1	15.7	11.47	16.06
6-Dec	17.4	Z	18.1	18.0	18.5	18.5	21.4	26.3	24.2	16.7	12.4	14.8	13.3	15.2	18.3	16.2	17.1	18.8	17.1	16.8	17.3	20.6	22.3	21.1	18.28	26.26
7-Dec	20.3	Z	16.9	17.7	15.0	14.0	12.0	13.7	10.1	9.4	8.4	6.4	6.2	7.1	8.2	9.3	12.5	12.5	11.8	14.4	9.1	6.6	7.4	8.1	11.17	20.30
8-Dec	7.5	Z	5.6	5.4	7.2	7.2	7.5	7.4	8.1	7.4	6.5	8.2	11.4	13.9	12.4	10.6	10.7	12.0	11.2	11.1	10.3	10.1	8.1	11.1	9.17	13.87
9-Dec	7.0	Z	4.3	6.8	4.6	4.2	3.5	2.7	2.6	4.3	3.8	3.7	3.6	4.6	2.8	2.7	2.8	3.2	4.0	3.5	2.7	2.5	2.4	3.2	3.71	7.00
10-Dec	3.4	Z	2.8	2.5	2.6	2.5	2.4	2.6	2.2	3.2	3.3	3.7	3.6	3.1	3.2	9.6	3.5	3.6	4.3	4.0	3.9	3.2	3.3	3.6	3.47	9.56
11-Dec	3.9	Z	2.7	2.6	3.8	6.1	2.8	2.5	4.7	4.5	C	C	C	C	C	6.2	4.0	5.5	4.9	4.4	4.9	4.6	3.5	3.8	4.20	6.23
12-Dec	3.8	Z	5.7	6.5	7.0	8.3	8.6	12.4	15.3	13.1	7.6	10.2	11.7	10.9	10.1	16.4	22.0	14.5	12.7	10.8	14.9	14.3	17.9	14.6	11.71	21.99
13-Dec	12.5	Z	16.0	13.9	10.4	7.8	9.9	12.1	11.6	9.8	8.0	7.6	7.3	7.6	7.3	9.0	9.7	7.5	7.3	7.6	6.9	9.0	16.7	12.9	9.93	16.71
14-Dec	12.7	Z	10.4	10.5	12.3	14.9	13.2	12.5	12.8	8.1	6.9	6.1	6.6	8.2	8.5	8.9	11.7	6.7	7.7	9.7	11.4	8.1	5.2	5.1	9.49	14.94
15-Dec	6.5	Z	7.2	6.0	6.5	8.8	9.1	9.2	10.1	9.7	8.3	7.0	6.7	11.2	17.9	20.7	13.6	11.6	13.8	12.3	10.8	9.9	8.0	7.9	10.13	20.69
16-Dec	7.5	Z	7.7	5.9	5.6	4.8	4.2	4.2	6.8	8.8	18.3	18.0	13.7	10.6	14.8	20.7	21.9	21.6	14.7	8.7	19.3	6.0	5.2	5.3	11.05	21.92
17-Dec	6.7	Z	5.9	11.5	15.3	10.7	14.7	6.9	7.2	7.5	6.4	5.9	6.7	8.8	11.7	14.0	18.2	17.7	17.7	20.0	22.6	24.3	23.2	23.7	13.36	24.25
18-Dec	22.8	Z	19.2	19.7	18.1	18.7	18.7	15.0	13.8	8.7	12.2	14.0	19.1	16.6	18.6	22.7	17.5	16.4	18.5	13.9	14.0	12.0	15.7	13.5	16.50	22.81
19-Dec	13.5	Z	17.5	17.6	17.8	18.3	19.4	19.0	21.3	15.9	11.9	15.5	17.1	18.0	20.0	20.7	22.4	23.9	25.3	26.0	24.5	23.9	23.8	21.6	19.78	25.97
20-Dec	22.0	Z	23.3	23.2	21.8	22.1	20.3	15.9	11.4	12.6	8.6	6.8	7.4	7.5	6.7	5.9	7.4	8.4	9.1	8.8	9.5	7.1	6.6	5.8	12.11	23.33
21-Dec	10.0	Z	13.1	14.3	15.4	15.5	15.0	20.0	19.1	14.3	14.9	13.5	11.0	9.4	6.2	3.0	2.4	3.0	2.7	2.7	3.4	4.7	5.1	6.0	9.77	19.97
22-Dec	6.5	Z	6.5	6.4	6.9	7.1	7.5	7.3	7.9	8.5	6.2	7.1	5.9	5.8	5.8	6.5	6.5	5.4	6.3	7.3	11.2	8.0	6.8	5.7	6.93	11.24
23-Dec	5.6	Z	6.3	6.4	8.6	10.0	10.3	9.3	6.5	4.6	4.2	4.4	4.8	4.3	5.0	6.8	7.9	7.3	14.1	14.7	13.8	10.4	10.4	11.2	8.12	14.70
24-Dec	11.7	Z	9.7	7.4	6.3	6.8	5.5	5.5	7.8	7.0	7.2	6.5	6.8	6.3	6.4	5.1	2.5	3.0	2.7	3.4	2.7	2.0	2.1	3.0	5.54	11.66
25-Dec	3.3	Z	3.4	8.3	5.9	5.6	4.6	5.2	4.8	5.0	5.4	5.3	5.7	6.8	7.2	9.3	12.1	12.0	12.4	8.5	8.3	5.1	4.3	3.9	6.62	12.40
26-Dec	4.0	Z	4.6	6.1	6.2	5.4	6.7	6.6	5.7	5.9	4.1	5.3	6.9	6.1	5.7	6.0	6.6	8.2	7.6	7.6	5.3	5.6	7.2	6.8	6.10	8.20
27-Dec	7.1	Z	4.6	6.3	8.6	8.6	9.4	10.4	10.4	9.7	9.6	9.9	8.8	7.2	8.0	8.5	14.6	9.1	7.9	14.2	12.4	12.3	10.9	8.9	9.44	14.58
28-Dec	8.1	Z	1.4	2.1	1.4	1.7	1.8	3.0	3.1	2.4	2.1	2.1	2.0	2.5	3.2	3.9	3.6	3.5	2.9	2.9	3.1	1.8	1.5	1.4	2.67	8.07
29-Dec	1.3	Z	1.2	1.4	1.6	1.5	1.5	1.8	2.2	1.5	1.2	1.8	2.3	1.9	3.0	4.7	4.2	4.7	3.2	3.0	5.7	7.4	7.0	6.8	3.08	7.39
30-Dec	8.8	Z	9.1	8.1	8.7	7.8	7.4	8.6	8.4	7.7	6.9	8.0	5.5	3.9	2.5	2.9	3.4	3.7	3.5	4.2	3.4	2.4	2.3	3.3	5.67	9.13
31-Dec	2.7	Z	3.9	3.0	2.9	2.9	3.4	3.7	3.3	3.5	3.2	3.0	3.3	3.4	3.4	4.2	6.2	5.8	3.1	3.2	2.6	3.7	3.5	3.2	3.52	6.17
																								Diurnal Average		
																								Diurnal Maximum		
9.04																								9.12		
22.81																								23.72		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										



WCAS - Violet Grove
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2014

Maximum Value: 55.11 ppb on Dec 16 11:00		Maximum Daily Average: 27.24 ppb on Dec 19		Hours in Service: 744																							
Minimum Value: 1.2 ppb on Dec 29 03:00		Minimum Daily Average: 3.04 ppb on Dec 28		Hours of Data: 708																							
Maximum Diurnal Average: 13.29 ppb at hour 15		Minimum Diurnal Average: 9.22 ppb at hour 3		Hours of Missing Data: 36																							
Monthly Average: 10.643 ppb		Percentiles: P ₁ = 1.6 P ₁₀ = 3.1 Q ₁ = 5.2 Median = 8.8 Q ₃ = 13.5 P ₉₀ = 20.6 P ₉₉ = 37.7		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	6.9	Z	10.4	10.7	12.6	12.9	12.4	23.0	20.0	26.5	21.0	13.8	12.1	17.5	12.2	12.3	12.7	15.3	11.6	15.2	17.0	18.5	24.9	20.7	15.66	26.49	
2-Dec	11.4	Z	12.2	10.4	11.1	5.8	6.0	4.9	7.1	6.6	5.8	4.5	4.2	3.0	3.3	2.9	3.5	3.7	4.1	5.3	6.2	5.5	6.1	4.7	6.02	12.18	
3-Dec	6.3	Z	7.4	7.8	7.6	6.9	6.2	5.8	6.4	10.3	9.5	9.5	8.8	8.7	8.7	9.2	10.2	12.7	13.7	13.1	14.4	14.5	10.9	12.0	9.60	14.47	
4-Dec	9.1	Z	10.6	11.0	12.4	12.7	11.3	17.9	13.6	12.9	16.4	18.8	16.9	12.0	16.7	11.9	10.3	8.8	11.1	11.1	9.8	10.7	10.2	7.9	12.35	18.77	
5-Dec	9.4	Z	14.0	12.0	13.2	13.8	11.2	8.7	12.7	12.5	16.8	19.6	11.1	8.4	27.2	12.2	10.7	11.9	9.5	10.9	13.3	12.6	14.1	15.7	13.11	27.21	
6-Dec	17.4	Z	18.2	18.1	18.7	18.6	21.5	38.1	29.3	21.4	16.5	23.1	21.6	23.1	25.9	19.7	18.4	19.7	17.9	16.8	17.3	20.9	23.1	21.8	21.18	38.13	
7-Dec	20.7	Z	17.0	18.5	15.0	14.0	12.0	13.8	10.2	11.0	12.2	10.2	9.9	10.7	10.7	10.8	13.1	12.6	11.7	14.4	9.1	6.6	7.3	8.1	12.16	20.70	
8-Dec	7.5	Z	5.6	5.4	7.6	7.1	7.5	7.4	8.2	8.4	8.7	11.3	16.6	21.8	17.5	12.6	11.0	12.2	11.2	11.0	10.3	10.0	8.1	11.9	10.39	21.77	
9-Dec	7.0	Z	4.3	6.9	4.6	4.1	3.5	2.6	2.6	4.4	4.0	4.1	4.0	5.3	3.1	2.8	2.8	3.2	4.0	3.5	2.6	2.5	2.4	3.1	3.80	7.00	
10-Dec	3.4	Z	2.7	2.4	2.5	2.4	2.3	2.6	2.2	3.2	3.5	4.0	3.9	3.4	3.4	15.6	3.5	3.6	4.2	3.9	3.9	3.1	3.3	3.5	3.76	15.59	
11-Dec	3.8	Z	2.6	2.5	3.7	6.0	2.6	2.2	4.4	4.4	C	C	C	C	C	6.9	4.5	5.9	5.2	4.7	5.1	4.7	3.6	3.8	4.26	6.93	
12-Dec	3.8	Z	5.7	6.5	7.0	8.2	8.5	12.6	16.9	18.7	9.9	16.3	19.1	17.6	14.2	23.5	26.9	14.5	12.9	10.8	14.8	14.3	19.0	14.6	13.75	26.89	
13-Dec	12.9	Z	16.5	14.0	10.4	7.8	9.9	12.0	11.7	11.3	10.6	10.9	10.6	11.5	9.7	10.4	9.9	7.4	7.2	7.5	6.8	9.0	16.8	12.9	10.77	16.82	
14-Dec	12.7	Z	10.4	10.5	12.3	14.9	13.2	12.4	13.0	9.1	9.1	8.9	10.0	11.9	11.0	10.2	11.9	6.6	9.6	9.6	11.4	8.1	5.2	5.1	10.31	14.94	
15-Dec	6.5	Z	7.2	6.0	6.5	8.8	9.1	9.3	10.3	11.4	11.7	10.7	10.3	21.7	36.1	33.3	15.3	11.6	13.9	12.3	10.8	9.9	8.0	7.8	12.54	36.07	
16-Dec	7.6	Z	7.7	5.9	5.6	4.7	4.2	4.2	8.0	17.9	55.1	49.8	35.6	20.2	23.8	31.3	29.6	23.1	15.4	8.9	22.0	6.0	5.2	5.3	17.28	55.11	
17-Dec	6.7	Z	5.9	12.1	16.2	11.1	15.3	6.9	7.3	8.7	9.1	10.6	13.2	17.0	21.0	20.3	21.3	18.1	17.8	20.6	25.0	29.3	26.4	28.1	16.00	29.26	
18-Dec	25.2	Z	19.8	19.8	18.4	18.8	18.8	15.1	14.1	9.4	17.1	28.5	45.9	39.3	38.9	47.6	19.0	17.0	19.8	13.9	14.0	11.9	15.7	13.6	21.80	47.55	
19-Dec	13.5	Z	17.5	17.6	17.8	18.4	21.0	21.1	33.1	20.6	16.2	34.4	35.3	36.9	37.7	37.3	37.5	32.2	34.3	35.0	31.2	29.2	25.0	23.5	27.24	37.75	
20-Dec	24.6	Z	26.1	25.7	24.7	26.2	21.8	16.3	11.5	14.1	10.4	8.5	10.7	10.0	7.8	6.4	7.5	8.4	9.1	8.8	9.5	7.1	6.6	5.9	13.38	26.22	
21-Dec	10.1	Z	13.0	14.4	15.5	15.6	15.3	24.2	21.2	17.9	23.4	21.4	17.7	12.1	6.7	3.1	2.4	3.1	2.7	2.7	3.3	4.6	5.0	5.9	11.37	24.21	
22-Dec	6.4	Z	6.4	6.4	6.8	7.0	7.5	7.2	7.8	8.8	7.0	8.4	7.0	6.8	6.8	7.2	6.6	5.4	6.3	7.2	11.2	8.0	6.7	5.7	7.16	11.19	
23-Dec	5.6	Z	6.3	6.4	8.5	9.9	10.3	9.4	6.5	4.7	4.5	4.9	5.6	4.7	5.3	7.1	7.9	7.2	14.1	14.7	13.8	10.4	10.3	11.1	8.21	14.70	
24-Dec	11.6	Z	9.7	7.4	6.3	6.7	5.5	5.5	7.7	7.3	8.2	7.8	8.4	7.4	7.4	5.4	2.4	3.0	3.3	3.8	3.0	2.3	2.4	3.3	5.90	11.56	
25-Dec	3.6	Z	3.4	8.3	5.9	5.6	4.6	5.3	4.8	5.4	6.6	7.7	8.8	10.1	9.9	12.1	13.4	12.0	13.6	9.2	8.4	5.1	4.2	3.8	7.47	13.56	
26-Dec	4.0	Z	4.6	6.0	6.2	5.4	6.7	6.5	5.6	6.1	4.7	6.4	8.9	7.7	6.8	6.5	6.7	8.1	7.5	7.5	5.2	5.6	7.1	6.8	6.38	8.92	
27-Dec	7.1	Z	4.6	6.2	8.5	8.6	9.4	10.3	10.3	10.9	13.2	16.5	14.9	11.3	11.5	10.2	16.3	9.3	7.9	14.4	12.4	12.4	11.2	9.0	10.72	16.52	
28-Dec	8.6	Z	1.9	3.0	1.5	1.9	1.7	3.0	3.1	2.5	2.2	2.3	2.3	3.4	4.8	5.1	4.5	4.3	2.9	3.0	3.2	1.8	1.5	1.3	3.04	8.59	
29-Dec	1.3	Z	1.2	1.5	2.0	2.3	1.7	2.0	2.3	1.6	1.5	2.5	3.2	2.6	4.1	6.0	4.4	4.7	3.2	3.0	5.7	7.4	6.9	6.7	3.38	7.36	
30-Dec	8.8	Z	9.1	8.0	8.7	7.7	7.3	8.6	8.4	8.1	8.4	10.0	6.3	4.3	2.6	2.9	3.4	3.6	3.4	4.1	3.3	2.4	2.3	3.3	5.87	10.03	
31-Dec	2.7	Z	3.9	3.0	2.9	2.9	3.3	3.7	3.3	3.6	3.7	3.7	4.1	4.1	3.8	4.4	6.3	5.8	3.1	3.1	2.6	3.7	3.4	3.2	3.65	6.29	
		9.23	--	9.22	9.49	9.70	9.58	9.40	10.41	10.44	10.32	11.57	12.97	12.91	12.49	13.29	13.14	11.41	10.16	10.07	10.01	10.54	9.61	9.78	9.36	Diurnal Average	
		25.19	--	26.13	25.72	24.70	26.22	21.83	38.13	33.09	26.49	55.11	49.79	45.94	39.35	38.89	47.55	37.54	32.19	34.34	35.04	31.18	29.26	26.38	28.08	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb										24-hr --- ppb															



WCAS - Violet Grove
Summary of Hourly Averages

Total Hydrocarbon (THC) - ppm
December 2014

Maximum Value: 7.36 ppm on Dec 18 18:00		Maximum Daily Average: 3.32 ppm on Dec 19		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on Dec 21 18:00		Minimum Daily Average: 2.16 ppm on Dec 31		Hours of Data: 707																																													
Maximum Diurnal Average: 2.91 ppm at hour 18		Minimum Diurnal Average: 2.52 ppm at hour 3		Hours of Missing Data: 37																																													
Monthly Average: 2.621 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.2 O ₁ = 2.3 Median = 2.5 O ₃ = 2.8 P ₉₀ = 3.1 P ₉₉ = 4.6		Hours of Calibration: 37																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.4	2.4	2.6	Z	2.7	2.6	2.7	2.8	2.8	2.8	2.7	2.5	2.5	2.8	2.7	2.6	4.4	3.1	2.8	3.1	3.4	3.1	3.1	3.0	2.85	4.38																							
2-Dec	2.6	2.6	2.6	Z	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.3	2.3	2.26	2.62																							
3-Dec	2.3	2.4	2.4	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.9	2.7	2.7	2.49	2.85																							
4-Dec	2.5	2.6	2.7	Z	2.7	2.6	2.6	2.6	2.7	2.5	2.5	2.6	2.6	2.6	2.7	2.8	2.9	2.5	2.5	2.6	2.5	2.5	2.5	2.5	2.60	2.89																							
5-Dec	2.5	2.5	2.5	Z	2.5	2.4	2.4	2.4	2.4	2.6	2.7	3.0	2.7	2.6	3.1	3.0	2.9	2.8	2.6	2.6	2.7	2.7	2.6	2.7	2.64	3.07																							
6-Dec	2.9	2.4	2.8	Z	2.7	2.9	3.6	3.3	3.0	3.2	3.0	3.0	3.0	2.9	2.8	2.9	2.7	2.7	2.6	2.6	2.9	3.1	3.1	3.1	2.92	3.55																							
7-Dec	3.0	2.8	2.7	Z	2.6	2.7	2.6	2.5	2.5	2.4	2.4	2.5	2.5	2.4	2.4	2.3	3.0	6.5	2.9	3.3	3.0	2.5	2.6	2.5	2.80	6.47																							
8-Dec	3.1	3.1	2.5	Z	2.8	3.7	3.0	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.6	2.5	2.7	2.9	2.6	2.6	2.5	2.5	2.4	2.7	2.73	3.70																							
9-Dec	2.4	2.3	2.2	Z	2.3	2.3	2.2	2.2	2.2	2.7	3.1	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.30	3.11																							
10-Dec	2.2	2.1	2.1	Z	3.0	2.3	2.2	2.2	2.4	2.9	2.6	2.9	3.3	2.5	2.2	2.3	2.3	2.6	2.7	2.7	2.8	2.5	3.8	2.5	2.57	3.77																							
11-Dec	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.1	2.2	2.2	C	C	C	C	C	C	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	--	2.33																							
12-Dec	2.3	2.8	2.3	Z	2.5	2.4	2.5	2.6	4.4	4.7	2.6	2.8	2.7	2.8	2.7	2.8	2.8	3.5	2.7	2.6	2.7	3.0	2.9	2.8	2.86	4.74																							
13-Dec	5.9	3.0	2.9	Z	2.9	2.6	2.7	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.3	2.2	2.4	2.4	2.5	2.5	2.4	2.4	2.71	5.87																							
14-Dec	2.5	2.5	2.5	Z	2.6	2.6	2.6	2.5	2.6	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.5	3.3	4.8	2.9	2.5	2.7	2.61	4.84																							
15-Dec	3.0	2.6	2.7	Z	2.7	2.7	2.9	3.4	2.9	2.7	2.6	2.5	2.7	2.8	3.0	2.9	3.0	2.8	4.2	2.4	2.4	4.6	3.4	2.6	2.92	4.57																							
16-Dec	3.4	2.9	2.5	Z	2.3	3.3	4.3	3.1	3.0	3.0	4.0	3.5	3.3	2.9	2.8	2.9	3.0	2.9	3.1	2.5	2.8	2.4	2.3	2.7	3.00	4.34																							
17-Dec	4.2	2.7	2.3	Z	3.2	2.8	3.5	2.4	2.4	2.5	2.6	2.6	2.6	2.5	2.6	2.6	3.1	3.9	2.7	2.8	3.3	3.0	2.9	3.7	2.90	4.20																							
18-Dec	3.5	2.8	2.9	Z	2.9	2.9	2.8	2.8	2.7	2.5	2.8	3.1	3.3	3.1	3.2	3.0	4.6	7.4	4.2	2.8	3.0	2.9	3.2	3.0	3.27	7.36																							
19-Dec	3.1	3.0	3.0	Z	2.9	3.4	3.2	3.1	3.2	3.2	2.9	3.6	3.5	3.5	3.7	3.8	3.9	3.5	3.3	3.4	3.4	3.4	3.2	3.3	3.32	3.92																							
20-Dec	3.3	3.1	3.0	Z	3.2	3.3	3.3	2.9	2.5	2.6	2.6	2.5	2.7	2.6	2.6	2.6	5.4	4.0	2.9	2.9	4.5	2.5	3.9	2.7	3.12	5.39																							
21-Dec	2.7	2.8	2.9	Z	2.7	2.8	2.7	2.8	2.8	2.9	3.3	3.0	2.9	2.6	2.2	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.54	3.26																							
22-Dec	2.4	2.3	2.3	Z	2.4	2.5	2.5	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.38	2.51																							
23-Dec	2.4	2.3	2.5	Z	2.6	2.7	2.8	2.6	2.5	2.4	2.5	2.6	2.7	2.5	3.6	3.2	2.6	2.6	2.7	2.7	2.7	2.6	2.6	2.6	2.65	3.55																							
24-Dec	2.5	2.4	2.4	Z	2.4	2.5	2.3	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.3	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.35	2.54																							
25-Dec	2.3	2.3	2.4	Z	2.4	2.4	2.5	2.4	2.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.4	2.5	2.4	2.4	2.3	2.48	2.67																							
26-Dec	2.4	2.4	2.3	Z	2.3	2.2	2.2	2.3	2.3	2.8	2.4	2.5	2.6	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.42	2.76																							
27-Dec	2.6	2.4	2.5	Z	2.5	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.8	2.5	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.1	2.41	2.81																							
28-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.17	2.35																							
29-Dec	2.2	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.6	2.4	2.4	2.23	2.59																							
30-Dec	2.5	2.4	2.5	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.25	2.51																							
31-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.16	2.21																							
																								2.75	2.54	2.52	--	2.57	2.61	2.64	2.55	2.59	2.63	2.60	2.61	2.63	2.54	2.57	2.56	2.77	2.91	2.62	2.54	2.71	2.62	2.63	2.57	Diurnal Average	
																								5.87	3.14	3.04	--	3.20	3.70	4.34	3.37	4.44	4.74	3.96	3.56	3.46	3.51	3.75	3.82	5.39	7.36	4.18	3.37	4.84	4.57	3.93	3.68	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																	

**VIOLET GROVE
STATION #902**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Violet Grove
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 11.03 C on Dec 9 16:00		Maximum Daily Average: 7.45 C on Dec 9		Hours in Service: 744																							
Minimum Value: -22.3 C on Dec 30 03:00		Minimum Daily Average: -18.85 C on Dec 29		Hours of Data: 744																							
Maximum Diurnal Average: -3.28 C at hour 16		Minimum Diurnal Average: -7.34 C at hour 9		Hours of Missing Data: 0																							
Monthly Average: -5.500 C		Percentiles: P ₁ = -20.6 P ₁₀ = -12.2 Q ₁ = -9.5 Median = -6.2 Q ₃ = -1.9 P ₉₀ = 2.7 P ₉₉ = 9.4		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	-15.2	-14.7	-17.1	-16.8	-16.8	-17.1	-17.1	-17.3	-17.2	-16.3	-15.7	-13.7	-11.5	-10.3	-9.1	-9.5	-9.3	-9.1	-9.2	-9.7	-10.2	-9.6	-10.0	-10.0	-13.01	-9.05	
2-Dec	-9.3	-10.0	-10.2	-10.3	-10.1	-9.2	-9.5	-9.4	-9.4	-8.9	-8.8	-8.5	-8.0	-7.5	-7.4	-7.6	-7.8	-7.9	-8.0	-8.0	-8.4	-8.6	-8.7	-8.4	-8.76	-7.43	
3-Dec	-9.1	-9.5	-9.8	-10.3	-9.9	-10.7	-10.6	-9.3	-9.7	-10.0	-9.0	-6.6	-5.0	-3.4	-2.8	-2.7	-3.8	-4.4	-3.5	-4.5	-5.2	-6.0	-5.5	-8.1	-7.06	-2.75	
4-Dec	-8.4	-9.6	-9.6	-9.3	-9.7	-9.3	-9.0	-9.8	-9.5	-9.0	-7.5	-6.7	-6.2	-5.7	-5.4	-5.5	-5.8	-6.1	-6.6	-7.1	-7.5	-8.3	-8.3	-8.4	-7.85	-5.36	
5-Dec	-9.6	-10.1	-11.1	-10.5	-10.3	-9.6	-10.1	-9.9	-12.0	-10.8	-9.6	-9.5	-8.5	-7.9	-8.1	-7.7	-7.5	-7.3	-6.1	-6.6	-7.6	-7.3	-7.1	-7.5	-8.84	-6.06	
6-Dec	-8.2	-8.5	-9.4	-10.0	-10.5	-9.9	-10.3	-10.7	-11.2	-10.9	-10.0	-9.5	-9.2	-9.1	-9.5	-9.6	-9.3	-8.9	-8.6	-7.5	-6.1	-5.1	-4.4	-4.2	-8.77	-4.19	
7-Dec	-3.3	-2.4	-2.3	-2.2	-3.1	-2.5	-2.1	-3.0	-3.1	-2.4	-2.6	-2.3	-0.8	0.7	1.3	1.5	-0.3	-1.1	-0.9	-2.2	-1.7	-1.6	-1.8	-2.0	-1.67	1.49	
8-Dec	-3.3	-2.5	-3.9	-4.5	-4.9	-5.2	-5.8	-6.3	-6.5	-6.7	-6.2	-5.3	-4.4	-3.2	-1.1	0.5	-0.1	-1.0	1.4	2.0	2.8	2.3	3.0	0.9	-2.41	2.97	
9-Dec	2.2	4.6	4.7	4.2	4.6	4.3	5.5	5.9	6.7	6.7	5.5	5.8	7.9	8.8	10.4	11.0	11.0	9.7	9.0	10.4	10.6	10.9	9.9	8.4	7.45	11.03	
10-Dec	6.6	7.4	7.0	6.8	5.5	5.5	7.1	8.0	6.9	6.2	6.0	6.4	6.9	7.4	8.0	7.9	8.5	7.9	7.6	8.2	7.4	8.0	7.3	7.7	7.17	8.49	
11-Dec	7.8	7.9	7.5	6.9	6.6	7.5	7.9	7.6	7.0	7.0	7.2	8.8	8.7	8.4	8.4	7.4	6.7	5.1	5.8	4.5	3.9	3.8	4.0	3.2	6.65	8.84	
12-Dec	1.9	1.7	1.2	1.8	0.8	1.3	0.1	-0.6	-1.2	-1.3	-0.7	-0.9	1.6	1.8	3.8	4.7	1.7	0.9	-0.1	-0.3	0.3	0.4	-0.8	-0.3	0.73	4.66	
13-Dec	-0.2	-1.7	-1.8	-1.9	-1.3	-0.9	-1.1	-1.3	-1.4	-1.9	-1.7	-1.4	-0.2	0.1	1.7	1.9	1.1	0.6	-0.4	-1.2	-1.7	-2.7	-3.5	-3.9	-1.04	1.87	
14-Dec	-5.2	-5.6	-5.8	-6.3	-7.0	-7.5	-8.2	-8.3	-8.2	-8.2	-7.0	-5.8	-4.5	-3.1	-2.5	-2.2	-2.7	-3.3	-4.1	-4.3	-5.5	-6.2	-5.8	-6.7	-5.58	-2.18	
15-Dec	-7.7	-8.6	-9.4	-8.8	-9.2	-9.3	-10.0	-10.0	-10.3	-10.2	-8.8	-7.4	-6.0	-6.3	-6.6	-6.0	-6.4	-6.9	-7.4	-8.4	-8.5	-8.9	-9.4	-10.9	-8.39	-5.99	
16-Dec	-10.7	-11.3	-12.2	-11.8	-11.6	-12.0	-12.0	-12.7	-13.5	-15.8	-18.7	-15.7	-13.9	-12.3	-11.3	-11.2	-12.6	-13.0	-11.0	-9.3	-11.1	-8.5	-8.6	-8.4	-12.06	-8.44	
17-Dec	-8.7	-8.8	-9.0	-9.6	-10.3	-9.5	-10.3	-9.9	-10.3	-11.4	-11.5	-11.2	-10.2	-9.1	-8.4	-7.2	-7.3	-7.4	-7.7	-8.1	-7.9	-7.5	-7.7	-8.9	-9.07	-7.18	
18-Dec	-8.9	-8.5	-9.9	-9.6	-10.4	-10.1	-9.5	-8.8	-8.6	-5.6	-8.0	-9.0	-8.8	-7.2	-5.7	-4.5	-4.7	-5.3	-5.7	-4.0	-5.3	-5.0	-7.7	-7.3	-7.42	-3.97	
19-Dec	-7.0	-6.8	-7.0	-6.4	-6.6	-7.7	-7.6	-8.0	-8.5	-8.2	-6.7	-6.9	-7.8	-7.3	-6.7	-6.3	-6.3	-5.5	-4.6	-4.0	-3.6	-3.7	-2.6	-3.9	-6.24	-2.60	
20-Dec	-4.1	-3.4	-3.2	-4.8	-5.7	-7.2	-7.4	-5.6	-3.2	-3.7	-2.8	-2.8	-3.5	-1.9	-0.5	0.4	-0.4	-1.0	-1.5	-3.3	-3.7	-2.6	-2.4	-2.4	-3.19	0.41	
21-Dec	-5.7	-5.7	-5.7	-7.0	-7.1	-8.0	-8.2	-8.5	-8.7	-7.8	-6.0	-4.3	-2.8	-1.1	0.3	1.7	1.8	1.5	1.1	0.8	-0.3	-0.4	-0.3	-0.6	-3.37	1.81	
22-Dec	-0.9	-1.2	-1.5	-2.3	-2.5	-2.9	-2.8	-1.8	-1.4	-1.7	-1.5	-0.9	-0.3	-0.3	0.4	0.2	0.1	-0.1	-0.7	0.0	-0.7	-1.1	-1.5	-1.3	-1.11	0.36	
23-Dec	-1.4	-1.1	-1.9	-2.4	-2.8	-3.2	-3.7	-3.9	-3.5	-3.3	-3.4	-3.1	-3.7	-2.7	-2.5	-2.4	-2.6	-3.2	-2.5	-2.9	-3.2	-2.5	-3.1	-2.8	-2.81	-1.06	
24-Dec	-2.1	-1.8	-1.9	-2.3	-2.8	-3.5	-2.6	-3.7	-4.9	-4.6	-4.8	-4.7	-3.8	-3.0	-2.8	-2.3	-2.4	-3.0	-3.7	-4.3	-5.2	-6.0	-6.9	-7.8	-3.78	-1.84	
25-Dec	-8.8	-9.4	-9.7	-9.9	-10.2	-10.2	-10.3	-10.4	-10.7	-10.6	-10.2	-9.2	-8.8	-8.7	-7.8	-6.6	-6.4	-5.9	-7.4	-8.6	-8.7	-8.8	-9.0	-9.1	-8.98	-5.92	
26-Dec	-9.5	-9.3	-9.3	-9.7	-10.5	-10.6	-10.9	-11.3	-11.9	-11.2	-10.1	-10.2	-9.1	-8.2	-7.5	-6.7	-6.4	-5.9	-5.5	-5.6	-5.8	-5.7	-5.9	-5.8	-8.45	-5.49	
27-Dec	-5.9	-5.7	-6.4	-7.2	-7.1	-6.6	-6.2	-7.8	-8.7	-9.2	-8.7	-7.5	-7.4	-6.5	-6.4	-7.3	-8.7	-9.7	-9.7	-9.7	-9.9	-10.0	-10.0	-10.4	-8.01	-5.68	
28-Dec	-10.8	-11.2	-11.8	-12.3	-12.5	-12.5	-12.4	-12.4	-12.2	-12.1	-12.1	-12.1	-12.1	-12.4	-12.8	-13.3	-13.5	-13.8	-14.6	-15.2	-15.5	-15.9	-16.4	-16.7	-13.19	-10.79	
29-Dec	-16.9	-17.1	-17.4	-17.6	-18.1	-18.8	-19.2	-19.6	-19.8	-19.8	-19.7	-19.2	-18.8	-18.3	-17.9	-17.8	-17.9	-18.1	-18.3	-18.9	-19.6	-20.6	-21.2	-21.5	-18.85	-16.94	
30-Dec	-22.1	-22.1	-22.3	-21.6	-21.6	-20.5	-19.7	-19.7	-18.6	-17.2	-16.3	-12.5	-9.8	-5.4	-4.0	-3.2	-3.1	-2.7	-2.7	-2.7	-2.5	-2.6	-2.7	-3.1	-11.61	-2.48	
31-Dec	-3.4	-3.1	-2.7	-2.5	-2.9	-2.9	-3.1	-3.5	-4.4	-4.6	-3.6	-2.1	-0.9	-0.3	0.7	0.8	0.3	1.7	2.3	2.4	1.8	2.1	1.9	2.4	-0.98	2.40	
		-6.06	-6.07	-6.50	-6.71	-7.03	-7.06	-7.07	-7.17	-7.34	-7.20	-6.87	-6.07	-5.20	-4.31	-3.60	-3.28	-3.68	-3.98	-3.96	-4.14	-4.46	-4.45	-4.69	-5.09	Diurnal Average	
		7.83	7.89	7.50	6.94	6.60	7.48	7.85	8.00	6.96	7.02	7.22	8.84	8.70	8.84	10.40	11.03	11.01	9.74	9.05	10.41	10.62	10.86	9.87	8.43	Diurnal Maximum	



WCAS - Violet Grove
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	18.5	13.5	8.5	3.0	6.3	3.2	3.6	4.5	6.3	6.1	7.5	9.1	1.5	0.1	2.2	3.3	6.2	7.4	9.0	12.2	6.7	7.0	9.6	10.0	6.25	18.54	
Dir	SW	SW	WSW	SW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SE	SSW	SSE	S	S	SSW	SW	WSW	WSW	W	W	SW	SW	
2 Spd	11.7	9.4	9.1	10.8	14.4	14.7	11.3	12.0	12.0	11.0	13.0	12.9	11.1	11.5	12.9	9.8	8.7	9.1	9.3	8.4	12.4	13.5	18.2	21.5	9.70	21.46	
Dir	W	W	W	W	W	W	W	W	W	NW	NW	NW	NW	WNW	NW	WNW	WNW	WNW	W	W	SW	SSW	SSW	SSW	SSW	W	SSW
3 Spd	17.5	15.6	15.1	16.3	15.9	6.5	9.0	11.3	11.4	9.0	7.8	6.6	10.7	8.7	9.3	8.2	9.1	10.7	9.3	10.0	9.7	8.0	8.7	13.0	10.50	17.53	
Dir	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	SW	SW	SW
4 Spd	12.7	10.3	9.0	10.3	11.3	11.0	9.8	8.3	7.1	10.1	7.5	5.7	6.1	8.5	5.9	6.0	7.3	8.0	9.2	8.1	9.1	5.3	5.6	5.6	8.04	12.67	
Dir	W	W	WNW	W	W	W	WSW	WNW	WSW	W	W	WNW	WNW	WNW	WNW	WSW	W	W	W	W	W	W	W	W	W	W	W
5 Spd	6.2	8.6	6.4	6.4	5.9	5.8	4.7	5.2	1.4	4.0	3.3	6.0	8.7	10.2	6.4	12.6	12.3	13.0	11.7	7.3	4.0	4.3	5.9	5.4	4.20	13.03	
Dir	W	W	W	WSW	WSW	WSW	WSW	WSW	SW	SW	S	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	S	S	S	S	SE
6 Spd	3.6	3.0	2.9	4.6	4.8	3.6	6.8	0.2	1.0	3.9	5.7	1.4	4.6	5.4	5.2	5.1	2.3	10.3	8.2	6.9	6.3	6.9	9.4	7.8	0.62	10.30	
Dir	SSE	SSW	SSE	SSE	SSE	S	SSE	SSE	ESE	SE	SE	ENE	NNE	ENE	E	E	NNW	NNW	N	WNW	W	WSW	WSW	WSW	SSW	NNW	
7 Spd	7.6	9.9	10.2	7.3	1.5	9.2	11.8	11.6	10.6	11.2	11.8	11.0	8.3	7.5	6.2	4.9	2.7	5.3	5.5	6.7	9.6	11.0	12.1	11.4	6.63	12.12	
Dir	W	W	W	W	WSW	WSW	W	W	W	W	W	W	WSW	WSW	W	WSW	SSE	SSE	S	SSE	S	SSW	SSW	SSW	WSW	SSW	SSW
8 Spd	10.4	16.6	12.8	9.7	3.9	6.6	3.5	5.2	9.8	8.4	8.3	6.4	4.9	1.5	7.2	6.1	6.0	2.1	12.1	13.0	13.2	9.9	12.5	2.0	7.37	16.64	
Dir	S	S	SSE	SSE	S	S	SSW	SSW	SSW	SSW	SW	SSW	SSW	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SW	SW	W	SSW	S
9 Spd	9.4	11.9	10.9	4.3	8.4	12.8	15.1	16.9	17.3	17.6	16.6	9.9	18.5	16.1	14.4	18.1	15.6	15.6	15.2	19.3	12.5	14.2	10.7	6.0	12.79	19.27	
Dir	WSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	SSW	SSW	SSW	SSW	S	S	SSW	S	SSW	S	WSW	WSW	WSW	SSW	SSW	SSW
10 Spd	4.1	9.6	12.6	10.7	8.4	12.8	16.8	15.4	11.2	11.7	12.7	20.6	17.4	16.6	15.2	18.4	14.1	15.4	13.5	10.7	14.6	13.6	16.5	16.4	12.93	20.62	
Dir	WSW	SW	SW	SW	S	SSW	SW	SSW	S	S	SSE	S	S	S	SSW	SSW	S	S	S	S	SSE	SSE	S	S	S	S	S
11 Spd	18.4	15.8	16.3	14.6	14.4	12.2	14.8	16.6	13.2	12.1	16.0	11.9	3.3	2.5	5.0	8.6	12.5	14.9	16.7	10.6	12.1	11.2	13.2	10.9	7.17	18.43	
Dir	SSW	SSW	SSW	SSW	SW	WSW	WSW	SW	WSW	SW	SW	SW	NNW	SE	ESE	ESE	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	S	SSW
12 Spd	3.4	10.6	15.3	9.9	12.5	15.0	6.6	2.2	2.8	2.5	8.9	10.2	7.5	6.3	6.8	5.2	7.3	4.6	1.1	4.8	7.8	4.9	2.3	1.5	5.25	15.33	
Dir	SSE	W	W	WSW	SSW	SW	SW	W	S	SW	WSW	WSW	W	W	W	WNW	ESE	S	WSW	W	WSW	WSW	WNW	WSW	WSW	WSW	W
13 Spd	2.2	6.4	12.4	11.3	11.2	9.3	9.8	9.3	7.0	8.4	9.3	8.9	7.0	7.1	6.9	7.6	8.9	5.8	6.8	5.4	6.1	8.5	9.8	9.6	7.67	12.40	
Dir	SSW	NW	NW	WNW	W	WNW	WNW	WNW	WNW	W	W	W	W	W	W	WNW	WNW	NW	W	WNW	WNW	W	W	W	W	WNW	NW
14 Spd	9.8	9.3	9.8	10.0	12.2	12.7	11.7	13.2	12.1	11.4	11.5	7.7	6.4	6.2	2.3	0.6	0.9	3.8	2.0	5.0	6.4	4.0	6.4	7.1	6.08	13.23	
Dir	W	W	W	W	W	W	W	W	W	W	W	W	WNW	WNW	W	WSW	S	SSW	S	S	SSE	S	S	S	W	WSW	W
15 Spd	6.7	7.5	8.2	9.1	7.6	5.9	4.8	7.1	5.1	3.5	8.5	9.9	9.7	6.5	2.0	2.5	4.8	6.4	6.3	6.5	3.1	3.5	8.3	7.7	5.98	9.94	
Dir	SSE	SSE	SSE	S	S	S	SSE	SSE	SSE	S	S	S	S	SE	E	E	SSE	SSE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE	S
16 Spd	9.8	3.7	2.2	6.2	8.9	7.2	6.6	3.6	0.8	0.1	1.4	0.0	0.2	3.5	1.9	2.1	1.4	0.1	3.8	3.2	0.2	6.3	5.5	8.5	2.98	9.76	
Dir	SSE	S	SE	S	S	SSE	SSE	SE	SSW	NNW	WNW	NNW	ENE	E	E	NNW	NW	NNW	SSE	SSE	S	SSE	SE	SSE	SSE	SSE	SSE
17 Spd	6.6	4.9	4.6	1.3	2.1	4.3	4.0	5.6	6.4	6.8	5.8	5.0	3.5	3.0	4.1	2.7	3.3	2.3	3.8	3.5	11.2	9.2	8.5	6.1	4.39	11.21	
Dir	S	SSW	SSW	NNW	WNW	SW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SSW	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	WSW
18 Spd	5.3	4.5	2.8	4.8	1.4	2.6	4.3	6.1	3.0	11.3	5.7	3.2	0.3	1.7	0.3	0.8	6.2	2.5	2.1	4.9	3.4	7.1	3.6	2.3	3.03	11.32	
Dir	WSW	SW	SW	WSW	SW	SW	SW	SW	SSW	SW	WSW	WNW	NW	W	SW	SSW	SE	SSE	S	S	SSW	SSE	SE	S	SSW	SW	SW
19 Spd	6.6	4.9	2.8	6.4	4.4	2.7	0.3	2.9	2.6	1.4	3.8	4.0	5.2	5.4	4.4	1.4	2.5	6.3	5.8	5.8	3.8	5.2	6.5	4.3	2.48	6.58	
Dir	SSE	SE	SSE	SSE	S	SE	SSW	SE	SE	SSW	SSW	W	WNW	NW	NW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SSW	SSE
20 Spd	4.5	7.6	9.6	6.7	5.6	4.4	2.8	7.3	13.9	14.8	15.3	12.8	10.7	11.1	13.2	14.0	11.5	12.4	14.0	11.0	11.4	14.7	13.0	10.1	9.65	15.26	
Dir	SSW	SW	SW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SSW	S	SSW	S	S	S	S	S	SSE	S	S	S	S	SSW	SW	SW
21 Spd	4.0	2.8	2.3	9.7	10.3	7.4	4.9	1.6	0.8	4.6	11.6	10.6	8.2	9.6	14.4	20.5	25.6	16.4	16.2	10.8	7.0	8.5	10.3	10.7	7.63	25.56	
Dir	E	E	WNW	NNW	NNW	NNW	NNW	N	NNW	WSW	WSW	W	WNW	WNW	NW	NW	NNW	NNW	NNW	NNW	W	WSW	W	W	NW	NNW	NNW
22 Spd	10.9	8.0	9.8	8.6	9.1	8.7	7.1	8.1	9.8	9.6	10.4	11.5	10.5	10.7	9.6	7.9	3.7	5.7	7.7	7.0	8.1	13.0	11.2	9.1	8.87	13.04	
Dir	W	W	W	W	W	W	W	WNW	W	W	W	W	W	WNW	W	WNW	WNW	W	W	WSW	WSW	WSW	W	W	W	W	W



WCAS - Violet Grove
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	9.6	6.2	7.9	6.5	9.5	6.6	7.4	8.8	12.3	14.0	14.4	11.2	7.5	9.5	8.8	14.1	6.3	7.4	9.1	8.6	7.0	9.7	3.6	5.6	7.70	14.40	
Dir	WSW	WSW	SW	SW	SW	SSW	S	SSW	SSW	SSW	SSW	SSW	S	SSW	S	S	SSW	WSW	WSW	W	W	W	W	SW	SW	SSW	
24 Spd	7.6	11.8	11.1	7.4	8.9	8.2	12.4	10.7	11.6	10.3	10.6	8.4	8.3	8.6	8.4	9.0	15.0	10.0	9.7	7.5	8.5	11.5	10.1	8.3	5.93	15.01	
Dir	WSW	WSW	WSW	W	W	W	WNW	WNW	W	W	W	W	WNW	WNW	WNW	NNW	NNW	NNW	N	NE	ENE	NE	NE	ENE	WNW	NNW	
25 Spd	7.3	4.4	2.9	4.8	5.6	4.6	4.8	4.9	4.5	5.2	5.4	7.3	4.3	2.3	1.4	4.1	6.4	8.0	7.5	10.9	9.2	9.5	5.0	4.0	1.50	10.85	
Dir	ENE	ESE	ESE	ESE	ESE	SE	ESE	ESE	ESE	SE	SE	SE	ESE	E	W	NW	WNW	WNW	N	N	NNW	NNW	WNW	WNW	NE	N	
26 Spd	4.5	5.1	5.3	8.2	6.7	6.1	6.5	7.4	7.1	6.8	8.3	5.8	7.6	8.9	7.5	9.6	8.0	8.6	9.5	10.3	10.7	10.7	5.6	7.5	7.52	10.69	
Dir	W	WSW	WSW	W	W	W	W	WSW	WSW	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	WSW	WSW	W	
27 Spd	9.7	10.3	5.5	7.1	9.4	10.0	8.8	9.8	9.3	6.7	7.2	2.8	5.0	4.6	6.5	7.4	10.2	11.4	12.5	8.9	8.1	7.2	6.5	7.2	0.45	12.52	
Dir	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	E	E	E	E	ENE	E	E	ENE	ENE	ENE	ENE	NE	S	E	
28 Spd	7.3	8.3	10.8	10.5	12.1	9.0	5.4	7.0	7.4	11.7	11.0	12.0	12.9	13.5	13.1	11.6	9.8	11.2	17.0	18.1	19.5	20.4	17.3	18.5	11.71	20.43	
Dir	NNE	NNE	NNE	N	N	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	N	NNE	NNE	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	NNW	
29 Spd	18.3	14.9	14.0	13.4	15.4	13.7	14.6	15.1	14.0	13.4	14.7	12.9	11.5	10.7	5.7	3.7	3.8	6.4	8.3	8.1	11.1	11.6	12.0	13.4	7.44	18.27	
Dir	NNW	NNW	NNW	NNW	N	N	NNW	NNW	NW	NW	NW	NW	WNW	WNW	WNW	W	SW	SW	SW	SW	SSW	SW	SW	SW	NW	NNW	
30 Spd	17.1	17.1	17.0	19.0	17.8	20.8	18.7	17.7	18.5	9.4	10.7	15.8	20.4	25.5	23.6	21.9	20.3	20.9	15.1	12.5	14.7	16.8	13.6	14.9	13.97	25.53	
Dir	SW	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	W	W	W	WNW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	W	WNW	
31 Spd	15.6	15.8	14.8	14.3	13.8	14.4	12.5	16.6	15.3	10.9	12.2	9.0	8.8	8.4	12.7	8.9	2.8	16.2	23.7	20.5	12.5	14.1	11.2	11.5	12.87	23.72	
Dir	NW	WNW	WNW	WNW	W	WNW	WNW	WNW	WNW	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW	WNW	WNW	
Spd	5.46	6.07	5.64	5.41	5.91	5.99	6.02	6.08	6.29	6.17	6.71	5.91	4.57	3.73	3.54	2.87	2.10	3.23	3.13	3.55	4.03	4.62	4.63	4.77	Diurnal Average		
Dir	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	Diurnal Maximum	
Spd	18.54	17.06	17.05	19.01	17.76	20.81	18.69	17.75	18.45	17.62	16.65	20.62	20.38	25.53	23.62	21.93	25.56	20.91	23.72	20.54	19.45	20.43	18.20	21.46	Diurnal Maximum		
Dir	228.44	213.46	224.74	225.27	223.95	226.41	223.48	221.59	221.12	184.85	176.35	173.84	277.40	297.16	304.83	304.38	332.39	303.43	302.05	299.05	346.27	343.93	204.79	204.72			
Maximum Speed Value: 25.6 kph on Dec 21 17:00 Maximum Daily Speed Average: 13.97 kph on Dec 30 Maximum Diurnal Speed Average: 6.71 kph at hour 11																				Minimum Speed Value: 0.0 kph on Dec 16 12:00 Minimum Daily Speed Average: 0.45 kph on Dec 16 Minimum Diurnal Speed Average: 2.10 kph at hour 17				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0			
Monthly Average Velocity: 4.825 kph 245.00 deg All monthly, daily, and diurnal averages have been calculated using vector methods																				Speed Percentiles: P ₁ = 0.3 P ₁₀ = 3.0 Q ₁ = 5.6 Median = 8.5 Q ₃ = 11.6 P ₉₀ = 15.1 P ₉₉ = 20.4				Percent Operational Time: 100.0			
Frequency Distribution																											
		Speed Range (kph)																									
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total																				
North	3	11	17	2	0	0	33																				
NorthEast	1	6	2	0	0	0	9																				
East	14	16	5	0	0	0	35																				
SouthEast	25	22	8	0	0	0	55																				
South	35	53	40	1	0	0	129																				
SouthWest	39	64	56	4	0	0	163																				
West	27	167	42	1	0	0	237																				
NorthWest	15	24	35	9	0	0	83																				
Total	159	363	205	17	0	0	744																				



WCAS - Violet Grove
Summary of Hourly Averages

Delta Temperature (ET_D) - C
December 2014

Maximum Value: 0.98 C on Dec 6 20:00		Maximum Daily Average: 0.75 C on Dec 28		Hours in Service: 744																																												
Minimum Value: -6.4 C on Dec 14 20:00		Minimum Daily Average: -1.96 C on Dec 5		Hours of Data: 744																																												
Maximum Diurnal Average: 0.43 C at hour 13		Minimum Diurnal Average: -1.02 C at hour 18		Hours of Missing Data: 0																																												
Monthly Average: -0.310 C		Percentiles: P ₁ = -5.4 P ₁₀ = -1.9 Q ₁ = -0.6 Median = 0.1 Q ₃ = 0.5 P ₉₀ = 0.7 P ₉₉ = 0.9		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.3	0.3	0.1	-1.0	-1.1	-1.4	-2.4	-3.6	-1.9	-1.7	0.1	0.3	0.3	0.0	-0.1	-1.9	-1.9	-0.7	0.1	0.4	0.6	0.3	0.0	-0.2	-0.63	0.55																						
2-Dec	0.2	0.0	0.1	0.0	0.5	0.5	0.4	-0.3	0.0	-0.3	0.1	0.3	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.5	0.6	0.7	0.7	0.33	0.68																						
3-Dec	0.7	0.7	0.7	0.6	0.5	0.4	0.0	-0.3	-0.4	0.3	-0.3	0.2	0.5	0.4	0.5	0.1	-0.2	-0.4	-2.4	-0.3	-0.5	-1.3	-2.6	-0.4	-0.15	0.72																						
4-Dec	0.0	0.0	-0.5	-0.2	0.2	0.4	0.0	-0.7	-3.0	-1.2	0.2	0.5	0.5	0.6	0.3	-0.5	-1.5	-1.1	-0.6	-0.1	-0.7	-1.5	-3.8	-5.0	-0.74	0.64																						
5-Dec	-3.9	-2.5	-2.3	-2.5	-3.5	-5.4	-5.8	-6.0	-4.7	-2.7	-1.7	-1.3	-0.4	-0.9	-0.7	-0.7	-0.6	0.1	0.2	0.0	-1.3	-1.2	0.2	0.3	-1.96	0.35																						
6-Dec	0.0	0.3	-0.6	-0.8	-0.5	-0.3	-0.2	-0.5	-0.4	0.3	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	0.9	0.8	0.6	0.5	0.35	0.98																						
7-Dec	0.2	-0.4	-0.4	-1.1	-3.7	-3.0	-0.5	-0.1	-0.2	-0.5	-0.2	0.1	0.2	0.2	-0.3	-1.5	-3.4	-4.9	-5.9	-2.3	-2.0	-0.4	0.2	0.1	-1.24	0.22																						
8-Dec	0.1	0.2	-0.2	-0.5	-1.1	-1.2	-0.8	0.1	0.3	0.5	0.6	0.6	0.4	-0.1	0.4	0.1	-0.8	-3.0	-1.2	0.0	0.1	0.0	0.2	-0.6	-0.25	0.59																						
9-Dec	-1.0	-0.1	0.0	-2.8	-2.2	0.0	0.3	0.3	0.3	0.1	0.3	0.2	0.4	0.3	0.2	0.0	-0.2	0.0	-0.4	0.1	-0.1	-0.9	-0.7	-4.2	-0.41	0.39																						
10-Dec	-4.9	-1.0	0.0	0.2	-0.9	0.2	0.3	0.2	-0.2	-0.3	0.1	0.1	0.1	0.0	0.1	0.2	0.0	-0.3	-0.3	-0.5	-0.6	-0.3	-0.3	0.0	-0.34	0.27																						
11-Dec	0.1	0.1	0.0	0.1	0.2	-0.2	0.0	0.2	-0.1	-0.1	0.3	0.1	-0.5	-1.6	-0.6	-1.7	-0.7	-0.3	0.0	0.2	0.4	0.3	0.2	0.2	-0.14	0.38																						
12-Dec	-1.1	-1.3	0.1	0.1	0.3	0.3	0.2	-0.7	-2.1	-2.4	-0.4	0.1	0.4	0.2	-0.5	-0.7	-0.5	-3.3	-3.7	-3.3	-1.5	-1.2	-1.7	-2.7	-1.05	0.35																						
13-Dec	-1.5	0.1	0.5	0.4	0.3	0.4	0.4	0.2	-0.4	-0.4	0.2	0.2	0.0	0.3	0.0	-0.6	-1.1	-1.5	-2.6	-2.6	-2.6	-2.0	-0.9	-0.7	-0.58	0.53																						
14-Dec	-0.7	-1.0	-1.1	-0.9	-0.5	-0.4	0.2	0.1	0.2	0.1	0.3	0.5	0.3	0.3	0.4	-0.8	-4.3	-6.1	-6.3	-6.4	-3.3	-5.1	-5.2	-2.5	-1.75	0.47																						
15-Dec	-1.6	-1.2	-1.2	-1.4	-0.8	-0.4	-1.2	-1.1	-1.4	-0.5	0.1	0.5	0.6	0.5	0.5	-0.1	-1.6	-1.2	-0.6	-1.2	-1.7	-1.5	-0.1	-0.2	-0.70	0.59																						
16-Dec	0.3	0.0	-1.6	0.0	0.3	-0.2	-0.1	-1.3	-2.7	-2.1	0.5	0.5	0.7	0.7	0.8	0.1	-0.5	-0.8	-1.2	0.4	0.3	0.6	0.6	0.7	-0.16	0.76																						
17-Dec	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.2	-1.1	-1.7	0.1	-0.5	0.1	-0.3	-1.1	-0.4	0.29	0.84																						
18-Dec	-0.6	-1.2	-1.9	-1.2	-1.7	-0.5	-0.9	-0.5	-1.4	-0.3	0.1	0.0	0.2	0.3	0.0	-0.8	-3.4	-4.6	-4.9	-6.3	-2.7	-0.9	-2.0	-2.5	-1.57	0.26																						
19-Dec	-0.8	-1.1	-0.1	0.3	0.1	-0.7	-2.3	-2.2	-1.1	-1.6	0.1	0.4	0.8	0.8	0.8	0.7	0.3	0.5	0.4	0.1	-0.9	-1.3	-1.7	-3.0	-0.48	0.82																						
20-Dec	-3.4	-3.4	-1.3	-2.1	-1.6	-2.0	-2.8	-2.7	-0.9	0.0	0.2	0.3	0.3	0.1	-0.1	-0.1	-0.3	-0.6	-0.2	-0.7	-0.5	-0.1	-0.1	0.0	-0.92	0.34																						
21-Dec	0.0	0.0	0.4	0.8	0.8	0.7	0.8	0.5	0.3	-0.1	0.6	0.6	0.3	0.4	0.4	0.3	0.3	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.35	0.85																						
22-Dec	0.3	-0.3	-0.5	0.1	0.3	0.5	0.1	-0.1	0.2	0.2	0.3	0.4	0.3	0.4	0.0	-1.1	-3.2	-2.8	-0.5	-0.6	0.0	0.3	0.0	0.1	-0.24	0.45																						
23-Dec	0.3	0.0	-0.2	-1.0	-0.5	-0.1	0.1	0.0	0.2	0.4	0.5	0.5	0.6	0.5	0.3	0.4	0.2	0.4	0.5	0.3	0.1	0.2	0.0	-0.1	0.16	0.58																						
24-Dec	-0.2	0.1	0.2	-0.6	-0.4	-1.8	-1.1	-0.1	0.1	0.3	0.4	0.5	0.6	0.5	0.5	0.4	0.5	0.6	0.7	0.7	0.8	0.8	0.7	0.8	0.20	0.76																						
25-Dec	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.9	0.9	0.9	0.4	0.4	0.2	0.4	-0.4	0.3	0.5	0.4	0.0	-0.6	0.52	0.90																					
26-Dec	-3.0	-4.6	-2.7	-1.1	-0.6	-0.4	-0.2	-1.0	-1.3	0.2	0.5	0.7	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.25	0.69																						
27-Dec	0.6	0.6	0.4	0.0	-0.1	-0.4	-0.4	-0.4	-0.5	0.3	0.2	-0.4	0.6	0.4	0.5	0.4	0.5	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.31	0.79																						
28-Dec	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.75	0.80																						
29-Dec	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.5	0.2	-2.6	-3.9	-1.6	-0.4	0.3	0.4	0.4	0.16	0.79																						
30-Dec	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.2	0.4	0.4	0.4	0.5	0.5	0.5	0.49	0.68																						
31-Dec	0.5	0.4	0.4	0.4	-0.1	0.0	-0.1	0.1	0.3	-0.1	0.3	0.0	0.3	0.0	0.0	-0.2	-0.9	-0.2	0.2	0.1	-0.5	-0.2	0.3	0.2	0.05	0.47																						
																								-0.50	-0.38	-0.26	-0.35	-0.40	-0.38	-0.41	-0.52	-0.54	-0.26	0.25	0.34	0.43	0.33	0.27	-0.14	-0.77	-1.02	-0.87	-0.59	-0.38	-0.35	-0.42	-0.51	Diurnal Average
																								0.80	0.80	0.79	0.85	0.78	0.76	0.75	0.79	0.79	0.80	0.82	0.90	0.87	0.89	0.85	0.83	0.83	0.88	0.93	0.98	0.94	0.77	0.76	0.79	Diurnal Maximum



WCAS - Violet Grove
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2014

Maximum Value: 94.71 % on Dec 7 19:00 Maximum Daily Average: 89.88 % on Dec 6 Minimum Value: 37.1 % on Dec 31 07:00 Minimum Daily Average: 48.61 % on Dec 31 Maximum Diurnal Average: 79.78 % at hour 5 Minimum Diurnal Average: 68.45 % at hour 15 Monthly Average: 76.349 % Percentiles: P ₁ = 42.4 P ₁₀ = 55.2 Q ₁ = 67.9 Median = 80.1 Q ₃ = 87.6 P ₉₀ = 90.5 P ₉₉ = 92.8																								Hours in Service:	744																								
																								Hours of Data:	744																								
																								Hours of Missing Data:	0																								
																								Hours of Calibration:	0																								
																								Percent Operational Time:	100.0																								
Day	Hourly Period Ending At																								Daily 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	68.1	67.8	74.5	77.2	78.3	79.7	80.4	82.3	83.8	83.0	81.4	77.2	70.9	67.9	64.1	68.3	76.4	76.7	76.9	80.5	82.1	83.6	84.9	84.6	77.10	84.88																							
2-Dec	80.0	79.7	80.5	79.6	78.0	82.6	75.1	68.3	69.7	67.2	67.8	67.6	65.4	68.6	72.1	73.0	78.3	80.0	78.2	76.5	78.4	78.7	75.6	68.8	74.58	82.62																							
3-Dec	72.4	75.1	75.7	76.0	73.0	75.5	76.5	73.7	74.6	74.5	69.5	63.2	59.6	58.1	59.1	61.7	69.6	74.1	74.5	75.7	78.7	81.8	81.3	85.2	72.46	85.22																							
4-Dec	84.7	86.4	86.0	84.3	84.6	83.2	82.7	84.5	89.7	85.5	76.3	76.8	77.1	75.8	76.5	79.8	84.6	84.7	85.5	85.6	87.4	90.7	92.3	91.3	84.00	92.26																							
5-Dec	90.5	90.8	89.9	90.2	89.2	89.1	87.8	88.0	87.0	89.3	88.8	88.3	87.5	86.6	86.6	87.3	87.0	86.1	82.4	84.0	88.9	90.4	86.6	86.6	87.86	90.81																							
6-Dec	88.7	88.9	90.8	91.8	90.6	89.6	89.8	89.6	89.9	89.9	89.0	88.0	88.8	88.2	89.1	89.0	88.6	89.1	90.4	91.4	92.2	91.8	91.0	91.0	89.88	92.16																							
7-Dec	92.4	91.3	90.6	91.8	93.6	93.1	85.3	84.8	83.5	80.5	78.7	77.6	74.2	71.0	72.3	72.9	86.9	94.0	94.7	94.5	88.1	82.2	80.0	79.3	84.72	94.71																							
8-Dec	80.8	76.7	80.2	82.3	85.0	86.7	88.2	88.3	87.2	84.5	80.2	76.8	73.2	72.2	66.5	63.8	71.2	81.0	71.4	66.1	63.4	66.7	65.8	75.4	76.41	88.29																							
9-Dec	73.5	62.1	60.7	69.6	66.6	63.4	58.6	58.1	55.3	56.5	61.1	62.0	56.7	55.5	50.9	49.7	49.9	53.1	56.2	47.7	45.7	42.0	39.6	51.5	56.08	73.52																							
10-Dec	59.8	48.1	53.4	54.5	60.3	56.9	48.2	41.7	46.7	50.7	49.0	49.3	48.9	50.7	50.1	51.7	50.1	53.5	54.9	51.7	57.0	53.2	56.4	53.1	52.08	60.31																							
11-Dec	52.2	52.2	53.5	54.6	55.6	55.0	58.2	58.1	59.8	57.5	53.9	48.0	48.6	52.9	49.6	59.5	60.0	66.4	60.0	66.4	69.1	69.9	66.6	68.9	58.19	69.86																							
12-Dec	78.3	80.0	77.3	74.7	77.4	75.4	81.2	84.3	89.0	89.2	82.3	81.0	71.6	70.4	65.2	63.3	74.3	84.1	89.1	91.9	84.6	83.8	88.1	89.7	80.26	91.94																							
13-Dec	89.6	89.0	89.9	91.0	90.2	91.5	91.2	91.2	92.1	92.9	91.4	89.6	82.5	80.0	71.1	70.2	69.9	65.3	74.6	79.1	77.0	79.2	78.2	78.0	83.11	92.93																							
14-Dec	81.3	81.3	80.3	80.8	81.4	80.0	79.7	79.3	77.5	76.2	71.9	69.2	65.7	62.3	55.9	58.5	75.4	82.3	86.8	87.0	84.1	86.7	89.4	84.9	77.42	89.40																							
15-Dec	87.8	88.2	89.9	88.9	89.3	89.2	91.1	90.9	90.4	89.5	82.7	80.3	75.9	73.9	70.1	71.7	80.9	83.6	86.6	90.0	90.8	91.7	89.5	90.7	85.56	91.71																							
16-Dec	89.9	89.3	89.4	90.1	89.2	89.2	89.6	89.2	87.1	84.3	81.3	79.8	78.4	81.8	80.0	81.2	87.4	88.9	90.6	90.5	89.1	90.9	90.3	90.2	87.00	90.88																							
17-Dec	90.5	90.6	91.8	91.3	90.3	91.4	91.4	93.1	92.4	91.5	91.0	90.1	90.0	86.3	78.1	75.2	82.2	86.1	85.3	87.0	85.5	83.3	83.9	85.2	87.64	93.13																							
18-Dec	84.7	83.5	86.6	86.5	86.4	86.5	84.0	80.1	82.3	70.9	77.0	79.0	77.5	72.5	66.7	68.0	79.9	87.4	88.8	89.1	83.8	75.8	84.7	89.5	81.30	89.50																							
19-Dec	84.9	85.7	85.7	82.8	81.9	85.3	88.0	90.1	88.6	89.5	79.0	77.2	81.4	82.1	82.0	83.0	83.3	79.6	77.0	76.4	80.1	82.3	77.3	81.9	82.71	90.08																							
20-Dec	85.2	82.6	77.7	83.7	84.5	88.3	90.1	81.4	64.6	63.7	58.3	58.1	60.0	57.1	53.4	52.4	56.3	57.8	57.7	66.2	68.3	64.0	65.1	64.8	68.39	90.06																							
21-Dec	77.7	79.7	80.5	84.5	85.8	85.5	87.1	88.2	88.1	86.3	82.7	80.4	79.0	81.8	83.9	77.6	77.5	78.6	80.2	81.6	85.0	84.8	82.7	81.4	82.52	88.17																							
22-Dec	80.7	78.8	76.9	76.7	76.1	75.3	74.1	69.5	66.0	65.8	65.0	64.2	64.5	64.0	62.6	63.6	69.7	70.8	66.6	65.1	65.9	64.5	65.1	60.7	68.83	80.74																							
23-Dec	59.9	56.6	61.2	63.2	63.6	65.7	69.7	69.6	63.8	58.4	57.1	54.7	59.6	53.4	54.6	55.2	56.9	59.3	55.2	60.8	63.6	62.0	65.3	63.8	60.54	69.68																							
24-Dec	64.1	66.0	67.8	71.6	71.7	75.4	68.4	70.0	73.0	68.4	68.5	66.7	64.4	65.0	67.9	73.3	80.1	85.9	90.9	90.5	90.6	90.3	89.9	90.9	75.47	90.93																							
25-Dec	91.0	91.2	91.3	90.9	91.6	91.2	91.1	90.8	90.4	90.3	90.1	89.0	86.5	88.0	87.4	89.5	91.1	90.5	92.1	91.1	90.3	86.2	86.6	87.6	89.82	92.09																							
26-Dec	90.7	91.3	92.2	91.3	90.0	88.6	87.6	88.3	88.6	85.4	81.3	82.5	80.1	78.1	78.5	78.6	80.4	81.4	81.2	81.9	82.5	82.5	83.4	83.3	84.57	92.19																							
27-Dec	82.6	79.6	82.0	84.0	82.7	80.5	77.7	82.2	85.2	84.1	80.9	75.0	70.2	68.2	69.7	77.1	85.8	91.3	93.0	92.3	91.9	91.7	91.4	91.3	82.93	92.96																							
28-Dec	91.0	90.7	90.1	89.5	89.2	89.3	89.3	89.4	89.5	89.5	89.5	89.4	89.3	89.0	88.6	88.2	88.0	87.8	86.6	85.9	85.2	84.5	84.2	83.2	88.19	90.97																							
29-Dec	82.5	82.0	81.7	80.5	80.8	77.8	79.0	79.5	78.6	78.1	77.4	76.1	75.1	74.2	72.2	70.4	78.7	82.8	80.8	81.0	80.2	80.1	80.1	78.8	78.69	82.82																							
30-Dec	77.0	75.4	74.3	72.7	73.8	72.7	71.2	71.8	70.3	68.8	71.5	66.6	59.2	48.0	49.5	47.8	47.6	43.5	45.8	46.6	44.5	44.5	46.2	48.2	59.89	76.98																							
31-Dec	47.9	46.6	44.8	43.2	42.2	37.8	37.1	37.4	42.9	44.0	43.9	43.5	42.4	45.5	47.7	49.7	54.4	52.0	52.9	57.3	61.3	62.4	64.0	65.4	48.61	65.40																							
																								79.36	78.30	78.94	79.67	79.78	79.72	79.01	78.51	78.31	76.97	74.79	73.13	71.10	69.97	68.45	69.40	74.28	76.70	77.00	77.79	77.91	77.48	77.60	78.23	Diurnal Average	
																								92.38	91.31	92.19	91.78	93.59	93.12	91.42	93.13	92.39	92.93	91.38	90.11	90.01	88.96	89.09	89.50	91.12	94.02	94.71	94.49	92.16	91.75	92.26	91.28	Diurnal Maximum	



WCAS - Violet Grove
Summary of Hourly Averages

Global Solar Radiation (GSR) - W/m2
December 2014

Maximum Value: 385.28 W/m2 on Dec 15 13:00 Maximum Daily Average: 67.62 W/m2 on Dec 15																							Hours in Service:	744		
Minimum Value: 0.0 W/m2 on Dec 1 01:00 Minimum Daily Average: 9.66 W/m2 on Dec 6																							Hours of Data:	744		
Maximum Diurnal Average: 151.84 W/m2 at hour 13 Minimum Diurnal Average: 0.00 W/m2 at hour 1																							Hours of Missing Data:	0		
Monthly Average: 29.438 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 29.5 P ₉₀ = 120.7 P ₉₉ = 239.5																							Hours of Calibration:	0		
																							Percent Operational Time:	100.0		
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	41.7	83.5	142.6	161.9	120.7	139.6	50.2	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.24	161.92
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	62.5	149.4	201.5	290.9	150.5	94.4	35.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.40	290.93
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	63.0	147.6	214.3	239.2	210.9	154.1	67.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.95	239.17
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	91.5	223.2	120.8	132.3	113.2	74.7	23.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.63	223.21
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	46.3	101.0	179.5	179.5	144.7	80.5	35.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.24	179.48
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	18.7	31.8	37.7	52.2	40.7	27.5	14.5	2.3	0.2	1.4	2.9	1.0	0.0	0.0	0.0	9.66	52.17
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	109.1	219.1	239.0	268.8	253.7	130.0	81.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.32	268.83
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	34.5	109.5	82.5	73.8	121.4	140.5	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.13	140.48
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	15.5	47.5	81.7	104.2	120.6	130.1	81.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.40	130.09
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1	45.4	56.1	101.0	104.3	79.6	52.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.95	104.31
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8	125.8	189.3	151.4	128.7	90.0	20.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.32	189.31
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	45.3	145.3	183.3	172.0	122.3	64.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.03	183.26
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9	67.3	93.9	133.1	177.3	123.8	46.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.85	177.31
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.8	118.8	179.3	203.2	185.6	122.3	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.22	203.19
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.5	212.3	292.3	385.3	318.9	217.5	93.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.62	385.28
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.6	173.3	226.6	235.2	237.9	206.5	68.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.00	237.94
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	54.1	176.3	220.5	251.8	241.4	87.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.65	251.83
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8	56.8	212.3	131.3	278.0	190.3	82.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.86	277.99
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5	72.8	157.2	61.7	55.9	30.3	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.14	157.19
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.1	90.5	107.3	166.0	120.7	68.9	41.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.94	165.98
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.5	92.6	103.0	158.7	78.6	35.8	19.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.56	158.71
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	61.5	87.1	102.1	82.3	85.6	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.98	102.13
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	46.3	81.1	81.4	61.2	35.3	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.75	81.36
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.2	53.3	67.5	93.4	82.4	54.3	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.80	93.44
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	37.1	74.1	68.9	46.9	35.4	17.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.23	74.08
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	33.5	45.9	57.1	59.1	41.6	23.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.35	59.07
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.1	56.9	169.4	238.7	214.1	163.4	70.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.22	238.70
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	22.6	43.3	57.6	83.0	65.4	27.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.76	82.96
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	55.7	101.7	121.4	122.2	125.3	73.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.71	125.27
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	70.9	81.2	63.9	67.4	74.4	30.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.86	81.17
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	122.1	168.8	189.0	139.9	73.3	35.6	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.87	189.02
																							Diurnal Average			
																							Diurnal Maximum			



WCAS - Violet Grove
Summary of Hourly Averages

Precipitation (PR) - mm
December 2014

Maximum Value: 101.60 mm on Dec 6 20:00		Maximum Daily Total: 127.00 mm on Dec 6		Hours in Service: 744																							
Minimum Value: 0.0 mm on Dec 1 01:00		Minimum Daily Total: 0.00 mm on Dec 1		Hours of Data: 744																							
Maximum Diurnal Total: 101.60 mm at hour 20		Minimum Diurnal Total: 0.00 mm at hour 1		Hours of Missing Data: 0																							
Monthly Total: 177.80 mm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Total	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
4-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	0.0	0.00	0.00
5-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	0.0	0.00	0.00
6-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	101.6	25.4	0.0	0.0	0.0	127.00	101.60	
7-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	0.0	0.00	0.00
8-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	0.0	0.00	0.00
9-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	0.0	0.00	0.00
10-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	0.0	0.00	0.00
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	0.0	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
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	0.0	0.0	0.00	0.00
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	0.0	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
14-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	0.0	0.00	0.00
15-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	0.0	0.00	0.00
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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
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	0.0	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
21-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	0.0	0.00	0.00
22-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	0.0	0.00	0.00
23-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	0.0	0.00	0.00
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	0.0	25.40	25.40
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	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.40	25.40
26-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	0.0	0.00	0.00
27-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	0.0	0.00	0.00
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
29-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	0.0	0.00	0.00
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
31-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	0.0	0.00	0.00
																								Diurnal Average			
																								Diurnal Maximum			



WCAS - Violet Grove
Summary of Hourly Averages

Photosynthetically Active Radiation (PAR) - W/m2
December 2014

Maximum Value: 104.41 W/m2 on Dec 2 13:00 Maximum Daily Average: 21.98 W/m2 on Dec 7																						Hours in Service:	744			
Minimum Value: 0.0 W/m2 on Dec 2 01:00 Minimum Daily Average: 3.73 W/m2 on Dec 6																						Hours of Data:	744			
Maximum Diurnal Average: 54.00 W/m2 at hour 13 Minimum Diurnal Average: 0.42 W/m2 at hour 2																						Hours of Missing Data:	0			
Monthly Average: 10.862 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 11.6 P ₉₀ = 42.1 P ₉₉ = 82.9																						Hours of Calibration:	0			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.3	1.7	2.3	2.3	2.3	2.3	2.4	2.3	4.2	18.5	34.9	57.7	65.0	50.1	60.1	26.1	5.2	2.9	2.9	2.7	2.8	2.8	2.8	2.7	14.96	65.01
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	22.9	54.7	73.3	104.4	52.9	32.5	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.69	104.41
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	24.5	58.4	83.8	92.5	82.6	62.0	27.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.07	92.52
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	67.4	44.3	47.4	40.6	28.0	11.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.02	67.37
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	31.8	50.9	56.4	49.3	31.5	13.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.24	56.40
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	12.2	15.8	22.2	17.6	11.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.73	22.20
7-Dec	2.9	2.4	2.9	2.9	2.9	2.9	2.9	2.9	4.6	27.9	64.1	88.2	99.3	99.4	58.1	37.6	5.5	2.9	3.0	2.9	2.9	2.9	2.7	2.8	21.98	99.42
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	40.6	30.2	27.2	44.9	50.6	23.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.57	50.59
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	16.8	29.6	37.0	43.6	49.0	32.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.94	48.99
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	16.4	20.8	37.6	38.0	28.0	19.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.87	38.03
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1	54.5	79.9	67.4	57.5	43.3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.79	79.89
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	18.1	55.0	73.8	70.0	51.0	28.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.60	73.75
13-Dec	2.9	2.4	2.8	2.7	2.7	2.9	2.8	2.9	3.6	14.4	30.5	40.7	54.2	73.2	58.3	26.0	4.8	2.8	2.7	2.8	2.8	2.8	2.8	2.8	14.47	73.20
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	49.9	74.5	84.7	77.7	55.6	22.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.92	84.72
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	48.1	75.3	83.4	77.2	56.5	23.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.76	83.42
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	32.7	54.8	57.0	55.1	45.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.25	56.96
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	23.1	39.2	37.3	38.9	42.4	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.72	42.38
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	20.9	58.0	42.2	78.5	56.1	23.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.02	78.54
19-Dec	2.4	2.1	2.4	2.4	2.4	2.4	2.5	2.4	3.2	10.6	30.4	62.0	32.6	29.5	17.8	10.3	3.8	2.4	2.5	2.5	2.6	2.5	2.5	2.5	9.87	62.01
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	32.7	39.9	66.2	47.3	25.6	14.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.10	66.24
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	34.7	39.5	63.9	31.2	13.9	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.31	63.90
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	22.7	32.5	37.8	30.9	34.6	12.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.34	37.84
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	17.0	30.4	31.3	23.6	13.5	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.16	31.31
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	19.9	25.8	35.9	31.8	21.2	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.36	35.91
25-Dec	2.7	2.3	2.6	2.7	2.7	2.7	2.7	2.6	2.9	7.7	16.5	31.5	30.5	21.0	17.2	9.9	3.7	2.6	2.6	2.7	2.7	2.6	2.7	2.6	7.50	31.50
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	10.6	15.5	19.8	23.2	19.8	10.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.27	23.16
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	35.1	72.3	86.6	77.6	59.3	25.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.32	86.61
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	9.2	19.1	25.2	35.8	27.5	11.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.40	35.77
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	22.2	40.3	47.5	46.5	47.1	29.5	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.04	47.49
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	26.3	31.3	25.1	26.2	27.6	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.28	31.27
31-Dec	2.4	2.1	2.4	2.5	2.4	2.4	2.5	2.4	2.9	17.3	55.2	75.4	82.5	61.5	33.0	18.1	5.5	2.4	2.4	2.4	2.5	2.4	2.5	2.5	16.15	82.50
																								Diurnal Average		
																								Diurnal Maximum		



WCAS - Violet Grove
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 5.93 kph on Dec 21 17:00 Maximum Daily Average: 3.30 kph on Dec 9																	Hours in Service: 744 Hours of Data: 744									
Minimum Value: 0.3 kph on Dec 16 18:00 Minimum Daily Average: 1.33 kph on Dec 4 Maximum Diurnal Average: 2.39 kph at hour 4 Minimum Diurnal Average: 1.98 kph at hour 15 Monthly Average: 2.194 kph Percentiles: P ₁ = 0.7 P ₁₀ = 1.2 Q ₁ = 1.5 Median = 2.1 Q ₃ = 2.7 P ₉₀ = 3.5 P ₉₉ = 4.6																	Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.8	3.9	2.6	2.2	4.1	2.9	2.3	1.0	1.4	1.7	1.8	1.9	3.4	0.6	2.2	2.8	2.0	1.1	2.7	2.0	3.0	3.7	1.9	2.3	2.35	4.11
2-Dec	2.1	1.9	2.2	2.1	1.9	3.5	2.0	1.7	1.5	1.6	2.3	2.6	2.0	1.6	2.7	2.1	1.5	1.5	1.5	1.8	2.5	2.8	3.9	4.6	2.25	4.57
3-Dec	3.7	3.3	3.4	3.0	3.6	3.1	2.7	2.2	2.0	2.5	1.5	2.4	2.6	2.3	2.1	2.4	1.9	1.4	1.1	1.4	2.3	1.8	1.6	2.5	2.36	3.74
4-Dec	1.7	1.2	1.6	1.9	1.5	1.9	1.3	1.4	1.0	1.1	1.6	1.2	2.1	1.9	0.9	0.9	1.1	0.9	1.1	1.8	0.8	1.4	0.8	0.7	1.33	2.15
5-Dec	0.9	1.3	1.0	1.7	1.7	0.9	1.1	1.1	1.6	1.3	1.3	2.6	1.0	0.9	2.9	1.6	1.6	1.7	2.7	3.7	1.0	1.8	1.9	1.6	1.62	3.69
6-Dec	2.3	2.4	2.1	2.8	2.9	2.4	2.5	1.3	1.4	2.2	1.4	1.7	0.9	1.9	1.1	1.4	2.9	1.4	1.4	1.2	1.8	2.3	1.7	1.7	1.88	2.94
7-Dec	1.8	1.6	1.6	2.3	2.0	4.0	3.3	2.4	2.0	1.6	1.4	1.4	1.5	2.3	1.6	1.0	2.3	1.3	1.3	0.9	1.2	2.0	2.4	2.5	1.91	4.03
8-Dec	2.3	2.6	2.5	2.1	2.4	1.9	1.7	2.6	5.5	2.8	3.0	2.7	3.2	2.8	2.6	2.1	2.6	2.1	3.9	2.8	2.4	1.8	2.5	4.0	2.70	5.50
9-Dec	2.9	2.3	2.4	3.7	1.6	2.5	2.7	4.4	3.4	3.2	3.7	5.5	3.9	3.5	3.1	4.0	3.8	3.2	2.6	4.9	2.6	4.3	3.0	1.9	3.30	5.52
10-Dec	3.2	1.8	3.6	3.3	2.0	3.4	3.6	4.2	2.4	2.1	3.5	3.5	3.6	3.1	3.0	4.3	2.8	2.6	2.2	1.9	3.0	2.3	2.7	3.2	2.98	4.32
11-Dec	4.1	4.8	3.1	3.1	3.6	4.7	3.7	3.4	2.7	2.8	3.2	2.5	2.9	2.2	1.7	3.0	2.8	1.8	3.6	2.2	2.7	3.3	2.6	3.6	3.08	4.80
12-Dec	2.2	5.4	2.4	4.4	5.7	5.2	4.7	2.8	2.8	2.8	2.4	2.3	3.5	1.9	1.9	2.9	2.1	2.1	1.9	3.5	1.1	2.6	2.1	1.7	2.94	5.75
13-Dec	1.8	2.7	3.1	1.7	1.1	1.2	1.8	1.4	2.0	1.3	1.1	1.1	0.8	1.0	0.9	1.0	1.4	3.6	1.5	0.7	0.6	2.3	1.4	1.4	1.54	3.63
14-Dec	1.1	1.1	0.8	1.7	1.2	1.3	1.6	1.5	2.2	1.7	1.6	1.6	1.1	1.3	1.7	1.1	1.6	0.7	1.9	0.9	0.9	1.5	1.6	1.6	1.35	2.18
15-Dec	1.2	1.4	1.2	1.5	1.4	1.7	1.0	1.3	2.1	2.0	1.8	2.3	2.3	2.2	2.1	1.6	1.5	1.3	1.0	1.5	2.1	3.0	2.7	2.0	1.75	2.97
16-Dec	2.2	2.7	2.2	1.9	3.2	1.7	1.2	1.8	1.1	1.3	1.0	0.3	0.7	1.2	2.1	2.5	1.7	0.3	2.4	2.6	1.1	1.9	1.7	1.7	1.69	3.17
17-Dec	1.5	1.6	2.1	1.5	1.3	2.2	1.2	1.5	2.0	1.7	1.9	1.7	2.1	2.1	1.3	1.8	1.4	1.4	2.1	2.2	1.7	2.7	2.2	1.4	1.77	2.69
18-Dec	2.0	2.6	1.9	2.4	2.1	2.1	4.3	4.8	3.2	2.4	4.3	2.4	0.9	2.5	1.0	1.3	1.5	2.7	2.0	1.7	3.3	2.7	2.2	2.3	2.45	4.84
19-Dec	2.0	3.4	2.3	3.1	3.1	1.9	1.2	2.4	1.9	1.5	2.1	2.1	2.0	1.1	1.2	2.2	2.1	2.2	2.7	2.1	2.6	2.1	1.6	2.0	2.13	3.38
20-Dec	2.9	3.1	4.8	3.2	1.5	2.7	2.3	3.8	2.1	2.4	2.3	2.5	2.4	2.5	2.2	2.5	1.8	2.0	2.3	3.2	2.6	2.2	2.1	4.7	2.67	4.77
21-Dec	2.0	1.8	3.5	3.8	2.9	2.6	2.5	1.8	1.5	2.1	2.1	2.6	1.8	1.6	4.1	4.3	5.9	4.8	3.3	4.2	0.7	1.6	1.3	1.6	2.69	5.93
22-Dec	1.6	1.6	1.4	1.6	1.2	1.5	1.9	1.9	1.5	1.2	1.8	2.1	1.3	1.9	1.3	1.3	1.8	2.3	1.2	2.4	3.3	1.7	1.6	1.8	1.72	3.32
23-Dec	1.6	1.4	1.8	3.3	2.5	3.0	2.4	1.9	2.4	2.4	2.7	2.7	2.1	2.2	1.5	2.5	3.7	3.7	4.2	2.0	2.6	1.9	1.5	1.6	2.40	4.17
24-Dec	2.0	2.2	2.2	1.7	1.2	1.5	2.3	1.3	1.7	2.1	1.3	1.4	1.9	1.6	1.2	2.8	3.7	1.8	2.2	1.7	2.0	2.5	2.0	1.8	1.92	3.66
25-Dec	1.5	1.7	1.3	1.3	1.1	0.9	0.9	1.3	1.0	1.4	1.5	1.4	1.5	1.6	1.5	1.4	1.1	1.3	2.7	1.5	2.4	2.5	1.7	1.1	1.49	2.74
26-Dec	0.7	0.6	1.4	1.4	1.4	1.6	1.2	0.9	1.1	1.7	2.3	1.8	1.8	1.8	1.4	2.0	1.4	2.0	1.8	1.8	1.7	1.7	2.4	2.5	1.61	2.47
27-Dec	1.8	2.4	2.2	2.0	1.7	1.5	1.3	1.8	1.5	1.7	1.3	1.4	2.1	1.8	1.2	1.8	1.4	2.4	2.8	2.1	2.5	2.0	1.5	1.8	1.84	2.79
28-Dec	1.3	2.1	2.1	2.1	2.6	2.6	1.6	1.3	1.1	1.6	1.7	1.9	1.7	3.0	2.9	2.2	1.8	3.9	2.8	3.0	2.8	3.5	2.7	2.6	2.29	3.91
29-Dec	2.7	2.4	2.4	2.4	3.5	1.9	2.4	2.7	2.2	1.9	2.3	2.1	1.8	1.8	1.7	0.9	1.0	1.3	1.3	1.5	2.5	2.2	2.2	2.7	2.07	3.49
30-Dec	2.6	2.9	2.9	3.0	3.1	3.3	3.2	3.3	3.4	4.8	2.5	3.4	3.4	4.1	4.1	3.7	3.2	3.6	3.6	2.4	2.4	2.7	3.4	2.9	3.24	4.78
31-Dec	3.1	3.9	2.8	2.0	2.0	2.0	2.3	3.3	3.4	3.4	3.5	1.9	2.8	1.9	2.0	2.1	2.0	3.7	3.2	3.4	2.7	2.1	2.0	3.0	2.69	3.92
																								Diurnal Average		
																								Diurnal Maximum		
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																										



WCAS - Violet Grove
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 93.98 deg on Dec 6 08:00		Maximum Daily Average: 35.52 deg on Dec 12		Hours in Service: 744																							
Minimum Value: 3.5 deg on Dec 14 05:00		Minimum Daily Average: 9.73 deg on Dec 4		Hours of Data: 744																							
Maximum Diurnal Average: 21.57 deg at hour 13		Minimum Diurnal Average: 13.35 deg at hour 11		Hours of Missing Data: 0																							
Monthly Average: 17.464 deg		Percentiles: P ₁ = 5.1 P ₁₀ = 7.4 Q ₁ = 8.9 Median = 11.5 Q ₃ = 18.8 P ₉₀ = 37.2 P ₉₉ = 83.1		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	7.9	13.2	12.4	21.6	50.4	45.5	38.6	22.9	13.3	13.0	11.2	5.6	58.1	43.5	53.9	51.9	12.7	16.1	11.8	8.3	23.2	35.0	10.1	11.7	24.66	58.12	
2-Dec	8.0	6.8	6.6	6.9	10.0	23.2	12.5	17.1	11.6	9.1	8.9	9.0	12.8	9.6	10.7	12.6	12.6	8.8	19.8	10.0	9.3	10.9	10.9	11.6	11.22	23.21	
3-Dec	12.2	10.7	10.6	10.1	8.9	21.4	12.8	10.0	10.9	10.9	13.6	19.1	9.8	12.6	11.7	12.7	11.4	8.3	6.5	9.6	9.6	12.7	12.4	5.7	11.41	21.43	
4-Dec	5.0	5.5	10.6	10.8	5.2	6.6	7.3	22.1	6.7	7.2	9.8	30.5	17.1	8.1	9.2	7.9	11.8	5.1	5.9	8.5	6.4	10.3	7.0	8.9	9.73	30.54	
5-Dec	7.4	4.8	9.9	17.7	11.5	8.3	13.1	7.2	20.7	24.5	16.0	13.5	11.4	6.2	10.7	5.3	6.0	8.8	17.1	34.4	28.8	13.4	18.1	10.4	13.56	34.43	
6-Dec	23.5	15.0	18.3	22.3	25.1	44.5	22.6	94.0	47.7	27.0	16.6	66.7	20.6	21.5	14.4	12.2	55.7	7.7	15.2	18.8	34.8	20.6	8.0	9.0	27.56	93.98	
7-Dec	11.0	9.1	8.1	11.0	55.6	13.6	12.8	8.6	10.1	7.3	5.4	7.2	9.4	14.6	7.6	6.4	64.7	10.9	8.8	14.4	7.4	9.9	9.7	8.3	13.83	64.68	
8-Dec	11.2	9.0	9.9	16.6	26.3	13.9	43.7	30.5	17.3	17.0	17.0	24.2	50.9	92.1	15.8	18.3	19.4	61.4	13.3	9.3	8.5	11.0	9.2	88.3	26.42	92.11	
9-Dec	9.7	10.1	12.3	63.6	9.2	8.7	9.6	10.5	11.4	8.4	9.4	24.8	10.1	11.5	13.1	9.9	9.7	9.9	9.2	12.8	11.8	18.6	11.3	39.5	14.79	63.63	
10-Dec	63.2	12.2	10.5	12.5	15.1	12.5	11.6	14.2	10.6	8.0	10.8	8.5	7.5	10.2	11.0	11.1	14.4	10.7	13.3	13.0	10.1	9.3	9.1	11.2	13.35	63.20	
11-Dec	14.6	14.1	10.3	12.1	30.5	28.8	18.8	12.7	14.8	11.7	10.3	10.0	47.3	44.0	31.8	8.9	8.5	7.3	9.8	10.3	11.9	12.2	10.9	12.8	16.84	47.28	
12-Dec	34.3	32.7	9.3	47.6	14.9	17.9	49.3	58.5	71.1	68.1	31.1	28.5	42.8	23.2	12.1	50.8	32.6	23.1	47.4	15.1	7.0	39.9	63.1	32.2	35.52	71.11	
13-Dec	43.0	24.8	10.8	12.0	7.6	5.6	7.2	7.7	8.8	4.5	4.7	4.4	5.7	8.5	11.9	7.8	6.8	28.2	8.1	9.9	7.1	10.4	5.9	7.7	10.80	42.98	
14-Dec	9.4	4.4	7.8	7.8	3.5	5.7	7.3	5.4	7.2	5.9	5.8	9.1	9.7	9.7	31.2	28.2	10.5	8.2	16.2	13.5	13.3	10.8	7.7	12.2	10.45	31.21	
15-Dec	9.1	11.2	7.9	9.4	14.2	18.0	9.9	8.2	19.8	42.4	9.0	9.0	13.0	29.8	21.5	20.6	18.6	7.4	12.3	13.6	13.3	23.0	12.7	11.1	15.20	42.41	
16-Dec	9.9	28.4	14.2	11.2	11.2	12.9	10.3	12.2	53.9	93.4	17.9	81.7	55.0	13.2	59.8	74.9	19.8	65.8	12.9	28.1	91.0	13.5	16.1	10.3	34.07	93.39	
17-Dec	10.9	14.3	13.9	79.5	21.5	36.4	14.4	19.3	19.8	17.3	15.2	20.1	22.1	27.5	32.7	18.6	26.7	25.1	19.4	38.2	6.6	8.5	8.2	9.2	21.90	79.52	
18-Dec	11.9	21.9	17.9	17.7	38.8	13.4	34.3	25.0	30.2	9.1	42.0	36.2	89.0	68.2	53.2	69.3	8.9	57.3	40.2	9.3	30.6	19.1	53.3	22.6	34.13	88.96	
19-Dec	15.0	35.0	85.6	19.8	31.3	56.8	75.0	39.6	57.2	22.6	31.1	35.3	25.1	15.8	15.4	72.6	43.7	21.5	25.9	17.6	33.4	19.6	11.2	25.7	34.65	85.58	
20-Dec	16.9	10.6	15.4	17.1	12.2	22.3	52.7	17.1	7.2	8.7	8.3	11.5	9.5	11.1	6.8	6.6	6.7	8.2	8.0	15.7	12.7	8.1	7.0	51.2	14.65	52.69	
21-Dec	28.4	32.7	58.6	31.2	16.3	12.3	32.5	73.4	38.8	19.3	8.1	11.7	12.5	11.4	9.2	8.1	8.9	11.5	13.2	24.5	8.4	6.7	8.1	8.2	20.59	73.37	
22-Dec	6.6	8.5	5.9	9.1	5.7	9.1	8.3	13.1	13.9	6.6	8.4	7.7	8.3	8.3	10.1	9.9	20.6	20.5	9.5	20.1	15.3	6.5	8.6	8.7	10.39	20.60	
23-Dec	8.3	12.6	9.5	11.7	10.1	28.1	26.5	14.5	10.6	9.2	9.1	11.1	17.6	10.6	14.0	7.3	43.4	20.5	39.1	24.3	22.8	7.5	37.7	17.0	17.63	43.37	
24-Dec	9.8	10.0	9.7	12.8	6.7	8.1	12.8	7.0	8.0	13.5	9.9	7.5	16.0	11.5	12.7	15.5	8.5	17.0	14.0	24.3	12.0	12.1	9.5	17.8	11.95	24.29	
25-Dec	11.3	11.5	15.0	10.0	10.5	11.4	18.4	12.6	20.5	14.1	17.4	7.2	25.0	39.3	51.7	25.3	19.4	6.9	26.7	15.3	8.9	15.2	11.4	16.4	17.56	51.69	
26-Dec	7.9	9.1	10.0	8.0	13.0	11.6	8.6	5.6	9.3	14.6	14.3	19.8	11.8	10.7	10.8	9.4	7.8	9.3	8.7	8.9	8.8	8.1	16.1	10.6	10.54	19.81	
27-Dec	10.8	22.2	26.2	14.1	7.8	7.4	8.0	7.9	7.8	12.1	13.4	70.9	15.3	14.4	8.0	13.9	7.3	10.3	10.9	16.9	20.2	19.9	16.3	12.1	15.60	70.91	
28-Dec	17.6	16.1	13.1	16.1	15.6	12.3	11.2	7.5	8.8	9.4	7.8	8.1	7.3	25.3	11.1	8.7	10.6	14.8	9.0	9.4	10.1	8.7	8.2	7.1	11.40	25.26	
29-Dec	8.0	6.9	7.7	12.3	17.3	15.6	8.6	10.2	7.5	8.2	8.7	10.5	8.5	7.5	12.8	18.6	11.1	8.5	8.7	7.6	9.0	8.8	9.3	9.9	10.09	18.61	
30-Dec	8.6	9.3	8.9	9.9	9.3	8.3	9.9	9.7	10.7	28.1	13.6	7.7	9.1	9.5	7.5	7.6	7.8	8.0	9.3	6.8	9.9	8.3	10.3	8.4	9.85	28.10	
31-Dec	7.8	8.5	10.0	7.8	8.9	6.7	11.9	9.2	7.1	11.0	9.2	12.7	10.5	12.0	10.1	10.9	54.7	6.9	6.8	7.1	5.8	9.4	11.0	10.1	11.08	54.67	
		14.81	14.23	15.38	18.40	16.90	17.65	20.01	19.79	19.13	18.14	13.35	20.32	21.57	20.69	19.10	20.70	19.39	17.22	15.39	15.34	16.39	13.81	14.46	16.96	Diurnal Average	
		63.20	35.00	85.58	79.52	55.56	56.82	74.95	93.98	71.11	93.39	41.99	81.70	88.96	92.11	59.79	74.92	64.68	65.78	47.39	38.21	91.03	39.92	63.12	88.26	Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																											

**CARROT CREEK
STATION #903**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

WCAS / Carrot Creek Station 903		December 2014											
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	P10	Q1	Percentile Median	Q3	P90	24 Hour Average Max (ppm)
SO ₂ (ppb)	36	708	100.0	0.3	-	0.0	4.7	0.0	0.1	0.2	0.4	0.6	0.001
O ₃ (ppb)	36	708	100.0	15.0	-	0.0	39.6	0.6	2.3	13.8	25.3	32.0	0.034
NO (ppb)	37	707	100.0	8.7	-	0.0	77.0	0.0	0.1	2.0	13.3	25.9	-
NO ₂ (ppb)	37	707	100.0	11.8	-	0.9	33.7	3.0	5.8	10.7	17.3	21.9	0.022
NO _x (ppb)	37	707	100.0	20.6	-	0.9	104.4	3.3	6.2	12.8	31.4	44.6	-
Wind Speed (kph)	0	744	100.0	5.3	-	0.0	30.9	0.6	1.5	4.0	8.1	11.7	-
Temperature (°C)	0	744	100.0	-8.7	-	-26.0	9.1	-17.2	-13.7	-8.2	-4.0	-1.1	-
Relative Humidity (%)	0	744	100.0	83.5	-	43.5	98.0	66.2	79.1	87.0	91.1	94.3	-
Photosynthetically Active Radiation (W/m ²)	0	744	100.0	10.9	-	0.0	121.4	0.0	0.0	0.0	10.1	39.8	-
Precipitation (mm)	0	744	100.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Std Dev Wind Direction (deg)	0	744	100.0	29.8	-	3.8	104.3	8.2	12.1	20.3	40.8	70.7	-
Std Dev Wind Speed (kph)	0	744	100.0	1.9	-	0.0	6.9	1.0	1.4	1.8	2.4	3.1	-



WCAS - Carrot Creek
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 4.67 ppb on Dec 11 23:00		Maximum Daily Average: 0.79 ppb on Dec 11		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 3 02:00		Minimum Daily Average: 0.07 ppb on Dec 22		Hours of Data: 708																							
Maximum Diurnal Average: 0.40 ppb at hour 13		Minimum Diurnal Average: 0.21 ppb at hour 8		Hours of Missing Data: 36																							
Monthly Average: 0.286 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 1.0		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.2	0.3	0.5	Z	0.5	0.5	0.6	0.6	0.8	0.7	0.3	0.4	0.5	0.8	0.7	0.5	0.4	0.2	0.2	0.1	0.2	0.8	0.4	0.2	0.44	0.76	
2-Dec	0.2	0.2	0.4	Z	0.5	0.6	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.15	0.65	
3-Dec	0.1	0.0	0.1	Z	0.3	0.3	0.3	0.5	0.7	0.9	0.7	1.4	1.7	1.1	0.7	0.5	0.5	0.6	0.3	0.2	0.3	0.3	0.5	0.7	0.55	1.66	
4-Dec	0.6	0.6	0.5	Z	0.5	0.8	0.6	0.5	0.8	0.7	0.4	0.4	0.6	0.6	0.4	0.4	0.7	0.4	0.2	0.2	0.2	0.2	0.3	0.47	0.81		
5-Dec	0.3	0.2	0.2	Z	0.3	0.4	0.5	0.3	0.4	0.2	0.4	0.3	0.3	0.2	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.27	0.45	
6-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.6	0.8	0.8	0.8	0.8	0.4	0.3	0.5	0.3	0.3	0.34	0.78	
7-Dec	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.4	0.4	0.2	0.3	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.2	0.25	0.60	
8-Dec	0.2	0.2	0.2	Z	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.5	0.3	0.2	0.2	0.2	0.5	0.4	0.5	0.5	0.31	0.69	
9-Dec	0.3	0.3	0.2	Z	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.1	0.1	0.2	0.2	0.20	0.41	
10-Dec	0.1	0.1	0.1	Z	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.13	0.26	
11-Dec	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.2	0.1	0.7	0.6	0.2	0.3	0.4	0.2	0.2	0.2	0.2	1.0	1.6	0.9	2.9	4.7	3.0	0.79	4.67	
12-Dec	1.2	0.5	0.3	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.0	C	C	C	C	C	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.23	1.17	
13-Dec	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.4	0.4	0.4	0.5	0.4	0.2	0.2	0.1	0.2	0.2	0.3	0.5	0.21	0.61	
14-Dec	0.5	0.5	0.6	Z	0.6	0.7	0.9	0.8	0.7	0.8	0.6	0.6	0.8	1.0	0.9	1.0	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.0	0.57	1.04	
15-Dec	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.4	0.4	0.2	0.2	0.1	0.2	0.17	0.47	
16-Dec	0.1	0.1	0.2	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.13	0.27	
17-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.4	0.6	0.4	0.4	0.5	0.5	0.5	0.32	0.59	
18-Dec	0.5	0.4	0.4	Z	0.4	0.3	0.2	0.2	0.2	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.6	0.7	0.5	0.6	0.5	0.4	0.4	0.37	0.69	
19-Dec	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.26	0.35	
20-Dec	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.6	0.4	0.4	0.3	0.3	0.19	0.57	
21-Dec	0.3	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.12	0.27	
22-Dec	0.0	0.0	0.1	Z	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.07	0.24	
23-Dec	0.2	0.4	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.3	0.2	0.2	0.3	0.11	0.36	
24-Dec	0.3	0.2	0.9	Z	0.4	0.2	0.1	0.0	0.1	0.2	0.5	0.3	0.3	0.2	0.4	0.5	0.3	0.1	0.1	0.0	0.0	0.1	0.4	0.25	0.93		
25-Dec	0.3	0.3	0.4	Z	0.4	0.4	0.3	0.2	0.2	0.4	0.5	0.7	0.7	0.5	0.5	0.1	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.0	0.32	0.74	
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.5	0.3	0.2	0.3	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.19	0.55	
27-Dec	0.3	0.3	0.6	Z	0.4	0.3	0.7	0.4	0.3	0.4	0.5	0.6	0.8	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.35	0.76	
28-Dec	0.1	0.1	0.0	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.14	0.39	
29-Dec	0.1	0.1	0.1	Z	0.4	0.2	0.1	0.1	0.5	0.5	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.19	0.49	
30-Dec	0.2	0.1	0.1	Z	0.0	0.0	0.2	0.1	0.2	0.3	0.4	0.5	0.3	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.19	0.50	
31-Dec	0.3	0.4	0.2	Z	1.0	0.9	0.8	0.4	0.9	0.7	0.5	0.8	1.1	0.4	0.3	0.2	0.0	0.4	0.8	0.4	0.7	0.9	0.5	0.3	0.56	1.08	
		0.24	0.21	0.24	--	0.25	0.24	0.24	0.21	0.25	0.30	0.29	0.37	0.40	0.37	0.34	0.30	0.24	0.26	0.31	0.27	0.25	0.33	0.36	0.32	Diurnal Average	
		1.17	0.60	0.93	--	1.02	0.94	0.86	0.76	0.85	0.88	0.70	1.42	1.66	1.13	0.95	1.03	0.78	0.76	1.04	1.64	0.90	2.90	4.67	2.97	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																											



WCAS - Carrot Creek
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2014

Maximum Value: 39.59 ppb on Dec 30 17:00		Maximum Daily Average: 33.98 ppb on Dec 31		Hours in Service: 744																									
Minimum Value: 0.0 ppb on Dec 12 22:00		Minimum Daily Average: 1.98 ppb on Dec 19		Hours of Data: 708																									
Maximum Diurnal Average: 20.01 ppb at hour 15		Minimum Diurnal Average: 11.85 ppb at hour 20		Hours of Missing Data: 36																									
Monthly Average: 14.979 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.6 Q ₁ = 2.3 Median = 13.8 Q ₃ = 25.3 P ₉₀ = 32.0 P ₉₉ = 37.3		Hours of Calibration: 36																									
				Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Dec	21.4	23.6	28.0	Z	27.9	24.0	26.9	26.0	27.9	26.6	19.9	16.2	19.2	31.4	32.1	24.2	8.5	3.5	2.7	8.6	20.1	28.2	23.4	12.2	20.98	32.05			
2-Dec	28.2	31.6	30.7	Z	33.3	34.3	32.6	28.2	32.4	33.2	33.5	34.0	35.2	36.0	35.5	34.7	25.5	18.8	22.9	23.7	26.0	22.8	23.0	16.2	29.23	35.97			
3-Dec	11.9	17.2	20.5	Z	26.5	26.8	28.2	25.1	26.5	30.0	30.0	29.4	30.7	32.5	31.2	26.6	27.2	24.1	25.0	21.1	20.5	18.9	18.0	25.2	24.91	32.51			
4-Dec	22.6	22.8	21.7	Z	20.5	20.1	20.0	8.6	6.3	17.5	20.3	23.8	24.8	25.2	26.4	21.4	21.7	17.1	4.3	4.4	10.4	7.3	14.5	11.8	17.11	26.36			
5-Dec	14.8	11.0	15.1	Z	12.8	16.3	15.3	11.0	4.7	6.5	5.8	13.1	11.8	11.5	11.0	12.9	6.3	3.5	3.8	2.6	1.6	0.3	0.4	0.3	8.36	16.32			
6-Dec	0.3	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.5	2.7	3.6	4.7	6.6	8.0	9.7	8.9	8.4	7.4	3.3	0.3	0.3	0.3	0.5	1.9	3.00	9.70			
7-Dec	10.2	15.4	16.2	Z	21.0	24.9	23.2	25.2	23.5	23.3	23.4	24.9	26.0	24.8	21.2	20.3	10.5	1.3	0.5	0.5	1.3	3.2	3.7	1.0	15.02	25.96			
8-Dec	0.5	0.4	0.4	Z	0.8	0.6	0.5	1.7	0.9	2.3	4.9	6.9	9.0	9.1	9.4	4.8	1.2	0.3	0.3	0.3	0.5	0.3	0.8	1.8	2.51	9.38			
9-Dec	0.7	0.4	0.5	Z	2.4	3.5	2.1	0.4	0.2	1.4	3.0	3.5	4.6	5.8	6.5	4.4	1.2	0.4	0.4	0.3	0.4	12.0	22.8	27.2	4.52	27.25			
10-Dec	32.0	28.1	18.8	Z	8.2	6.3	5.6	1.2	0.3	1.5	2.6	3.0	3.7	4.5	4.4	4.2	1.0	0.2	0.3	0.0	0.1	0.4	0.6	0.7	5.55	31.97			
11-Dec	0.8	0.9	2.4	Z	8.4	7.9	9.2	9.4	28.1	31.6	24.8	31.2	28.2	29.2	29.8	23.9	29.2	32.5	31.9	30.1	30.5	30.3	28.1	31.7	22.17	32.53			
12-Dec	29.6	23.3	20.8	Z	13.1	14.6	11.7	2.8	0.9	3.7	9.9	C	C	C	C	C	1.4	0.1	0.1	0.8	0.0	0.0	1.4	0.7	7.50	29.57			
13-Dec	0.1	0.0	0.4	Z	8.6	10.3	11.2	9.1	6.7	5.5	11.1	14.7	23.6	26.1	27.0	25.9	19.1	7.1	6.1	8.2	9.6	10.9	12.4	15.0	11.68	26.96			
14-Dec	17.5	18.6	18.1	Z	18.4	20.9	17.7	15.6	18.7	17.8	19.7	21.7	22.3	22.8	21.4	24.3	14.6	0.4	0.6	0.4	0.2	0.1	0.9	1.0	13.64	24.26			
15-Dec	0.6	2.0	0.6	Z	0.5	1.0	0.5	0.0	0.1	1.7	4.4	10.9	11.1	9.7	8.9	5.9	2.0	0.4	0.6	1.0	0.6	0.4	0.3	0.4	2.77	11.08			
16-Dec	0.4	0.4	0.7	Z	1.0	2.7	0.6	0.6	0.7	2.8	6.3	9.1	10.1	10.5	9.7	7.1	2.6	0.7	0.5	0.6	0.8	0.9	1.0	1.0	3.08	10.46			
17-Dec	1.0	1.9	1.9	Z	3.0	3.0	3.0	2.7	2.7	3.9	6.4	8.5	9.4	9.9	8.8	6.2	2.6	1.6	1.3	1.7	1.4	2.0	2.1	2.4	3.80	9.92			
18-Dec	1.4	1.9	1.7	Z	1.5	1.5	1.2	1.6	1.8	2.1	4.6	7.5	9.9	12.5	10.3	7.8	3.0	1.3	1.4	1.1	6.4	4.7	1.0	2.7	3.87	12.55			
19-Dec	1.0	0.7	0.7	Z	0.8	0.7	0.8	0.7	0.8	1.5	3.0	4.5	6.1	6.6	5.2	5.6	2.1	0.5	0.5	0.5	0.5	0.9	0.8	1.0	1.98	6.57			
20-Dec	3.9	0.9	0.8	Z	1.4	0.8	0.8	0.8	4.3	3.7	4.3	7.0	10.5	11.0	8.4	5.8	2.0	0.5	1.1	0.6	0.6	0.6	0.7	0.9	3.11	10.95			
21-Dec	0.5	0.5	0.6	Z	0.7	1.3	2.2	1.8	1.8	4.5	7.7	9.6	13.4	20.1	23.3	24.9	31.0	27.5	22.1	11.8	6.9	5.4	3.1	11.5	10.09	30.99			
22-Dec	22.4	24.0	22.9	Z	23.8	25.6	24.4	22.0	19.3	19.0	26.6	26.4	28.1	28.9	33.6	35.1	26.0	18.2	19.1	23.6	33.8	36.1	34.5	30.2	26.25	36.07			
23-Dec	26.8	25.9	25.8	Z	25.3	19.1	12.2	9.9	12.6	8.1	10.0	12.8	12.7	10.8	10.5	11.3	7.2	9.4	6.1	10.6	16.5	16.2	16.7	20.1	14.64	26.82			
24-Dec	28.5	32.8	31.3	Z	34.1	37.4	39.4	39.3	36.7	24.2	29.8	30.0	31.6	33.7	33.7	35.2	33.6	31.5	32.8	32.4	30.6	29.5	26.3	23.6	32.09	39.42			
25-Dec	20.8	18.0	18.0	Z	17.6	16.6	15.6	14.0	13.8	12.9	12.6	14.6	16.7	15.6	13.9	10.6	12.2	18.1	21.2	20.4	20.6	18.9	20.1	12.5	16.31	21.21			
26-Dec	12.1	13.0	12.7	Z	18.9	22.3	22.9	23.1	23.5	24.8	26.8	28.5	27.5	26.9	27.8	28.8	23.6	25.3	24.9	25.0	27.4	27.0	28.5	27.5	23.85	28.77			
27-Dec	28.7	28.3	27.6	Z	23.6	19.5	18.3	16.3	14.4	18.0	18.9	18.7	21.5	18.8	25.0	27.5	28.2	29.2	31.0	32.2	32.9	33.8	33.4	34.0	25.20	33.97			
28-Dec	33.4	34.2	33.3	Z	31.4	29.1	29.4	30.1	29.2	28.7	29.1	22.9	20.2	18.9	18.2	17.5	17.9	19.6	28.5	29.3	28.4	26.0	24.2	23.9	26.23	34.18			
29-Dec	24.5	26.4	25.3	Z	25.8	25.4	25.3	24.8	24.7	24.2	23.8	24.5	25.0	23.5	24.0	22.6	18.8	2.2	2.2	4.8	9.5	18.0	14.6	14.0	19.74	26.43			
30-Dec	14.2	16.4	16.2	Z	14.5	17.5	21.2	22.4	25.1	31.2	33.4	33.9	35.5	36.5	36.5	38.6	39.6	38.8	37.2	35.4	36.8	35.6	32.1	31.8	29.59	39.59			
31-Dec	32.6	29.1	29.9	Z	32.8	31.4	33.1	33.1	31.0	33.0	33.9	33.1	33.6	35.7	36.9	35.9	37.7	35.6	35.4	35.2	34.9	35.4	35.8	36.3	33.98	37.71			
		14.30	14.51	14.32	--	14.81	15.02	14.68	13.16	13.54	14.45	15.94	17.65	18.95	19.89	20.01	18.76	15.03	12.16	11.87	11.85	13.23	13.76	13.73	13.57	Diurnal Average			
		33.45	34.18	33.33	--	34.13	37.42	39.42	39.28	36.69	33.18	33.89	34.03	35.54	36.55	36.85	38.61	39.59	38.80	37.18	35.39	36.76	36.07	35.78	36.35	Diurnal Maximum			
Z - zerospan		C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 82.5 ppb		24-hr -- ppb																									



WCAS - Carrot Creek
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 76.99 ppb on Dec 18 19:00		Maximum Daily Average: 37.99 ppb on Dec 18		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 27 22:00		Minimum Daily Average: 0.17 ppb on Dec 2		Hours of Data: 707																							
Maximum Diurnal Average: 15.83 ppb at hour 19		Minimum Diurnal Average: 4.46 ppb at hour 6		Hours of Missing Data: 37																							
Monthly Average: 8.727 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 2.0 Q ₃ = 13.3 P ₉₀ = 25.9 P ₉₉ = 54.5		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	1.0	4.1	10.6	9.9	3.6	2.7	4.2	6.6	5.4	19.4	7.5	0.1	0.1	0.1	0.2	3.29	19.37	
2-Dec	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.5	0.1	0.3	0.6	0.6	0.4	0.3	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.17	0.60	
3-Dec	0.1	0.1	0.1	Z	0.0	0.0	0.1	0.2	0.4	0.7	1.6	4.2	4.5	2.3	2.4	2.7	0.5	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.88	4.55	
4-Dec	0.0	0.0	0.0	Z	0.0	0.1	0.1	7.6	4.5	2.8	4.3	4.0	3.9	3.7	3.0	3.7	0.6	0.3	4.5	4.1	9.6	2.7	0.2	0.5	2.62	9.56	
5-Dec	0.1	0.7	0.2	Z	0.2	0.1	0.1	0.5	4.9	7.6	31.9	8.9	12.9	9.5	11.3	4.9	3.0	0.8	0.2	0.4	2.8	11.6	12.8	12.9	6.02	31.93	
6-Dec	11.4	9.6	6.9	Z	7.6	6.4	7.5	12.5	10.9	19.5	28.2	19.2	20.2	16.3	7.7	4.1	0.8	0.2	1.6	5.1	6.4	3.6	3.6	1.4	9.16	28.23	
7-Dec	0.6	0.1	0.2	Z	0.2	0.1	0.5	0.3	0.5	1.2	2.3	4.0	4.8	6.8	6.3	3.7	4.3	9.5	28.6	14.7	14.3	9.2	5.9	18.2	5.91	28.56	
8-Dec	18.9	14.9	14.1	Z	10.7	22.0	23.8	32.5	25.3	24.0	19.4	20.5	12.1	10.9	8.6	12.9	10.8	12.6	10.0	11.8	52.6	38.6	51.9	59.2	22.53	59.23	
9-Dec	35.9	30.2	16.4	Z	7.3	8.2	4.0	5.8	9.8	16.7	21.5	32.7	26.0	29.1	21.5	17.9	16.8	41.1	51.1	40.8	17.7	7.1	0.1	0.4	19.92	51.11	
10-Dec	0.1	0.0	0.0	Z	0.4	0.7	0.3	18.2	15.3	22.1	27.7	17.2	22.5	18.9	15.7	12.3	9.1	7.6	7.4	24.9	13.0	7.2	4.8	11.0	11.15	27.69	
11-Dec	14.1	11.6	4.2	Z	0.2	0.5	0.2	0.6	0.5	0.4	4.8	2.3	4.2	4.6	2.4	0.9	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	2.27	14.11	
12-Dec	0.0	0.0	0.1	Z	0.1	0.0	0.1	2.5	5.0	12.9	7.6	C	C	C	C	C	C	20.0	39.1	23.7	15.5	15.8	9.2	3.6	--	39.07	
13-Dec	2.7	8.6	8.9	Z	0.1	0.3	0.1	0.8	0.5	6.8	7.3	10.2	4.9	4.3	2.9	1.2	0.5	3.4	2.1	1.2	0.5	0.1	0.1	0.1	2.95	10.23	
14-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.3	1.3	0.3	1.9	4.2	5.5	5.9	5.8	5.8	1.6	9.0	22.1	31.0	25.9	21.2	21.8	13.0	8.6	8.07	30.97	
15-Dec	13.0	2.2	2.9	Z	3.6	2.0	3.1	13.3	20.7	17.2	23.2	14.4	14.7	22.7	21.5	18.3	29.6	68.3	55.3	49.8	38.9	36.5	25.5	34.1	23.08	68.34	
16-Dec	25.6	28.9	32.2	Z	20.0	4.6	24.4	16.3	15.5	20.1	19.4	17.3	18.6	19.2	16.7	12.6	8.3	7.1	25.5	31.6	20.7	14.0	11.3	14.9	18.46	32.22	
17-Dec	14.5	15.3	17.0	Z	14.4	12.2	7.9	9.0	14.3	25.6	25.4	27.6	27.6	25.6	23.8	20.9	18.7	41.8	70.3	52.8	43.1	52.0	46.4	47.8	28.44	70.32	
18-Dec	51.0	45.2	44.3	Z	41.4	37.9	28.6	20.2	24.1	56.0	29.8	27.4	21.4	17.9	17.3	14.0	17.4	72.7	77.0	50.5	56.2	48.9	36.5	37.9	37.99	76.99	
19-Dec	26.6	21.4	25.4	Z	31.9	31.8	32.1	30.8	31.7	33.0	39.0	29.9	20.4	18.2	11.2	10.3	8.8	14.4	15.1	17.0	34.8	13.6	12.4	27.0	23.34	39.04	
20-Dec	12.8	18.1	15.5	Z	4.3	7.5	4.6	10.1	14.5	26.0	19.0	24.3	20.9	15.5	14.5	19.0	16.0	19.7	41.9	67.1	50.6	45.9	33.7	28.4	23.04	67.13	
21-Dec	19.5	16.0	9.0	Z	6.7	3.2	0.5	1.0	0.7	5.6	10.9	10.6	7.5	3.0	1.3	0.4	0.0	0.0	0.1	0.4	0.5	1.5	13.0	1.0	4.89	19.52	
22-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.3	1.9	1.8	2.6	2.8	3.1	0.9	0.4	0.5	0.2	0.6	0.4	0.0	0.0	0.0	0.0	0.71	3.13	
23-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.3	1.3	0.5	3.1	5.5	6.4	6.0	6.4	4.3	2.2	1.1	0.2	0.8	0.3	0.1	0.1	0.1	0.1	1.71	6.44	
24-Dec	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	1.1	1.3	1.3	1.3	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29	1.33	
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.0	0.5	1.5	1.8	2.0	3.0	2.7	2.7	0.9	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.68	2.96	
26-Dec	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.3	0.7	1.2	1.7	2.0	1.6	0.6	0.3	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.41	2.02	
27-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.1	0.2	0.6	2.3	3.9	3.7	5.9	2.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	5.87	
28-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	1.0	1.4	1.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23	1.37	
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.7	0.8	2.3	2.1	1.9	0.9	12.2	8.6	5.4	1.7	0.1	0.7	0.2	1.67	12.24	
30-Dec	0.3	0.1	0.1	Z	0.3	0.1	0.4	0.7	0.4	0.3	0.6	0.6	0.5	0.6	0.6	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.29	0.72	
31-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.3	0.4	1.1	2.5	2.5	1.4	0.7	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.46	2.51	
		8.00	7.22	6.39	--	4.84	4.46	4.50	6.02	6.49	10.00	11.22	10.44	9.52	8.83	7.12	5.87	5.53	11.62	15.83	14.06	12.93	10.67	9.09	9.93	Diurnal Average	
		51.04	45.23	44.34	--	41.41	37.91	32.11	32.52	31.67	56.03	39.04	32.75	27.59	29.08	23.82	20.94	29.60	72.72	76.99	67.13	56.19	51.97	51.94	59.23	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb						24-hr --- ppb																			



WCAS - Carrot Creek
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2014

Maximum Value: 33.68 ppb on Dec 1 19:00 Maximum Daily Average: 21.79 ppb on Dec 17																						Hours in Service: 744 Hours of Data: 707				
Minimum Value: 0.9 ppb on Dec 29 05:00 Minimum Daily Average: 2.26 ppb on Dec 28 Maximum Diurnal Average: 16.86 ppb at hour 19 Minimum Diurnal Average: 9.14 ppb at hour 13 Monthly Average: 11.812 ppb Percentiles: P ₁ = 1.2 P ₁₀ = 3.0 Q ₁ = 5.8 Median = 10.7 Q ₃ = 17.3 P ₉₀ = 21.9 P ₉₉ = 28.1																						Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0				
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	8.9	7.9	5.4	Z	4.5	7.3	6.1	7.6	6.4	6.4	8.5	13.1	11.5	7.8	7.3	15.1	31.0	32.8	33.7	25.3	11.6	8.7	12.6	19.7	13.01	33.68
2-Dec	10.1	7.2	6.8	Z	5.0	3.5	4.1	8.1	3.7	2.7	2.1	1.7	1.2	1.3	1.3	1.5	10.2	15.7	9.1	8.8	6.0	8.7	6.8	9.4	5.88	15.69
3-Dec	15.0	9.2	8.2	Z	4.7	5.9	6.6	8.6	8.7	5.0	4.2	7.2	6.9	4.5	6.4	12.0	10.7	10.7	6.5	7.0	6.0	6.7	10.4	6.0	7.70	15.01
4-Dec	6.1	6.2	5.8	Z	6.0	7.1	8.2	20.4	21.1	10.8	9.7	9.1	8.0	7.0	7.5	13.4	11.6	15.0	28.0	25.1	25.4	17.1	9.9	12.5	12.65	28.04
5-Dec	9.5	12.4	9.0	Z	8.8	7.9	8.4	11.2	17.8	13.1	16.2	8.0	9.3	9.3	14.7	13.6	20.3	21.5	20.7	21.6	22.0	23.7	23.7	23.3	15.06	23.71
6-Dec	23.0	21.9	21.7	Z	20.3	20.6	19.8	19.4	18.1	16.5	15.8	14.9	14.9	13.7	13.1	14.6	15.4	16.4	21.4	23.5	23.4	22.7	22.6	20.1	18.86	23.47
7-Dec	13.5	10.3	10.0	Z	6.9	5.1	7.5	6.9	9.2	8.6	5.9	7.0	8.6	12.2	15.6	14.8	17.1	26.1	26.3	25.8	23.1	19.3	20.2	18.0	13.83	26.30
8-Dec	15.8	14.1	13.8	Z	17.1	14.9	14.2	14.8	15.7	13.9	11.8	11.4	11.8	12.0	12.3	17.3	18.6	18.1	20.1	18.5	20.7	18.4	17.6	17.5	15.67	20.70
9-Dec	15.4	14.0	13.1	Z	12.5	13.2	13.0	12.9	12.1	13.3	13.4	15.7	14.4	15.4	14.8	16.1	19.6	21.9	22.0	22.1	22.2	15.1	9.6	10.7	15.33	22.18
10-Dec	5.8	2.6	2.8	Z	11.7	12.0	10.2	15.8	16.2	15.5	15.7	12.5	14.2	13.7	13.7	14.1	16.1	17.3	18.3	19.3	16.9	17.4	16.4	15.6	13.64	19.33
11-Dec	16.4	17.7	19.3	Z	11.4	10.6	10.3	12.7	9.5	4.8	11.7	5.9	8.8	9.7	7.9	8.5	8.6	5.0	5.4	6.2	4.7	8.6	11.5	7.2	9.67	19.34
12-Dec	5.3	7.0	7.5	Z	7.6	5.3	7.4	16.9	17.0	14.9	8.0	C	C	C	C	C	C	17.0	20.5	19.3	17.0	15.1	15.8	19.4	--	20.50
13-Dec	18.6	15.8	13.8	Z	6.9	8.2	5.5	7.5	8.8	12.6	10.3	11.1	7.5	7.5	6.8	6.9	12.6	20.6	21.9	16.9	11.6	9.8	6.8	7.5	11.11	21.87
14-Dec	5.7	5.7	5.4	Z	7.6	5.9	9.8	13.0	9.0	9.7	8.4	8.2	8.0	8.9	11.1	7.7	16.7	33.5	29.3	28.2	26.5	24.8	19.0	17.2	13.88	33.54
15-Dec	14.6	9.0	9.8	Z	9.0	9.4	9.6	10.9	11.5	11.0	12.5	10.6	9.6	11.9	14.4	17.9	23.6	27.4	23.7	24.0	23.1	21.8	19.2	19.5	15.39	27.40
16-Dec	17.3	18.1	19.5	Z	21.5	20.4	21.8	23.1	23.0	21.1	16.7	13.7	13.0	13.2	13.4	15.4	19.5	21.3	22.3	21.4	21.9	21.9	21.9	22.3	19.29	23.11
17-Dec	22.7	22.5	22.6	Z	23.1	22.9	22.9	23.0	23.4	20.7	16.5	15.2	15.3	15.8	17.4	20.9	23.6	25.8	28.6	25.9	24.3	24.3	22.0	21.7	21.79	28.57
18-Dec	21.1	20.8	18.9	Z	18.5	18.3	17.2	17.3	18.4	19.7	13.7	13.5	12.5	13.5	14.9	18.2	21.7	28.3	27.7	24.7	26.8	24.4	20.3	19.5	19.55	28.26
19-Dec	15.2	14.3	16.2	Z	20.8	20.2	21.0	20.2	19.5	17.3	17.8	17.3	16.5	16.2	17.6	16.4	18.8	19.5	18.4	17.6	21.0	19.4	17.8	17.8	18.13	21.04
20-Dec	16.0	16.5	16.2	Z	14.5	14.7	15.2	15.5	16.2	15.6	12.6	12.1	12.2	13.6	14.3	18.1	21.3	22.1	20.2	24.8	22.3	20.3	21.0	18.7	17.13	24.78
21-Dec	20.0	22.5	23.2	Z	24.1	23.4	21.4	21.6	19.8	14.7	12.1	10.4	12.6	9.3	6.4	4.0	1.8	3.5	7.4	12.0	10.0	9.1	12.4	13.4	13.70	24.11
22-Dec	9.0	7.2	7.7	Z	7.8	7.1	8.7	11.4	13.6	16.5	10.3	10.9	8.5	8.6	3.5	3.3	11.2	14.8	13.7	11.9	3.8	2.3	3.0	6.3	8.75	16.52
23-Dec	9.6	10.4	6.9	Z	5.3	12.3	21.1	22.1	18.6	17.1	16.6	15.4	13.2	14.0	14.0	13.7	19.0	19.7	24.4	16.7	12.0	11.2	10.2	9.6	14.48	24.39
24-Dec	5.1	3.8	6.9	Z	4.1	2.5	1.3	1.6	3.0	13.5	7.6	6.9	5.6	3.8	3.7	2.1	2.8	1.7	1.7	1.9	1.5	1.2	1.4	1.9	3.72	13.52
25-Dec	1.6	2.0	2.1	Z	2.5	2.7	3.0	3.9	3.3	4.2	4.9	4.7	3.8	5.1	5.2	6.8	7.8	5.6	3.5	3.9	3.6	4.5	3.9	6.4	4.14	7.80
26-Dec	5.6	4.7	4.5	Z	3.9	3.3	3.6	3.6	3.5	3.9	4.7	5.6	6.2	6.6	6.6	6.3	10.3	7.6	8.6	6.0	3.5	5.6	4.3	3.6	5.30	10.33
27-Dec	2.6	2.6	4.0	Z	3.7	5.5	8.9	8.0	8.6	6.2	5.5	6.0	5.8	8.5	5.5	4.6	3.7	2.9	2.0	1.6	1.4	1.0	1.1	1.2	4.39	8.86
28-Dec	1.6	1.0	1.5	Z	2.8	3.0	2.5	1.8	1.7	2.2	1.3	2.8	2.6	3.3	2.9	2.9	2.7	3.7	1.6	1.5	1.4	2.0	2.7	2.4	2.26	3.69
29-Dec	2.2	1.1	2.3	Z	0.9	1.5	1.3	1.7	1.6	2.0	2.2	1.8	1.7	3.6	3.7	5.8	9.2	27.6	27.5	22.7	16.1	7.1	12.0	10.9	7.24	27.59
30-Dec	10.0	8.3	8.7	Z	12.5	10.7	10.7	12.5	10.6	5.8	4.7	4.5	3.9	3.8	4.6	4.3	3.5	3.4	3.8	4.8	3.2	3.9	7.2	7.2	6.64	12.55
31-Dec	6.0	9.8	9.1	Z	4.9	6.0	5.0	6.2	6.8	5.7	5.3	6.1	6.1	4.3	3.6	5.0	3.4	4.7	4.4	4.3	4.5	4.1	3.9	3.2	5.31	9.78
11.26 10.54 10.41 -- 10.03 10.05 10.53 12.27 12.15 11.13 9.90 9.44 9.14 9.27 9.47 10.71 13.75 16.48 16.86 15.91 14.11 12.91 12.50 12.57																								Diurnal Average		
22.96 22.52 23.21 -- 24.11 23.45 22.90 23.11 23.37 21.07 17.78 17.35 16.47 16.19 17.63 20.91 31.02 33.54 33.68 28.16 26.80 24.81 23.71 23.31																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										



WCAS - Carrot Creek
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2014

Maximum Value: 104.36 ppb on Dec 18 19:00		Maximum Daily Average: 57.43 ppb on Dec 18		Hours in Service: 744																							
Minimum Value: 0.9 ppb on Dec 29 05:00		Minimum Daily Average: 2.50 ppb on Dec 28		Hours of Data: 707																							
Maximum Diurnal Average: 32.69 ppb at hour 19		Minimum Diurnal Average: 14.53 ppb at hour 6		Hours of Missing Data: 37																							
Monthly Average: 20.562 ppb		Percentiles: P ₁ = 1.3 P ₁₀ = 3.3 Q ₁ = 6.2 Median = 12.8 Q ₃ = 31.4 P ₉₀ = 44.6 P ₉₉ = 76.6		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	9.0	7.9	5.4	Z	4.5	7.3	6.2	7.7	6.5	7.4	12.6	23.8	21.4	11.4	10.0	19.4	37.7	38.2	53.1	33.0	11.7	8.8	12.7	19.9	16.34	53.13	
2-Dec	10.2	7.3	6.9	Z	5.0	3.5	4.1	8.5	3.8	3.0	2.7	2.2	1.6	1.6	1.5	1.6	10.5	15.8	9.2	8.9	6.1	8.8	6.9	9.5	6.05	15.85	
3-Dec	15.1	9.3	8.3	Z	4.7	6.0	6.7	8.8	9.1	5.7	5.7	11.4	11.5	6.8	8.7	14.8	11.2	10.8	6.6	7.1	6.0	6.8	10.6	6.1	8.61	15.12	
4-Dec	6.1	6.2	5.8	Z	6.1	7.2	8.3	28.1	25.7	13.6	14.1	13.2	11.9	10.7	10.6	17.1	12.2	15.3	32.7	29.3	35.1	19.9	10.1	13.0	15.32	35.05	
5-Dec	9.7	13.2	9.2	Z	9.1	8.0	8.5	11.7	22.8	20.7	48.2	16.9	22.3	18.9	26.2	18.6	23.3	22.3	21.0	22.2	24.9	35.4	36.7	36.4	21.14	48.18	
6-Dec	34.5	31.7	28.8	Z	28.1	27.1	27.5	32.0	29.1	36.1	44.1	34.1	35.2	30.0	20.9	18.6	16.3	16.6	23.1	28.6	29.9	26.4	26.3	21.6	28.11	44.14	
7-Dec	14.1	10.5	10.2	Z	7.1	5.2	8.0	7.2	9.7	9.8	8.2	11.0	13.4	19.0	21.9	18.5	21.4	35.7	55.0	40.6	37.5	28.6	26.1	36.3	19.79	54.95	
8-Dec	34.8	29.1	28.1	Z	27.9	37.0	38.1	47.4	41.1	38.0	31.3	32.0	23.9	23.0	20.8	30.3	29.5	30.8	30.2	30.3	73.3	57.0	69.6	76.7	38.27	76.67	
9-Dec	51.3	44.3	29.6	Z	19.8	21.4	17.1	18.7	21.9	30.2	35.0	48.6	40.5	44.6	36.4	34.0	36.6	63.1	73.2	62.9	40.0	22.3	9.7	11.1	35.31	73.16	
10-Dec	5.9	2.7	2.9	Z	12.1	12.7	10.6	34.1	31.7	37.8	43.5	29.7	36.8	32.7	29.4	26.5	25.3	25.0	25.7	44.3	30.0	24.6	21.2	26.6	24.86	44.29	
11-Dec	30.6	29.3	23.6	Z	11.6	11.1	10.5	13.3	10.1	5.2	16.6	8.3	13.0	14.3	10.3	9.4	8.9	5.1	5.5	6.3	4.7	8.6	11.6	7.3	11.96	30.58	
12-Dec	5.3	7.1	7.6	Z	7.7	5.3	7.4	19.4	21.9	27.7	15.4	C	C	C	C	C	C	36.9	59.4	43.1	32.6	30.9	25.0	23.1	--	59.44	
13-Dec	21.4	24.5	22.8	Z	7.1	8.5	5.6	8.3	9.4	19.4	17.6	21.3	12.4	11.8	9.8	8.2	13.2	24.1	24.1	18.2	12.1	10.0	7.0	7.7	14.10	24.49	
14-Dec	5.8	5.7	5.5	Z	7.8	6.0	10.1	14.3	9.3	11.7	12.6	13.8	13.9	14.7	16.9	9.3	25.8	55.6	60.2	54.1	47.7	46.7	32.0	25.9	21.98	60.19	
15-Dec	27.7	11.2	12.8	Z	12.6	11.5	12.7	24.2	32.1	28.2	35.7	25.0	24.3	34.5	35.9	36.2	53.2	95.4	78.8	73.6	61.9	58.2	44.7	53.6	38.43	95.43	
16-Dec	42.8	46.9	51.7	Z	41.5	25.1	46.3	39.5	38.6	41.3	36.1	31.0	31.6	32.5	30.2	28.1	28.0	28.5	47.8	52.9	42.6	36.0	33.4	37.3	37.81	52.90	
17-Dec	37.3	37.9	39.7	Z	37.7	35.2	30.9	32.0	37.8	46.3	41.9	42.7	42.8	41.4	41.2	41.9	42.3	67.4	98.6	78.5	67.3	76.0	68.3	69.4	50.21	98.56	
18-Dec	71.9	65.9	63.1	Z	59.7	56.1	45.7	37.4	42.5	75.5	43.5	40.8	33.9	31.4	32.3	32.2	39.2	100.7	104.4	74.9	82.7	73.1	56.7	57.3	57.43	104.36	
19-Dec	41.8	35.7	41.6	Z	52.6	51.9	53.1	51.0	51.1	50.2	56.7	47.2	36.9	34.4	29.0	26.9	27.7	34.0	33.6	34.6	55.7	33.1	30.3	44.8	41.48	56.70	
20-Dec	28.9	34.6	31.7	Z	18.9	22.2	19.8	25.7	30.8	41.6	31.5	36.4	33.1	29.1	28.8	37.1	37.4	41.8	61.9	91.6	72.8	66.0	54.7	47.1	40.15	91.56	
21-Dec	39.6	38.6	32.4	Z	31.0	26.8	22.0	22.7	20.6	20.3	23.0	21.0	20.1	12.4	7.7	4.4	1.8	3.5	7.5	12.4	10.6	10.6	25.4	14.4	18.64	39.55	
22-Dec	9.1	7.4	7.8	Z	7.9	7.3	8.9	11.5	13.9	18.5	12.2	13.5	11.4	11.8	4.4	3.7	11.8	15.1	14.3	12.3	3.8	2.3	3.0	6.3	9.49	18.49	
23-Dec	9.8	10.5	7.0	Z	5.3	12.5	21.5	23.5	19.2	20.2	22.1	21.8	19.2	20.5	18.3	15.9	20.2	20.0	25.3	17.1	12.1	11.4	10.4	9.7	16.24	25.32	
24-Dec	5.2	3.9	7.0	Z	4.1	2.5	1.3	1.6	3.0	14.7	9.0	8.2	6.9	4.4	4.2	2.3	2.8	1.7	1.7	2.0	1.5	1.3	1.4	1.9	4.02	14.68	
25-Dec	1.6	2.1	2.1	Z	2.5	2.8	3.0	4.1	3.3	4.7	6.4	6.5	5.8	8.1	7.9	9.5	8.8	5.7	3.6	4.0	3.7	4.5	3.9	6.5	4.82	9.53	
26-Dec	5.7	4.7	4.5	Z	4.0	3.3	3.6	3.6	3.5	4.2	5.4	6.8	7.9	8.6	8.3	7.0	10.7	7.7	8.7	6.1	3.5	5.7	4.4	3.7	5.72	10.69	
27-Dec	2.6	2.7	4.0	Z	3.7	5.5	9.2	8.2	8.8	6.9	7.9	9.9	9.6	14.4	7.8	5.5	3.9	3.0	2.0	1.6	1.4	1.0	1.1	1.2	5.30	14.39	
28-Dec	1.6	1.0	1.5	Z	2.8	3.0	2.5	1.8	1.7	2.2	1.5	3.7	3.6	4.7	3.9	3.5	2.8	3.7	1.7	1.5	1.4	2.0	2.7	2.4	2.50	4.70	
29-Dec	2.2	1.1	2.3	Z	0.9	1.5	1.3	1.7	1.6	2.2	2.7	2.5	2.5	5.9	5.8	7.8	10.2	39.9	36.2	28.2	17.9	7.2	12.8	11.2	8.94	39.94	
30-Dec	10.3	8.5	8.9	Z	12.9	10.9	11.1	13.3	11.1	6.2	5.4	5.1	4.4	4.4	5.2	4.7	3.6	3.5	3.9	4.8	3.3	4.0	7.3	7.3	6.95	13.29	
31-Dec	6.1	10.0	9.2	Z	4.9	6.0	5.1	6.4	7.2	6.1	6.4	8.6	8.6	5.7	4.3	5.7	3.5	4.7	4.5	4.3	4.6	4.1	3.9	3.2	5.79	9.96	
		19.29	17.78	16.84	--	14.90	14.53	15.05	18.32	18.68	21.14	21.12	19.90	18.68	18.12	16.62	16.62	19.33	28.12	32.69	29.97	27.05	23.59	21.61	22.53	Diurnal Average	
		71.88	65.86	63.05	--	59.73	56.06	53.13	50.98	51.14	75.46	56.70	48.57	42.80	44.58	41.17	41.88	53.21	100.65	104.36	91.56	82.74	76.03	69.56	76.67	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb										24-hr --- ppb															

**CARROT CREEK
STATION #903**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Carrot Creek
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 9.14 C on Dec 11 14:00																								Maximum Daily Average: 2.46 C on Dec 11																								Hours in Service: 744	
Minimum Value: -26.0 C on Dec 30 01:00																								Minimum Daily Average: -19.71 C on Dec 29																								Hours of Data: 744	
Maximum Diurnal Average: -4.71 C at hour 15																								Minimum Diurnal Average: -10.98 C at hour 9																								Hours of Missing Data: 0	
Monthly Average: -8.736 C																								Percentiles: P ₁ = -24.5 P ₁₀ = -17.2 Q ₁ = -13.7 Median = -8.2 Q ₃ = -4.0 P ₉₀ = -1.1 P ₉₉ = 5.0																								Hours of Calibration: 0	
																								Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	-20.8	-20.1	-18.4	-18.5	-18.7	-20.0	-18.5	-17.7	-16.9	-16.8	-16.7	-14.0	-10.5	-7.7	-7.1	-8.0	-9.4	-12.3	-13.8	-11.8	-10.7	-9.6	-9.2	-11.9	-14.13	-7.11																							
2-Dec	-11.4	-11.5	-10.4	-8.5	-8.8	-9.0	-10.2	-11.4	-9.0	-8.7	-9.3	-7.4	-6.9	-6.7	-7.6	-8.1	-8.1	-8.5	-9.8	-10.3	-10.4	-10.1	-9.0	-9.8	-9.21	-6.66																							
3-Dec	-9.7	-8.9	-8.2	-8.0	-7.3	-7.8	-8.7	-9.1	-8.7	-7.8	-6.7	-5.6	-3.4	-2.9	-2.9	-3.9	-4.0	-5.0	-6.5	-7.8	-8.7	-9.7	-10.4	-8.7	-7.10	-2.87																							
4-Dec	-9.4	-8.8	-9.7	-11.3	-10.4	-10.1	-10.9	-12.5	-13.2	-11.5	-9.6	-6.7	-5.8	-5.7	-4.3	-5.3	-5.8	-8.6	-9.9	-11.7	-13.7	-15.2	-13.8	-14.2	-9.93	-4.30																							
5-Dec	-14.3	-16.7	-16.0	-17.1	-18.0	-16.2	-16.3	-18.0	-19.2	-19.4	-18.0	-14.2	-12.6	-12.5	-11.2	-11.0	-11.7	-12.3	-12.4	-12.4	-12.1	-12.6	-12.2	-11.7	-14.50	-10.96																							
6-Dec	-11.8	-12.5	-12.5	-12.3	-11.7	-11.1	-11.9	-12.8	-13.7	-14.1	-13.0	-11.6	-10.5	-9.6	-9.1	-8.8	-8.5	-8.2	-7.4	-5.8	-4.8	-4.8	-4.9	-5.1	-9.85	-4.78																							
7-Dec	-3.5	-1.8	-2.3	-2.9	-2.6	-2.3	-3.0	-2.2	-3.2	-2.9	-1.9	-0.4	0.6	2.6	1.8	1.5	-1.7	-3.9	-4.9	-6.7	-7.9	-8.2	-8.9	-10.6	-3.14	2.63																							
8-Dec	-11.3	-12.1	-13.4	-13.8	-13.4	-14.1	-14.7	-15.5	-14.7	-13.0	-10.2	-8.2	-6.6	-5.3	-4.8	-4.7	-5.4	-6.0	-7.1	-8.1	-8.5	-8.1	-8.8	-8.4	-9.83	-4.68																							
9-Dec	-7.0	-6.6	-6.4	-6.4	-7.0	-6.4	-6.5	-7.4	-6.5	-6.1	-5.7	-4.8	-4.0	-2.4	-0.9	-0.9	-2.3	-3.5	-4.1	-4.2	-3.3	-1.0	1.0	2.7	-4.16	2.75																							
10-Dec	1.9	-0.2	-2.2	-3.9	-4.8	-6.1	-5.8	-6.6	-6.5	-5.7	-4.6	-3.7	-3.1	-2.8	-2.5	-2.5	-3.0	-3.2	-3.4	-3.3	-3.7	-3.7	-4.1	-4.7	-3.67	1.90																							
11-Dec	-5.5	-5.1	-4.3	-4.7	-1.9	-1.8	-1.9	-0.9	3.7	4.7	4.2	6.0	6.5	9.1	8.0	4.5	4.9	5.0	5.1	5.1	4.2	4.8	4.7	4.4	2.46	9.14																							
12-Dec	1.7	-0.8	-1.2	-1.3	-3.2	-3.4	-4.2	-5.0	-5.5	-5.7	-3.3	-2.5	-0.9	1.6	2.1	0.6	-1.1	-2.1	-3.2	-3.6	-3.5	-3.7	-2.3	-1.5	-2.16	2.06																							
13-Dec	-3.0	-3.6	-4.4	-5.1	-3.7	-2.9	-3.0	-3.0	-3.3	-3.9	-2.5	0.4	1.9	2.6	2.2	1.2	-0.8	-3.9	-4.8	-5.6	-6.6	-6.9	-7.3	-7.0	-3.04	2.59																							
14-Dec	-7.4	-8.0	-8.3	-9.1	-9.0	-8.8	-8.0	-8.4	-8.7	-9.2	-7.3	-5.4	-3.7	-1.1	-0.2	-1.5	-5.2	-8.5	-11.1	-12.8	-14.1	-15.3	-16.0	-16.5	-8.47	-0.19																							
15-Dec	-17.8	-18.7	-19.2	-20.1	-20.8	-21.1	-21.6	-22.1	-22.3	-20.8	-19.0	-17.2	-15.5	-13.5	-11.6	-12.0	-14.6	-17.0	-18.9	-20.1	-20.2	-21.2	-21.6	-22.0	-18.70	-11.60																							
16-Dec	-21.1	-20.0	-19.1	-18.3	-17.9	-17.5	-17.9	-17.7	-17.5	-17.2	-17.0	-16.0	-15.6	-13.9	-13.4	-13.9	-16.4	-17.6	-18.4	-18.3	-17.2	-16.4	-16.1	-15.7	-17.08	-13.44																							
17-Dec	-15.5	-15.3	-15.1	-15.1	-14.9	-14.8	-15.0	-16.0	-17.7	-18.4	-16.9	-13.7	-11.7	-11.2	-10.5	-10.5	-13.5	-15.0	-15.6	-14.8	-14.2	-14.9	-15.8	-16.3	-14.67	-10.47																							
18-Dec	-17.1	-16.9	-17.2	-17.1	-16.9	-16.8	-17.4	-16.8	-16.6	-16.9	-13.9	-6.4	-4.0	-4.9	-2.4	-4.0	-7.7	-10.3	-12.1	-13.5	-14.1	-15.3	-15.6	-16.2	-12.93	-2.42																							
19-Dec	-16.5	-15.9	-15.4	-15.7	-15.4	-15.5	-15.4	-14.7	-14.1	-14.5	-12.9	-10.9	-9.0	-7.8	-7.1	-6.3	-7.3	-8.4	-8.9	-9.1	-9.9	-8.9	-9.4	-10.3	-11.63	-6.25																							
20-Dec	-11.3	-12.3	-13.5	-14.0	-14.4	-15.4	-15.8	-16.4	-17.0	-16.3	-13.7	-11.1	-6.2	-6.5	-8.6	-7.0	-9.1	-11.3	-12.7	-14.0	-14.4	-14.6	-13.8	-14.0	-12.65	-6.19																							
21-Dec	-11.9	-10.7	-10.1	-9.6	-8.8	-8.3	-7.9	-7.6	-7.4	-8.2	-8.0	-6.9	-3.8	-1.1	0.1	0.8	1.5	-0.2	-0.4	-1.1	-2.5	-2.8	-3.3	-2.2	-5.01	1.52																							
22-Dec	-2.0	-1.8	-1.6	-1.7	-1.7	-1.6	-1.6	-1.7	-3.4	-3.6	-1.9	-0.7	0.2	1.7	3.2	2.8	-0.8	-3.4	-2.6	-2.1	0.4	0.2	-0.4	-1.3	-1.05	3.16																							
23-Dec	-1.4	-1.7	-3.3	-4.2	-4.8	-4.9	-5.4	-6.5	-6.8	-7.5	-7.1	-6.1	-5.4	-5.2	-5.5	-5.7	-5.8	-5.9	-6.1	-5.3	-6.7	-7.5	-6.1	-5.41	-1.41																								
24-Dec	-3.9	-2.6	-2.4	-1.7	-1.7	0.1	0.5	-0.5	-3.0	-5.0	-3.6	-2.9	-2.0	-1.3	-0.9	-1.1	-1.5	-2.2	-2.8	-3.6	-4.0	-4.3	-5.1	-6.1	-2.57	0.45																							
25-Dec	-6.9	-7.8	-8.4	-8.6	-8.8	-8.8	-8.9	-9.0	-9.1	-8.7	-8.2	-8.0	-7.3	-7.3	-7.5	-7.3	-7.1	-6.5	-6.7	-7.5	-7.7	-8.7	-9.8	-13.1	-8.24	-6.47																							
26-Dec	-15.3	-16.7	-16.5	-16.4	-14.9	-14.6	-14.7	-14.7	-14.3	-12.0	-9.9	-7.6	-6.5	-5.7	-4.7	-4.2	-4.2	-4.1	-4.2	-4.8	-4.8	-4.5	-4.4	-4.8	-9.36	-4.14																							
27-Dec	-5.1	-6.8	-6.7	-6.8	-9.2	-10.6	-8.8	-10.3	-11.5	-10.6	-8.6	-6.2	-4.4	-5.9	-6.3	-6.9	-8.5	-8.7	-8.7	-8.7	-8.9	-9.3	-9.6	-9.9	-8.23	-4.44																							
28-Dec	-10.1	-10.2	-10.3	-10.6	-10.7	-10.6	-11.2	-11.4	-11.4	-11.3	-11.3	-11.3	-11.6	-11.8	-12.4	-12.7	-13.3	-14.1	-14.7	-15.1	-15.4	-15.7	-15.9	-16.1	-12.46	-10.08																							
29-Dec	-16.2	-16.8	-17.3	-17.9	-18.3	-18.8	-19.0	-19.1	-19.1	-18.9	-18.6	-18.2	-17.7	-17.3	-16.7	-16.2	-18.8	-21.7	-23.3	-24.9	-24.6	-23.9	-24.3	-25.5	-19.71	-16.22																							
30-Dec	-26.0	-25.2	-24.5	-25.6	-25.6	-23.4	-21.7	-19.1	-17.3	-13.1	-10.2	-9.5	-7.8	-6.0	-4.7	-2.2	-1.7	-1.9	-2.0	-2.9	-3.3	-4.0	-4.1	-4.3	-11.93	-1.67																							
31-Dec	-4.5	-4.7	-4.4	-4.9	-5.4	-6.7	-6.3	-5.9	-6.8	-6.1	-5.3	-4.3	-2.9	-1.9	-0.4	-0.4	0.7	0.8	0.7	0.4	1.4	1.9	2.8	3.4	-2.44	3.44																							
																								Diurnal Average																									
																								Diurnal Maximum																									



WCAS - Carrot Creek
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	4.4	4.7	5.5	6.0	3.0	5.3	8.2	6.3	5.7	3.5	0.6	1.5	0.4	2.6	0.6	2.4	3.6	0.2	2.8	5.3	6.2	11.7	7.2	2.3	3.76	11.67	
Dir	SW	SW	SW	SW	WSW	SW	SW	SW	SW	WSW	W	WNW	SSW	SW	S	S	SSW	NNE	SW	SW	SW	W	NW	W	WSW	W	
2 Spd	12.3	9.2	10.2	18.3	18.1	14.7	12.5	9.9	10.2	8.9	10.6	9.9	15.0	10.8	8.6	7.5	4.2	4.9	6.9	9.4	8.4	4.0	4.1	1.4	8.12	18.28	
Dir	W	W	W	W	WNW	WNW	W	W	WNW	NW	WNW	NW	NW	NW	WNW	W	W	SW	SSW	SSW	SSW	SSW	W	N	W	W	
3 Spd	1.8	4.2	5.0	8.3	12.7	12.8	8.9	6.5	8.8	8.1	9.6	10.8	11.1	12.0	9.5	9.3	5.4	5.5	3.0	4.2	6.1	6.5	7.7	7.2	7.31	12.80	
Dir	WSW	SW	WNW	W	W	W	WSW	SW	SW	SW	WSW	W	WSW	W	W	W	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	
4 Spd	8.9	6.9	5.6	8.6	7.1	6.3	3.7	4.6	6.7	9.2	9.3	11.1	9.2	7.6	6.1	9.4	9.5	2.9	4.2	3.7	3.5	5.1	6.8	7.3	6.44	11.10	
Dir	WSW	WSW	WSW	WSW	WSW	WSW	NW	W	WSW	WSW	W	W	W	W	W	W	WNW	WSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	
5 Spd	4.3	4.8	7.5	5.1	5.3	4.5	3.8	3.5	3.6	0.8	0.5	0.4	1.7	2.2	4.4	1.3	1.8	1.0	0.4	0.8	3.0	0.7	0.7	1.6	1.64	7.54	
Dir	SW	SW	WSW	WSW	SW	WSW	WSW	SW	WSW	WSW	SW	WNW	N	NNE	ENE	NE	N	N	N	WNW	WNW	W	WNW	WSW	WSW	WSW	
6 Spd	1.2	2.3	1.4	1.4	1.0	0.3	1.1	0.6	0.5	0.5	0.4	2.5	1.3	0.6	1.9	1.5	1.4	0.8	5.5	8.5	4.5	4.5	3.0	1.7	1.27	8.52	
Dir	W	SW	W	SSW	WNW	NE	SE	NNW	NNE	WNW	NNW	N	NNW	N	E	E	NNE	SSW	W	W	W	WNW	W	W	W	W	
7 Spd	10.2	13.6	12.0	10.0	10.9	9.6	14.1	13.7	12.3	5.1	5.2	7.4	8.1	3.9	5.2	1.4	1.3	3.0	0.7	1.6	3.1	1.8	0.3	0.8	5.97	14.14	
Dir	W	W	W	W	W	WNW	W	W	W	WNW	WNW	W	W	WSW	W	WNW	SSE	S	S	SSW	SSW	SSW	NNW	N	W	W	
8 Spd	0.2	0.2	0.7	1.1	0.1	0.8	0.7	1.8	1.2	0.6	0.4	0.9	3.3	2.2	1.4	0.6	0.6	1.2	0.6	0.8	2.6	2.5	1.1	0.4	0.61	3.27	
Dir	NW	NNW	NW	WNW	NNE	W	W	SW	WSW	W	NNW	WNW	NW	NNW	SSW	N	ENE	NNW	NW	SSE	SSW	SW	SSW	WSW	W	NW	
9 Spd	2.4	0.6	2.8	3.0	2.3	1.8	1.1	1.8	1.8	1.3	0.9	2.0	1.1	1.0	1.6	0.3	1.9	2.5	1.6	3.7	1.7	7.6	13.9	15.5	2.34	15.46	
Dir	SW	W	SSW	SSW	SW	SW	NNW	N	N	WSW	WNW	N	SSW	NW	NNW	SSE	NW	WSW	WNW	W	SW	WNW	W	WSW	W	WSW	
10 Spd	11.8	5.5	1.4	3.0	0.6	1.8	0.4	3.7	1.1	1.7	0.6	2.5	2.3	1.0	2.2	0.8	1.4	1.1	2.4	0.4	0.9	0.6	0.5	1.1	0.85	11.77	
Dir	SW	SW	NE	SE	S	S	ESE	SSW	N	S	S	N	NNW	NNW	NW	W	NE	N	SSW	NW	NNE	W	W	SW	WSW	SW	
11 Spd	3.9	4.9	3.8	5.1	5.3	0.5	5.4	7.1	23.8	17.1	11.9	11.5	6.7	3.5	3.4	5.5	8.3	10.1	10.7	11.0	12.1	16.8	16.2	10.2	2.27	23.76	
Dir	WSW	WSW	WSW	WSW	W	W	SW	WNW	WSW	W	WSW	W	WSW	SW	SSW	ESE	SE	ESE	ESE	E	E	ESE	ESE	ESE	S	WSW	
12 Spd	5.1	2.5	3.7	0.4	4.3	0.1	2.1	3.4	0.8	5.4	3.0	2.1	4.0	5.3	2.2	1.2	1.7	1.5	3.6	2.7	1.8	1.8	1.5	3.2	1.55	5.36	
Dir	WNW	SW	S	SE	SW	SW	SW	SSW	WNW	SSW	W	WNW	WNW	NW	NNW	NNW	SSE	SSE	SSW	S	NNW	WNW	W	W	WSW	SSW	
13 Spd	0.8	3.1	3.6	6.6	3.9	6.2	4.0	4.5	3.4	6.9	6.5	8.7	11.1	12.4	11.9	7.6	4.5	3.8	3.3	3.5	5.8	5.4	5.9	7.3	5.50	12.38	
Dir	SSW	W	S	SW	SW	W	WSW	WSW	W	W	W	WSW	WSW	WSW	W	W	W	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	WSW
14 Spd	7.2	5.8	5.1	6.6	5.8	8.3	9.6	11.3	5.3	6.0	8.2	8.2	6.3	2.8	0.8	0.7	1.1	1.8	0.5	2.1	2.1	2.9	2.6	1.1	4.33	11.25	
Dir	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	WNW	WSW	W	W	W	W	WSW	WSW	SSW	SSW	SSE	SSW	SSW	SSW	SSW	WSW	WSW	WSW	W
15 Spd	1.3	1.3	0.3	0.4	2.3	0.6	0.7	0.6	2.4	0.3	1.0	3.0	1.9	1.7	2.3	2.1	1.8	1.8	3.5	3.3	3.2	1.3	0.3	0.2	1.34	3.48	
Dir	WSW	W	W	W	WSW	WSW	W	W	WSW	NW	W	WNW	NW	W	WNW	W	WSW	SW	SW	SSW	SSW	WSW	W	NW	WSW	SW	
16 Spd	1.6	0.2	0.6	0.3	0.9	0.3	2.8	2.7	0.6	2.0	4.4	0.7	1.6	0.2	1.3	1.3	2.8	0.5	0.4	2.0	1.0	2.0	2.1	1.9	1.25	4.44	
Dir	W	NNW	WNW	NNE	NE	W	NW	WNW	NW	WNW	WNW	WNW	WNW	WNW	W	NW	NNW	WNW	W	WSW	W	W	WSW	WNW	WNW	WNW	
17 Spd	2.8	5.4	4.9	3.5	1.8	3.0	4.5	6.7	4.7	2.9	3.8	1.8	1.3	2.3	0.2	0.8	0.3	1.0	2.1	1.5	1.2	2.2	0.2	1.3	2.23	6.75	
Dir	WNW	WNW	WNW	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	NW	NW	W	NE	ENE	NW	SW	WSW	W	WSW	SW	NNW	SSW	WNW	WNW	
18 Spd	0.9	0.2	1.2	0.2	1.7	0.1	1.7	3.0	0.2	1.1	0.7	1.1	2.1	1.4	1.1	0.4	0.6	1.4	0.2	2.4	0.6	2.5	1.5	0.5	0.63	3.00	
Dir	SSW	W	NNE	N	SSW	WSW	WSW	WSW	E	WSW	WSW	W	NNW	NE	NNW	ESE	SSW	SW	WSW	SW	SW	SW	SW	WSW	WSW	WSW	
19 Spd	0.4	1.9	0.4	0.8	1.5	0.3	0.5	1.0	0.8	0.3	0.6	4.4	6.6	2.5	2.0	0.5	0.3	0.1	0.7	0.8	5.8	3.3	0.3	4.8	1.37	6.64	
Dir	NNW	W	NW	NNW	W	NW	W	WNW	WNW	N	WSW	NW	W	W	NNW	WNW	SSE	S	NW	NNW	SW	WSW	W	SW	W	W	
20 Spd	2.4	0.7	0.5	2.8	0.5	1.1	0.3	0.9	0.2	0.4	0.3	0.3	0.2	0.4	2.3	1.8	1.9	0.5	0.0	0.2	1.2	3.2	0.4	2.9	0.51	3.20	
Dir	SW	SSE	W	WSW	W	SW	SW	SW	NNW	WNW	NW	WNW	NNW	NNE	N	ENE	ENE	NNW	NE	WNW	WSW	WSW	W	WSW	W	WSW	
21 Spd	1.6	1.3	2.3	0.4	2.1	5.6	0.3	1.9	0.5	0.4	1.6	4.3	8.7	14.1	7.8	8.5	7.3	3.6	6.9	3.7	3.3	2.1	2.0	2.7	3.38	14.07	
Dir	NW	WNW	NW	NNE	WNW	WNW	WNW	SW	WSW	WNW	WNW	NW	W	W	W	WNW	NW	W	W	SW	SSW	S	SSW	WSW	W	W	
22 Spd	7.1	8.9	12.8	12.1	10.8	11.1	11.1	7.1	8.4	10.2	11.7	12.1	12.8	9.5	9.0	7.0	3.2	6.4	7.2	8.4	10.5	9.4	7.4	10.2	8.97	12.81	
Dir	W	W	W	W	W	W	WNW	WNW	W	W	W	W	WNW	WNW	NW	NNW	WSW	WSW	W	W	WNW	WNW	WNW	W	W	W	



WCAS - Carrot Creek
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	9.2	5.1	4.3	4.6	5.9	5.1	4.3	3.5	0.9	2.1	0.3	0.9	1.9	0.9	0.7	2.3	4.3	4.8	5.5	7.7	5.0	1.6	4.3	3.0	2.75	9.23	
Dir	W	WSW	SSW	WSW	SW	SSW	SSW	S	N	NNE	NNE	NE	N	NNW	NW	WNW	WNW	W	SW	SW	SW	WSW	SW	WSW	WSW	WSW	W
24 Spd	7.0	9.6	13.0	13.0	12.6	12.9	13.4	10.1	6.9	7.3	10.2	8.2	6.5	5.7	8.1	9.3	5.6	6.2	5.4	3.4	2.0	2.5	4.4	7.4	5.77	13.38	
Dir	WSW	WNW	W	W	WNW	NW	NW	WNW	W	W	W	W	W	WNW	NW	NW	NNW	N	NNE	NNE	NNE	NNE	E	ESE	WNW	NW	
25 Spd	8.0	7.3	6.8	6.5	4.9	4.7	4.6	4.5	3.7	3.3	4.7	5.5	1.3	2.1	3.8	8.5	5.8	7.5	11.8	8.4	3.1	1.8	1.3	1.8	1.36	11.75	
Dir	ESE	E	E	E	E	E	ESE	ESE	E	ESE	E	E	ENE	WNW	W	W	WNW	NW	NNW	NW	NNW	NW	WNW	S	NE	NNW	
26 Spd	1.8	4.2	4.2	3.9	4.4	5.4	3.7	2.8	5.1	3.9	5.2	10.4	11.3	9.0	8.4	8.1	10.0	10.8	8.1	5.2	7.4	9.2	9.2	3.6	5.99	11.27	
Dir	SSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	W	W	W	WNW	W	W	W	WSW	SW	SW	WSW	SW	WSW	WSW	WSW	W
27 Spd	1.3	6.6	4.6	5.6	2.8	5.3	5.8	3.7	3.0	3.6	5.1	3.0	4.4	7.5	8.4	8.3	9.6	10.5	9.8	9.4	8.5	7.5	6.0	4.7	2.00	10.46	
Dir	WNW	W	WSW	SW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	ENE	E	E	E	E	E	E	ENE	ENE	E	ENE	NE	E	E	E
28 Spd	4.4	4.2	4.1	2.0	1.3	4.8	7.8	6.3	7.4	6.9	6.9	7.9	8.4	7.5	11.1	9.7	8.7	9.5	12.4	10.9	9.5	9.7	8.3	6.8	6.65	12.40	
Dir	NE	NE	ENE	E	WSW	NNW	NNW	NW	NW	NW	NW	NNW	NW	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW
29 Spd	6.6	12.6	7.6	10.2	10.0	8.6	8.1	9.7	10.7	11.4	10.9	11.6	11.2	8.7	5.4	3.5	1.6	3.8	1.0	3.5	3.7	3.2	6.0	5.1	6.32	12.55	
Dir	NW	NW	NNW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	W	W	WNW	WSW	SW	SSW	SSW	SW	SW	W	WSW	WSW	WNW	NW	
30 Spd	9.3	7.0	5.4	5.7	6.0	5.2	6.9	14.3	14.5	19.8	24.6	24.9	28.6	30.9	19.6	16.6	16.6	16.9	17.0	11.9	7.5	13.4	11.3	14.3	13.96	30.94	
Dir	SW	SW	WSW	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	W	WSW	W	W	W	WNW
31 Spd	13.0	10.2	10.6	11.9	13.8	14.0	16.9	17.2	19.5	19.9	19.2	16.2	11.7	15.0	18.2	20.1	20.6	23.3	23.0	18.4	17.9	17.7	17.5	16.1	16.59	23.31	
Dir	W	WSW	WSW	W	W	W	WNW	W	W	W	W	W	W	W	W	WNW	W	W	W	W	W	WNW	WNW	WNW	W	W	W
Spd	3.71	3.71	3.44	4.11	4.34	4.24	4.24	4.60	4.78	4.70	5.19	5.42	5.60	4.91	3.91	3.39	2.60	2.34	2.57	2.55	2.35	2.94	2.86	2.99	Diurnal Average		
Dir	WSW	W	W	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WSW	WSW	W	WSW	WSW	Diurnal Maximum		
Spd	13.05	13.63	12.98	18.28	18.14	14.72	16.87	17.17	23.76	19.92	24.57	24.89	28.62	30.94	19.65	20.15	20.61	23.31	23.00	18.42	17.86	17.66	17.49	16.11	Diurnal Maximum		
Dir	270.77	274.85	262.30	273.62	285.01	282.04	285.26	278.91	247.66	279.16	274.82	270.32	283.84	286.53	284.06	279.43	278.23	272.80	275.99	282.98	289.25	288.06	274.83	282.86	Diurnal Maximum		
Maximum Speed Value: 30.9 kph on Dec 30 14:00		Minimum Speed Value: 0.0 kph on Dec 20 19:00																		Hours in Service: 744							
Maximum Daily Speed Average: 16.59 kph on Dec 31		Minimum Daily Speed Average: 0.51 kph on Dec 20																		Hours of Data: 744							
Maximum Diurnal Speed Average: 5.60 kph at hour 13		Minimum Diurnal Speed Average: 2.34 kph at hour 18																		Hours of Missing Data: 0							
Monthly Average Velocity: 3.736 kph 270.66 deg		Speed Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.5 Median = 4.0 Q ₃ = 8.1 P ₉₀ = 11.7 P ₉₉ = 22.7																		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	44	7	2	0	0	0	53																				
NorthEast	22	1	0	0	0	0	23																				
East	16	17	3	0	0	0	36																				
SouthEast	6	5	0	0	0	0	11																				
South	41	1	0	0	0	0	42																				
SouthWest	110	58	2	0	0	0	170																				
West	121	103	64	12	2	0	302																				
NorthWest	62	40	5	0	0	0	107																				
Total	422	232	76	12	2	0	744																				



WCAS - Carrot Creek
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2014

Maximum Value: 98.03 % on Dec 13 06:00		Maximum Daily Average: 92.81 % on Dec 10		Hours in Service: 744																							
Minimum Value: 43.5 % on Dec 30 17:00		Minimum Daily Average: 56.32 % on Dec 31		Hours of Data: 744																							
Maximum Diurnal Average: 86.44 % at hour 20		Minimum Diurnal Average: 76.14 % at hour 14		Hours of Missing Data: 0																							
Monthly Average: 83.546 %		Percentiles: P ₁ = 51.1 P ₁₀ = 66.2 Q ₁ = 79.1 Median = 87.0 Q ₃ = 91.1 P ₉₀ = 94.3 P ₉₉ = 97.6		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	83.3	84.4	85.6	84.9	84.7	84.7	85.4	86.1	86.7	86.1	85.8	87.6	89.1	88.1	88.2	89.4	91.9	91.0	90.7	91.4	91.8	89.5	86.4	89.6	87.60	91.88	
2-Dec	85.9	85.5	86.6	86.5	83.9	82.1	83.4	85.6	80.8	79.0	78.3	72.5	66.9	63.0	65.6	71.8	78.0	83.8	88.4	88.0	87.4	87.4	84.2	87.9	80.94	88.36	
3-Dec	88.4	89.2	84.3	82.1	78.7	78.2	77.4	82.1	78.3	74.0	68.6	65.9	60.3	61.7	61.2	65.4	70.9	79.7	84.9	89.7	91.1	90.3	88.4	80.5	77.96	91.07	
4-Dec	84.1	82.5	85.3	86.6	87.2	86.1	88.6	91.6	91.5	86.2	82.4	79.5	77.7	75.6	71.6	73.5	78.2	87.8	94.4	93.7	92.2	91.3	92.2	90.4	85.42	94.36	
5-Dec	90.2	87.6	89.6	88.7	86.9	89.3	88.2	86.2	85.7	83.6	85.0	87.4	84.3	87.9	89.5	89.4	90.3	90.1	90.2	90.2	90.2	90.0	90.3	90.6	88.39	90.61	
6-Dec	90.1	89.9	90.2	90.5	90.7	90.8	90.5	90.3	89.6	89.1	89.4	90.0	90.0	89.3	90.0	90.1	90.6	90.6	91.9	93.8	93.8	93.6	93.8	95.5	91.00	95.49	
7-Dec	94.0	89.3	90.1	90.1	86.1	82.1	83.3	79.5	81.7	82.0	78.8	74.7	74.3	67.4	72.6	74.2	90.2	96.5	96.9	96.3	95.2	94.8	93.7	93.0	85.69	96.93	
8-Dec	93.5	91.5	90.5	90.6	90.7	89.2	89.0	88.3	89.3	90.2	90.3	92.0	92.9	93.7	94.1	94.1	94.9	94.9	94.9	94.5	94.4	94.1	93.4	93.6	92.27	94.93	
9-Dec	94.5	94.1	95.0	95.1	94.3	95.2	94.4	93.8	94.7	94.5	94.3	94.2	93.7	91.8	86.5	88.4	92.4	96.1	97.1	96.7	94.9	84.9	75.7	70.4	91.78	97.13	
10-Dec	72.4	82.5	95.6	96.8	97.0	96.2	96.2	95.4	95.1	94.9	94.4	94.5	92.1	90.4	89.6	90.3	93.2	93.1	93.5	94.4	94.8	94.4	94.7	96.1	92.81	96.97	
11-Dec	96.9	96.6	95.4	96.0	91.1	92.6	92.9	89.1	72.0	66.8	68.1	62.4	60.6	50.5	59.1	77.5	68.6	66.2	66.0	65.7	71.0	65.8	65.5	66.4	75.12	96.87	
12-Dec	78.4	88.2	90.1	90.4	94.4	95.5	95.7	97.2	97.0	96.7	92.8	89.2	85.5	80.2	80.8	86.0	92.4	95.2	96.4	97.1	97.1	96.3	95.7	94.0	91.76	97.15	
13-Dec	96.2	97.6	97.6	97.6	97.8	98.0	97.6	97.8	97.1	96.9	94.4	87.3	70.3	61.9	61.9	63.7	72.1	83.2	86.5	89.0	91.5	92.3	91.8	88.7	87.87	98.03	
14-Dec	86.0	87.2	88.4	88.0	88.5	86.3	85.5	84.9	85.6	86.6	79.0	73.4	68.1	57.9	54.2	60.4	76.0	84.2	89.4	91.7	92.4	91.2	90.8	89.8	81.90	92.43	
15-Dec	87.8	87.3	86.5	84.9	84.9	84.2	83.2	82.5	82.3	83.5	86.4	86.7	85.7	82.2	77.4	78.6	88.9	88.8	86.1	85.8	84.9	83.5	83.6	83.0	84.53	88.85	
16-Dec	83.1	85.1	87.2	86.7	86.9	87.0	86.9	86.5	86.4	86.6	86.8	87.3	87.2	88.1	87.6	87.5	86.6	86.1	85.5	85.8	86.7	87.3	87.5	87.9	86.68	88.10	
17-Dec	87.9	88.1	88.3	88.2	88.4	88.3	88.1	87.0	85.1	84.9	82.8	80.5	77.8	74.9	71.4	75.8	87.7	88.7	88.2	88.3	87.6	88.4	87.3	88.0	85.07	88.70	
18-Dec	86.4	87.0	86.1	86.2	86.0	86.4	86.3	87.2	87.2	86.0	82.5	65.5	63.5	68.9	68.1	74.8	91.0	93.4	92.4	91.1	90.3	89.2	88.7	87.6	83.83	93.44	
19-Dec	86.8	88.4	88.7	87.7	90.1	87.8	88.2	88.5	88.6	87.8	89.0	90.1	91.6	90.5	91.6	87.4	91.1	92.9	92.8	92.5	93.0	93.3	92.5	93.6	90.19	93.58	
20-Dec	92.0	91.5	91.1	90.5	89.2	89.5	88.3	87.5	87.6	86.4	82.6	82.9	67.0	73.3	85.2	80.6	88.3	92.5	91.9	90.3	89.6	89.5	90.0	89.7	86.96	92.45	
21-Dec	91.3	91.6	91.6	91.7	91.7	92.4	92.2	92.4	92.3	92.2	91.2	89.8	91.7	95.3	95.9	90.5	84.5	89.9	91.3	91.5	96.1	97.3	97.3	93.0	92.29	97.33	
22-Dec	83.7	80.9	79.4	78.6	76.1	74.1	73.3	73.9	76.7	74.4	71.5	69.4	66.7	62.9	56.9	55.7	67.9	80.9	75.0	70.0	57.6	58.6	63.1	67.8	70.63	83.73	
23-Dec	67.5	63.7	68.1	70.1	71.0	70.2	71.8	75.9	76.8	81.5	79.4	75.8	75.0	76.8	80.3	81.4	81.0	79.0	76.2	79.2	75.5	79.3	83.6	83.5	75.94	83.59	
24-Dec	79.4	73.7	75.8	71.4	66.7	54.9	55.1	56.9	62.5	67.6	64.4	66.5	66.7	69.1	71.9	77.4	81.4	79.5	80.8	88.6	94.1	94.1	93.0	92.2	74.32	94.10	
25-Dec	91.0	91.4	91.6	91.2	91.7	92.1	92.3	92.3	92.7	92.6	91.4	90.9	88.9	88.0	88.8	91.1	91.2	87.9	80.3	80.6	81.8	86.8	88.6	93.3	89.51	93.25	
26-Dec	90.9	89.1	88.1	89.1	90.1	90.8	90.1	89.6	89.9	90.1	89.7	83.8	78.5	79.0	78.8	80.6	81.0	81.1	81.7	86.0	86.5	86.3	84.0	85.0	85.82	90.87	
27-Dec	85.6	87.1	82.4	83.5	90.7	91.9	85.5	88.4	90.4	89.3	81.0	74.4	71.4	79.0	81.8	85.7	92.2	95.6	95.6	95.2	94.8	94.2	93.6	93.3	87.60	95.60	
28-Dec	93.0	92.8	92.4	91.9	91.8	91.5	89.1	89.0	88.4	88.1	88.4	87.8	87.9	86.9	84.8	84.7	85.6	86.7	85.7	83.5	82.7	81.6	82.2	82.5	87.46	93.00	
29-Dec	82.6	78.8	78.8	78.1	78.1	78.1	78.4	79.2	79.4	78.3	78.3	76.0	74.0	73.1	69.2	67.1	78.9	83.9	82.7	82.5	82.9	83.1	81.9	80.1	78.48	83.93	
30-Dec	81.0	80.6	80.7	79.7	79.5	80.6	79.5	79.1	74.4	62.2	57.2	59.8	62.1	60.9	57.2	46.5	43.5	45.3	46.8	51.7	52.3	58.7	56.7	55.2	63.79	81.03	
31-Dec	59.0	55.3	55.0	51.6	50.8	56.8	52.0	52.6	55.2	54.8	54.3	52.6	51.1	52.1	50.4	55.5	53.8	56.4	61.0	64.7	62.6	63.9	65.7	64.7	56.32	65.69	
		85.90	85.76	86.32	85.97	85.67	85.26	84.78	85.04	84.53	83.64	81.88	79.68	77.18	76.14	76.20	77.91	82.40	85.19	85.65	86.44	86.35	86.16	85.67	85.38	Diurnal Average	
		96.87	97.65	97.58	97.58	97.79	98.03	97.62	97.75	97.06	96.92	94.40	94.54	93.70	95.34	95.87	94.14	94.93	96.51	97.13	97.11	97.05	97.28	97.33	96.06	Diurnal Maximum	



WCAS - Carrot Creek
Summary of Hourly Averages

Photosynthetically Active Radiation (PAR) - W/m2
December 2014

Maximum Value: 121.36 W/m2 on Dec 11 14:00 Maximum Daily Average: 21.58 W/m2 on Dec 7																							Hours in Service:	744		
Minimum Value: 0.0 W/m2 on Dec 1 01:00 Minimum Daily Average: 2.48 W/m2 on Dec 25																							Hours of Data:	744		
Maximum Diurnal Average: 55.49 W/m2 at hour 13 Minimum Diurnal Average: 0.00 W/m2 at hour 6																							Hours of Missing Data:	0		
Monthly Average: 10.914 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 10.1 P ₉₀ = 39.8 P ₉₉ = 99.7																							Hours of Calibration:	0		
																							Percent Operational Time:	100.0		
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.8	9.2	16.4	23.0	20.7	19.1	5.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.11	23.00
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.5	24.9	33.2	32.0	27.1	15.0	6.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.23	33.18
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	13.9	33.3	47.0	74.9	118.4	92.0	43.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.82	118.38
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	28.2	47.8	51.6	58.4	76.9	70.9	36.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.59	76.93
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	14.3	35.7	57.7	66.7	42.8	36.1	20.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.57	66.71
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.3	22.2	24.8	38.8	40.6	25.4	9.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.24	40.61
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	27.1	80.1	115.1	116.0	90.3	46.6	37.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.58	116.02
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	17.5	38.1	65.4	40.7	47.8	28.5	13.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.55	65.37
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.1	22.7	36.2	44.3	60.7	63.6	35.2	3.1	0.0	0.0	0.0	0.0	0.1	0.1	0.4	11.41	63.65
10-Dec	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	11.0	21.0	22.3	31.7	31.4	30.4	18.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.02	31.66
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	16.6	56.3	86.8	100.3	121.4	67.1	11.3	1.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	19.36	121.36
12-Dec	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.6	12.1	53.3	47.8	75.0	80.8	42.9	21.5	3.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	14.09	80.81
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	11.5	45.3	97.6	105.2	95.9	68.7	30.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.08	105.24
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	12.4	46.0	83.6	97.8	95.7	69.2	30.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.27	97.79
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	10.3	30.6	64.6	72.1	70.1	35.9	19.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.75	72.15
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.1	24.4	42.4	57.8	52.6	34.3	15.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.89	57.80
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	9.7	36.3	65.6	68.9	63.3	53.2	22.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.40	68.90
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	7.3	46.5	86.7	100.8	93.6	68.3	30.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.20	100.81
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.8	26.7	33.4	36.2	33.0	13.1	23.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.40	36.24
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	13.6	25.3	61.7	90.0	51.1	34.7	36.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.19	90.03
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.2	28.7	46.5	30.4	21.6	19.5	10.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.99	46.48
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	10.2	25.4	35.6	60.7	77.8	75.5	30.4	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.29	77.81
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.1	16.0	29.1	30.4	24.6	15.1	7.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.41	30.43
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	9.5	25.9	29.7	49.2	35.6	28.8	11.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.99	49.19
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	7.6	9.6	13.2	13.6	8.3	4.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.48	13.61
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	5.9	10.0	13.6	14.7	12.2	4.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.65	14.74
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	19.7	26.4	35.0	28.9	29.7	13.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.58	35.05
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	8.5	18.3	19.8	17.8	16.6	9.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.84	19.79
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.5	13.2	27.7	36.6	44.0	63.5	39.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.59	63.46
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.7	14.1	13.6	17.9	26.8	23.4	16.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	26.77
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.9	41.7	80.1	82.7	74.8	55.4	26.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.75	82.66
																							Diurnal Average			
																							Diurnal Maximum			



WCAS - Carrot Creek
Summary of Hourly Averages

Precipitation (PR) - mm
December 2014

Maximum Value: 0.00 mm on Dec 1 01:00 Maximum Daily Total: 0.00 mm on Dec 1 Minimum Value: 0.0 mm on Dec 1 01:00 Minimum Daily Total: 0.00 mm on Dec 1 Maximum Diurnal Total: 0.00 mm at hour 1 Minimum Diurnal Total: 0.00 mm at hour 1 Monthly Total: 0.000 mm Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0			
Day	Hourly Period Ending At																								Daily Total	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
4-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	0.0	0.00	0.00
5-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	0.0	0.00	0.00
6-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	0.0	0.00	0.00
7-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	0.0	0.00	0.00
8-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	0.0	0.00	0.00
9-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	0.0	0.00	0.00
10-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	0.0	0.00	0.00
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	0.0	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
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	0.0	0.0	0.00	0.00
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	0.0	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
14-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	0.0	0.00	0.00
15-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	0.0	0.00	0.00
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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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	0.0	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
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	0.0	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
21-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	0.0	0.00	0.00
22-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	0.0	0.00	0.00
23-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	0.0	0.00	0.00
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	0.0	0.00	0.00
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	0.0	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
26-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	0.0	0.00	0.00
27-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	0.0	0.00	0.00
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
29-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	0.0	0.00	0.00
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
31-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	0.0	0.00	0.00
																								0.00	0.00		
																								0.00	0.00		
																								Diurnal Average			
																								Diurnal Maximum			



WCAS - Carrot Creek
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 6.86 kph on Dec 11 10:00 Minimum Value: 0.0 kph on Dec 17 23:00 Maximum Diurnal Average: 2.13 kph at hour 21 Monthly Average: 1.930 kph		Maximum Daily Average: 3.08 kph on Dec 11 Minimum Daily Average: 0.96 kph on Dec 15 Minimum Diurnal Average: 1.72 kph at hour 3 Percentiles: P ₁ = 0.2 P ₁₀ = 1.0 Q ₁ = 1.4 Median = 1.8 Q ₃ = 2.4 P ₉₀ = 3.1 P ₉₉ = 4.7		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1.7	2.5	1.2	1.4	3.7	2.1	2.4	1.3	1.4	1.5	0.9	1.9	1.2	1.0	1.0	1.2	0.6	1.0	1.0	2.5	2.9	3.6	3.9	2.7	1.85	3.94
2-Dec	3.3	1.6	3.0	2.7	2.5	3.1	1.7	2.9	3.0	2.9	2.8	2.8	3.7	3.8	1.7	1.9	0.9	1.3	1.6	2.7	2.9	2.2	2.9	1.4	2.46	3.82
3-Dec	1.6	1.7	2.0	3.2	2.0	1.5	1.9	3.2	3.4	2.1	1.1	1.8	2.3	2.5	2.0	1.5	1.2	1.5	1.9	2.8	1.7	1.6	2.1	1.6	2.01	3.44
4-Dec	1.3	2.0	1.3	1.0	1.4	1.3	1.9	1.5	2.5	1.5	1.8	2.3	2.4	2.9	2.2	1.7	2.6	1.8	1.8	2.1	2.3	1.6	1.1	1.1	1.82	2.95
5-Dec	1.3	1.7	1.3	2.2	2.1	0.7	1.2	1.4	1.4	1.9	0.9	0.7	1.1	1.1	1.0	1.5	1.3	1.0	0.6	1.3	1.5	0.9	0.9	1.6	1.28	2.15
6-Dec	1.5	2.0	1.4	2.1	1.2	0.8	1.7	1.5	1.2	0.8	0.8	1.6	1.2	1.1	1.9	1.9	1.5	1.7	2.8	1.9	1.6	1.1	1.6	1.8	1.53	2.81
7-Dec	3.5	1.7	1.7	1.7	2.5	3.9	1.5	1.8	1.8	2.3	3.6	2.6	2.1	1.8	1.6	1.3	1.3	1.5	1.0	1.6	1.8	1.4	0.3	0.9	1.89	3.91
8-Dec	0.1	0.2	1.0	1.3	0.5	1.4	1.0	1.7	1.5	1.0	0.6	1.5	1.1	1.4	2.2	1.3	1.6	2.3	1.7	2.6	2.1	2.9	2.3	1.4	1.44	2.90
9-Dec	2.7	1.9	2.9	2.2	2.9	2.0	1.6	1.9	1.6	2.0	1.8	2.1	2.8	2.5	2.3	1.4	2.2	1.8	2.4	2.7	2.7	3.3	3.8	1.8	2.30	3.76
10-Dec	1.8	3.9	1.8	1.8	1.8	2.3	1.6	2.2	2.0	1.7	1.9	1.9	2.2	1.5	1.8	2.1	1.6	1.6	1.6	1.4	1.8	1.5	1.5	1.6	1.87	3.95
11-Dec	1.7	1.6	1.8	3.6	6.1	2.1	4.1	4.2	3.6	6.9	2.9	3.0	1.4	1.0	1.9	2.1	1.8	2.3	2.3	3.3	3.1	4.4	3.7	5.1	3.08	6.86
12-Dec	3.8	2.7	1.9	1.9	3.0	2.8	2.3	2.4	1.8	1.6	2.7	2.6	3.1	1.9	2.4	1.4	1.7	1.5	1.8	2.4	2.2	2.0	4.2	2.7	2.36	4.17
13-Dec	1.6	1.0	2.1	1.4	1.6	1.5	2.0	1.4	1.1	2.0	1.9	2.0	1.2	1.8	1.3	1.8	1.6	2.3	1.3	1.3	1.4	0.9	1.0	1.1	1.53	2.34
14-Dec	1.2	1.2	1.3	1.3	1.4	1.9	1.5	2.1	3.1	2.0	1.2	1.3	0.9	0.8	0.8	1.0	1.7	1.0	0.7	1.7	1.7	1.2	0.8	1.0	1.37	3.05
15-Dec	1.7	1.1	0.5	0.6	1.1	0.9	0.7	0.9	1.2	0.5	1.0	0.8	0.9	1.2	1.4	0.6	1.4	1.5	0.9	1.0	1.0	1.5	0.7	0.0	0.96	1.70
16-Dec	1.3	0.1	0.9	0.8	1.1	1.6	1.2	0.6	0.9	1.8	1.2	0.8	1.0	0.0	1.4	1.4	1.4	0.9	0.9	1.3	1.1	1.3	1.4	1.5	1.08	1.80
17-Dec	2.1	1.7	1.2	1.2	1.3	1.9	0.9	1.2	1.9	1.1	1.7	1.5	1.4	1.7	0.4	1.0	0.8	1.2	1.4	1.2	1.3	1.4	0.0	1.5	1.29	2.14
18-Dec	1.9	0.5	1.3	0.3	1.5	0.9	2.1	1.9	0.8	2.3	1.6	1.8	1.6	1.4	1.3	1.1	1.3	1.4	0.8	1.9	1.0	1.4	1.5	0.8	1.36	2.34
19-Dec	0.5	1.8	0.9	1.6	1.6	0.5	1.3	1.1	1.2	0.5	1.0	2.9	3.0	2.2	1.4	1.6	0.9	1.8	1.4	1.2	2.6	1.9	1.0	1.5	1.47	2.97
20-Dec	2.0	1.5	1.0	2.9	1.0	1.5	1.0	1.5	0.1	0.8	0.8	0.7	0.0	0.8	2.1	1.9	2.0	0.8	0.9	0.8	2.0	1.7	1.6	2.3	1.32	2.92
21-Dec	2.3	2.0	2.8	2.3	3.5	3.8	1.2	1.8	1.3	0.8	1.6	2.2	4.2	2.0	3.6	2.4	2.9	2.4	1.7	1.6	1.8	1.3	1.9	1.8	2.22	4.18
22-Dec	1.6	2.3	2.1	2.1	2.3	2.1	2.4	3.4	2.6	3.7	2.0	2.4	1.9	2.4	2.3	2.6	1.8	1.1	1.9	1.6	2.6	2.2	2.4	1.9	2.24	3.73
23-Dec	1.5	2.3	2.5	1.4	1.2	1.1	1.7	1.5	1.4	1.7	1.1	1.3	1.7	1.4	1.4	2.2	1.8	1.9	1.7	3.6	3.0	2.4	3.0	2.2	1.87	3.64
24-Dec	5.1	1.8	2.5	3.3	2.9	3.8	4.1	2.2	1.3	2.3	2.5	2.0	1.2	1.6	1.9	2.2	2.0	2.6	2.2	1.6	1.7	1.9	2.2	2.4	2.39	5.14
25-Dec	1.9	2.0	1.8	1.5	1.8	1.7	1.7	1.6	1.5	1.6	1.9	1.5	1.9	1.9	2.4	2.4	2.2	3.6	4.1	2.9	2.6	2.2	2.6	2.5	2.16	4.15
26-Dec	2.0	0.8	0.9	2.5	1.3	1.5	1.6	1.8	1.4	1.9	3.1	1.9	1.5	2.0	2.5	1.7	2.1	1.8	1.3	2.3	2.6	1.6	3.2	3.8	1.97	3.83
27-Dec	1.8	2.8	2.7	2.2	2.6	1.8	1.5	1.9	2.5	3.4	1.5	1.5	3.4	1.7	1.7	1.9	2.8	3.1	2.3	2.1	2.0	2.0	1.5	2.2	2.21	3.44
28-Dec	2.2	1.6	1.5	2.6	1.8	3.8	2.7	1.6	1.7	1.7	1.9	2.8	3.0	2.8	3.4	3.0	2.8	3.9	4.0	3.6	2.9	2.5	2.3	2.1	2.60	4.03
29-Dec	2.0	3.1	2.7	2.7	2.4	2.1	2.0	2.3	2.5	2.3	2.0	1.8	2.0	1.9	0.9	2.1	2.1	1.6	1.4	1.8	2.9	2.7	1.4	2.5	2.14	3.13
30-Dec	1.9	1.7	1.2	1.7	1.8	2.2	4.2	2.5	2.0	4.5	3.2	3.7	4.6	4.9	3.1	2.8	3.4	2.9	3.3	3.8	2.0	2.4	2.3	3.4	2.88	4.90
31-Dec	1.8	1.3	1.9	3.0	2.5	2.4	3.0	5.1	2.7	3.0	2.4	2.2	2.2	5.4	3.1	3.1	4.1	3.0	3.1	2.4	3.1	3.1	2.4	2.7	2.88	5.37
																								Diurnal Average		
																								Diurnal Maximum		
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																										



WCAS - Carrot Creek
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 104.32 deg on Dec 11 06:00		Maximum Daily Average: 67.98 deg on Dec 10		Hours in Service: 744																							
Minimum Value: 3.8 deg on Dec 4 04:00		Minimum Daily Average: 8.66 deg on Dec 31		Hours of Data: 744																							
Maximum Diurnal Average: 36.72 deg at hour 18		Minimum Diurnal Average: 23.09 deg at hour 12		Hours of Missing Data: 0																							
Monthly Average: 29.812 deg		Percentiles: P ₁ = 5.7 P ₁₀ = 8.2 Q ₁ = 12.1 Median = 20.3 Q ₃ = 40.8 P ₉₀ = 70.7 P ₉₉ = 97.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	16.4	19.2	12.2	13.9	63.8	25.4	9.7	9.6	12.5	24.4	57.2	77.0	96.9	21.3	80.0	10.8	24.1	80.6	28.2	25.0	13.7	21.3	38.6	88.1	36.25	96.88	
2-Dec	10.3	8.9	12.5	11.2	6.2	5.7	6.0	7.9	14.7	14.0	10.2	12.2	13.8	15.5	11.3	13.2	18.8	16.2	12.9	10.5	13.9	15.9	44.3	32.2	14.09	44.33	
3-Dec	74.2	15.3	18.2	22.6	9.2	8.4	11.4	12.8	24.6	23.4	6.7	6.6	8.8	5.4	6.1	8.3	14.9	15.5	28.2	30.5	7.0	14.6	10.5	9.6	16.37	74.19	
4-Dec	6.9	7.3	6.8	3.8	9.7	10.0	28.2	13.6	12.5	10.5	13.0	11.1	15.2	12.3	8.3	7.4	14.2	51.4	11.6	14.4	23.8	11.7	6.8	6.1	13.19	51.44	
5-Dec	7.3	10.0	7.9	9.1	14.4	6.4	10.8	17.9	31.9	63.8	33.2	26.1	10.7	27.4	15.4	32.2	20.3	24.6	25.2	56.0	25.2	19.8	29.1	38.9	23.48	63.76	
6-Dec	39.3	54.2	34.5	83.9	29.3	49.8	96.8	52.5	50.1	24.5	33.5	24.5	22.0	46.3	67.2	54.3	30.8	97.1	42.8	22.7	36.3	18.3	20.2	23.2	43.93	97.05	
7-Dec	11.0	7.2	7.3	10.3	8.7	17.2	7.0	7.5	5.5	23.4	37.0	21.0	9.1	27.7	12.8	17.2	64.1	23.2	77.1	49.9	51.7	72.8	9.2	17.0	24.79	77.06	
8-Dec	16.2	14.1	21.1	27.1	50.4	22.7	19.8	38.2	41.6	37.3	51.8	18.8	14.2	27.2	72.1	76.4	50.7	63.3	77.6	99.2	58.4	56.8	77.2	59.2	45.49	99.21	
9-Dec	49.6	82.9	78.8	47.3	62.0	69.6	23.9	58.8	25.3	84.9	80.9	52.4	102.0	82.2	73.0	90.7	44.6	61.3	57.8	47.2	98.8	25.4	9.2	6.6	58.97	102.00	
10-Dec	20.7	31.6	72.9	39.4	93.3	69.4	93.1	51.8	100.0	74.3	91.0	24.1	63.3	68.7	48.2	86.3	60.0	74.2	35.5	84.1	89.2	92.1	92.9	75.5	67.98	100.04	
11-Dec	20.8	25.9	31.3	19.7	75.2	104.3	46.1	42.9	7.6	13.1	10.6	19.3	15.4	20.7	54.2	18.6	14.1	11.9	11.4	17.6	14.0	12.3	11.5	22.7	26.72	104.32	
12-Dec	60.8	65.3	38.4	89.1	61.5	91.4	86.0	47.8	95.3	24.4	42.0	69.5	56.6	19.0	82.5	90.2	75.6	61.9	70.7	60.8	70.7	64.1	85.1	65.6	65.60	95.34	
13-Dec	96.6	30.5	45.2	8.9	25.1	10.0	18.0	21.2	20.6	5.8	12.3	10.2	7.8	5.8	4.7	7.5	21.8	25.2	23.9	15.9	9.9	9.2	10.1	12.6	19.11	96.59	
14-Dec	8.0	10.7	9.3	6.2	12.9	8.2	9.1	8.0	46.5	31.5	9.1	4.7	6.7	8.4	21.2	18.7	42.4	20.3	38.6	39.9	39.5	13.3	30.3	23.6	19.46	46.46	
15-Dec	48.2	26.2	26.1	33.0	14.4	62.1	35.7	27.7	23.3	31.9	31.0	13.3	22.6	30.0	35.2	11.6	10.4	32.8	13.6	15.8	15.7	74.0	40.9	22.7	29.10	74.00	
16-Dec	18.8	35.7	27.4	51.3	57.5	81.1	26.5	18.2	59.4	41.9	8.2	30.3	15.6	18.6	23.7	8.9	11.5	35.0	27.1	20.6	26.1	17.7	20.7	37.9	29.99	81.15	
17-Dec	16.1	11.3	9.0	12.5	17.1	9.9	7.7	8.0	10.8	10.7	11.8	16.9	32.1	20.2	41.3	37.1	46.3	72.2	35.3	32.1	29.9	34.9	11.7	52.4	24.48	72.16	
18-Dec	58.6	47.2	32.3	30.8	79.0	78.4	44.6	27.5	68.7	68.2	80.9	23.7	12.7	38.7	47.9	85.9	88.6	59.9	72.5	37.7	61.3	27.6	31.8	52.2	52.35	88.62	
19-Dec	9.7	31.3	40.4	36.4	59.7	32.8	68.0	38.3	40.9	23.1	49.1	23.0	19.8	60.1	35.0	60.9	86.3	95.3	51.8	25.8	25.6	19.0	49.4	22.3	41.83	95.26	
20-Dec	70.3	97.0	60.3	34.1	41.1	81.4	62.9	55.4	19.2	35.6	34.8	31.0	19.8	31.0	24.9	47.1	72.8	32.9	81.3	49.1	76.1	27.9	79.4	44.5	50.42	97.02	
21-Dec	57.7	52.0	49.3	91.3	62.9	49.3	63.2	51.0	40.4	33.2	22.2	31.7	10.6	9.1	13.6	14.0	17.4	34.3	16.2	27.5	10.0	24.2	34.2	24.1	34.98	91.33	
22-Dec	9.5	6.8	8.2	7.0	6.6	6.2	9.5	20.9	13.1	8.9	5.7	8.3	7.9	14.9	13.5	19.2	55.6	13.9	19.3	13.2	10.6	10.3	18.9	10.4	13.27	55.56	
23-Dec	6.0	21.4	36.2	25.5	8.8	8.3	16.2	22.7	89.8	38.6	64.2	69.5	25.1	40.8	63.0	42.5	19.5	23.9	27.2	13.1	45.2	79.5	72.2	42.2	37.55	89.85	
24-Dec	42.9	14.3	8.5	15.0	11.5	14.4	16.0	9.7	19.0	12.0	7.0	15.1	13.4	18.3	11.0	13.4	28.6	21.3	18.9	23.0	20.7	20.0	23.8	12.8	17.11	42.89	
25-Dec	12.9	14.7	13.6	13.4	17.6	19.2	16.8	17.6	14.8	15.6	16.9	13.0	33.0	27.2	17.3	15.5	19.8	15.1	18.1	19.2	28.2	60.3	72.2	68.0	24.17	72.16	
26-Dec	34.1	15.5	20.4	29.3	12.1	9.6	15.8	31.0	14.5	21.8	23.2	7.9	7.4	9.4	12.3	11.7	9.8	7.1	10.0	17.0	12.1	5.7	9.2	70.9	17.41	70.90	
27-Dec	46.7	15.6	25.8	8.1	31.6	15.2	20.7	11.0	28.6	9.8	10.3	13.6	61.6	12.8	12.0	12.6	13.3	16.4	14.1	14.5	15.5	16.2	21.7	21.9	19.57	61.64	
28-Dec	17.4	20.3	27.6	26.6	18.0	23.5	17.8	16.2	13.2	12.3	18.0	19.8	17.4	19.1	18.8	18.1	19.4	16.5	18.2	16.8	18.4	15.5	14.1	17.4	18.35	27.56	
29-Dec	13.6	12.0	18.5	14.7	13.4	13.3	12.6	13.0	13.1	9.5	9.0	7.3	9.8	13.9	12.8	17.7	64.7	20.6	18.5	11.9	14.3	26.4	12.2	15.8	16.19	64.66	
30-Dec	4.3	18.3	20.3	25.7	19.3	26.2	22.6	10.1	19.3	8.4	7.5	6.8	9.0	5.8	5.6	10.8	11.1	8.5	9.6	22.3	20.3	6.7	10.0	11.5	13.34	26.22	
31-Dec	10.7	6.6	14.3	9.8	11.5	8.5	10.2	7.9	7.6	7.8	6.0	7.1	7.7	13.7	8.3	6.7	6.9	6.1	7.2	6.2	8.7	9.1	7.8	11.5	8.66	14.26	
		29.53	26.76	26.91	27.65	32.38	33.49	30.09	25.06	31.76	27.25	28.86	23.09	24.78	24.89	30.75	31.15	34.78	36.72	32.27	30.31	31.96	29.76	32.42	32.89	Diurnal Average	
		96.59	97.02	78.79	91.33	93.31	104.32	96.79	58.79	100.04	84.90	91.05	76.97	102.00	82.20	82.47	90.71	88.62	97.05	81.31	99.21	98.77	92.06	92.89	88.14	Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																											

**STEEPER
STATION #905**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

WCAS / Steeper Station 905												December 2014
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	P10	Q1	Percentile Median	Q3	P90	24 Hour Average Max (ppm)
SO ₂ (ppb)	36	708	100.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.000
O ₃ (ppb)	36	708	100.0	36.5	9.9	50.5	29.5	33.5	37.8	40.4	41.8	0.044
NO (ppb)	36	708	100.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	-
NO ₂ (ppb)	36	708	100.0	1.0	0.0	9.6	0.0	0.2	0.5	1.4	2.4	0.003
NO _x (ppb)	36	708	100.0	0.6	0.0	9.8	0.0	0.0	0.0	0.6	1.7	-
CO (ppm)	36	708	100.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.000
Particulate Matter 2.5 microns (μ/m ³)	0	735	98.8	3.2	0.0	237.6	0.0	0.0	0.1	1.3	6.2	29.99 ug/m3
Wind Speed (kph)	0	744	100.0	4.2	0.2	21.5	1.5	2.4	3.9	5.4	7.4	-
Temperature (°C)	0	744	100.0	-3.7	-22.8	13.7	-11.6	-7.5	-3.5	0.5	5.2	-
Relative Humidity (%)	0	744	100.0	60.1	29.0	95.9	39.1	47.1	59.5	71.5	84.2	-
Std Dev Wind Direction (deg)	0	744	100.0	1.2	0.2	7.2	0.6	0.8	1.0	1.4	2.1	-
Std Dev Wind Speed (kph)	0	744	100.0	22.7	5.4	100.9	8.3	9.7	12.9	27.8	57.0	-



WCAS - Steeper
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 0.22 ppb on Dec 12 14:00		Maximum Daily Average: 0.01 ppb on Dec 12		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.00 ppb on Dec 1		Hours of Data: 708																							
Maximum Diurnal Average: 0.01 ppb at hour 14		Minimum Diurnal Average: 0.00 ppb at hour 1		Hours of Missing Data: 36																							
Monthly Average: 0.000 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
3-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
5-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
10-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
11-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
12-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.22
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
14-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
15-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
16-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
20-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
21-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
22-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
23-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
27-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
28-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
		0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Diurnal Average
		0.00	0.00	0.00	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Diurnal Maximum
Z - zerospan C - Calibration Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																											



WCAS - Steeper
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2014

Maximum Value: 50.49 ppb on Dec 15 22:00																								Maximum Daily Average: 43.64 ppb on Dec 1																								Hours in Service: 744	
Minimum Value: 9.9 ppb on Dec 28 01:00																								Minimum Daily Average: 24.78 ppb on Dec 28																								Hours of Data: 708	
Maximum Diurnal Average: 37.47 ppb at hour 11																								Minimum Diurnal Average: 34.97 ppb at hour 1																								Hours of Missing Data: 36	
Monthly Average: 36.459 ppb																								Percentiles: P ₁ = 21.8 P ₁₀ = 29.5 Q ₁ = 33.5 Median = 37.8 Q ₃ = 40.4 P ₉₀ = 41.8 P ₉₉ = 45.7																								Hours of Calibration: 36	
																								Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	45.8	46.1	46.2	Z	46.3	46.1	45.9	45.3	45.0	45.4	45.4	43.4	43.3	42.8	41.7	42.4	43.2	42.7	42.3	41.8	41.1	40.7	40.4	40.4	43.64	46.31																							
2-Dec	39.7	39.3	38.9	Z	37.1	37.5	37.1	36.7	36.1	35.8	35.5	36.2	34.2	33.3	34.8	34.4	33.3	34.1	32.7	33.3	35.1	37.1	37.3	37.2	35.95	39.67																							
3-Dec	37.4	37.7	38.3	Z	38.8	39.0	39.3	40.0	40.4	40.0	39.9	39.6	40.1	39.6	36.7	37.9	38.5	38.0	37.8	38.7	38.9	39.3	39.6	39.9	38.93	40.36																							
4-Dec	40.0	39.6	41.1	Z	39.4	37.7	35.8	34.9	36.7	35.9	34.4	34.3	35.8	38.5	38.2	38.1	38.0	35.5	34.2	33.1	32.5	33.3	31.8	27.3	35.91	41.07																							
5-Dec	29.6	30.0	28.3	Z	29.0	30.2	32.3	32.6	32.6	32.2	32.2	34.8	35.0	33.2	28.8	28.1	27.0	24.6	33.5	32.5	31.3	32.3	32.7	31.4	31.05	35.03																							
6-Dec	31.4	31.2	31.4	Z	32.2	32.6	32.8	30.9	32.1	31.5	33.5	35.4	34.3	32.1	30.3	38.4	34.2	33.4	30.2	27.3	27.3	26.2	25.7	30.4	31.51	38.40																							
7-Dec	32.6	34.8	37.8	Z	39.8	40.9	40.7	40.7	41.3	41.8	41.7	41.0	38.9	37.9	38.3	38.9	38.0	37.6	37.1	32.2	33.0	33.1	33.5	33.8	37.63	41.80																							
8-Dec	34.8	34.2	35.8	Z	40.9	41.7	40.3	41.9	41.8	42.0	41.6	41.1	41.4	41.6	40.4	41.0	39.2	41.6	42.6	42.2	39.2	41.5	41.4	42.3	40.46	42.64																							
9-Dec	42.1	41.8	39.4	Z	40.9	41.0	41.1	39.5	38.4	38.4	38.4	38.4	38.0	38.3	39.1	38.6	39.1	39.0	37.5	38.1	39.8	41.2	39.4	39.2	39.42	42.07																							
10-Dec	40.1	40.4	40.4	Z	39.0	40.5	41.0	41.8	41.5	40.9	39.6	38.9	38.3	39.1	40.8	43.2	44.9	44.0	41.9	43.0	42.0	41.0	40.4	39.0	40.94	44.93																							
11-Dec	33.9	36.4	35.8	Z	47.0	43.1	41.9	40.6	39.5	39.4	39.4	40.1	40.8	41.7	41.9	39.5	34.4	40.1	36.8	38.0	38.0	34.9	31.6	25.8	38.29	46.96																							
12-Dec	26.3	32.8	34.3	Z	33.8	34.2	36.0	33.9	34.3	33.3	33.1	34.3	34.3	36.9	39.5	39.3	39.0	38.6	38.1	36.0	36.4	36.3	39.2	35.8	35.46	39.50																							
13-Dec	33.4	31.2	30.9	Z	30.0	29.8	28.4	30.1	29.6	30.9	C	C	C	C	C	38.1	38.4	38.1	35.9	35.8	34.4	35.0	34.8	33.5	33.25	38.37																							
14-Dec	30.8	31.0	30.9	Z	31.4	31.5	31.9	32.0	29.8	30.5	32.1	34.7	35.6	38.9	35.8	32.9	32.5	34.0	34.7	29.4	31.0	30.8	30.6	31.0	32.33	38.90																							
15-Dec	31.5	33.1	32.1	Z	33.6	36.9	37.5	38.1	39.2	40.8	38.9	39.5	38.9	37.2	37.6	34.3	32.0	30.4	33.8	36.1	39.0	50.5	40.9	41.2	37.10	50.49																							
16-Dec	31.6	36.1	37.8	Z	33.9	33.0	33.2	37.2	38.2	40.1	40.6	39.8	39.4	40.7	37.9	35.6	34.8	35.1	32.9	36.4	38.5	38.2	39.9	40.7	37.02	40.75																							
17-Dec	40.9	42.7	41.6	Z	43.7	42.1	42.7	43.4	43.7	43.9	42.3	41.0	41.0	38.1	39.7	36.7	38.5	38.0	37.4	38.4	38.6	38.0	37.8	36.9	40.32	43.90																							
18-Dec	37.1	36.8	36.4	Z	36.3	37.6	36.8	35.7	36.4	36.6	33.2	34.4	34.1	36.3	36.6	34.7	35.0	33.4	33.6	33.6	33.3	33.4	33.6	36.1	35.25	37.63																							
19-Dec	34.4	35.1	34.5	Z	35.0	36.4	36.1	38.7	38.5	36.6	36.9	34.1	33.9	34.1	33.8	33.5	30.9	33.2	33.9	35.8	38.7	38.8	38.1	37.3	35.58	38.81																							
20-Dec	38.4	40.1	40.3	Z	40.4	40.7	40.8	40.9	40.7	41.7	41.8	41.6	41.9	41.9	41.1	42.6	42.8	41.9	41.6	40.8	38.9	37.9	37.5	37.1	40.59	42.81																							
21-Dec	37.8	37.0	38.3	Z	36.2	36.2	36.3	36.7	37.5	36.9	34.1	32.4	32.3	35.2	38.3	41.5	41.7	41.3	40.8	41.0	41.7	42.5	39.8	44.6	38.26	44.64																							
22-Dec	45.1	44.8	43.7	Z	42.5	41.3	40.7	41.8	42.1	41.8	41.1	40.9	41.1	41.8	41.4	41.4	41.3	41.0	40.4	40.1	39.8	39.4	40.9	40.8	41.53	45.06																							
23-Dec	41.4	41.0	40.2	Z	41.2	42.2	42.4	42.8	42.2	42.1	43.1	43.2	42.7	39.9	41.3	40.5	39.7	36.0	39.7	39.9	39.1	39.0	38.6	39.3	40.75	43.15																							
24-Dec	38.7	38.6	40.1	Z	41.2	40.5	39.1	38.8	38.8	39.3	39.9	39.2	39.5	39.5	39.0	34.7	32.3	31.8	32.5	33.4	33.5	31.8	31.9	30.9	36.74	41.18																							
25-Dec	28.8	24.4	24.6	Z	23.5	22.8	24.0	25.6	21.7	25.7	29.3	25.5	32.1	29.6	29.4	27.9	29.0	35.5	36.6	36.5	36.9	35.7	35.7	34.6	29.36	36.93																							
26-Dec	34.0	34.2	32.8	Z	32.8	36.4	39.4	40.9	40.5	39.9	39.6	39.4	38.2	38.1	35.3	35.4	38.0	38.6	38.2	36.9	36.9	37.7	36.1	36.6	37.22	40.92																							
27-Dec	37.3	36.3	38.3	Z	39.7	40.2	40.1	40.2	40.1	39.7	39.6	39.4	37.5	37.4	36.7	36.7	37.4	36.0	33.2	29.9	21.8	16.0	11.9	11.6	33.78	40.23																							
28-Dec	9.9	11.3	15.1	Z	21.9	22.8	22.1	27.0	29.2	30.5	29.5	29.4	31.1	30.0	29.7	28.4	27.0	26.2	23.7	23.4	24.6	23.7	27.2	26.5	24.78	31.06																							
29-Dec	25.4	25.5	24.5	Z	26.8	26.4	25.5	24.5	24.2	23.9	24.3	23.6	25.5	27.6	29.9	30.1	28.1	27.4	28.7	29.8	30.9	32.4	33.3	34.2	27.50	34.18																							
30-Dec	35.1	36.5	37.5	Z	38.3	39.9	41.5	41.6	41.9	42.1	41.9	41.1	41.4	43.1	41.6	39.5	41.3	39.7	36.3	35.8	35.8	38.6	38.2	37.8	39.41	43.06																							
31-Dec	38.8	38.6	34.3	Z	35.4	37.9	39.6	41.6	39.6	41.0	41.4	40.0	38.0	39.2	39.8	41.1	41.2	38.8	40.8	40.6	41.6	40.9	40.3	40.0	39.58	41.62																							
																								34.97	35.44	35.53	--	36.39	36.74	36.84	37.31	37.21	37.43	37.47	37.22	37.28	37.46	37.17	36.95	36.47	36.31	36.12	35.80	35.80	36.05	35.48	35.27	Diurnal Average	
																								45.82	46.06	46.17	--	46.96	46.07	45.85	45.26	44.98	45.37	45.38	43.40	43.32	43.06	41.88	43.24	44.93	43.99	42.64	42.96	42.02	50.49	41.44	44.64	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82.5 ppb 24-hr -- ppb																																																	



WCAS - Steeper
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 2.78 ppb on Dec 13 10:00		Maximum Daily Average: 0.15 ppb on Dec 13		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.00 ppb on Dec 1		Hours of Data: 708																							
Maximum Diurnal Average: 0.10 ppb at hour 18		Minimum Diurnal Average: 0.00 ppb at hour 5		Hours of Missing Data: 36																							
Monthly Average: 0.023 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.8		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
2-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
3-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
5-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	1.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	1.29	
10-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
11-Dec	0.9	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.88	
12-Dec	1.2	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.10	1.24	
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	2.8	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15	2.78	
14-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
15-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
16-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	1.60	
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.45	
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.27	
20-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
21-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.10	2.37	
22-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
23-Dec	0.0	0.0	0.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.12	2.25	
24-Dec	0.0	0.4	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.40	
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
27-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
28-Dec	0.2	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.24	
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.97	
		0.08	0.01	0.05	--	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.02	0.05	0.00	0.01	0.10	0.00	0.00	0.00	0.03	0.08	0.00	Diurnal Average		
		1.24	0.40	1.29	--	0.00	0.00	0.00	0.00	2.78	0.00	0.00	0.00	0.45	1.60	0.00	0.27	2.25	0.00	0.00	0.00	0.97	2.37	0.00	Diurnal Maximum		
Z - zerospan																											
C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb																										24-hr --- ppb	



WCAS - Steeper
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2014

Maximum Value: 9.57 ppb on Dec 28 01:00		Maximum Daily Average: 2.55 ppb on Dec 5		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.12 ppb on Dec 20		Hours of Data: 708																													
Maximum Diurnal Average: 1.66 ppb at hour 1		Minimum Diurnal Average: 0.47 ppb at hour 13		Hours of Missing Data: 36																													
Monthly Average: 0.971 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 0.5 Q ₃ = 1.4 P ₉₀ = 2.4 P ₉₉ = 6.8		Hours of Calibration: 36																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.8	0.7	0.7	0.34	0.84							
2-Dec	0.7	0.7	0.7	Z	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4	1.5	2.1	1.6	2.1	2.8	2.5	2.3	1.6	0.9	0.3	0.3	0.2	1.07	2.84							
3-Dec	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	1.1	0.4	0.4	0.4	0.5	0.7	2.2	1.6	1.3	1.4	1.5	1.6	1.6	2.2	1.8	0.87	2.17							
4-Dec	2.1	2.4	1.5	Z	1.5	1.3	1.4	1.7	1.4	1.3	2.2	1.4	1.3	1.1	1.1	1.0	0.9	2.1	1.7	2.5	2.2	1.6	2.2	6.2	1.84	6.16							
5-Dec	3.4	1.7	1.5	Z	1.9	2.0	1.8	1.6	1.6	2.4	2.3	1.6	0.9	1.6	2.9	2.8	5.7	9.5	4.1	2.8	2.1	1.4	1.3	1.7	2.55	9.54							
6-Dec	1.4	1.3	0.9	Z	0.9	0.7	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	1.2	0.7	0.5	0.6	0.7	0.6	0.4	0.6	0.71	1.44								
7-Dec	0.7	0.6	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.8	0.7	1.0	0.7	0.5	1.1	1.1	0.8	0.5	0.3	0.47	1.71							
8-Dec	0.3	0.6	0.6	Z	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.8	0.3	0.2	0.3	0.27	0.81							
9-Dec	0.3	0.3	3.3	Z	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.4	0.6	0.4	0.4	0.4	0.48	3.26							
10-Dec	0.4	0.3	0.3	Z	1.1	0.3	0.3	0.3	0.3	0.7	0.8	0.9	1.5	2.0	1.1	0.3	0.2	0.3	1.3	0.2	0.6	0.8	0.5	0.6	0.66	2.02							
11-Dec	6.0	1.1	0.5	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.9	3.0	1.2	2.5	2.1	2.4	3.4	3.0	2.5	1.32	5.98							
12-Dec	6.9	1.1	1.1	Z	0.2	0.3	0.3	1.1	1.3	1.7	1.6	1.2	1.3	1.0	0.2	0.2	0.3	0.3	0.3	0.3	0.3	2.8	0.3	0.4	1.05	6.89							
13-Dec	1.1	1.7	2.6	Z	2.0	1.8	1.5	1.3	0.9	1.2	C	C	C	C	C	0.0	0.0	0.0	0.2	0.4	0.0	0.7	1.6	0.95	2.59								
14-Dec	2.8	2.5	3.0	Z	2.4	2.4	2.3	1.9	3.4	3.1	2.0	1.0	0.1	0.0	2.3	3.7	4.2	3.1	1.6	3.8	1.6	1.2	2.5	2.7	2.33	4.22							
15-Dec	2.4	1.9	4.0	Z	4.7	1.7	2.1	2.2	1.8	0.6	1.6	0.8	0.3	1.6	2.2	2.4	2.8	4.4	2.0	1.2	2.4	7.1	3.7	4.3	2.52	7.12							
16-Dec	3.6	0.9	1.1	Z	2.7	3.9	3.9	1.0	0.6	0.6	0.3	0.3	0.4	0.9	5.8	1.6	2.7	2.5	4.8	1.7	1.9	1.5	1.1	0.9	1.95	5.78							
17-Dec	0.9	0.7	1.0	Z	0.8	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.3	3.9	0.8	1.3	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.61	3.88							
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.2	0.3	0.7	2.6	2.7	2.6	1.3	0.6	1.1	0.5	0.5	0.4	0.61	2.75							
19-Dec	0.4	0.5	0.5	Z	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.9	0.2	2.4	0.2	0.2	0.1	0.0	0.0	0.0	0.9	0.48	2.43							
20-Dec	0.3	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.12	0.36							
21-Dec	0.4	0.4	0.5	Z	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	3.3	0.0	0.40	3.34							
22-Dec	0.0	0.0	0.0	Z	0.0	0.4	0.7	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.2	0.1	0.2	0.2	0.4	0.5	0.5	0.5	0.4	0.23	0.72								
23-Dec	0.4	1.3	1.2	Z	0.6	0.5	0.4	0.4	0.5	0.6	0.4	0.3	0.2	0.4	0.1	0.1	0.7	3.3	0.1	0.0	0.0	0.0	0.0	0.0	0.49	3.28							
24-Dec	0.0	2.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	3.0	2.8	2.0	1.7	2.1	1.7	1.4	1.3	0.87	3.02							
25-Dec	1.3	1.9	1.3	Z	1.1	0.9	0.8	0.9	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.5	0.6	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.56	1.85							
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.4	1.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.25	1.41							
27-Dec	0.3	2.2	1.3	Z	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	2.9	5.1	8.7	7.9	1.28	8.66							
28-Dec	9.6	7.7	4.9	Z	1.3	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	1.2	1.1	0.6	3.0	0.7	1.0	1.47	9.57							
29-Dec	1.3	1.3	1.6	Z	1.1	1.2	1.8	1.9	1.6	1.6	1.4	1.5	1.0	0.9	0.9	1.4	1.5	2.3	3.3	3.2	3.9	3.7	3.9	4.1	2.01	4.06							
30-Dec	3.6	2.4	1.7	Z	1.9	1.6	1.4	1.4	1.1	1.3	0.8	0.7	0.7	0.3	0.2	1.7	0.3	0.2	0.2	0.2	0.3	0.5	0.5	0.4	1.03	3.64							
31-Dec	0.4	0.2	0.2	Z	0.2	1.1	1.1	0.4	0.3	0.2	0.2	0.6	0.5	0.6	0.1	0.0	0.0	0.8	0.0	0.4	0.0	0.0	0.0	0.0	0.33	1.15							
		1.66	1.23	1.15	--	0.87	0.78	0.80	0.63	0.61	0.65	0.60	0.47	0.47	0.73	0.88	1.00	1.30	1.41	1.10	0.95	1.04	1.30	1.29	1.35	Diurnal Average							
		9.57	7.65	4.93	--	4.68	3.91	3.92	2.24	3.40	3.11	2.26	1.58	1.52	3.88	5.78	3.66	5.72	9.54	4.83	3.77	3.89	7.12	8.66	7.85	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 159 ppb				24-hr 106 ppb																											



WCAS - Steeper
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2014

Maximum Value: 9.84 ppb on Dec 28 01:00		Maximum Daily Average: 1.82 ppb on Dec 15		Hours in Service: 744																									
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.00 ppb on Dec 8		Hours of Data: 708																									
Maximum Diurnal Average: 1.30 ppb at hour 1		Minimum Diurnal Average: 0.12 ppb at hour 12		Hours of Missing Data: 36																									
Monthly Average: 0.550 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.6 P ₉₀ = 1.7 P ₉₉ = 7.4		Hours of Calibration: 36																									
				Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.00	0.05				
2-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.8	1.1	1.5	2.0	1.6	1.3	0.7	0.0	0.0	0.0	0.49	2.02				
3-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	1.6	0.8	0.5	0.6	0.7	0.8	0.9	1.4	1.1	0.37	1.55				
4-Dec	1.4	1.7	0.8	Z	0.7	0.6	0.7	0.9	0.6	0.5	1.6	0.7	0.6	0.3	0.3	0.1	0.0	1.1	0.6	1.4	1.1	0.5	1.1	5.0	0.96	4.99			
5-Dec	3.3	0.5	0.3	Z	0.7	0.8	0.6	0.5	0.5	1.3	1.4	0.7	0.0	0.8	2.2	2.0	4.8	9.0	3.0	1.8	1.1	0.4	0.4	0.8	1.61	9.04			
6-Dec	0.5	0.4	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.70				
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.10	1.61				
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00				
9-Dec	0.0	0.0	4.6	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	4.55				
10-Dec	0.0	0.0	0.0	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.4	0.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.17	1.36				
11-Dec	6.8	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.3	1.6	1.3	1.6	2.6	2.1	1.6	0.88	6.85				
12-Dec	8.1	0.3	0.8	Z	0.0	0.0	0.0	0.3	0.5	0.8	0.9	0.5	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.73	8.09				
13-Dec	0.0	0.5	1.4	Z	0.9	0.6	0.3	0.1	0.0	3.1	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.42	3.12				
14-Dec	1.9	1.6	2.1	Z	1.5	1.5	1.5	1.0	2.5	2.4	1.5	0.4	0.0	0.0	1.9	3.3	3.4	2.1	0.7	2.8	0.7	0.3	1.6	1.8	1.58	3.42			
15-Dec	1.5	0.9	3.0	Z	3.8	0.8	1.2	1.4	0.9	0.0	1.0	0.1	0.0	1.2	1.8	1.7	2.1	3.6	1.3	0.5	1.7	6.5	3.1	3.7	1.82	6.49			
16-Dec	3.1	0.3	0.6	Z	2.1	3.3	3.4	0.4	0.1	0.1	0.0	0.0	0.3	7.5	1.1	2.1	1.9	4.1	1.0	1.2	0.7	0.3	0.2	1.47	7.46				
17-Dec	0.1	0.0	0.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.24	4.45				
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1	2.0	1.8	0.5	0.0	1.0	0.0	0.0	0.33	2.12				
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.1	0.14	2.71				
20-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00				
21-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.24	5.62				
22-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.25				
23-Dec	0.0	0.6	1.5	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.33	5.52				
24-Dec	0.0	2.5	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.3	2.0	1.3	0.9	1.3	0.9	0.6	0.4	0.59	2.48			
25-Dec	0.5	1.0	0.5	Z	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.10	1.02				
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.96				
27-Dec	0.0	1.4	0.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.7	8.3	7.6	1.09	8.33				
28-Dec	9.8	7.6	4.7	Z	1.1	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.1	2.6	0.1	0.4	1.26	9.84			
29-Dec	0.7	0.6	0.9	Z	0.3	0.4	1.2	1.1	0.8	0.8	0.8	1.2	0.6	0.4	0.3	0.9	0.7	1.4	2.3	2.2	2.9	2.7	2.8	3.0	1.27	3.04			
30-Dec	2.6	1.4	0.7	Z	0.8	0.6	0.4	0.4	0.1	0.3	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.36	2.60				
31-Dec	0.0	0.0	0.0	Z	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.09	1.36				
		1.30	0.70	0.72	--	0.40	0.31	0.33	0.20	0.20	0.31	0.24	0.12	0.13	0.42	0.57	0.58	0.84	1.04	0.62	0.45	0.52	0.86	0.88	0.85	Diurnal Average			
		9.84	7.60	4.70	--	3.76	3.35	3.36	1.37	2.53	3.12	1.64	1.23	1.10	4.45	7.46	3.26	4.83	9.04	4.14	2.84	2.92	6.49	8.33	7.56	Diurnal Maximum			
Z - zerospan		C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb				24-hr --- ppb																							



WCAS - Steeper
Summary of Hourly Averages

Carbon Monoxide (CO) - ppm
December 2014

Maximum Value: 1.78 ppm on Dec 15 22:00		Maximum Daily Average: 0.18 ppm on Dec 15		Hours in Service: 744																							
Minimum Value: 0.0 ppm on Dec 1 01:00		Minimum Daily Average: 0.00 ppm on Dec 1		Hours of Data: 708																							
Maximum Diurnal Average: 0.06 ppm at hour 22		Minimum Diurnal Average: 0.00 ppm at hour 19		Hours of Missing Data: 36																							
Monthly Average: 0.018 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.4		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.04
3-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.00	0.10	
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.08	
5-Dec	0.0	0.2	0.3	Z	0.5	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.14	0.46	
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.01	
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
8-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
10-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
11-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.09	
12-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.06	
14-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
15-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.8	1.0	0.9	0.18	1.78	
16-Dec	0.0	0.1	0.4	Z	0.0	0.0	0.0	0.2	0.1	0.4	0.3	0.2	0.2	0.5	0.4	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.14	0.46	
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.05	
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
20-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
21-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
22-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
23-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
26-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
27-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.01	0.11	
28-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.12	
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
		0.01	0.01	0.03	--	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.04	0.03	Diurnal Average		
		0.12	0.16	0.39	--	0.46	0.44	0.17	0.26	0.24	0.40	0.26	0.20	0.17	0.46	0.40	0.10	0.08	0.02	0.00	0.10	0.36	1.78	1.04	0.91	Diurnal Maximum	
Z - zerospan																											
C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13000 ppb 24-hr 5000 ppb																											



WCAS - Steeper
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2014

Maximum Value: 237.55 µg/m ³ on Dec 15 22:00		Maximum Daily Average: 29.99 µg/m ³ on Dec 16		Hours in Service: 744																						
Minimum Value: 0.0 µg/m ³ on Dec 1 02:00		Minimum Daily Average: 0.00 µg/m ³ on Dec 19		Hours of Data: 735																						
Maximum Diurnal Average: 9.37 µg/m ³ at hour 22		Minimum Diurnal Average: 1.49 µg/m ³ at hour 7		Hours of Missing Data: 9																						
Monthly Average: 3.238 µg/m ³		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 1.3 P ₉₀ = 6.2 P ₉₉ = 51.9		Hours of Calibration: 0																						
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 1.3 P ₉₀ = 6.2 P ₉₉ = 51.9		Percent Operational Time: 98.8																								
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	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.9	1.1	1.0	0.9	0.4	0.6	0.30	1.08
2-Dec	0.7	0.5	1.6	1.0	0.9	0.8	1.0	1.5	2.4	3.9	2.5	1.4	1.1	2.0	3.0	3.4	2.8	2.7	4.2	10.3	13.5	0.0	0.0	0.0	2.55	13.50
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	1.3	1.8	6.6	1.5	2.0	6.5	9.8	20.4	9.3	1.7	0.0	0.1	2.58	20.40
4-Dec	0.0	0.0	0.4	3.1	3.1	6.8	9.2	8.9	12.4	6.7	14.6	9.8	8.6	3.2	3.2	3.7	4.1	6.2	3.5	6.1	10.9	12.2	11.8	6.32	14.57	
5-Dec	17.7	27.1	40.6	42.2	55.3	50.6	19.6	30.5	26.4	14.8	30.2	31.0	26.4	23.4	20.7	13.8	12.6	11.6	4.2	7.5	5.6	16.4	9.2	5.0	22.60	55.26
6-Dec	1.6	0.0	3.9	8.4	0.9	0.0	0.0	0.4	1.8	1.9	3.4	0.4	1.7	2.4	2.6	0.0	0.2	0.7	0.0	0.5	0.0	0.0	0.0	0.0	1.28	8.36
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.7	0.2	0.08	0.71
8-Dec	0.5	0.3	0.0	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.69
9-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	4.9	1.1	0.0	1.3	1.6	0.3	0.38	4.91
10-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	0.7	6.9	4.3	0.0	0.0	0.0	0.0	0.0	2.9	0.3	4.2	4.6	0.99	6.85
11-Dec	5.3	1.1	0.0	2.3	0.0	0.0	0.0	0.0	3.1	1.4	2.1	0.0	0.0	0.0	0.0	1.2	2.1	0.0	1.2	5.8	13.6	4.3	1.7	5.6	2.12	13.56
12-Dec	3.5	1.2	1.0	0.0	0.0	0.0	0.0	0.0	1.5	2.4	1.8	0.9	1.7	0.0	0.0	0.0	3.5	2.3	0.9	1.2	0.3	1.2	0.0	0.7	1.00	3.48
13-Dec	0.2	1.1	3.1	3.9	2.6	5.9	6.5	8.3	4.4	4.4	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	1.76	8.31
14-Dec	0.6	0.7	0.9	0.2	0.3	0.4	1.4	0.5	0.7	0.7	0.3	0.0	0.0	0.2	0.6	0.3	0.0	0.1	0.8	1.0	0.5	0.0	0.0	0.0	0.43	1.39
15-Dec	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	1.3	2.2	2.5	2.6	1.5	7.2	46.1	237.6	131.2	125.3	23.25	237.55
16-Dec	UC	15.6	53.2	1.5	UC	UC	UC	25.4	14.0	59.2	36.8	37.5	27.2	96.0	83.7	24.8	20.8	15.2	13.4	21.3	41.9	9.3	0.0	3.3	29.99	95.96
17-Dec	4.3	0.0	9.0	UC	UC	1.2	0.2	UC	UC	UC	0.0	0.0	0.0	0.0	0.7	4.8	1.9	3.0	4.4	0.0	0.0	0.0	0.0	0.0	1.55	9.03
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.3	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23	2.16
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	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
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	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
21-Dec	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.8	1.4	2.1	1.9	1.6	0.6	0.7	0.4	0.0	0.0	0.8	0.1	0.0	0.4	0.0	0.8	0.4	0.54	2.07
22-Dec	0.2	0.0	0.7	0.9	0.2	0.5	0.7	0.8	1.0	0.6	1.2	0.6	0.0	0.1	0.3	1.1	0.2	0.3	0.0	0.0	0.7	0.0	0.0	0.2	0.42	1.23
23-Dec	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.04	0.34
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1.2	1.6	1.6	1.3	1.3	1.3	0.9	0.8	0.9	0.46	1.63
25-Dec	0.7	2.1	0.8	2.1	1.4	0.7	0.6	0.2	1.0	1.1	1.0	0.7	0.2	0.9	1.9	1.2	1.9	0.7	0.6	0.4	0.5	0.3	0.5	0.0	0.89	2.10
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.06	0.53
27-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	0.2	0.8	0.7	0.4	1.3	1.3	2.8	6.8	8.5	0.95	8.53
28-Dec	9.2	8.3	8.0	6.5	2.8	2.0	2.3	1.7	1.1	1.5	2.0	1.6	1.0	1.0	1.3	1.8	2.4	2.1	2.2	2.1	1.8	1.5	0.8	0.9	2.75	9.24
29-Dec	1.0	0.8	1.3	0.8	0.3	0.4	0.2	0.2	0.3	0.6	1.1	0.0	0.0	0.9	0.4	0.5	0.6	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.43	1.31
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.8	0.4	0.0	0.0	0.0	0.4	0.0	0.5	0.2	0.4	0.0	0.2	1.0	0.9	0.29	2.21
31-Dec	0.0	0.2	0.0	0.0	0.0	0.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.1	0.4	0.0	0.1	0.5	0.7	0.20	1.87	
1.53 1.90 4.02 2.46 2.34 2.33 1.49 2.72 2.45 3.53 3.27 2.79 2.27 4.50 4.22 1.99 1.97 1.81 1.87 2.81 4.76 9.37 5.58 5.48																								Diurnal Average		
17.67 27.13 53.21 42.15 55.26 50.60 19.60 30.47 26.38 59.23 36.76 37.52 27.19 95.96 83.66 24.81 20.81 15.16 13.38 21.31 46.14 237.55 131.16 125.34																								Diurnal Maximum		
UC - Unstable Operation																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 ul/m ³ 24-hr 30 ul/m ³																										

**STEEPER
STATION #905**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Steeper
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 13.68 C on Dec 9 15:00		Maximum Daily Average: 8.37 C on Dec 9		Hours in Service: 744																							
Minimum Value: -22.8 C on Dec 29 10:00		Minimum Daily Average: -20.44 C on Dec 29		Hours of Data: 744																							
Maximum Diurnal Average: 0.06 C at hour 15		Minimum Diurnal Average: -5.48 C at hour 4		Hours of Missing Data: 0																							
Monthly Average: -3.656 C		Percentiles: P ₁ = -21.6 P ₁₀ = -11.6 Q ₁ = -7.5 Median = -3.5 Q ₃ = 0.5 P ₉₀ = 5.2 P ₉₉ = 11.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	-9.6	-9.2	-9.1	-8.8	-9.0	-9.1	-9.0	-9.2	-9.3	-8.8	-7.8	-7.3	-6.7	-5.4	-3.9	-5.5	-7.6	-8.6	-9.0	-9.9	-10.8	-11.2	-11.0	-10.8	-8.60	-3.93	
2-Dec	-10.2	-10.5	-11.0	-11.2	-12.1	-11.6	-12.1	-12.3	-12.8	-13.2	-12.3	-8.4	-8.3	-9.3	-9.4	-8.0	-8.6	-9.2	-10.6	-11.9	-10.7	-8.1	-7.2	-7.3	-10.26	-7.24	
3-Dec	-6.9	-6.7	-5.9	-6.5	-5.9	-6.0	-5.7	-4.9	-4.8	-4.9	-5.1	-3.1	-0.5	1.6	1.4	0.5	-0.6	-2.8	-4.4	-5.0	-5.2	-5.3	-4.9	-5.2	-4.04	1.61	
4-Dec	-4.6	-4.8	-4.3	-6.4	-6.6	-7.4	-8.9	-9.0	-8.5	-9.2	-8.7	-6.1	-4.5	-3.6	-3.2	-2.8	-4.2	-6.6	-8.7	-9.8	-11.0	-11.3	-11.7	-11.6	-7.24	-2.78	
5-Dec	-11.3	-11.6	-12.2	-11.9	-12.1	-12.2	-11.7	-12.1	-12.3	-12.0	-11.6	-9.4	-7.1	-5.6	-6.4	-7.0	-7.4	-7.5	-7.0	-6.8	-5.6	-5.2	-4.4	-4.3	-8.94	-4.31	
6-Dec	-3.8	-3.9	-4.3	-4.8	-3.7	-3.3	-2.6	-3.4	-2.8	-2.9	-1.4	1.3	1.6	1.6	0.9	2.1	2.7	3.0	2.5	0.9	0.7	0.2	-0.1	0.5	-0.79	3.03	
7-Dec	0.5	0.8	1.2	0.8	0.4	1.4	0.9	0.8	1.0	1.8	2.4	3.3	4.7	4.8	4.6	4.4	2.8	2.0	0.6	-2.6	-2.8	-3.7	-4.5	-5.0	0.84	4.79	
8-Dec	-4.8	-5.5	-4.6	-4.7	-1.9	-1.0	1.2	4.6	5.2	6.2	5.9	5.8	6.4	7.3	7.3	8.6	6.2	7.6	7.7	6.2	4.4	5.1	5.0	5.7	3.50	8.65	
9-Dec	5.5	5.6	5.9	6.1	6.8	6.7	7.5	6.6	9.1	10.0	10.5	11.0	11.8	12.9	13.7	12.3	11.5	11.1	8.6	6.8	6.4	6.0	4.6	4.1	8.37	13.68	
10-Dec	4.3	4.9	5.2	5.0	4.3	5.4	5.6	5.5	5.0	5.3	5.6	5.3	6.9	7.9	10.7	10.7	10.5	10.4	10.5	11.0	9.4	8.0	8.1	7.7	7.22	11.05	
11-Dec	7.7	9.4	9.1	6.0	6.4	6.5	5.5	5.3	5.3	5.1	5.8	7.0	8.2	8.4	8.6	5.8	4.2	4.4	3.6	3.3	2.5	1.3	0.3	-1.3	5.36	9.35	
12-Dec	-0.7	0.3	1.5	1.4	1.4	2.5	4.2	3.1	3.0	1.5	1.5	3.2	4.2	6.4	5.8	5.4	4.8	4.2	3.2	1.6	1.5	2.2	1.9	0.5	2.68	6.37	
13-Dec	0.0	-0.5	-0.7	-0.8	-1.2	-1.4	-2.3	-2.1	-2.9	-3.3	-3.5	-1.4	1.2	2.2	2.4	2.0	0.1	-1.7	-2.7	-3.3	-4.4	-4.9	-4.9	-5.3	-1.64	2.37	
14-Dec	-6.6	-7.0	-7.0	-7.2	-7.6	-7.9	-8.0	-8.6	-9.1	-9.2	-8.5	-6.4	-3.5	-2.0	-2.2	-2.7	-3.6	-4.3	-5.1	-7.3	-8.4	-9.5	-9.6	-9.6	-6.69	-1.96	
15-Dec	-10.1	-10.1	-10.2	-10.6	-9.8	-10.0	-9.5	-9.1	-8.7	-8.5	-8.3	-6.1	-1.9	-2.1	-0.9	-1.6	-2.6	-4.0	-4.3	-4.6	-4.7	-5.4	-6.2	-6.5	-6.49	-0.91	
16-Dec	-6.8	-6.8	-7.6	-7.1	-6.9	-7.4	-7.7	-8.5	-7.6	-8.0	-6.3	-5.2	-2.1	-0.1	1.7	1.7	-1.0	-2.4	-3.5	-4.5	-4.8	-4.5	-3.4	-3.9	-4.69	1.70	
17-Dec	-4.4	-2.8	-3.8	-2.8	-2.3	-4.0	-3.0	-2.2	-1.9	-1.6	-2.0	0.0	2.6	2.3	1.7	1.0	0.7	-1.0	-1.7	-1.4	-1.7	-2.6	-3.2	-4.3	-1.60	2.56	
18-Dec	-4.4	-4.7	-5.3	-5.9	-5.7	-5.1	-5.1	-5.3	-4.7	-4.4	-4.7	-1.4	1.7	2.9	3.3	1.6	0.6	-0.9	-2.2	-4.0	-4.9	-5.8	-5.7	-4.1	-3.09	3.28	
19-Dec	-5.0	-4.3	-4.0	-4.2	-3.4	-2.4	-2.5	0.2	0.3	0.0	1.9	1.3	2.9	5.7	6.5	3.3	1.4	0.2	-0.3	0.3	0.7	0.5	0.0	0.2	-0.02	6.49	
20-Dec	-0.2	-0.4	-0.6	-0.5	-0.8	-0.9	-1.0	-1.1	-1.6	-1.5	-0.8	-0.2	0.0	0.3	2.3	4.1	1.9	1.0	0.0	-1.1	-2.1	-2.7	-2.7	-2.9	-0.48	4.10	
21-Dec	-2.1	-1.9	-1.2	-2.4	-2.3	-2.8	-2.9	-3.1	-1.5	-1.2	-1.9	-1.5	-0.8	0.3	1.1	1.3	0.6	0.1	-0.6	-1.3	-1.2	-1.4	-1.7	-1.1	-1.23	1.27	
22-Dec	-0.9	-0.7	-1.5	-1.4	-1.9	-1.8	-1.4	-1.1	-0.9	-1.6	-1.2	0.1	1.9	1.6	1.3	1.3	-0.7	-1.5	-2.5	-3.1	-3.8	-4.4	-3.3	-3.4	-1.30	1.86	
23-Dec	-3.1	-3.1	-3.5	-2.9	-3.3	-2.8	-2.8	-2.5	-2.7	-2.3	-1.7	-1.3	-0.8	-1.1	0.2	0.6	-0.6	-0.6	-0.9	-1.3	-1.3	-1.1	-2.4	-3.0	-1.85	0.55	
24-Dec	-2.9	-2.3	-3.3	-3.7	-2.9	-3.9	-5.6	-6.1	-6.4	-6.5	-5.1	-4.1	-2.8	-1.8	-1.9	-3.2	-4.4	-5.0	-5.6	-6.1	-6.4	-6.9	-7.2	-7.4	-4.64	-1.77	
25-Dec	-7.5	-7.7	-8.1	-8.2	-8.7	-9.0	-9.0	-8.5	-9.3	-8.5	-7.3	-7.7	-5.5	-5.8	-5.7	-6.0	-6.5	-8.1	-8.6	-8.6	-8.8	-9.1	-9.1	-9.5	-7.96	-5.51	
26-Dec	-10.3	-11.2	-12.7	-13.9	-14.9	-12.8	-11.3	-10.3	-9.6	-8.2	-7.4	-6.0	-4.1	-3.6	-4.5	-6.1	-7.0	-7.1	-7.4	-8.3	-8.2	-7.5	-7.9	-7.5	-8.65	-3.58	
27-Dec	-6.6	-5.9	-5.7	-5.3	-5.5	-5.3	-5.3	-5.1	-5.1	-4.6	-4.3	-4.2	-4.1	-4.5	-5.0	-5.3	-5.3	-6.1	-6.8	-7.3	-8.1	-9.1	-10.4	-10.6	-6.06	-4.12	
28-Dec	-10.7	-10.8	-11.5	-12.0	-12.6	-13.2	-13.3	-14.2	-14.6	-15.2	-15.4	-15.3	-15.0	-15.2	-15.1	-15.5	-15.9	-16.7	-16.9	-17.6	-18.7	-19.1	-19.0	-19.0	-15.11	-10.74	
29-Dec	-19.5	-20.0	-19.9	-20.4	-20.6	-20.8	-20.9	-21.6	-22.4	-22.8	-22.2	-21.3	-19.0	-18.1	-16.8	-16.2	-18.1	-21.0	-21.7	-21.9	-21.8	-21.5	-21.4	-20.8	-20.44	-16.25	
30-Dec	-20.3	-19.6	-18.2	-17.3	-16.4	-15.2	-13.0	-11.5	-9.3	-6.9	-6.3	-5.8	-3.4	-0.9	-1.1	-1.8	-1.8	-2.8	-4.4	-5.2	-5.4	-4.4	-4.4	-4.8	-8.34	-0.87	
31-Dec	-4.5	-5.4	-7.0	-8.3	-9.5	-7.7	-6.0	-5.0	-6.2	-4.5	-2.4	-1.0	0.4	2.9	4.5	5.6	4.8	3.0	3.2	2.8	3.3	3.1	2.8	2.9	-1.17	5.61	
		-5.14	-5.04	-5.17	-5.48	-5.43	-5.25	-5.02	-4.85	-4.72	-4.51	-3.96	-2.73	-1.15	-0.33	0.06	-0.30	-1.39	-2.29	-3.07	-3.87	-4.26	-4.47	-4.62	-4.76	Diurnal Average	
		7.75	9.35	9.09	6.14	6.76	6.67	7.46	6.62	9.08	9.96	10.45	11.04	11.83	12.87	13.68	12.28	11.46	11.07	10.45	11.05	9.43	8.00	8.12	7.69	Diurnal Maximum	



WCAS - Steeper
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	5.7	5.9	6.4	7.4	7.0	6.3	6.2	5.1	4.4	4.3	3.8	3.5	4.8	4.6	2.2	4.2	5.2	5.5	5.0	4.0	3.7	4.0	4.8	4.7	4.92	7.43	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
2 Spd	5.9	4.6	3.2	4.7	7.2	6.2	4.7	4.8	4.7	5.3	4.9	5.0	2.5	3.5	4.2	2.2	2.8	0.2	3.2	4.5	5.7	5.8	5.2	4.3	3.06	7.17	
Dir	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	WSW	NE	ENE	E	E	E	E	SSW	SW	SW	SW	SW	SW	SW	SW	WSW
3 Spd	6.3	6.9	6.3	6.8	7.2	6.5	6.6	5.7	4.5	3.7	3.9	4.3	3.6	1.7	1.2	1.9	0.5	3.0	4.0	4.1	4.5	5.3	5.0	5.7	4.28	7.22	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	NE	ENE	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
4 Spd	5.0	2.0	3.6	1.8	1.9	2.1	3.3	4.0	1.4	1.1	2.6	1.3	1.7	1.9	1.7	1.6	0.4	1.3	4.5	4.9	4.9	4.6	4.3	4.5	2.13	4.96	
Dir	SW	E	E	S	S	SSW	SW	SW	S	SSE	SSW	SW	WSW	WSW	NNE	WSW	NNW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW
5 Spd	4.1	3.5	3.5	3.6	3.9	3.7	5.0	5.9	6.8	6.9	6.0	4.0	1.3	0.5	1.0	0.2	0.6	0.9	1.4	3.3	4.2	3.9	3.2	4.0	3.19	6.91	
Dir	SSW	SW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	NNW	NNE	NNW	NNE	WSW	SW	SW	SSW	SW	SSW	SW	SW	SW	SW
6 Spd	3.9	2.9	3.7	4.3	4.8	2.9	3.7	5.0	5.1	5.8	4.8	1.7	3.3	3.7	2.1	2.5	3.8	2.0	2.2	1.7	2.8	4.3	5.9	5.9	3.39	5.95	
Dir	SSW	SW	SSW	SSW	SSW	SSW	SW	SW	SSW	SW	SW	S	SSW	SW	WSW	WNW	SW	W	WNW	NW	WSW	SW	SW	SW	SW	SW	SW
7 Spd	5.4	3.9	5.2	5.2	4.4	2.0	1.5	3.2	1.0	1.3	1.3	1.0	1.2	1.5	2.8	2.5	1.8	2.0	0.8	1.7	3.2	3.3	4.9	4.4	1.83	5.35	
Dir	SW	SW	SW	SW	SW	SW	SW	WSW	WSW	E	NE	E	SW	ENE	ENE	E	ESE	SSW	SSE	SSW	SW	SW	SW	SW	SSW	SW	SW
8 Spd	4.3	5.5	4.3	4.2	0.4	2.5	6.0	7.9	7.8	7.2	7.1	6.1	10.5	9.1	6.2	4.0	4.8	1.9	1.9	2.8	7.1	11.3	11.2	10.0	5.96	11.25	
Dir	SW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	SW	SW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW
9 Spd	8.8	7.4	10.8	8.2	8.6	5.2	3.5	3.1	12.4	13.6	16.3	17.5	17.3	7.9	2.0	9.0	6.7	7.4	21.5	11.3	14.0	12.6	10.1	8.0	10.01	21.47	
Dir	SW	SW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	NW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	WSW
10 Spd	7.3	10.8	10.3	5.7	4.6	3.2	8.2	2.2	3.0	3.4	1.8	1.3	3.0	4.2	0.8	8.4	9.9	8.1	8.6	7.6	3.4	1.9	1.2	1.2	3.40	10.79	
Dir	SW	SW	SW	WSW	SW	SW	SW	SW	ENE	E	ESE	SE	ENE	ENE	SE	SW	SW	SW	SW	SW	E	ESE	SW	SSW	SW	SW	SW
11 Spd	1.4	4.8	4.4	9.7	7.8	11.6	17.7	17.3	6.9	5.1	8.1	7.6	6.8	3.7	2.0	3.6	4.0	2.6	2.4	1.9	2.3	3.6	1.8	3.2	3.95	17.66	
Dir	S	SW	WSW	SW	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	NE	E	ENE	ESE	E	ESE	E	ENE	E	W	SW	SW
12 Spd	3.6	5.8	5.5	6.2	7.6	3.2	4.7	5.7	6.3	5.6	5.3	2.2	1.0	5.5	9.9	9.2	2.7	5.6	4.7	4.0	4.2	6.3	4.1	4.3	3.05	9.90	
Dir	WSW	SW	SW	SW	SW	SSW	SW	ENE	ENE	E	E	ENE	ENE	WSW	WSW	WSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW
13 Spd	5.4	3.9	3.8	1.2	2.2	2.6	2.2	1.1	3.2	4.1	3.9	3.2	2.1	3.3	4.4	4.3	3.8	4.1	4.7	4.7	4.9	5.3	5.9	6.4	3.27	6.44	
Dir	SW	SW	ENE	E	SSW	SW	SW	SW	SW	SW	SW	SW	WSW	W	W	WSW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
14 Spd	5.5	6.3	5.8	5.8	6.5	7.0	6.2	5.7	5.7	5.5	5.0	3.9	1.9	1.9	2.8	2.4	3.4	2.8	1.7	2.3	3.0	4.9	6.3	5.7	3.63	7.00	
Dir	SW	SW	SSW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SW	E	ENE	ENE	E	ESE	SSE	SW	SSW	SW	SW	SW	SSW	SW	SW
15 Spd	5.4	5.1	4.3	6.7	5.7	5.0	5.8	5.5	6.5	4.6	6.9	5.0	2.1	2.3	2.3	0.7	0.2	4.6	6.7	5.4	5.4	4.1	3.1	5.0	4.41	6.93	
Dir	SW	SW	SSW	SW	SW	SW	SSW	SW	SW	SW	SW	SW	SW	WSW	WSW	NE	S	SW	SW	SW	SW	SW	SW	SSW	SW	SW	SW
16 Spd	5.2	5.9	6.7	7.1	6.9	5.4	5.1	5.6	5.0	4.4	5.2	4.5	3.7	2.7	1.7	0.7	1.5	1.2	0.7	3.5	4.2	4.4	3.2	3.3	3.96	7.06	
Dir	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	NNE	WSW	SSW	ESE	SSW	SW	SSW	SSW	SSW	SSW	SW	SSW
17 Spd	2.9	3.1	4.0	3.5	3.0	3.7	4.0	3.5	2.7	2.7	2.8	2.2	1.0	1.3	1.3	1.5	1.3	2.6	3.5	3.2	3.5	3.2	4.1	4.0	2.61	4.09	
Dir	SSW	SSW	SW	SW	SSW	SW	SW	SW	SW	SSW	SSW	SW	SW	NNE	NNE	SW	SW	SW	SW	SW	SW	WSW	SW	SW	SSW	SW	SW
18 Spd	4.1	4.9	4.5	4.8	4.9	4.5	1.9	3.9	2.7	3.2	3.7	2.8	2.1	3.2	1.5	2.7	3.2	1.7	2.7	3.8	4.1	4.5	3.4	2.9	2.82	4.94	
Dir	SW	SW	SW	SSW	SSW	SW	SSW	SW	SW	SSW	SSW	SW	SW	WSW	NNE	ENE	E	SE	S	SSW	SW	SW	SSW	S	SSW	SW	SW
19 Spd	3.4	3.1	3.1	3.5	3.1	2.8	3.7	2.3	2.2	4.6	5.8	7.9	3.2	1.5	1.5	3.4	5.8	7.5	8.2	7.5	7.7	6.7	7.4	8.7	4.59	8.67	
Dir	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW	SW	SW	SW	WSW	WNW	WNW	WSW	SW	SW	SW	SW	WSW	SW	SW	SW	SW	SW	SW
20 Spd	7.4	7.7	1.9	3.4	5.1	4.7	3.8	3.4	3.3	2.6	2.1	2.1	3.0	2.1	4.5	1.5	0.8	1.9	3.1	2.2	3.4	3.3	2.7	3.9	3.13	7.70	
Dir	SW	SW	SSW	SW	WSW	WSW	SW	SSW	SSW	SSW	SSW	S	S	SW	SW	SW	SSE	S	S	S	SW	SW	SW	SW	SW	SW	SW
21 Spd	3.4	2.2	0.9	1.6	0.9	2.2	3.7	3.9	1.5	2.1	2.4	3.3	2.7	5.0	5.3	7.8	8.5	3.4	3.6	4.4	4.0	4.8	5.3	4.2	3.32	8.54	
Dir	SW	SSW	ENE	SW	NW	SW	SW	SW	SW	NW	W	WSW	W	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	SW	SW	WSW	WSW	WSW	WSW
22 Spd	0.3	2.0	4.7	5.2	6.0	5.8	5.4	6.1	5.9	4.9	5.3	6.5	8.1	8.0	9.2	8.5	7.7	6.5	3.9	4.5	4.5	5.3	3.6	4.5	5.42	9.21	
Dir	NW	WNW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	SW	WSW	WSW	WSW



WCAS - Steeper
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	4.5	4.7	5.6	4.7	5.0	5.3	4.8	5.2	5.1	4.8	3.0	3.4	2.6	1.2	3.8	5.6	1.7	3.7	7.4	6.1	5.9	2.4	5.8	7.1	4.27	7.36	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SSW	SSE	SSW	SW	WSW	WSW	NNW	WSW	SW	SW	SW	W	WSW	SW	SW	SW	
24 Spd	5.8	2.0	2.0	4.1	1.7	2.7	4.8	4.9	4.0	3.8	3.5	2.3	2.5	2.5	1.6	3.8	2.8	2.9	3.3	3.6	1.9	1.5	2.2	2.3	1.25	5.82	
Dir	WSW	W	W	WSW	NE	WSW	SW	SW	SW	SW	SW	SW	W	W	NW	ENE	ENE	ENE	E	ENE	ENE	SSW	SW	SW	SW	WSW	
25 Spd	0.7	1.0	1.1	0.6	2.2	2.9	2.9	2.5	3.4	3.8	2.0	1.3	0.6	2.3	3.7	1.6	5.8	4.6	2.6	2.8	2.5	1.6	2.0	2.9	0.57	5.78	
Dir	SE	ESE	SW	NNE	SW	SW	SSW	SSW	SSW	SSW	SW	SSW	WNW	NE	NNE	W	NNE	NNE	NNW	NNW	NNW	WSW	WSW	SW	W	NNE	
26 Spd	4.1	4.6	4.7	4.5	4.6	5.1	5.4	5.5	4.7	5.1	5.2	5.5	4.9	1.0	3.0	4.7	4.3	1.0	0.3	2.8	3.1	3.0	3.7	4.0	3.09	5.48	
Dir	SW	SW	SSW	SSW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	ENE	E	E	SSW	ESE	SW	SW	SSW	SW	SW	SSW	SW	
27 Spd	4.7	4.4	3.3	3.3	3.0	2.8	2.3	2.6	3.3	3.7	1.4	2.2	2.5	4.2	4.6	3.8	1.3	0.5	2.2	2.1	2.4	3.6	3.9	1.1	0.98	4.71	
Dir	SW	SW	SW	SW	SW	SW	SSW	SSW	SSW	SW	SW	E	E	E	E	ESE	SE	ENE	NE	ENE	ENE	ENE	ENE	ENE	SSE	SW	
28 Spd	1.7	1.7	3.0	3.4	3.1	1.8	1.7	2.4	1.6	2.4	2.4	2.3	1.4	1.7	1.6	2.7	1.9	2.8	1.7	3.7	4.1	3.2	1.2	2.0	2.23	4.07	
Dir	NE	ENE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	N	NNW	NNE	NNE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	
29 Spd	3.4	2.4	1.2	2.2	1.0	1.1	0.7	2.7	1.2	1.8	1.7	2.6	2.1	0.4	0.9	1.5	2.7	6.2	7.6	7.6	7.8	7.5	8.1	7.9	2.08	8.11	
Dir	NE	NE	NNE	NNE	NNE	NNE	NW	NE	ENE	SW	SW	SW	SW	NNE	W	WSW	SW	SW	SW	SW	SW	SSW	SW	SW	SW	SW	
30 Spd	8.4	8.8	9.0	8.3	8.7	8.6	8.5	8.0	8.4	4.4	6.5	6.3	4.0	4.1	2.3	2.1	1.2	2.6	4.7	3.1	2.7	1.3	1.8	0.6	4.64	8.97	
Dir	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W	NW	N	WSW	SSW	SW	SW	SW	WNW	N	NNW	SW	SW	
31 Spd	2.8	3.0	4.8	4.6	7.1	4.2	3.9	4.5	4.4	5.6	5.1	3.8	3.9	3.3	5.0	6.2	4.2	6.0	4.0	4.8	4.2	3.0	3.9	2.3	4.05	7.07	
Dir	SSW	SW	SW	SSW	SW	SSW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	WSW	W	WSW	W	WSW	WSW	W	WSW	WNW	SW	SW
Spd	4.12	4.02	3.71	4.14	4.22	4.01	4.55	4.07	3.64	3.57	3.81	3.43	2.83	1.85	1.10	1.54	1.36	2.40	3.32	3.25	3.47	3.67	3.89	4.10	Diurnal Average		
Dir	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	WSW	W	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	Diurnal Maximum	
Spd	8.83	10.79	10.77	9.70	8.72	11.64	17.66	17.27	12.36	13.64	16.28	17.51	17.28	9.10	9.90	9.24	9.87	8.13	21.47	11.28	14.04	12.60	11.19	9.98	Diurnal Maximum		
Dir	229.60	233.13	233.60	233.91	216.69	241.19	233.67	232.45	234.99	229.82	234.72	239.39	240.62	243.78	242.83	243.13	225.92	223.88	237.68	235.08	236.27	235.29	234.59	232.35	Diurnal Maximum		
Maximum Speed Value: 21.5 kph on Dec 9 19:00																		Minimum Speed Value: 0.2 kph on Dec 2 18:00						Hours in Service:		744	
Maximum Daily Speed Average: 10.01 kph on Dec 9																		Minimum Daily Speed Average: 0.57 kph on Dec 28						Hours of Data:		744	
Maximum Diurnal Speed Average: 4.55 kph at hour 7																		Minimum Diurnal Speed Average: 1.10 kph at hour 15						Hours of Missing Data:		0	
Monthly Average Velocity: 3.313 kph 224.72 deg																		Speed Percentiles: P ₁ = 0.4 P ₁₀ = 1.5 Q ₁ = 2.4 Median = 3.9 Q ₃ = 5.4 P ₉₀ = 7.4 P ₉₉ = 11.9						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	16	0	0	0	0	0	16																				
NorthEast	50	2	0	0	0	0	52																				
East	48	3	0	0	0	0	51																				
SouthEast	14	0	0	0	0	0	14																				
South	27	0	0	0	0	0	27																				
SouthWest	302	186	13	1	0	0	502																				
West	47	16	0	0	0	0	63																				
NorthWest	19	0	0	0	0	0	19																				
Total	523	207	13	1	0	0	744																				



WCAS - Steeper
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2014

Maximum Value: 95.89 % on Dec 12 02:00 Maximum Daily Average: 87.22 % on Dec 28 Minimum Value: 29.0 % on Dec 11 15:00 Minimum Daily Average: 39.13 % on Dec 10 Maximum Diurnal Average: 65.00 % at hour 24 Minimum Diurnal Average: 49.25 % at hour 15 Monthly Average: 60.089 % Percentiles: P ₁ = 31.7 P ₁₀ = 39.1 Q ₁ = 47.1 Median = 59.5 O ₃ = 71.5 P ₉₀ = 84.2 P ₉₉ = 91.7																								Hours in Service:	744																								
																								Hours of Data:	744																								
																								Hours of Missing Data:	0																								
																								Hours of Calibration:	0																								
																								Percent Operational Time:	100.0																								
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	62.4	61.9	62.7	62.7	64.9	65.7	65.9	68.5	71.4	69.4	65.5	66.4	67.1	61.6	54.1	58.7	59.8	61.3	63.7	69.6	73.2	73.3	68.9	66.2	65.20	73.25																							
2-Dec	62.5	63.4	63.2	62.8	66.7	66.5	66.9	65.7	67.0	68.8	64.4	53.3	59.0	68.4	69.7	65.1	68.7	70.6	79.2	82.0	73.7	61.5	58.5	60.6	66.18	82.00																							
3-Dec	60.5	62.9	60.3	64.3	62.1	63.4	62.3	57.2	56.9	57.5	60.8	54.5	45.1	40.3	47.5	48.5	53.3	64.3	68.6	66.0	64.4	63.7	61.6	63.7	58.74	68.55																							
4-Dec	60.9	62.1	59.0	69.5	71.9	73.9	80.9	82.8	81.7	81.7	80.8	67.1	62.0	60.7	61.0	61.0	66.9	77.8	82.3	83.2	85.5	85.9	85.6	84.3	73.68	85.87																							
5-Dec	86.4	88.6	91.5	91.2	91.5	90.6	89.5	89.0	87.9	86.0	85.4	80.1	73.6	69.0	76.0	80.4	81.9	80.6	72.6	76.7	76.7	77.2	75.9	77.7	82.33	91.53																							
6-Dec	77.7	79.2	80.9	82.7	79.7	79.3	78.3	82.9	82.1	83.0	77.3	67.3	65.8	67.7	71.8	59.8	65.0	67.5	71.6	82.0	85.3	88.1	85.0	74.0	76.42	88.11																							
7-Dec	69.1	62.3	55.4	57.2	55.6	47.7	48.7	47.1	44.3	40.3	40.1	39.5	39.1	38.6	40.5	39.7	45.2	48.6	54.1	71.1	69.4	71.4	72.3	72.5	52.91	72.54																							
8-Dec	70.1	71.3	66.5	64.3	48.5	45.0	42.7	35.6	37.0	36.3	40.4	45.1	49.6	48.0	49.4	42.1	50.7	41.7	39.6	44.3	52.8	48.8	50.2	46.7	48.61	71.25																							
9-Dec	47.1	47.7	48.4	47.9	46.7	47.0	45.3	49.9	46.3	42.6	40.5	38.6	36.2	33.0	30.2	32.6	33.0	33.1	45.8	50.0	46.7	46.1	57.4	58.0	43.75	57.99																							
10-Dec	54.2	49.3	47.5	46.7	46.8	39.7	37.4	36.8	38.7	39.1	38.5	40.7	38.4	38.3	32.5	32.4	32.1	32.1	33.1	31.7	35.0	39.3	38.4	40.0	39.13	54.24																							
11-Dec	39.7	34.4	35.8	55.9	46.5	44.3	50.2	50.8	48.3	46.4	43.1	36.1	31.7	30.1	29.0	38.6	51.3	42.5	49.7	48.2	49.4	56.5	63.0	79.4	45.87	79.38																							
12-Dec	93.3	95.9	90.4	89.0	87.7	77.9	62.1	63.9	65.1	77.1	77.5	70.1	65.1	48.5	40.2	41.8	43.1	44.6	47.3	53.5	53.0	48.5	47.9	55.3	64.12	95.89																							
13-Dec	58.7	62.6	66.0	74.0	75.2	76.7	80.0	78.0	76.6	74.1	68.6	57.8	47.7	42.5	39.2	38.2	43.8	49.3	54.2	56.0	60.1	61.2	60.3	61.5	60.92	79.96																							
14-Dec	66.6	68.0	67.4	67.7	68.7	69.3	69.3	71.8	73.3	73.0	71.0	62.8	53.2	48.9	50.8	54.5	57.4	55.9	57.9	66.0	70.3	74.2	73.1	72.0	65.12	74.16																							
15-Dec	73.3	72.3	68.9	69.5	62.3	62.9	59.2	56.0	54.5	52.9	54.5	47.9	36.7	37.7	32.8	37.8	43.4	50.5	55.0	55.2	54.5	55.8	56.4	55.5	54.40	73.31																							
16-Dec	55.2	54.1	56.7	53.9	53.1	55.6	57.3	59.8	56.7	58.3	51.9	48.8	39.6	35.6	32.6	32.8	40.4	44.0	47.5	48.3	44.4	39.2	33.5	34.8	47.25	59.78																							
17-Dec	35.9	31.6	34.9	34.7	39.0	50.5	54.0	53.3	52.9	53.4	56.0	48.8	39.9	40.8	42.9	46.7	47.2	54.1	56.6	55.5	56.4	60.1	61.3	64.6	48.79	64.58																							
18-Dec	64.5	65.2	66.9	68.8	67.7	65.9	66.1	67.8	65.7	63.5	67.0	54.3	43.7	38.4	37.6	43.3	45.4	50.8	54.7	60.3	63.1	66.7	66.7	59.4	58.90	68.81																							
19-Dec	62.1	60.1	59.5	62.3	60.7	57.4	60.9	53.8	55.0	57.0	50.6	52.0	45.7	38.4	36.0	44.1	52.5	60.9	62.7	55.3	48.7	48.1	47.9	45.0	53.21	62.68																							
20-Dec	45.4	43.8	42.0	40.5	40.6	40.9	40.7	39.1	41.2	40.2	36.8	35.2	36.2	36.8	34.3	30.3	35.1	40.7	43.0	47.2	52.0	55.3	56.1	58.0	42.14	57.96																							
21-Dec	56.0	57.4	54.0	61.5	59.5	61.4	63.5	67.8	62.7	61.2	67.4	66.3	64.0	55.8	48.3	44.3	44.2	44.6	47.2	49.0	46.5	46.1	46.7	43.4	54.95	67.78																							
22-Dec	41.8	42.7	46.5	48.1	50.9	51.3	49.8	48.0	46.1	48.9	48.2	43.7	36.4	35.3	36.3	35.0	40.5	43.1	44.9	47.3	50.0	52.4	49.1	49.3	45.22	52.42																							
23-Dec	46.9	46.3	47.1	44.0	45.1	40.8	38.2	35.5	36.2	39.8	44.9	43.7	43.0	47.1	46.3	48.1	50.3	52.8	65.7	70.8	64.2	57.2	79.1	85.7	50.79	85.69																							
24-Dec	77.3	52.7	54.5	49.9	41.1	45.2	49.8	49.6	49.3	48.6	43.3	41.5	38.9	36.2	38.0	49.3	56.9	59.8	67.7	79.2	86.2	89.7	91.2	92.5	57.85	92.51																							
25-Dec	91.5	93.2	92.1	92.9	91.5	90.3	89.2	88.3	90.8	88.0	84.3	85.9	75.3	78.2	81.3	89.9	89.5	84.1	83.1	82.1	82.6	87.7	87.5	88.2	86.98	93.24																							
26-Dec	89.7	89.9	88.3	87.7	87.6	81.8	75.1	72.9	72.8	69.4	67.8	63.0	59.0	56.5	58.5	64.8	64.9	65.5	67.3	72.4	72.0	68.4	70.5	69.0	72.28	89.85																							
27-Dec	64.3	61.5	59.0	55.3	56.2	55.0	55.1	55.9	58.4	61.5	59.5	58.9	59.8	62.4	63.8	66.1	69.2	78.7	76.0	80.9	89.4	92.6	92.1	91.2	67.62	92.62																							
28-Dec	91.0	91.0	90.4	90.2	89.6	89.1	88.8	88.2	87.7	87.2	87.1	87.2	86.9	86.6	87.0	86.7	86.4	85.8	85.6	85.0	84.1	83.9	83.8	83.8	87.22	91.03																							
29-Dec	83.4	83.0	82.9	82.5	82.2	82.0	82.0	81.4	80.7	80.6	81.2	81.5	80.1	82.2	79.7	75.2	77.3	80.0	77.7	76.7	76.5	76.4	76.1	75.0	79.86	83.44																							
30-Dec	74.1	73.4	70.9	69.3	68.9	66.8	64.1	64.9	62.3	56.9	60.0	60.0	48.3	29.4	35.3	38.0	36.0	53.0	71.4	69.3	65.2	48.5	45.7	43.7	57.32	74.14																							
31-Dec	40.4	46.1	68.2	67.9	69.3	54.6	48.8	49.4	63.8	61.2	58.2	55.7	55.1	49.1	43.9	42.0	45.7	54.7	54.3	56.2	55.2	57.0	60.0	64.2	55.04	69.33																							
																								64.58	63.67	63.80	65.00	63.80	62.54	62.00	61.67	61.73	61.42	60.41	56.57	52.33	49.74	49.25	50.58	54.10	57.19	60.64	63.58	64.08	63.90	64.57	65.00	Diurnal Average	
																								93.34	95.89	92.09	92.86	91.51	90.62	89.51	88.96	90.77	88.00	87.09	87.15	86.94	86.64	87.04	89.95	89.54	85.80	85.60	85.02	89.40	92.62	92.07	92.51	Diurnal Maximum	



WCAS - Steeper
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 7.23 kph on Dec 9 19:00		Maximum Daily Average: 3.54 kph on Dec 9		Hours in Service: 744																						
Minimum Value: 0.2 kph on Dec 28 01:00		Minimum Daily Average: 0.66 kph on Dec 27		Hours of Data: 744																						
Maximum Diurnal Average: 1.38 kph at hour 14		Minimum Diurnal Average: 1.10 kph at hour 1		Hours of Missing Data: 0																						
Monthly Average: 1.232 kph		Percentiles: P₁ = 0.4 P₁₀ = 0.6 Q₁ = 0.8 Median = 1.0 Q₃ = 1.4 P₉₀ = 2.1 P₉₉ = 4.3		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.9	1.0	1.1	1.3	1.3	1.0	1.0	0.8	0.8	0.7	0.6	0.7	1.0	1.4	1.2	1.3	1.2	1.1	1.4	1.0	0.8	0.8	1.0	1.7	1.04	1.65
2-Dec	1.7	1.1	1.2	2.1	1.4	1.2	0.7	0.8	0.8	0.9	0.7	1.7	0.9	0.8	0.6	1.0	0.8	1.0	0.8	0.8	1.1	1.0	1.0	1.0	1.05	2.13
3-Dec	1.2	1.0	0.9	0.9	1.0	1.0	1.1	0.8	0.8	0.6	0.6	0.8	0.7	0.9	0.7	0.4	0.5	0.6	0.7	0.8	1.0	1.0	0.8	0.8	0.83	1.21
4-Dec	1.0	1.5	0.8	1.0	0.9	0.8	0.6	0.6	1.1	0.9	1.0	0.5	0.5	0.8	0.5	1.1	0.7	1.2	0.9	1.1	1.0	1.0	0.8	0.8	0.87	1.50
5-Dec	0.9	0.5	0.6	0.5	0.7	0.7	0.8	1.2	1.2	1.3	1.1	1.2	0.9	0.6	0.7	0.8	0.7	0.6	0.6	0.9	1.0	0.9	0.7	0.8	0.81	1.29
6-Dec	0.7	0.5	0.9	1.1	1.1	1.5	1.5	1.1	1.0	1.0	0.9	1.1	1.1	1.4	1.0	1.1	1.3	1.7	1.3	0.8	1.2	1.0	1.1	1.0	1.09	1.71
7-Dec	0.9	0.7	1.1	1.5	1.0	0.8	1.1	0.7	0.6	0.7	0.8	0.8	0.9	0.6	0.5	0.8	0.9	0.5	0.7	0.8	1.2	0.9	1.0	1.0	0.86	1.45
8-Dec	0.9	1.1	0.7	1.1	1.1	1.5	1.4	2.4	1.7	2.6	2.0	2.1	2.6	2.6	2.6	1.7	2.4	1.9	1.0	1.4	1.6	2.9	2.4	2.3	1.84	2.92
9-Dec	2.3	2.3	3.3	2.5	3.1	2.4	1.6	4.2	4.3	3.7	3.8	4.2	4.5	5.0	2.6	3.9	3.7	6.0	7.2	3.1	3.5	3.4	2.5	1.7	3.54	7.23
10-Dec	1.8	2.9	2.8	1.5	1.7	2.8	2.3	2.9	1.9	1.3	1.4	1.1	1.4	1.1	2.3	3.3	3.1	2.5	2.7	3.1	1.3	1.3	1.5	1.9	2.08	3.31
11-Dec	1.9	1.9	3.0	5.6	3.4	3.5	4.7	4.2	6.0	3.4	3.0	2.9	2.7	2.7	1.1	0.8	0.8	1.3	1.3	1.1	0.9	0.7	1.0	1.4	2.47	6.04
12-Dec	1.5	1.4	1.4	1.3	2.5	2.2	2.4	2.5	2.8	1.7	1.8	1.9	1.4	4.1	3.0	2.6	1.6	1.8	1.0	1.1	3.1	1.5	0.6	0.9	1.92	4.14
13-Dec	1.0	1.6	0.8	0.8	0.5	0.5	0.7	0.8	0.5	0.7	0.6	0.7	0.7	1.6	1.6	1.3	1.0	0.8	0.7	0.8	1.1	1.1	1.1	1.2	0.92	1.64
14-Dec	1.0	1.3	1.1	1.1	1.3	1.4	1.3	1.0	1.1	0.9	0.9	0.9	0.5	0.8	0.7	0.3	0.5	0.7	1.1	1.0	0.7	0.9	1.2	1.1	0.95	1.39
15-Dec	1.1	0.9	0.8	1.5	1.2	0.8	1.1	1.1	1.4	0.9	1.4	1.4	0.6	0.6	0.5	0.8	0.7	1.1	1.2	1.0	1.0	1.0	1.0	1.1	1.01	1.47
16-Dec	1.0	1.3	1.1	1.4	1.4	1.8	1.2	0.9	0.8	1.0	0.7	1.0	0.8	0.8	0.8	0.7	0.7	1.0	0.8	1.4	0.8	1.1	0.9	0.6	1.00	1.83
17-Dec	0.7	0.9	1.0	0.6	0.6	0.5	0.6	0.7	0.5	0.4	0.4	0.6	0.9	0.6	0.6	0.5	0.6	0.7	0.8	0.7	0.6	1.1	0.9	0.9	0.68	1.06
18-Dec	1.1	1.0	1.0	1.0	0.9	1.0	1.1	0.8	1.1	0.8	0.7	0.8	1.0	1.1	1.0	0.5	1.0	1.2	1.1	0.9	0.7	0.8	1.0	0.7	0.93	1.17
19-Dec	0.8	1.1	1.4	1.0	0.6	0.9	1.1	0.9	0.9	1.5	1.1	2.0	1.4	0.9	1.2	0.9	1.4	1.4	1.8	1.6	1.9	1.6	1.5	2.1	1.30	2.11
20-Dec	2.1	2.2	1.9	1.5	1.7	1.4	1.1	0.8	0.7	1.0	1.1	1.0	1.1	1.6	1.4	1.7	1.6	1.5	1.4	1.1	1.8	1.1	1.1	0.7	1.35	2.21
21-Dec	0.7	1.2	1.1	1.4	0.7	0.8	0.6	1.0	0.8	0.9	0.8	0.9	1.2	1.6	1.6	2.4	2.1	2.0	1.2	0.9	0.9	1.0	1.1	1.4	1.18	2.42
22-Dec	1.1	1.9	1.2	0.9	1.2	1.2	2.0	1.6	1.7	1.1	1.2	1.7	2.1	2.3	2.7	2.4	1.8	1.6	0.7	0.7	0.6	1.4	1.3	1.0	1.47	2.65
23-Dec	0.7	0.6	1.0	1.6	1.0	1.0	1.3	0.9	1.1	1.3	1.2	1.6	1.9	1.4	1.3	1.8	0.9	1.7	1.4	1.1	1.1	1.1	3.1	1.9	1.33	3.05
24-Dec	1.7	1.1	1.6	1.2	0.9	1.1	1.0	1.0	0.6	0.6	0.6	0.8	0.7	0.8	0.8	1.2	0.5	0.4	0.4	0.7	0.5	0.8	0.4	0.9	0.85	1.67
25-Dec	0.6	0.6	0.6	0.6	0.7	0.6	0.9	0.4	0.6	0.8	0.8	1.2	0.8	0.6	1.1	1.0	1.7	1.4	1.2	1.3	1.2	0.6	0.6	0.8	0.86	1.68
26-Dec	0.8	1.0	0.9	0.8	1.0	0.8	0.8	0.8	0.7	0.8	0.9	1.0	1.1	1.3	0.8	0.7	1.0	0.8	0.7	0.8	0.5	0.5	0.6	0.8	0.82	1.27
27-Dec	0.9	0.7	0.7	0.6	0.5	0.4	0.4	0.5	0.5	0.8	1.0	0.4	0.4	0.9	0.8	0.8	0.8	0.7	0.5	0.9	0.4	0.5	0.9	0.7	0.66	0.95
28-Dec	0.2	0.5	0.4	0.7	0.9	1.0	1.2	0.8	0.8	0.9	1.0	1.2	0.9	1.2	0.7	0.8	1.1	1.1	0.7	1.0	1.3	0.8	0.7	0.9	0.87	1.25
29-Dec	0.7	0.6	0.7	0.9	0.6	0.6	0.6	1.0	1.0	0.4	0.4	0.7	0.9	0.6	0.9	1.0	0.7	1.7	1.3	1.5	1.6	1.4	1.6	1.7	0.97	1.75
30-Dec	1.6	1.7	1.7	1.6	1.6	1.7	1.6	1.5	1.7	1.9	1.8	1.2	1.3	1.3	1.3	1.3	1.3	1.0	0.9	1.2	1.4	1.0	1.5	1.5	1.43	1.86
31-Dec	0.9	0.6	1.2	1.1	1.5	1.2	0.8	0.8	0.8	1.0	1.2	0.9	1.0	1.0	1.9	1.7	1.9	1.9	1.6	1.1	1.2	1.1	1.5	1.2	1.21	1.93
																								Diurnal Average		
																								Diurnal Maximum		
1.10 1.19 1.23 1.31 1.23 1.23 1.25 1.28 1.30 1.17 1.15 1.25 1.22 1.38 1.23 1.31 1.25 1.38 1.27 1.16 1.18 1.14 1.18 1.17																										
2.29 2.87 3.31 5.64 3.45 3.51 4.71 4.23 6.04 3.68 3.84 4.23 4.52 4.96 2.95 3.88 3.74 5.98 7.23 3.15 3.52 3.37 3.05 2.32																										
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																										



WCAS - Steeper
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 100.90 deg on Dec 8 05:00		Maximum Daily Average: 39.12 deg on Dec 10		Hours in Service: 744																							
Minimum Value: 5.4 deg on Dec 29 10:00		Minimum Daily Average: 11.23 deg on Dec 1		Hours of Data: 744																							
Maximum Diurnal Average: 36.44 deg at hour 14		Minimum Diurnal Average: 16.37 deg at hour 10		Hours of Missing Data: 0																							
Monthly Average: 22.735 deg		Percentiles: P ₁ = 6.6 P ₁₀ = 8.3 Q ₁ = 9.7 Median = 12.9 Q ₃ = 27.8 P ₉₀ = 57.0 P ₉₉ = 89.4		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	6.8	8.0	7.6	9.1	8.2	7.0	7.2	8.9	8.6	6.3	8.5	12.0	8.7	17.5	33.8	19.5	9.6	9.1	10.9	17.4	11.8	10.5	10.8	11.5	11.23	33.82	
2-Dec	11.6	16.6	27.7	25.3	9.7	10.0	9.7	10.4	11.9	7.8	8.1	26.2	41.1	13.6	6.2	15.7	10.7	89.0	7.5	9.3	8.4	8.2	8.1	7.8	16.70	89.04	
3-Dec	8.4	6.5	7.1	7.1	6.8	6.7	7.3	6.4	8.0	8.4	9.1	8.9	10.9	63.5	64.2	7.0	67.5	15.1	10.3	9.8	10.3	10.3	8.8	7.5	15.66	67.48	
4-Dec	8.8	75.6	10.8	39.3	44.2	33.8	7.6	10.3	69.8	67.9	20.5	32.4	18.4	49.0	11.4	60.2	65.2	74.6	10.2	12.7	12.1	12.9	10.1	10.0	31.99	75.64	
5-Dec	11.0	9.9	13.2	9.0	9.6	9.8	7.7	8.3	8.6	9.5	8.7	9.9	73.3	58.5	29.9	89.8	77.4	60.6	37.6	12.2	7.9	10.3	12.5	11.4	24.85	89.77	
6-Dec	9.9	20.1	14.1	10.6	13.0	42.6	24.3	10.9	10.7	9.9	9.8	51.8	28.3	32.6	43.6	38.5	13.0	59.6	40.1	36.9	27.6	8.2	9.2	8.9	23.93	59.60	
7-Dec	9.1	10.1	11.3	10.8	9.2	26.7	53.0	15.0	45.6	42.0	46.8	85.0	68.0	66.3	9.8	14.1	38.1	29.0	67.2	55.6	11.5	12.5	10.3	11.7	31.61	85.05	
8-Dec	12.0	8.0	10.3	15.8	100.9	60.0	9.3	11.6	9.4	12.4	9.7	15.5	11.0	14.3	14.5	23.7	36.2	58.1	41.2	17.1	10.9	8.8	8.2	10.3	22.06	100.90	
9-Dec	11.5	11.7	12.6	12.7	13.6	19.4	30.7	85.0	15.3	12.8	11.4	11.3	11.7	38.5	71.8	22.1	31.6	43.8	11.3	12.9	11.7	11.6	9.2	7.7	22.16	85.01	
10-Dec	9.8	10.7	11.1	11.1	17.5	52.2	13.9	89.6	70.8	26.9	57.1	62.5	53.5	15.4	82.4	17.3	14.3	12.2	12.6	18.8	46.8	61.7	90.4	80.4	39.12	90.42	
11-Dec	86.5	19.9	48.5	27.8	16.8	14.3	11.5	10.8	66.0	29.2	16.1	16.9	20.2	47.7	26.0	12.3	12.8	36.8	43.0	34.1	29.7	8.6	85.2	30.0	31.29	86.52	
12-Dec	26.4	11.3	9.8	10.5	12.0	35.5	43.3	27.8	28.8	20.7	22.6	69.0	95.1	65.2	12.4	13.3	42.3	12.9	9.6	13.6	35.0	9.0	7.2	9.4	26.77	95.05	
13-Dec	8.3	47.8	11.5	52.2	10.7	11.2	31.2	78.5	9.4	8.2	9.3	11.5	28.6	29.3	24.6	19.3	13.1	8.1	8.2	8.7	10.5	9.1	9.0	8.9	19.46	78.49	
14-Dec	9.2	9.4	9.6	10.1	10.5	10.4	10.4	9.9	10.1	10.1	9.6	11.5	18.1	24.0	16.6	7.4	8.4	18.3	39.2	28.0	12.9	8.8	9.3	10.5	13.44	39.23	
15-Dec	9.3	9.7	10.6	8.7	10.8	8.5	9.3	11.0	9.2	9.3	10.5	9.3	20.9	17.8	20.2	79.6	87.9	6.8	8.7	9.0	8.2	8.1	14.8	11.3	17.06	87.92	
16-Dec	11.2	8.8	8.5	9.8	11.0	14.5	13.5	8.9	10.0	13.3	9.4	11.1	15.0	16.3	37.1	72.1	46.2	75.8	71.0	12.0	9.7	7.6	13.6	13.6	21.67	75.81	
17-Dec	24.6	18.9	14.0	10.0	8.1	14.0	14.8	10.3	11.4	14.4	10.3	15.2	77.1	24.0	29.2	27.6	24.3	10.6	11.8	18.6	12.5	20.6	12.1	10.9	18.56	77.14	
18-Dec	13.6	11.2	10.6	10.6	9.4	11.0	53.8	11.8	21.4	21.1	10.8	16.1	29.7	22.5	30.5	13.9	18.9	55.9	37.9	16.5	11.0	9.3	20.5	26.7	20.62	55.90	
19-Dec	20.2	28.6	28.8	19.4	15.7	37.4	19.9	32.4	38.7	16.7	10.5	9.9	36.7	48.4	53.1	15.0	9.6	8.4	8.0	9.2	11.5	10.3	7.8	9.0	21.05	53.06	
20-Dec	12.2	11.8	67.6	27.4	12.8	15.3	19.6	11.0	13.2	26.4	35.4	27.6	23.8	54.9	12.4	82.2	95.8	59.8	34.2	47.1	66.2	23.3	34.2	8.5	34.28	95.79	
21-Dec	13.3	57.7	95.3	80.3	52.2	20.8	8.1	12.5	44.1	27.6	26.6	21.3	33.6	20.5	20.0	16.9	11.9	36.0	26.8	17.6	14.1	9.0	9.1	16.9	28.84	95.31	
22-Dec	82.1	62.3	15.1	9.2	9.1	8.1	16.9	13.5	14.9	11.5	11.9	13.8	15.1	15.4	15.5	13.4	12.7	11.4	10.0	9.1	8.4	11.1	12.5	7.8	17.11	82.09	
23-Dec	8.3	7.0	7.9	12.0	9.7	8.4	12.0	8.6	8.8	9.7	32.0	34.9	66.3	80.7	12.8	17.6	47.0	24.1	8.3	7.1	9.2	31.3	25.8	15.3	21.03	80.71	
24-Dec	11.7	51.3	71.5	19.4	48.2	41.6	9.8	9.0	8.5	10.1	11.2	28.0	20.7	21.7	38.8	25.8	8.9	9.8	9.1	8.2	11.8	55.7	12.9	18.2	23.41	71.46	
25-Dec	58.1	44.0	21.1	81.9	29.7	12.8	11.8	14.8	11.4	9.4	39.7	77.2	76.2	15.0	17.3	54.0	15.5	17.5	28.7	26.4	28.2	28.1	18.1	12.7	31.23	81.88	
26-Dec	7.9	9.6	10.1	11.3	12.0	7.7	7.2	7.7	7.7	7.9	7.6	8.3	10.6	87.8	9.6	7.4	10.6	57.6	87.9	22.9	11.8	9.2	9.1	10.8	18.35	87.86	
27-Dec	9.0	9.1	8.4	6.7	7.9	6.4	9.9	7.9	6.6	7.6	70.4	7.2	9.1	7.4	10.3	9.8	35.8	71.4	8.3	20.0	7.0	5.8	9.6	62.1	17.24	71.44	
28-Dec	8.2	12.3	7.7	14.1	16.1	20.1	23.8	13.7	20.9	16.4	19.9	20.3	34.1	35.4	23.8	16.4	29.7	18.0	13.3	13.8	13.8	12.4	14.2	13.0	17.97	35.41	
29-Dec	12.1	10.9	21.4	14.7	17.8	10.8	46.1	19.4	62.7	5.4	7.2	10.6	42.0	80.1	70.2	46.7	13.8	7.5	8.1	10.1	9.7	9.9	9.2	9.5	23.17	80.13	
30-Dec	9.2	9.6	9.3	10.1	9.5	9.5	9.8	9.7	9.6	20.2	10.0	10.8	25.2	19.7	42.9	53.7	53.3	21.2	10.8	37.2	35.3	57.3	55.5	82.6	25.92	82.64	
31-Dec	18.0	13.9	11.9	8.6	9.6	15.3	13.2	10.7	10.7	8.5	10.5	12.0	13.7	26.4	19.8	14.4	26.7	18.3	23.1	15.5	16.7	30.1	22.4	39.0	17.04	39.02	
		18.01	20.72	20.16	19.53	18.45	19.42	18.27	19.24	22.02	16.37	18.74	24.45	33.44	36.44	29.37	29.91	31.90	33.46	24.35	18.95	17.17	17.08	19.03	19.15	Diurnal Average	
		86.52	75.64	95.31	81.88	100.90	60.05	53.81	89.56	70.79	67.89	70.39	85.05	95.05	87.83	82.39	89.77	95.79	89.04	87.86	55.63	66.17	61.70	90.42	82.64	Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																											

**WEYERHAEUSER – DRAYTON VALLEY
STATION #911**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

West Central Airshed Society

Weyerhaeuser / Drayton Valley Station 911											December 2014	24 Hour Average Max ($\mu\text{g}/\text{m}^3$)
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	P10	Q1	Median	Q3	P90	
Particulate Matter 2.5 microns (μm^3)	0	739	99.3	9.1	0.6	47.1	2.1	3.9	6.9	12.0	19.1	22.9
Wind Speed (kph)	0	744	100.0	5.3	0.2	21.6	1.4	3.0	4.8	6.9	9.9	-
Temperature ($^{\circ}\text{C}$)	0	744	100.0	-5.6	-22.4	11.2	-12.2	-9.4	-6.3	-1.6	2.0	-
Std Dev Wind Direction (deg)	0	744	100.0	23.0	1.2	101.8	9.2	12.3	16.7	26.7	47.7	-
Std Dev Wind Speed (kph)	0	744	100.0	1.8	0.1	6.9	0.9	1.1	1.6	2.2	3.1	-



WCAS - Drayton Valley
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2014

Maximum Value: 47.14 µg/m ³ on Dec 1 20:00		Maximum Daily Average: 22.86 µg/m ³ on Dec 6		Hours in Service: 744																						
Minimum Value: 0.6 µg/m ³ on Dec 8 04:00		Minimum Daily Average: 2.74 µg/m ³ on Dec 9		Hours of Data: 739																						
Maximum Diurnal Average: 11.37 µg/m ³ at hour 20		Minimum Diurnal Average: 6.75 µg/m ³ at hour 15		Hours of Missing Data: 5																						
Monthly Average: 9.140 µg/m ³		Percentiles: P ₁ = 1.2 P ₁₀ = 2.1 Q ₁ = 3.9 Median = 6.9 Q ₃ = 12.0 P ₉₀ = 19.1 P ₉₉ = 36.2		Hours of Calibration: 0																						
				Percent Operational Time: 99.3																						
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	5.7	7.0	4.9	4.6	4.3	5.0	20.4	12.5	10.5	8.5	7.0	7.1	8.1	8.7	8.9	8.3	17.9	14.9	15.9	47.1	10.5	8.5	6.8	3.8	10.70	47.14
2-Dec	1.3	3.8	2.5	2.1	8.3	2.3	3.8	15.1	13.0	9.2	7.7	1.4	5.0	4.2	10.1	19.6	DF	4.3	5.1	2.2	4.4	2.3	8.1	11.9	6.42	19.62
3-Dec	6.3	10.4	12.3	17.3	13.5	12.1	16.9	21.2	17.2	11.5	8.0	8.6	12.8	8.7	5.9	7.0	6.3	7.2	13.3	27.9	16.5	18.1	18.5	19.6	13.22	27.94
4-Dec	25.2	29.0	DF	15.5	19.7	DF	15.2	26.2	29.5	12.7	10.7	12.0	4.1	2.5	2.6	5.4	5.2	11.7	15.0	12.0	29.0	4.3	5.7	26.1	14.52	29.49
5-Dec	21.4	38.8	29.3	16.0	20.3	25.9	19.9	11.4	29.4	29.5	24.7	38.3	10.3	8.5	6.4	6.7	DF	7.6	9.7	10.5	14.1	11.0	11.1	16.6	18.16	38.84
6-Dec	12.0	7.5	7.9	12.4	12.3	13.3	20.2	28.3	21.9	20.8	25.8	25.4	29.4	33.1	34.4	34.1	36.8	34.5	31.5	27.9	21.9	22.6	17.4	17.4	22.86	36.78
7-Dec	16.9	16.5	13.3	11.1	8.0	8.6	13.6	11.7	8.8	7.2	7.9	8.9	4.1	4.4	3.4	3.6	9.8	8.7	11.8	26.3	9.0	9.8	7.5	3.9	9.79	26.29
8-Dec	1.5	3.4	1.3	0.6	0.9	2.0	2.8	3.7	12.0	8.1	5.6	5.0	5.8	6.5	6.4	6.4	5.7	6.7	5.8	9.9	3.7	5.1	5.7	11.7	5.26	12.03
9-Dec	6.1	2.6	1.5	0.8	1.7	DF	1.1	1.2	1.6	1.5	1.4	1.8	1.8	2.4	1.7	2.0	1.8	1.9	2.3	2.1	3.6	4.4	5.5	12.0	2.74	11.96
10-Dec	32.0	21.3	17.0	10.6	8.2	19.8	23.4	19.3	11.8	5.7	3.8	5.5	5.6	7.0	6.8	6.8	5.6	12.7	6.9	5.2	5.4	6.9	10.4	9.8	11.14	31.98
11-Dec	15.2	11.6	10.6	11.6	8.9	13.4	5.9	4.4	8.2	10.4	3.6	3.9	3.0	4.2	3.9	4.9	3.2	2.1	1.9	1.9	1.6	1.6	1.7	3.3	5.87	15.20
12-Dec	3.9	4.1	7.7	5.4	4.2	3.8	5.3	11.8	7.2	18.2	17.6	6.1	5.8	7.9	8.3	6.8	12.5	15.1	19.4	12.3	13.6	10.4	13.5	16.7	9.90	19.38
13-Dec	25.8	9.1	8.7	7.6	6.8	6.3	5.1	5.8	6.7	7.3	24.7	17.9	6.7	6.4	9.6	10.4	10.9	6.3	8.0	3.9	4.2	3.7	8.0	7.8	9.07	25.82
14-Dec	5.0	5.2	8.8	11.4	7.8	6.7	6.4	6.5	6.1	4.2	4.6	8.7	5.9	7.6	4.5	8.0	11.9	21.2	39.3	4.7	35.4	22.0	14.4	13.0	11.23	39.32
15-Dec	8.4	6.8	20.3	9.5	18.1	8.9	7.7	33.4	33.6	30.2	36.5	39.2	15.4	10.0	10.0	6.2	12.0	6.3	11.3	8.0	10.7	9.8	13.3	18.6	15.99	39.23
16-Dec	7.2	8.6	12.6	12.6	9.9	8.8	11.2	15.1	16.0	26.6	31.1	34.0	21.8	11.8	11.1	10.5	11.8	19.3	20.0	16.0	19.9	11.1	15.0	10.5	15.52	34.03
17-Dec	10.5	12.5	12.6	13.2	16.6	12.4	12.9	13.5	14.3	16.7	15.9	15.2	15.8	13.2	14.2	13.1	15.1	14.9	19.2	35.1	18.7	15.0	15.2	10.0	15.24	35.09
18-Dec	9.4	11.4	11.3	9.8	9.3	8.2	8.2	7.8	6.5	6.8	6.2	8.1	6.3	5.4	5.6	5.5	11.1	12.7	10.9	19.5	15.5	13.4	9.8	10.0	9.53	19.46
19-Dec	8.0	13.8	12.0	7.9	6.4	8.0	10.3	15.4	10.5	15.7	24.8	13.0	12.8	15.9	14.8	12.8	14.2	12.5	11.0	12.1	12.7	12.0	8.0	11.4	12.33	24.81
20-Dec	21.8	23.9	17.8	14.7	11.6	8.1	6.7	7.4	6.9	6.3	4.4	3.9	4.2	4.1	4.2	3.8	15.5	7.4	4.1	3.4	10.6	13.9	12.3	5.7	9.28	23.93
21-Dec	7.1	7.3	8.5	8.7	8.3	8.9	13.0	15.0	16.5	15.5	16.1	19.9	13.2	10.8	6.2	2.0	1.6	1.6	2.2	2.0	2.4	3.9	4.3	7.6	8.44	19.93
22-Dec	6.1	3.9	3.8	2.8	4.5	3.2	3.0	9.2	6.9	3.9	10.4	4.8	2.8	1.9	1.6	1.2	1.6	7.6	6.8	7.2	6.1	7.8	11.6	5.5	5.18	11.59
23-Dec	2.6	6.1	10.5	7.0	5.3	6.4	5.6	12.5	5.8	3.0	4.1	3.2	2.3	2.9	2.4	3.1	5.6	3.9	5.1	6.2	5.8	3.3	5.6	7.5	5.25	12.54
24-Dec	8.4	7.0	2.9	3.3	1.6	2.1	1.6	2.2	3.7	10.3	2.1	2.4	1.8	1.4	1.7	1.7	2.0	2.1	2.1	2.6	3.3	3.5	4.0	5.4	3.30	10.31
25-Dec	7.2	5.7	5.7	5.7	4.8	3.7	3.4	3.9	5.2	6.4	4.8	5.3	4.8	4.6	5.4	7.5	6.0	6.0	10.3	5.5	4.2	2.5	2.1	5.7	5.27	10.28
26-Dec	13.0	17.7	14.1	14.0	9.2	3.3	9.3	4.6	5.3	4.9	6.2	3.7	2.6	8.5	6.8	4.4	2.7	2.1	6.2	1.7	4.1	1.8	8.6	6.3	6.71	17.73
27-Dec	3.2	4.5	2.4	2.8	2.0	2.2	2.2	9.7	2.2	3.2	3.3	2.5	1.6	1.4	2.0	2.1	2.8	4.0	4.9	5.3	5.5	6.3	4.5	5.6	3.58	9.75
28-Dec	3.3	3.5	3.4	4.6	4.1	3.5	3.4	3.4	3.8	4.5	3.3	11.4	9.0	5.7	4.2	4.7	7.2	5.4	3.9	4.3	8.6	6.3	4.0	3.5	4.96	11.40
29-Dec	2.9	3.0	2.8	2.5	2.2	2.1	2.4	2.3	2.2	2.4	6.9	5.5	2.6	2.0	1.9	6.4	7.6	10.2	10.2	26.0	11.5	4.6	22.2	3.9	6.09	26.04
30-Dec	5.3	6.6	7.3	5.7	5.8	6.2	7.6	4.4	4.0	6.4	3.2	3.0	2.1	1.3	1.4	1.1	1.2	1.0	1.1	1.3	1.4	1.7	1.3	2.0	3.44	7.55
31-Dec	2.8	2.8	2.2	2.1	2.1	2.2	3.5	2.3	2.2	3.1	3.1	2.3	3.9	4.9	3.2	3.0	1.8	5.6	3.9	2.3	2.1	2.0	1.7	2.3	2.81	5.55
9.85 10.18 9.21 8.19 7.96 7.49 8.77 11.01 10.62 10.35 10.83 10.58 7.47 7.02 6.75 7.06 8.53 8.96 10.29 11.37 10.20 8.05 8.95 9.52																								Diurnal Average		
31.98 38.84 29.31 17.31 20.33 25.93 23.42 33.37 33.61 30.17 36.46 39.23 29.39 33.06 34.44 34.05 36.78 34.52 39.32 47.14 35.45 22.65 22.23 26.12																								Diurnal Maximum		
DF - DAS Failure Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 80 ul/m ³ 24-hr 30 ul/m ³																										

**WEYERHAEUSER – DRAYTON VALLEY
STATION #911**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Drayton Valley
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 11.18 C on Dec 11 13:00 Maximum Daily Average: 7.07 C on Dec 11																						Hours in Service: 744				
Minimum Value: -22.4 C on Dec 30 03:00 Minimum Daily Average: -18.36 C on Dec 29																						Hours of Data: 744				
Maximum Diurnal Average: -2.58 C at hour 16 Minimum Diurnal Average: -7.89 C at hour 9																						Hours of Missing Data: 0				
Monthly Average: -5.550 C Percentiles: P₁ = -21.2 P₁₀ = -12.2 Q₁ = -9.4 Median = -6.3 Q₃ = -1.6 P₉₀ = 2.0 P₉₉ = 9.6																						Hours of Calibration: 0				
																						Percent Operational Time: 100.0				
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-18.5	-18.2	-18.3	-17.6	-17.1	-17.1	-17.2	-17.8	-17.9	-17.4	-15.7	-13.7	-12.0	-11.6	-10.5	-8.9	-10.8	-11.3	-11.2	-11.4	-10.7	-9.9	-10.5	-10.0	-13.97	-8.91
2-Dec	-10.2	-11.3	-10.7	-9.2	-9.5	-8.8	-8.7	-10.0	-10.3	-8.2	-6.8	-6.9	-7.2	-6.8	-6.8	-6.7	-6.8	-7.3	-7.7	-7.9	-8.2	-8.8	-8.3	-7.7	-8.36	-6.71
3-Dec	-7.7	-8.1	-8.7	-9.1	-9.4	-10.1	-10.9	-10.9	-10.7	-9.9	-8.2	-6.5	-4.6	-2.8	-2.0	-2.1	-3.4	-4.4	-4.9	-5.6	-5.9	-6.5	-7.3	-8.8	-7.03	-2.02
4-Dec	-9.4	-10.1	-9.5	-10.3	-10.4	-10.1	-9.3	-8.7	-9.9	-10.2	-8.1	-6.9	-4.4	-3.3	-3.5	-4.8	-6.3	-7.7	-8.3	-7.9	-8.5	-8.3	-9.0	-9.6	-8.10	-3.32
5-Dec	-10.2	-10.7	-12.7	-12.3	-11.7	-12.5	-13.0	-12.6	-14.0	-14.1	-11.4	-10.3	-9.2	-5.9	-6.6	-6.8	-6.9	-7.1	-7.1	-6.8	-7.4	-6.9	-7.1	-8.5	-9.65	-5.94
6-Dec	-8.7	-8.9	-9.0	-10.0	-10.1	-10.5	-9.7	-10.2	-9.9	-10.0	-9.5	-9.1	-9.0	-9.5	-9.3	-8.9	-8.8	-8.5	-8.3	-7.3	-5.7	-5.0	-4.6	-4.3	-8.53	-4.33
7-Dec	-4.6	-5.0	-5.1	-5.3	-4.7	-5.6	-5.6	-6.9	-6.9	-4.7	-1.7	-1.0	0.1	1.4	2.1	1.9	-0.5	-2.3	-2.3	-3.2	-3.0	-3.6	-4.0	-4.4	-3.12	2.07
8-Dec	-4.7	-5.6	-5.1	-2.9	-4.7	-6.5	-7.6	-7.7	-9.8	-10.4	-7.7	-6.5	-6.4	-4.8	-4.0	-2.0	-4.0	-3.5	-2.9	-2.9	-0.9	-0.5	0.6	-0.9	-4.64	0.65
9-Dec	-1.5	-0.7	-0.4	1.1	0.9	0.0	0.6	0.8	2.2	3.2	5.0	5.2	4.3	6.1	8.2	9.4	9.6	8.8	7.7	8.2	8.8	9.7	10.0	7.7	4.79	10.01
10-Dec	4.6	3.5	5.1	4.1	4.1	1.3	0.9	4.6	6.4	7.0	7.5	7.1	7.4	8.1	7.3	8.1	7.5	7.5	7.6	7.5	7.3	6.7	6.9	7.3	6.05	8.14
11-Dec	6.9	7.1	6.6	5.7	6.1	7.4	6.8	7.2	7.1	7.3	7.7	10.3	11.2	10.3	10.3	7.9	7.0	6.5	6.2	5.8	5.2	5.0	4.4	3.8	7.07	11.18
12-Dec	3.1	1.9	1.8	0.1	-0.2	-0.4	-0.7	-2.0	-1.7	-1.2	-0.2	1.7	4.0	4.6	4.4	4.3	1.2	-0.4	-0.9	-1.5	-1.9	-0.4	-0.8	-1.2	0.57	4.60
13-Dec	-2.4	-1.2	-0.9	-0.7	-0.6	0.0	0.5	0.2	0.1	0.1	0.6	1.3	2.2	2.9	4.9	5.0	2.2	0.2	-0.6	-1.3	-1.7	-1.7	-3.6	-3.2	0.09	5.04
14-Dec	-2.7	-3.6	-3.7	-4.9	-7.5	-7.8	-8.1	-8.3	-8.3	-7.9	-6.4	-3.9	-0.5	0.5	1.7	-0.4	-2.5	-4.0	-4.9	-5.8	-7.4	-7.6	-8.2	-8.7	-5.03	1.71
15-Dec	-9.1	-9.2	-9.8	-10.3	-10.8	-10.0	-10.4	-12.6	-12.2	-10.2	-8.7	-7.2	-4.2	-5.0	-3.0	-3.6	-5.4	-5.3	-6.5	-7.5	-7.9	-8.2	-9.2	-10.1	-8.19	-3.02
16-Dec	-10.2	-11.2	-11.4	-12.8	-12.8	-12.4	-13.1	-13.3	-14.5	-14.6	-15.0	-12.7	-8.5	-8.7	-8.9	-9.1	-10.0	-11.0	-10.5	-9.0	-8.1	-7.9	-7.5	-6.9	-10.85	-6.93
17-Dec	-7.2	-7.9	-7.8	-7.7	-7.5	-7.5	-7.8	-8.0	-8.1	-8.7	-9.1	-9.2	-8.8	-7.7	-6.7	-6.3	-7.2	-7.8	-9.0	-9.9	-9.8	-9.2	-9.5	-9.3	-8.24	-6.33
18-Dec	-8.9	-9.4	-9.7	-9.7	-9.6	-9.5	-9.7	-9.6	-9.3	-9.4	-8.1	-6.9	-5.7	-4.3	-2.8	-2.3	-4.0	-5.4	-5.8	-7.0	-7.9	-8.2	-8.9	-8.3	-7.52	-2.27
19-Dec	-8.0	-10.3	-9.3	-8.4	-8.2	-8.2	-9.0	-10.5	-11.0	-10.4	-9.6	-7.5	-6.1	-5.9	-6.3	-6.1	-6.7	-6.3	-6.1	-6.1	-5.4	-4.9	-4.3	-4.2	-7.45	-4.21
20-Dec	-5.0	-5.4	-5.5	-5.6	-6.0	-6.4	-6.7	-7.2	-6.9	-6.1	-5.4	-5.3	-3.4	-2.1	-2.1	-1.5	-1.6	-1.8	-2.2	-2.3	-3.8	-4.4	-4.7	-6.2	-4.48	-1.53
21-Dec	-6.1	-6.5	-7.0	-6.4	-6.1	-7.2	-7.3	-7.8	-8.2	-8.0	-7.2	-5.5	-4.6	-3.8	-1.8	1.0	2.0	1.9	1.0	0.8	0.8	-0.2	-0.2	0.1	-3.59	1.95
22-Dec	-0.1	-0.6	-1.3	-2.2	-1.9	-2.3	-2.4	-1.3	-0.8	-0.8	0.0	0.6	1.5	2.1	2.9	3.1	1.5	-0.9	-2.1	-2.2	-1.8	-0.8	-0.6	-0.9	-0.46	3.10
23-Dec	-1.0	-1.2	-1.7	-2.2	-3.1	-3.6	-3.8	-4.5	-4.9	-4.7	-4.8	-3.7	-3.2	-2.8	-2.5	-2.7	-2.8	-2.9	-2.1	-1.9	-2.5	-1.2	-2.5	-3.3	-2.90	-0.95
24-Dec	-3.2	-1.4	-0.8	-1.0	-1.4	-1.0	-2.0	-1.6	-1.7	-2.4	-1.9	-1.7	-0.7	-0.1	-0.5	-1.1	-2.0	-2.7	-3.5	-4.1	-4.8	-5.6	-6.8	-7.8	-2.49	-0.14
25-Dec	-8.2	-8.8	-9.2	-9.5	-9.6	-9.8	-10.1	-10.3	-10.2	-10.3	-9.8	-8.8	-8.7	-8.7	-8.0	-7.6	-8.2	-8.4	-8.1	-7.6	-7.8	-7.8	-8.2	-9.2	-8.88	-7.58
26-Dec	-11.0	-12.0	-12.4	-12.2	-11.4	-10.4	-10.4	-11.2	-12.2	-12.1	-10.8	-9.5	-8.0	-5.8	-5.3	-5.3	-5.0	-4.9	-4.7	-4.3	-4.2	-4.2	-4.3	-4.2	-8.16	-4.16
27-Dec	-4.1	-4.0	-4.4	-5.7	-6.7	-7.8	-8.2	-8.3	-9.2	-8.7	-7.7	-5.9	-2.7	-4.6	-5.6	-6.7	-8.1	-8.6	-8.8	-8.9	-9.0	-9.1	-9.5	-10.0	-7.18	-2.68
28-Dec	-10.5	-10.7	-11.2	-11.5	-11.6	-11.6	-11.5	-11.3	-11.4	-11.2	-10.9	-11.4	-11.5	-11.7	-12.0	-12.5	-12.9	-13.3	-13.4	-13.8	-14.3	-14.7	-15.2	-15.6	-12.31	-10.47
29-Dec	-15.9	-16.2	-16.4	-16.7	-17.2	-18.0	-18.6	-19.0	-19.0	-18.8	-18.4	-18.1	-17.4	-16.8	-16.4	-15.9	-16.6	-18.7	-20.3	-20.9	-21.2	-21.2	-21.5	-21.3	-18.36	-15.87
30-Dec	-21.9	-22.3	-22.4	-22.1	-21.3	-20.3	-19.3	-19.0	-17.9	-16.6	-14.9	-11.5	-7.3	-4.4	-2.8	-1.6	-1.5	-1.1	-1.0	-1.5	-1.4	-1.3	-1.6	-2.2	-10.71	-1.00
31-Dec	-2.6	-2.7	-2.6	-2.3	-2.5	-2.9	-3.0	-3.1	-3.5	-3.7	-2.3	-0.4	1.8	1.4	1.0	2.4	2.2	0.6	1.0	2.1	1.5	1.5	2.7	3.2	-0.42	3.20
																								Diurnal Average		
																								Diurnal Maximum		



WCAS - Drayton Valley
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	8.0	5.4	5.0	6.0	4.9	4.7	4.5	4.8	5.2	5.7	5.8	3.9	4.6	3.6	3.1	1.9	3.0	3.6	3.1	3.7	4.1	2.8	4.8	1.8	4.24	7.95
Dir	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	S	W	S	S
2 Spd	1.1	1.8	2.8	5.9	7.3	7.5	4.7	4.5	4.1	5.4	6.5	8.2	7.8	9.5	7.2	3.1	3.1	3.6	4.4	4.8	5.3	7.4	11.8	13.7	4.09	13.68
Dir	SSE	SSW	W	WNW	W	W	WSW	WSW	WNW	NW	WNW	WNW	NW	NW	NW	W	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	WSW	SSW
3 Spd	12.7	9.4	11.0	6.6	7.2	6.9	6.9	6.2	4.5	6.1	7.4	8.4	7.3	7.4	7.4	6.4	4.5	3.7	5.7	4.7	5.3	6.5	5.6	4.5	6.64	12.69
Dir	SSW	SSW	S	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	SSW	S	S	SSW	S	S	S	S	S	S	S	SSW
4 Spd	3.4	3.6	1.4	3.0	1.3	3.9	2.8	3.0	2.3	3.9	4.5	4.2	2.5	3.6	4.0	2.2	1.7	2.8	3.0	1.1	2.8	5.6	1.2	0.8	1.31	5.64
Dir	SSE	S	SSW	S	SW	S	S	WNW	SW	SSE	S	SSW	NW	N	NNW	SW	S	SSE	SSE	S	WNW	NW	NNW	SSW	SSW	NW
5 Spd	1.2	1.5	3.8	2.6	3.3	3.6	2.3	1.6	1.7	2.9	1.6	1.7	2.0	1.5	2.2	3.9	6.4	8.8	6.4	5.7	3.7	5.3	2.9	2.8	2.57	8.77
Dir	S	S	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SSE	S	S	ESE	E	E	E	E	E	E	E	ESE	ESE	NE	ESE	E
6 Spd	1.1	1.9	2.3	2.8	2.6	3.4	2.1	0.8	1.5	2.3	2.1	4.0	5.8	5.9	4.8	4.0	3.7	7.2	5.8	4.5	4.0	7.5	7.3	6.8	0.37	7.47
Dir	ENE	S	SE	SSE	S	S	SSE	SSE	NE	ENE	NNE	N	NNE	NE	NNE	N	N	NNW	N	WNW	W	SSW	SSW	SSW	NNW	SSW
7 Spd	6.3	5.4	4.1	4.5	4.7	5.6	4.2	4.0	2.3	2.6	1.2	4.3	5.3	4.2	3.4	2.4	1.5	0.8	0.9	0.8	2.6	4.1	5.3	5.6	3.55	6.28
Dir	S	S	S	SSE	SSE	S	S	S	S	S	S	S	S	S	S	SE	S	SSE	SE	SSE	SSE	S	S	S	S	S
8 Spd	6.3	4.7	7.0	8.4	2.5	1.8	1.3	1.3	2.5	6.5	4.7	6.3	5.6	3.5	4.1	3.7	4.7	4.6	7.1	6.7	6.8	3.8	6.1	1.3	4.45	8.43
Dir	S	S	S	SE	SE	SE	S	SE	SSE	S	S	S	S	S	S	S	S	S	S	S	SSW	S	SSW	S	S	SSW
9 Spd	1.7	4.6	4.9	2.4	4.8	6.2	8.2	9.4	10.2	9.4	8.7	7.6	9.7	9.5	10.7	9.6	12.2	9.8	10.0	12.3	8.5	9.5	11.6	4.3	7.49	12.27
Dir	S	SSE	S	SSW	S	S	S	S	S	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NW	SSW	SSW
10 Spd	4.4	4.5	5.0	4.5	4.6	6.2	9.2	11.4	7.5	7.2	11.2	9.8	11.4	13.4	10.7	8.8	3.7	4.5	5.3	5.6	7.0	7.2	8.0	7.7	7.18	13.41
Dir	SSW	S	SSE	SSE	SSE	S	SSW	SSW	SSW	SSE	SSE	SSE	S	S	SSW	S	SSE	SSW	SSW	S	SSE	S	S	S	S	S
11 Spd	12.9	17.3	12.2	10.7	13.0	11.2	11.9	14.3	13.1	10.7	11.1	6.0	4.8	0.7	2.6	3.5	5.7	7.2	7.6	7.5	7.5	8.3	7.4	5.6	4.59	17.26
Dir	SSW	SSW	SSW	SSW	SSW	WSW	SW	SW	SW	SW	SW	WSW	WNW	N	ESE	E	E	ESE	ESE	ENE	ENE	ENE	ENE	ENE	S	SSW
12 Spd	6.3	4.3	4.3	6.3	8.6	7.1	0.4	3.2	3.5	2.0	3.3	6.1	3.3	4.2	1.6	5.6	1.8	0.6	2.2	2.6	1.4	1.3	1.0	1.6	1.51	8.61
Dir	ENE	WNW	SW	S	SSW	S	SE	SW	SSW	WSW	SW	SSW	WSW	SSW	SSW	NE	NE	WSW	NW	NW	S	NE	NE	NE	SSW	SSW
13 Spd	1.6	4.4	6.4	10.2	8.1	7.7	9.0	9.8	8.0	9.2	5.6	5.0	5.8	4.8	4.0	3.2	3.3	3.1	3.3	4.0	4.7	6.7	1.2	3.3	5.16	10.15
Dir	S	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	W	W	WNW	WNW	NW	NW	NW	NW	SW	NW	NW	NW
14 Spd	5.1	5.2	8.9	2.5	3.9	3.8	5.5	6.2	4.9	4.2	4.6	4.1	3.4	4.1	1.3	3.1	2.5	1.8	0.7	0.6	0.5	0.8	1.1	2.9	1.65	8.88
Dir	NW	WNW	NW	WNW	SSE	S	S	S	S	S	S	SSW	W	NW	N	S	SSE	SSE	SE	SE	S	SSE	SSE	SSE	SSW	NW
15 Spd	2.7	1.8	2.5	2.9	2.6	3.3	1.3	0.3	1.1	0.5	0.5	0.5	1.5	2.9	1.5	5.1	3.3	8.0	3.0	5.3	3.1	2.9	2.0	1.8	2.07	7.97
Dir	SSE	SSE	S	S	SSE	SSE	SSE	SSE	S	SE	SE	SSE	S	NE	ESE	SE	S	SSE	SE	ENE	ESE	ESE	SE	SE	SE	SSE
16 Spd	4.1	1.7	1.1	0.5	1.1	1.7	1.2	1.3	1.7	0.2	0.4	0.4	0.4	3.5	6.3	4.3	1.6	1.3	0.5	0.2	1.2	3.6	0.8	5.1	0.97	6.28
Dir	SE	SSE	ESE	N	NE	ENE	ENE	NE	NW	SE	S	WSW	ENE	NE	NE	NE	NE	NW	SSE	SSE	SSE	SSE	SSE	SSE	E	NE
17 Spd	4.1	3.1	3.4	0.2	0.9	6.2	5.2	5.0	6.6	7.3	8.2	6.8	5.4	5.1	3.9	3.9	1.4	1.3	0.4	0.4	3.3	4.7	4.1	4.7	3.75	8.21
Dir	SSE	S	S	S	SSW	S	S	SSW	SSW	SSW	SSW	SSW	SSW	S	SSW	S	S	E	ENE	NE	S	S	S	S	S	SSW
18 Spd	5.7	5.6	6.4	6.7	6.0	6.4	6.0	5.7	6.1	5.4	4.4	3.5	5.3	4.4	3.1	2.6	2.8	0.5	0.2	0.5	1.2	2.7	3.5	2.9	3.97	6.67
Dir	S	S	SSW	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	S	SSE	SSE	W	S	SE	SSE	SSE	S	S
19 Spd	4.2	3.0	3.4	5.1	4.2	2.0	2.3	0.7	0.3	0.3	0.2	2.5	0.3	3.1	2.5	1.4	3.9	3.6	4.5	4.9	5.2	5.0	5.1	5.1	2.19	5.19
Dir	SSE	SSE	SSE	SSE	SSE	SE	ENE	ESE	S	SSE	NNE	NNE	S	NNE	NNE	ESE	S	S	S	S	S	S	SSE	S	SSE	S
20 Spd	5.7	4.3	5.6	4.2	5.7	5.8	6.1	5.1	5.9	6.0	6.6	6.3	5.8	6.0	4.6	4.1	2.4	7.2	5.9	5.0	3.8	4.0	3.2	6.7	4.75	7.22
Dir	S	S	SSE	S	S	S	S	SSE	S	S	S	S	S	S	S	S	SSE	SSE	SE	SE	S	S	SSE	NE	SSE	SSE
21 Spd	3.4	6.8	3.2	7.0	6.0	1.5	5.3	3.0	1.5	4.0	5.6	1.3	1.1	4.5	5.0	14.3	18.5	11.4	5.8	6.6	4.9	2.1	3.3	3.9	3.65	18.47
Dir	NE	NE	NNW	NNW	NNW	SSW	NW	NNW	W	SW	SSW	E	ENE	SSW	WNW	NW	NW	NNW	WNW	NW	NW	SW	W	W	NW	NW
22 Spd	4.9	4.0	2.5	2.4	2.2	4.0	3.8	1.9	1.9	2.8	3.3	3.9	5.4	7.8	9.1	13.7	5.5	2.3	3.5	4.0	1.4	3.1	4.2	3.1	2.80	13.70
Dir	WSW	WSW	SSW	SSW	WSW	S	SSW	WNW	SSW	W	WSW	WSW	W	WNW	NW	NW	NW	S	SSE	SSE	S	WSW	W	WSW	W	NW



WCAS - Drayton Valley
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	2.7	3.2	2.6	4.5	4.8	5.1	4.8	5.6	6.5	8.5	9.1	7.0	8.1	6.9	6.3	4.3	2.4	6.5	5.0	1.2	4.4	4.3	4.2	5.2	4.75	9.07
Dir	WSW	S	SSE	S	S	S	S	S	S	S	S	S	S	S	S	SSW	SSW	SSW	WSW	SW	WNW	S	S	S	S	S
24 Spd	4.3	7.0	7.2	5.0	7.2	8.5	5.3	6.6	4.9	5.8	6.3	5.8	6.9	11.2	13.1	12.4	5.1	9.0	6.0	8.6	6.8	6.2	6.6	5.8	5.09	13.08
Dir	SW	WSW	W	W	WNW	NW	WNW	WNW	W	WNW	WNW	WNW	NW	NW	NNW	NW	NNW	NNW	NNE	NE	NNE	NE	NE	NE	NW	NNW
25 Spd	5.1	4.2	4.5	3.2	3.2	2.6	2.7	4.5	1.5	6.8	2.5	3.8	5.1	2.2	0.8	0.6	1.4	2.6	1.3	4.8	6.5	12.6	8.6	4.1	2.39	12.56
Dir	NE	NE	NE	ENE	ENE	E	ENE	ENE	E	ENE	ESE	ESE	NE	N	N	NNE	NE	N	NNW	NW	NW	NW	NW	NW	NNE	NW
26 Spd	1.0	1.1	2.7	2.6	2.0	2.5	1.9	3.9	4.8	4.8	5.8	5.9	4.2	4.0	4.6	5.2	4.8	4.5	4.7	5.3	4.2	3.8	4.2	7.1	3.11	7.10
Dir	S	S	S	SSE	SW	WSW	SW	SSE	S	S	S	SSW	SSW	WSW	WSW	W	W	W	W	W	W	W	W	WSW	SW	WSW
27 Spd	8.5	8.1	3.6	3.1	3.6	4.9	4.4	4.3	5.4	4.2	1.8	3.2	2.6	5.5	7.6	7.8	8.0	7.5	7.7	6.2	6.2	5.2	5.5	6.0	1.78	8.50
Dir	WSW	WSW	W	WSW	SSW	S	S	S	S	S	SE	NE	NE	NE	NE	NE	NE	NE	NE	ENE	NE	NE	NNE	NNE	ENE	WSW
28 Spd	5.7	6.8	7.5	7.3	7.5	6.9	5.1	6.5	8.0	9.0	7.3	4.9	6.6	9.6	9.6	7.4	6.2	5.4	8.5	10.7	12.6	12.4	12.2	11.9	7.72	12.61
Dir	NNE	N	NNW	N	NNW	NNW	NW	NW	NW	NW	NW	NE	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW
29 Spd	11.6	13.1	11.9	10.8	11.8	13.6	12.7	13.3	13.6	10.5	10.7	10.7	8.6	7.0	4.4	2.5	1.0	0.5	0.6	1.6	3.7	4.5	5.8	6.7	6.07	13.61
Dir	NW	NW	NW	NNW	NNW	NW	NNW	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WSW	SSW	S	SSE	S	S	S	S	S	NW	NW
30 Spd	6.8	7.6	7.1	7.1	9.2	10.0	11.8	12.4	10.9	10.5	10.5	7.5	13.6	18.0	16.4	21.6	20.6	18.0	16.9	11.9	10.7	14.9	16.0	8.6	7.79	21.63
Dir	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	SSW	W	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	NW	NW	W	WNW
31 Spd	4.0	6.8	7.9	10.5	6.7	5.9	7.2	13.1	12.5	11.2	12.2	11.9	7.9	6.7	3.8	3.7	5.0	4.0	4.5	7.3	4.8	7.2	13.4	12.0	7.38	13.39
Dir	WNW	W	WNW	WNW	WNW	W	WNW	WNW	W	WNW	WNW	WNW	WSW	SW	SSW	WSW	W	SSW	W	WNW	W	WNW	WNW	WNW	W	WNW
Spd	2.40	2.44	2.21	2.06	2.33	2.83	2.72	2.86	2.93	2.94	3.32	2.73	2.46	1.82	1.53	1.30	1.20	0.74	0.73	0.70	1.00	1.46	1.78	1.34	Diurnal Average	
Dir	SSW	SW	SW	SW	SSW	SSW	SSW	SW	SW	SW	SSW	SW	WSW	WSW	W	W	W	SW	SW	WSW	SW	WSW	SW	SW	Diurnal Maximum	
Spd	12.93	17.26	12.24	10.76	12.96	13.57	12.69	14.26	13.61	11.21	12.22	11.94	13.57	17.97	16.43	21.63	20.62	17.97	16.90	12.27	12.61	14.90	16.00	13.68	Diurnal Maximum	
Dir	191.87	195.67	200.68	329.75	205.00	326.23	328.53	219.01	318.95	269.91	283.47	287.54	265.49	297.24	298.23	302.79	303.93	306.32	310.68	201.14	330.35	315.27	322.87	198.01		
Maximum Speed Value: 21.6 kph on Dec 30 16:00		Minimum Speed Value: 0.2 kph on Dec 16 10:00																		Hours in Service: 744						
Maximum Daily Speed Average: 7.79 kph on Dec 30		Minimum Daily Speed Average: 0.37 kph on Dec 16																		Hours of Data: 744						
Maximum Diurnal Speed Average: 3.32 kph at hour 11		Minimum Diurnal Speed Average: 0.70 kph at hour 20																		Hours of Missing Data: 0						
Monthly Average Velocity: 1.883 kph 223.82 deg		Speed Percentiles: P ₁ = 0.3 P ₁₀ = 1.4 Q ₁ = 3.0 Median = 4.8 Q ₃ = 6.9 P ₉₀ = 9.9 P ₉₉ = 16.6																		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	14	16	0	0	0	0	30																			
NorthEast	34	25	0	0	0	0	59																			
East	17	12	0	0	0	0	29																			
SouthEast	42	7	0	0	0	0	49																			
South	193	133	12	0	0	0	338																			
SouthWest	30	19	9	0	0	0	58																			
West	45	24	7	0	0	0	76																			
NorthWest	24	51	28	2	0	0	105																			
Total	399	287	56	2	0	0	744																			



WCAS - Drayton Valley
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 6.88 kph on Dec 30 14:00		Maximum Daily Average: 3.56 kph on Dec 30		Hours in Service: 744																							
Minimum Value: 0.1 kph on Dec 15 08:00		Minimum Daily Average: 0.96 kph on Dec 18		Hours of Data: 744																							
Maximum Diurnal Average: 2.14 kph at hour 14		Minimum Diurnal Average: 1.60 kph at hour 18		Hours of Missing Data: 0																							
Monthly Average: 1.816 kph		Percentiles: P ₁ = 0.1 P ₁₀ = 0.9 Q ₁ = 1.1 Median = 1.6 Q ₃ = 2.2 P ₉₀ = 3.1 P ₉₉ = 5.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1.4	2.4	1.9	1.2	1.4	1.5	1.0	1.0	1.5	1.3	1.2	1.0	0.9	1.1	1.4	1.2	1.1	1.0	0.9	1.2	1.1	1.1	2.1	1.8	1.32	2.39	
2-Dec	1.5	1.0	2.0	2.7	3.0	3.0	1.6	1.2	1.8	1.6	3.3	2.4	2.0	2.5	3.6	1.6	1.5	1.0	1.2	1.3	1.4	2.0	2.7	3.4	2.05	3.57	
3-Dec	3.2	2.9	2.6	1.9	1.3	2.0	1.2	1.6	1.0	1.2	1.3	2.0	1.6	1.5	1.5	1.3	0.9	0.6	0.9	1.0	1.1	1.3	1.2	1.3	1.52	3.24	
4-Dec	1.4	1.8	1.3	1.5	1.9	1.5	1.7	1.1	1.9	0.8	1.0	1.5	2.6	2.4	1.6	1.1	1.1	0.8	0.6	1.6	1.7	0.9	1.6	0.8	1.42	2.64	
5-Dec	0.8	1.4	1.3	1.3	1.2	0.6	1.1	1.0	0.7	0.6	0.6	0.8	0.9	1.5	1.3	1.7	2.6	2.6	1.8	1.8	1.9	1.8	1.5	1.3	1.34	2.60	
6-Dec	1.1	1.4	1.8	2.0	1.7	1.0	1.9	1.0	1.8	1.6	1.6	1.7	2.4	2.5	2.0	1.8	1.8	2.1	2.2	1.9	1.9	2.0	1.4	1.4	1.74	2.49	
7-Dec	1.1	1.0	1.1	1.3	1.0	1.1	1.3	0.9	1.9	1.6	1.3	2.0	1.0	1.2	1.1	0.9	1.0	0.8	0.7	0.6	1.1	0.8	1.1	1.0	1.12	2.02	
8-Dec	1.6	1.0	2.2	2.2	2.0	1.6	1.4	2.1	1.1	2.0	1.2	1.8	2.6	1.8	1.4	1.9	1.0	1.2	1.3	2.6	1.9	1.5	2.0	1.4	1.70	2.63	
9-Dec	1.2	0.9	1.5	2.1	1.1	1.3	1.2	1.5	1.8	2.3	1.8	2.2	1.8	2.8	2.8	2.4	3.2	2.1	1.9	3.0	3.5	5.1	3.7	3.1	2.27	5.07	
10-Dec	2.4	2.1	1.8	1.1	1.9	2.3	1.2	2.5	2.7	2.2	2.5	3.0	3.1	3.6	2.7	2.8	1.5	1.3	1.3	1.8	2.0	2.1	3.0	2.8	2.24	3.59	
11-Dec	5.0	4.5	3.3	2.2	3.3	3.2	5.3	4.3	3.2	3.5	2.8	2.4	1.6	2.1	1.3	1.7	2.7	3.2	3.4	2.7	3.0	3.4	2.8	3.1	3.08	5.32	
12-Dec	2.1	2.7	2.6	1.4	2.1	2.0	1.3	2.0	1.7	1.1	1.0	2.2	1.7	1.7	2.1	2.4	1.8	1.1	2.4	2.3	2.0	1.5	1.3	1.1	1.81	2.73	
13-Dec	1.0	2.8	2.3	3.2	2.5	2.3	2.3	1.9	2.0	1.8	2.4	1.6	1.7	1.6	1.3	1.0	1.3	0.6	1.3	1.1	1.1	1.2	1.6	1.8	1.75	3.24	
14-Dec	1.7	1.6	1.6	2.8	0.9	0.9	0.9	0.9	0.9	1.1	1.0	0.7	1.2	1.7	1.6	1.4	0.9	0.4	1.0	0.4	0.4	0.1	0.6	0.8	0.7	1.05	2.76
15-Dec	0.5	0.8	0.7	0.5	1.1	0.9	0.9	0.1	0.8	0.3	0.4	0.1	1.0	2.3	2.0	1.7	1.6	1.9	1.9	2.2	1.7	1.5	1.8	2.0	1.18	2.31	
16-Dec	1.8	1.5	1.0	0.8	0.8	1.0	1.3	1.0	1.0	0.9	0.4	0.5	0.4	1.9	1.8	1.9	2.1	1.4	0.8	0.1	1.4	1.4	1.0	2.3	1.18	2.33	
17-Dec	1.4	1.4	1.9	0.6	1.3	2.1	1.7	2.1	2.3	2.1	2.2	2.0	1.8	1.5	1.3	1.2	1.1	1.1	0.5	0.1	1.4	0.9	1.0	0.8	1.41	2.33	
18-Dec	1.1	1.5	0.9	1.2	1.1	1.2	1.4	1.1	1.1	0.8	1.0	1.1	1.3	1.0	1.1	0.8	1.5	0.5	0.1	0.1	0.8	1.5	0.5	0.6	0.96	1.54	
19-Dec	1.0	1.3	0.9	1.5	1.1	0.9	1.8	1.1	0.1	1.1	0.8	1.4	1.0	1.8	2.0	2.1	2.1	0.9	1.5	1.4	1.1	1.1	0.8	1.0	1.24	2.14	
20-Dec	1.0	1.1	1.1	1.0	0.9	1.3	1.2	1.0	0.9	1.1	1.3	1.4	1.2	1.3	1.1	1.3	2.1	1.2	1.4	1.6	2.2	0.9	1.6	2.2	1.30	2.19	
21-Dec	2.1	2.1	1.8	2.0	3.9	1.7	3.6	1.8	1.3	1.7	1.4	1.2	2.5	2.1	3.2	4.8	5.2	3.0	2.0	1.7	2.0	1.0	1.3	1.3	2.28	5.18	
22-Dec	1.6	1.7	1.5	1.1	1.2	1.8	1.2	1.3	0.7	1.7	1.3	1.5	2.2	2.3	2.3	3.9	2.3	1.0	1.2	1.0	1.0	1.8	1.4	1.3	1.60	3.91	
23-Dec	1.0	1.0	0.9	2.0	1.2	1.0	1.1	1.2	1.1	1.7	3.0	1.7	1.5	1.7	1.4	1.2	1.8	2.1	2.1	1.7	2.5	1.8	1.3	1.6	1.56	3.00	
24-Dec	1.4	3.3	2.2	1.7	3.5	5.6	1.8	2.1	1.5	2.0	2.1	2.0	1.9	3.0	3.9	4.2	2.2	3.1	2.4	2.8	2.9	2.4	2.5	2.4	2.62	5.64	
25-Dec	2.1	1.8	1.8	1.7	1.6	1.7	1.9	1.8	1.1	1.8	1.6	1.8	2.5	1.8	1.1	0.7	1.0	1.6	1.5	2.1	2.8	3.3	2.6	2.2	1.84	3.33	
26-Dec	0.9	0.9	1.0	0.6	1.2	1.0	1.0	0.7	0.7	1.0	1.2	1.5	1.6	1.5	1.8	1.9	1.9	1.8	1.7	2.0	1.6	1.7	1.7	2.2	1.38	2.19	
27-Dec	2.4	2.7	1.8	1.9	1.1	0.7	0.7	0.9	1.1	0.8	1.4	1.5	2.5	1.4	2.8	2.8	2.6	2.6	3.2	2.8	3.0	2.5	2.4	2.2	1.98	3.18	
28-Dec	2.4	2.7	2.4	2.5	2.1	2.1	1.4	2.4	2.1	2.2	2.5	1.8	2.2	3.2	3.4	2.9	2.1	1.6	2.8	3.1	3.0	3.7	3.3	3.6	2.56	3.70	
29-Dec	3.0	3.5	3.0	3.1	3.8	3.9	3.5	3.5	3.5	3.2	3.0	3.3	2.9	2.5	1.9	1.4	0.8	0.1	0.3	1.0	0.9	1.3	0.9	1.2	2.32	3.91	
30-Dec	1.4	1.3	1.1	1.5	1.6	2.8	2.7	2.1	3.0	2.1	1.9	1.8	6.3	6.9	6.8	6.3	6.0	4.9	4.4	3.3	3.7	4.4	4.3	4.8	3.56	6.88	
31-Dec	2.0	2.6	3.2	3.4	3.5	3.1	3.0	3.9	3.6	3.8	4.4	4.0	3.0	2.1	2.3	2.5	2.0	1.4	2.4	2.3	1.5	2.1	3.7	4.0	2.90	4.38	
		1.70	1.88	1.75	1.75	1.82	1.85	1.74	1.65	1.60	1.64	1.69	1.74	1.98	2.14	2.12	2.07	1.95	1.60	1.62	1.69	1.85	1.89	1.90	1.95	Diurnal Average	
		4.96	4.51	3.26	3.38	3.92	5.64	5.32	4.26	3.58	3.79	4.38	4.02	6.27	6.88	6.77	6.27	6.01	4.87	4.44	3.29	3.71	5.07	4.35	4.84	Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																											



WCAS - Drayton Valley
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 101.84 deg on Dec 16 10:00 Maximum Daily Average: 46.92 deg on Dec 12																							Hours in Service: 744 Hours of Data: 744			
Minimum Value: 1.2 deg on Dec 16 07:00 Minimum Daily Average: 10.66 deg on Dec 3 Maximum Diurnal Average: 27.73 deg at hour 13 Minimum Diurnal Average: 17.43 deg at hour 6 Monthly Average: 23.022 deg Percentiles: P ₁ = 6.3 P ₁₀ = 9.2 Q ₁ = 12.3 Median = 16.7 Q ₃ = 26.7 P ₉₀ = 47.7 P ₉₉ = 83.7																							Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0			
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	7.0	14.5	12.4	8.8	8.1	8.1	12.0	9.3	11.7	11.3	9.2	15.3	14.2	14.7	12.1	13.7	9.5	12.3	19.2	14.7	12.6	29.4	15.8	58.6	14.77	58.64
2-Dec	76.7	33.4	48.9	24.2	18.3	19.0	26.1	24.5	13.9	13.8	18.0	14.5	14.6	13.3	25.8	26.5	22.5	17.2	11.0	10.9	10.7	11.0	11.5	13.0	21.64	76.68
3-Dec	12.6	14.9	12.5	16.5	8.9	8.0	7.4	9.1	9.9	8.2	9.2	12.8	13.4	10.3	10.0	9.2	14.6	12.5	8.1	8.9	9.8	8.1	8.1	13.1	10.66	16.45
4-Dec	13.4	12.8	58.1	62.4	60.8	19.9	50.7	20.1	43.2	9.5	11.2	11.9	64.2	31.5	29.6	42.7	12.1	9.2	15.0	68.6	22.3	7.9	78.8	75.6	34.65	78.79
5-Dec	34.5	57.3	12.3	12.9	10.7	5.8	20.6	18.2	4.8	7.3	14.4	10.3	10.2	29.6	26.6	25.0	22.9	16.8	19.1	26.9	32.1	26.4	43.7	6.7	20.63	57.33
6-Dec	53.4	45.7	39.9	21.9	38.0	22.0	37.0	67.4	61.5	28.5	35.4	31.5	25.6	21.4	24.7	27.9	36.3	15.9	26.9	32.9	47.8	18.5	10.8	13.4	32.67	67.38
7-Dec	9.4	9.9	15.1	15.6	12.8	10.7	18.1	9.5	61.3	43.4	34.5	18.1	10.1	12.2	14.1	25.2	11.2	18.5	10.7	16.4	20.6	10.5	11.2	12.4	17.98	61.35
8-Dec	9.6	10.4	18.1	13.8	32.0	24.5	77.0	81.9	42.9	8.5	10.0	14.8	16.7	18.7	14.6	23.7	9.6	9.9	9.3	14.2	8.7	48.8	12.4	71.1	25.05	81.91
9-Dec	46.5	10.6	25.1	71.7	13.6	10.5	8.2	9.4	10.8	10.0	12.1	12.7	10.3	19.0	14.5	15.6	12.9	11.1	11.5	12.3	31.0	19.3	15.2	56.5	19.60	71.68
10-Dec	25.2	17.3	18.6	12.6	13.3	24.0	9.5	10.5	14.6	11.2	12.1	20.8	13.3	12.3	11.3	12.2	30.2	19.4	15.5	12.8	22.3	16.5	17.6	16.5	16.24	30.17
11-Dec	13.0	10.7	12.7	14.0	17.4	20.6	26.6	13.4	14.6	14.8	14.8	27.0	26.7	77.7	26.5	28.8	29.5	25.5	27.0	26.3	23.9	24.3	20.3	36.5	23.85	77.69
12-Dec	19.0	64.1	35.7	13.6	12.7	23.3	95.1	66.1	33.0	33.6	19.8	23.3	34.6	31.9	84.3	33.1	80.4	85.9	66.9	64.4	53.7	52.6	67.6	31.4	46.92	95.06
13-Dec	38.6	39.3	28.5	14.5	13.6	14.2	12.8	10.3	10.4	8.6	22.7	15.3	14.7	19.2	23.2	14.4	17.4	8.7	12.4	6.7	8.5	7.6	59.4	36.3	19.06	59.42
14-Dec	9.4	11.7	8.5	57.8	8.9	7.5	9.3	8.3	11.6	18.0	8.4	12.8	40.2	20.8	55.2	20.9	10.2	4.8	12.4	8.4	19.9	18.2	2.7	6.8	16.36	57.85
15-Dec	5.0	11.0	13.6	10.3	8.3	9.4	21.0	60.5	27.4	40.6	38.5	23.9	18.3	48.0	54.1	17.7	14.4	10.7	44.9	18.5	24.2	17.7	46.6	61.5	26.92	61.47
16-Dec	16.8	33.6	13.4	64.8	10.1	6.3	1.2	39.6	22.1	101.8	57.4	65.6	64.4	16.1	12.4	17.7	55.1	57.2	52.8	83.0	39.2	15.7	30.2	24.4	37.53	101.84
17-Dec	23.6	14.2	15.9	99.1	57.2	18.3	19.2	21.7	19.5	19.2	14.7	19.1	25.1	22.2	31.0	14.8	32.4	17.4	61.2	55.8	10.3	12.3	10.1	7.0	26.72	99.15
18-Dec	8.1	12.2	9.4	8.7	8.2	8.9	8.2	9.2	8.7	9.7	11.7	17.3	8.5	12.7	14.9	19.7	54.2	57.5	71.7	8.9	31.4	33.7	8.0	6.8	18.68	71.68
19-Dec	10.4	20.1	14.8	11.4	15.8	25.6	48.5	40.9	62.8	88.3	92.9	35.0	96.5	60.3	50.2	71.7	35.3	18.9	17.1	16.9	12.2	13.9	9.3	9.8	36.60	96.54
20-Dec	9.6	11.7	8.7	10.2	8.6	9.4	10.4	8.9	8.2	9.4	9.9	9.8	14.5	12.3	12.5	15.4	40.7	12.1	23.5	25.0	19.3	15.8	45.1	11.0	15.09	45.10
21-Dec	21.3	13.4	38.7	15.2	69.1	55.5	36.2	33.6	56.7	15.1	10.0	70.0	77.2	14.6	32.6	18.4	16.5	17.7	15.7	12.3	25.8	16.0	26.7	18.6	30.29	77.22
22-Dec	18.5	17.0	31.1	28.1	30.1	29.5	23.3	30.8	52.1	47.1	18.3	22.7	20.9	15.9	14.2	13.6	15.9	33.0	13.2	14.4	27.5	22.2	22.3	24.5	24.42	52.12
23-Dec	30.6	14.1	14.5	14.8	7.4	8.9	10.9	9.1	11.6	10.2	13.2	11.1	9.8	11.4	10.2	13.2	28.9	12.3	18.4	67.2	30.4	41.7	18.5	13.1	17.98	67.19
24-Dec	14.8	21.0	18.7	20.1	17.5	22.0	16.7	14.5	21.8	25.5	16.8	14.6	16.4	14.2	16.1	12.3	16.7	25.0	33.7	16.7	22.9	20.7	17.3	18.3	18.94	33.72
25-Dec	16.5	20.6	17.2	18.8	25.0	32.4	35.5	16.8	35.6	12.4	27.3	28.5	24.0	48.4	77.5	54.4	28.0	33.7	75.2	22.8	16.1	13.2	12.1	21.2	29.72	77.50
26-Dec	26.6	21.9	16.3	10.5	41.9	23.5	36.1	8.9	9.4	11.1	12.8	13.9	21.7	20.0	21.6	18.4	18.5	17.7	18.5	17.7	18.4	19.0	19.3	15.0	19.11	41.87
27-Dec	14.2	15.8	20.8	37.8	32.3	8.0	8.3	8.0	8.6	11.0	59.2	19.2	56.7	12.6	14.2	15.5	14.5	16.5	20.8	22.5	22.2	23.6	27.3	29.8	21.64	59.17
28-Dec	30.5	28.4	24.2	26.1	19.4	19.0	12.3	14.0	13.0	10.4	19.9	24.2	25.5	25.9	28.7	29.0	29.5	29.0	15.3	13.3	13.4	15.0	16.5	15.8	20.77	30.48
29-Dec	13.0	13.4	13.5	15.0	14.5	16.6	13.7	13.5	13.3	14.3	15.7	14.9	16.0	16.7	25.1	25.2	28.2	3.4	11.2	19.6	8.6	9.1	6.8	9.0	14.60	28.15
30-Dec	8.5	7.6	8.4	10.2	9.1	10.3	9.5	9.4	13.3	10.5	9.3	20.0	35.5	15.0	13.9	13.9	13.6	13.4	12.8	13.1	14.5	14.0	15.0	14.1	13.12	35.51
31-Dec	24.2	18.3	19.3	15.1	23.0	18.7	21.6	13.5	15.1	18.7	18.2	17.6	19.9	22.6	43.4	46.8	21.3	24.7	39.6	15.5	17.4	14.1	12.7	15.0	21.51	46.83
21.31 20.87 20.80 25.04 21.50 17.43 23.96 22.93 23.98 22.00 21.86 21.57 27.73 23.27 27.25 23.76 25.26 21.55 26.15 24.75 21.86 19.90 23.19 24.61																								Diurnal Average		
76.68 64.10 58.10 99.15 69.14 55.48 95.06 81.91 62.79 101.84 92.86 69.97 96.54 77.69 84.30 71.66 80.37 85.89 75.20 83.01 53.70 52.58 78.79 75.60																								Diurnal Maximum		
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																										

**WEYERHAEUSER - EDSON
STATION #912**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

Weyerhaeuser / Edson Station 912												24 Hour AveRage Max (ppm)
December 2014												
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	P10	Q1	Percentile Median	Q3	P90	
SO ₂ (ppb)	35	709	100.0	1.2	0.0	5.7	0.2	0.3	0.9	1.7	2.6	0.003
O ₃ (ppb)	35	709	100.0	10.6	0.2	40.3	1.3	2.1	6.5	16.0	28.1	0.028
NO (ppb)	37	707	100.0	23.5	0.0	161.5	0.1	0.9	10.7	36.5	68.9	-
NO ₂ (ppb)	37	707	100.0	18.9	1.0	52.8	3.3	12.4	19.9	25.1	30.1	0.030
NOx (ppb)	37	707	100.0	42.2	1.0	186.3	3.9	14.3	32.6	58.7	95.2	-
Particulate Matter 2.5 microns (μ/m ³)	0	744	100.0	5.6	0.0	32.9	0.4	1.7	4.5	8.0	12.4	12.4 ug/m3
Wind Speed (kph)	0	744	100.0	5.0	0.1	21.2	0.4	2.1	5.1	7.4	9.3	-
Temperature (°C)	0	744	100.0	-8.4	-25.2	6.6	-17.6	-11.8	-8.1	-4.4	-0.6	-
Std Dev Wind Direction (deg)	0	744	100.0	26.3	5.6	106.2	9.1	11.2	16.8	32.5	62.8	-
Std Dev Wind Speed (kph)	0	744	100.0	2.1	0.0	5.7	1.1	1.5	2.1	2.6	3.3	-



WCAS - Edson
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 5.65 ppb on Dec 10 10:00		Maximum Daily Average: 3.04 ppb on Dec 19		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 29 09:00		Minimum Daily Average: 0.11 ppb on Dec 28		Hours of Data: 709																							
Maximum Diurnal Average: 1.69 ppb at hour 15		Minimum Diurnal Average: 0.70 ppb at hour 19		Hours of Missing Data: 35																							
Monthly Average: 1.178 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.9 Q ₃ = 1.7 P ₉₀ = 2.6 P ₉₉ = 4.9		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.8	1.0	0.9	Z	1.5	2.6	1.9	3.1	3.2	1.2	2.0	1.2	1.5	1.8	1.6	1.3	0.9	0.4	1.1	4.5	2.0	1.3	0.6	0.3	1.60	4.50	
2-Dec	0.2	0.2	0.4	Z	1.2	0.6	0.6	0.3	0.2	0.2	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.2	0.5	0.5	0.35	1.16	
3-Dec	0.8	1.7	1.5	Z	0.9	0.7	1.0	1.2	2.0	2.2	2.0	0.9	1.3	2.3	2.9	1.9	1.5	0.7	0.7	1.1	2.3	0.7	0.7	0.7	1.37	2.95	
4-Dec	1.1	1.1	0.8	Z	1.4	1.7	2.6	2.0	1.5	1.7	1.5	1.8	1.9	2.4	2.3	2.4	3.1	0.6	0.2	0.2	1.0	2.6	1.3	1.3	1.59	3.09	
5-Dec	0.7	0.5	0.6	Z	1.0	2.0	2.8	2.3	1.6	2.0	2.9	2.8	2.1	2.9	2.4	2.5	2.8	1.9	0.6	0.3	0.9	1.6	2.8	2.2	1.84	2.93	
6-Dec	1.8	1.5	1.6	Z	1.7	1.6	1.5	1.9	2.1	1.3	2.4	0.4	0.6	0.9	1.0	0.8	0.6	0.4	1.5	5.0	1.5	2.4	1.4	1.1	1.53	5.04	
7-Dec	0.9	1.1	0.7	Z	0.8	0.9	0.9	0.7	1.2	2.0	1.6	2.2	2.6	2.1	1.1	0.7	1.0	0.5	0.1	1.3	0.3	0.6	0.3	0.8	1.06	2.64	
8-Dec	0.9	2.5	2.6	Z	1.9	1.4	1.2	1.9	1.5	1.9	2.0	2.5	2.3	2.5	1.3	0.7	0.8	1.4	1.7	1.1	1.3	1.8	1.6	1.6	1.67	2.65	
9-Dec	1.5	1.0	0.9	Z	1.3	0.3	1.5	3.5	5.5	5.1	3.4	3.0	5.0	4.5	4.7	1.8	1.4	2.4	1.5	3.8	2.0	0.7	0.1	0.2	2.40	5.54	
10-Dec	0.5	0.3	0.1	Z	0.8	0.1	0.5	1.1	4.3	5.7	5.5	1.4	1.3	3.1	5.0	4.3	2.8	4.7	0.2	0.1	0.3	0.9	1.0	1.6	1.98	5.65	
11-Dec	3.4	3.7	1.7	Z	0.6	0.9	0.1	0.3	0.1	0.5	0.7	1.4	0.9	0.5	0.9	0.4	0.4	0.1	0.1	0.5	1.2	0.6	0.6	1.7	0.93	3.69	
12-Dec	1.0	0.6	0.4	Z	0.2	0.6	0.3	0.2	1.4	1.7	1.6	1.7	2.0	1.9	2.1	0.9	0.6	0.6	0.3	1.1	1.0	0.5	0.2	0.3	0.92	2.13	
13-Dec	0.4	0.4	1.0	Z	0.2	0.4	0.5	2.5	0.8	2.0	0.9	1.1	0.9	1.0	3.4	1.4	0.8	0.7	0.3	0.5	1.1	0.9	0.1	0.3	0.92	3.36	
14-Dec	0.3	0.2	0.6	Z	0.8	1.2	1.3	0.6	0.7	1.5	1.0	1.9	1.8	1.8	1.6	C	C	C	C	0.7	0.5	0.2	0.6	0.4	0.93	1.94	
15-Dec	0.2	1.0	0.5	Z	1.5	1.5	1.2	1.4	1.4	1.6	1.6	1.5	1.6	2.1	1.8	1.4	1.2	1.7	1.4	1.1	1.3	3.1	1.7	0.9	1.42	3.10	
16-Dec	1.7	1.9	2.4	Z	0.3	0.8	0.5	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.1	0.0	0.2	0.7	0.5	1.4	2.4	2.5	0.81	2.46		
17-Dec	1.6	1.3	1.3	Z	1.0	1.0	1.1	2.1	3.6	3.1	2.2	2.5	2.4	2.1	2.0	1.5	2.3	2.0	1.8	3.4	3.8	2.0	1.0	1.2	2.00	3.76	
18-Dec	0.7	0.7	1.0	Z	1.0	0.4	1.3	1.4	1.4	2.5	2.3	3.7	0.9	1.6	1.9	1.2	0.8	1.3	0.8	0.9	0.7	1.4	3.0	1.3	1.40	3.68	
19-Dec	2.5	3.3	3.6	Z	2.6	2.7	2.6	3.2	3.4	4.2	3.4	2.6	2.2	2.7	3.2	2.8	2.7	2.2	2.5	2.5	4.3	3.5	4.6	2.6	3.04	4.56	
20-Dec	1.4	0.8	0.2	Z	0.7	0.7	2.1	2.1	1.3	3.7	3.6	4.3	3.2	2.7	2.9	2.1	0.5	0.4	0.3	0.3	0.5	3.0	4.4	2.8	1.92	4.42	
21-Dec	2.1	1.9	0.8	Z	0.5	0.6	1.0	1.3	1.1	1.5	1.7	1.7	1.6	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.3	0.82	2.14	
22-Dec	0.3	0.3	0.3	Z	0.5	0.7	0.5	0.4	0.2	0.7	0.7	1.4	2.5	0.9	0.6	0.2	0.3	0.3	1.0	0.2	0.8	0.5	0.5	1.0	0.64	2.49	
23-Dec	0.5	0.6	0.5	Z	0.2	0.2	0.2	0.4	1.2	2.9	3.0	2.9	3.5	3.2	2.7	1.5	1.9	1.8	1.2	1.7	1.1	0.9	1.0	1.0	1.48	3.48	
24-Dec	0.3	0.3	0.5	Z	0.4	0.2	0.2	0.3	0.8	0.5	1.2	1.8	2.4	2.6	0.6	0.2	0.2	0.1	0.5	1.7	0.4	0.2	0.2	0.1	0.69	2.59	
25-Dec	0.1	0.5	0.5	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	1.2	1.5	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.28	1.53	
26-Dec	0.1	0.2	0.2	Z	0.3	0.2	0.2	0.1	0.2	0.3	0.9	0.5	0.7	1.4	1.4	0.8	0.8	0.5	0.2	0.2	0.2	0.3	0.2	0.1	0.43	1.37	
27-Dec	0.1	0.3	1.3	Z	0.7	3.0	0.5	0.7	0.5	0.5	1.1	1.5	1.9	1.5	1.2	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.72	2.97	
28-Dec	0.1	0.1	0.1	Z	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.11	0.42	
29-Dec	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.5	0.4	0.7	1.3	1.8	0.2	0.1	0.6	0.5	0.3	0.2	0.5	0.36	1.81	
30-Dec	0.3	0.2	0.8	Z	0.6	1.1	1.4	1.0	1.9	0.5	0.9	0.8	1.0	0.5	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.61	1.94	
31-Dec	0.4	0.5	0.3	Z	0.5	0.3	0.2	0.2	0.2	0.3	0.7	1.1	1.3	1.2	0.2	0.1	0.1	0.3	1.7	0.5	0.4	1.7	2.4	0.9	0.67	2.41	
		0.87	0.96	0.90	--	0.81	0.93	0.97	1.18	1.42	1.66	1.67	1.61	1.64	1.68	1.69	1.19	1.03	0.88	0.70	1.13	1.01	1.10	0.93	Diurnal Average		
		3.41	3.69	3.64	--	2.60	2.97	2.78	3.52	5.54	5.65	5.53	4.31	5.05	4.54	4.95	4.30	3.09	4.71	2.47	5.04	4.32	3.49	4.56	2.75	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																											



WCAS - Edson
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 161.47 ppb on Dec 10 11:00		Maximum Daily Average: 71.15 ppb on Dec 19		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Dec 21 18:00		Minimum Daily Average: 0.16 ppb on Dec 28		Hours of Data: 707																																													
Maximum Diurnal Average: 39.55 ppb at hour 11		Minimum Diurnal Average: 12.36 ppb at hour 5		Hours of Missing Data: 37																																													
Monthly Average: 23.534 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.9 Median = 10.7 Q ₃ = 36.5 P ₉₀ = 68.9 P ₉₉ = 131.8		Hours of Calibration: 37																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.2	14.9	14.5	Z	35.5	59.9	40.7	82.5	87.3	25.5	52.9	25.4	33.2	34.1	14.8	8.4	12.0	6.9	25.2	123.0	51.5	30.8	0.1	0.0	33.97	122.95																							
2-Dec	0.0	0.0	0.0	Z	1.4	0.1	0.0	0.1	0.0	0.8	9.5	4.8	1.0	0.4	0.5	0.6	0.4	0.5	2.2	5.8	8.2	0.9	0.2	0.1	1.64	9.54																							
3-Dec	1.4	0.3	0.1	Z	0.2	6.9	19.4	28.7	49.1	43.6	47.7	17.7	16.5	16.4	14.0	10.4	5.6	3.8	11.8	27.0	62.0	7.6	5.0	12.3	17.71	61.97																							
4-Dec	2.0	2.9	7.6	Z	0.5	0.4	3.6	4.8	24.5	37.2	16.0	19.2	29.1	57.2	53.5	15.6	4.0	4.1	1.9	3.7	23.1	71.3	25.4	32.6	19.13	71.29																							
5-Dec	4.5	4.4	9.9	Z	3.8	3.1	2.7	5.8	13.0	25.4	77.7	75.3	59.5	81.5	68.9	70.8	78.3	51.8	13.2	1.7	22.0	41.9	75.9	58.6	36.95	81.48																							
6-Dec	48.8	41.2	43.0	Z	40.4	42.6	38.4	51.7	58.4	36.6	66.8	8.3	8.7	18.0	21.5	16.3	11.8	7.1	25.1	11.8	5.8	9.0	14.4	20.7	28.10	66.76																							
7-Dec	17.3	24.9	12.7	Z	10.1	16.0	4.3	2.2	20.2	37.1	31.5	36.3	30.3	29.6	16.7	7.9	20.8	8.1	1.0	36.3	7.1	16.9	10.0	25.3	18.38	37.11																							
8-Dec	28.7	72.5	77.9	Z	54.0	41.2	34.3	56.5	26.1	43.2	54.2	72.1	58.7	54.0	27.5	16.7	11.5	29.1	36.9	12.2	20.9	29.4	26.8	35.3	39.99	77.92																							
9-Dec	29.7	15.7	7.5	Z	22.0	2.1	42.0	95.1	160.2	147.7	97.5	85.3	147.8	130.9	137.0	49.6	38.9	67.9	41.2	108.3	57.6	16.6	1.0	0.9	65.33	160.24																							
10-Dec	10.7	6.6	0.4	Z	20.4	2.5	14.7	30.1	122.4	157.3	161.5	38.8	39.4	93.0	146.3	122.9	79.5	131.7	2.7	3.1	7.0	25.5	29.6	45.2	56.13	161.47																							
11-Dec	99.5	107.9	43.5	Z	13.6	25.6	0.6	0.8	1.5	11.3	20.5	36.3	16.3	3.7	17.2	2.4	6.9	0.6	0.5	0.5	0.2	0.2	0.2	0.2	17.83	107.93																							
12-Dec	2.6	6.4	0.5	Z	1.3	15.3	5.7	1.8	37.4	49.4	42.6	44.9	49.7	24.9	27.3	18.0	10.7	0.8	1.6	27.4	24.6	8.9	1.2	0.4	17.54	49.70																							
13-Dec	2.0	8.3	26.7	Z	4.8	0.6	1.7	71.7	21.0	55.9	19.2	27.4	23.8	20.5	18.1	12.8	13.3	16.7	5.4	7.1	31.3	25.1	1.2	0.9	18.07	71.66																							
14-Dec	2.7	1.6	0.9	Z	1.4	1.1	1.1	0.4	0.9	8.8	11.9	25.8	23.4	24.2	23.1	C	C	C	C	C	C	2.6	14.5	10.9	--	25.80																							
15-Dec	5.7	27.4	14.2	Z	38.9	41.4	33.1	39.2	37.8	43.5	44.4	41.6	47.0	59.1	50.1	40.9	34.3	49.7	39.3	30.7	36.2	88.2	48.9	25.2	39.86	88.20																							
16-Dec	49.7	54.5	68.9	Z	7.8	23.5	12.9	7.8	5.5	6.3	8.8	10.4	12.6	12.2	12.5	11.8	4.3	1.2	5.7	19.1	16.2	41.2	68.6	70.6	23.13	70.57																							
17-Dec	45.1	34.8	36.7	Z	26.9	26.8	31.3	58.8	101.3	79.5	51.0	65.8	58.9	54.3	47.4	31.1	25.5	48.0	45.5	93.1	101.8	45.8	8.1	15.4	49.26	101.84																							
18-Dec	0.8	3.6	7.3	Z	14.8	2.9	2.3	5.4	16.8	59.0	48.4	94.1	15.9	30.8	32.9	12.7	11.0	25.1	19.7	22.9	17.9	36.8	84.8	36.9	26.21	94.13																							
19-Dec	68.8	92.5	101.3	Z	72.0	73.3	71.5	86.6	75.7	98.0	78.5	67.1	53.2	36.5	31.4	27.3	35.5	40.2	58.6	62.2	117.4	95.1	122.7	71.3	71.15	122.65																							
20-Dec	35.9	22.3	1.8	Z	1.7	2.9	50.0	55.3	24.5	99.4	97.6	119.7	87.8	73.8	76.4	52.9	2.9	0.5	0.6	0.7	6.5	80.7	120.6	74.5	47.34	120.62																							
21-Dec	56.9	48.1	15.9	Z	7.4	12.1	22.7	23.2	11.3	28.2	36.9	40.7	37.1	2.8	0.4	0.1	0.1	0.0	0.1	0.1	0.0	0.0	1.7	3.8	15.20	56.92																							
22-Dec	6.0	0.7	0.3	Z	0.1	0.2	1.8	6.7	2.6	7.8	8.2	29.3	58.3	13.6	8.8	0.6	5.2	1.5	20.9	2.3	19.8	11.2	7.1	0.1	9.27	58.33																							
23-Dec	0.3	6.0	5.2	Z	0.1	0.1	0.5	9.0	33.2	80.1	83.1	81.2	97.9	90.1	75.2	37.6	50.8	46.6	28.5	40.8	22.9	9.3	3.0	13.9	35.46	97.89																							
24-Dec	0.6	0.8	7.8	Z	0.7	0.7	0.3	5.3	13.1	3.5	22.5	46.2	62.2	66.3	9.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.41	66.30																							
25-Dec	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.7	1.0	1.7	5.4	7.9	4.3	0.7	0.1	0.1	0.1	0.1	0.1	0.2	0.1	1.00	7.88																							
26-Dec	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.2	3.2	5.0	3.4	5.7	13.8	33.5	18.9	9.2	1.5	0.6	0.1	0.0	0.1	0.4	1.2	0.1	4.27	33.45																							
27-Dec	0.1	0.0	0.0	Z	0.0	0.2	1.3	3.5	3.2	4.0	9.8	20.3	37.8	19.2	15.0	4.1	1.3	0.2	0.1	0.3	0.1	0.0	0.1	0.0	5.25	37.82																							
28-Dec	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.3	0.4	0.7	0.9	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.16	0.88																							
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.7	1.2	3.5	3.5	2.7	3.3	1.7	0.6	1.3	15.6	13.6	7.4	2.2	1.7	2.58	15.64																							
30-Dec	1.7	0.5	0.7	Z	0.4	4.3	3.8	5.2	16.8	6.9	11.0	8.7	8.9	1.5	6.9	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.44	16.82																							
31-Dec	0.0	0.0	0.3	Z	2.5	1.0	0.4	0.2	1.2	3.6	11.4	7.8	4.8	8.0	0.5	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	1.90	11.35																							
																								16.91	19.33	16.33	--	12.36	13.12	14.24	23.83	31.24	38.87	39.55	37.39	36.76	35.48	31.72	19.69	15.64	18.14	12.97	21.87	22.48	22.69	21.77	17.98	Diurnal Average	
																								99.45	107.93	101.32	--	71.97	73.26	71.48	95.13	160.24	157.29	161.47	119.71	147.77	130.91	146.30	122.87	79.51	131.73	58.57	122.95	117.40	95.12	122.65	74.54	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ppb 24-hr --- ppb																																																	



WCAS - Edson
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2014

Maximum Value: 52.79 ppb on Dec 1 20:00																								Hours in Service: 744		
Maximum Daily Average: 32.14 ppb on Dec 1																								Hours of Data: 707		
Minimum Value: 1.0 ppb on Dec 28 22:00																								Hours of Missing Data: 37		
Minimum Daily Average: 1.76 ppb on Dec 28																								Hours of Calibration: 37		
Maximum Diurnal Average: 22.70 ppb at hour 9																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 16.07 ppb at hour 16																										
Monthly Average: 18.864 ppb																										
Percentiles: P ₁ = 1.2 P ₁₀ = 3.3 Q ₁ = 12.4 Median = 19.9 Q ₃ = 25.1 P ₉₀ = 30.1 P ₉₉ = 40.0																										
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	25.5	33.5	30.1	Z	37.4	42.5	36.9	42.5	46.0	30.6	33.8	24.6	30.6	28.5	19.7	23.9	38.8	37.9	39.8	52.8	43.7	32.7	3.3	3.8	32.14	52.79
2-Dec	4.1	3.7	3.1	Z	28.6	7.4	4.6	8.0	4.7	7.3	18.5	7.8	3.2	2.2	3.1	4.2	7.3	17.6	30.3	32.3	33.6	23.0	16.2	11.6	12.28	33.62
3-Dec	19.7	16.9	16.0	Z	15.8	24.6	31.9	37.6	40.9	33.5	30.0	16.3	15.3	16.8	19.4	22.5	29.4	33.1	34.2	35.7	43.8	34.1	31.3	29.3	27.31	43.80
4-Dec	23.1	26.2	24.0	Z	17.1	17.5	23.3	22.6	28.0	27.8	18.4	18.7	21.1	28.8	29.5	23.4	22.9	25.2	23.4	24.4	30.1	37.6	31.4	31.9	25.06	37.58
5-Dec	24.5	24.9	25.7	Z	23.5	23.0	20.2	23.1	26.2	25.0	31.6	29.3	24.4	30.1	27.5	30.7	34.1	29.8	27.0	21.7	27.4	28.3	32.1	28.0	26.87	34.06
6-Dec	26.9	25.5	25.8	Z	24.2	23.8	22.4	23.5	24.5	21.2	22.0	10.1	9.1	14.6	19.2	20.6	22.4	22.3	25.9	24.5	22.6	23.3	22.8	22.6	21.73	26.92
7-Dec	22.2	24.0	23.7	Z	21.9	22.6	19.8	21.3	25.5	26.5	20.9	18.3	16.3	18.2	16.4	13.9	26.3	23.5	15.4	25.5	20.0	20.5	18.0	17.5	20.79	26.47
8-Dec	18.7	19.9	19.4	Z	17.8	15.5	15.3	17.5	15.4	18.0	19.9	21.3	19.5	19.0	16.5	18.8	21.2	23.7	23.6	21.3	21.7	21.5	21.1	21.0	19.46	23.66
9-Dec	20.2	19.4	21.2	Z	23.5	13.7	22.1	31.0	39.1	34.4	28.0	27.2	34.0	33.9	40.3	24.0	23.0	31.5	23.5	28.3	24.0	16.5	4.8	12.3	25.04	40.28
10-Dec	29.1	24.4	11.4	Z	25.6	18.2	21.9	22.5	34.8	37.1	35.5	17.0	18.7	29.8	39.5	38.7	32.4	34.5	8.3	8.9	11.5	19.0	23.9	26.4	24.73	39.51
11-Dec	26.9	27.9	19.4	Z	18.1	20.4	15.6	11.4	17.7	23.1	22.4	25.4	19.3	9.4	18.1	14.6	18.8	13.7	9.3	8.6	7.0	5.7	4.7	8.3	15.91	27.90
12-Dec	11.6	24.1	18.4	Z	17.6	19.9	14.8	12.5	18.2	21.6	19.8	21.2	19.8	19.5	20.6	18.8	21.0	19.1	17.8	25.8	26.9	19.0	14.8	11.3	18.87	26.86
13-Dec	11.9	15.7	22.6	Z	16.9	13.1	15.7	27.3	25.7	24.8	15.1	16.0	12.6	13.5	14.3	18.1	23.2	24.2	21.9	21.3	22.5	22.6	17.1	16.8	18.82	27.31
14-Dec	17.7	16.8	18.7	Z	19.1	16.8	16.8	12.3	13.2	19.5	14.9	17.7	17.2	18.7	20.8	C	C	C	C	C	C	19.5	21.0	19.1	--	21.03
15-Dec	17.3	19.6	17.2	Z	18.3	18.8	16.3	17.7	19.0	19.2	18.0	16.7	17.5	21.7	21.8	24.1	26.5	27.7	26.3	24.9	25.5	30.3	25.1	21.2	21.34	30.30
16-Dec	22.2	23.4	26.3	Z	21.5	21.6	22.1	21.9	21.7	19.4	13.9	11.0	11.2	11.3	12.4	15.3	16.2	19.2	20.4	21.7	20.5	22.7	27.0	27.8	19.59	27.81
17-Dec	24.2	23.1	22.8	Z	23.0	23.4	22.6	26.0	31.3	26.9	20.7	21.6	20.6	20.8	21.2	22.6	24.7	27.8	25.8	30.0	31.7	28.5	25.3	25.3	24.77	31.66
18-Dec	21.0	21.9	21.8	Z	23.1	19.1	21.0	22.6	25.2	29.3	26.4	31.8	13.1	19.5	23.3	19.9	25.9	31.1	27.6	27.2	25.4	25.6	30.0	22.2	24.09	31.80
19-Dec	23.8	24.1	25.7	Z	21.7	22.7	21.7	25.5	22.8	24.7	24.6	24.0	20.5	20.2	19.8	18.9	21.3	21.7	22.5	22.9	28.7	25.4	29.4	23.5	23.32	29.43
20-Dec	21.4	20.3	15.3	Z	14.7	19.3	29.4	30.7	26.0	34.4	28.6	30.3	25.5	29.7	30.2	24.7	15.9	16.4	16.2	15.7	18.8	26.8	30.5	25.3	23.75	34.37
21-Dec	23.8	22.8	22.0	Z	21.0	19.3	21.2	21.6	20.9	23.3	21.8	22.9	21.6	6.7	2.4	2.1	3.3	5.5	10.2	7.6	5.4	4.4	9.5	21.8	14.84	23.82
22-Dec	21.1	15.4	11.6	Z	11.3	12.9	19.3	21.5	16.2	25.1	19.4	25.5	36.6	18.7	13.4	4.1	28.7	24.6	34.7	12.0	39.0	36.6	29.0	12.5	21.26	38.99
23-Dec	19.9	32.8	27.0	Z	10.5	13.6	16.2	24.4	25.6	30.0	29.9	29.4	28.8	29.7	28.7	20.8	27.3	29.3	29.3	26.8	26.6	26.2	27.9	25.66	32.81	
24-Dec	20.4	17.4	20.5	Z	12.9	17.4	5.7	17.4	32.8	22.3	30.1	32.4	33.1	34.3	10.1	1.3	1.9	2.3	3.3	1.9	1.5	1.6	1.9	2.1	14.12	34.26
25-Dec	3.4	2.0	2.2	Z	2.6	2.6	3.9	3.2	3.3	3.0	2.9	3.0	3.6	6.9	9.0	8.5	3.7	2.4	2.1	2.3	2.2	4.1	5.1	4.9	3.78	8.99
26-Dec	4.7	5.8	7.7	Z	14.1	10.9	12.7	8.1	17.5	16.7	13.1	13.1	17.6	23.0	18.9	15.7	16.1	20.2	13.6	9.3	9.1	13.9	15.6	11.2	13.41	23.05
27-Dec	10.1	8.3	11.7	Z	8.4	12.6	15.0	18.7	19.3	15.9	14.2	16.1	19.5	17.9	15.0	11.3	11.5	9.0	9.0	4.5	3.2	2.7	2.3	1.7	11.21	19.53
28-Dec	1.5	1.6	2.9	Z	2.8	2.0	1.5	1.6	2.1	1.9	1.9	1.5	2.2	2.6	1.7	1.5	2.0	1.6	1.5	1.4	1.1	1.0	1.3	1.5	1.76	2.87
29-Dec	1.7	1.0	1.1	Z	1.3	1.1	1.2	1.7	2.7	3.3	3.3	3.2	5.6	4.9	4.4	8.2	13.6	17.5	17.4	30.5	28.2	26.1	17.5	19.9	9.37	30.46
30-Dec	17.9	11.3	14.9	Z	12.4	21.8	23.1	24.9	31.8	19.9	22.2	20.6	17.6	9.7	18.2	8.6	5.5	6.5	12.5	4.6	3.9	4.5	5.6	5.4	14.06	31.81
31-Dec	4.2	4.6	11.6	Z	22.6	20.2	10.6	15.3	25.8	23.0	24.9	15.1	9.8	13.1	2.1	2.3	3.0	6.3	11.8	8.9	6.9	9.6	8.9	3.8	11.50	25.84
17.44 18.01 17.48 -- 17.72 17.37 17.57 19.87 22.70 22.22 20.86 18.99 18.25 18.51 17.98 16.07 18.93 20.18 19.49 19.52 20.42 19.80 17.84 16.71																								Diurnal Average		
29.06 33.45 30.10 -- 37.40 42.48 36.94 42.51 46.03 37.09 35.47 32.42 36.58 34.26 40.28 38.70 38.83 37.89 39.80 52.79 43.80 37.58 32.06 31.90																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										



WCAS - Edson
Summary of Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³
December 2014

Maximum Value: 32.87 µg/m ³ on Dec 22 04:00		Maximum Daily Average: 19.53 µg/m ³ on Dec 17		Hours in Service: 744																																												
Minimum Value: 0.0 µg/m ³ on Dec 7 19:00		Minimum Daily Average: 0.74 µg/m ³ on Dec 26		Hours of Data: 744																																												
Maximum Diurnal Average: 6.83 µg/m ³ at hour 18		Minimum Diurnal Average: 4.59 µg/m ³ at hour 9		Hours of Missing Data: 0																																												
Monthly Average: 5.619 µg/m ³		Percentiles: P ₁ = 0.0 P ₁₀ = 0.4 Q ₁ = 1.7 Median = 4.5 Q ₃ = 8.0 P ₉₀ = 12.4 P ₉₉ = 24.2		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.8	2.2	2.0	1.9	2.3	2.6	2.9	4.5	6.1	2.1	4.7	2.4	2.5	3.9	2.5	2.0	3.9	2.9	5.5	8.8	6.5	3.6	1.0	0.5	3.26	8.78																						
2-Dec	1.4	1.9	1.0	2.0	1.5	2.2	1.9	2.2	1.8	2.5	4.2	1.6	0.3	0.7	0.4	0.6	1.5	3.2	4.9	4.9	6.8	6.8	2.9	1.1	2.43	6.84																						
3-Dec	1.5	2.4	2.0	2.2	2.7	2.0	2.8	3.3	5.4	6.7	5.5	1.4	2.1	2.3	0.7	2.6	1.6	5.2	9.8	7.0	5.4	2.3	2.5	3.9	3.48	9.81																						
4-Dec	4.6	5.1	4.4	5.0	5.4	4.6	6.3	4.9	5.8	7.1	3.8	4.5	4.9	8.3	7.7	6.2	4.8	3.0	2.3	3.8	5.5	8.9	6.7	7.7	5.47	8.95																						
5-Dec	4.0	3.9	4.7	5.3	5.4	5.5	5.1	3.9	5.3	6.0	9.2	9.8	7.3	9.5	8.1	8.5	8.8	7.3	5.0	4.5	7.1	7.8	12.4	9.8	6.84	12.42																						
6-Dec	10.1	6.9	6.4	5.3	7.1	5.8	6.9	7.7	7.0	5.5	7.2	4.5	4.5	8.1	10.2	12.6	11.1	9.3	11.5	10.5	12.9	12.5	12.4	11.3	8.64	12.86																						
7-Dec	10.3	9.3	6.5	4.7	2.9	3.8	3.6	2.0	2.3	6.1	4.6	4.1	6.1	3.5	1.9	0.8	2.7	1.4	0.0	4.3	0.3	0.6	3.1	4.7	3.74	10.26																						
8-Dec	4.9	9.2	9.1	8.6	6.1	7.1	6.2	7.6	5.3	8.6	7.3	8.4	7.6	7.1	4.7	5.2	6.4	8.6	7.0	3.4	5.8	7.3	5.9	5.4	6.78	9.21																						
9-Dec	4.4	2.7	4.8	5.7	3.7	0.4	2.5	5.6	10.5	9.0	8.1	6.0	11.2	12.9	17.9	4.6	6.3	11.5	7.4	11.3	8.4	5.1	3.1	1.6	6.86	17.91																						
10-Dec	1.1	1.6	0.0	1.0	2.5	0.1	0.4	1.4	7.4	8.9	10.4	1.2	6.7	6.4	14.7	10.8	7.8	9.4	0.0	0.0	0.0	2.5	5.0	4.4	4.32	14.71																						
11-Dec	6.1	7.6	2.8	7.2	6.6	5.4	2.6	3.1	1.7	2.0	6.0	6.2	3.3	0.0	6.0	3.0	7.8	4.0	2.5	0.7	0.0	0.0	0.5	1.0	3.59	7.78																						
12-Dec	1.9	3.7	3.2	3.5	4.3	5.9	4.8	2.5	5.7	8.4	9.0	7.4	12.8	9.7	7.5	5.9	6.9	11.0	9.1	11.2	10.2	10.1	5.9	9.3	7.08	12.79																						
13-Dec	25.6	24.9	20.0	22.3	13.1	7.2	8.2	11.6	6.1	10.1	7.2	7.7	8.1	5.9	8.6	7.5	8.6	6.9	6.3	4.9	9.7	9.4	8.2	3.4	10.48	25.61																						
14-Dec	2.4	3.2	2.6	2.4	2.1	1.1	1.1	0.1	0.6	2.8	2.1	1.4	2.1	2.6	3.3	1.0	4.2	4.5	2.9	8.1	3.3	4.5	6.3	3.5	2.84	8.10																						
15-Dec	3.1	6.0	5.8	5.9	7.6	9.8	9.2	8.3	9.7	11.2	10.2	9.6	10.0	12.6	12.6	14.5	14.8	13.6	11.0	6.5	7.5	11.3	8.8	6.6	9.43	14.84																						
16-Dec	8.6	12.8	13.7	12.4	10.9	15.8	14.6	11.0	8.0	7.8	8.5	11.3	13.5	13.6	11.9	19.0	13.7	12.9	14.0	13.6	10.9	13.6	18.1	15.9	12.76	19.00																						
17-Dec	14.4	16.8	17.3	23.9	27.8	29.0	25.9	20.9	21.9	1.3	21.1	21.5	19.9	19.8	20.0	20.9	19.5	20.7	18.8	20.7	21.3	18.2	14.6	12.5	19.53	29.02																						
18-Dec	8.4	8.8	10.1	7.7	10.0	4.0	5.5	6.3	6.0	12.3	9.5	11.6	7.0	6.3	6.9	4.5	3.4	5.9	6.1	6.9	6.1	6.8	11.4	7.2	7.45	12.31																						
19-Dec	8.6	8.5	7.9	8.7	7.1	7.0	7.8	7.7	8.9	13.4	11.3	10.8	9.9	10.0	9.8	8.8	9.2	11.4	11.8	13.8	14.5	15.1	13.9	8.6	10.18	15.06																						
20-Dec	6.6	7.2	1.1	1.1	0.7	0.0	2.6	2.9	0.0	5.5	8.9	9.9	3.0	7.2	5.9	6.5	8.8	11.6	3.1	6.3	6.5	12.5	13.1	8.1	5.80	13.12																						
21-Dec	6.0	9.1	5.2	5.0	3.5	1.3	3.7	6.7	5.9	6.3	12.7	17.4	10.9	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.2	4.1	4.20	17.39																						
22-Dec	3.7	13.9	19.6	32.9	10.1	25.9	23.5	20.6	0.0	0.1	0.8	5.6	17.0	5.4	0.8	0.0	0.9	0.6	1.8	0.0	2.5	2.9	2.4	0.6	7.98	32.87																						
23-Dec	0.3	3.5	4.5	2.6	0.0	0.0	0.0	0.0	0.6	4.3	5.3	5.0	7.4	17.4	11.3	4.7	6.2	7.1	4.2	4.3	2.2	1.8	1.6	1.7	4.01	17.43																						
24-Dec	0.6	0.9	0.6	1.1	0.1	0.0	0.0	0.0	1.1	2.0	3.2	4.2	3.5	5.8	0.2	0.0	0.0	0.9	1.4	1.3	0.6	0.7	0.6	0.6	1.20	5.76																						
25-Dec	0.9	0.4	0.3	1.2	1.9	2.2	2.3	2.1	2.5	3.2	3.7	3.1	2.9	4.8	6.3	5.5	7.0	15.3	4.2	4.6	0.4	0.0	0.0	0.0	3.12	15.32																						
26-Dec	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.3	1.3	1.2	2.0	2.1	1.4	1.1	0.8	1.7	1.2	1.5	1.0	0.0	0.0	0.0	0.74	2.11																						
27-Dec	0.0	0.0	1.0	0.2	0.0	1.5	1.4	0.9	1.0	0.8	0.7	2.2	2.3	4.1	4.0	6.4	8.1	3.3	2.5	2.1	1.6	2.1	2.2	2.0	2.10	8.08																						
28-Dec	2.5	3.1	3.3	3.0	1.7	1.4	0.8	0.7	0.7	1.5	1.2	1.5	3.5	3.2	1.6	1.9	2.3	1.8	1.7	1.6	1.0	1.3	1.8	0.5	1.81	3.48																						
29-Dec	0.5	0.7	0.4	0.4	1.0	0.3	0.5	0.2	0.4	1.0	0.4	0.0	0.0	0.4	0.0	1.7	3.6	0.5	0.4	2.2	2.1	1.6	0.2	1.5	0.84	3.60																						
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7	2.3	2.6	1.9	3.7	4.5	2.1	8.1	12.3	9.7	4.0	7.5	11.3	10.9	2.9	3.58	12.28																						
31-Dec	4.0	4.5	1.8	0.8	2.1	1.9	1.4	2.4	2.5	3.5	4.2	3.4	2.5	5.3	1.2	3.0	3.4	4.7	8.5	6.6	4.3	6.1	6.2	2.3	3.61	8.47																						
																								4.75	5.86	5.23	5.93	4.84	4.96	5.00	4.87	4.59	5.23	6.27	6.05	6.35	6.54	6.21	5.56	6.21	6.83	5.71	5.79	5.56	6.02	5.88	4.61	Diurnal Average
																								25.61	24.90	19.99	32.87	27.83	29.02	25.93	20.94	21.94	13.45	21.14	21.50	19.89	19.78	19.96	20.90	19.50	20.66	18.85	20.66	21.31	18.15	18.12	15.89	Diurnal Maximum

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

**WEYERHAEUSER - EDSON
STATION #912**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Edson
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 6.58 C on Dec 11 14:00 Maximum Daily Average: 2.31 C on Dec 11 Minimum Value: -25.2 C on Dec 30 03:00 Minimum Daily Average: -19.04 C on Dec 29 Maximum Diurnal Average: -4.38 C at hour 16 Minimum Diurnal Average: -11.25 C at hour 9 Monthly Average: -8.432 C Percentiles: P ₁ = -24.0 P ₁₀ = -17.6 Q ₁ = -11.8 Median = -8.1 Q ₃ = -4.4 P ₉₀ = -0.6 P ₉₉ = 4.7																								Hours in Service:	744																								
																								Hours of Data:	744																								
																								Hours of Missing Data:	0																								
																								Hours of Calibration:	0																								
																								Percent Operational Time:	100.0																								
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	-20.2	-21.9	-21.4	-22.3	-22.2	-22.3	-21.8	-21.5	-20.5	-17.9	-15.9	-12.5	-10.7	-9.0	-6.9	-6.9	-8.1	-10.9	-11.5	-11.0	-11.2	-10.8	-7.4	-8.2	-14.71	-6.90																							
2-Dec	-9.7	-9.4	-7.7	-7.2	-8.6	-8.8	-8.5	-8.2	-8.2	-8.7	-8.1	-6.5	-6.2	-6.4	-6.7	-6.4	-6.7	-7.8	-8.9	-9.5	-9.7	-9.2	-9.3	-9.3	-8.15	-6.19																							
3-Dec	-9.2	-8.9	-9.2	-9.7	-10.8	-11.8	-12.4	-12.1	-13.2	-12.5	-10.9	-9.1	-6.2	-3.8	-2.3	-1.6	-3.0	-5.0	-6.4	-7.7	-8.5	-8.4	-8.8	-9.7	-8.38	-1.58																							
4-Dec	-10.0	-10.5	-10.5	-10.4	-10.1	-9.9	-11.3	-12.2	-13.7	-13.4	-11.4	-10.2	-8.8	-6.7	-5.5	-4.8	-5.4	-7.1	-9.8	-10.8	-11.1	-12.1	-12.3	-13.6	-10.06	-4.78																							
5-Dec	-13.7	-15.2	-15.2	-14.9	-16.3	-15.8	-15.8	-16.2	-16.9	-17.7	-17.2	-14.1	-12.7	-12.7	-12.0	-11.4	-11.8	-11.7	-11.5	-11.3	-11.7	-12.0	-11.3	-11.3	-13.77	-11.26																							
6-Dec	-11.6	-11.8	-11.4	-11.0	-11.0	-10.9	-11.6	-12.0	-12.5	-12.3	-11.2	-10.1	-9.3	-8.7	-8.3	-8.0	-7.8	-7.2	-6.0	-5.3	-5.3	-5.3	-5.7	-6.1	-9.18	-5.28																							
7-Dec	-6.7	-7.0	-5.4	-6.4	-7.0	-6.9	-6.5	-6.5	-7.3	-7.3	-6.1	-5.1	-2.8	-1.0	0.2	1.1	-0.5	-1.3	-4.6	-4.7	-6.0	-7.6	-8.7	-9.6	-5.16	1.12																							
8-Dec	-10.2	-11.2	-11.8	-12.0	-11.6	-11.8	-11.5	-11.9	-11.1	-10.2	-9.0	-8.1	-7.1	-6.4	-5.6	-5.2	-4.8	-4.6	-4.6	-4.2	-4.9	-4.6	-3.9	-3.6	-7.91	-3.61																							
9-Dec	-3.0	-2.0	-2.1	-2.5	-2.5	-1.6	-3.7	-4.0	-3.6	-3.8	-2.8	-2.5	-2.0	0.4	0.5	0.8	-0.3	-1.6	-2.2	-2.5	-1.9	-0.7	1.4	1.9	-1.68	1.85																							
10-Dec	0.5	0.1	-1.5	-1.8	-2.6	-3.7	-4.5	-4.1	-4.2	-4.5	-4.0	-0.5	-0.6	-1.4	-1.0	-0.9	-1.3	-1.7	1.7	1.0	0.8	-0.5	-1.8	-2.6	-1.62	1.67																							
11-Dec	-3.5	-3.7	-3.3	-3.4	-2.1	-1.5	2.7	2.7	1.3	2.5	3.3	5.2	6.2	6.6	6.5	6.2	4.8	4.8	3.7	4.1	3.9	3.0	2.9	2.4	2.31	6.58																							
12-Dec	1.4	0.0	0.0	-0.6	-2.0	-2.4	-2.9	-2.8	-3.7	-4.2	-1.8	-0.8	-0.2	0.7	3.3	2.9	2.6	2.5	1.1	-0.3	-0.1	-0.4	-0.7	-0.1	-0.36	3.32																							
13-Dec	-0.7	-2.1	-2.5	-3.0	-2.5	-2.2	-3.3	-4.0	-4.6	-4.6	-4.5	-4.1	-2.5	-0.6	0.3	0.9	-0.8	-3.3	-4.3	-5.1	-6.9	-7.8	-7.5	-6.6	-3.42	0.94																							
14-Dec	-8.6	-9.5	-9.2	-9.5	-10.3	-10.7	-11.3	-11.6	-11.7	-10.6	-8.3	-6.5	-4.7	-3.4	-3.0	-4.4	-4.4	-7.7	-9.1	-10.5	-11.7	-13.2	-14.5	-15.4	-9.45	-2.96																							
15-Dec	-16.8	-17.1	-18.1	-17.1	-17.4	-17.5	-17.8	-17.9	-18.3	-18.8	-17.2	-15.5	-13.6	-10.1	-10.9	-11.5	-12.9	-15.5	-12.9	-18.0	-18.8	-18.7	-19.0	-19.4	-16.44	-10.08																							
16-Dec	-20.0	-20.1	-19.2	-18.7	-18.4	-18.7	-18.0	-17.7	-17.9	-17.9	-17.7	-16.7	-16.0	-15.3	-15.1	-14.7	-16.0	-17.0	-18.0	-18.8	-19.4	-19.9	-19.4	-18.2	-17.87	-14.70																							
17-Dec	-17.5	-17.0	-17.6	-17.8	-18.3	-19.5	-20.4	-21.0	-21.1	-21.0	-19.0	-17.5	-15.1	-12.1	-9.9	-8.8	-9.1	-11.0	-12.0	-11.4	-11.6	-11.0	-9.3	-10.2	-14.96	-8.79																							
18-Dec	-9.2	-10.4	-10.9	-11.4	-12.5	-12.2	-10.7	-11.3	-12.4	-12.6	-10.9	-9.0	-6.9	-4.5	-2.4	-2.1	-4.7	-6.0	-8.4	-9.9	-11.2	-12.6	-13.0	-14.0	-9.55	-2.08																							
19-Dec	-13.7	-13.7	-13.6	-13.4	-13.7	-13.8	-13.6	-13.3	-12.7	-12.1	-10.7	-9.6	-9.1	-8.2	-7.5	-6.5	-6.6	-7.2	-7.7	-7.5	-8.0	-8.3	-9.4	-9.0	-10.38	-6.54																							
20-Dec	-11.4	-11.1	-8.4	-11.6	-8.2	-9.8	-11.9	-13.4	-13.1	-14.1	-13.7	-9.8	-7.7	-8.0	-7.7	-7.1	-6.7	-7.1	-8.1	-7.7	-7.4	-10.1	-10.6	-10.4	-9.80	-6.72																							
21-Dec	-9.3	-8.2	-7.0	-7.2	-7.0	-7.0	-7.4	-7.6	-7.2	-6.8	-6.4	-5.1	-2.3	0.8	2.6	2.8	1.9	0.1	0.1	-0.2	-0.4	0.8	-1.6	-2.2	-3.49	2.81																							
22-Dec	-3.4	-3.4	-4.2	-4.5	-4.9	-4.8	-5.0	-5.6	-6.0	-4.1	-3.9	-3.6	-2.2	0.7	3.7	2.6	0.1	-1.0	-2.5	-1.0	-1.9	-2.6	-2.2	-1.7	-2.55	3.74																							
23-Dec	-2.3	-3.1	-4.4	-4.4	-6.3	-7.6	-8.2	-9.3	-9.5	-9.3	-8.4	-7.4	-6.9	-6.4	-5.7	-5.2	-6.0	-6.1	-6.5	-7.1	-7.6	-7.6	-7.3	-7.8	-6.68	-2.27																							
24-Dec	-8.2	-7.1	-8.2	-7.2	-6.6	-7.8	-2.7	-4.7	-6.5	-7.0	-7.0	-6.5	-5.6	-4.0	-1.3	-1.0	-1.3	-2.0	-2.5	-3.4	-4.2	-4.7	-5.2	-5.7	-5.02	-0.95																							
25-Dec	-5.9	-6.0	-6.2	-6.8	-7.1	-7.6	-8.1	-8.3	-8.7	-8.8	-8.5	-7.8	-7.0	-7.1	-6.5	-6.1	-5.2	-4.6	-5.0	-5.7	-6.1	-6.7	-7.3	-8.8	-6.92	-4.65																							
26-Dec	-9.3	-8.7	-9.1	-9.5	-11.7	-12.2	-13.1	-13.0	-13.1	-12.5	-11.6	-10.6	-8.8	-7.4	-6.4	-5.2	-4.8	-5.3	-5.5	-5.5	-5.4	-5.7	-6.0	-6.2	-8.61	-4.85																							
27-Dec	-6.3	-6.7	-7.3	-7.7	-8.1	-8.7	-10.2	-10.3	-10.7	-9.9	-9.6	-8.1	-6.6	-5.0	-4.2	-6.9	-8.1	-8.8	-9.1	-9.3	-9.3	-9.4	-9.4	-9.5	-8.30	-4.20																							
28-Dec	-9.5	-9.5	-9.5	-9.6	-10.2	-11.2	-11.6	-11.6	-11.8	-12.0	-12.1	-12.3	-12.2	-12.1	-12.3	-12.5	-13.1	-14.4	-15.1	-15.3	-15.4	-15.8	-16.1	-16.3	-12.57	-9.48																							
29-Dec	-16.4	-16.8	-17.2	-17.8	-18.2	-18.5	-18.8	-19.0	-19.1	-19.1	-18.7	-18.2	-17.6	-16.6	-15.2	-15.6	-16.7	-18.0	-20.9	-22.5	-24.0	-24.5	-23.4	-24.2	-19.04	-15.23																							
30-Dec	-25.0	-24.8	-25.2	-24.8	-24.9	-24.0	-23.8	-22.8	-21.7	-22.0	-18.5	-15.2	-11.5	-7.8	-5.9	-3.1	-3.0	-4.8	-6.2	-5.6	-5.0	-5.2	-5.4	-5.1	-14.23	-2.99																							
31-Dec	-4.9	-4.6	-5.1	-5.9	-7.1	-8.2	-7.7	-7.6	-9.0	-9.1	-7.8	-5.5	-4.2	-1.8	1.8	1.1	0.0	0.1	-0.4	-1.6	-1.1	0.6	1.5	2.7	-3.49	2.71																							
																								-9.49	-9.72	-9.76	-9.99	-10.33	-10.62	-10.69	-10.93	-11.25	-11.08	-10.05	-8.55	-7.19	-5.77	-4.63	-4.38	-5.15	-6.18	-7.01	-7.36	-7.77	-8.09	-8.09	-8.32	Diurnal Average	
																								1.44	0.12	-0.02	-0.61	-2.02	-1.47	2.66	2.73	1.31	2.45	3.28	5.17	6.25	6.58	6.45	6.21	4.84	4.78	3.75	4.11	3.94	3.04	2.88	2.71	Diurnal Maximum	



WCAS - Edson
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	7.5	6.1	6.4	6.4	7.2	7.6	6.9	6.8	6.3	7.3	5.8	5.3	4.6	3.5	2.8	2.7	0.5	2.3	1.3	3.8	0.9	3.2	11.1	7.6	5.04	11.14
Dir	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	SW	WSW	WSW	W	WSW	WSW	SSW	W	W	W	WSW	W
2 Spd	4.6	4.7	5.6	10.0	6.8	6.8	7.0	5.8	5.4	5.3	3.5	5.5	7.0	5.7	6.5	5.4	1.9	3.6	0.4	7.2	7.1	6.4	5.3	6.1	5.40	9.99
Dir	W	W	W	WSW	SW	W	W	W	WNW	W	W	W	W	WNW	W	W	W	WSW	WSW	WSW	W	W	WSW	WSW	W	WSW
3 Spd	7.3	7.5	6.8	5.2	5.8	3.3	4.1	5.8	6.3	8.1	8.1	8.8	9.6	7.7	7.1	5.9	5.7	2.8	6.7	6.3	7.6	7.2	7.1	7.4	6.51	9.61
Dir	WSW	WSW	W	W	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW
4 Spd	7.7	7.7	8.3	9.9	11.8	11.0	9.1	10.1	3.0	5.0	10.3	13.3	8.5	6.3	9.4	7.6	5.7	4.9	4.9	5.3	6.2	6.2	6.7	6.8	7.67	13.32
Dir	W	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	WSW	WSW	W	W	W	WSW	WSW
5 Spd	7.7	5.8	7.9	8.2	6.7	8.0	9.0	8.7	8.8	5.5	4.9	2.6	0.1	0.1	0.1	0.1	1.2	0.1	0.9	0.2	0.2	3.4	0.3	3.64	8.97	
Dir	W	W	W	W	WSW	W	W	W	WSW	WSW	WSW	WSW	W	N	WNW	W	NNW	NNE	WNW	NW	W	W	W	WSW	W	W
6 Spd	0.2	2.2	1.2	1.1	0.9	0.4	0.2	0.2	0.5	0.3	2.2	4.3	5.0	0.4	0.1	0.6	0.2	1.4	6.5	8.2	10.8	10.4	8.6	7.0	1.91	10.77
Dir	W	WSW	WSW	WNW	WSW	NNE	W	W	W	WNW	ENE	NE	NE	NE	NE	SE	NE	SSW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW
7 Spd	4.0	6.0	6.6	5.7	5.6	4.8	8.8	7.1	4.8	7.1	7.0	8.8	5.5	5.3	7.0	3.6	1.8	5.4	1.8	2.0	0.2	0.2	0.3	0.4	4.34	8.82
Dir	W	WSW	W	WSW	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W	NE	NNW	WNW	W	NNE	W	W
8 Spd	0.1	0.1	0.2	2.2	2.6	3.4	3.7	3.7	5.6	4.3	3.5	4.7	4.3	4.8	6.2	9.6	6.9	5.8	9.1	7.6	6.0	6.4	6.7	4.2	4.59	9.61
Dir	NNE	WSW	WNW	W	W	W	WSW	WSW	W	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	W	W	WSW	WSW	WSW	WSW	WSW
9 Spd	5.5	7.1	6.7	0.8	3.5	7.9	0.5	2.2	2.7	0.6	5.9	1.8	1.2	2.3	1.7	2.2	1.0	1.5	4.8	1.7	2.8	5.6	7.7	4.7	3.15	7.91
Dir	WSW	W	WSW	W	W	NW	WSW	W	NE	W	WSW	SW	W	NNE	NW	WSW	NW	NW	W	SW	WSW	WSW	WSW	WSW	W	W
10 Spd	7.6	5.7	1.7	5.0	3.7	0.5	1.1	1.0	0.7	1.9	1.4	11.5	1.3	1.1	0.7	0.4	0.9	2.4	15.6	11.2	7.4	3.1	0.4	1.0	2.01	15.59
Dir	WSW	WSW	WSW	WSW	NNE	W	NNE	NW	SW	NE	NNE	N	NNW	WSW	WSW	SW	NW	NE	NNE	NNE	NNE	NE	WSW	WSW	N	NNE
11 Spd	4.1	6.4	3.8	9.3	7.4	7.2	8.5	7.3	4.6	3.7	5.4	3.3	0.1	0.9	0.3	4.4	3.9	11.4	12.7	17.3	21.2	18.5	14.8	12.3	3.11	21.20
Dir	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	SW	SSW	SSE	WSW	SSW	NE	NE	NNE	NNE	NE	NE	NE	N	NNW	N	NE
12 Spd	4.7	2.4	4.8	2.9	0.1	2.5	6.2	1.9	1.4	3.0	6.2	5.6	8.9	9.7	8.9	5.9	6.5	5.1	0.5	4.3	2.8	11.1	12.1	8.5	3.21	12.15
Dir	WNW	W	WNW	SW	E	WNW	NNE	NW	NNE	SW	WSW	WSW	SW	WSW	WSW	WSW	W	W	W	WSW	NNE	NNE	N	NNW	WNW	N
13 Spd	3.5	0.5	2.2	3.6	5.2	6.4	4.7	7.4	7.3	7.8	7.8	7.5	7.8	7.3	5.8	4.7	5.0	6.0	5.6	8.1	6.8	6.5	9.2	5.81	9.16	
Dir	N	WNW	WSW	W	W	W	W	WSW	WSW	W	W	WSW	W	WSW	WSW	WSW	W	W	W	W	WSW	W	W	W	W	W
14 Spd	6.2	7.1	9.0	8.6	9.9	12.1	11.0	9.5	11.1	9.5	8.6	9.3	8.1	6.2	6.0	4.4	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	5.68	12.14
Dir	W	W	W	W	WSW	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	WNW	N	NW	WNW	NW	W	WSW	W
15 Spd	0.1	0.9	0.9	3.9	0.6	0.9	0.5	1.6	0.3	0.5	0.1	1.1	0.4	0.1	0.5	0.1	0.3	1.1	1.0	2.8	0.9	0.4	0.5	0.1	0.70	3.95
Dir	WNW	W	WSW	W	WSW	WSW	WSW	SW	WSW	WSW	WSW	SSE	SW	S	ENE	NW	W	W	W	W	WSW	W	WNW	WNW	WSW	W
16 Spd	0.3	1.6	0.1	0.2	1.6	0.4	2.1	1.1	1.0	0.2	0.4	0.4	0.5	0.3	1.1	3.4	4.5	0.4	0.1	0.1	0.3	0.1	0.6	0.7	0.58	4.47
Dir	WSW	WSW	W	N	NNE	SW	N	NE	NE	WNW	NNW	N	NE	NE	NE	NE	N	NNW	WNW	W	WNW	W	W	WSW	N	N
17 Spd	3.0	0.6	1.7	3.2	1.9	0.1	2.2	2.2	3.6	4.0	4.0	5.5	6.6	5.9	5.7	8.2	4.2	1.5	0.6	6.2	5.9	7.5	8.2	8.0	3.87	8.25
Dir	W	SSE	SSW	WSW	SW	WNW	WSW	W	WSW	SW	WSW	SW	SW	SW	SW	W	W	NE	WNW	WSW	WSW	W	W	WSW	WSW	W
18 Spd	7.8	7.8	8.9	8.7	5.5	6.1	8.4	8.1	4.3	7.6	9.3	6.9	7.3	6.0	2.6	3.2	0.2	0.4	1.0	0.6	0.1	0.2	0.5	0.4	4.57	9.27
Dir	W	WSW	W	WSW	WSW	W	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	N	N	WSW	WNW	W	WSW	W	WSW	WSW
19 Spd	0.6	0.1	1.1	1.4	1.5	2.7	2.0	3.1	4.2	3.2	2.1	4.5	5.3	5.4	7.8	9.6	3.0	2.1	2.0	5.5	2.5	5.4	1.3	4.1	3.29	9.62
Dir	WSW	WNW	WSW	W	WSW	W	W	W	WSW	WSW	W	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	W	WSW	WSW
20 Spd	4.2	7.4	9.7	7.9	9.8	7.4	6.4	8.2	8.3	5.9	1.3	0.1	0.1	1.3	1.1	4.4	9.8	8.2	7.8	7.3	6.9	2.7	2.1	2.1	3.00	9.79
Dir	WSW	W	W	WSW	W	W	WSW	WSW	WSW	WSW	WSW	SSW	SW	W	N	NE	NNE	NNE	NNE	N	N	WSW	WSW	WSW	WNW	W
21 Spd	2.8	2.7	3.5	1.3	3.3	0.9	3.5	6.2	7.1	6.5	7.5	5.1	3.4	4.3	7.1	5.7	3.4	3.5	4.0	3.7	4.6	6.9	3.4	2.7	3.86	7.49
Dir	W	W	ENE	SSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WNW	WNW	W	W	W	WSW	W	W	WSW	WSW	W	WSW
22 Spd	2.0	6.8	7.6	8.2	8.2	7.0	5.2	4.9	2.8	4.7	5.1	2.0	5.0	2.2	0.9	3.3	1.8	1.1	0.8	2.4	0.2	1.7	4.1	2.1	3.56	8.23
Dir	WSW	W	W	W	WSW	W	W	WSW	WSW	WSW	W	SW	W	WSW	WSW	N	WSW	WSW	WSW	W	WSW	WSW	W	W	W	WSW



WCAS - Edson
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	1.7	3.4	4.6	8.0	4.2	3.4	4.3	2.1	0.1	0.7	1.3	2.2	0.7	1.2	0.4	1.2	0.4	3.0	5.5	6.2	3.8	5.7	4.3	4.2	2.80	8.03	
Dir	WSW	W	W	W	W	WSW	W	WSW	WSW	W	W	WSW	ENE	NE	W	NNW	SSW	W	W	WSW	W	W	WSW	W	W	W	W
24 Spd	4.2	4.8	5.8	4.2	5.7	5.5	8.3	5.0	5.5	5.4	6.4	1.9	1.7	3.5	3.8	3.2	3.8	0.9	6.0	9.4	7.6	6.2	6.9	2.9	2.67	9.44	
Dir	WSW	W	WSW	WSW	W	WSW	WNW	WSW	WSW	WSW	W	W	WSW	W	NW	NW	W	WNW	NE	NNE	NNE	NNE	NNE	N	WNW	NNE	
25 Spd	0.3	2.1	2.7	6.8	7.1	7.0	7.2	3.4	6.8	5.6	4.8	0.6	0.4	4.6	8.2	3.7	4.5	7.2	8.9	10.0	8.2	6.0	3.6	6.3	2.81	10.00	
Dir	NNE	N	NNE	NNE	NNE	NE	NE	NNE	N	N	NNE	NE	N	SW	WSW	WSW	W	W	WNW	WNW	W	W	W	W	NW	WNW	
26 Spd	5.5	3.7	4.9	5.6	5.6	6.1	7.0	7.7	7.9	9.2	8.2	8.7	6.9	6.8	8.2	5.8	5.8	5.0	6.0	6.1	8.4	8.7	8.8	6.9	6.73	9.18	
Dir	W	W	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW
27 Spd	7.6	8.2	8.2	9.4	9.9	9.0	7.5	5.2	5.0	7.0	5.6	1.9	1.6	2.4	6.7	11.9	13.1	13.5	13.4	14.0	12.3	9.9	7.3	5.0	2.74	13.98	
Dir	W	WSW	W	W	W	W	WSW	WSW	W	W	W	WSW	WSW	WSW	ENE	NNE	NNE	NNE	NE	ENE	ENE	NE	ENE	NE	NNW	ENE	
28 Spd	2.1	3.7	4.3	1.6	4.6	6.6	3.4	1.8	3.0	2.9	5.4	4.5	2.8	3.7	5.3	5.5	7.7	7.5	4.2	4.4	5.8	5.2	3.1	1.4	3.67	7.70	
Dir	NE	NE	NE	N	NNW	NNW	NNW	NNW	NW	WNW	WNW	NW	WNW	WNW	NW	NW	NNW	NNW	NNW	NNW	NW	N	N	NNW	NNW	NNW	
29 Spd	1.4	5.9	3.5	6.4	3.3	3.0	2.4	4.8	5.4	5.9	6.0	6.7	7.9	6.0	4.3	5.5	2.5	0.2	0.1	0.9	5.0	4.3	9.5	8.5	3.72	9.49	
Dir	NW	NNW	NNW	NNW	NNW	NNW	NW	W	W	W	W	WSW	WSW	W	WSW	SW	SW	SW	WNW	W	W	WSW	WSW	W	W	WSW	
30 Spd	8.3	11.3	8.5	10.3	9.5	10.2	10.8	11.2	6.7	8.0	8.6	10.7	12.6	12.0	6.0	9.9	9.3	8.0	4.0	8.7	10.5	10.6	9.5	9.0	9.14	12.61	
Dir	W	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	WSW	WSW	W	W	W	WSW	W	W	W	WSW	WSW	WSW	WSW	WSW
31 Spd	8.9	9.8	9.4	8.0	6.9	4.9	8.2	9.8	8.7	6.2	9.4	11.3	11.6	7.9	14.9	15.3	11.6	10.6	8.8	6.2	7.5	9.4	8.7	10.7	8.85	15.32	
Dir	WSW	W	SW	SSW	SW	WSW	WSW	WSW	SW	WSW	SW	SW	WSW	W	W	W	W	WSW	W	W	W	W	W	W	WSW	WSW	W
Spd	3.87	4.34	4.25	4.79	4.35	4.61	4.45	4.84	4.24	4.43	4.76	4.33	4.14	4.08	3.86	3.39	2.65	2.24	2.16	2.45	2.66	3.14	3.73	3.83	Diurnal Average		
Dir	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WNW	WNW	NW	WNW	WNW	WNW	W	W	Diurnal Maximum		
Spd	8.89	11.31	9.72	10.30	11.77	12.14	10.98	11.19	11.12	9.46	10.30	13.32	12.61	11.98	14.92	15.32	13.14	13.54	15.59	17.28	21.20	18.53	14.76	12.35	Diurnal Maximum		
Dir	257.63	253.42	268.69	247.52	270.62	265.27	259.38	243.83	260.23	258.32	254.92	248.12	248.92	256.42	271.06	271.55	16.79	31.81	16.34	47.84	37.57	33.77	7.11	346.43			
Maximum Speed Value: 21.2 kph on Dec 11 21:00																			Minimum Speed Value: 0.1 kph on Dec 20 12:00					Hours in Service:		744	
Maximum Daily Speed Average: 9.14 kph on Dec 31																			Minimum Daily Speed Average: 0.58 kph on Dec 15					Hours of Data:		744	
Maximum Diurnal Speed Average: 4.84 kph at hour 8																			Minimum Diurnal Speed Average: 2.16 kph at hour 19					Hours of Missing Data:		0	
Monthly Average Velocity: 3.709 kph 266.40 deg																			Speed Percentiles: P ₁ = 0.1 P ₁₀ = 0.4 Q ₁ = 2.1 Median = 5.1 Q ₃ = 7.4 P ₉₀ = 9.3 P ₉₉ = 14.6					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	30	12	8	0	0	0	50																				
NorthEast	36	13	9	1	0	0	59																				
East	2	0	0	0	0	0	2																				
SouthEast	4	0	0	0	0	0	4																				
South	2	0	0	0	0	0	2																				
SouthWest	70	73	3	0	0	0	146																				
West	188	242	12	0	0	0	442																				
NorthWest	33	6	0	0	0	0	39																				
Total	365	346	32	1	0	0	744																				



WCAS - Edson
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 5.73 kph on Dec 10 12:00 Minimum Value: 0.0 kph on Dec 8 03:00 Maximum Diurnal Average: 2.49 kph at hour 16 Monthly Average: 2.111 kph		Maximum Daily Average: 3.10 kph on Dec 31 Minimum Daily Average: 1.16 kph on Dec 5 Minimum Diurnal Average: 1.85 kph at hour 22 Percentiles: P ₁ = 0.0 P ₁₀ = 1.1 Q ₁ = 1.5 Median = 2.1 Q ₃ = 2.6 P ₉₀ = 3.3 P ₉₉ = 5.0		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1.5	1.4	1.5	1.0	1.1	1.5	0.9	1.3	1.2	1.7	1.3	3.1	2.2	2.8	2.4	2.5	1.2	2.1	1.9	1.5	1.5	3.5	4.1	3.3	1.94	4.15
2-Dec	2.5	2.4	2.5	2.9	3.2	3.7	2.7	2.0	2.8	2.6	2.7	2.3	2.8	3.0	2.7	2.6	2.3	2.4	1.1	1.3	1.5	1.7	1.9	1.8	2.39	3.67
3-Dec	2.1	2.2	2.3	2.6	1.9	2.1	1.4	1.4	1.6	1.6	1.9	1.7	1.6	1.3	1.2	0.7	1.1	2.6	1.6	1.5	1.9	1.6	1.7	1.5	1.70	2.58
4-Dec	1.6	1.3	1.5	1.9	2.1	2.0	1.7	2.2	3.9	4.2	2.3	2.0	1.8	1.6	1.8	2.1	1.5	1.1	1.6	1.4	1.0	1.2	1.1	1.1	1.86	4.20
5-Dec	1.9	1.3	1.6	1.7	1.8	1.6	2.0	2.1	2.2	1.6	0.9	2.4	0.1	0.0	0.0	0.0	0.0	2.5	0.0	1.3	0.0	0.0	1.7	0.6	1.16	2.51
6-Dec	0.0	2.8	1.8	2.1	1.7	1.4	0.0	0.0	1.2	0.6	2.7	3.2	2.9	1.1	0.5	1.4	0.7	2.6	2.1	1.8	2.5	1.7	1.7	1.6	1.59	3.23
7-Dec	2.3	2.2	1.7	1.7	1.6	2.4	1.7	1.8	2.5	1.4	1.9	1.9	3.0	3.0	3.6	3.9	2.3	2.6	2.4	2.8	0.8	0.4	0.6	1.5	2.09	3.87
8-Dec	1.1	0.2	0.0	1.7	2.3	1.7	1.8	1.9	1.7	1.3	1.3	2.0	1.9	1.7	2.7	1.8	2.0	3.5	2.3	4.7	4.2	1.7	1.3	1.1	1.91	4.65
9-Dec	2.0	2.0	1.9	1.6	3.5	2.5	2.1	3.1	3.2	2.0	4.5	2.3	2.5	3.1	3.0	3.3	2.7	3.4	3.3	4.1	2.8	3.3	3.0	2.6	2.83	4.50
10-Dec	2.3	2.3	2.1	2.6	3.4	1.6	2.5	2.9	1.5	2.6	2.4	5.7	4.6	1.8	2.2	1.7	2.7	2.8	3.4	5.0	4.6	3.7	1.1	1.4	2.80	5.73
11-Dec	2.0	2.7	3.0	3.1	3.3	1.9	2.0	3.3	2.3	2.5	3.4	3.8	1.1	2.1	0.9	2.8	4.2	2.8	3.1	5.1	3.1	2.8	2.2	4.0	2.81	5.13
12-Dec	3.6	2.6	2.8	3.0	1.5	3.8	4.1	3.6	2.6	3.5	3.3	3.4	3.2	2.7	2.1	1.5	1.7	2.9	2.6	2.4	4.7	3.3	3.2	3.9	2.99	4.71
13-Dec	3.6	1.2	2.4	2.9	4.0	2.6	3.0	1.2	1.4	1.6	2.0	1.9	1.6	1.5	1.3	3.2	2.1	2.0	1.9	1.9	1.2	1.2	1.1	2.3	2.06	3.98
14-Dec	1.5	1.7	1.8	1.4	2.4	2.4	2.1	2.0	2.1	2.1	1.5	2.2	1.8	1.1	2.1	2.9	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.33	2.86
15-Dec	0.4	1.7	1.7	2.6	1.2	1.5	0.8	1.7	0.8	1.1	0.0	1.1	0.9	0.1	0.9	0.0	0.8	1.7	2.1	2.4	1.6	1.0	1.8	0.0	1.17	2.61
16-Dec	0.8	2.4	0.5	0.8	2.6	0.9	2.8	2.0	2.1	0.3	0.9	1.0	1.0	0.9	1.7	2.0	1.9	0.9	0.0	0.0	0.6	0.0	1.5	1.4	1.20	2.80
17-Dec	2.9	2.2	1.6	1.2	1.4	0.0	1.2	1.5	1.0	2.2	2.0	2.1	1.4	2.4	1.5	2.3	4.1	2.0	2.4	1.8	1.4	1.8	2.0	1.4	1.83	4.12
18-Dec	1.9	1.7	2.0	2.1	1.1	1.7	1.8	2.2	2.4	1.9	1.5	1.2	1.7	1.8	2.6	2.6	0.6	0.9	1.7	1.6	0.0	0.4	1.3	1.1	1.58	2.65
19-Dec	1.9	0.0	1.8	2.1	1.9	2.3	2.6	2.7	1.3	1.5	2.1	2.1	2.1	3.3	1.5	1.5	3.1	1.9	2.5	2.5	2.8	2.0	2.2	3.2	2.12	3.28
20-Dec	3.7	2.1	2.6	1.8	2.8	2.1	1.5	1.7	1.9	2.6	2.1	0.1	1.1	2.4	2.6	4.1	2.5	1.8	1.8	2.2	4.7	2.0	2.9	2.4	2.32	4.73
21-Dec	2.8	2.7	2.6	2.3	3.0	1.7	2.7	3.0	1.8	2.0	1.8	1.4	2.9	4.2	3.8	2.9	1.7	1.2	1.7	1.2	2.2	2.3	1.4	2.0	2.30	4.18
22-Dec	2.7	1.5	1.6	1.9	2.2	2.2	1.3	1.0	1.5	1.8	1.3	2.1	1.2	2.3	1.9	3.0	2.5	1.8	1.4	3.2	0.0	2.5	2.2	2.6	1.91	3.17
23-Dec	2.2	2.6	2.8	1.4	2.1	3.3	3.5	2.2	0.1	1.7	2.1	2.5	1.6	2.0	1.2	2.4	1.2	2.8	2.2	1.4	2.7	2.2	1.8	2.2	2.10	3.52
24-Dec	2.4	2.0	1.3	2.0	2.7	2.5	5.0	3.6	2.0	1.9	1.5	2.3	2.2	2.5	3.0	2.9	2.2	1.5	5.0	2.5	1.7	1.2	1.3	3.2	2.44	5.04
25-Dec	0.9	2.2	3.0	1.2	1.2	1.8	1.3	3.0	3.2	2.9	3.0	1.4	1.5	3.3	1.6	4.0	3.0	2.8	4.2	4.0	3.0	1.7	2.7	1.8	2.43	4.17
26-Dec	1.5	1.6	3.1	1.6	2.2	2.1	1.7	2.0	2.1	1.9	2.0	1.9	1.5	1.2	1.7	1.7	1.3	1.4	1.6	1.6	2.2	2.0	1.6	1.8	1.81	3.14
27-Dec	1.7	1.9	1.8	1.7	1.8	1.8	1.5	2.9	2.6	2.4	2.0	2.6	2.1	2.1	5.2	1.8	1.5	2.3	2.5	3.0	2.3	2.1	1.3	1.6	2.20	5.23
28-Dec	2.2	1.5	0.7	2.0	3.4	2.6	2.2	1.9	2.4	2.4	2.1	3.4	3.0	3.3	3.4	3.2	3.7	3.4	3.1	3.3	3.4	2.6	1.7	2.2	2.63	3.74
29-Dec	2.2	2.4	3.0	2.2	2.8	2.7	2.8	2.4	2.1	2.5	2.5	2.3	2.0	2.2	2.4	2.3	2.4	0.6	0.0	1.8	2.9	1.6	2.8	1.9	2.20	3.03
30-Dec	1.6	2.8	2.2	2.5	2.3	2.5	2.1	2.6	1.8	1.9	2.4	2.1	2.9	4.3	2.4	5.4	3.6	2.7	2.3	2.6	3.6	3.3	2.3	2.0	2.68	5.39
31-Dec	2.2	2.9	2.3	2.0	3.5	3.6	2.8	2.0	2.5	2.6	3.8	5.1	2.7	5.7	4.9	4.9	3.4	3.3	2.6	1.8	3.2	2.1	2.2	2.5	3.10	5.72
																								Diurnal Average		
																								Diurnal Maximum		
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																										



WCAS - Edson
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 106.19 deg on Dec 22 15:00 Maximum Daily Average: 61.77 deg on Dec 10																							Hours in Service: 744 Hours of Data: 744			
Minimum Value: 5.6 deg on Dec 18 04:00 Minimum Daily Average: 10.33 deg on Dec 26 Maximum Diurnal Average: 37.37 deg at hour 15 Minimum Diurnal Average: 21.23 deg at hour 22 Monthly Average: 26.270 deg Percentiles: P ₁ = 6.9 P ₁₀ = 9.1 Q ₁ = 11.2 Median = 16.8 Q ₃ = 32.5 P ₉₀ = 62.8 P ₉₉ = 97.4																							Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0			
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	12.5	15.4	15.6	13.1	15.0	10.8	10.1	10.4	14.7	16.7	16.5	17.1	11.7	25.7	25.5	17.0	20.4	14.2	16.8	21.0	39.9	43.9	15.9	18.5	18.27	43.86
2-Dec	17.1	17.6	20.9	18.5	18.6	32.0	15.6	16.6	23.0	18.3	13.4	24.4	20.4	22.7	16.9	18.8	23.4	30.5	25.3	9.2	11.3	17.4	14.7	16.2	19.28	31.99
3-Dec	16.8	10.6	12.7	15.3	13.2	12.4	16.9	18.7	13.7	11.6	14.6	10.3	9.0	9.7	9.2	9.2	7.8	11.2	12.3	10.1	11.0	10.0	9.7	10.3	11.93	18.67
4-Dec	9.0	9.0	8.5	8.9	8.0	9.0	7.5	10.4	62.8	20.0	9.5	7.8	7.9	7.8	6.9	12.0	10.1	8.6	10.6	12.2	8.3	8.0	10.4	8.9	11.75	62.78
5-Dec	9.7	8.0	8.7	8.8	9.5	9.1	10.4	9.3	9.8	10.4	6.4	45.2	79.1	62.5	57.3	55.6	62.8	56.3	58.6	28.7	28.3	21.3	8.1	25.4	28.72	79.10
6-Dec	40.7	37.5	17.3	62.6	57.5	72.0	36.3	51.6	42.7	36.0	55.9	18.1	21.6	66.9	93.4	83.7	51.3	98.6	19.9	14.2	12.2	11.6	10.0	11.6	42.63	98.59
7-Dec	20.0	18.8	12.8	12.4	16.6	15.6	9.2	14.3	13.9	12.4	10.5	9.7	13.6	13.7	14.1	52.0	20.6	8.5	33.7	31.3	48.6	37.0	16.3	61.8	21.57	61.81
8-Dec	64.0	76.5	11.2	10.4	9.0	10.1	14.0	15.7	11.5	9.5	15.7	15.1	19.8	13.6	18.2	8.3	12.8	25.6	12.5	24.7	32.7	20.1	16.3	20.8	20.34	76.51
9-Dec	30.2	21.2	16.5	29.8	25.1	11.3	72.4	55.2	58.4	98.0	32.5	38.3	74.2	68.8	105.6	70.0	97.1	81.7	36.4	72.2	60.1	24.5	13.6	20.9	50.58	105.56
10-Dec	13.2	26.1	76.2	39.3	75.8	90.7	97.9	72.2	96.2	44.7	100.7	40.4	89.6	54.6	89.1	99.5	79.0	64.4	11.6	22.9	43.8	60.5	42.7	51.3	61.77	100.68
11-Dec	14.3	16.3	42.4	14.6	28.7	15.7	13.3	26.5	26.2	40.3	34.5	43.5	73.4	62.6	68.4	23.9	39.1	16.8	8.3	13.0	7.7	7.9	17.2	29.9	28.52	73.40
12-Dec	63.1	85.5	31.0	56.3	91.1	61.3	63.2	53.6	87.3	41.3	32.0	40.4	18.5	11.0	9.5	19.7	12.4	26.3	76.9	25.6	92.9	15.8	18.8	27.0	44.19	92.89
13-Dec	75.7	87.1	78.7	11.0	9.6	12.4	9.6	10.9	11.3	9.7	9.8	7.0	9.1	12.7	9.0	6.1	8.2	11.3	8.1	11.3	6.6	8.1	6.8	9.1	18.30	87.09
14-Dec	12.1	8.3	7.3	8.0	6.1	9.2	7.4	9.0	11.1	9.8	9.1	13.9	12.0	9.8	12.0	27.1	19.1	75.8	51.6	56.9	32.9	47.1	41.4	14.5	21.32	75.79
15-Dec	48.1	56.7	39.8	11.4	17.2	9.8	11.9	11.5	28.5	24.0	40.2	58.5	36.2	65.2	54.8	75.7	36.5	20.6	36.8	9.3	23.5	44.6	64.5	20.5	35.24	75.67
16-Dec	17.8	10.7	55.5	60.2	54.3	36.2	35.8	55.2	54.3	26.7	22.8	22.7	24.7	30.6	28.4	19.3	15.4	15.8	12.8	12.7	16.7	16.8	14.4	24.4	28.51	60.23
17-Dec	15.5	89.1	37.1	18.1	30.7	13.2	20.1	14.7	9.5	13.2	13.1	12.7	9.3	12.1	9.2	11.3	90.9	71.8	53.3	9.3	13.3	10.9	10.1	7.7	24.83	90.89
18-Dec	9.3	9.7	9.2	5.6	16.4	12.4	11.7	11.6	51.2	13.7	7.8	11.5	10.1	13.0	8.4	19.5	46.9	36.9	54.5	39.5	34.5	21.6	27.5	24.1	21.12	54.53
19-Dec	79.5	61.0	66.4	34.9	73.0	39.2	52.4	24.7	17.6	19.3	18.9	14.1	15.9	17.9	8.8	8.7	29.4	40.9	15.3	10.0	67.4	9.2	88.1	21.8	34.76	88.07
20-Dec	19.1	14.6	13.7	8.5	9.2	10.8	18.6	11.4	13.1	9.8	30.1	81.7	86.4	59.8	70.8	27.4	13.0	10.3	9.5	17.4	48.9	19.0	67.3	48.8	29.97	86.42
21-Dec	28.9	49.6	76.4	91.0	62.8	43.8	36.5	13.1	10.0	12.3	11.7	13.8	23.7	29.5	25.3	26.5	28.5	13.9	15.1	14.3	19.2	18.2	22.5	29.4	29.84	91.03
22-Dec	22.0	9.5	9.5	10.1	11.8	10.4	12.6	9.7	16.7	15.5	12.6	26.8	17.3	15.6	106.2	71.4	52.6	52.5	27.9	49.2	35.1	63.5	18.1	36.1	29.70	106.19
23-Dec	35.6	16.4	12.6	7.8	9.5	13.3	15.1	10.8	65.8	20.8	61.2	35.0	87.6	54.8	100.9	87.0	70.2	63.8	12.2	15.4	16.1	13.8	21.4	18.2	36.06	100.86
24-Dec	19.2	15.5	12.4	28.3	14.1	14.9	22.7	39.1	18.4	10.7	13.2	29.2	29.0	21.5	33.9	34.3	20.0	27.1	45.3	11.0	10.6	12.2	8.1	61.0	22.98	61.03
25-Dec	68.1	33.9	19.0	10.2	8.3	10.7	7.8	9.1	12.3	13.4	12.0	18.8	90.3	23.1	10.4	13.3	27.4	21.1	24.4	18.5	18.0	14.5	15.7	11.5	21.31	90.29
26-Dec	10.2	9.3	23.8	10.2	8.4	8.1	9.9	10.1	11.3	10.7	8.2	6.9	6.6	8.0	8.9	11.8	12.3	10.3	10.8	10.0	8.1	11.8	9.1	13.3	10.33	23.79
27-Dec	8.6	8.9	9.3	8.0	8.1	9.4	13.0	10.5	9.3	13.1	11.1	42.6	17.7	28.3	68.5	11.2	9.3	12.7	8.1	10.1	10.3	13.3	13.5	23.4	15.76	68.54
28-Dec	24.3	16.1	8.3	39.4	25.0	23.7	24.2	23.8	31.7	28.2	22.4	32.5	35.8	31.0	28.9	29.4	26.1	24.4	25.8	32.5	31.9	21.6	18.8	25.9	26.32	39.39
29-Dec	34.0	22.1	26.5	18.0	21.9	25.3	36.9	16.3	17.4	16.7	15.7	15.2	14.7	16.0	27.1	18.2	11.0	22.4	55.6	28.9	10.3	10.8	12.0	10.4	20.97	55.58
30-Dec	8.3	7.7	10.9	11.2	10.9	10.6	10.5	8.2	15.6	17.7	12.4	12.4	11.6	10.2	19.3	21.0	12.0	12.1	14.4	16.8	14.8	12.3	15.3	11.4	12.81	20.96
31-Dec	12.4	13.7	17.0	13.4	19.8	28.5	23.6	8.9	11.2	17.3	13.4	16.1	10.2	22.7	13.8	13.0	13.7	13.4	12.9	10.9	11.1	11.0	12.7	12.0	14.70	28.50
27.72 28.47 26.04 22.44 25.32 22.32 24.10 21.40 28.26 21.35 22.19 25.22 31.84 29.07 37.37 32.32 31.59 32.24 26.37 21.58 26.65 21.23 21.97 23.43																							Diurnal Average			
79.45 89.07 78.68 91.03 91.09 90.74 97.91 72.16 96.21 97.97 100.68 81.66 90.29 68.79 106.19 99.53 97.14 98.59 76.93 72.23 92.89 63.47 88.07 61.81																							Diurnal Maximum			
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																										

**BRETON
STATION #913**

CONTINUOUS AIR MONITORING DATA

DECEMBER 2014

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

WCAS / Breton Station 913		December 2014										
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	----- P10	----- Q1	Percentile Median	----- Q3	----- P90	24 Hour Average Max (ppm)
SO ₂ (ppb)	34	710	100.0	0.2	0.0	9.7	0.0	0.0	0.0	0.0	0.2	0.002
O ₃ (ppb)	36	708	100.0	19.8	0.0	37.3	6.5	14.3	20.0	25.9	31.9	0.033
NO (ppb)	36	708	100.0	1.0	0.0	22.8	0.0	0.0	0.0	0.7	3.1	-
NO ₂ (ppb)	36	708	100.0	7.2	1.1	26.9	2.7	3.8	5.6	9.1	13.7	0.021
NO _x (ppb)	36	708	100.0	8.2	1.0	38.7	2.8	4.1	6.2	10.1	16.1	-
Wind Speed (kph)	0	744	100.0	5.7	0.0	26.1	0.6	2.2	4.9	8.3	12.3	-
Temperature (°C)	0	744	100.0	-5.8	-25.1	12.3	-14.4	-9.8	-5.9	-1.6	2.9	-
Relative Humidity (%)	0	744	100.0	73.2	32.5	91.8	50.1	63.6	78.3	84.8	88.2	-
Std Dev Wind Direction (deg)	0	744	100.0	27.1	6.5	103.9	10.7	12.8	17.9	32.4	63.0	-
Std Dev Wind Speed (kph)	0	744	100.0	1.9	0.0	7.0	0.9	1.3	1.7	2.5	3.3	-



WCAS - Breton
Summary of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
December 2014

Maximum Value: 9.67 ppb on Dec 28 14:00		Maximum Daily Average: 2.47 ppb on Dec 28		Hours in Service: 744																													
Minimum Value: 0.0 ppb on Dec 1 05:00		Minimum Daily Average: 0.00 ppb on Dec 2		Hours of Data: 710																													
Maximum Diurnal Average: 0.37 ppb at hour 14		Minimum Diurnal Average: 0.02 ppb at hour 7		Hours of Missing Data: 34																													
Monthly Average: 0.158 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.2 P ₉₉ = 3.6		Hours of Calibration: 34																													
				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	0.4	0.3	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.36							
2-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00							
3-Dec	0.4	0.3	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.40							
4-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.21							
5-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.7	1.2	1.5	1.9	0.24	1.89							
6-Dec	1.8	2.0	Z	0.7	0.5	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	2.1	1.2	1.0	0.5	0.47	2.13								
7-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.11								
8-Dec	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.3	0.8	0.8	1.0	0.9	0.8	0.8	0.7	0.4	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.33	1.05								
9-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
10-Dec	0.0	0.0	Z	0.0	0.0	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	0.00	0.02								
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.1	0.6	0.4	0.2	0.1	0.1	0.3	0.18	1.27								
12-Dec	0.2	0.1	Z	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	0.02	0.23								
13-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
14-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.03								
15-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.52								
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
19-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.02								
20-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.01	0.11								
21-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.16								
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.07								
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.14								
24-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.6	0.04	0.57								
25-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.03								
26-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.4	2.9	2.3	2.7	1.8	0.2	3.6	0.63	3.55								
28-Dec	5.4	4.7	Z	5.4	2.0	0.7	0.0	0.1	2.1	2.9	3.6	3.6	6.8	9.7	3.4	2.2	0.2	0.4	0.5	0.1	0.2	0.9	1.5	0.4	2.47	9.67							
29-Dec	0.0	0.0	Z	2.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.6	0.19	2.03								
30-Dec	0.7	0.9	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.89								
31-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00								
		0.29	0.27	--	0.27	0.10	0.04	0.02	0.03	0.11	0.14	0.16	0.15	0.27	0.37	0.16	0.10	0.10	0.14	0.12	0.12	0.17	0.12	0.25	Diurnal Average								
		5.40	4.67	--	5.42	1.98	0.73	0.26	0.34	2.10	2.94	3.63	3.60	6.83	9.67	3.36	2.20	1.27	2.87	2.32	2.71	2.13	1.17	1.51	3.55	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb				24-hr 48 ppb																											



WCAS - Breton
Summary of Hourly Averages

Ozone (O₃) - ppb
December 2014

Maximum Value: 37.33 ppb on Dec 3 14:00																								Hours in Service: 744		
Maximum Daily Average: 33.12 ppb on Dec 31																								Hours of Data: 708		
Minimum Value: 0.0 ppb on Dec 12 20:00																								Hours of Missing Data: 36		
Maximum Diurnal Average: 23.83 ppb at hour 15																								Hours of Calibration: 36		
Minimum Daily Average: 1.87 ppb on Dec 19																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 17.68 ppb at hour 8																										
Monthly Average: 19.767 ppb																										
Percentiles: P ₁ = 0.0 P ₁₀ = 6.5 Q ₁ = 14.3 Median = 20.0 Q ₃ = 25.9 P ₉₀ = 31.9 P ₉₉ = 36.1																										
Day	Hourly Period Ending At																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	29.6	29.0	Z	26.2	25.5	24.8	23.7	24.2	23.7	23.5	24.7	27.5	23.5	25.9	33.6	34.7	33.1	31.2	26.6	27.0	24.3	23.9	21.4	23.6	26.57	34.67
2-Dec	27.3	27.4	Z	24.3	22.0	26.4	31.5	32.2	31.3	23.9	30.3	30.8	33.5	31.5	32.3	31.3	29.0	30.8	30.9	29.7	29.7	29.6	30.2	30.5	29.42	33.52
3-Dec	34.0	35.6	Z	33.4	32.9	31.0	29.6	30.2	31.6	30.3	32.8	33.9	36.3	37.3	37.1	36.1	34.2	33.4	29.0	25.1	23.4	22.3	22.0	20.9	30.97	37.33
4-Dec	20.6	18.1	Z	18.0	18.3	17.7	19.5	18.4	18.0	18.9	20.7	23.4	28.5	26.5	25.0	23.7	13.7	15.0	22.6	20.8	19.6	19.4	18.4	17.6	20.10	28.50
5-Dec	17.0	16.6	Z	16.6	16.2	16.1	17.3	17.4	16.6	17.4	14.6	20.6	22.9	25.8	30.0	29.1	22.9	19.7	23.0	29.9	22.7	20.1	18.7	16.3	20.33	29.96
6-Dec	15.9	17.1	Z	17.6	16.8	13.2	11.4	9.2	7.1	7.9	10.1	11.5	12.4	12.6	12.3	15.0	15.3	12.5	10.5	10.5	8.0	5.0	2.4	2.7	11.17	17.62
7-Dec	3.4	3.6	Z	2.2	2.5	3.8	5.7	6.6	7.9	8.7	11.4	14.1	20.3	23.6	22.2	20.0	19.8	19.9	19.9	18.4	17.6	17.2	18.8	19.3	13.34	23.62
8-Dec	18.1	18.1	Z	18.6	24.7	29.2	28.4	26.2	25.8	24.5	24.8	25.9	25.8	26.2	26.1	24.0	23.6	22.0	20.1	19.3	21.0	26.3	27.6	29.8	24.19	29.82
9-Dec	20.6	24.7	Z	25.3	25.2	25.1	26.7	29.6	31.3	33.4	35.8	36.4	34.3	32.9	33.3	33.4	35.1	35.5	34.5	32.4	33.3	31.9	35.2	36.3	31.41	36.44
10-Dec	35.0	32.2	Z	33.5	31.5	28.0	25.9	29.6	32.8	35.5	34.9	C	C	C	C	C	27.6	28.4	29.8	27.6	27.3	27.9	29.3	28.6	30.30	35.47
11-Dec	28.1	27.4	Z	28.1	27.0	28.2	28.0	29.9	33.2	32.2	31.5	35.8	34.8	33.4	32.8	34.1	30.8	30.1	30.0	30.3	31.2	28.8	27.2	25.4	30.36	35.80
12-Dec	22.7	20.0	Z	17.7	18.4	17.8	15.2	12.7	13.5	13.6	13.2	8.9	9.9	6.6	12.8	14.6	5.3	7.2	3.8	0.0	0.0	0.6	0.1	2.9	10.33	22.74
13-Dec	1.4	1.2	Z	1.2	4.0	6.1	7.7	6.5	6.0	6.3	8.3	9.9	15.2	20.8	25.7	23.0	14.5	14.8	14.7	14.2	16.6	16.6	15.6	16.5	11.60	25.69
14-Dec	10.8	12.4	Z	13.2	10.0	11.8	12.2	11.5	13.7	11.1	12.4	16.2	20.7	22.1	23.5	22.7	21.2	21.6	20.1	17.1	14.6	13.7	13.5	14.3	15.67	23.45
15-Dec	13.4	12.9	Z	10.9	10.2	10.0	9.8	10.7	8.9	11.5	17.9	22.9	23.1	23.1	25.7	23.4	20.3	18.7	19.1	20.3	21.2	21.4	21.6	21.6	17.32	25.67
16-Dec	21.8	23.1	Z	24.4	24.1	24.3	24.3	24.1	23.8	15.5	15.7	20.2	22.8	22.6	21.4	21.9	20.8	20.2	20.7	18.9	20.9	20.9	20.9	20.9	21.49	24.43
17-Dec	20.9	21.2	Z	20.5	19.8	20.0	19.2	18.2	17.3	17.8	18.9	18.8	18.9	18.9	18.3	16.1	14.4	11.4	9.2	7.4	5.4	4.3	4.4	4.3	15.02	21.20
18-Dec	3.6	3.5	Z	4.6	5.0	6.8	4.9	6.2	8.1	9.6	12.1	15.2	17.5	17.2	10.4	11.4	13.7	12.0	8.0	7.4	5.1	3.3	4.2	5.4	8.49	17.51
19-Dec	5.6	5.6	Z	0.0	0.0	0.0	0.0	0.0	0.0	2.8	6.9	5.8	4.8	5.2	4.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.87	6.86
20-Dec	0.0	1.6	Z	9.0	14.0	10.3	9.9	12.7	12.7	11.9	13.5	15.4	18.8	22.9	25.9	26.5	23.2	20.3	21.5	17.6	14.5	12.8	11.5	10.7	14.65	26.48
21-Dec	11.5	9.2	Z	8.7	7.6	6.1	4.1	2.3	2.7	4.6	6.3	8.7	7.8	10.6	15.9	16.1	18.4	23.7	25.2	27.1	25.4	24.3	22.9	21.4	13.50	27.12
22-Dec	21.8	20.1	Z	18.7	19.0	17.8	18.1	16.5	15.3	19.2	21.3	23.2	27.9	29.7	29.0	28.9	22.9	19.2	19.8	24.7	25.1	23.3	22.3	22.5	22.02	29.75
23-Dec	20.8	19.5	Z	15.6	16.8	16.0	16.1	14.7	14.5	15.8	19.1	23.2	25.7	25.9	25.5	25.8	25.9	24.8	22.0	20.0	19.5	19.5	18.3	19.9	20.22	25.89
24-Dec	20.9	19.7	Z	25.3	23.3	22.4	25.3	25.7	26.7	26.4	28.5	29.3	27.9	26.3	26.2	26.7	28.8	28.5	25.0	24.6	24.4	22.5	18.0	15.2	24.68	29.26
25-Dec	20.2	24.2	Z	21.7	20.2	18.9	18.7	18.0	17.2	16.2	16.4	16.5	16.6	17.1	16.2	14.8	13.7	11.2	11.4	12.3	12.2	12.5	12.2	15.7	16.27	24.22
26-Dec	15.7	15.4	Z	14.4	13.1	13.7	12.9	12.4	13.8	15.7	17.4	20.2	23.0	22.9	23.6	24.2	23.8	22.6	23.1	22.4	22.6	22.1	24.1	25.0	19.30	25.03
27-Dec	24.9	24.9	Z	19.0	20.2	20.4	18.9	18.9	17.9	18.8	18.1	16.1	14.4	20.6	24.2	22.6	22.4	18.7	17.0	18.2	20.0	20.8	22.3	21.3	20.03	24.95
28-Dec	19.8	20.8	Z	16.3	21.2	22.4	12.1	10.6	4.9	5.7	7.7	10.2	10.2	7.6	13.8	13.9	16.9	15.2	14.5	16.0	23.9	20.5	19.7	23.3	15.09	23.88
29-Dec	17.4	17.2	Z	17.2	19.9	19.4	18.2	15.6	17.3	18.1	17.8	16.0	19.5	21.7	22.0	21.3	17.8	18.8	18.9	17.5	15.9	17.1	17.9	19.1	18.33	22.03
30-Dec	19.5	20.1	Z	18.8	18.5	21.3	23.1	25.9	26.7	27.7	28.8	29.2	31.3	30.3	31.9	32.0	32.2	33.1	30.1	33.2	34.1	31.4	32.1	30.6	27.90	34.06
31-Dec	32.2	36.2	Z	32.8	33.9	34.0	33.6	31.2	33.7	33.9	33.7	34.3	34.9	35.1	34.1	31.3	31.7	31.7	32.1	32.4	32.4	32.5	31.9	32.2	33.12	36.15
18.54 18.66 -- 17.87 18.12 18.16 17.80 17.68 17.86 18.01 19.53 20.68 22.11 22.77 23.83 23.35 21.70 21.04 20.43 20.08 19.74 19.11 18.86 19.16																								Diurnal Average		
34.96 36.15 -- 33.47 33.91 33.97 33.63 32.20 33.70 35.47 35.81 36.44 36.35 37.33 37.08 36.11 35.11 35.50 34.55 33.15 34.06 32.52 35.20 36.26																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82.5 ppb 24-hr -- ppb																										



WCAS - Breton
Summary of Hourly Averages

Nitrogen Oxide (NO) - ppb
December 2014

Maximum Value: 22.77 ppb on Dec 19 14:00		Maximum Daily Average: 8.28 ppb on Dec 19		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.02 ppb on Dec 10		Hours of Data: 708																							
Maximum Diurnal Average: 3.78 ppb at hour 14		Minimum Diurnal Average: 0.03 ppb at hour 2		Hours of Missing Data: 36																							
Monthly Average: 1.017 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.7 P ₉₀ = 3.1 P ₉₉ = 13.2		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.8	2.6	7.8	5.1	1.7	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.97	7.78	
2-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.2	3.5	2.1	3.8	1.9	2.7	1.3	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.74	3.82	
3-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	1.6	1.2	1.0	1.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.31	1.60	
4-Dec	0.0	0.3	Z	0.0	0.0	0.1	0.0	0.0	0.0	1.6	3.7	4.0	2.6	4.7	3.8	4.0	3.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.27	4.67	
5-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.0	6.7	2.7	2.5	2.5	1.9	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.83	6.74	
6-Dec	0.0	0.0	Z	0.0	0.0	0.3	0.0	0.0	0.2	3.2	5.1	5.5	5.0	6.6	5.3	2.6	1.1	1.0	0.3	0.2	0.0	0.0	0.0	0.0	1.59	6.64	
7-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	3.1	6.4	7.8	4.5	3.1	3.8	2.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.37	7.81	
8-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.8	3.3	3.2	3.5	2.9	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.77	3.48	
9-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.8	1.2	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	1.21	
10-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.24	
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.7	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.83	
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	1.2	0.0	0.4	4.8	10.8	13.9	18.0	5.9	3.4	10.7	0.3	2.9	10.1	6.9	5.6	1.8	0.0	4.19	17.99	
13-Dec	0.3	0.4	Z	0.0	0.0	0.0	0.0	1.9	1.9	1.9	2.7	4.4	3.8	1.8	1.3	1.7	2.5	0.3	0.0	0.0	0.1	0.0	0.0	0.2	1.10	4.42	
14-Dec	0.0	0.0	Z	0.0	0.7	0.0	0.0	0.0	0.0	0.6	1.7	2.6	4.1	3.0	2.1	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.73	4.08	
15-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.9	1.5	0.6	0.2	0.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.31	1.95	
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	5.2	5.5	2.2	0.8	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.65	5.53	
17-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.8	1.1	1.8	1.8	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35	1.85	
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	1.9	2.3	5.0	11.5	4.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.25	11.51	
19-Dec	0.0	0.0	Z	4.5	7.0	4.5	4.3	2.8	1.7	4.2	7.6	16.1	20.4	22.8	18.5	13.4	9.1	8.8	9.3	13.1	7.7	7.5	6.4	0.9	8.28	22.77	
20-Dec	0.5	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	1.6	2.4	2.5	1.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.46	2.52	
21-Dec	0.0	0.0	Z	0.0	0.0	0.2	0.3	0.3	0.3	3.6	6.9	6.9	10.2	6.6	2.7	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.72	10.18	
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	1.4	0.5	1.0	1.9	1.3	1.0	0.7	0.5	0.9	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.45	1.86	
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.9	0.9	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	0.94	
24-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.7	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11	0.69	
25-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.2	1.3	1.2	1.1	1.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.30	1.32	
26-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	1.8	1.5	1.6	1.5	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.38	1.84	
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2	3.7	9.3	5.0	1.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.96	9.25	
28-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.1	0.3	1.5	2.1	2.9	5.7	8.1	2.7	1.6	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	1.13	8.05	
29-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.4	0.6	0.4	0.8	0.6	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.24	0.83	
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.7	0.6	0.4	0.4	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.18	1.07	
31-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.6	0.8	0.7	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.78	
		0.03	0.03	--	0.15	0.25	0.17	0.16	0.23	0.21	1.21	2.40	3.20	3.73	3.78	2.65	1.69	1.05	0.37	0.44	0.76	0.47	0.42	0.28	0.04	Diurnal Average	
		0.50	0.38	--	4.51	6.98	4.46	4.32	2.78	1.93	5.16	7.65	16.11	20.38	22.77	18.48	13.44	10.70	8.77	9.28	13.09	7.67	7.49	6.38	0.94	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAQO):		1-hr --- ppb				24-hr --- ppb																					



WCAS - Breton
Summary of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
December 2014

Maximum Value: 26.89 ppb on Dec 19 04:00																						Maximum Daily Average: 21.10 ppb on Dec 19																						Hours in Service: 744			
Minimum Value: 1.1 ppb on Dec 25 04:00																						Minimum Daily Average: 2.82 ppb on Dec 31																						Hours of Data: 708			
Maximum Diurnal Average: 8.98 ppb at hour 18																						Minimum Diurnal Average: 5.98 ppb at hour 12																						Hours of Missing Data: 36			
Monthly Average: 7.168 ppb																						Percentiles: P ₁ = 1.5 P ₁₀ = 2.7 Q ₁ = 3.8 Median = 5.6 Q ₃ = 9.1 P ₉₀ = 13.7 P ₉₉ = 23.4																						Hours of Calibration: 36			
																						Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Dec	6.9	6.8	Z	6.3	6.5	6.1	6.4	7.0	7.7	7.5	7.1	5.1	10.6	8.6	6.0	5.6	7.1	8.1	9.4	8.1	9.9	10.1	9.2	8.3	7.59	10.62																					
2-Dec	7.5	7.4	Z	7.1	6.9	6.7	5.6	5.4	6.5	13.7	5.6	6.7	4.3	6.3	4.5	5.7	8.7	5.8	4.3	5.2	4.5	4.3	3.4	3.7	6.07	13.69																					
3-Dec	2.8	2.4	Z	3.2	3.0	3.2	3.4	3.5	3.7	3.8	3.5	3.3	2.4	2.4	2.9	3.7	5.5	5.2	5.4	7.6	8.1	8.6	8.6	9.1	4.57	9.07																					
4-Dec	8.6	10.6	Z	7.7	7.0	7.7	7.1	7.8	7.2	7.2	6.3	5.6	6.5	9.8	8.3	11.8	22.9	20.1	10.6	9.9	9.3	8.1	7.5	7.3	9.34	22.90																					
5-Dec	7.2	6.8	Z	6.2	6.0	5.5	5.5	5.5	5.7	4.9	8.5	4.0	3.9	4.8	5.4	8.5	14.7	17.8	14.7	8.6	13.7	15.1	14.4	14.8	8.80	17.82																					
6-Dec	14.0	12.8	Z	10.1	9.6	11.2	11.3	13.6	16.1	15.4	13.4	11.8	10.4	11.4	12.3	11.4	12.5	14.2	13.9	14.0	15.5	18.0	20.5	19.5	13.60	20.47																					
7-Dec	18.2	18.2	Z	17.6	16.8	15.4	13.3	11.9	11.0	10.7	9.0	9.1	6.9	6.3	8.1	9.7	9.3	8.0	7.2	7.0	6.6	6.4	5.8	5.5	10.35	18.25																					
8-Dec	6.0	6.8	Z	8.1	8.4	6.7	7.2	7.9	8.0	7.6	7.4	7.6	8.1	8.1	8.9	10.5	10.6	10.5	11.5	13.0	12.8	10.0	9.0	8.4	8.82	12.97																					
9-Dec	11.5	8.5	Z	6.3	5.1	5.6	5.3	4.8	6.5	6.2	5.1	4.2	5.6	5.8	5.0	4.4	2.8	3.2	3.5	4.9	3.8	4.7	2.7	2.3	5.13	11.50																					
10-Dec	3.0	3.1	Z	1.5	2.1	3.5	4.6	4.5	4.0	3.8	4.3	C	C	C	C	C	5.8	4.6	4.3	5.5	5.1	4.6	3.7	3.8	3.98	5.80																					
11-Dec	3.2	3.3	Z	3.0	4.1	3.1	3.7	2.9	2.1	2.1	3.3	2.1	3.0	4.0	5.1	2.7	5.3	4.9	4.4	4.1	2.9	3.2	3.4	3.8	3.46	5.29																					
12-Dec	3.9	4.5	Z	5.4	5.4	5.3	4.8	8.6	4.8	3.9	6.5	8.2	10.4	15.5	10.1	10.6	21.5	15.9	18.5	23.9	19.7	15.7	14.8	9.9	10.77	23.94																					
13-Dec	10.1	9.6	Z	10.5	10.7	9.1	6.9	11.1	12.9	10.0	7.3	8.6	7.8	5.3	5.3	9.0	18.4	15.2	12.7	11.0	8.9	5.5	5.8	5.8	9.45	18.44																					
14-Dec	4.7	3.8	Z	3.8	7.8	4.4	4.6	4.1	4.4	4.1	3.9	4.6	7.0	6.3	6.4	9.2	8.6	5.5	5.3	4.8	4.5	4.3	4.4	3.6	5.23	9.22																					
15-Dec	3.5	4.2	Z	7.5	9.4	11.5	11.9	11.4	12.9	11.2	6.8	4.8	5.5	5.4	4.3	6.2	8.6	8.5	7.1	6.0	5.1	4.8	4.3	3.8	7.16	12.87																					
16-Dec	3.5	3.1	Z	2.2	2.2	2.2	2.0	1.9	2.1	9.3	9.9	4.5	3.1	3.4	4.4	3.9	4.3	4.1	3.6	4.3	3.3	2.8	2.8	2.5	3.71	9.92																					
17-Dec	2.6	2.4	Z	2.2	2.4	2.3	2.9	3.5	4.1	3.8	3.3	3.4	3.3	3.7	4.6	6.6	8.0	9.9	9.9	10.1	11.2	10.8	10.3	9.6	5.70	11.23																					
18-Dec	9.2	9.2	Z	8.3	8.5	7.9	7.3	7.5	7.1	6.3	4.8	4.4	4.4	7.9	14.3	12.2	9.8	14.5	19.8	18.2	18.9	20.6	19.4	18.4	11.25	20.57																					
19-Dec	18.8	18.3	Z	26.9	26.7	25.8	25.4	24.9	24.8	20.0	16.8	15.6	13.6	15.9	17.4	19.9	22.1	23.2	23.4	22.3	21.7	22.1	20.5	18.9	21.10	26.89																					
20-Dec	18.8	16.1	Z	9.4	6.5	6.5	5.7	4.6	4.5	4.3	3.5	3.7	5.0	6.1	6.9	6.9	8.8	10.3	8.5	10.3	11.7	12.9	13.3	13.2	8.58	18.80																					
21-Dec	11.9	13.2	Z	12.4	12.3	11.2	12.2	14.9	15.5	13.4	11.3	9.9	13.7	11.0	10.9	10.7	9.1	4.9	4.3	2.9	3.3	3.1	3.9	5.7	9.64	15.46																					
22-Dec	4.4	4.7	Z	4.1	3.8	3.5	3.6	9.0	15.1	11.3	8.6	8.6	5.4	4.4	4.4	4.3	10.2	13.5	11.4	4.2	4.3	2.8	2.7	2.5	6.38	15.11																					
23-Dec	2.5	2.6	Z	2.5	3.9	3.9	3.4	3.3	5.2	6.3	6.9	6.2	5.7	5.5	5.5	5.6	5.6	5.6	7.2	8.1	7.8	6.4	5.7	5.3	5.25	8.14																					
24-Dec	5.6	4.9	Z	4.2	4.4	3.6	3.6	4.6	4.8	5.4	3.7	3.7	4.4	4.4	3.7	3.3	2.2	1.5	3.4	2.5	1.9	1.1	1.6	3.0	3.55	5.60																					
25-Dec	2.0	1.2	Z	1.1	1.5	1.6	1.8	1.9	1.9	3.4	3.8	4.0	3.6	3.4	4.1	5.2	5.0	8.8	7.0	6.0	5.4	4.7	5.0	2.9	3.70	8.76																					
26-Dec	2.9	2.9	Z	2.2	2.1	2.4	2.2	2.4	2.3	2.5	5.3	5.9	5.9	6.3	6.3	5.9	6.0	6.8	5.1	4.5	5.0	5.7	3.9	3.7	4.26	6.77																					
27-Dec	3.6	3.5	Z	9.1	7.1	5.7	5.6	5.7	5.5	5.2	4.3	5.4	9.8	7.4	5.1	4.6	4.8	9.5	12.0	10.9	8.9	6.3	4.9	8.6	6.68	12.04																					
28-Dec	10.3	8.9	Z	12.1	5.8	3.7	5.9	4.9	10.5	10.6	8.5	7.1	8.8	14.0	6.5	6.1	3.2	6.3	7.5	5.3	1.6	4.2	4.9	2.1	6.89	13.96																					
29-Dec	3.6	3.5	Z	4.3	1.4	1.2	2.7	3.8	3.0	3.2	3.4	4.8	2.6	1.7	1.9	3.3	6.5	4.3	3.4	3.4	4.1	4.4	7.2	4.7	3.58	7.16																					
30-Dec	4.2	4.3	Z	4.8	5.1	4.4	4.3	4.5	4.5	4.0	3.2	3.9	3.5	4.5	3.7	4.1	4.3	4.2	6.4	3.8	3.0	3.5	2.9	3.8	4.12	6.42																					
31-Dec	3.5	1.2	Z	2.3	2.1	2.3	2.4	5.2	2.9	2.7	2.9	2.6	2.6	2.8	3.4	5.5	4.2	3.6	3.0	2.3	1.9	1.7	1.9	1.8	2.82	5.54																					
																						7.05	6.73	--	6.84	6.60	6.24	6.21	6.86	7.33	7.22	6.39	5.98	6.26	6.74	6.53	7.24	8.92	8.98	8.66	8.16	7.88	7.62	7.36	6.98	Diurnal Average	
																						18.80	18.35	--	26.89	26.74	25.75	25.42	24.90	24.82	20.00	16.85	15.62	13.66	15.91	17.44	19.88	22.90	23.23	23.36	23.94	21.74	22.10	20.53	19.53	Diurnal Maximum	
Z - zerospan C - Calibration																																															
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																																															



WCAS - Breton
Summary of Hourly Averages

NOx (NO_x) - ppb
December 2014

Maximum Value: 38.71 ppb on Dec 19 14:00		Maximum Daily Average: 29.42 ppb on Dec 19		Hours in Service: 744																													
Minimum Value: 1.0 ppb on Dec 25 04:00		Minimum Daily Average: 2.96 ppb on Dec 31		Hours of Data: 708																													
Maximum Diurnal Average: 10.55 ppb at hour 14		Minimum Diurnal Average: 6.33 ppb at hour 7		Hours of Missing Data: 36																													
Monthly Average: 8.156 ppb		Percentiles: P ₁ = 1.4 P ₁₀ = 2.8 Q ₁ = 4.1 Median = 6.2 Q ₃ = 10.1 P ₉₀ = 16.1 P ₉₉ = 33.4		Hours of Calibration: 36																													
Percentiles: P ₁ = 1.4 P ₁₀ = 2.8 Q ₁ = 4.1 Median = 6.2 Q ₃ = 10.1 P ₉₀ = 16.1 P ₉₉ = 33.4		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	6.8	6.7	Z	6.2	6.4	6.1	6.4	6.9	7.8	8.9	10.0	7.7	18.4	13.8	7.6	6.6	7.3	7.9	9.3	8.0	9.8	9.9	9.0	8.1	8.50	18.44							
2-Dec	7.3	7.2	Z	6.9	6.8	6.7	5.6	5.7	6.8	17.3	7.7	10.5	6.2	9.0	5.9	6.5	9.2	5.7	4.2	5.1	4.3	4.1	3.3	3.5	6.76	17.27							
3-Dec	2.7	2.3	Z	3.0	2.9	3.1	3.3	3.5	3.6	4.2	4.6	4.9	3.6	3.4	3.9	4.3	5.6	5.1	5.3	7.5	7.9	8.5	8.4	9.0	4.81	8.97							
4-Dec	8.5	10.9	Z	7.6	6.9	7.8	7.1	7.7	7.2	8.8	10.0	9.6	9.1	14.5	12.2	15.9	26.7	20.8	10.5	9.8	9.1	7.9	7.3	7.1	10.57	26.68							
5-Dec	7.1	6.6	Z	6.1	5.9	5.5	5.4	5.5	5.7	5.9	15.3	6.7	6.4	7.3	7.3	9.9	15.3	17.9	14.7	8.5	13.7	15.2	14.4	14.8	9.60	17.87							
6-Dec	14.0	12.8	Z	10.2	9.6	11.6	11.3	13.7	16.4	18.7	18.6	17.3	15.4	18.1	17.7	14.0	13.7	15.3	14.3	14.3	15.7	18.0	20.6	19.5	15.25	20.56							
7-Dec	18.2	18.1	Z	17.5	16.9	15.5	13.3	11.9	11.1	13.9	15.4	17.0	11.5	9.5	12.0	12.2	9.8	7.9	7.1	7.0	6.5	6.3	5.7	5.4	11.73	18.24							
8-Dec	5.9	6.7	Z	8.0	8.4	6.7	7.2	7.9	8.1	8.4	9.3	10.9	11.3	11.6	12.0	12.6	11.0	10.5	11.6	13.0	12.9	10.0	9.0	8.4	9.62	13.01							
9-Dec	11.6	8.6	Z	6.3	5.2	5.7	5.4	4.8	6.5	6.6	5.5	4.6	6.4	7.0	5.7	4.7	2.8	3.1	3.4	4.8	3.6	4.6	2.6	2.1	5.28	11.57							
10-Dec	2.7	2.9	Z	1.2	1.9	3.3	4.3	4.2	3.7	3.5	4.2	C	C	C	C	C	6.0	4.7	4.3	5.5	5.0	4.5	3.6	3.6	3.84	5.97							
11-Dec	3.1	3.0	Z	2.8	4.0	2.9	3.7	2.7	2.0	2.0	3.7	2.2	3.7	4.7	5.9	2.7	5.2	4.8	4.2	4.0	2.8	3.1	3.3	3.7	3.49	5.94							
12-Dec	3.8	4.5	Z	5.3	5.4	5.3	4.8	9.8	4.8	4.3	11.3	19.0	24.3	33.5	16.0	14.0	32.3	16.3	21.4	34.1	26.6	21.3	16.6	9.8	14.98	34.07							
13-Dec	10.4	10.0	Z	10.6	10.6	9.0	6.8	13.1	14.9	11.9	10.2	13.1	11.7	7.2	6.7	10.7	21.1	15.6	12.6	11.0	9.1	5.4	5.7	6.1	10.58	21.07							
14-Dec	4.7	3.8	Z	3.7	8.5	4.4	4.5	4.1	4.4	4.7	5.7	7.3	11.2	9.3	8.6	10.9	9.0	5.4	5.2	4.7	4.4	4.2	4.2	3.5	5.94	11.18							
15-Dec	3.4	4.0	Z	7.3	9.3	11.4	11.9	11.3	12.9	12.5	8.7	6.3	6.1	5.7	5.0	6.9	8.7	8.4	7.0	5.9	4.9	4.5	4.0	3.6	7.39	12.85							
16-Dec	3.3	2.9	Z	2.0	2.0	2.0	1.8	1.8	1.9	14.5	15.5	6.7	3.9	4.0	5.0	4.2	4.3	4.1	3.5	4.3	3.2	2.6	2.6	2.3	4.27	15.46							
17-Dec	2.4	2.3	Z	2.1	2.4	2.3	2.8	3.4	4.0	3.9	3.6	4.2	4.5	5.5	6.4	8.3	8.4	9.9	9.8	10.1	11.2	10.8	10.3	9.5	6.00	11.19							
18-Dec	9.1	9.1	Z	8.3	8.5	7.9	7.4	7.5	7.1	7.2	6.6	6.4	6.7	13.0	25.8	17.1	10.4	14.4	19.7	18.1	18.8	20.5	19.3	18.3	12.49	25.84							
19-Dec	18.7	18.3	Z	31.5	33.8	30.3	29.8	27.8	26.6	24.3	24.5	31.8	34.0	38.7	36.0	33.4	31.2	32.1	32.7	35.4	29.5	29.6	26.9	19.9	29.42	38.71							
20-Dec	19.3	16.1	Z	9.4	6.5	6.4	5.6	4.5	4.4	4.8	4.7	5.3	7.5	8.6	8.3	7.4	8.9	10.1	8.3	10.2	11.6	12.8	13.2	13.1	9.00	19.33							
21-Dec	11.8	13.0	Z	12.2	12.2	11.4	12.5	15.3	15.8	17.1	18.2	16.9	23.9	17.7	13.7	12.0	9.4	5.0	4.3	3.0	3.2	3.1	3.8	5.7	11.36	23.90							
22-Dec	4.2	4.6	Z	4.0	3.8	3.4	3.6	9.5	16.6	11.9	9.6	10.5	6.9	5.5	5.2	4.9	11.2	13.5	12.1	4.2	4.3	2.7	2.6	2.4	6.83	16.63							
23-Dec	2.4	2.6	Z	2.4	3.9	3.9	3.4	3.3	5.2	6.6	7.9	7.2	6.7	6.3	6.1	5.9	5.5	5.5	7.1	8.1	7.7	6.2	5.5	5.1	5.41	8.12							
24-Dec	5.4	4.7	Z	4.0	4.3	3.6	3.5	4.6	4.7	5.8	4.4	4.4	4.9	4.7	3.9	3.5	2.2	1.4	3.3	2.4	1.7	1.0	1.4	2.9	3.59	5.82							
25-Dec	1.8	1.0	Z	1.0	1.4	1.5	1.7	1.8	1.9	3.5	4.4	5.2	4.9	4.6	5.2	6.2	5.2	8.9	7.1	6.1	5.5	4.7	5.0	2.9	3.99	8.92							
26-Dec	2.9	2.9	Z	2.1	2.1	2.4	2.2	2.3	2.2	2.7	6.6	7.7	7.3	7.9	7.8	6.6	6.1	6.7	4.9	4.3	4.8	5.5	3.7	3.4	4.59	7.92							
27-Dec	3.4	3.3	Z	8.9	7.0	5.6	5.4	5.6	5.3	5.5	5.6	9.1	19.1	12.3	7.0	5.3	4.8	9.4	11.9	10.7	8.7	6.1	4.7	8.4	7.52	19.06							
28-Dec	10.1	8.7	Z	12.0	5.7	3.7	6.2	5.0	10.8	12.1	10.7	10.1	14.6	22.0	9.2	7.8	3.4	6.5	7.7	5.3	1.5	4.1	4.9	2.0	8.00	22.04							
29-Dec	3.8	3.7	Z	4.2	1.4	1.3	2.7	4.1	3.4	3.6	3.8	5.4	3.0	2.5	2.6	4.2	7.0	4.2	3.3	3.3	4.1	4.4	7.5	4.7	3.83	7.48							
30-Dec	4.2	4.3	Z	4.8	5.1	4.3	4.2	4.4	4.4	4.0	3.7	5.0	4.3	5.2	4.1	4.5	4.5	4.3	6.6	3.8	2.9	3.5	2.9	3.9	4.29	6.57							
31-Dec	3.5	1.1	Z	2.2	2.1	2.3	2.4	5.3	2.9	2.8	3.4	3.2	3.4	3.5	4.0	6.2	4.2	3.5	3.0	2.2	1.9	1.5	1.7	1.7	2.96	6.20							
		6.98	6.67	--	6.89	6.80	6.38	6.33	7.06	7.52	8.45	8.81	9.22	10.03	10.55	9.22	8.98	10.01	9.32	9.05	8.86	8.29	7.96	7.55	6.92	Diurnal Average							
		19.33	18.25	--	31.48	33.81	30.31	29.81	27.75	26.59	24.30	24.54	31.78	34.04	38.71	35.98	33.37	32.26	32.05	32.68	35.43	29.46	29.63	26.94	19.93	Diurnal Maximum							
Z - zerospan		C - Calibration																															
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr --- ppb				24-hr --- ppb																											

**BRETON
STATION #913**

METEOROLOGICAL DATA

DECEMBER 2014



WCAS - Breton
Summary of Hourly Averages

External Temperature (ET) - C
December 2014

Maximum Value: 12.26 C on Dec 9 18:00																								Maximum Daily Average: 7.38 C on Dec 11																								Hours in Service: 744	
Minimum Value: -25.1 C on Dec 29 23:00																								Minimum Daily Average: -19.15 C on Dec 29																								Hours of Data: 744	
Maximum Diurnal Average: -1.39 C at hour 15																								Minimum Diurnal Average: -8.45 C at hour 7																								Hours of Missing Data: 0	
Monthly Average: -5.801 C																								Percentiles: P ₁ = -22.7 P ₁₀ = -14.4 Q ₁ = -9.8 Median = -5.9 O ₃ = -1.6 P ₉₀ = 2.9 P ₉₉ = 10.5																								Hours of Calibration: 0	
																								Percent Operational Time: 100.0																									
Day	Hourly Period Ending At																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	-20.6	-20.6	-21.1	-21.5	-20.5	-20.1	-20.5	-19.9	-20.1	-19.8	-17.4	-14.6	-11.7	-8.5	-7.8	-6.6	-9.5	-11.6	-12.8	-13.7	-14.4	-14.7	-15.3	-14.4	-15.74	-6.61																							
2-Dec	-13.0	-12.5	-12.3	-12.4	-12.9	-10.5	-8.7	-8.2	-8.6	-9.7	-9.1	-6.7	-7.0	-7.5	-7.3	-7.1	-7.2	-7.4	-7.6	-7.6	-7.4	-7.4	-7.3	-6.9	-8.85	-6.72																							
3-Dec	-6.2	-6.2	-6.6	-6.6	-6.4	-6.8	-7.7	-8.1	-7.8	-8.8	-4.9	-2.8	-1.6	-0.4	0.7	0.8	-2.4	-4.0	-6.8	-8.1	-9.6	-11.2	-11.7	-12.1	-6.05	0.84																							
4-Dec	-13.5	-14.0	-14.7	-14.8	-14.9	-14.3	-13.8	-14.6	-15.7	-14.8	-10.1	-6.3	-4.7	-4.1	-4.3	-4.5	-5.9	-8.7	-10.3	-12.4	-13.4	-14.7	-15.7	-17.0	-11.55	-4.12																							
5-Dec	-17.6	-18.8	-18.9	-19.7	-20.2	-21.0	-20.8	-21.1	-21.2	-20.2	-17.9	-13.6	-9.0	-5.6	-3.3	-5.4	-6.2	-6.5	-5.4	-4.2	-5.7	-6.7	-7.0	-7.0	-12.62	-3.31																							
6-Dec	-7.5	-7.5	-8.2	-10.2	-10.5	-11.2	-10.7	-10.7	-10.7	-10.4	-8.9	-7.6	-7.2	-8.0	-8.1	-8.1	-8.8	-9.1	-8.7	-8.1	-7.0	-5.9	-4.8	-4.3	-8.42	-4.34																							
7-Dec	-4.4	-4.6	-6.3	-7.6	-8.8	-9.5	-9.8	-11.0	-11.3	-10.2	-7.3	-2.8	1.8	4.8	4.2	3.4	-1.0	-4.1	-5.9	-7.2	-8.1	-8.4	-9.2	-9.0	-5.52	4.80																							
8-Dec	-9.8	-9.5	-9.2	-8.6	-6.4	-4.6	-4.0	-4.8	-5.1	-6.5	-5.5	-1.5	-1.8	1.0	2.4	2.1	0.6	-1.2	-2.3	-1.8	-1.2	0.0	0.1	3.1	-3.10	3.14																							
9-Dec	-0.8	-0.8	-2.0	-0.5	-2.2	-1.0	0.4	1.4	3.8	4.9	6.4	7.3	7.0	7.2	9.6	10.8	11.9	12.3	11.5	10.4	10.7	9.4	8.9	7.3	5.58	12.26																							
10-Dec	6.0	3.0	4.4	2.2	2.3	1.9	1.8	3.5	5.1	6.8	7.1	8.0	8.3	8.4	8.0	8.3	8.8	9.1	9.5	9.5	8.3	7.9	8.4	8.1	6.44	9.53																							
11-Dec	7.4	7.2	7.0	7.1	7.5	7.7	7.6	8.0	8.2	6.3	7.4	9.9	10.9	10.6	9.7	7.8	7.3	6.6	6.1	6.1	5.9	5.3	4.9	4.8	7.38	10.89																							
12-Dec	4.3	4.2	3.6	3.0	2.8	1.5	-0.5	-0.7	-1.9	-2.5	-1.7	-0.9	2.2	3.8	2.5	3.2	2.0	-1.0	-2.5	-3.3	-3.8	-3.8	-4.1	-4.3	0.09	4.32																							
13-Dec	-4.2	-3.6	-2.9	-3.0	-2.5	-2.0	-1.7	-0.9	-0.6	-1.2	-0.7	0.3	1.3	2.7	3.3	3.6	2.1	0.3	-2.6	-4.2	-4.5	-6.1	-6.8	-6.8	-1.70	3.59																							
14-Dec	-8.9	-9.1	-9.5	-9.9	-10.0	-10.9	-10.6	-11.2	-10.9	-11.3	-7.4	-3.8	-1.5	0.5	2.4	0.5	-2.7	-5.6	-7.6	-8.8	-10.1	-11.3	-11.6	-12.0	-7.56	2.43																							
15-Dec	-12.4	-12.4	-12.7	-12.2	-12.1	-11.6	-11.6	-10.2	-10.3	-8.7	-5.1	-2.4	-1.2	-0.7	-0.3	-1.3	-3.5	-4.4	-4.9	-5.3	-6.3	-7.2	-8.0	-8.8	-7.22	-0.32																							
16-Dec	-9.4	-9.4	-9.1	-8.8	-9.2	-8.9	-8.6	-8.1	-8.2	-9.8	-7.7	-5.6	-4.0	-3.5	-3.9	-5.4	-5.8	-5.8	-5.5	-5.4	-5.4	-5.2	-5.1	-5.1	-6.79	-3.49																							
17-Dec	-5.3	-5.5	-5.5	-5.3	-5.5	-5.8	-6.0	-6.4	-6.7	-7.1	-7.3	-7.3	-6.9	-5.0	-3.7	-2.5	-5.4	-7.6	-9.3	-10.4	-10.9	-11.3	-11.5	-11.9	-7.10	-2.53																							
18-Dec	-12.5	-12.6	-13.3	-13.4	-13.2	-13.0	-13.7	-13.1	-12.3	-11.6	-8.7	-6.6	-2.1	0.0	2.1	2.1	-1.3	-3.6	-4.7	-6.2	-7.4	-7.8	-8.5	-8.8	-7.92	2.14																							
19-Dec	-8.7	-8.7	-7.8	-7.1	-6.6	-6.6	-7.0	-7.2	-7.2	-6.2	-4.5	-4.5	-7.5	-6.6	-6.1	-5.7	-5.5	-5.3	-5.0	-5.4	-5.6	-5.4	-5.9	-5.8	-6.32	-4.49																							
20-Dec	-6.0	-6.5	-7.8	-7.8	-7.1	-9.2	-9.9	-9.4	-10.3	-10.5	-7.2	-3.8	-0.9	3.5	2.0	0.4	-0.7	-1.9	-2.4	-3.2	-3.7	-3.8	-4.1	-4.5	-4.79	3.48																							
21-Dec	-4.6	-4.7	-4.5	-4.2	-4.4	-5.6	-6.5	-6.8	-7.1	-7.2	-6.1	-5.5	-5.0	-2.8	-0.5	-0.3	0.1	1.1	1.7	1.5	1.0	0.7	0.4	0.4	-2.87	1.71																							
22-Dec	0.5	0.0	-1.7	-2.8	-4.0	-4.5	-4.2	-3.0	-0.9	-0.6	-0.2	1.1	2.1	2.8	2.5	3.2	1.4	-0.7	-2.7	-3.7	-3.3	-5.1	-4.8	-4.9	-1.39	3.17																							
23-Dec	-5.7	-6.2	-5.9	-6.7	-6.4	-7.3	-7.5	-8.2	-7.7	-6.9	-4.9	-3.0	-1.4	-1.2	-1.4	-1.4	-1.5	-1.4	-0.7	-1.0	-1.7	-2.1	-2.4	-1.7	-3.93	-0.73																							
24-Dec	-1.3	-1.8	-0.8	-0.9	-2.0	-4.2	-3.0	-1.8	-1.5	-1.7	-1.5	-0.5	-0.3	0.0	-0.2	-1.0	-1.9	-2.8	-3.6	-4.3	-4.8	-5.9	-6.9	-7.6	-2.51	-0.05																							
25-Dec	-8.7	-9.3	-10.1	-10.7	-10.8	-10.6	-10.2	-9.9	-9.8	-9.6	-8.5	-7.6	-6.4	-5.0	-4.8	-5.1	-6.2	-7.2	-7.5	-6.9	-7.4	-8.0	-8.0	-8.5	-8.19	-4.81																							
26-Dec	-9.4	-10.2	-12.4	-13.8	-15.9	-15.6	-16.8	-17.9	-18.3	-17.5	-12.9	-9.3	-7.4	-6.2	-5.5	-4.9	-4.8	-4.9	-5.2	-5.4	-4.9	-4.6	-4.5	-4.4	-9.70	-4.37																							
27-Dec	-4.2	-4.1	-4.3	-5.1	-6.2	-7.5	-9.6	-10.1	-11.9	-10.4	-9.6	-7.2	-2.4	-1.2	-4.4	-6.9	-8.3	-8.3	-8.4	-8.4	-8.4	-8.7	-9.2	-9.8	-7.27	-1.19																							
28-Dec	-10.1	-10.6	-11.0	-11.0	-11.0	-11.1	-11.2	-11.4	-11.8	-12.0	-12.0	-12.1	-11.9	-12.1	-12.2	-12.4	-12.9	-13.3	-13.6	-13.5	-13.5	-13.7	-14.5	-15.3	-12.26	-10.13																							
29-Dec	-15.3	-15.6	-15.9	-16.3	-16.9	-17.2	-17.3	-17.7	-18.4	-18.7	-18.6	-18.4	-17.9	-17.4	-17.1	-16.9	-17.5	-20.8	-22.6	-23.6	-24.4	-24.9	-25.1	-25.0	-19.15	-15.28																							
30-Dec	-24.4	-23.9	-21.6	-21.7	-21.8	-19.4	-17.5	-15.3	-14.4	-13.3	-12.2	-9.9	-6.5	-4.6	-3.7	-3.5	-2.3	-2.8	-3.0	-2.4	-2.3	-1.6	-1.7	-2.7	-10.53	-1.57																							
31-Dec	-3.2	-3.5	-3.3	-2.9	-2.6	-2.1	-2.5	-2.7	-2.3	-2.0	-1.7	-0.9	0.6	1.6	2.0	1.5	1.4	1.4	1.8	2.0	2.0	2.0	2.5	3.6	-0.30	3.60																							
																								-7.40	-7.67	-7.88	-8.17	-8.33	-8.41	-8.45	-8.30	-8.25	-8.10	-6.41	-4.47	-2.98	-1.72	-1.39	-1.65	-2.77	-3.85	-4.55	-5.00	-5.39	-5.81	-6.08	-6.17	Diurnal Average	
																								7.39	7.21	6.96	7.11	7.50	7.68	7.64	8.03	8.22	6.76	7.44	9.86	10.89	10.61	9.73	10.77	11.91	12.26	11.52	10.41	10.68	9.41	8.92	8.07	Diurnal Maximum	



WCAS - Breton
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	6.1	6.7	3.6	1.4	2.9	0.1	0.7	0.5	0.5	0.8	1.0	0.9	0.0	1.0	0.4	0.8	0.2	3.5	5.3	4.7	5.8	1.2	0.1	1.8	2.08	6.72
Dir	SE	SE	SSE	SE	SE	SE	E	SE	SSE	SE	SE	SE	W	SSE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
2 Spd	0.6	0.2	0.2	0.3	1.4	5.5	8.2	8.4	5.8	2.2	1.1	7.0	9.5	5.6	5.3	2.1	3.3	1.8	2.2	2.9	3.8	3.8	6.4	9.0	2.99	9.51
Dir	W	NW	NNW	ESE	W	WNW	NW	NW	NW	NNW	WSW	WNW	NW	NW	NW	NW	WNW	W	W	WSW	WSW	SW	SW	S	WNW	NW
3 Spd	12.8	6.6	8.3	4.8	5.0	5.4	4.1	4.4	3.2	3.9	4.4	4.7	5.8	6.3	4.3	2.9	2.6	4.1	4.3	5.2	4.0	4.0	3.7	4.9	4.35	12.84
Dir	S	SSW	SSW	SSW	SW	S	SSE	SSE	SSE	SSE	S	SSW	SSW	SSW	WSW	SW	SSE	SE	SE	SE	SE	SE	SE	SE	S	S
4 Spd	1.8	0.4	0.1	0.6	0.1	0.8	0.8	0.9	1.1	2.0	0.7	0.4	1.8	5.8	5.7	6.0	2.2	0.9	0.2	1.8	0.6	1.4	1.8	3.1	0.11	6.01
Dir	SE	S	S	SSE	SE	ESE	SSE	SE	SE	SE	ENE	ENE	NNE	NNW	NW	NW	WNW	W	SE	SE	SE	ESE	SE	SSE	NW	NW
5 Spd	1.9	1.7	0.6	1.0	0.5	0.8	1.8	1.9	2.5	3.9	1.7	2.6	2.4	3.4	4.5	8.0	8.1	7.5	8.6	13.8	10.2	12.0	12.4	9.1	4.93	13.81
Dir	SSE	SSE	SE	SE	SE	SSE	SSE	SE	SSE	SE	SSE	SE	SE	SE	SSE	SSE	SE	SE	SE	SSE	SSE	SSE	SSE	S	SSE	SSE
6 Spd	4.0	3.8	2.9	3.2	4.2	2.8	4.4	4.1	2.4	4.3	2.7	1.5	6.4	7.9	6.5	5.7	7.2	5.0	8.7	8.4	8.9	5.4	3.0	2.6	0.88	8.87
Dir	S	S	SSE	SSE	SE	SSE	SSE	SSE	SE	SE	SSE	SE	NNE	NNE	NNE	NNE	N	NNW	NNW	NW	NW	WNW	W	SSW	N	NW
7 Spd	0.7	2.4	2.6	3.0	0.2	2.2	1.8	1.5	0.6	0.0	0.1	0.1	1.1	1.1	1.8	0.2	0.2	0.1	0.6	3.4	3.3	3.2	3.6	5.6	1.36	5.61
Dir	SSW	SE	SE	SSE	SSE	SE	SE	SE	E	ENE	NNE	WNW	WSW	SW	WNW	SSW	ESE	SSE	S	SSE	SE	SE	SE	SE	SSE	SE
8 Spd	4.9	4.3	5.0	4.9	9.4	10.1	7.6	5.5	3.4	3.6	7.1	3.8	8.5	4.4	2.6	5.5	5.2	5.3	7.1	6.9	5.5	5.6	0.8	2.2	5.23	10.09
Dir	SE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	S	SSE	SSE	SSE	SE	SE	SE	SE	SSE	WSW	SSE
9 Spd	0.2	0.4	2.0	1.9	3.6	7.0	6.3	7.3	8.3	7.6	6.7	7.2	8.3	6.3	7.8	10.2	12.1	16.0	13.8	12.6	13.1	8.1	2.6	1.4	5.96	15.97
Dir	SSW	E	SE	ESE	SE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	S	SW	SW	SW	SSW	SSW	SSW	SSW	SW	SW	SW	S	SSW
10 Spd	0.7	1.6	4.7	5.8	6.5	7.0	6.6	7.1	5.8	5.3	13.8	19.1	22.3	23.8	13.7	14.8	16.6	17.5	16.2	16.2	14.9	12.6	14.2	14.6	11.04	23.77
Dir	W	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	S	SSW	SSW	S	SSW	S	S	SSW	SSW	S	S	S	S	S	SSW
11 Spd	13.3	11.2	4.7	5.9	9.2	6.7	6.1	12.3	9.4	3.9	9.6	10.8	8.1	3.9	4.1	4.8	8.4	6.9	7.4	7.9	9.7	9.5	8.0	7.9	4.21	13.25
Dir	S	S	SE	SSE	S	SW	WSW	SW	SW	S	SW	WSW	WNW	N	NNE	ESE	ESE	SE	ESE	SE	ESE	ESE	SE	ESE	S	S
12 Spd	8.7	9.2	8.7	4.0	4.1	4.0	4.4	1.7	4.1	2.9	1.4	1.2	1.3	0.8	6.9	1.8	3.2	0.4	0.8	0.0	0.6	0.3	0.3	0.0	1.14	9.20
Dir	SSE	SSE	WNW	SSW	S	SE	SE	SE	SE	SSE	SE	S	NNW	WNW	N	SE	N	E	NE	WNW	ESE	SW	SSW	ESE	SSE	SSE
13 Spd	0.0	1.3	5.1	3.2	0.8	0.5	0.5	2.1	5.3	1.7	0.2	1.7	7.1	7.5	9.1	5.8	4.7	3.0	0.4	0.2	0.2	0.4	0.6	1.3	2.35	9.13
Dir	SE	NNE	NNW	WNW	WNW	SSE	SE	NW	NNW	NNW	WNW	NW	NW	NW	NNW	NNW	NW	NW	SE	SE	SE	SSE	NNW	NNW	NW	NNW
14 Spd	0.9	0.5	0.1	0.7	0.8	0.4	0.4	0.1	0.9	1.3	0.6	1.2	2.6	1.1	0.1	0.2	0.8	0.2	1.0	4.7	3.9	4.6	5.6	5.1	1.15	5.64
Dir	SE	SSE	SSE	NNW	ENE	E	SE	NNE	ESE	SSE	SE	SE	NNW	NNW	NNW	NNW	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SE
15 Spd	5.3	5.4	5.1	5.3	4.8	4.1	4.4	6.8	4.9	5.9	6.9	10.0	18.7	20.5	14.8	14.4	12.0	16.3	18.0	17.5	13.5	5.9	4.8	8.4	9.49	20.46
Dir	SE	SE	SE	SE	SE	SE	SSE	SSE	SSE	SE	SSE	SSE	S	S	SSE	SSE	S	S	S	SSE	S	SSE	SE	SSE	SSE	S
16 Spd	7.8	12.7	9.8	8.8	6.0	1.6	2.4	4.6	4.5	2.3	0.9	7.8	10.5	12.4	16.1	14.2	14.0	15.2	14.1	21.6	16.3	13.0	14.1	11.7	9.88	21.64
Dir	S	S	SSE	SSE	SSE	ESE	ESE	SSE	S	SW	WSW	SSE	S	S	SSE	SSE	S	S	S	S	S	S	S	S	S	S
17 Spd	8.7	9.9	10.2	9.3	7.1	8.8	5.5	5.0	5.3	6.2	7.2	7.3	6.9	7.1	6.5	2.5	2.9	2.6	1.6	2.7	4.2	3.7	5.0	4.3	5.41	10.20
Dir	S	S	S	S	S	S	SSW	SSW	SW	SSW	SSW	SSW	SSW	SSW	S	SSE	SE	SE	SE	SE	SE	SE	SSE	SE	S	S
18 Spd	3.9	4.0	3.1	3.3	3.3	2.5	0.2	2.4	1.8	4.3	3.3	3.2	2.5	0.1	0.1	0.1	2.1	4.7	5.9	5.6	4.0	5.0	5.5	5.9	3.17	5.92
Dir	SE	SE	SE	SE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SE	NNW	NW	S	SSE	SE	SSE	SE	SE	SE	SE	SE	SSE
19 Spd	6.2	6.2	6.0	6.5	5.9	5.8	4.5	3.6	3.6	6.9	4.7	1.2	8.0	5.5	3.4	3.4	2.5	0.7	0.8	0.3	1.4	0.6	0.6	2.9	1.88	7.95
Dir	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	NNW	NNW	NNW	NNW	WNW	SSE	SE	N	SSE	SSE	SE	SSE	SSE	NNW
20 Spd	3.4	0.4	2.2	2.6	0.9	3.6	4.3	5.4	4.6	5.4	6.8	4.6	5.6	4.7	5.7	6.5	8.1	8.5	7.8	6.8	9.5	9.5	6.9	8.8	5.47	9.54
Dir	SE	SE	SE	ESE	SE	SE	SSE	SE	SE	SE	SE	SE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE
21 Spd	9.2	9.6	9.3	2.8	0.3	7.1	4.6	10.9	10.0	5.7	1.8	0.4	2.8	3.2	11.1	9.9	7.5	12.6	13.8	10.6	7.5	6.1	5.7	4.8	4.22	13.85
Dir	SSE	SSE	SSE	SSE	W	NNW	NW	NW	NW	WNW	WSW	NW	N	WSW	NW	NW	NW	NW	NW	NNW	NW	NNW	NW	WNW	NW	NNW
22 Spd	3.0	2.5	2.2	0.4	0.2	2.5	0.4	3.1	3.6	3.4	1.9	3.0	7.4	9.4	10.1	8.9	4.6	0.9	1.2	0.7	0.9	0.5	1.6	0.2	2.22	10.08
Dir	WNW	W	SSE	SE	SE	SE	SE	WNW	NW	NW	WNW	NW	NW	NW	NW	NW	NW	NW	WNW	W	WSW	SW	SSE	SE	NW	NW



WCAS - Breton
Summary of Hourly Averages

Wind Speed (WS) - kph
December 2014

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	0.8	3.0	2.4	3.6	5.8	5.3	5.9	4.7	5.1	4.3	5.9	6.0	3.5	5.8	5.4	7.4	8.1	8.0	5.3	2.5	1.2	0.8	1.7	1.1	3.84	8.11
Dir	ESE	SE	SE	SSE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE	SSE	SSE	SSE	S	S	NW	W	NE	SSE	SSW	SSE	SSE	
24 Spd	0.9	2.7	1.1	4.7	1.5	1.0	3.1	6.6	5.5	7.0	7.4	11.3	14.8	16.9	18.8	15.1	11.4	14.4	11.8	10.0	9.8	15.0	10.6	9.7	7.51	18.76
Dir	WSW	SW	W	N	NW	S	NW	NW	NW	NW	NNW	NNW	NNW	NNW	N	NNW	NNW	NNE	NNE	NE	NNE	NNE	NNE	NE	N	N
25 Spd	10.0	9.6	5.1	3.8	1.9	1.0	4.4	2.0	2.8	5.1	5.7	5.6	4.5	4.1	3.2	4.2	5.0	4.6	5.7	10.5	10.6	9.4	9.4	6.6	1.85	10.56
Dir	ENE	NE	ENE	E	ENE	SE	SSE	SSE	SSE	SSE	SSE	SE	SE	SE	S	S	NNE	NNW	NNW	N	NNW	NW	NW	NNW	NE	NNW
26 Spd	3.0	2.4	0.5	1.6	0.7	0.3	0.1	0.2	2.7	3.5	3.0	1.4	2.2	2.4	4.4	6.1	7.3	4.1	0.6	1.2	3.5	0.3	0.2	3.5	1.09	7.27
Dir	WNW	NW	W	S	SSE	S	ENE	ESE	SE	SE	SE	SE	WSW	WNW	NW	NW	WNW	NW	WSW	SSW	WSW	W	W	WSW	W	WNW
27 Spd	4.5	1.7	2.1	1.0	2.5	2.3	3.6	4.4	4.1	3.2	1.4	0.2	0.4	4.1	11.5	14.3	8.8	10.0	10.3	10.5	8.8	8.9	10.3	9.6	3.85	14.28
Dir	WSW	WSW	SW	W	WSW	S	SE	SE	SE	SE	E	WNW	W	NNE	NE	NE	ENE	E	E	ENE	ENE	NE	NNE	NNE	ENE	NE
28 Spd	10.1	10.2	8.8	8.4	8.1	9.1	12.1	9.0	8.3	9.2	6.3	8.7	7.1	11.0	10.4	11.1	10.4	7.1	6.0	8.7	13.7	14.4	18.7	12.6	9.88	18.65
Dir	NNE	NNE	N	N	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
29 Spd	14.6	14.8	14.6	13.1	13.1	13.1	12.3	13.3	12.3	12.6	13.0	14.3	12.1	9.0	9.0	5.6	2.2	0.6	2.1	4.6	6.3	4.6	5.7	5.3	6.67	14.83
Dir	N	N	N	N	N	N	N	N	NNW	NNW	NNW	NNW	NW	WNW	WNW	NW	WNW	SSE	SE	SE	SE	SE	SE	SE	NNW	N
30 Spd	5.5	4.5	3.1	5.0	5.3	5.4	5.2	7.3	9.9	7.0	4.9	6.5	9.6	12.8	11.3	9.9	14.4	10.6	12.9	11.1	9.0	13.8	26.1	19.3	4.59	26.08
Dir	SSE	SSE	SSE	SSE	SSE	S	S	SSW	S	SSW	SSW	W	WNW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW
31 Spd	14.7	6.9	5.3	7.6	7.2	5.5	3.9	6.4	10.5	14.0	10.6	11.1	9.7	10.4	8.3	6.2	3.3	7.8	9.4	8.4	8.3	6.5	9.4	10.7	8.20	14.72
Dir	NNW	WNW	WNW	WNW	NW	NW	NW	NW	WNW	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	NW	NW	NW	NW	WNW	NNW
Spd	1.93	2.04	1.47	1.53	1.63	1.59	1.08	0.96	0.86	1.27	1.83	1.48	1.69	1.49	1.64	0.83	0.75	1.48	1.54	2.11	1.71	1.02	0.52	1.32	Diurnal Average	
Dir	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	SSW	S	S	SSW	WSW	W	WNW	W	SW	S	SSE	SSE	SSE	SE	SE	SSE	Diurnal Maximum	
Spd	14.72	14.83	14.64	13.08	13.07	13.15	12.27	13.34	12.32	14.02	13.75	19.15	22.25	23.77	18.76	15.07	16.61	17.52	17.98	21.64	16.28	14.96	26.08	19.25	Diurnal Maximum	
Dir	334.41	358.25	0.21	3.61	4.04	3.16	0.80	351.70	334.87	288.70	167.48	179.47	193.74	195.09	349.00	345.14	184.68	188.83	169.13	174.57	178.14	19.08	341.70	343.09	Diurnal Maximum	
Maximum Speed Value: 26.1 kph on Dec 30 23:00		Minimum Speed Value: 0.0 kph on Dec 13 00:00																Hours in Service: 744								
Maximum Daily Speed Average: 11.04 kph on Dec 10		Minimum Daily Speed Average: 0.11 kph on Dec 14																Hours of Data: 744								
Maximum Diurnal Speed Average: 2.11 kph at hour 20		Minimum Diurnal Speed Average: 0.52 kph at hour 23																Hours of Missing Data: 0								
Monthly Average Velocity: 1.069 kph 175.83 deg		Speed Percentiles: P ₁ = 0.1 P ₁₀ = 0.6 Q ₁ = 2.2 Median = 4.9 Q ₃ = 8.3 P ₉₀ = 12.3 P ₉₉ = 19.0																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	18	28	23	2	0	0	71																			
NorthEast	6	11	3	0	0	0	20																			
East	16	6	0	0	0	0	22																			
SouthEast	195	93	1	0	0	0	289																			
South	44	50	35	5	0	0	134																			
SouthWest	22	12	6	0	0	0	40																			
West	39	11	1	0	0	0	51																			
NorthWest	38	63	16	0	0	0	117																			
Total	378	274	85	7	0	0	744																			



WCAS - Breton
Summary of Hourly Averages

Relative Humidity (RH) - %
December 2014

Maximum Value: 91.76 % on Dec 12 21:00 Maximum Daily Average: 85.76 % on Dec 6 Minimum Value: 32.5 % on Dec 31 09:00 Minimum Daily Average: 45.77 % on Dec 31 Maximum Diurnal Average: 79.23 % at hour 6 Minimum Diurnal Average: 59.92 % at hour 15 Monthly Average: 73.246 % Percentiles: P ₁ = 35.0 P ₁₀ = 50.1 Q ₁ = 63.6 Median = 78.3 Q ₃ = 84.8 P ₉₀ = 88.2 P ₉₉ = 91.2																								Hours in Service:	744	
																								Hours of Data:	744	
																								Hours of Missing Data:	0	
																								Hours of Calibration:	0	
																								Percent Operational Time:	100.0	
Day	Hourly Period Ending At																								Daily 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	72.2	72.5	72.3	73.5	74.7	74.5	75.9	77.4	78.5	77.9	72.7	68.2	62.6	54.0	57.0	55.6	66.6	79.9	83.3	84.0	84.8	82.3	80.3	82.0	73.45	84.77
2-Dec	80.8	83.1	80.6	82.3	81.2	78.3	74.4	74.9	76.0	75.4	71.9	62.2	61.6	63.5	63.7	64.0	63.6	67.8	72.0	73.8	74.6	73.2	72.2	70.0	72.54	83.09
3-Dec	63.1	60.0	62.6	63.1	62.6	67.2	70.9	69.2	65.2	66.3	52.7	48.8	48.4	45.4	44.2	43.5	53.1	62.3	75.5	78.5	80.3	83.5	83.1	84.1	63.90	84.14
4-Dec	84.4	85.2	83.7	83.7	84.2	84.4	85.4	85.9	85.6	85.4	75.2	62.8	67.4	66.2	67.8	68.7	74.7	83.8	88.1	88.0	87.0	86.4	84.8	83.7	80.52	88.06
5-Dec	82.5	81.2	81.4	80.2	79.7	78.6	79.3	78.8	78.5	79.5	80.2	82.6	81.1	77.3	68.5	74.2	79.1	81.0	77.3	74.1	78.9	81.6	82.7	81.7	79.16	82.71
6-Dec	82.3	82.8	83.2	87.5	89.1	88.2	87.3	86.9	86.6	85.8	83.7	79.4	78.9	80.5	82.2	83.2	85.7	87.2	88.0	89.4	89.9	90.1	90.4	90.1	85.76	90.42
7-Dec	90.1	90.9	91.5	91.5	90.3	89.5	89.3	88.0	88.2	88.2	86.7	79.2	66.1	56.6	61.8	63.2	79.0	89.6	91.4	91.2	90.2	90.1	89.4	89.6	84.23	91.51
8-Dec	88.8	89.0	89.4	89.8	90.2	84.0	79.3	81.1	82.5	84.8	81.7	68.2	70.7	61.8	56.1	60.0	66.3	73.5	74.1	70.5	66.4	63.1	63.6	53.6	74.53	90.25
9-Dec	69.6	70.4	78.6	72.7	79.5	75.2	68.3	66.1	57.9	53.6	50.3	50.2	52.9	54.6	47.2	43.4	39.5	37.6	39.4	42.8	40.3	43.2	40.3	43.8	54.89	79.48
10-Dec	45.2	55.0	51.1	61.3	62.5	63.2	62.8	54.9	47.7	41.3	42.5	40.1	44.2	48.4	51.3	49.1	46.1	44.5	42.2	42.5	48.8	51.7	50.0	51.4	49.90	63.15
11-Dec	53.9	53.8	53.7	52.1	50.1	48.4	47.1	47.5	45.5	52.7	47.2	37.3	35.0	36.6	39.3	46.0	48.8	52.1	55.2	54.7	55.4	57.1	57.9	58.6	49.42	58.61
12-Dec	64.8	68.5	71.2	72.1	70.5	74.1	80.8	83.1	85.7	88.0	85.8	81.3	69.2	62.3	69.0	66.0	71.0	81.7	87.5	90.3	91.8	91.7	90.9	91.5	78.70	91.76
13-Dec	91.3	90.6	89.2	88.5	89.9	89.9	89.8	89.2	88.6	89.3	89.2	83.8	76.9	66.1	55.7	53.3	60.2	68.6	79.5	84.0	87.5	86.6	85.5	88.2	81.72	91.31
14-Dec	85.7	89.6	90.3	90.2	88.7	88.1	88.4	88.0	88.4	85.9	79.7	70.7	59.2	53.6	45.2	50.3	61.4	73.4	79.8	83.5	84.5	87.3	88.1	87.7	78.65	90.30
15-Dec	87.9	87.6	87.2	87.4	87.4	88.0	88.1	89.4	89.1	88.2	79.3	71.1	63.6	58.6	56.2	58.4	66.9	70.2	71.7	72.7	76.0	78.7	80.5	82.8	77.79	89.42
16-Dec	83.9	83.5	84.7	85.0	85.9	86.9	88.1	88.0	87.3	85.6	78.7	74.1	69.8	68.4	72.8	80.5	82.7	83.6	84.3	83.6	83.6	84.6	84.2	84.6	82.26	88.14
17-Dec	84.2	84.5	85.1	85.3	86.6	87.6	88.0	88.7	89.4	90.0	89.9	89.1	86.5	74.6	67.5	61.3	72.4	80.6	85.3	88.6	88.4	87.1	86.4	85.8	83.87	90.00
18-Dec	85.5	85.3	85.0	85.1	85.3	85.7	84.6	85.1	85.5	85.0	78.5	76.0	63.2	57.3	52.3	51.2	63.5	71.5	74.9	79.9	82.9	84.7	85.7	85.6	77.47	85.74
19-Dec	85.1	84.9	85.7	86.8	88.2	86.6	86.3	84.8	84.7	82.1	75.9	74.6	79.6	78.1	75.5	75.9	76.3	77.6	78.0	79.6	80.8	80.8	82.5	83.8	81.42	88.21
20-Dec	84.3	85.1	87.9	89.4	84.8	86.5	88.7	89.4	89.1	87.9	74.7	64.4	55.4	40.5	41.0	45.1	51.2	55.8	57.3	64.5	70.1	71.6	73.4	75.1	71.38	89.40
21-Dec	75.4	75.8	76.2	75.8	77.4	81.2	83.6	86.0	87.2	87.3	81.9	77.9	76.9	73.1	74.8	78.5	81.9	80.3	76.8	77.3	79.8	81.3	82.5	80.8	79.56	87.34
22-Dec	79.0	79.6	85.4	87.3	89.6	90.0	89.3	81.4	64.6	63.0	63.8	61.7	57.5	54.3	56.1	52.2	58.2	66.2	71.6	76.3	73.0	77.3	79.6	77.6	72.28	89.96
23-Dec	80.0	81.7	81.0	82.1	81.5	82.4	80.5	81.9	80.8	78.9	71.0	59.6	51.9	50.1	50.3	50.1	51.2	54.4	56.1	57.6	61.3	65.5	66.2	64.0	67.51	82.41
24-Dec	60.1	63.4	58.4	61.7	65.5	74.9	68.1	57.7	57.1	57.8	56.4	53.7	56.0	61.1	67.0	75.6	86.1	86.9	87.2	87.8	88.0	84.6	82.8	84.9	70.10	88.00
25-Dec	86.4	84.6	83.8	84.9	85.1	84.6	84.5	84.1	84.4	84.9	82.9	82.9	83.0	78.0	78.3	77.5	82.5	86.1	87.4	84.1	83.6	83.8	83.3	79.0	83.32	87.44
26-Dec	82.6	83.3	87.6	88.1	86.1	86.0	83.3	81.7	81.5	81.6	83.4	84.0	77.5	72.5	68.1	67.2	69.0	70.2	73.2	74.5	75.2	74.9	78.0	79.5	78.70	88.11
27-Dec	77.9	74.7	74.1	75.4	79.6	81.0	86.2	87.7	86.5	84.6	76.0	67.8	52.8	50.4	68.4	79.2	85.6	90.6	90.6	90.3	90.0	89.7	89.7	89.3	79.93	90.63
28-Dec	88.9	88.2	87.5	86.7	85.7	85.2	84.5	84.0	83.1	81.9	82.3	81.9	80.9	79.4	79.0	79.1	81.4	82.2	83.3	83.3	80.3	80.5	80.1	77.4	82.78	88.88
29-Dec	78.7	76.1	75.8	77.3	77.1	77.1	77.1	76.2	74.6	73.5	72.5	70.3	69.1	68.4	68.4	68.3	69.7	76.1	79.1	77.6	76.0	75.1	76.1	74.5	74.36	79.07
30-Dec	75.7	76.1	76.9	75.0	75.3	70.9	65.5	56.9	57.3	54.6	55.3	51.1	42.6	37.3	38.2	43.2	41.2	42.2	42.3	40.6	41.8	40.0	49.0	65.7	54.78	76.91
31-Dec	78.4	80.4	68.5	46.2	41.9	38.0	37.9	34.5	32.5	35.2	34.8	33.4	32.6	33.7	34.6	38.2	41.3	44.9	45.8	48.3	51.8	54.0	56.2	55.3	45.77	80.37
78.34 78.95 79.02 78.96 79.23 79.23 78.82 77.69 76.44 76.01 72.14 67.36 63.65 60.09 59.92 61.36 66.32 71.05 73.49 74.64 75.57 76.19 76.63 76.83																								Diurnal Average		
91.31 90.89 91.51 91.46 90.31 89.96 89.78 89.42 89.45 90.00 89.93 89.14 86.52 80.49 82.20 83.23 86.07 90.63 91.43 91.19 91.76 91.67 90.95 91.45																								Diurnal Maximum		



WCAS - Breton
Summary of Hourly Standard Deviations

Wind Speed (WS) - kph
December 2014

Maximum Value: 7.03 kph on Dec 10 11:00		Maximum Daily Average: 3.15 kph on Dec 11		Hours in Service: 744																							
Minimum Value: 0.0 kph on Dec 13 11:00		Minimum Daily Average: 1.00 kph on Dec 14		Hours of Data: 744																							
Maximum Diurnal Average: 2.30 kph at hour 13		Minimum Diurnal Average: 1.52 kph at hour 5		Hours of Missing Data: 0																							
Monthly Average: 1.924 kph		Percentiles: P ₁ = 0.0 P ₁₀ = 0.9 Q ₁ = 1.3 Median = 1.7 Q ₃ = 2.5 P ₉₀ = 3.3 P ₉₉ = 5.0		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1.2	1.0	1.4	1.7	1.6	0.0	1.3	0.9	0.9	1.2	1.5	1.1	0.0	1.2	0.6	1.1	0.4	1.1	1.1	1.0	1.7	2.4	0.0	1.8	1.11	2.42	
2-Dec	1.2	0.5	0.3	1.0	1.7	1.3	2.3	2.2	1.6	2.5	1.7	2.7	2.6	1.8	1.8	2.2	1.5	1.1	1.2	1.4	1.7	1.6	2.1	2.7	1.70	2.70	
3-Dec	3.9	2.4	1.5	1.8	1.1	0.8	1.0	1.1	1.0	0.8	1.1	2.3	2.1	1.3	1.7	2.2	1.6	1.4	1.4	1.2	1.5	1.4	1.4	1.0	1.55	3.92	
4-Dec	1.8	0.9	0.4	1.0	0.0	2.6	1.4	1.2	1.3	1.6	1.0	0.9	2.3	1.2	1.2	1.4	0.9	1.2	0.1	1.8	1.0	1.8	1.5	1.2	1.23	2.60	
5-Dec	1.5	1.2	0.9	1.2	0.8	1.2	1.3	1.2	0.8	1.0	1.4	0.8	0.6	1.0	2.1	2.5	2.2	2.5	2.8	3.4	3.5	3.6	2.3	2.4	1.76	3.64	
6-Dec	2.7	1.7	1.7	1.5	1.4	2.8	2.1	2.2	1.9	1.4	1.6	1.5	3.5	2.8	2.2	1.3	2.3	1.1	1.5	1.9	2.0	2.9	1.3	1.1	1.93	3.51	
7-Dec	1.1	1.4	1.6	1.5	0.0	1.6	1.4	1.6	1.2	0.1	0.0	0.4	1.5	1.5	1.6	0.5	0.3	0.1	1.0	1.0	1.4	1.4	1.5	1.2	1.04	1.64	
8-Dec	1.1	0.9	1.5	1.7	2.3	2.5	2.2	1.7	2.1	1.7	2.1	3.6	1.9	2.8	1.8	1.3	1.2	1.8	1.8	1.6	1.8	1.2	1.9	2.5	1.87	3.62	
9-Dec	1.1	1.6	1.9	2.0	1.5	1.8	1.5	1.5	2.0	2.6	2.9	2.4	2.6	2.6	3.8	5.0	4.2	5.0	3.9	3.6	3.9	2.7	2.6	1.9	2.70	5.00	
10-Dec	1.6	2.5	1.3	1.3	1.5	1.9	2.4	1.9	1.6	2.5	7.0	4.3	4.9	5.3	3.3	3.3	4.2	3.7	3.3	3.2	2.8	3.1	3.8	4.1	3.12	7.03	
11-Dec	3.0	4.4	1.6	2.0	3.7	2.5	4.7	3.8	4.1	2.8	3.6	3.3	2.4	3.0	2.7	1.4	3.4	2.6	3.1	3.5	3.9	4.2	3.1	2.9	3.15	4.66	
12-Dec	2.4	3.2	3.8	2.7	2.0	1.4	1.3	1.9	2.5	2.1	1.8	1.9	2.1	1.5	2.6	2.2	1.9	1.5	1.7	0.0	1.7	1.0	0.9	0.2	1.84	3.77	
13-Dec	0.4	1.7	2.7	2.7	1.7	1.2	0.9	1.8	1.1	1.7	0.0	2.0	1.8	1.5	2.2	1.7	0.9	2.4	0.7	0.0	0.6	0.8	1.4	1.6	1.40	2.75	
14-Dec	1.4	1.0	0.5	1.3	1.4	0.7	0.8	0.0	1.1	1.4	1.1	1.3	2.0	1.9	0.0	0.0	0.9	0.0	1.5	1.1	0.9	1.0	1.6	1.1	1.00	2.02	
15-Dec	1.1	1.1	0.8	1.0	0.7	0.7	1.0	1.8	1.1	1.7	2.0	4.3	4.6	4.5	4.0	3.2	2.8	3.8	3.7	4.7	3.9	3.3	2.4	2.0	2.50	4.66	
16-Dec	3.2	3.6	2.2	2.3	2.4	2.0	2.2	1.6	1.5	2.0	2.6	2.4	3.7	5.0	3.6	3.8	3.5	4.5	3.7	5.4	3.2	2.7	3.4	3.6	3.08	5.35	
17-Dec	2.1	2.9	3.2	2.8	2.0	2.6	1.9	2.0	1.7	2.2	2.5	2.0	2.2	1.6	1.8	1.2	1.0	1.0	1.6	1.4	0.7	0.8	1.0	1.1	1.80	3.24	
18-Dec	0.7	1.0	1.1	1.0	0.8	1.9	0.0	1.6	1.5	1.2	1.4	1.5	1.6	0.0	0.0	0.0	1.7	1.4	1.4	1.4	1.0	0.9	0.9	1.3	1.06	1.92	
19-Dec	1.4	1.6	1.1	1.5	1.9	1.7	1.6	1.9	1.6	1.6	1.9	2.7	1.9	1.6	1.6	1.7	2.5	1.2	1.5	1.1	1.5	2.0	1.4	1.6	1.66	2.67	
20-Dec	1.2	0.8	1.5	2.1	1.4	1.4	1.9	1.6	1.2	1.1	1.6	1.3	1.4	1.2	1.7	1.9	2.1	2.1	1.7	1.7	2.4	2.0	2.5	1.9	1.66	2.54	
21-Dec	2.3	2.3	2.4	3.2	2.1	2.2	3.4	2.9	2.4	1.7	1.6	1.0	2.7	1.4	3.6	2.8	3.1	3.2	4.0	3.9	2.1	1.5	1.4	1.3	2.43	4.04	
22-Dec	1.2	1.4	1.1	0.5	0.0	1.2	0.8	2.7	1.0	1.0	1.3	1.0	3.3	2.7	3.6	2.4	2.4	1.2	1.5	1.4	1.6	0.9	1.3	0.0	1.49	3.60	
23-Dec	1.5	1.1	1.2	1.0	1.5	1.9	1.6	0.9	1.5	1.6	2.0	1.4	2.1	2.7	2.0	1.9	2.0	1.4	2.9	3.3	2.5	2.3	1.5	2.5	1.84	3.34	
24-Dec	1.3	1.7	2.0	2.0	1.8	1.3	2.5	1.6	1.3	2.1	2.7	2.3	3.2	3.9	4.1	3.4	2.2	2.6	2.3	2.0	2.5	3.7	2.9	2.0	2.39	4.14	
25-Dec	2.2	1.5	3.0	1.3	1.7	1.6	1.5	1.8	2.0	1.5	2.8	1.7	1.9	1.8	2.5	1.9	2.0	0.9	1.7	2.9	3.7	2.0	3.8	2.7	2.10	3.85	
26-Dec	1.6	1.5	0.9	1.3	1.0	0.7	0.0	0.0	1.4	0.8	0.9	1.4	1.6	1.2	1.2	1.4	1.4	1.7	0.8	1.3	1.4	0.5	0.0	1.3	1.07	1.70	
27-Dec	1.5	1.4	1.4	1.0	1.8	0.8	0.8	0.8	1.2	1.3	1.5	0.6	0.6	4.8	2.0	1.9	3.7	2.9	2.9	2.7	2.1	1.6	1.9	1.7	1.78	4.77	
28-Dec	1.9	2.2	1.9	1.8	1.6	1.5	2.7	1.6	1.9	2.0	1.5	1.8	1.6	2.2	2.0	2.0	1.9	1.7	1.4	3.1	2.7	5.6	3.5	3.8	2.25	5.61	
29-Dec	2.9	2.9	2.8	3.8	2.4	2.4	2.2	2.8	2.8	2.7	2.7	2.8	2.9	1.7	2.4	2.6	1.2	1.0	1.6	1.0	1.3	1.5	1.3	1.1	2.19	3.77	
30-Dec	1.1	1.1	2.7	2.4	1.3	2.5	2.3	2.5	2.2	1.9	1.3	2.7	3.8	3.5	2.5	2.5	2.6	2.3	2.1	1.9	1.4	5.1	6.3	4.2	2.59	6.29	
31-Dec	3.3	2.4	1.7	2.0	1.7	2.2	2.3	2.3	3.2	3.0	2.9	2.5	2.0	2.0	1.9	2.1	1.7	2.8	2.2	2.3	2.6	2.0	2.6	2.9	2.36	3.27	
		1.77	1.77	1.67	1.76	1.52	1.64	1.72	1.72	1.70	1.70	1.93	2.00	2.30	2.30	2.20	2.03	2.06	1.97	2.01	2.13	2.10	2.17	2.05	1.96	Diurnal Average	
		3.92	4.38	3.77	3.77	3.71	2.80	4.66	3.75	4.05	3.01	7.03	4.26	4.89	5.26	4.14	4.96	4.23	5.00	4.04	5.35	3.94	5.61	6.29	4.23	Diurnal Maximum	
,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m ³ 24-hr 100 ul/m ³																											



WCAS - Breton
Summary of Hourly Standard Deviations

Wind Direction (WD) - deg
December 2014

Maximum Value: 103.92 deg on Dec 9 01:00		Maximum Daily Average: 57.46 deg on Dec 12		Hours in Service: 744																							
Minimum Value: 6.5 deg on Dec 27 15:00		Minimum Daily Average: 12.76 deg on Dec 28		Hours of Data: 744																							
Maximum Diurnal Average: 32.70 deg at hour 12		Minimum Diurnal Average: 19.75 deg at hour 15		Hours of Missing Data: 0																							
Monthly Average: 27.053 deg		Percentiles: P ₁ = 8.6 P ₁₀ = 10.7 Q ₁ = 12.8 Median = 17.9 Q ₃ = 32.4 P ₉₀ = 63.0 P ₉₉ = 92.6		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	8.5	7.3	16.6	22.1	10.6	32.5	62.2	58.2	60.3	17.0	51.9	49.1	79.2	13.7	23.6	20.6	38.5	16.2	12.0	13.7	9.8	79.4	57.9	41.1	33.41	79.36	
2-Dec	53.6	61.7	58.8	92.7	65.9	12.8	12.4	10.7	19.3	63.1	52.5	19.4	16.8	14.2	13.2	16.1	25.5	32.2	28.3	23.9	19.9	23.8	19.7	17.7	32.25	92.65	
3-Dec	13.4	27.3	13.9	27.5	15.7	12.7	13.3	15.1	16.7	15.0	16.2	27.5	25.3	15.7	24.4	35.4	27.5	11.1	13.9	9.4	16.6	21.3	20.2	10.7	18.57	35.36	
4-Dec	66.2	67.5	50.7	75.7	51.2	84.7	48.1	37.6	22.1	31.2	38.0	58.9	47.8	14.9	17.0	40.4	67.6	31.4	45.3	48.6	69.2	20.5	25.2	44.61	84.68		
5-Dec	38.8	37.3	35.1	24.5	29.1	34.9	23.0	25.9	16.9	14.7	17.8	14.7	12.8	13.6	19.2	14.1	14.6	13.9	15.2	11.3	15.9	13.1	9.6	13.3	19.98	38.83	
6-Dec	29.8	26.3	37.4	32.9	20.0	27.8	17.8	27.5	29.6	16.5	25.5	32.7	30.8	14.3	16.9	18.5	12.5	17.4	9.9	19.2	12.9	45.6	19.4	26.1	23.63	45.58	
7-Dec	39.5	21.4	28.4	34.6	38.6	21.1	29.0	28.2	44.7	87.4	74.7	63.7	56.8	34.7	21.7	63.3	54.3	42.4	72.2	26.9	19.2	25.2	18.0	10.9	39.86	87.40	
8-Dec	10.2	11.5	19.0	17.9	12.2	11.2	15.2	16.4	54.4	21.6	11.8	27.0	9.4	33.0	29.4	14.4	13.1	11.7	11.3	13.8	19.3	11.0	91.0	36.9	21.78	91.00	
9-Dec	103.9	100.3	58.3	81.7	34.8	15.7	10.9	12.3	14.6	16.1	24.9	20.4	15.5	36.1	38.2	23.8	18.7	15.4	15.4	13.9	19.0	28.2	43.6	89.0	35.44	103.92	
10-Dec	96.5	90.2	16.0	9.2	14.7	14.5	23.6	13.9	19.0	22.3	21.0	11.6	12.8	11.1	15.8	11.8	13.2	11.9	11.2	12.0	9.6	13.6	13.9	16.5	21.08	96.49	
11-Dec	13.6	18.3	28.9	19.8	21.7	31.9	57.7	18.4	21.7	69.5	21.0	21.4	34.9	28.0	22.9	34.0	17.7	20.1	20.4	24.7	22.2	21.5	24.3	24.6	26.63	69.53	
12-Dec	23.3	16.4	52.0	54.6	32.0	24.6	14.2	74.5	21.6	39.8	63.2	82.9	64.5	56.3	19.0	73.2	43.5	87.0	84.9	95.7	94.1	78.6	91.7	91.4	57.46	95.69	
13-Dec	90.4	78.8	18.3	68.8	53.0	75.2	74.9	84.4	9.4	87.3	24.7	46.4	9.1	10.4	9.2	9.4	10.7	14.8	53.4	37.2	93.8	70.2	96.6	62.6	49.54	96.56	
14-Dec	41.9	51.5	95.8	58.8	51.8	37.0	53.4	44.1	46.3	40.3	34.2	70.3	15.4	88.0	50.1	19.5	45.4	37.7	26.5	9.6	9.1	8.8	10.2	9.9	39.82	95.79	
15-Dec	11.2	10.1	8.6	9.9	11.1	10.7	11.9	13.5	11.2	15.3	16.4	19.1	11.5	11.1	12.5	12.3	13.2	11.6	10.5	11.1	9.8	20.2	22.4	11.2	12.77	22.45	
16-Dec	17.0	11.5	11.4	12.6	14.5	60.8	44.2	23.4	18.0	53.2	92.4	22.7	19.9	17.6	10.9	11.4	11.3	12.0	11.5	10.7	11.1	12.7	13.2	12.7	22.37	92.43	
17-Dec	13.7	15.2	14.0	12.9	17.5	16.9	24.6	26.6	22.0	30.9	33.0	23.2	31.1	17.3	16.2	28.9	18.2	12.8	19.2	12.5	9.0	13.2	15.5	9.9	18.93	32.96	
18-Dec	9.0	9.4	14.9	13.8	11.2	45.6	34.6	21.1	27.5	13.2	15.4	20.4	36.0	67.5	49.7	81.4	12.5	14.9	13.1	12.9	11.6	8.6	18.0	13.2	23.97	81.44	
19-Dec	9.7	13.1	10.2	13.3	17.0	14.5	31.4	29.5	15.5	12.9	16.8	69.6	8.5	12.9	16.4	20.6	76.2	85.3	92.2	63.8	52.3	90.9	49.8	25.1	35.31	92.17	
20-Dec	25.2	42.3	42.0	22.0	70.6	17.4	19.6	18.5	17.8	16.2	13.6	12.0	13.7	12.5	16.4	19.0	11.7	11.7	11.9	15.4	12.5	10.9	14.0	12.4	19.99	70.64	
21-Dec	10.8	12.2	13.8	59.6	93.8	20.5	30.7	23.5	8.9	10.6	24.6	40.1	47.0	23.5	13.1	12.4	14.1	12.4	10.9	13.0	14.9	15.4	14.6	10.5	22.95	93.80	
22-Dec	15.6	47.7	12.2	24.1	22.6	26.7	59.7	42.5	11.4	13.5	23.0	16.7	18.7	14.9	15.2	13.0	19.6	39.4	69.2	81.1	65.3	65.0	21.9	22.6	31.73	81.11	
23-Dec	29.0	25.5	17.2	20.3	9.4	16.5	10.1	9.0	18.9	12.7	17.2	12.7	21.2	16.3	16.2	13.0	12.4	12.5	56.7	65.3	75.5	93.2	46.1	89.7	29.87	93.21	
24-Dec	61.3	24.0	76.2	45.8	83.2	44.6	39.5	20.6	11.4	15.3	10.9	9.4	10.4	12.3	10.7	10.0	9.7	13.5	9.6	14.9	9.1	10.9	10.2	20.6	24.35	83.18	
25-Dec	9.8	7.1	27.0	14.3	25.9	35.1	15.3	29.2	10.2	14.9	19.7	14.3	20.6	21.3	38.2	12.6	49.5	26.2	25.4	13.6	17.2	12.6	11.9	11.6	20.14	49.52	
26-Dec	25.4	16.4	73.7	38.8	25.3	80.6	45.5	25.2	14.5	10.6	15.3	64.4	46.9	18.3	12.1	13.8	10.2	33.2	27.8	30.9	18.2	30.6	24.3	14.1	29.84	80.60	
27-Dec	23.3	23.5	25.1	22.0	17.0	35.9	13.8	10.4	18.4	15.5	44.5	87.8	20.5	48.1	6.5	6.7	19.8	13.4	13.5	11.8	22.7	15.8	11.0	21.9	22.88	87.81	
28-Dec	12.7	15.2	14.0	13.7	13.4	10.0	12.5	10.3	13.0	13.5	11.2	12.9	11.6	11.2	13.4	13.1	12.8	11.7	10.6	13.5	10.2	14.8	18.3	12.8	12.76	18.28	
29-Dec	15.0	14.8	15.6	14.1	12.4	14.9	14.1	9.9	13.2	11.4	11.6	11.7	14.9	18.9	15.3	28.7	20.3	34.8	15.5	11.2	9.4	18.9	10.7	11.5	15.36	34.76	
30-Dec	9.9	8.8	41.3	18.3	11.4	20.9	21.3	17.8	13.4	15.3	23.8	18.1	19.0	16.0	11.8	10.5	10.5	11.3	10.6	10.9	11.8	12.2	11.6	12.1	15.35	41.33	
31-Dec	11.4	16.9	12.4	10.6	11.9	26.7	28.8	12.7	13.4	11.5	13.5	12.7	11.3	13.2	17.1	24.6	38.3	14.8	13.6	13.5	10.4	15.0	18.0	12.8	16.04	38.34	
		30.31	29.98	30.93	31.82	29.66	30.16	29.46	26.16	21.13	26.72	28.40	32.70	25.61	23.77	19.75	22.48	23.75	24.86	26.70	24.60	25.19	31.30	28.00	25.83	Diurnal Average	
		103.92	100.31	95.79	92.65	93.80	84.68	74.89	84.41	60.34	87.40	92.43	87.81	79.19	88.01	50.12	81.44	76.17	86.96	92.17	95.69	94.11	93.21	96.56	91.44	Diurnal Maximum	
		,Alberta Ambient Air Quality Objectives (AAAQO): 1-hr --- ul/m^3 24-hr 100 ul/m^3																									

**BRETON
BIO-MONITORING STATION**

PASSIVE MONITORING DATA

2014

Breton Agricultural Plot - Passive Monitoring - Summer 2014 - SO2 concentration in ppb.

Sampling period	Concentration			
	Sample #1	Sample #2	Average	Standard deviation
05/23/2014 - 08/05/2014	0.4	0.3	0.4	0.07
08/05/2014 - 09/01/2014	0.3	Missing	0.3	
09/01/2014 - 09/30/2014	0.9	Missing	0.9	

Breton Agricultural Plot - Passive Monitoring - Summer 2014 - NO2 concentration in ppb.

Sampling period	Concentration			
	Sample #1	Sample #2	Average	Standard deviation
05/23/2014 - 08/05/2014	0.6	0.5	0.6	0.07
08/05/2014 - 09/01/2014	1.1	Missing	1.1	
09/01/2014 - 09/30/2014	0.7	Missing	0.7	

Breton Agricultural Plot - Passive Monitoring - Summer 2014 - O3 concentration in ppb.

Sampling period	Concentration			
	Sample #1	Sample #2	Average	Standard deviation
05/23/2014 - 08/05/2014	22.4	23.3	22.9	0.64
08/05/2014 - 09/01/2014	17.7	Missing	17.7	
09/01/2014 - 09/30/2014	21.0	Missing	21.0	

WEST CENTRAL AIRSHED SOCIETY

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

**END OF REPORT
DECEMBER 2014**