

Minnesota Air Quality Index (AQI) 2004 Summary

**Figure 1
AQI Monitoring Network**

Figure 1 shows the network of air monitors the MPCA uses to collect data for the Air Quality Index (AQI). Number and type of monitors vary from location to location, with the most monitors in the Twin Cities Metro area.

The 2004 monitoring network is similar to that of 2003. A new ozone monitor was added to the network in Duluth in 2004. The Duluth region's other ozone monitor is located in Cloquet. The Brainerd area (in nearby Baxter) was added in 2004. This area includes the former Lake Mille Lacs monitoring site; these two reporting areas have been consolidated into one. A fine particulate (PM2.5) monitor will be added to Brainerd monitoring in the future.

REGION	SITES	MONITORS					Total
		O3	PM2.5	CO	SO2		
Duluth	4	2	1	1			4
Ely	1	1					1
Brainerd	2	2					2
St. Cloud	2	1	1	1			3
Rochester	1	1	1				2
Twin Cities	13	7	5	3	2		17
TOTALS							
6	23	14	8	5	2		29

Legend

- O3 Ozone
- PM2.5 Particulate Matter
- CO Carbon Monoxide
- SO2 Sulfur Dioxide

Figure 2
2004 AQI Days by AQI Category and Region

Figure 2 summarizes the number of days in each of three health categories (Good, Moderate, and Unhealthy for Sensitive Groups) in each of the six current reporting regions (Duluth, Ely, Brainerd, Rochester, St. Cloud, and the Twin Cities). Each day’s AQI is calculated by using the highest hourly AQI value that day for all measured pollutants and sites in a particular region. Some regions do not show a total of 366 (leap year) days. For instance, since ozone is the sole pollutant measured at Ely and the ozone season runs from April to September, this monitor operates only for those six months.

Air quality throughout Minnesota improved in 2004 compared to 2003. In the Twin Cities, the number of days in the Good category (187 days) exceeded the number of days in the Moderate category (172) days. In 2003, the number of Moderate days was greater than the number of Good days. The number of Good days in other regions increased as well, as there were no AQI values for ozone greater than 100 for the entire year; and no AQI values for particulate matter greater than 100 after 3/25/2004 through the end of the year. 2004 also had less new start-up activity during the year, so that a greater number of days were available for data collection.

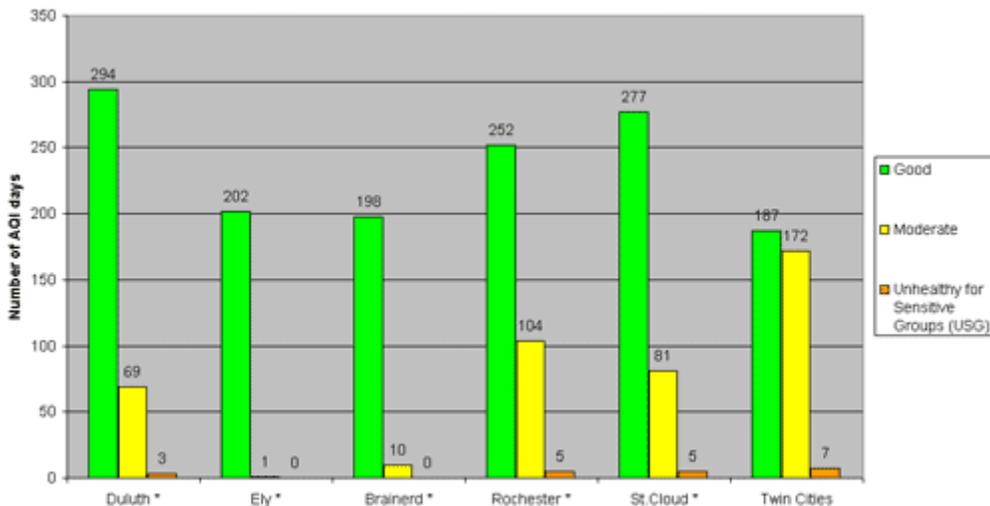


Figure 3
2004 Days with an AQI Greater than 100.

Figure 3 shows the days the AQI reached 101 to 150 (Unhealthy for Sensitive Groups).. Some AQI days are consecutive and grouped together: these days were usually part of one multi-day air pollution event, a result of the same set of environmental conditions.

Past experience tells us that incidents involving fine particulate matter (PM2.5) may occur any time of the year. Ozone, however, forms in the summer in Minnesota, since it is created by a chemical reaction involving heat and sunshine.

In 2004, all days with an AQI of more than 100 were due to fine particles (PM2.5), rather than ozone or smog. There were no days when ozone drove the AQI over 100. One reason for these low ozone levels was a summer cooler than normal. The Twin Cities had the highest number of days with an AQI of more than 100 (7 days) followed by Rochester (5 days) and St. Cloud (5 days).

Date	Duluth	Ely	Brainerd	Rochester	St. Cloud	Twin Cities	
1/11/2004	101			104			
2/19/2004				137		122	
2/20/2004				137		120	Legend
2/28/2004				101	112	113	Ozone
2/29/2004	118			101	130	121	
3/01/2004	103				118	108	PM2.5
3/02/2004					103	102	
3/25/2004					116	123	
Totals	3	0	0	5	5	7	

The MPCA issued the following Air Alerts and Advisories in 2004:

Air Quality Alert (AQI rose to 90 or above)

- February 5, 2004
- February 27-29, 2004

Air Pollution Advisory (AQI forecast to rise to 90 or above)

- March 24-25, 2004
- September 3-5, 2004
- November 13-16, 2004
- December 28-29, 2004