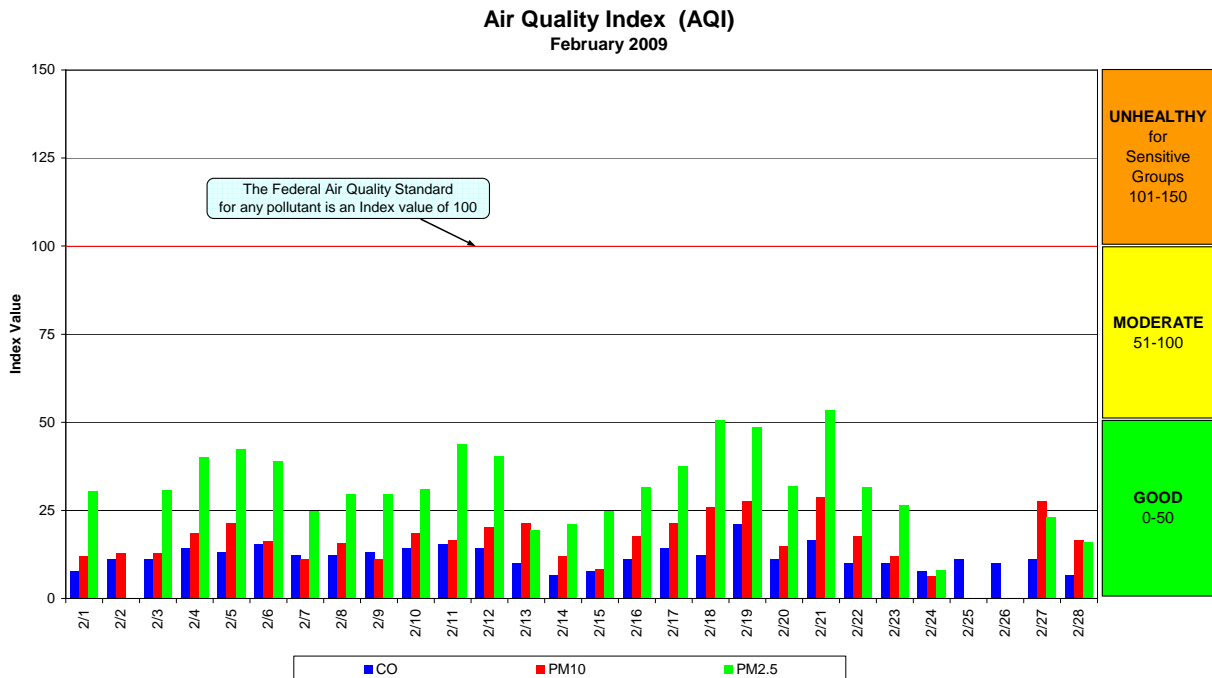


# Spokane Regional Clean Air Agency Air Quality Report February 2009

The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants, carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), ground-level ozone (O<sub>3</sub>) and sulfur dioxide (SO<sub>2</sub>). These are known as “criteria” pollutants because EPA established permissible concentrations in ambient air using human health or environmentally based criteria. Carbon monoxide, particulate matter and ozone are monitored in Spokane County by the Spokane Regional Clean Air Agency (SRCAA) and the Washington State Department of Ecology. The SRCAA will monitor nitrogen dioxide at its new facility near the intersection of Greene St and Mission Ave in Spokane starting in May 2009. Ozone monitoring ended September 30, 2008 and will resume May 1, 2009. Air quality information is updated hourly on the Spokane Regional Clean Air Agency (SRCAA) web page ([http://www.spokanecleanair.org/air\\_quality.asp](http://www.spokanecleanair.org/air_quality.asp)).

The chart below shows the daily maximum Air Quality Index (AQI) for each pollutant for February 2009. The AQI is EPA’s color-coded tool for communicating daily air quality to the public and can be calculated for five major air pollutants: carbon monoxide, nitrogen dioxide, particulate matter, ground-level ozone and sulfur dioxide. An index value above 100 indicates that the concentration of at least one of these criteria pollutants exceeded the limit established in the NAAQS. Categories of the AQI are “good” (green, 0-50), “moderate” (yellow, 51-100), “unhealthy for sensitive groups” (orange, 101-150), “unhealthy” (red, 151-200), “very unhealthy” (purple, 201-300) and “hazardous” (maroon, 301-500). The Spokane area experiences air quality in the good and moderate categories and, very rarely, in the unhealthy for sensitive groups category. For more information about the AQI, see EPA’s AirNow AQI web page (<http://airnow.gov/index.cfm?action=static.aqi>).

Particulate matter data for February 25 and 26 are missing because monitors were “off-line” for maintenance. Air quality was generally good in February. The few days when PM<sub>2.5</sub> neared or exceeded the moderate threshold, most notably the 18<sup>th</sup>, 19<sup>th</sup> and 21<sup>st</sup>, were characterized by stagnant conditions with light winds. The effects of wind on air quality in February will be discussed further on pages 4 and 5 of this report.



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The following tables contain the maximum AQI values for each pollutant for the month and for the year to date. The third table summarizes the year to date daily AQIs by category and compares them to last year's AQIs. Air quality in February 2009 was better than in January and better than last year.

**Maximum AQI values and pollutant concentrations for this reporting period**

<b>Pollutant</b>	<b>AQI/Concentration</b>	<b>Location</b>	<b>Date</b>
CO	21/1.9 ppm	3 <sup>rd</sup> & Washington	2/19/09
PM <sub>10</sub>	29/31 µg/m <sup>3</sup>	Freya & Ferry	2/21/09
PM <sub>2.5</sub>	54/17.3 µg/m <sup>3</sup>	Freya & Ferry	2/21/09

**Maximum AQI values and pollutant concentrations this year to date**

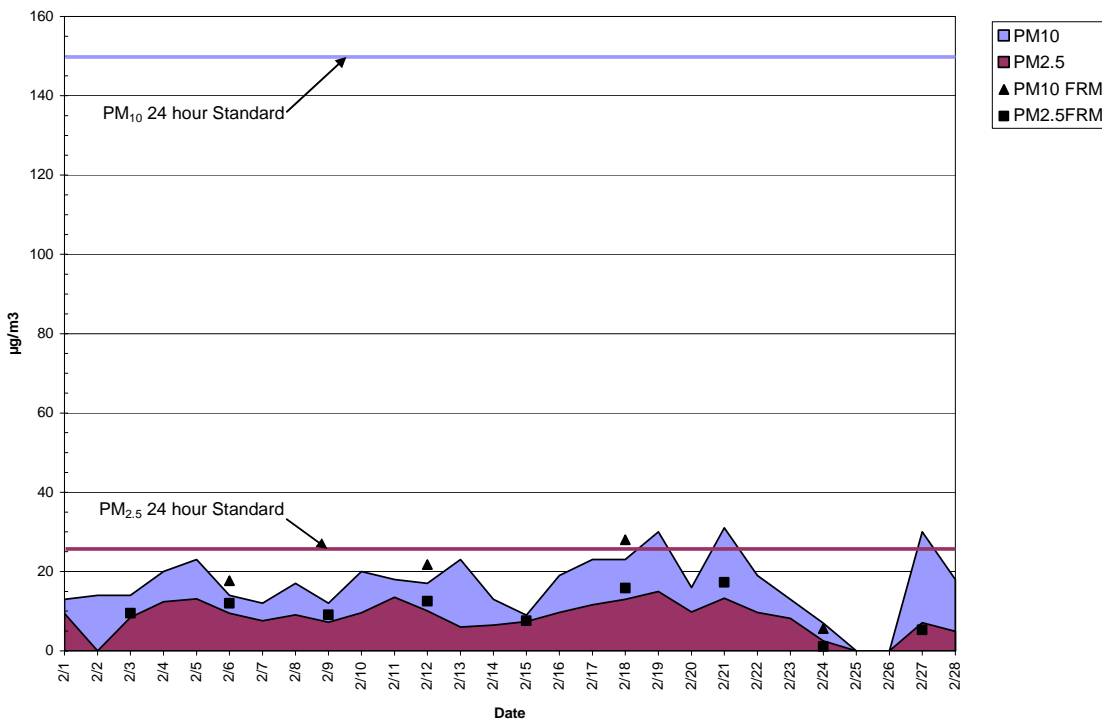
<b>Pollutant</b>	<b>AQI/Concentration</b>	<b>Location</b>	<b>Date</b>
CO	26/2.3 ppm	3 <sup>rd</sup> & Washington	1/12/09
PM <sub>10</sub>	39/42 µg/m <sup>3</sup>	Freya & Ferry	1/28/09
PM <sub>2.5</sub>	67/23.9 µg/m <sup>3</sup>	Freya & Ferry	1/28/09

**AQI Summary as of February 28, 2009**

<b>Category</b>	<b>Number of Days This Year</b>	<b>Last Year to Date</b>
Good (0-50)	55	45
Moderate (51-100)	4	14
Unhealthy for Sensitive Groups (101-150)	0	0
Unhealthy (151-200)	0	0
Very Unhealthy (201-300)	0	0
Hazardous (>300)	0	0

The next chart compares the mass concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> measured at the Freya & Ferry monitoring site. The site is located in a commercial/light industrial area on the eastern side of the City of Spokane. The data shown in solid colors were obtained using Tapered Element Oscillating Microbalance (TEOM) continuous analyzers. The TEOM is an automated method and provides “real time” data, which SRCAA uses in its day-to-day programs, e.g., air quality forecasting and burning curtailment. The manually-operated Federal Reference Method (FRM) is the “gold-standard” for measurement of the 24-hour average particulate matter concentration and meets the requirements for demonstrating attainment of federal air quality standards. The accuracy of the TEOM sample data can be verified by comparison with co-located FRM data. The correlation ( $r^2$ ) between the TEOM and FRM data for February was 0.99 for PM<sub>10</sub> and 0.98 for PM<sub>2.5</sub>.

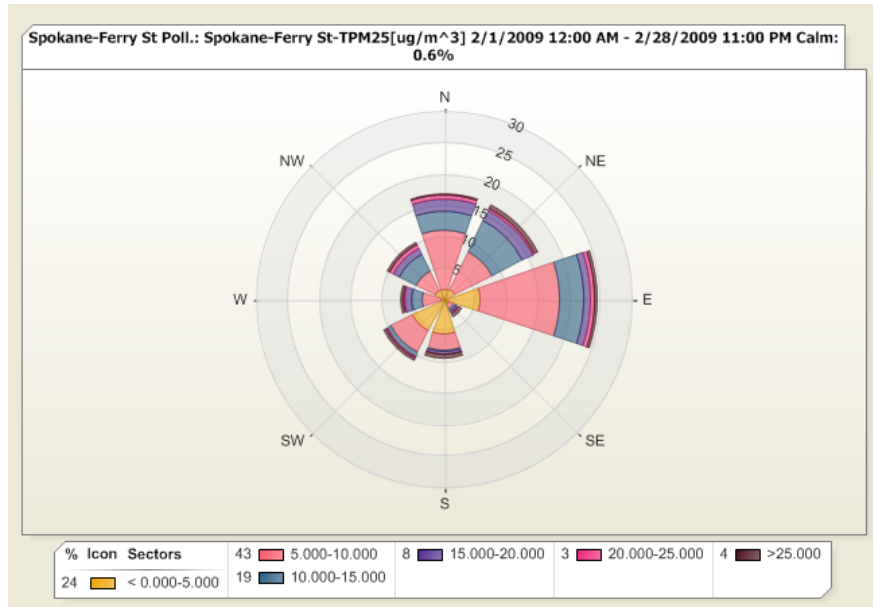
**Freya & Ferry Particulate Matter Data**  
24hr Average Daily Maximum



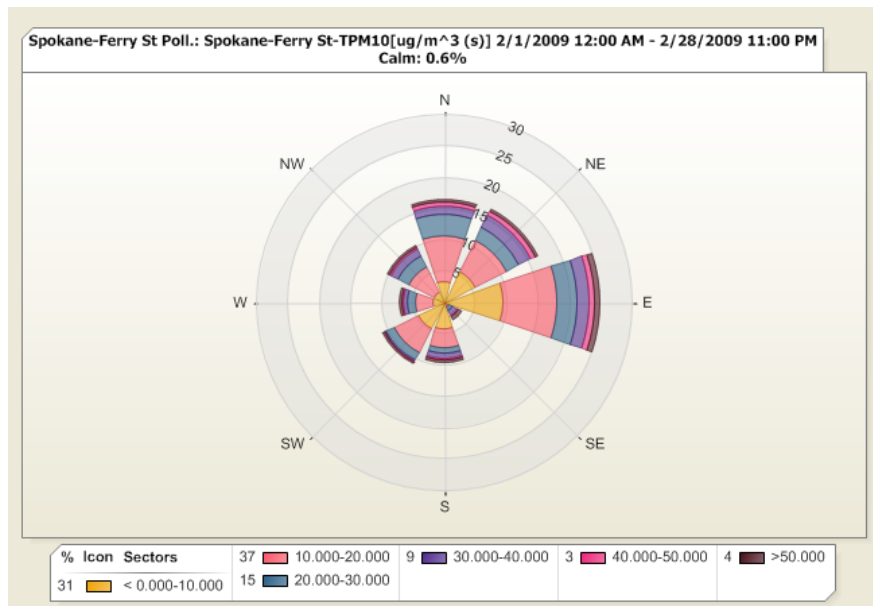
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The following pollution rose and wind rose charts illustrate the effect of wind speed and direction on ambient PM<sub>2.5</sub> and PM<sub>10</sub> concentrations at the Spokane Freya & Ferry air monitoring station in February. Easterly winds predominated in February. Maximum PM<sub>2.5</sub> and PM<sub>10</sub> concentrations occurred when wind speeds were less than 3 mph and wind direction was highly variable. The highest hourly wind speeds were in the 10-17 mph range and blew primarily from southerly or southwesterly directions. High wind speeds posed no threat to air quality and aided ventilation on the few occasions they occurred.

The pollution rose below summarizes hourly average PM<sub>2.5</sub> concentrations (µg/m<sup>3</sup>) and hourly average wind directions (degrees) measured at the Freya and Ferry Site in February.

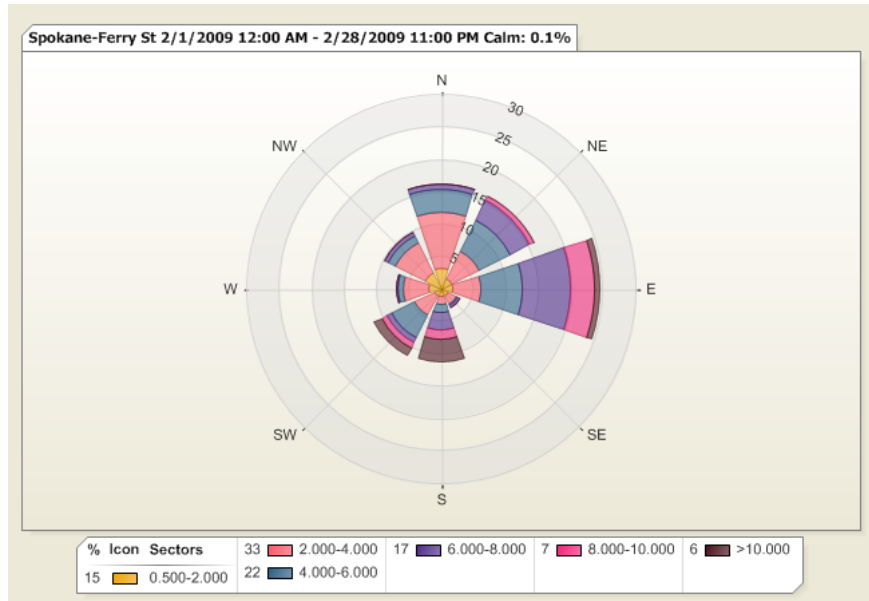


The pollution rose below summarizes hourly average PM<sub>10</sub> concentrations (µg/m<sup>3</sup>) and hourly average wind directions (degrees) measured at the Freya and Ferry Site in February.



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The wind rose below summarizes the percent time during the month the wind blew from a particular direction and in what speed range. The data are hourly averages.



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The table below summarizes the air quality data for February from all of the analyzers operated in Spokane County. The CO and data are 8-hour maximums in parts per million (ppm) and the PM data are 24-hour averages in micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ). Data transmission equipment was removed from the Monroe & College site when the SRCAA office was moved to a new facility.

Date	CO 3rd & Washington (ppm)	PM10 Freya & Ferry TEOM ( $\mu\text{g}/\text{m}^3$ )	PM10 Freya & Ferry FRM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Freya & Ferry TEOM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Freya & Ferry FRM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Monroe & College TEOM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Monroe & Wellesley Nephelometer ( $\mu\text{g}/\text{m}^3$ )	PM10 Turnbull Wildlife Refuge FRM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Turnbull Wildlife Refuge ( $\mu\text{g}/\text{m}^3$ )	PM10 Liberty Lake ( $\mu\text{g}/\text{m}^3$ )	PM10-2.5 Liberty Lake ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Liberty Lake ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Deer Park TEOM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Spokane Valley TEOM ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Airway Heights TEOM ( $\mu\text{g}/\text{m}^3$ )
2/1	0.7	13		9.4			9.6						10.6	8.4	5.9
2/2	1	14					10.2						9.7	10	7.2
2/3	1	14		8.4	9.5		12.7						10.4	5.7	6.9
2/4	1.3	20		12.4			15.7						12.4	9.9	9.2
2/5	1.2	23		13.1			15.2						17.4	12	8.5
2/6	1.4	14	18	9.5	12.0		10.3	6	5.71	9.2	2.2	6.99	7.3	10.8	5.3
2/7	1.1	12		7.6			9.8						6.7	8.2	5.3
2/8	1.1	17		9.1			10.4						8.8	10.4	5.4
2/9	1.2	12		7.2	9.1		8.9						6	6.9	5.9
2/10	1.3	20		9.6			9.1						9.1	6.7	5.5
2/11	1.4	18		13.5			9.9						7.4	11.9	6.2
2/12	1.3	17	22	10.1	12.5		9.7	7	6.9	12.0	4.3	7.7	7.4	14	6.4
2/13	0.9	23		6			7.4						2.7	4.3	4.8
2/14	0.6	13		6.5			7.4						6.4	6.8	6.9
2/15	0.7	9		7.4	7.6		9.2						5.7	7.3	7.5
2/16	1	19		9.7			6.7						3.8	6.8	4.1
2/17	1.3	23		11.6			9.3						7.6	11.3	7.1
2/18	1.1	23	28	13	15.8		11.1	9	9.1	13.3	4.1	9.2	11	12.3	6.7
2/19	1.9	30		15			18.9						10.4	16.3	8.4
2/20	1	16		9.8			12						9.5	10.8	6.2
2/21	1.5	31		13.3	17.3		15.1						8.9	14.2	6.4
2/22	0.9	19		9.7			10.6						9.4	10.4	8.2
2/23	0.9	13		8.2			9.3						5.7	7.8	5.1
2/24	0.7	7	6	2.5	1.1		1.9	1	0.8	2.2	1.3	0.8	2	1	2.6
2/25	1						1.6						2.3	1.8	2.4
2/26	0.9						2.9						4	3.5	4.3
2/27	1	30		7.1	5.3		4.5						6.5	5.7	5.6
2/28	0.6	18		4.9			5.6						4.4	4.9	6.2
Maximum	1.9	31	28	15	17.3	NA	18.9	9.09	9.09	13.3	4.31	9.17	17.4	16.3	9.2
Average	1.07	18	18.3	9.38	10	NA	9.46	5.61	5.61	9.16	2.99	6.17	7.63	8.58	6.08