

**Capital Power
Continuous Ambient Air Quality
Monitoring Program
Annual Summary for 2012**

Prepared by:

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



January 14th, 2013

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 2012.
For Capital Power**

The West Central Airshed Society (WCAS) presents the 2012 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)

SO₂, NO/ NO₂/ NO_x, 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.

Exceedences of the Alberta Air Quality Objectives (AAAQO):

Forest fires in the month of July triggered twelve (12) 1-hour and two (2) twenty-four hour readings in excess of the AAAQO for PM_{2.5} at the Genesee station.

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 2012
 Percentage Frequency Distribution of Wind

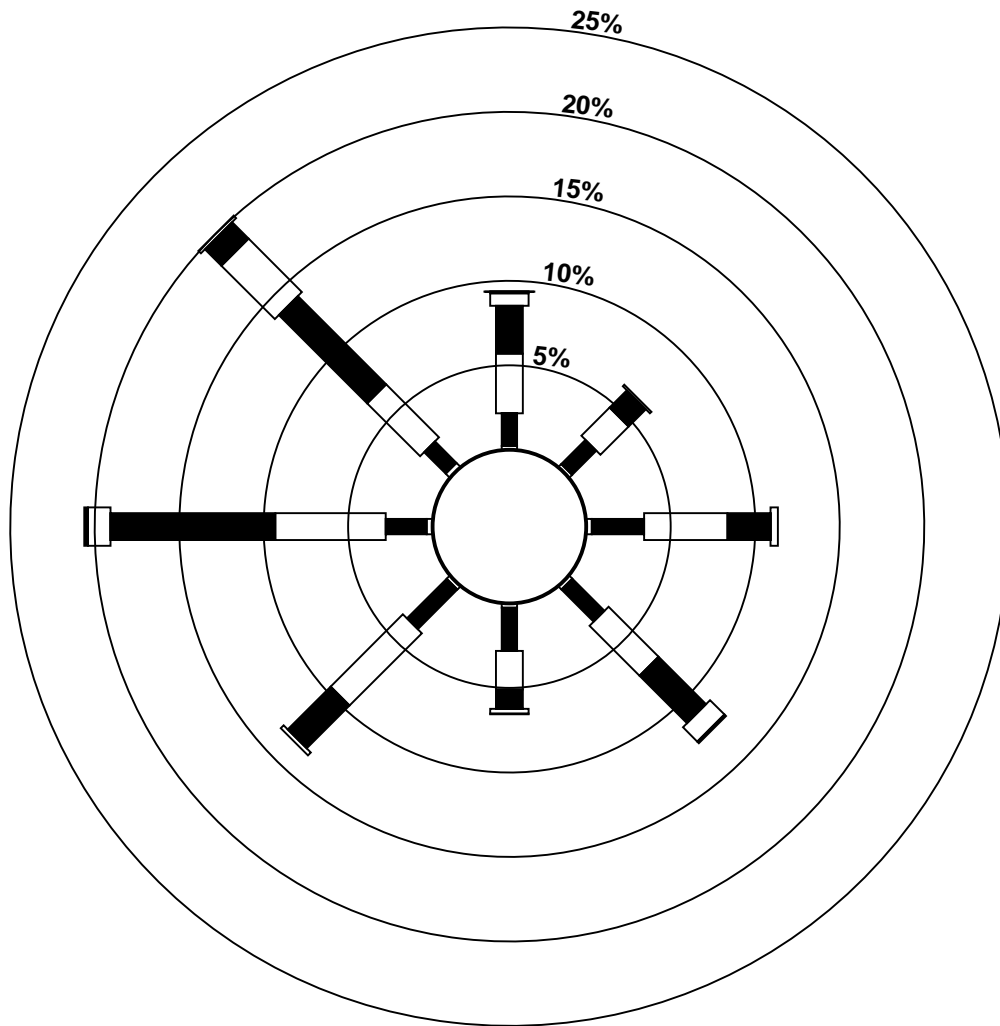
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
North	1.94	3.53	2.83	0.74	0.09	0.01	9.14
NorthEast	2.03	2.36	1.45	0.13	0.00	0.00	5.97
East	3.09	4.94	2.55	0.43	0.00	0.00	11.01
SouthEast	2.70	4.18	3.98	1.20	0.14	0.00	12.20
South	2.55	2.29	1.14	0.28	0.03	0.00	6.29
SouthWest	3.32	6.05	3.59	0.24	0.00	0.00	13.20
West	2.43	6.53	9.76	1.33	0.22	0.00	20.27
NorthWest	1.80	4.42	7.40	4.47	1.38	0.21	19.68
Totals	19.86	34.30	32.70	8.82	1.86	0.22	97.76

Percent Calm	2.24
Number of Data Values	8774
Hours in Time Period	8784

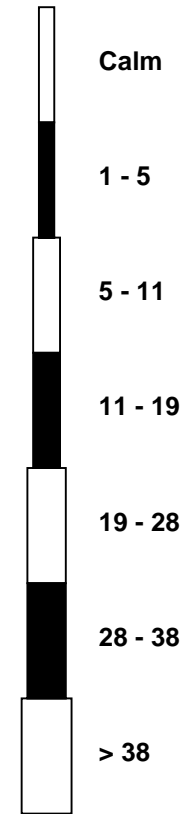
**WCAS - Genesee
Wind Speed Rose**



**Wind Speed (WS) - kph
2012**



Wind Frequency (kph)



West Central Airshed Society - Genesee (AMS 910)
 Annual Summary for 2012
 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	705	0.242	1.230	6.717	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	664	0.531	2.124	17.476	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	706	0.628	3.840	22.243	99.7	0	0	99.43	0.57	0.00	0.00	0.00	0.00
April	686	0.461	2.674	27.680	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
May	710	0.924	4.672	24.991	100.0	0	0	99.72	0.28	0.00	0.00	0.00	0.00
June	681	1.275	3.694	26.393	99.4	0	0	99.71	0.29	0.00	0.00	0.00	0.00
July	707	1.207	6.982	42.372	100.0	0	0	98.59	1.41	0.00	0.00	0.00	0.00
August	707	1.329	7.714	39.908	99.7	0	0	99.43	0.57	0.00	0.00	0.00	0.00
September	683	1.083	5.388	69.017	99.7	0	0	99.27	0.59	0.15	0.00	0.00	0.00
October	709	0.510	3.192	12.960	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.229	1.695	10.978	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.163	0.626	4.121	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8351	0.715	7.714	69.017	99.9	0	0	99.66	0.32	0.01	0.00	0.00	0.00

West Central Airshed Society - Genesee (AMS 910)
 Annual Summary for 2012
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	709	23.1	31.1	37.7	100.0	0
February	664	24.0	31.4	41.9	100.0	0
March	708	33.2	44.9	54.5	100.0	0
April	681	33.9	45.1	59.3	100.0	0
May	710	36.0	46.6	61.8	100.0	0
June	680	29.7	44.7	62.1	99.4	0
July	705	28.5	44.7	80.7	100.0	0
August	706	26.2	43.6	72.1	99.7	0
September	683	25.5	32.8	55.5	99.7	0
October	706	13.4	22.4	39.2	100.0	0
November	684	13.1	22.6	33.1	99.7	0
December	708	12.8	25.9	33.5	100.0	0
Annual	8344	24.9	46.6	80.7	99.9	0

West Central Airshed Society - Genesee (AMS 910)
 Annual Summary for 2012
 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	704	2.831	6.390	13.856	100.0	0	0	100.00	0	0	0
February	663	5.190	17.324	37.338	100.0	0	0	100.00	0	0	0
March	708	3.418	8.382	22.496	100.0	0	0	100.00	0	0	0
April	684	1.832	4.630	21.483	100.0	0	0	100.00	0	0	0
May	709	2.505	6.585	27.780	100.0	0	0	100.00	0	0	0
June	680	2.795	5.804	22.915	99.4	0	0	100.00	0	0	0
July	704	1.603	3.997	22.547	100.0	0	0	100.00	0	0	0
August	706	1.910	6.479	22.479	99.7	0	0	100.00	0	0	0
September	683	3.560	9.363	29.697	99.7	0	0	100.00	0	0	0
October	707	3.116	6.639	17.754	100.0	0	0	100.00	0	0	0
November	684	6.096	18.104	38.881	99.9	0	0	100.00	0	0	0
December	708	9.449	16.687	26.366	100.0	0	0	100.00	0	0	0
Annual	8340	3.688	18.104	38.881	99.9	0	0	100.00	0	0	0

West Central Airshed Society - Genesee (AMS 910)
 Annual Summary for 2012
 PM_{2.5} (µg/m³)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	734	1.9	4.7	21.1	98.7	0	0
February	694	3.2	10.1	27.1	99.7	0	0
March	739	2.6	7.4	14.8	100.0	0	0
April	714	2.7	7.3	13.9	99.2	0	0
May	743	3.6	7.7	18.4	99.9	0	0
June	708	3.1	6.8	16.0	99.2	0	0
July	729	9.0	69.0	164.9	98.9	2	12
August	734	4.9	9.9	24.0	98.7	0	0
September	709	5.2	14.0	35.7	99.2	0	0
October	739	2.8	11.2	37.6	99.3	0	0
November	718	4.5	9.4	21.4	99.7	0	0
December	736	4.3	9.7	23.8	99.9	0	0
Annual	8697	4.0	69.0	164.9	99.35	2	12

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

**Capital Power / Genesee
Station 910**

January to December 2012

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	Percentile				
								P10	Q1	Median	Q3	P90
SO ₂ (ppb)	422	8352	99.9	0.7	-	0.0	69.0	0.5	0.7	1.1	1.5	2.1
O ₃ (ppb)	430	8345	99.9	24.9	-	0.0	80.7	5.4	14.2	21.9	27.6	30.8
NO (ppb)	435	8341	99.9	1.2	-	0.0	92.4	0.6	0.7	0.9	1.6	4.3
NO ₂ (ppb)	435	8341	99.9	3.7	-	0.0	37.3	2.5	3.8	5.6	9.9	14.4
NO _x (ppb)	435	8341	99.9	4.6	-	0.0	120.6	3.5	4.9	7.0	12.1	18.4
Particulate Matter 2.5 microns (μ/m ³)	30	8698	99.4	4.0	-	0.0	164.9	0.4	1.6	3.2	5.8	11.0
Wind Speed (kph)	1	8775	99.9	11.2	-	0.0	42.9	4.0	6.4	10.4	14.3	18.5
Temperature - 2m (°C)	1	8775	99.9	4.1	-	-34.8	32.7	-17.8	-14.7	-8.9	-3.7	-1.0
Temperature - 10m (°C)	1	8775	99.9	4.0	-	-33.7	31.2	-18.1	-15.1	-10.2	-4.8	-2.1
Delta Temperature (°C)	1	8775	99.9	0.0	-	-4.8	6.3	-2.3	-1.5	-0.6	-0.1	0.2
Relative Humidity (%)	1	8775	99.9	68.8	-	15.0	95.6	60.9	67.4	77.1	83.7	87.7
Global Solar Radiation (W/m ²)	1	7523	99.9	144.0	-	0.0	945.2	0.0	0.0	0.0	36.8	131.2
Precipitation (mm)	1	8775	99.9	-	336.2	0.0	16.8	0.0	0.0	0.0	0.0	0.0
Std Dev Wind Direction (deg)	1	8775	99.9	18.0	-	0.1	105.8	5.4	7.5	10.9	17.1	32.9
Std Dev Wind Speed (kph)	1	8775	99.9	2.9	-	0.0	19.2	1.0	1.4	2.0	2.8	4.0