

**Capital Power  
Continuous Ambient Air Quality  
Monitoring Program  
Annual Summary for 2011**

**Prepared by:**

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



January 31<sup>st</sup>, 2012

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 2011.  
For Capital Power**

The West Central Airshed Society (WCAS) presents the 2011 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, and Precipitation.

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

Sincerely,

Patrick Andersen  
Environmental Specialist

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2011  
 Percentage Frequency Distribution of Wind

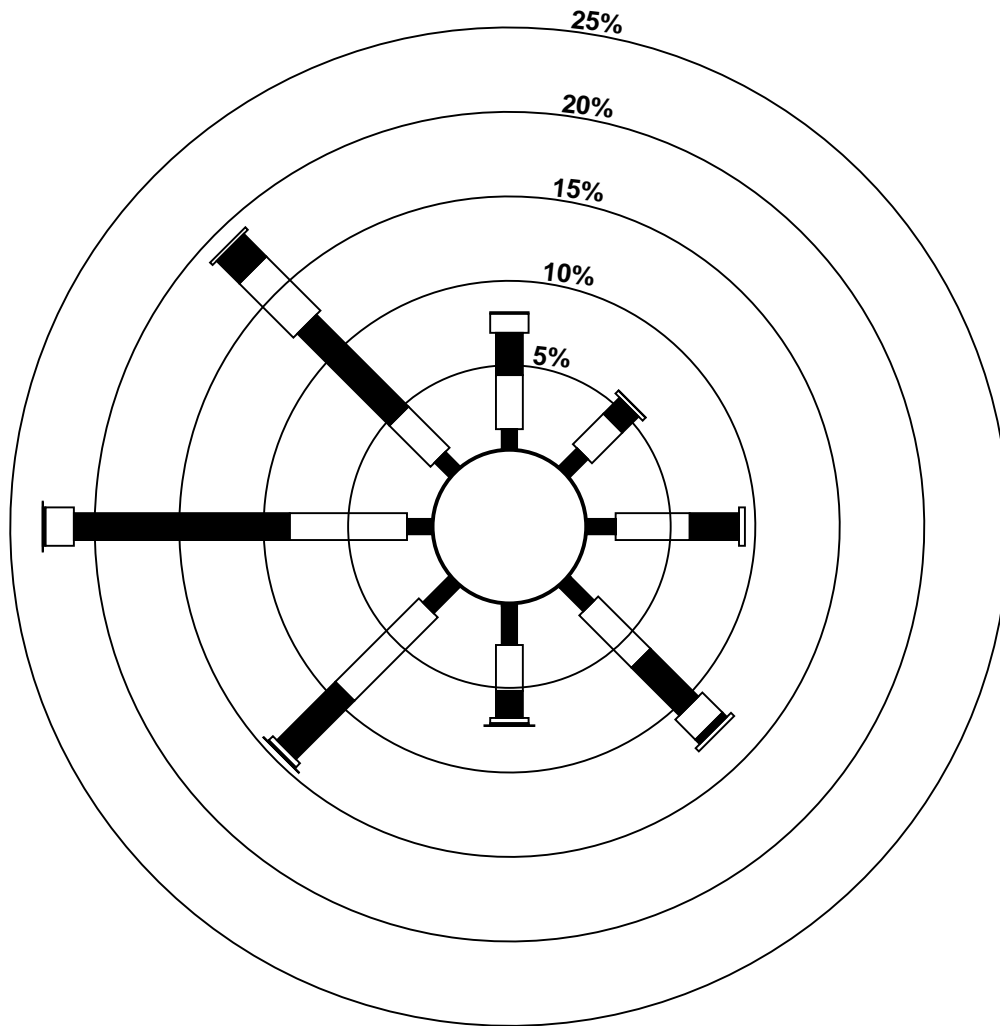
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
North	1.18	3.20	2.50	1.14	0.08	-	8.15
NorthEast	1.51	2.55	1.35	0.25	0.01	-	5.73
East	1.69	4.39	2.91	0.35	-	-	9.39
SouthEast	1.98	4.38	4.00	1.68	0.37	0.27	12.79
South	2.33	2.72	1.60	0.31	0.13	0.03	7.24
SouthWest	2.22	6.98	4.89	0.34	0.08	0.03	14.58
West	1.47	6.94	12.78	1.69	0.15	0.01	23.08
NorthWest	1.23	3.44	7.70	4.53	1.90	0.21	19.04
Totals	13.61	34.59	37.73	10.30	2.71	0.56	99.50

Percent Calm	0.50
Number of Data Values	8751
Hours in Time Period	8760

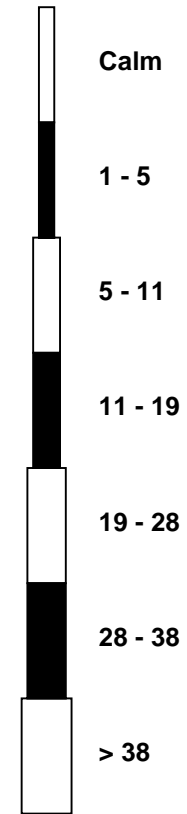
WCAS - Genesee  
Wind Speed Rose



Wind Speed (WS) - kph  
January 2011



Wind Frequency (kph)



West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2011  
 SO2 (ppb)

Month	Number of Data	Operational Time (%)	Mean	Maximum 1-Hour Value	Number 1-Hour Violations	Maximum 24-Hour Value	Number 24-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	708	100.0	0.615	9.945	0	1.508	0	100.0	-	-	-	-	-
February	640	100.0	0.700	15.310	0	3.967	0	100.0	-	-	-	-	-
March	709	100.0	0.970	15.164	0	4.011	0	100.0	-	-	-	-	-
April	685	100.0	0.667	16.135	0	2.187	0	100.0	-	-	-	-	-
May	709	100.0	0.605	31.568	0	3.635	0	99.9	0.1	-	-	-	-
June	685	100.0	0.752	22.694	0	2.781	0	99.6	0.4	-	-	-	-
July	697	98.9	0.718	29.403	0	5.802	0	99.7	0.3	-	-	-	-
August	707	99.7	0.980	27.081	0	3.400	0	99.7	0.3	-	-	-	-
September	686	100.0	0.753	22.056	0	3.086	0	99.9	0.2	-	-	-	-
October	708	100.0	0.714	23.953	0	3.028	0	99.6	0.4	-	-	-	-
November	687	100.0	0.358	18.396	0	2.144	0	100.0	-	-	-	-	-
December	709	100.0	0.436	8.965	0	1.896	0	100.0	-	-	-	-	-
Annual	8330	99.9	0.689	31.568	0	5.802	0	99.9	0.1	-	-	-	-

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2011  
 O3 (ppb)

Month	Number of Data	Operational Time (%)	Mean	Maximum 1-Hour Value	Number 1-Hour Violations	Maximum 24-Hour Value
January	709	100.0	24.7	45.2	0	36.0
February	640	100.0	27.4	48.4	0	37.8
March	709	100.0	33.5	55.9	0	47.9
April	686	100.0	39.8	62.2	0	49.7
May	709	100.0	36.7	69.8	0	47.5
June	684	100.0	30.0	61.4	0	44.2
July	698	98.9	22.6	60.5	0	37.7
August	707	99.7	22.7	53.5	0	32.6
September	685	100.0	20.8	59.0	0	38.4
October	659	93.2	23.4	45.6	0	33.3
November	687	100.0	22.7	41.4	0	33.6
December	709	100.0	25.3	40.4	0	34.4
Annual	8282	99.3	27.5	69.8	0	49.7

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2011  
 NO2 (ppb)

Month	Number of Data	Operational Time (%)	Mean	Maximum 1-Hour Value	Number 1-Hour Violations	Maximum 24-Hour Value	Number 24-Hour Violations	Percent of Data in each Concentration Range			
								<=0.05	>0.05-0.11	>0.11-0.21	>0.21
January	706	100.0	4.411	27.594	0	15.998	0	100.0	-	-	-
February	640	100.0	3.751	23.772	0	8.915	0	100.0	-	-	-
March	708	100.0	5.035	28.772	0	18.664	0	100.0	-	-	-
April	684	100.0	2.111	31.027	0	5.135	0	100.0	-	-	-
May	708	100.0	2.330	24.023	0	4.508	0	100.0	-	-	-
June	684	100.0	2.482	19.448	0	4.848	0	100.0	-	-	-
July	696	98.9	1.446	16.714	0	4.857	0	100.0	-	-	-
August	706	99.7	1.427	17.277	0	3.111	0	100.0	-	-	-
September	685	100.0	1.536	17.142	0	3.753	0	100.0	-	-	-
October	707	100.0	2.582	18.326	0	5.769	0	100.0	-	-	-
November	686	100.0	3.000	27.912	0	15.069	0	100.0	-	-	-
December	709	100.0	3.476	21.169	0	9.592	0	100.0	-	-	-
Annual	8319	99.9	2.799	31.027	0	18.664	0	100.0	-	-	-

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2011  
 PM2.5 ( $\mu\text{g}/\text{m}^3$ )

Month	Number of Data	Operational Time (%)	Mean	Maximum 1-Hour Value	Number 1-Hour Violations	Maximum 24-Hour Value	Number 24-Hour Violations
January	737	99.1	2.3	23.9	0	8.7	0
February	640	95.2	2.9	12.9	0	8.6	0
March	738	99.7	5.6	18.1	0	11.9	0
April	716	99.6	2.7	12.0	0	6.7	0
May	744	100.0	5.8	113.9	4	38.0	1
June	708	99.0	4.8	57.7	0	25.7	0
July	710	96.1	2.8	65.8	0	9.0	0
August	736	98.9	3.4	15.7	0	7.7	0
September	715	99.9	3.8	27.6	0	9.6	0
October	735	98.8	2.7	19.8	0	6.9	0
November	716	99.4	3.5	26.6	0	13.6	0
December	739	99.9	2.0	16.7	0	5.8	0
Annual	8634	98.8	3.5	113.9	4	38.0	1



**Summary Report**

*Continuous air quality/meteorological monitoring measurements*

**West Central Airshed Society**

**Capital Power / Genesee  
Station 910**

**January to December 2011**

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	Percentile				
								P10	Q1	Median	Q3	P90
SO <sub>2</sub> (ppb)	420	8330	99.9	0.7	-	0.0	31.6	0.5	0.7	1.1	1.5	2.1
O <sub>3</sub> (ppb)	417	8282	99.3	27.5	-	0.0	69.8	5.4	14.2	21.9	27.6	30.8
NO (ppb)	431	8319	99.9	0.7	-	0.0	42.7	0.6	0.7	0.9	1.6	4.3
NO <sub>2</sub> (ppb)	431	8319	99.9	2.8	-	0.0	31.0	2.5	3.8	5.6	9.9	14.4
NO <sub>x</sub> (ppb)	431	8319	99.9	3.5	-	0.0	68.3	3.5	4.9	7.0	12.1	18.4
Particulate Matter 2.5 microns (μ/m <sup>3</sup> )	23	8634	98.8	3.5	-	0.0	113.9	0.4	1.6	3.2	5.8	11.0
Wind Speed (kph)	0	8751	99.9	12.5	-	0.0	49.4	4.0	6.4	10.4	14.3	18.5
Temperature - 2m (°C)	0	8751	99.9	3.9	-	-33.9	30.0	-17.8	-14.7	-8.9	-3.7	-1.0
Temperature - 10m (°C)	0	8751	99.9	3.7	-	-33.3	28.7	-18.1	-15.1	-10.2	-4.8	-2.1
Delta Temperature (°C)	0	8751	99.9	-0.1	-	-3.6	5.6	-2.3	-1.5	-0.6	-0.1	0.2
Relative Humidity (%)	0	8751	99.9	66.9	-	14.2	96.1	60.9	67.4	77.1	83.7	87.7
Global Solar Radiation (W/m <sup>2</sup> )	0	8751	99.9	148.7	-	0.0	971.6	0.0	0.0	0.0	36.8	131.2
Precipitation (mm)	0	8751	99.9	-	395.5	0.0	25.6	0.0	0.0	0.0	0.0	0.0
Std Dev Wind Direction (deg)	0	8751	99.9	17.2	-	2.0	98.3	5.4	7.5	10.9	17.1	32.9
Std Dev Wind Speed (kph)	0	8751	99.9	2.9	-	0.0	16.0	1.0	1.4	2.0	2.8	4.0