

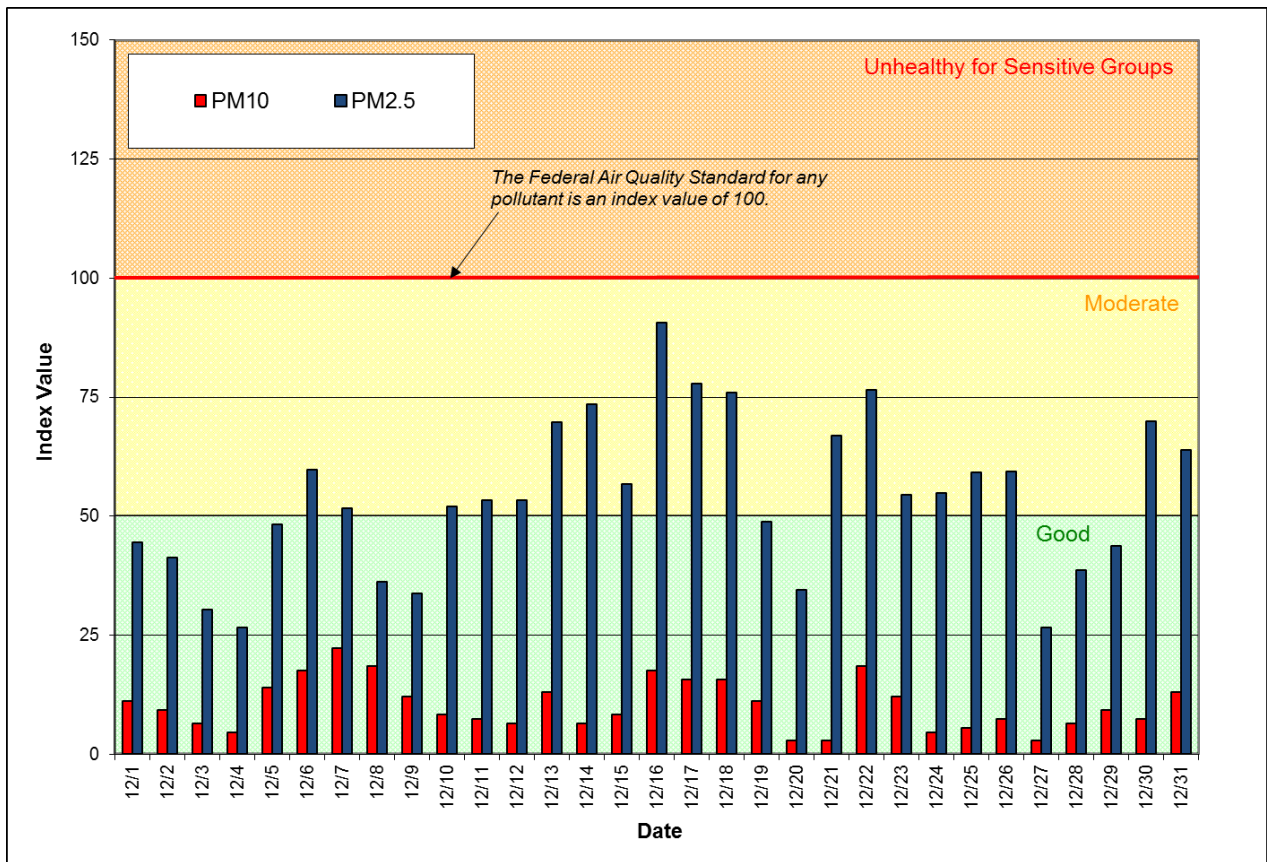
# Spokane Regional Clean Air Agency Air Quality Report - December 2016

Fine particulate matter (PM<sub>2.5</sub>) mass concentration at the Broadway (Broadway Ave & Glenn St) air monitoring station in Spokane Valley led the Air Quality Index (AQI) every day in December. The AQI was in the Moderate category on 19 days and in the Good category the other 12 days (Figure 1). The highest AQI for the month was 91 (PM<sub>2.5</sub> = 31.0 µg/m<sup>3</sup>; December 16).

The highest AQI value for PM<sub>10</sub> was 22 (Good; 24 µg/m<sup>3</sup>), measured at the Augusta (Augusta & Fiske) air monitoring station in Spokane. PM<sub>10</sub> is not monitored at the Broadway station.

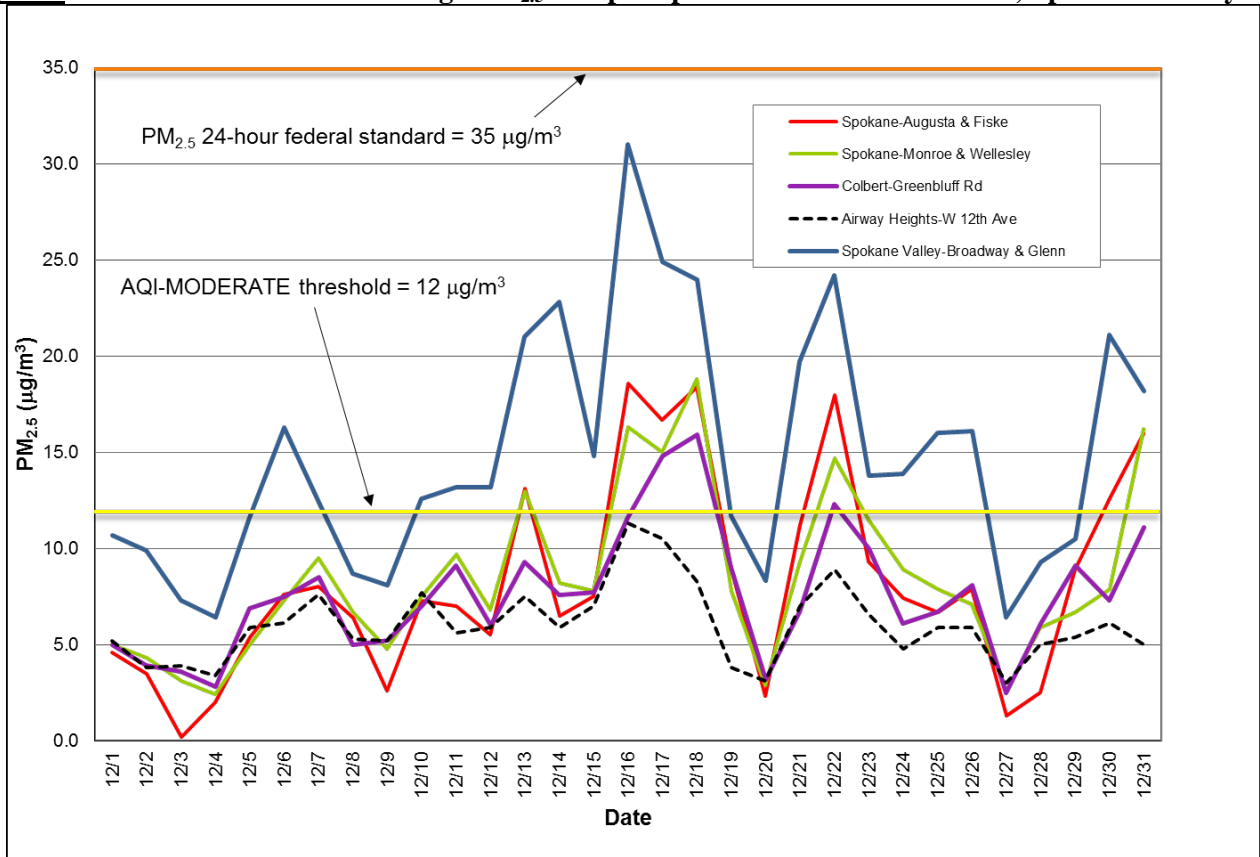
A Stage 1 burning curtailment was in effect from the 16<sup>th</sup> (3:00 p.m.) until the 19<sup>th</sup> (7:00 a.m.). A Stage 1 curtailment prohibits the use of solid fuel burning devices (e.g., wood stoves) that are not EPA-certified within the Spokane area Smoke Control Zone. It also prohibits outdoor burning county-wide.

**Figure 1: Air Quality Index (AQI) values for December 2016. The data represent the maximum AQI values across all monitoring stations within Spokane County.**



See Appendix 1 of this report for information about federal air quality standards or Appendix 2 for a description of the AQI. Daily mass concentrations of PM<sub>2.5</sub> monitored in December throughout the network are shown in Figure 2.

**Figure 2: Multi-station 24-hour average PM<sub>2.5</sub> and precipitation for December 2016; Spokane County.**



The December daily air quality data for all monitoring stations in the Spokane region are provided in Appendix 3. Current and historical air quality data can be obtained electronically from Ecology’s air monitoring data website, <https://fortress.wa.gov/ecy/enviwa/Default.htm>.

Tables 1 and 2 contain the maximum AQI values for each pollutant for the month and for the year to date. Table 3 summarizes the year to date daily AQIs by category.

**Table 1: Maximum AQI values and pollutant concentrations for this reporting period**

Pollutant	AQI/Concentration	Location	Date
PM <sub>10</sub>	22/24 µg/m <sup>3</sup>	Spokane, E. Augusta Ave (Augusta & Fiske)	12/7
PM <sub>2.5</sub>	91/31.0 µg/m <sup>3</sup>	Spokane Valley, E. Broadway Ave (Broadway & Glenn)	12/16

**Table 2: Maximum AQI values and pollutant concentrations to date this year. Carbon monoxide (CO) monitoring was permanently shut down in July 2016.**

Pollutant	AQI/Concentration	Location	Date
CO	22/2.0 ppm (8 hour)	Spokane, 3rd & Washington	2/9, 2/10
O <sub>3</sub>	66/0.059 ppm (8 hour)	Spokane, Greenbluff	6/29, 8/16
PM <sub>10</sub>	63/80 µg/m <sup>3</sup>	Turnbull National Wildlife Refuge	8/2
PM <sub>2.5</sub>	95/32.9 µg/m <sup>3</sup>	Colbert, Greenbluff Rd	8/22

**Table 3: AQI summary as of December 31, 2016.**

Category	Number of Days This Year
Good (0-50)	273
Moderate (51-100)	93
Unhealthy for Sensitive Groups (101-150)	0
Unhealthy (151-200)	0
Very Unhealthy (201-300)	0
Hazardous (>300)	0

## Appendix 1 – National Ambient Air Quality Standards

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>; Table A-1). These are known as “criteria” pollutants because the US EPA established regulatory limits to 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 (Ecology).

**Table A-1: National Ambient Air Quality Standards**

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
<a href="#">Carbon Monoxide (CO)</a>		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
<a href="#">Lead (Pb)</a>		primary and secondary	Rolling 3 month period	0.15 µg/m <sup>3</sup> <sup>(1)</sup>	Not to be exceeded
<a href="#">Nitrogen Dioxide (NO<sub>2</sub>)</a>		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb <sup>(2)</sup>	Annual Mean
<a href="#">Ozone (O<sub>3</sub>)</a>		primary and secondary	8 hours	0.070 ppm <sup>(3)</sup>	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
<a href="#">Particle Pollution (PM)</a>	PM <sub>2.5</sub>	primary	1 year	12.0 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
	PM <sub>10</sub>	primary and secondary	24 hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
<a href="#">Sulfur Dioxide (SO<sub>2</sub>)</a>		primary	1 hour	75 ppb <sup>(4)</sup>	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m<sup>3</sup> as a calendar quarter average) also remain in effect.

(2) The level of the annual NO<sub>2</sub> standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O<sub>3</sub> standards additionally remain in effect in some areas. Revocation of the previous (2008) O<sub>3</sub> standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO<sub>2</sub> standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO<sub>2</sub> standards or is not meeting the requirements of a SIP call under the previous SO<sub>2</sub> standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the requisite NAAQS.

## Appendix 2 – Air Quality Index

The Air Quality Index (AQI) is EPA’s color-coded tool for communicating daily air quality to the public and can be calculated for any of the criteria pollutants except lead, provided monitoring data are available. An index value above 100 indicates that the concentration of a criteria pollutant 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; Table A-2).

**Table A-2: Air pollutant breakpoints for the Air Quality Index.**

Air Quality Index Levels of Health Concern	Color Code	Index Numerical Value	Breakpoints				Health Effects
			O <sub>3</sub> (ppm) 8-hour	PM <sub>2.5</sub> (µg/m <sup>3</sup> ) 24-hour	PM <sub>10</sub> (µg/m <sup>3</sup> ) 24-hour	CO (ppm) 8-hour	
<b>Good</b>	Green	0-50	0.000-0.054	0.0-12.0	0-54	0.0-4.4	Air quality is considered satisfactory and air pollution poses little or no risk.
<b>Moderate</b>	Yellow	51-100	0.055-0.070	12.1-35.4	55-154	4.5-9.4	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
<b>Unhealthy for Sensitive Groups</b>	Orange	101-150	0.071-0.085	35.5-65.4	155-254	9.5-12.4	People especially sensitive to air pollution may experience health effects. The general public is not likely to be affected. An AQI in this category or above indicates that air pollution exceeds levels acceptable under federal air quality standards.
<b>Unhealthy</b>	Red	151-200	0.086-0.105	65.5-150.4	255-354	12.5-15.4	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
<b>Very Unhealthy</b>	Purple	201-300	0.106-0.200	150.5-250.4	355-424	15.5-30.4	Health alert: everyone may experience more serious health effects.
<b>Hazardous</b>	Maroon	>300	0.201 to the Significant Harm Level* (0.600 ppm, 2 hour average)	250.5+	425+	30.5+	Health warnings of emergency conditions. The entire population is more likely to be affected.

\*The significant harm level (SHL) is set at a level that represents imminent and substantial endangerment to public health.

## Appendix 3

**Table A-3: Summary air quality data for December for air monitoring stations in Spokane County.** Particulate matter mass concentration is reported here as 24-hour averages in micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ).

Date	PM <sub>2.5</sub> Spokane - Augusta & Fiske BAM ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> Spokane Valley - Broadway & Glenn BAM ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> Airway Heights TEOM ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> Spokane - Monroe & Wellesley nephelometer ( $\mu\text{g}/\text{m}^3$ )	PM <sub>2.5</sub> Colbert TEOM ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> Augusta & Fiske TEOM ( $\mu\text{g}/\text{m}^3$ )	PM <sub>10</sub> Tumbull NWR BAM ( $\mu\text{g}/\text{m}^3$ )
12/1	4.6	10.7	5.2	5.0	5.0	12	2
12/2	3.5	9.9	3.8	4.3	3.9	10	2
12/3	0.2	7.3	3.9	3.1	3.6	7	3
12/4	2.0	6.4	3.4	2.4	2.8	5	1
12/5	5.4	11.6	5.9	5.0	6.9	15	2
12/6	7.6	16.3	6.1	7.3	7.5	19	5
12/7	8.0	12.4	7.6	9.5	8.5	24	6
12/8	6.4	8.7	5.3	6.7	5.0	20	8
12/9	2.6	8.1	5.2	4.8	5.2	13	5
12/10	7.3	12.6	7.7	7.5	7.0	9	4
12/11	7.0	13.2	5.6	9.7	9.1	8	4
12/12	5.5	13.2	5.9	6.8	6.0	7	3
12/13	13.1	21.0	7.5	13.0	9.3	14	6
12/14	6.5	22.8	5.9	8.2	7.6	7	5
12/15	7.5	14.8	7.0	7.8	7.7	9	3
12/16	18.6	31.0	11.3	16.3	11.6	19	8
12/17	16.7	24.9	10.5	15.0	14.8	17	
12/18	18.4	24.0	8.3	18.8	15.9	17	2
12/19	8.9	11.7	3.8	7.8	9.0	12	3
12/20	2.3	8.3	3.1	2.9	3.2	3	2
12/21	11.2	19.7	7.0	9.3	6.7	17	3
12/22	18.0	24.2	8.9	14.7	12.3	20	2
12/23	9.3	13.8	6.6	11.5	10.0	13	1
12/24	7.4	13.9	4.8	8.9	6.1	5	5
12/25	6.7	16.0	5.9	7.9	6.7	6	4
12/26	7.9	16.1	5.9	7.1	8.1	8	1
12/27	1.3	6.4	3.0	2.6	2.5	3	1
12/28	2.5	9.3	5.0	5.9	6.1	7	1
12/29	8.9	10.5	5.4	6.7	9.1	10	1
12/30	12.6	21.1	6.1	7.9	7.3	8	6
12/31	16.0	18.2	5.0	16.2	11.1	14	1
AVG	8.2	14.8	6.0	8.4	7.6	12	3
MAX	18.6	31.0	11.3	18.8	15.9	24	8