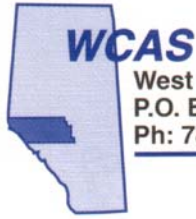




**West Central Airshed Society
Continuous Ambient Air Quality
Monitoring Program
Annual Summary for 2009**

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting 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

February 22nd, 2010

Director, Central Region
Alberta Environmental Protection
4th Floor, Oxbridge Place
9820 106 Street
Edmonton, Alberta T5K 2J6

Dear Sir:

Re: Annual Ambient Air Quality Monitoring Report. January – December 2009.

The West Central Airshed Society (WCAS) presents the 2009 Annual Report containing ambient air quality and meteorological information from the following sites:

| | | |
|-------------|----------------|----------------|
| Station 901 | Tomahawk | SE 02 51 06 W5 |
| Station 902 | Violet Grove | SE 17 48 08 W5 |
| Station 903 | Carrot Creek | SE 31 53 13 W5 |
| Station 904 | Hightower | SE 11 54 02 W6 |
| Station 911 | Drayton Valley | Weyerhaeuser |
| Station 912 | Edson | Weyerhaeuser |
| Station 913 | Breton | NW 25 47 04 W5 |

WCAS data collection and validation began October 1, 2004 for Station 912, Edson. The following is a list of the reported ambient air and meteorological parameters measured at the site locations:

AMS 901 (Tomahawk)

SO₂, O₃, NO/ NO₂/ NO_x, Particulate Matter (10 and 2.5 microns), Wind Speed and Direction, Relative Humidity, External Temperature, Photosynthetically Active Radiation, Leaf Wetness (seasonal), and Precipitation (seasonal).

AMS 902 (Violet Grove)

SO₂, O₃, NO/ NO₂/ NO_x, THC, Wind Speed and Direction, Relative Humidity, External Temperature, Delta Temperature, (2m – 10m), Photosynthetically Active Radiation, Global Solar Radiation, Leaf Wetness (seasonal), and Precipitation (seasonal).

AMS 903 (Carrot Creek)

SO₂, O₃, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, External Temperature, Photosynthetically Active Radiation, and Precipitation (seasonal).

AMS 904 (Hightower)

SO₂, O₃, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, External Temperature, and Precipitation (seasonal).

AMS 911 (Drayton Valley)

Particulate Matter (10 and 2.5 microns), Wind Speed and Direction, and External Temperature,

AMS 912 (Edson)

SO₂, Particulate Matter (2.5 microns), Wind Speed and Direction, and External Temperature.

AMS 913 (Breton)

SO₂, O₃, NO/ NO₂/ NO_x, Particulate Matter (10 microns), Wind Speed and Direction, Relative Humidity, and External Temperature.

If additional information is required please contact Patrick Andersen at (780) 514-3533 or (403) 505-1041.

Sincerely,



Robert Scotten
Executive Director



Patrick Andersen
Environmental Specialist



Greg Swain
Senior Technologist



Jeff McClintock
Technologist

**West Central Airshed Society
Frequency Distribution Charts
Wind Speed and Direction
Year 2009**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 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 | 2.02 | 5.36 | 4.79 | 1.72 | 0.47 | 0.02 | 14.39 |
| NorthEast | 1.52 | 3.20 | 1.39 | 0.15 | - | - | 6.26 |
| East | 1.42 | 4.71 | 3.81 | 0.64 | 0.02 | - | 10.61 |
| SouthEast | 1.76 | 4.89 | 3.02 | 0.82 | 0.10 | - | 10.59 |
| South | 2.54 | 4.05 | 1.10 | 0.15 | 0.01 | - | 7.86 |
| SouthWest | 4.17 | 13.74 | 1.87 | 0.03 | 0.03 | - | 19.85 |
| West | 2.71 | 7.55 | 2.12 | 0.22 | 0.06 | - | 12.66 |
| NorthWest | 1.59 | 4.23 | 6.86 | 3.76 | 1.11 | 0.15 | 17.69 |
| Totals | 17.72 | 47.74 | 24.97 | 7.49 | 1.81 | 0.17 | 99.91 |

| | |
|-----------------------|------|
| Percent Calm | 0.09 |
| Number of Data Values | 8706 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2009
 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 | 1.41 | 2.76 | 2.54 | 0.71 | 0.16 | - | 7.57 |
| NorthEast | 1.47 | 2.89 | 1.14 | 0.09 | - | - | 5.60 |
| East | 2.78 | 5.45 | 1.64 | 0.02 | - | - | 9.89 |
| SouthEast | 3.24 | 4.99 | 3.11 | 0.64 | 0.08 | - | 12.06 |
| South | 3.02 | 4.72 | 2.41 | 0.10 | 0.02 | - | 10.27 |
| SouthWest | 3.37 | 7.49 | 4.69 | 0.10 | 0.01 | - | 15.67 |
| West | 4.28 | 10.13 | 4.64 | 0.51 | 0.03 | 0.01 | 19.61 |
| NorthWest | 2.20 | 4.58 | 6.29 | 3.67 | 1.19 | 0.14 | 18.07 |
| Totals | 21.77 | 43.02 | 26.47 | 5.85 | 1.50 | 0.15 | 98.75 |

| | |
|-----------------------|------|
| Percent Calm | 1.25 |
| Number of Data Values | 8778 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2009
 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 | 4.52 | 3.51 | 1.74 | 0.41 | 0.01 | - | 10.18 |
| NorthEast | 3.61 | 2.18 | 0.69 | 0.05 | - | - | 6.53 |
| East | 4.30 | 6.50 | 2.71 | 0.06 | - | - | 13.56 |
| SouthEast | 2.95 | 1.67 | 0.41 | 0.01 | - | - | 5.04 |
| South | 6.46 | 1.18 | 0.30 | 0.00 | 0.01 | - | 7.95 |
| SouthWest | 12.37 | 6.38 | 1.26 | 0.23 | 0.03 | - | 20.27 |
| West | 5.59 | 8.42 | 5.47 | 1.66 | 0.28 | 0.06 | 21.47 |
| NorthWest | 3.42 | 4.33 | 4.31 | 1.34 | 0.09 | - | 13.49 |
| Totals | 43.21 | 34.16 | 16.88 | 3.75 | 0.43 | 0.06 | 98.49 |

| | |
|-----------------------|------|
| Percent Calm | 1.51 |
| Number of Data Values | 8636 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Hightower (AMS 904)
 Annual Summary for 2009
 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 | 3.05 | 6.04 | 1.94 | 0.03 | - | - | 11.06 |
| NorthEast | 2.04 | 4.41 | 0.68 | 0.02 | - | - | 7.15 |
| East | 2.79 | 4.10 | 0.50 | 0.00 | - | - | 7.38 |
| SouthEast | 3.67 | 8.38 | 2.01 | - | - | - | 14.05 |
| South | 3.04 | 2.75 | 1.03 | 0.07 | - | - | 6.89 |
| SouthWest | 2.16 | 3.23 | 3.98 | 0.85 | 0.23 | 0.02 | 10.46 |
| West | 4.03 | 6.39 | 6.40 | 2.64 | 0.58 | - | 20.04 |
| NorthWest | 2.94 | 10.00 | 7.61 | 1.64 | 0.51 | 0.02 | 22.72 |
| Totals | 23.71 | 45.31 | 24.15 | 5.24 | 1.33 | 0.03 | 99.77 |

| | |
|-----------------------|------|
| Percent Calm | 0.23 |
| Number of Data Values | 7629 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2009
 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 | 4.36 | 0.08 | - | - | - | - | 4.44 |
| NorthEast | 14.54 | 0.67 | - | - | - | - | 15.21 |
| East | 8.40 | 0.16 | - | - | - | - | 8.56 |
| SouthEast | 2.52 | - | - | - | - | - | 2.52 |
| South | 4.54 | 0.08 | - | - | - | - | 4.63 |
| SouthWest | 29.85 | 14.31 | 1.40 | 0.07 | - | - | 45.63 |
| West | 9.77 | 2.54 | 0.12 | - | - | - | 12.44 |
| NorthWest | 4.01 | 0.08 | - | - | - | - | 4.09 |
| Totals | 78.00 | 17.94 | 1.52 | 0.07 | - | - | 97.52 |

| | |
|-----------------------|------|
| Percent Calm | 2.48 |
| Number of Data Values | 7629 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Drayton Valley (AMS 911)
 Annual Summary for 2009
 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 | 5.25 | 3.25 | 0.15 | - | - | - | 8.65 |
| NorthEast | 7.74 | 2.48 | 0.06 | - | - | - | 10.27 |
| East | 5.55 | 1.26 | - | - | - | - | 6.81 |
| SouthEast | 4.36 | 3.79 | 0.82 | 0.05 | - | - | 9.03 |
| South | 19.65 | 6.21 | 0.08 | 0.02 | - | - | 25.97 |
| SouthWest | 4.81 | 2.19 | 0.17 | 0.00 | - | - | 7.17 |
| West | 4.31 | 3.89 | 1.43 | 0.26 | 0.01 | - | 9.90 |
| NorthWest | 5.44 | 8.51 | 4.90 | 0.78 | 0.01 | - | 19.63 |
| Totals | 57.11 | 31.59 | 7.61 | 1.11 | 0.02 | - | 97.43 |

| | |
|-----------------------|------|
| Percent Calm | 2.57 |
| Number of Data Values | 8757 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2009
 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 | 3.50 | 4.22 | 1.71 | 0.02 | - | - | 9.46 |
| NorthEast | 3.22 | 7.87 | 5.61 | 0.15 | - | - | 16.84 |
| East | 2.10 | 3.45 | 4.02 | 0.61 | - | - | 10.17 |
| SouthEast | 1.09 | 0.79 | 0.53 | 0.08 | - | - | 2.48 |
| South | 1.29 | 0.29 | 0.05 | - | - | - | 1.63 |
| SouthWest | 2.93 | 1.99 | 0.27 | 0.01 | - | - | 5.21 |
| West | 15.77 | 19.86 | 4.55 | 0.77 | 0.05 | 0.01 | 41.00 |
| NorthWest | 4.91 | 5.52 | 1.89 | 0.27 | 0.08 | - | 12.68 |
| | | | | | | | |
| Totals | 34.81 | 43.99 | 18.62 | 1.91 | 0.13 | 0.01 | 99.97 |

| | |
|-----------------------|------|
| Percent Calm | 0.03 |
| Number of Data Values | 8734 |
| Hours in Time Period | 8760 |

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2009
 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 | 2.03 | 2.68 | 2.85 | 1.03 | 0.17 | - | 8.77 |
| NorthEast | 1.94 | 2.79 | 2.28 | 0.21 | 0.02 | - | 7.24 |
| East | 2.31 | 2.55 | 0.97 | 0.02 | - | - | 5.84 |
| SouthEast | 20.83 | 8.58 | 1.02 | 0.01 | - | - | 30.45 |
| South | 5.34 | 3.53 | 2.89 | 1.05 | 0.13 | - | 12.93 |
| SouthWest | 2.48 | 1.35 | 0.46 | 0.03 | - | - | 4.32 |
| West | 3.47 | 2.57 | 0.97 | 0.15 | 0.01 | - | 7.17 |
| NorthWest | 4.01 | 6.72 | 5.40 | 2.53 | 0.80 | - | 19.47 |
| Totals | 42.41 | 30.76 | 16.84 | 5.03 | 1.13 | - | 96.18 |

| | |
|-----------------------|------|
| Percent Calm | 3.82 |
| Number of Data Values | 8760 |
| Hours in Time Period | 8760 |

**West Central Airshed Society
Frequency Distribution Charts
SO₂ Monthly Averages
Year 2009**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 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 | 99.9 | 1.180 | 14.888 | 0 | 3.334 | 0 | 100.00 | - | - | - | - | - |
| February | 638 | 100.0 | 0.974 | 13.435 | 0 | 3.002 | 0 | 100.00 | - | - | - | - | - |
| March | 709 | 100.0 | 1.329 | 20.747 | 0 | 5.302 | 0 | 99.86 | 0.14 | - | - | - | - |
| April | 682 | 100.0 | 0.908 | 19.550 | 0 | 3.239 | 0 | 100.00 | - | - | - | - | - |
| May | 709 | 100.0 | 0.545 | 18.463 | 0 | 2.970 | 0 | 100.00 | - | - | - | - | - |
| June | 685 | 100.0 | 0.548 | 9.784 | 0 | 2.028 | 0 | 100.00 | - | - | - | - | - |
| July | 703 | 100.0 | 0.928 | 15.070 | 0 | 3.261 | 0 | 100.00 | - | - | - | - | - |
| August | 703 | 99.2 | 0.876 | 19.473 | 0 | 4.307 | 0 | 100.00 | - | - | - | - | - |
| September | 685 | 100.0 | 0.503 | 13.693 | 0 | 3.419 | 0 | 100.00 | - | - | - | - | - |
| October | 708 | 100.0 | 0.466 | 15.558 | 0 | 2.260 | 0 | 100.00 | - | - | - | - | - |
| November | 685 | 100.0 | 0.469 | 5.174 | 0 | 1.105 | 0 | 100.00 | - | - | - | - | - |
| December | 663 | 93.7 | 0.679 | 5.638 | 0 | 2.460 | 0 | 100.00 | - | - | - | - | - |
| Annual | 8278 | 99.4 | 0.785 | 20.747 | 0 | 5.302 | 0 | 99.99 | 0.01 | - | - | - | - |

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2009
 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 | 683 | 99.5 | 0.985 | 12.272 | 0 | 2.407 | 0 | 100.00 | - | - | - | - | - |
| February | 634 | 99.7 | 0.901 | 42.295 | 0 | 5.585 | 0 | 99.53 | 0.47 | - | - | - | - |
| March | 707 | 100.0 | 1.136 | 10.406 | 0 | 3.119 | 0 | 100.00 | - | - | - | - | - |
| April | 683 | 100.0 | 0.634 | 4.849 | 0 | 1.531 | 0 | 100.00 | - | - | - | - | - |
| May | 707 | 100.0 | 0.204 | 5.589 | 0 | 1.105 | 0 | 100.00 | - | - | - | - | - |
| June | 686 | 100.0 | 0.395 | 8.352 | 0 | 2.033 | 0 | 100.00 | - | - | - | - | - |
| July | 702 | 100.0 | 1.363 | 6.173 | 0 | 2.557 | 0 | 100.00 | - | - | - | - | - |
| August | 706 | 100.0 | 0.966 | 11.100 | 0 | 1.614 | 0 | 100.00 | - | - | - | - | - |
| September | 686 | 100.0 | 0.330 | 3.994 | 0 | 1.739 | 0 | 100.00 | - | - | - | - | - |
| October | 709 | 100.0 | 0.436 | 7.532 | 0 | 1.581 | 0 | 100.00 | - | - | - | - | - |
| November | 684 | 100.0 | 0.319 | 6.309 | 0 | 0.802 | 0 | 100.00 | - | - | - | - | - |
| December | 708 | 100.0 | 0.930 | 12.586 | 0 | 5.412 | 0 | 100.00 | - | - | - | - | - |
| Annual | 8295 | 99.9 | 0.717 | 42.295 | 0 | 5.585 | 0 | 99.96 | 0.04 | - | - | - | - |

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2009
 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 | 710 | 100.0 | 1.061 | 8.021 | 0 | 3.008 | 0 | 100.00 | - | - | - | - | - |
| February | 640 | 100.0 | 1.132 | 17.051 | 0 | 3.988 | 0 | 100.00 | - | - | - | - | - |
| March | 705 | 100.0 | 1.030 | 11.031 | 0 | 3.728 | 0 | 100.00 | - | - | - | - | - |
| April | 686 | 100.0 | 0.372 | 3.558 | 0 | 1.246 | 0 | 100.00 | - | - | - | - | - |
| May | 707 | 99.9 | 0.367 | 4.927 | 0 | 1.543 | 0 | 100.00 | - | - | - | - | - |
| June | 684 | 100.0 | 0.301 | 5.757 | 0 | 0.982 | 0 | 100.00 | - | - | - | - | - |
| July | 706 | 100.0 | 0.205 | 2.814 | 0 | 1.276 | 0 | 100.00 | - | - | - | - | - |
| August | 709 | 99.5 | 0.244 | 4.044 | 0 | 0.625 | 0 | 100.00 | - | - | - | - | - |
| September | 685 | 99.9 | 0.225 | 5.815 | 0 | 0.775 | 0 | 100.00 | - | - | - | - | - |
| October | 709 | 100.0 | 0.371 | 7.464 | 0 | 1.596 | 0 | 100.00 | - | - | - | - | - |
| November | 686 | 100.0 | 0.385 | 2.430 | 0 | 0.751 | 0 | 100.00 | - | - | - | - | - |
| December | 709 | 100.0 | 0.561 | 5.247 | 0 | 2.095 | 0 | 100.00 | - | - | - | - | - |
| Annual | 8336 | 99.9 | 0.518 | 17.051 | 0 | 3.988 | 0 | 100.00 | - | - | - | - | - |

West Central Airshed Society - Hightower (AMS 904)
 Annual Summary for 2009
 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 | 695 | 98.1 | 0.142 | 6.880 | 0 | 0.880 | 0 | 100.00 | - | - | - | - | - |
| February | 437 | 68.6 | 0.369 | 3.594 | 0 | 1.877 | 0 | 100.00 | - | - | - | - | - |
| March | 323 | 46.5 | 0.327 | 2.652 | 0 | 1.152 | 0 | 100.00 | - | - | - | - | - |
| April | 536 | 78.5 | 0.124 | 2.805 | 0 | 0.907 | 0 | 100.00 | - | - | - | - | - |
| May | 708 | 100.0 | 0.251 | 2.426 | 0 | 1.894 | 0 | 100.00 | - | - | - | - | - |
| June | 683 | 100.0 | 0.102 | 1.600 | 0 | 0.379 | 0 | 100.00 | - | - | - | - | - |
| July | 705 | 100.0 | 0.065 | 3.541 | 0 | 0.607 | 0 | 100.00 | - | - | - | - | - |
| August | 709 | 100.0 | 0.381 | 2.899 | 0 | 1.435 | 0 | 100.00 | - | - | - | - | - |
| September | 669 | 98.1 | 0.219 | 2.200 | 0 | 1.230 | 0 | 100.00 | - | - | - | - | - |
| October | 709 | 100.0 | 0.104 | 1.428 | 0 | 0.438 | 0 | 100.00 | - | - | - | - | - |
| November | 685 | 100.0 | 0.104 | 1.679 | 0 | 0.347 | 0 | 100.00 | - | - | - | - | - |
| December | 708 | 100.0 | 0.301 | 5.912 | 0 | 1.789 | 0 | 100.00 | - | - | - | - | - |
| Annual | 7567 | 91.0 | 0.198 | 6.880 | 0 | 1.894 | 0 | 100.00 | - | - | - | - | - |

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2009
 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 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| February | - | - | - | - | - | - | - | - | - | - | - | - | - |
| March | 694 | 98.3 | 0.249 | 10.996 | 0 | 1.026 | 0 | 100.00 | - | - | - | - | - |
| April | 686 | 100.0 | 0.480 | 3.390 | 0 | 1.756 | 0 | 100.00 | - | - | - | - | - |
| May | 689 | 97.3 | 0.292 | 4.858 | 0 | 1.633 | 0 | 100.00 | - | - | - | - | - |
| June | 684 | 99.9 | 0.061 | 2.141 | 0 | 0.449 | 0 | 100.00 | - | - | - | - | - |
| July | 708 | 100.0 | 0.113 | 13.462 | 0 | 0.671 | 0 | 100.00 | - | - | - | - | - |
| August | 709 | 100.0 | 0.193 | 2.559 | 0 | 0.752 | 0 | 100.00 | - | - | - | - | - |
| September | 685 | 100.0 | 0.250 | 3.773 | 0 | 0.908 | 0 | 100.00 | - | - | - | - | - |
| October | 708 | 100.0 | 0.176 | 4.794 | 0 | 0.808 | 0 | 100.00 | - | - | - | - | - |
| November | 686 | 100.0 | 0.052 | 2.433 | 0 | 0.230 | 0 | 100.00 | - | - | - | - | - |
| December | 708 | 100.0 | 0.280 | 3.297 | 0 | 1.431 | 0 | 100.00 | - | - | - | - | - |
| Annual | 6957 | 83.5 | 0.214 | 13.462 | 0 | 1.756 | 0 | 100 | - | - | - | - | - |

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2009
 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 | 99.9 | 2.079 | 12.447 | 0 | 4.597 | 0 | 100.00 | - | - | - | - | - |
| February | 640 | 100.0 | 1.125 | 18.741 | 0 | 2.767 | 0 | 100.00 | - | - | - | - | - |
| March | 710 | 100.0 | 0.813 | 10.925 | 0 | 4.171 | 0 | 100.00 | - | - | - | - | - |
| April | 686 | 100.0 | 0.154 | 8.829 | 0 | 0.712 | 0 | 100.00 | - | - | - | - | - |
| May | 708 | 100.0 | 0.207 | 8.715 | 0 | 0.858 | 0 | 100.00 | - | - | - | - | - |
| June | 662 | 96.4 | 0.043 | 2.297 | 0 | 0.231 | 0 | 100.00 | - | - | - | - | - |
| July | 706 | 100.0 | 0.147 | 7.044 | 0 | 0.737 | 0 | 100.00 | - | - | - | - | - |
| August | 709 | 100.0 | 0.214 | 15.164 | 0 | 1.790 | 0 | 100.00 | - | - | - | - | - |
| September | 687 | 100.0 | 0.222 | 34.229 | 0 | 2.002 | 0 | 99.85 | 0.15 | - | - | - | - |
| October | 709 | 100.0 | 0.146 | 6.123 | 0 | 0.642 | 0 | 100.00 | - | - | - | - | - |
| November | 686 | 100.0 | 0.291 | 16.513 | 0 | 1.000 | 0 | 100.00 | - | - | - | - | - |
| December | 709 | 100.0 | 0.627 | 11.356 | 0 | 2.700 | 0 | 100.00 | - | - | - | - | - |
| Annual | 8321 | 99.7 | 0.506 | 34.229 | 0 | 4.597 | 0 | 99.99 | 0.01 | - | - | - | - |

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2009
 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 | 0.170 | 10.701 | 0 | 1.713 | 0 | 100.00 | - | - | - | - | - |
| February | 639 | 100.0 | 0.475 | 12.688 | 0 | 3.612 | 0 | 100.00 | - | - | - | - | - |
| March | 709 | 100.0 | 0.655 | 13.164 | 0 | 2.680 | 0 | 100.00 | - | - | - | - | - |
| April | 686 | 100.0 | 0.271 | 9.481 | 0 | 2.069 | 0 | 100.00 | - | - | - | - | - |
| May | 705 | 100.0 | 0.146 | 8.773 | 0 | 1.115 | 0 | 100.00 | - | - | - | - | - |
| June | 686 | 100.0 | 0.247 | 10.073 | 0 | 1.855 | 0 | 100.00 | - | - | - | - | - |
| July | 703 | 100.0 | 0.291 | 11.289 | 0 | 1.605 | 0 | 100.00 | - | - | - | - | - |
| August | 709 | 100.0 | 0.722 | 11.637 | 0 | 2.643 | 0 | 100.00 | - | - | - | - | - |
| September | 685 | 100.0 | 0.212 | 6.104 | 0 | 0.791 | 0 | 100.00 | - | - | - | - | - |
| October | 708 | 100.0 | 0.091 | 4.253 | 0 | 0.928 | 0 | 100.00 | - | - | - | - | - |
| November | 685 | 100.0 | 0.030 | 2.749 | 0 | 0.211 | 0 | 100.00 | - | - | - | - | - |
| December | 708 | 100.0 | 0.164 | 7.757 | 0 | 1.071 | 0 | 100.00 | - | - | - | - | - |
| Annual | 8332 | 100.0 | 0.289 | 13.164 | 0 | 3.612 | 0 | 100.00 | - | - | - | - | - |

**West Central Airshed Society
Frequency Distribution Charts
NO₂ Monthly Averages
Year 2009**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 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 | 708 | 99.9 | 8.785 | 39.586 | 0 | 19.174 | 0 | 100.00 | - | - | - |
| February | 637 | 100.0 | 6.619 | 29.409 | 0 | 12.357 | 0 | 100.00 | - | - | - |
| March | 707 | 100.0 | 5.400 | 28.660 | 0 | 15.672 | 0 | 100.00 | - | - | - |
| April | 682 | 100.0 | 3.451 | 21.166 | 0 | 6.004 | 0 | 100.00 | - | - | - |
| May | 708 | 100.0 | 2.266 | 18.283 | 0 | 4.697 | 0 | 100.00 | - | - | - |
| June | 684 | 100.0 | 2.656 | 14.810 | 0 | 4.591 | 0 | 100.00 | - | - | - |
| July | 702 | 100.0 | 3.133 | 19.637 | 0 | 6.795 | 0 | 100.00 | - | - | - |
| August | 702 | 99.2 | 2.958 | 25.851 | 0 | 6.733 | 0 | 100.00 | - | - | - |
| September | 684 | 100.0 | 3.022 | 15.298 | 0 | 6.203 | 0 | 100.00 | - | - | - |
| October | 708 | 100.0 | 3.726 | 14.625 | 0 | 7.519 | 0 | 100.00 | - | - | - |
| November | 685 | 100.0 | 5.076 | 18.867 | 0 | 12.793 | 0 | 100.00 | - | - | - |
| December | 661 | 93.7 | 7.744 | 32.097 | 0 | 20.170 | 0 | 100.00 | - | - | - |
| Annual | 8268 | 99.4 | 4.548 | 39.586 | 0 | 20.170 | 0 | 100.00 | - | - | - |

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2009
 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 | 703 | 99.5 | 4.642 | 26.462 | 0 | 9.931 | 0 | 100.00 | - | - | - |
| February | 634 | 99.7 | 5.241 | 29.229 | 0 | 14.544 | 0 | 100.00 | - | - | - |
| March | 707 | 100.0 | 5.330 | 35.750 | 0 | 20.452 | 0 | 100.00 | - | - | - |
| April | 682 | 100.0 | 3.142 | 15.707 | 0 | 6.367 | 0 | 100.00 | - | - | - |
| May | 707 | 100.0 | 1.655 | 10.911 | 0 | 3.150 | 0 | 100.00 | - | - | - |
| June | 684 | 100.0 | 2.530 | 11.602 | 0 | 5.189 | 0 | 100.00 | - | - | - |
| July | 699 | 99.6 | 3.822 | 11.952 | 0 | 7.154 | 0 | 100.00 | - | - | - |
| August | 706 | 100.0 | 2.448 | 14.766 | 0 | 4.398 | 0 | 100.00 | - | - | - |
| September | 685 | 100.0 | 1.298 | 14.908 | 0 | 3.743 | 0 | 100.00 | - | - | - |
| October | 707 | 100.0 | 2.774 | 13.876 | 0 | 7.593 | 0 | 100.00 | - | - | - |
| November | 684 | 100.0 | 3.463 | 17.309 | 0 | 7.752 | 0 | 100.00 | - | - | - |
| December | 708 | 100.0 | 6.347 | 29.475 | 0 | 16.690 | 0 | 100.00 | - | - | - |
| Annual | 8306 | 99.9 | 3.553 | 35.750 | 0 | 20.452 | 0 | 100.00 | - | - | - |

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2009
 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 | 7.941 | 38.749 | 0 | 18.18354 | 0 | 100.00 | - | - | - |
| February | 638 | 100.0 | 9.514 | 40.097 | 0 | 15.46695 | 0 | 100.00 | - | - | - |
| March | 705 | 100.0 | 6.135 | 37.170 | 0 | 13.94294 | 0 | 100.00 | - | - | - |
| April | 685 | 100.0 | 4.036 | 28.519 | 0 | 14.21881 | 0 | 100.00 | - | - | - |
| May | 706 | 99.9 | 3.436 | 26.113 | 0 | 7.416791 | 0 | 100.00 | - | - | - |
| June | 684 | 100.0 | 5.079 | 27.212 | 0 | 8.765088 | 0 | 100.00 | - | - | - |
| July | 704 | 100.0 | 2.748 | 14.762 | 0 | 5.887026 | 0 | 100.00 | - | - | - |
| August | 707 | 100.0 | 4.988 | 21.599 | 0 | 8.856202 | 0 | 100.00 | - | - | - |
| September | 685 | 99.9 | 5.244 | 23.734 | 0 | 8.069292 | 0 | 100.00 | - | - | - |
| October | 708 | 100.0 | 4.110 | 21.210 | 0 | 8.454989 | 0 | 100.00 | - | - | - |
| November | 685 | 100.0 | 7.414 | 28.669 | 0 | 16.13831 | 0 | 100.00 | - | - | - |
| December | 709 | 100.0 | 9.883 | 35.915 | 0 | 20.39474 | 0 | 100.00 | - | - | - |
| Annual | 8325 | 100.0 | 5.854 | 40.097 | 0 | 20.39474 | 0 | 100.00 | - | - | - |

West Central Airshed Society - Hightower (AMS 904)
 Annual Summary for 2009
 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 | 695.00 | 98.1 | 1.48 | 14.90 | 0.00 | 8.62 | 0.00 | 100.00 | - | - | - |
| February | 435.00 | 68.6 | 1.43 | 14.38 | 0.00 | 6.12 | 0.00 | 100.00 | - | - | - |
| March | 323.00 | 46.5 | 0.65 | 7.30 | 0.00 | 2.16 | 0.00 | 100.00 | - | - | - |
| April | 534.00 | 78.5 | 3.08 | 87.83 | 0.00 | 22.64 | 0.00 | 97.94 | 2.06 | - | - |
| May | 707.00 | 100.0 | 0.24 | 5.17 | 0.00 | 1.11 | 0.00 | 100.00 | - | - | - |
| June | 683.00 | 100.0 | 0.67 | 8.97 | 0.00 | 1.82 | 0.00 | 100.00 | - | - | - |
| July | 702.00 | 100.0 | 5.38 | 24.37 | 0.00 | 16.16 | 0.00 | 100.00 | - | - | - |
| August | 707.00 | 100.0 | 5.96 | 14.78 | 0.00 | 11.39 | 0.00 | 100.00 | - | - | - |
| September | 652.00 | 95.4 | 2.26 | 10.33 | 0.00 | 6.73 | 0.00 | 100.00 | - | - | - |
| October | 708.00 | 100.0 | 1.14 | 15.90 | 0.00 | 2.83 | 0.00 | 100.00 | - | - | - |
| November | 685.00 | 100.0 | 0.27 | 8.98 | 0.00 | 2.03 | 0.00 | 0.00 | - | - | - |
| December | 690.00 | 97.5 | 1.68 | 11.72 | 0.00 | 5.18 | 0.00 | 0.00 | - | - | - |
| Annual | 7521.00 | 90.5 | 2.09 | 87.83 | 0.00 | 22.64 | 0.00 | 99.81 | 0.19 | - | - |

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2009
 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 | 0 | 0.0 | - | - | - | - | - | - | - | - | - |
| February | 0 | 0.0 | - | - | - | - | - | - | - | - | - |
| March | 692 | 98.0 | 1.823 | 25.26 | 0.00 | 5.33 | 0.00 | 100.00 | - | - | - |
| April | 685 | 100.0 | 1.529 | 37.24 | 0.00 | 4.97 | 0.00 | 100.00 | - | - | - |
| May | 688 | 97.3 | 0.479 | 18.60 | 0.00 | 2.20 | 0.00 | 100.00 | - | - | - |
| June | 684 | 99.9 | 0.384 | 14.88 | 0.00 | 1.93 | 0.00 | 100.00 | - | - | - |
| July | 706 | 100.0 | 0.440 | 11.15 | 0.00 | 1.74 | 0.00 | 100.00 | - | - | - |
| August | 707 | 100.0 | 0.598 | 8.42 | 0.00 | 2.65 | 0.00 | 100.00 | - | - | - |
| September | 685 | 100.0 | 0.601 | 9.37 | 0.00 | 2.71 | 0.00 | 100.00 | - | - | - |
| October | 708 | 100.0 | 0.969 | 12.98 | 0.00 | 3.19 | 0.00 | 100.00 | - | - | - |
| November | 684 | 100.0 | 0.328 | 14.76 | 0.00 | 1.63 | 0.00 | 100.00 | - | - | - |
| December | 642 | 91.5 | 3.197 | 24.26 | 0.00 | 10.37 | 0.00 | 100.00 | - | - | - |
| Annual | 6881 | 82.7 | 1.019 | 37.24 | 0.00 | 10.37 | 0.00 | 100.00 | - | - | - |

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2009
 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 | 707 | 100.0 | 5.217 | 24.298 | 0 | 12.792 | 0 | 100.0 | - | - | - |
| February | 639 | 100.0 | 7.084 | 25.637 | 0 | 12.556 | 0 | 100.0 | - | - | - |
| March | 708 | 100.0 | 5.901 | 27.858 | 0 | 16.359 | 0 | 100.0 | - | - | - |
| April | 684 | 100.0 | 3.114 | 16.726 | 0 | 5.616 | 0 | 100.0 | - | - | - |
| May | 705 | 100.0 | 2.131 | 12.848 | 0 | 4.001 | 0 | 100.0 | - | - | - |
| June | 685 | 100.0 | 1.775 | 11.627 | 0 | 3.893 | 0 | 100.0 | - | - | - |
| July | 702 | 100.0 | 1.751 | 10.910 | 0 | 3.476 | 0 | 100.0 | - | - | - |
| August | 709 | 100.0 | 3.753 | 15.915 | 0 | 7.424 | 0 | 100.0 | - | - | - |
| September | 684 | 100.0 | 2.258 | 9.954 | 0 | 3.499 | 0 | 100.0 | - | - | - |
| October | 707 | 100.0 | 2.914 | 16.722 | 0 | 5.568 | 0 | 100.0 | - | - | - |
| November | 684 | 100.0 | 4.526 | 21.171 | 0 | 9.216 | 0 | 100.0 | - | - | - |
| December | 708 | 100.0 | 9.335 | 39.654 | 0 | 27.396 | 0 | 100.0 | - | - | - |
| Annual | 8322 | 100.0 | 4.139 | 39.654 | 0 | 27.396 | 0 | 100.0 | - | - | - |

**West Central Airshed Society
Frequency Distribution Charts
O₃ Monthly Averages
Year 2009**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 O3 (ppb)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value |
|-----------|----------------|----------------------|------|----------------------|--------------------------|-----------------------|
| January | 706 | 99.6 | 25.8 | 49.5 | 0 | 44.8 |
| February | 638 | 100.0 | 32.3 | 51.4 | 0 | 40.0 |
| March | 709 | 100.0 | 41.4 | 60.6 | 0 | 55.5 |
| April | 682 | 100.0 | 44.8 | 67.1 | 0 | 55.3 |
| May | 708 | 100.0 | 39.1 | 61.2 | 0 | 49.1 |
| June | 686 | 100.0 | 37.3 | 64.6 | 0 | 49.7 |
| July | 700 | 100.0 | 30.7 | 88.9 | 3 | 49.0 |
| August | 703 | 99.2 | 29.6 | 75.1 | 0 | 41.3 |
| September | 685 | 100.0 | 30.5 | 77.0 | 0 | 46.8 |
| October | 708 | 100.0 | 21.8 | 40.6 | 0 | 32.8 |
| November | 685 | 100.0 | 26.0 | 46.4 | 0 | 37.4 |
| December | 664 | 93.7 | 22.9 | 44.2 | 0 | 40.6 |
| Annual | 8274 | 99.4 | 31.9 | 88.9 | 3 | 55.5 |

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2009
 O3 (ppb)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value |
|-----------|----------------|----------------------|------|----------------------|--------------------------|-----------------------|
| January | 704 | 99.3 | 29.9 | 56.1 | 0 | 43.9 |
| February | 634 | 99.7 | 9.9 | 64.4 | 0 | 18.3 |
| March | 707 | 100.0 | 39.9 | 58.5 | 0 | 53.3 |
| April | 686 | 100.0 | 46.3 | 71.3 | 0 | 58.3 |
| May | 707 | 100.0 | 39.9 | 65.8 | 0 | 49.3 |
| June | 684 | 100.0 | 35.6 | 64.4 | 0 | 48.8 |
| July | 707 | 100.0 | 23.5 | 70.3 | 0 | 37.9 |
| August | 706 | 100.0 | 20.9 | 57.4 | 0 | 31.4 |
| September | 685 | 100.0 | 27.8 | 72.3 | 0 | 41.2 |
| October | 709 | 100.0 | 21.8 | 44.0 | 0 | 32.9 |
| November | 684 | 100.0 | 28.6 | 44.2 | 0 | 38.2 |
| December | 708 | 100.0 | 25.3 | 42.6 | 0 | 40.4 |
| Annual | 8321 | 99.9 | 29.2 | 72.3 | 0 | 58.3 |

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2009
 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 | 26.3 | 51.1 | 0 | 45.3 |
| February | 640 | 100.0 | 24.8 | 49.3 | 0 | 36.2 |
| March | 705 | 100.0 | 35.9 | 57.1 | 0 | 49.8 |
| April | 685 | 100.0 | 39.2 | 61.2 | 0 | 48.3 |
| May | 707 | 99.9 | 38.2 | 64.6 | 0 | 47.5 |
| June | 684 | 100.0 | 33.6 | 60.7 | 0 | 43.2 |
| July | 703 | 100.0 | 23.9 | 54.5 | 0 | 33.6 |
| August | 709 | 100.0 | 21.9 | 61.0 | 0 | 38.0 |
| September | 685 | 99.9 | 22.3 | 74.3 | 0 | 32.5 |
| October | 708 | 100.0 | 18.8 | 43.6 | 0 | 31.7 |
| November | 686 | 100.0 | 21.0 | 45.4 | 0 | 34.5 |
| December | 709 | 100.0 | 20.3 | 42.9 | 0 | 39.2 |
| Annual | 8330 | 100.0 | 27.2 | 74.3 | 0 | 49.8 |

West Central Airshed Society - Hightower (AMS 904)
 Annual Summary for 2009
 O3 (ppb)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value |
|-----------|----------------|----------------------|------|----------------------|--------------------------|-----------------------|
| January | 695 | 98.1 | 46.5 | 65.0 | 0 | 60.2 |
| February | 437 | 68.6 | 47.2 | 61.4 | 0 | 55.9 |
| March | 323 | 46.5 | 42.6 | 56.5 | 0 | 48.1 |
| April | 534 | 78.5 | 58.4 | 84.8 | 2 | 70.1 |
| May | 709 | 100.0 | 55.1 | 78.4 | 0 | 72.1 |
| June | 683 | 100.0 | 47.6 | 70.1 | 0 | 61.8 |
| July | 699 | 100.0 | 34.4 | 59.6 | 0 | 49.1 |
| August | 709 | 100.0 | 39.2 | 62.7 | 0 | 57.6 |
| September | 652 | 95.4 | 37.3 | 65.3 | 0 | 46.1 |
| October | 709 | 100.0 | 33.2 | 56.8 | 0 | 49.8 |
| November | 686 | 100.0 | 47.0 | 57.8 | 0 | 53.4 |
| December | 708 | 100.0 | 41.8 | 59.2 | 0 | 55.7 |
| Annual | 7544 | 90.74 | 43.9 | 84.8 | 2 | 72.1 |

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2009
 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 | 31.1 | 50.4 | 0 | 44.8 |
| February | 639 | 100.0 | 5.0 | 21.1 | 0 | 12.2 |
| March | 709 | 100.0 | 41.0 | 64.6 | 0 | 54.6 |
| April | 686 | 100.0 | 44.4 | 68.8 | 0 | 53.1 |
| May | 705 | 100.0 | 42.1 | 66.4 | 0 | 54.2 |
| June | 685 | 100.0 | 37.1 | 68.8 | 0 | 47.1 |
| July | 704 | 100.0 | 30.4 | 80.9 | 0 | 45.5 |
| August | 709 | 100.0 | 28.8 | 71.5 | 0 | 41.3 |
| September | 685 | 100.0 | 31.0 | 74.1 | 0 | 43.4 |
| October | 709 | 100.0 | 0.3 | 11.4 | 0 | 1.9 |
| November | 684 | 100.0 | 0.9 | 12.8 | 0 | 5.2 |
| December | 708 | 100.0 | 1.7 | 30.3 | 0 | 12.2 |
| Annual | 8332 | 100.0 | 24.6 | 80.9 | 0 | 54.6 |

**West Central Airshed Society
Frequency Distribution Charts
THC Monthly Averages
Year 2009**

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2009
 THC (ppb)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value | Number 24-Hour Violations |
|-----------|----------------|----------------------|-------|----------------------|--------------------------|-----------------------|---------------------------|
| January | 692 | 97.7 | 2.433 | 5.901 | 0 | 3.125 | 0 |
| February | 633 | 99.6 | 2.149 | 9.197 | 0 | 2.681 | 0 |
| March | 706 | 100.0 | 2.137 | 3.589 | 0 | 2.737 | 0 |
| April | 686 | 100.0 | 2.169 | 5.237 | 0 | 2.510 | 0 |
| May | 707 | 100.0 | 2.051 | 5.619 | 0 | 2.479 | 0 |
| June | 656 | 96.3 | 2.000 | 4.260 | 0 | 2.158 | 0 |
| July | 702 | 100.0 | 2.136 | 4.052 | 0 | 2.610 | 0 |
| August | 706 | 100.0 | 1.859 | 3.753 | 0 | 2.328 | 0 |
| September | 684 | 100.0 | 1.940 | 3.845 | 0 | 2.343 | 0 |
| October | 705 | 99.3 | 2.120 | 3.969 | 0 | 2.531 | 0 |
| November | 601 | 87.9 | 3.168 | 5.078 | 0 | 3.372 | 0 |
| December | 707 | 100.0 | 2.390 | 4.626 | 0 | 2.819 | 0 |
| Annual | 8185 | 98.4 | 2.203 | 9.197 | 0 | 3.372 | 0 |

**West Central Airshed Society
Frequency Distribution Charts
PM Monthly Averages
Year 2009**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 PM10 ($\mu\text{g}/\text{m}^3$)

| 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 | 8.1 | 72.5 | 0 | 21.0 | 0 |
| February | 666 | 100.0 | 9.6 | 50.7 | 0 | 19.0 | 0 |
| March | 739 | 99.3 | 8.6 | 22.7 | 0 | 16.9 | 0 |
| April | 720 | 100.0 | 9.0 | 40.0 | 0 | 18.9 | 0 |
| May | 740 | 100.0 | 11.6 | 78.3 | 0 | 35.9 | 0 |
| June | 79 | 100.0 | 22.2 | 88.1 | 0 | 29.2 | 0 |
| July | - | - | - | - | - | - | - |
| August | - | - | - | - | - | - | - |
| September | - | - | - | - | - | - | - |
| October | - | - | - | - | - | - | - |
| November | - | - | - | - | - | - | - |
| December | - | - | - | - | - | - | - |
| Annual | 3687 | 99.9 | 9.7 | 88.1 | 0 | 35.9 | 0 |

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2009
 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 | 730 | 98.1 | 3.4 | 64.2 | 0 | 15.5 | 0 |
| February | 666 | 100.0 | 3.6 | 17.8 | 0 | 7.7 | 0 |
| March | 738 | 99.2 | 3.3 | 12.8 | 0 | 8.1 | 0 |
| April | 720 | 100.0 | 3.4 | 14.7 | 0 | 9.5 | 0 |
| May | 736 | 99.5 | 3.3 | 26.5 | 0 | 6.9 | 0 |
| June | 711 | 98.8 | 4.3 | 24.8 | 0 | 9.8 | 0 |
| July | 740 | 99.9 | 5.1 | 26.2 | 0 | 17.0 | 0 |
| August | 683 | 91.8 | 6.3 | 26.7 | 0 | 13.0 | 0 |
| September | 705 | 97.9 | 4.3 | 32.7 | 0 | 12.8 | 0 |
| October | 743 | 99.9 | 1.9 | 7.5 | 0 | 4.6 | 0 |
| November | 720 | 100.0 | 1.9 | 8.5 | 0 | 3.4 | 0 |
| December | 693 | 93.2 | 3.3 | 25.2 | 0 | 14.4 | 0 |
| Annual | 8585 | 98.15 | 3.7 | 64.2 | 0 | 17.0 | 0 |

West Central Airshed Society - Hightower (AMS 904)
 Annual Summary for 2009
 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 | 725 | 98.1 | 1.9 | 45.3 | 0 | 17.6 | 0 |
| February | 461 | 68.6 | 1.9 | 20.3 | 0 | 9.3 | 0 |
| March | 346 | 46.5 | 1.7 | 10.5 | 0 | 4.3 | 0 |
| April | 559 | 78.5 | 2.2 | 55.8 | 0 | 3.9 | 0 |
| May | 742 | 99.7 | 2.0 | 7.9 | 0 | 5.5 | 0 |
| June | 717 | 99.6 | 2.8 | 12.0 | 0 | 7.4 | 0 |
| July | 730 | 99.2 | 3.4 | 45.1 | 0 | 8.5 | 0 |
| August | 741 | 99.6 | 9.0 | 89.6 | 0 | 39.0 | 1 |
| September | 633 | 87.9 | 4.6 | 68.7 | 0 | 29.2 | 0 |
| October | 739 | 99.9 | 1.0 | 6.4 | 0 | 3.4 | 0 |
| November | 719 | 99.9 | 0.6 | 6.1 | 0 | 1.8 | 0 |
| December | 744 | 100.0 | 1.4 | 35.5 | 0 | 7.9 | 0 |
| Annual | 7856 | 89.9 | 2.8 | 89.6 | 0 | 39.0 | 1 |

West Central Airshed Society - Drayton Valley (AMS 911)
 Annual Summary for 2009
 PM10 ($\mu\text{g}/\text{m}^3$)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value | Number 24-Hour Violations |
|-----------|----------------|----------------------|------|----------------------|--------------------------|-----------------------|---------------------------|
| January | 744 | 100.0 | 14.5 | 159.6 | 0 | 41.1 | 0 |
| February | 672 | 100.0 | 16.9 | 116.0 | 0 | 43.9 | 0 |
| March | 744 | 100.0 | 15.8 | 119.0 | 0 | 34.4 | 0 |
| April | 720 | 100.0 | 21.5 | 242.5 | 0 | 44.7 | 0 |
| May | 744 | 100.0 | 23.2 | 226.9 | 0 | 51.8 | 0 |
| June | 720 | 100.0 | 20.6 | 215.5 | 0 | 50.0 | 0 |
| July | 744 | 100.0 | 22.4 | 153.5 | 0 | 54.5 | 0 |
| August | 249 | 98.8 | 20.0 | 167.0 | 0 | 32.7 | 0 |
| September | - | - | - | - | - | - | - |
| October | - | - | - | - | - | - | - |
| November | - | - | - | - | - | - | - |
| December | - | - | - | - | - | - | - |
| Annual | 5337 | 99.9 | 19.3 | 242.5 | 0 | 54.5 | 0 |

West Central Airshed Society - Drayton Valley (AMS 911)
 Annual Summary for 2009
 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 | 8.6 | 116.9 | 0 | 24.8 | 0 |
| February | 666 | 99.1 | 7.8 | 50.5 | 0 | 11.7 | 0 |
| March | 744 | 100.0 | 7.2 | 29.7 | 0 | 12.3 | 0 |
| April | 718 | 99.7 | 7.4 | 29.6 | 0 | 12.9 | 0 |
| May | 743 | 99.9 | 7.2 | 41.7 | 0 | 12.0 | 0 |
| June | 718 | 99.7 | 8.0 | 35.8 | 0 | 14.2 | 0 |
| July | 741 | 99.6 | 8.5 | 84.9 | 0 | 21.2 | 0 |
| August | 737 | 99.1 | 10.3 | 32.3 | 0 | 18.5 | 0 |
| September | 718 | 99.7 | 8.6 | 48.8 | 0 | 19.5 | 0 |
| October | 743 | 99.9 | 6.0 | 22.0 | 0 | 11.1 | 0 |
| November | 720 | 100.0 | 7.1 | 24.8 | 0 | 10.2 | 0 |
| December | 739 | 99.3 | 7.3 | 22.8 | 0 | 13.4 | 0 |
| Annual | 8730 | 99.7 | 7.8 | 116.9 | 0 | 24.8 | 0 |

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2009
 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 | 741 | 100.0 | 3.7 | 23.9 | 0 | 8.0 | 0 |
| February | 669 | 99.6 | 4.4 | 26.2 | 0 | 9.4 | 0 |
| March | 744 | 100.0 | 4.0 | 21.6 | 0 | 9.6 | 0 |
| April | 716 | 100.0 | 3.7 | 18.3 | 0 | 8.4 | 0 |
| May | 740 | 99.5 | 3.3 | 24.9 | 0 | 11.5 | 0 |
| June | 693 | 96.3 | 4.3 | 42.8 | 0 | 8.4 | 0 |
| July | 737 | 100.0 | 5.3 | 32.7 | 0 | 14.2 | 0 |
| August | 736 | 98.9 | 8.3 | 45.5 | 0 | 23.2 | 0 |
| September | 720 | 100.0 | 5.4 | 83.8 | 0 | 14.8 | 0 |
| October | 740 | 100.0 | 2.9 | 21.7 | 0 | 8.4 | 0 |
| November | 717 | 99.6 | 3.2 | 24.5 | 0 | 8.5 | 0 |
| December | 744 | 100.0 | 4.6 | 41.4 | 0 | 14.7 | 0 |
| Annual | 8697 | 99.5 | 4.4 | 83.8 | 0 | 23.2 | 0 |

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2009
 PM10 ($\mu\text{g}/\text{m}^3$)

| Month | Number of Data | Operational Time (%) | Mean | Maximum 1-Hour Value | Number 1-Hour Violations | Maximum 24-Hour Value | Number 24-Hour Violations |
|-----------|----------------|----------------------|------|----------------------|--------------------------|-----------------------|---------------------------|
| January | 739.0 | 99.3 | 24.5 | 44.0 | 0 | 28.3 | 0 |
| February | 672.0 | 100.0 | 25.0 | 47.2 | 0 | 27.1 | 0 |
| March | 740.0 | 100.0 | 24.5 | 50.9 | 0 | 27.0 | 0 |
| April | 714 | 99.2 | 25.1 | 53.1 | 0 | 29.7 | 0 |
| May | 744 | 100.0 | 25.7 | 42.9 | 0 | 31.6 | 0 |
| June | 716 | 100.0 | 26.5 | 56.2 | 0 | 34.7 | 0 |
| July | 321 | 43.2 | 23.8 | 58.7 | 0 | 27.0 | 0 |
| August | 727 | 97.7 | 26.5 | 54.9 | 0 | 36.7 | 0 |
| September | 715 | 100.0 | 28.1 | 63.8 | 0 | 40.9 | 0 |
| October | 738 | 99.2 | 22.5 | 69.3 | 0 | 39.9 | 0 |
| November | 714 | 100.0 | 23.4 | 53.7 | 0 | 31.3 | 0 |
| December | 739 | 100.0 | 23.2 | 31.8 | 0 | 28.6 | 0 |
| Annual | 8279 | 94.8 | 25.0 | 69.3 | 0 | 40.9 | 0 |

**West Central Airshed Society
Frequency Distribution Charts
Meteorological Measurements
Year 2009**

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

| WCAS / Tomahawk Station 901 | | February 2010 | | | | | | | | | | | |
|---|----------------------|-------------------|-------------------|------|-------|-------|-------|--------------|-------------|----------------------|-------------|--------------|---------------------------------|
| Parameter | Calibration Hours | Number of Data | Percent Uptime | Mean | Total | Min | Max | ----- P10 | ----- Q1 | Percentile Median | ----- Q3 | ----- P90 | 24 Hour Average Max (ppm) |
| SO ₂ (ppb) | 32 | 640 | 100.0 | 1.7 | - | 0.1 | 31.9 | 0.2 | 0.4 | 0.7 | 1.4 | 3.3 | 0.009 |
| O ₃ (ppb) | 32 | 640 | 100.0 | 27.6 | - | 1.1 | 50.7 | 12.0 | 19.6 | 28.8 | 36.4 | 41.5 | 0.041 |
| NO (ppb) | 32 | 640 | 100.0 | 2.7 | - | 0.0 | 37.5 | 0.0 | 0.0 | 0.3 | 2.7 | 8.8 | - |
| NO ₂ (ppb) | 32 | 640 | 100.0 | 9.6 | - | 2.0 | 31.0 | 3.3 | 4.7 | 7.9 | 12.5 | 19.3 | 0.021 |
| NO _x (ppb) | 32 | 640 | 100.0 | 12.2 | - | 2.0 | 62.4 | 3.4 | 5.5 | 9.5 | 16.3 | 23.5 | - |
| Particulate Matter 2.5 microns (μ/m ³) | 4 | 668 | 100.0 | 5.1 | - | 0.0 | 23.7 | 0.7 | 2.1 | 4.4 | 7.4 | 10.4 | 11.26 ug/m3 |
| Wind Speed (kph) | 0 | 672 | 100.0 | 7.0 | - | 0.2 | 25.4 | 1.9 | 3.9 | 6.2 | 9.2 | 13.6 | - |
| Temperature (°C) | 0 | 672 | 100.0 | -6.0 | - | -19.0 | 9.9 | -12.0 | -9.3 | -6.6 | -3.5 | 1.8 | - |
| Relative Humidity (%) | 0 | 672 | 100.0 | 80.9 | - | 34.2 | 97.1 | 56.1 | 73.0 | 87.3 | 92.0 | 94.0 | - |
| Photosynthetically Active Radiation (W/m ²) | 0 | 672 | 100.0 | 41.6 | - | 0.8 | 249.7 | 1.0 | 1.3 | 1.5 | 73.2 | 150.7 | - |
| Precipitation (mm) | 0 | 0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | - |
| Leaf Wetness (%) | 0 | 672 | 100.0 | 0.4 | - | 0.0 | 23.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | - |
| Std Dev Wind Direction (deg) | 0 | 672 | 100.0 | 21.8 | - | 3.0 | 97.9 | 7.3 | 10.0 | 15.1 | 26.5 | 48.9 | - |
| Std Dev Wind Speed (kph) | 0 | 672 | 100.0 | 1.7 | - | 0.0 | 7.3 | 0.8 | 1.1 | 1.6 | 2.1 | 2.7 | - |

