

**Capital Power  
Continuous Ambient Air Quality  
Monitoring Program  
Annual Summary for 2016**

**Prepared by:**

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



February 21<sup>st</sup>, 2017

Capital Power  
Mr. Kevin Parry  
Box 20, Site 2, RR 1  
Warburg, AB  
T0C 2T0

Dear Mr. Parry:

**Re: Annual Ambient Air Quality Monitoring Report January – December 2016.  
For Capital Power**

The West Central Airshed Society (WCAS) presents the 2016 Annual Report containing ambient air quality and meteorological information from the following site:

Network Station is                      AMS 910                      Genesee  
Identified as:

WCAS data collection and validation began March 1, 2004. The following is a list of the reported ambient air and meteorological parameters measured at the site location:

**AMS 910 (Genesee)**

SO<sub>2</sub>, NO/ NO<sub>2</sub>/ NO<sub>x</sub>, Particulate Matter (2.5 microns), Wind Speed and Direction, Relative Humidity, External Temperature (10m and 2m), Delta Temperature, (2m – 10m), Global Solar Radiation.

**Exceedences of the Alberta Air Quality Objectives (AAAQO):**

There was one (1) exceedance of the 1-hour AAAQG for PM<sub>2.5</sub> recorded in 2016. This exceedance was believed to be associated with a forest fire event.

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

Sincerely,

Patrick Andersen  
Interim Executive Director

**Summary Report**

Continuous air quality/meteorological monitoring measurements

**West Central Airshed Society**

Capital Power / Genesee Station 910													January to December 2016		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	Percentile					Exceedences		24 Hour Average Maximum (ppm)
								P10	Q1	Median	Q3	P90	1-hour	24-hour	
SO <sub>2</sub> (ppb)	426	8314	99.5	0.9	-	0.0	36.6	0.0	0.0	0.2	0.7	1.9	0	0	0.009
O <sub>3</sub> (ppb)	427	8319	99.6	19.7	-	0.0	64.9	6.1	11.6	18.4	25.8	35.3	0	-	0.051
NO (ppb)	437	8307	99.5	0.9	-	0.0	42.8	0.0	0.0	0.1	0.6	1.9	-	-	-
NO <sub>2</sub> (ppb)	437	8307	99.5	4.2	-	0.3	31.4	1.3	2.0	3.1	5.2	8.6	0	0	0.018
NO <sub>x</sub> (ppb)	437	8307	99.5	5.0	-	0.0	64.5	1.4	2.0	3.3	5.8	10.3	-	-	-
Particulate Matter 2.5 microns (µ/m <sup>3</sup> )	24	8703	99.4	3.4	-	0.0	95.0	0.0	0.9	2.3	4.4	7.3	1	0	24.87 ug/m <sup>3</sup>
Wind Speed (kph)	0	8737	99.5	11.7	-	0.0	53.0	3.9	6.8	10.5	14.9	20.9	-	-	-
Temperature - 2m (°C)	0	8747	99.6	5.6	-	-26.5	29.8	-8.1	-1.3	5.8	13.7	19.3	-	-	-
Temperature - 10m (°C)	0	8747	99.6	5.5	-	-26.5	28.7	-7.8	-1.3	6.1	13.7	18.7	-	-	-
Delta Temperature (°C)	0	8747	99.6	-0.1	-	-3.6	7.0	-1.5	-0.9	-0.3	0.7	1.8	-	-	-
Relative Humidity (%)	0	8745	99.6	69.2	-	13.3	95.9	40.0	55.3	73.5	86.3	91.7	-	-	-
Global Solar Radiation (W/m <sup>2</sup> )	0	8747	99.6	142.2	-	0.0	981.5	0.0	0.0	6.9	209.8	517.6	-	-	-
Std Dev Wind Direction (deg)	0	8737	99.5	18.7	-	2.4	102.0	6.9	9.4	13.0	21.3	39.3	-	-	-
Std Dev Wind Speed (kph)	0	8737	99.5	2.9	-	0	19.7	1.3	1.8	2.5	3.6	5.0	-	-	-

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2016  
 SO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range					
								<=0.02	>0.02-0.06	>0.06-0.11	>0.11-0.17	>0.17-0.34	>0.34
January	707	0.3	2.0	12.4	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	661	0.2	2.3	16.5	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	707	0.7	4.1	23.6	100.0	0	0	99.58	0.42	0.00	0.00	0.00	0.00
April	677	1.1	5.2	28.0	98.9	0	0	99.70	0.30	0.00	0.00	0.00	0.00
May	706	1.1	3.9	35.0	99.7	0	0	99.86	0.14	0.00	0.00	0.00	0.00
June	684	1.7	8.7	33.4	99.7	0	0	98.98	1.02	0.00	0.00	0.00	0.00
July	709	1.1	3.8	25.1	100.0	0	0	99.58	0.42	0.00	0.00	0.00	0.00
August	703	1.6	7.3	36.6	100.0	0	0	98.29	1.71	0.00	0.00	0.00	0.00
September	684	1.0	5.7	35.2	100.0	0	0	99.42	0.58	0.00	0.00	0.00	0.00
October	709	0.8	3.0	30.2	100.0	0	0	99.72	0.28	0.00	0.00	0.00	0.00
November	658	0.8	8.9	25.9	95.8	0	0	99.39	0.61	0.00	0.00	0.00	0.00
December	709	0.5	2.3	4.0	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8314	0.9	8.9	36.6	99.5	0	0	99.54	0.46	0.00	0.00	0.00	0.00

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2016  
 NO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range			
								<=0.05	>0.05-0.11	>0.11-0.21	>0.21
January	706	7.3	18.2	27.5	100.0	0	0	100.00	0	0	0
February	660	3.9	8.0	25.6	99.7	0	0	100.00	0	0	0
March	707	4.1	8.2	20.9	100.0	0	0	100.00	0	0	0
April	681	4.4	10.3	28.3	99.6	0	0	100.00	0	0	0
May	704	4.2	8.5	31.4	99.6	0	0	100.00	0	0	0
June	683	3.9	8.4	19.6	99.7	0	0	100.00	0	0	0
July	708	2.7	4.7	13.6	100.0	0	0	100.00	0	0	0
August	702	3.0	5.6	18.6	100.0	0	0	100.00	0	0	0
September	684	3.3	6.3	16.8	100.0	0	0	100.00	0	0	0
October	707	3.8	7.7	18.5	100.0	0	0	100.00	0	0	0
November	657	4.9	8.6	17.3	95.8	0	0	100.00	0	0	0
December	708	5.3	10.6	21.7	100.0	0	0	100.00	0	0	0
Annual	8307	4.2	18.2	31.4	99.5	0	0	100.00	0	0	0

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2016  
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	707	12.7	24.7	36.5	100.0	0
February	661	20.9	30.9	44.6	99.7	0
March	708	20.1	30.5	45.3	100.0	0
April	682	29.3	44.0	59.3	99.6	0
May	706	28.9	50.5	63.1	99.7	0
June	684	29.1	46.1	64.9	99.9	0
July	709	20.8	28.9	50.4	100.0	0
August	702	18.5	28.5	44.2	100.0	0
September	684	16.0	24.1	36.6	100.0	0
October	709	10.9	22.4	36.8	100.0	0
November	658	13.5	26.2	35.5	95.8	0
December	709	15.7	23.1	27.3	100.0	0
Annual	8319	19.7	50.5	64.9	99.6	0

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2016  
 PM<sub>2.5</sub> (µg/m<sup>3</sup>)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	744	5.5	24.9	44.3	100.0	0	0
February	694	2.2	5.3	19.9	99.7	0	0
March	738	2.6	8.8	18.7	100.0	0	0
April	708	3.3	9.4	20.3	98.9	0	0
May	740	7.1	23.8	95.0	99.7	0	1
June	715	3.3	8.6	21.5	99.9	0	0
July	737	3.3	7.7	16.8	99.1	0	0
August	733	2.6	4.7	10.8	99.3	0	0
September	718	2.0	5.2	30.3	100.0	0	0
October	744	2.6	5.3	12.4	100.0	0	0
November	690	3.1	7.0	19.7	95.8	0	0
December	742	2.7	7.3	18.5	99.7	0	0
Annual	8703	3.4	24.9	95.0	99.4	0	1

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2016  
 Percentage Frequency Distribution of Wind

Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
N	0.69	1.87	1.14	0.12	0.02	0.00	3.83
NNE	0.73	1.15	0.78	0.01	0.00	0.00	2.67
NE	1.05	1.16	0.57	0.08	0.00	0.00	2.86
ENE	1.52	2.36	0.63	0.05	0.00	0.00	4.55
E	1.35	3.86	1.15	0.15	0.00	0.00	6.50
ESE	1.49	2.92	2.88	0.29	0.00	0.00	7.57
SE	1.23	2.47	1.59	0.26	0.01	0.00	5.56
SSE	1.00	1.73	1.22	0.69	0.30	0.02	4.96
S	1.09	0.84	0.41	0.07	0.05	0.00	2.45
SSW	1.23	1.21	0.34	0.08	0.01	0.00	2.87
SW	1.70	3.72	1.64	0.36	0.01	0.00	7.42
WSW	0.99	5.77	5.76	0.30	0.00	0.00	12.82
W	0.81	3.53	4.07	0.84	0.09	0.00	9.34
WNW	0.41	2.78	4.65	2.07	0.53	0.08	10.51
NW	0.48	2.29	3.15	2.79	1.60	0.49	10.79
NNW	0.55	1.86	1.90	0.74	0.21	0.01	5.27
Totals	16.30	39.51	31.86	8.89	2.85	0.60	100.00

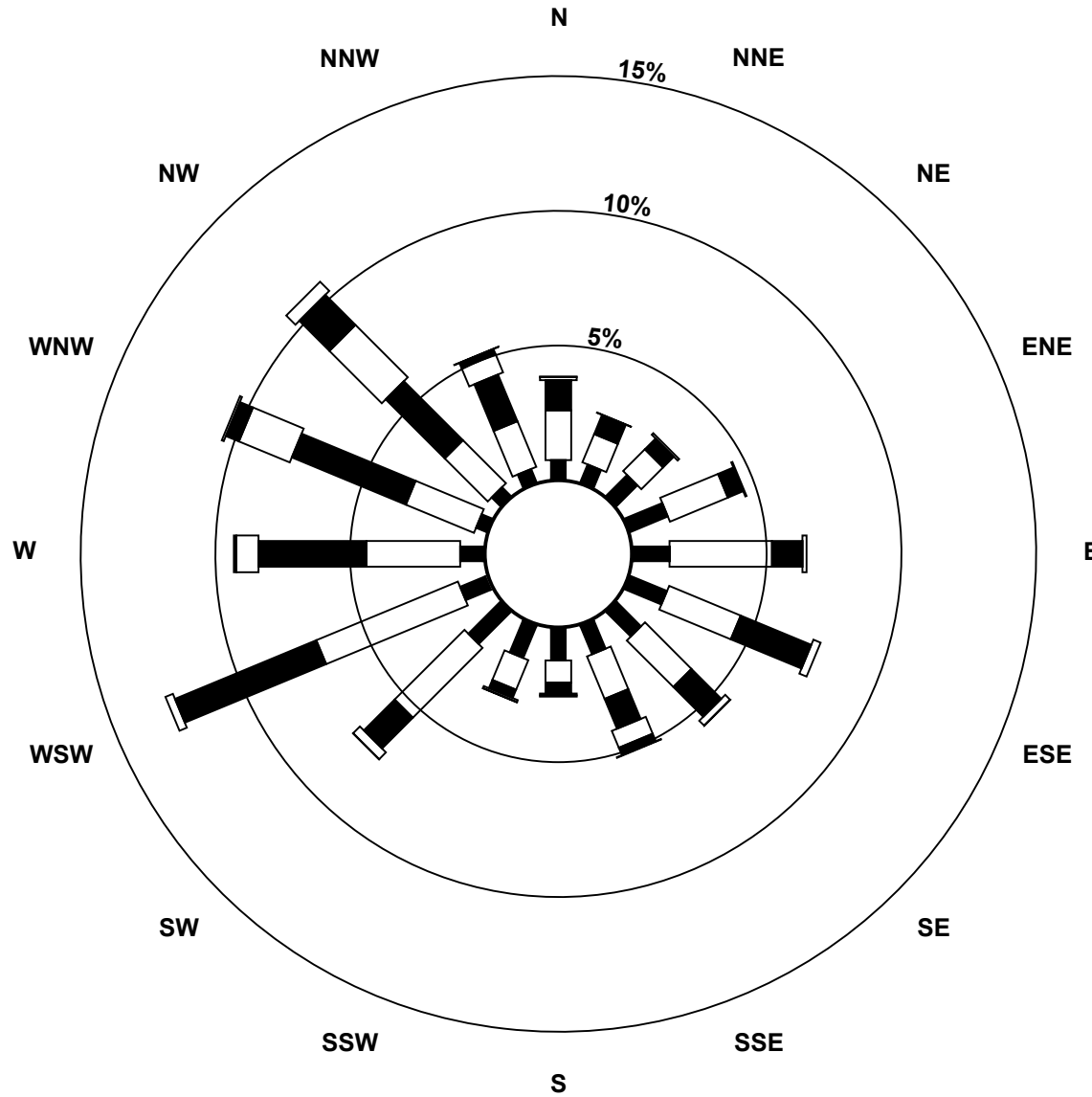
Number of Data Values		8609
Hours in Time Period		8784



**WCAS - Genesee  
Wind Speed Rose**



**Wind Speed (WS) - kph  
2016**



**Wind Frequency (kph)**

