

**Capital Power  
Continuous Ambient Air Quality  
Monitoring Program  
Annual Summary for 2015**

**Prepared by:**

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



February 12<sup>th</sup>, 2016

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 2015.  
For Capital Power**

The West Central Airshed Society (WCAS) presents the 2015 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 were twenty-eight (28) of the 1-hour and two (2) exceedences of the 24-hour AAAQG for PM<sub>2.5</sub> recorded in 2015. These exceedences were associated with forest fire events during that period.

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

Sincerely,

Patrick Andersen  
Environmental Specialist

**Summary Report**

Continuous air quality/meteorological monitoring measurements

**West Central Airshed Society**

Capital Power / Genesee Station 910														January to December 2015		
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)	420	8307	99.6	0.6	-	0.0	35.1	0.0	0.0	0.0	0.3	1.4	0	0	0.006	
O <sub>3</sub> (ppb)	419	8311	99.7	22.6	-	0.0	77.3	8.8	14.8	21.7	29.4	37.4	0	-	0.049	
NO (ppb)	433	8294	99.6	0.6	-	0.0	50.9	0.0	0.0	0.1	0.5	1.6	-	-	-	
NO <sub>2</sub> (ppb)	433	8294	99.6	3.5	-	0.0	27.3	0.5	1.2	2.6	4.7	7.9	0	0	0.013	
NO <sub>x</sub> (ppb)	433	8294	99.6	4.1	-	0.0	55.8	0.5	1.2	2.7	5.1	9.4	-	-	-	
Particulate Matter 2.5 microns (µ/m <sup>3</sup> )	17	8685	99.3	3.8	-	0.0	201.3	0.0	0.7	2.3	4.6	7.9	28	2	19.28 ug/m <sup>3</sup>	
Wind Speed (kph)	0	8730	99.7	11.7	-	0.0	50.5	4.2	6.9	10.7	15.2	20.5	-	-	-	
Temperature - 2m (°C)	0	8730	99.7	5.5	-	-30.9	34.3	-11.2	-1.3	5.8	13.8	20.1	-	-	-	
Temperature - 10m (°C)	0	8730	99.7	5.5	-	-30.0	32.3	-11.2	-0.8	5.9	13.8	19.4	-	-	-	
Delta Temperature (°C)	0	8730	99.7	0.0	-	-3.8	5.2	-1.6	-0.9	-0.2	1.0	2.0	-	-	-	
Relative Humidity (%)	0	8730	99.7	65.8	-	13.5	95.4	36.0	51.4	68.9	82.4	89.9	-	-	-	
Global Solar Radiation (W/m <sup>2</sup> )	0	8730	99.7	150.0	-	0.0	971.7	0.0	0.0	7.3	238.2	531.8	-	-	-	
Std Dev Wind Direction (deg)	0	8730	99.7	18.6	-	1.9	102.7	6.8	9.2	13.1	21.5	38.2	-	-	-	
Std Dev Wind Speed (kph)	0	8730	99.7	2.9	-	0	19.5	1.3	1.7	2.6	3.8	5.0	-	-	-	

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2015  
 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	709	0.4	1.9	7.5	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	640	0.5	1.4	7.5	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.7	3.5	17.6	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	675	0.8	5.7	30.9	98.3	0	0	99.56	0.44	0.00	0.00	0.00	0.00
May	709	0.3	2.3	22.2	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
June	683	1.0	4.4	34.7	99.7	0	0	99.56	0.44	0.00	0.00	0.00	0.00
July	709	0.9	3.4	20.7	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
August	702	0.8	3.3	18.1	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.6	3.8	29.9	100.0	0	0	99.71	0.29	0.00	0.00	0.00	0.00
October	709	0.8	3.5	35.1	100.0	0	0	99.29	0.71	0.00	0.00	0.00	0.00
November	670	0.2	1.1	7.1	97.8	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.2	1.3	8.7	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8307	0.6	5.7	35.1	99.6	0	0	99.82	0.18	0.00	0.00	0.00	0.00

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2015  
 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	707	5.5	13.4	24.9	100.0	0	0	100.00	0	0	0
February	639	3.7	9.3	17.9	100.0	0	0	100.00	0	0	0
March	707	2.9	6.1	19.6	100.0	0	0	100.00	0	0	0
April	673	2.1	5.0	19.2	98.3	0	0	100.00	0	0	0
May	708	1.8	4.2	15.4	100.0	0	0	100.00	0	0	0
June	683	4.3	8.0	23.8	99.7	0	0	100.00	0	0	0
July	707	3.3	5.7	15.2	100.0	0	0	100.00	0	0	0
August	702	2.8	6.7	20.3	99.6	0	0	100.00	0	0	0
September	685	2.4	6.1	17.6	100.0	0	0	100.00	0	0	0
October	707	4.1	8.6	27.3	100.0	0	0	100.00	0	0	0
November	669	3.5	7.8	16.1	97.8	0	0	100.00	0	0	0
December	707	5.9	12.8	26.5	100.0	0	0	100.00	0	0	0
Annual	8294	3.5	13.4	27.3	99.6	0	0	100.00	0	0	0

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2015  
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	709	19.1	32.9	39.1	100.0	0
February	640	22.1	32.0	38.6	100.0	0
March	708	30.1	39.2	48.7	100.0	0
April	675	30.0	40.2	53.9	98.3	0
May	709	36.2	48.8	62.3	100.0	0
June	683	24.4	40.9	58.1	99.7	0
July	709	19.3	38.9	77.3	100.0	0
August	707	21.4	31.0	56.1	100.0	0
September	685	18.3	27.6	42.9	100.0	0
October	708	19.4	30.8	38.7	100.0	0
November	670	17.6	25.3	30.8	97.8	0
December	708	13.4	27.4	33.0	100.0	0
Annual	8311	22.6	48.8	77.3	99.7	0

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2015  
 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	2.8	6.9	23.3	100.0	0	0
February	672	3.6	14.7	38.6	100.0	0	0
March	744	2.1	5.7	10.4	100.0	0	0
April	707	2.2	4.4	10.3	98.3	0	0
May	744	6.0	25.3	201.3	100.0	0	2
June	690	5.3	25.4	49.4	96.7	0	0
July	744	9.1	119.3	182.9	100.0	2	26
August	744	4.6	19.6	36.7	100.0	0	0
September	709	1.4	3.1	9.3	99.2	0	0
October	744	2.4	6.0	11.1	100.0	0	0
November	704	2.4	4.9	37.2	97.8	0	0
December	739	3.9	10.1	27.5	100.0	0	0
Annual	8685	3.8	119.3	201.3	99.3	2	28

West Central Airshed Society - Genesee (AMS 910)  
 Annual Summary for 2015  
 Percentage Frequency Distribution of Wind

Direction	Speed (kph)						Totals
	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	
N	0.67	1.60	1.03	0.55	0.03	0.00	3.89
NNE	0.78	1.09	0.66	0.32	0.03	0.00	2.89
NE	0.79	1.14	0.60	0.08	0.00	0.00	2.61
ENE	1.04	1.79	0.61	0.10	0.00	0.00	3.55
E	1.24	2.75	1.30	0.12	0.00	0.00	5.41
ESE	0.78	3.16	1.50	0.32	0.02	0.00	5.78
SE	0.94	2.08	1.88	0.99	0.08	0.00	5.96
SSE	0.91	1.31	1.18	0.84	0.19	0.00	4.42
S	1.10	1.16	0.61	0.16	0.00	0.00	3.04
SSW	1.28	1.67	0.61	0.03	0.00	0.00	3.60
SW	1.66	3.98	2.11	0.30	0.02	0.00	8.08
WSW	1.51	7.04	7.02	0.38	0.00	0.00	15.95
W	0.71	3.53	4.54	0.43	0.02	0.01	9.24
WNW	0.81	2.37	5.00	1.18	0.38	0.10	9.85
NW	0.66	2.01	3.10	2.18	1.29	0.22	9.46
NNW	0.53	2.24	2.05	1.25	0.19	0.01	6.28
Totals	15.41	38.91	33.82	9.25	2.26	0.35	100.00

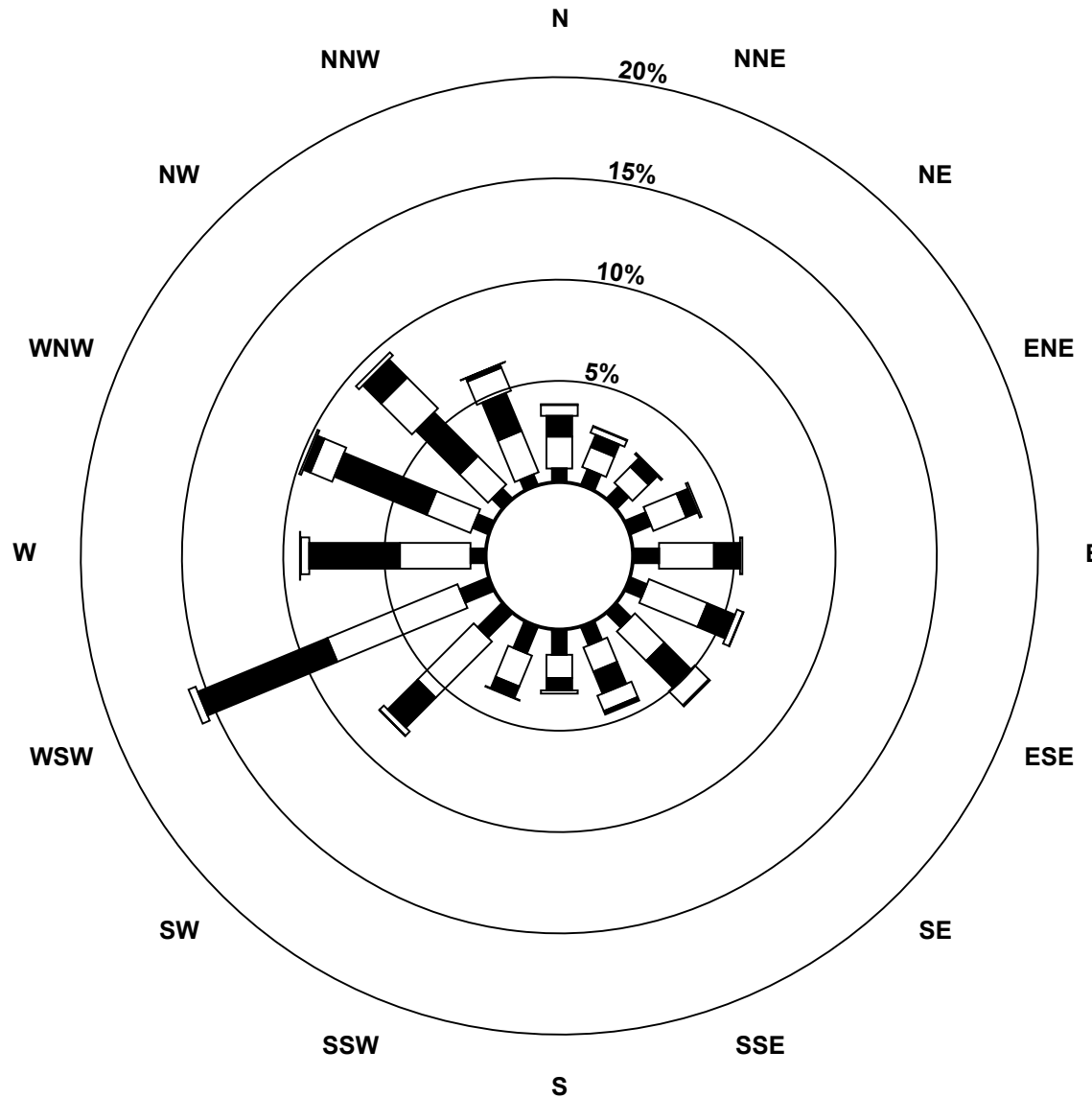
Number of Data Values		8618
Hours in Time Period		8760



WCAS - Genesee  
Wind Speed Rose



Wind Speed (WS) - kph  
2015



Wind Frequency (kph)

