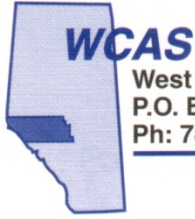




**TransAlta Utilities Corporation
Continuous Ambient Air Quality
Monitoring Program
Annual Summary for 2011**

Prepared by:

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



West Central Airshed Society
P.O. Box 7421, Drayton Valley, Alberta T7A 1S6
Ph: 780-514-3533 • Fax: 780-514-3563 • www.wcas.ca

January 31st, 2012

Attention: Mr. Bryan Wilson
GBS Building
RR#1, Site 4, Box #2
Duffield Alberta
T0E 0N0

Dear Sir:

**Re: Annual Ambient Air Quality Monitoring Report January – December 2011.
For TransAlta Utilities Corporation**

The West Central Airshed Society (WCAS) presents the 2011 Annual Report containing ambient air quality and meteorological information from the following sites:

Network Stations are	AMS 907	Power
Identified as:	AMS 908	Meadows
	AMS 959	Wagner2

The Network Stations 907, 908 were commissioned April 23 and April 26 2004, respectively. Station 959 was commissioned January 2009. WCAS data collection and validation began July 1, 2004. The following is a list of the reported ambient air and meteorological parameters measured at each site location:

AMS 907 (Power)

SO₂, NO/ NO₂/ NO_x, Particulate Matter (2.5 microns), Wind Speed and Direction, Relative Humidity, and External Temperature.

AMS 908 (Meadows)

SO₂, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, and External Temperature.

AMS 959 (Wagner2)

SO₂, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, and External Temperature.

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

Sincerely,

Patrick Andersen
Environmental Specialist

Greg Swain
Senior Technologist

A handwritten signature in black ink, appearing to read "J. McClintock". The signature is fluid and cursive, with the first letter of each word being capitalized and prominent.

Jeff McClintock
Intermediate Technologist

**TransAlta Utilities Corporation
Frequency Distribution Charts
Wind Speed and Direction
Year 2011**

West Central Airshed Society - Power (AMS 907)
 Annual Summary for 2011
 Percentage Frequency Distribution of Wind

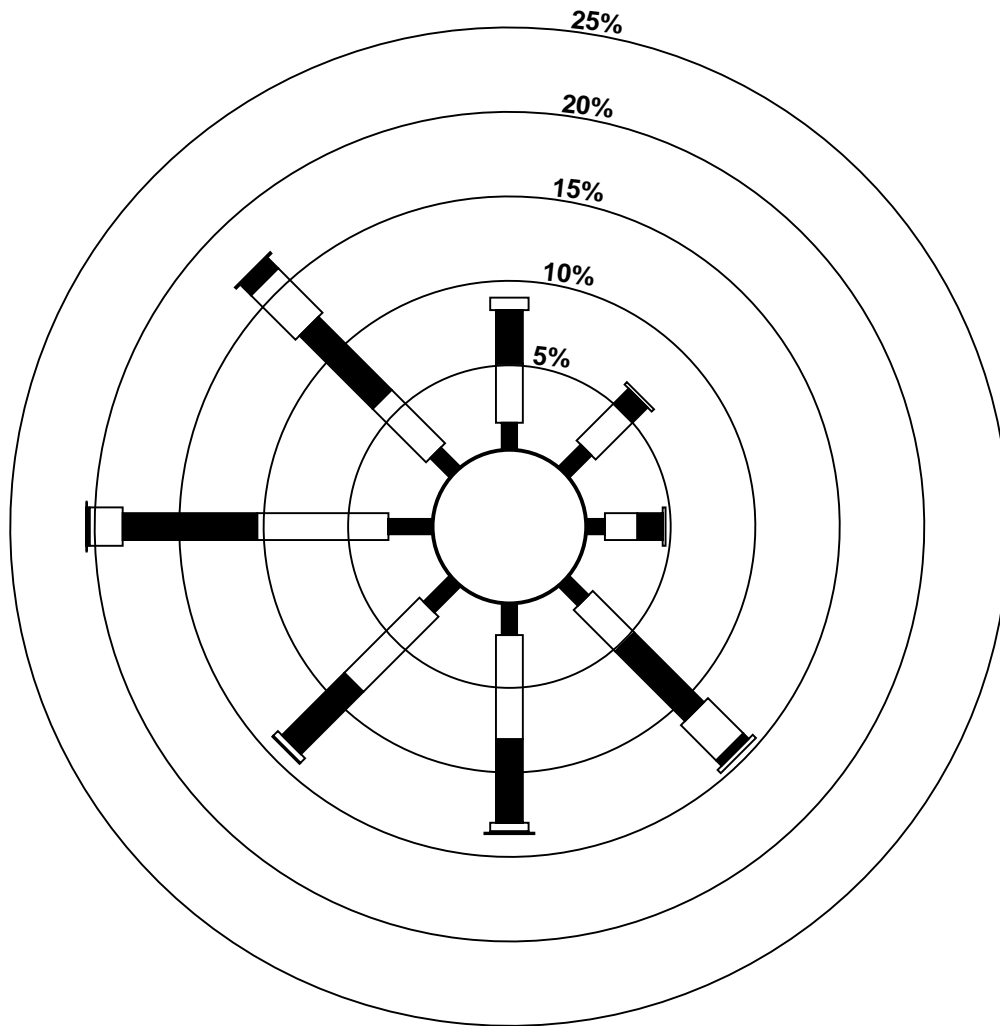
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
North	1.56	3.49	3.18	0.73	-	-	9.01
NorthEast	1.85	3.08	1.27	0.20	-	-	6.42
East	1.08	1.93	1.49	0.17	-	-	4.69
SouthEast	1.60	3.48	5.83	2.95	0.46	0.26	14.61
South	1.87	6.16	4.95	0.50	0.08	0.08	13.65
SouthWest	2.17	6.29	5.22	0.39	0.08	-	14.17
West	2.57	7.77	7.97	1.95	0.17	0.01	20.49
NorthWest	1.61	4.48	6.12	3.72	0.90	0.11	16.96
Totals	14.30	36.67	36.03	10.62	1.69	0.47	99.78

Percent Calm	0.22
Number of Data Values	8713
Hours in Time Period	8760

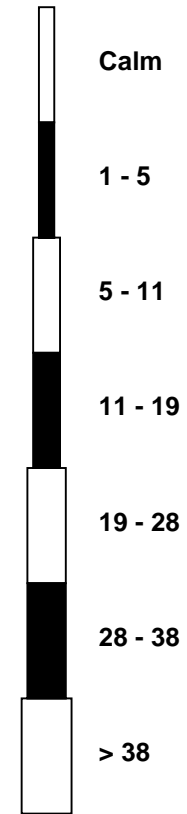
**WCAS - Power
Wind Speed Rose**



**Wind Speed (WS) - kph
January 2011**



Wind Frequency (kph)



West Central Airshed Society - Meadows (AMS 908)
 Annual Summary for 2011
 Percentage Frequency Distribution of Wind

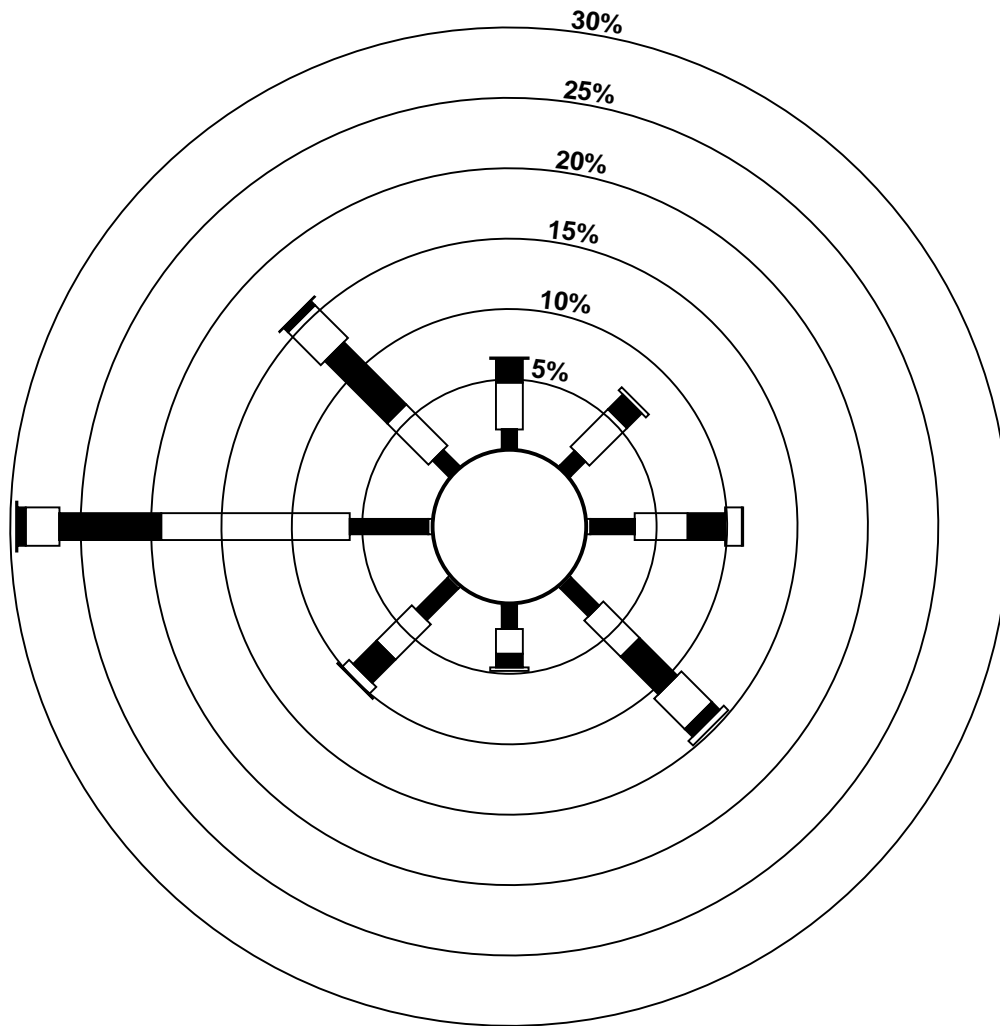
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
North	1.36	3.33	1.68	0.10	-	-	6.57
NorthEast	1.46	3.77	1.49	0.31	-	-	7.19
East	3.14	3.77	2.66	1.19	0.09	-	11.14
SouthEast	2.82	3.65	3.78	3.06	0.78	0.46	14.76
South	1.67	1.76	0.97	0.25	-	-	4.79
SouthWest	3.17	3.56	2.33	0.70	0.02	0.06	10.07
West	5.58	13.40	7.22	2.40	0.59	0.09	29.58
NorthWest	1.65	4.15	6.26	3.31	0.41	0.06	15.91
Totals	20.85	37.38	26.38	11.32	1.90	0.67	98.50

Percent Calm	1.50
Number of Data Values	8681
Hours in Time Period	8760

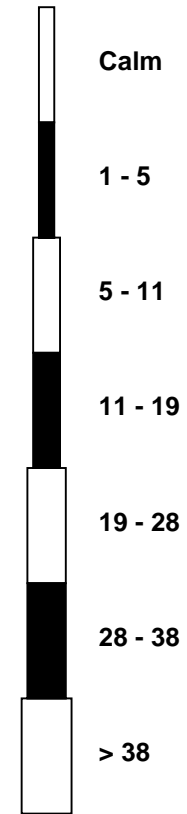
WCAS - Meadows
Wind Speed Rose



Wind Speed (WS) - kph
January 2011



Wind Frequency (kph)



West Central Airshed Society - Wagner2 (AMS 959)
 Annual Summary for 2011
 Percentage Frequency Distribution of Wind

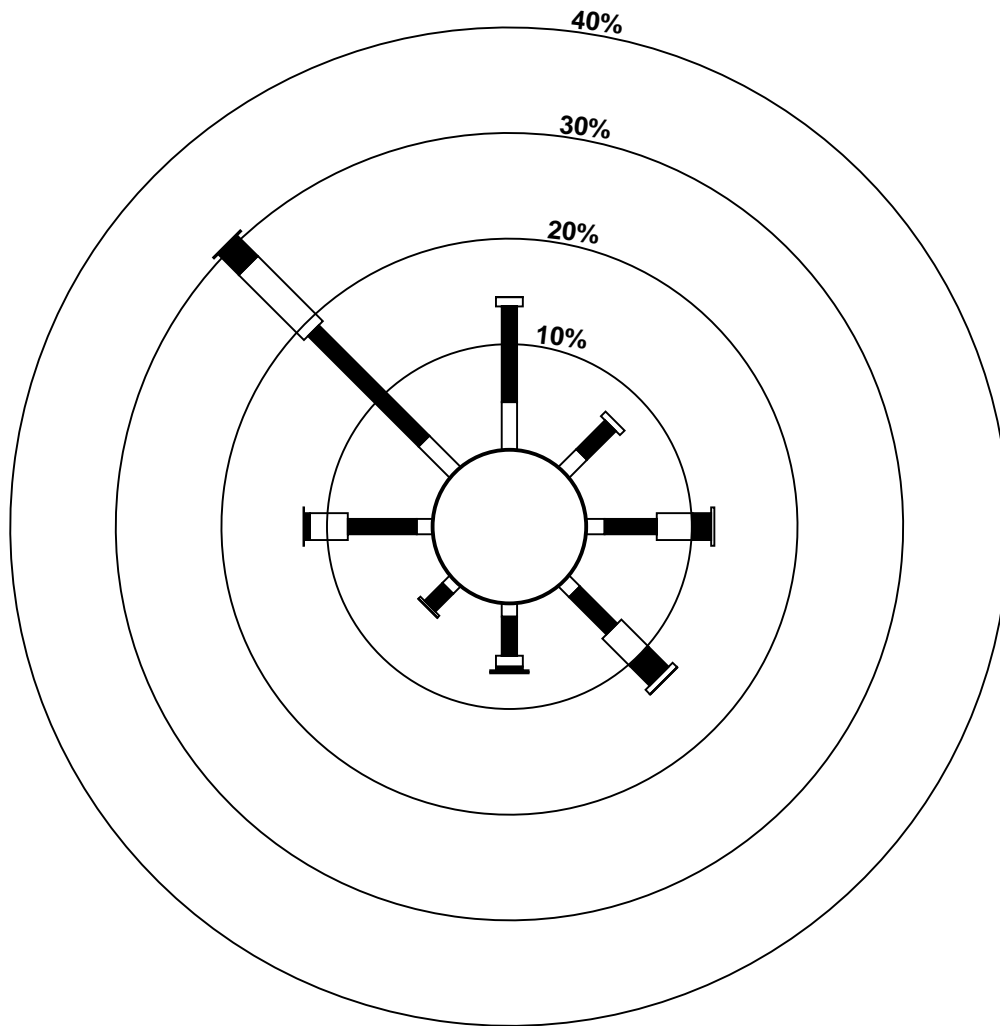
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
North	9.05	0.89	0.01	-	-	-	9.95
NorthEast	3.87	0.62	-	-	-	-	4.49
East	4.94	3.40	1.75	0.30	-	-	10.39
SouthEast	5.01	3.69	2.63	0.59	0.05	-	11.97
South	3.69	1.04	0.34	0.17	0.11	-	5.35
SouthWest	2.39	0.25	0.05	-	-	-	2.69
West	6.53	3.57	0.58	0.03	-	-	10.71
NorthWest	14.81	8.72	2.77	0.13	-	-	26.43
Totals	50.29	22.18	8.13	1.22	0.16	-	81.98

Percent Calm	18.02
Number of Data Values	8743
Hours in Time Period	8760

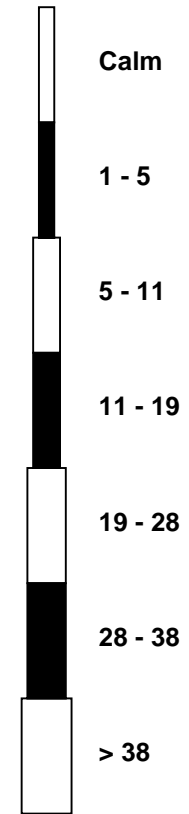
WCAS - Wagner2
Wind Speed Rose



Wind Speed (WS) - kph
January 2011



Wind Frequency (kph)



**TransAlta Utilities Corporation
Frequency Distribution Charts
SO₂ Monthly Averages
Year 2011**

West Central Airshed Society - Power (AMS 907)
 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	709	100.0	0.2	3.360	0	1.161	0	100.0	--	--	--	--	--
February	640	100.0	0.2	5.065	0	1.493	0	100.0	0.0	--	--	--	--
March	708	100.0	0.8	21.855	0	3.364	0	99.9	0.14	--	--	--	--
April	688	100.0	0.1	8.676	0	0.464	0	100.0	--	--	--	--	--
May	704	100.0	0.2	69.871	0	3.655	0	99.9	--	0.14	--	--	--
June	686	100.0	0.4	15.367	0	1.695	0	100.0	--	--	--	--	--
July	706	99.9	0.2	11.149	0	1.692	0	100.0	0.0	--	--	--	--
August	705	99.3	0.4	13.800	0	1.907	0	100.0	0.0	--	--	--	--
September	685	100.0	0.4	18.481	0	2.375	0	100.0	0.0	--	--	--	--
October	671	94.5	0.1	7.878	0	0.678	0	100.0	--	--	--	--	--
November	686	100.0	0.2	14.640	0	1.290	0	100.0	0.0	--	--	--	--
December	708	100.0	0.0	2.678	0	0.466	0	100.0	--	--	--	--	--
Annual	8296	99.5	0.3	69.871	0	3.655	0	100.0	0.0	0.01	--	--	--

West Central Airshed Society - Meadows (AMS 908)
 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	705	99.5	0.5	18.525	0	3.761	0	100.0	-	-	-	-	-
February	637	99.7	0.6	16.331	0	4.000	0	100.0	-	-	-	-	-
March	703	99.2	2.2	18.409	0	7.511	0	100.0	-	-	-	-	-
April	688	100.0	0.6	28.013	0	10.913	0	99.4	0.6	-	-	-	-
May	710	100.0	0.7	29.343	0	4.670	0	99.7	0.3	-	-	-	-
June	686	100.0	0.6	18.572	0	2.255	0	100.0	-	-	-	-	-
July	706	100.0	0.3	14.059	0	2.261	0	100.0	-	-	-	-	-
August	708	100.0	0.3	25.464	0	3.323	0	99.7	0.3	-	-	-	-
September	686	100.0	0.3	11.851	0	2.816	0	100.0	-	-	-	-	-
October	710	100.0	0.5	29.961	0	4.044	0	99.7	0.3	-	-	-	-
November	686	100.0	0.2	7.048	0	2.346	0	100.0	-	-	-	-	-
December	599	85.1	0.1	2.479	0	0.305	0	100.0	-	-	-	-	-
Annual	8224	98.6	0.6	29.961	0	10.913	0	99.9	0.1	-	-	-	-

West Central Airshed Society - Wagner2 (AMS 959)
 Annual Summary for 2011
 SO2 (ppb)

Month	Number of Data	Operational Time (%)	Mean	Maximum 1-Hour Value	Number 1-Hour Violation	Maximum 24-Hour Value	Number 24-Hour Violation	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	100.0	0.06	15.425	0	0.671	0	100.0	-	-	-	-	-
February	639	100.0	0.38	17.499	0	3.391	0	100.0	-	-	-	-	-
March	709	100.0	1.02	28.614	0	4.558	0	99.7	0.3	-	-	-	-
April	687	100.0	0.87	28.835	0	4.757	0	99.6	0.4	-	-	-	-
May	708	99.9	1.25	22.960	0	4.716	0	99.9	0.1	-	-	-	-
June	686	100.0	1.13	23.790	0	4.033	0	99.4	0.6	-	-	-	-
July	706	99.9	0.87	34.288	0	5.274	0	99.3	0.7	-	-	-	-
August	708	100.0	0.91	24.516	0	3.198	0	99.9	0.1	-	-	-	-
September	685	99.7	0.85	26.037	0	3.084	0	99.6	0.4	-	-	-	-
October	710	100.0	0.72	18.549	0	2.770	0	100.0	-	-	-	-	-
November	673	98.3	0.30	21.652	0	1.566	0	99.9	0.15	-	-	-	-
December	709	100.0	0.49	16.183	0	3.123	0	100.0	-	-	-	-	-
Annual	8329	99.8	0.74	34.288	0	5.274	0	99.8	0.2	-	-	-	-

**TransAlta Utilities Corporation
Frequency Distribution Charts
NO₂ Monthly Averages
Year 2011**

West Central Airshed Society - Power (AMS 907)
 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	709	100.0	4.649	31.545	0	15.304	0	100.00	-	-	-
February	639	100.0	4.597	54.705	0	18.225	0	99.69	0.31	-	-
March	707	100.0	6.892	60.310	0	18.223	0	99.86	0.14	-	-
April	686	100.0	2.197	12.412	0	4.047	0	100.00	-	-	-
May	708	100.0	5.258	167.902	1	41.374	0	98.16	1.27	0.56	-
June	684	100.0	3.033	23.182	0	7.034	0	100.00	-	-	-
July	705	99.9	2.820	39.688	0	5.470	0	100.00	-	-	-
August	705	99.3	2.831	12.805	0	5.576	0	100.00	-	-	-
September	684	100.0	3.386	20.419	0	6.809	0	100.00	-	-	-
October	670	94.5	3.035	13.430	0	6.281	0	100.00	-	-	-
November	685	100.0	4.848	26.726	0	19.126	0	100.00	-	-	-
December	707	100.0	3.760	20.082	0	10.540	0	100.00	-	-	-
Annual	8289	99.5	3.948	167.902	1	41.374	0	99.81	0.14	0.05	-

West Central Airshed Society - Meadows (AMS 908)
 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	705	99.5	10.747	40.590	0	26.601	0	100.0	-	-	-
February	637	99.7	10.900	53.280	0	28.678	0	99.8	0.16	-	-
March	701	99.2	11.275	56.365	0	30.339	0	99.4	0.57	-	-
April	687	100.0	7.206	42.779	0	13.706	0	100.0	-	-	-
May	709	100.0	6.092	41.184	0	14.284	0	100.0	-	-	-
June	685	100.0	4.086	26.282	0	7.648	0	100.0	-	-	-
July	705	100.0	4.447	26.139	0	7.958	0	100.0	-	-	-
August	708	100.0	4.696	26.210	0	8.451	0	100.0	-	-	-
September	684	100.0	7.106	32.657	0	12.760	0	100.0	-	-	-
October	709	100.0	9.199	35.365	0	21.455	0	100.0	-	-	-
November	685	100.0	9.483	36.331	0	19.333	0	100.0	-	-	-
December	645	91.3	8.925	35.680	0	15.972	0	100.0	-	-	-
Annual	8260	99.1	7.819	56.365	0	30.339	0	99.9	0.06	-	-

West Central Airshed Society - Wagner2 (AMS 959)
 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	709	100.0	6.703	42.873	0	16.523	0	100.0	-	-	-
February	639	100.0	6.630	42.122	0	14.557	0	100.0	-	-	-
March	707	100.0	7.363	63.501	0	20.817	0	99.9	0.14	-	-
April	686	100.0	3.553	32.522	0	8.934	0	100.0	-	-	-
May	707	99.9	4.314	22.355	0	8.126	0	100.0	-	-	-
June	685	100.0	4.192	30.205	0	7.936	0	100.0	-	-	-
July	705	99.9	3.556	32.762	0	8.242	0	100.0	-	-	-
August	708	100.0	3.231	19.597	0	5.288	0	100.0	-	-	-
September	684	99.7	3.299	22.081	0	4.991	0	100.0	-	-	-
October	709	100.0	5.227	23.105	0	10.968	0	100.0	-	-	-
November	672	98.3	6.510	28.336	0	16.749	0	100.0	-	-	-
December	707	100.0	6.854	32.401	0	12.900	0	100.0	-	-	-
Annual	8318	99.8	5.113	63.501	0	20.817	0	100.0	0.01	-	-

**TransAlta Utilities Corporation
Frequency Distribution Charts
PM Monthly Averages
Year 2011**

West Central Airshed Society - Power (AMS 907)
 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	743	99.9	1.8	13.8	0	8.7	0
February	668	100.0	2.7	13.3	0	7.4	0
March	739	99.3	5.8	23.2	0	11.2	0
April	720	100.0	2.8	10.3	0	6.8	0
May	740	100.0	7.0	105.8	5	42.4	1
June	711	98.8	5.1	54.1	0	26.1	0
July	736	99.2	2.8	27.6	0	7.1	0
August	732	98.9	3.7	20.9	0	9.0	0
September	715	99.3	3.7	34.9	0	11.2	0
October	702	94.5	2.2	25.1	0	6.2	0
November	716	100.0	3.4	24.1	0	11.3	0
December	739	99.3	2.4	15.5	0	6.5	0
Annual	8661	99.1	3.6	105.8	5	42.4	1

**TransAlta Utilities Corporation
Frequency Distribution Charts
Meteorological Measurements
Year 2011**

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

**TransAlta / Power
Station 907**

January to December 2011

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	----- P10	----- Q1	Percentile Median	----- Q3	----- P90
SO ₂ (ppb)	417	8296	99.5	0.3	-	0.0	69.9	0.0	0.0	0.0	0.1	0.5
NO (ppb)	424	8289	99.5	0.2	-	0.0	36.9	0.0	0.0	0.0	0.0	0.2
NO ₂ (ppb)	424	8289	99.5	3.9	-	0.1	167.9	1.2	1.7	2.9	4.9	7.5
NO _x (ppb)	424	8289	99.5	2.8	-	0.0	167.6	0.1	0.3	1.4	3.7	6.9
Particulate Matter 2.5 microns (μ/m ³)	19	8661	99.1	3.6	-	0.0	105.8	0.3	1.2	2.6	4.8	7.9
Wind Speed (kph)	0	8713	99.5	12.2	-	0.0	49.3	4.7	7.7	11.4	16.0	20.5
Temperature (°C)	0	8713	99.5	3.9	-	-32.4	31.2	-4.5	-1.0	4.1	8.5	12.1
Relative Humidity (%)	0	8713	99.5	66.5	-	13.9	98.7	41.8	53.2	67.7	80.3	89.1
Precipitation (mm)	0	8713	99.5	-	261.1	0.0	18.5	0.0	0.0	0.0	0.0	0.0
Std Dev Wind Direction (deg)	0	8713	99.5	17.2	-	1.1	99.6	8.4	10.5	13.5	18.8	30.5
Std Dev Wind Speed (kph)	0	8757	99.5	2.8	-	0.0	13.5	1.3	1.8	2.6	3.6	4.6

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

**TransAlta / Meadows
Station 908**

January to December 2011

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Total	Min	Max	----- Percentile -----				
								P10	Q1	Median	Q3	P90
SO ₂ (ppb)	413	8224	98.6	0.6	-	0.0	30.0	0.0	0.0	0.1	0.3	1.3
NO (ppb)	423	8260	99.1	2.9	-	0.0	122.7	0.0	0.0	0.0	1.7	8.6
NO ₂ (ppb)	423	8260	99.1	7.8	-	0.0	56.4	0.7	1.9	5.2	11.4	20.1
NO _x (ppb)	423	8260	99.1	9.9	-	0.0	165.9	0.1	0.6	4.6	12.7	27.6
Wind Speed (kph)	0	8681	99.1	11.3	-	0.0	50.7	3.0	5.9	9.8	15.6	21.2
Temperature (°C)	0	8683	99.1	3.7	-	-35.2	30.3	-4.7	-1.2	4.2	8.5	11.8
Relative Humidity (%)	0	8683	99.1	68.5	-	14.2	97.2	44.5	55.9	70.3	82.4	89.3
Precipitation (mm)	0	8683	99.1	-	208.6	0.0	25.0	0.0	0.0	0.0	0.0	0.0
Std Dev Wind Direction (deg)	0	8681	99.1	21.9	-	3.0	105.8	7.2	9.9	14.5	25.0	50.9
Std Dev Wind Speed (kph)	0	8683	99.1	2.9	-	0.0	18.2	1.3	1.9	2.6	3.6	4.8

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

**TransAlta / Wagner2
Station 959**

January to December 2011

Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile				
							P10	Q1	Median	Q3	P90
SO ₂ (ppb)	415	8329	99.8	0.7	0.0	34.3	0.0	0.0	0.0	0.1	2.2
NO (ppb)	426	8318	99.8	0.7	0.0	52.0	0.0	0.0	0.0	0.0	2.0
NO ₂ (ppb)	426	8318	99.8	5.1	0.0	63.5	1.3	2.3	4.0	6.7	10.3
NO _x (ppb)	426	8318	99.8	4.6	0.0	74.2	0.1	0.8	2.7	6.2	11.2
Wind Speed (kph)	1	8743	99.8	4.5	0.0	32.0	0.3	0.8	2.9	6.9	11.1
Temperature (°C)	1	8743	99.8	3.9	-36.9	32.3	-5.2	-1.3	4.2	9.0	12.8
Relative Humidity (%)	1	8743	99.8	68.7	13.5	97.2	41.4	54.5	71.8	85.0	90.5
Std Dev Wind Direction (deg)	1	8744	99.8	46.6	6.3	116.0	18.9	24.8	39.0	67.3	86.2
Std Dev Wind Speed (kph)	1	8744	99.8	2.3	0.1	10.7	0.7	1.1	2.0	3.2	4.5