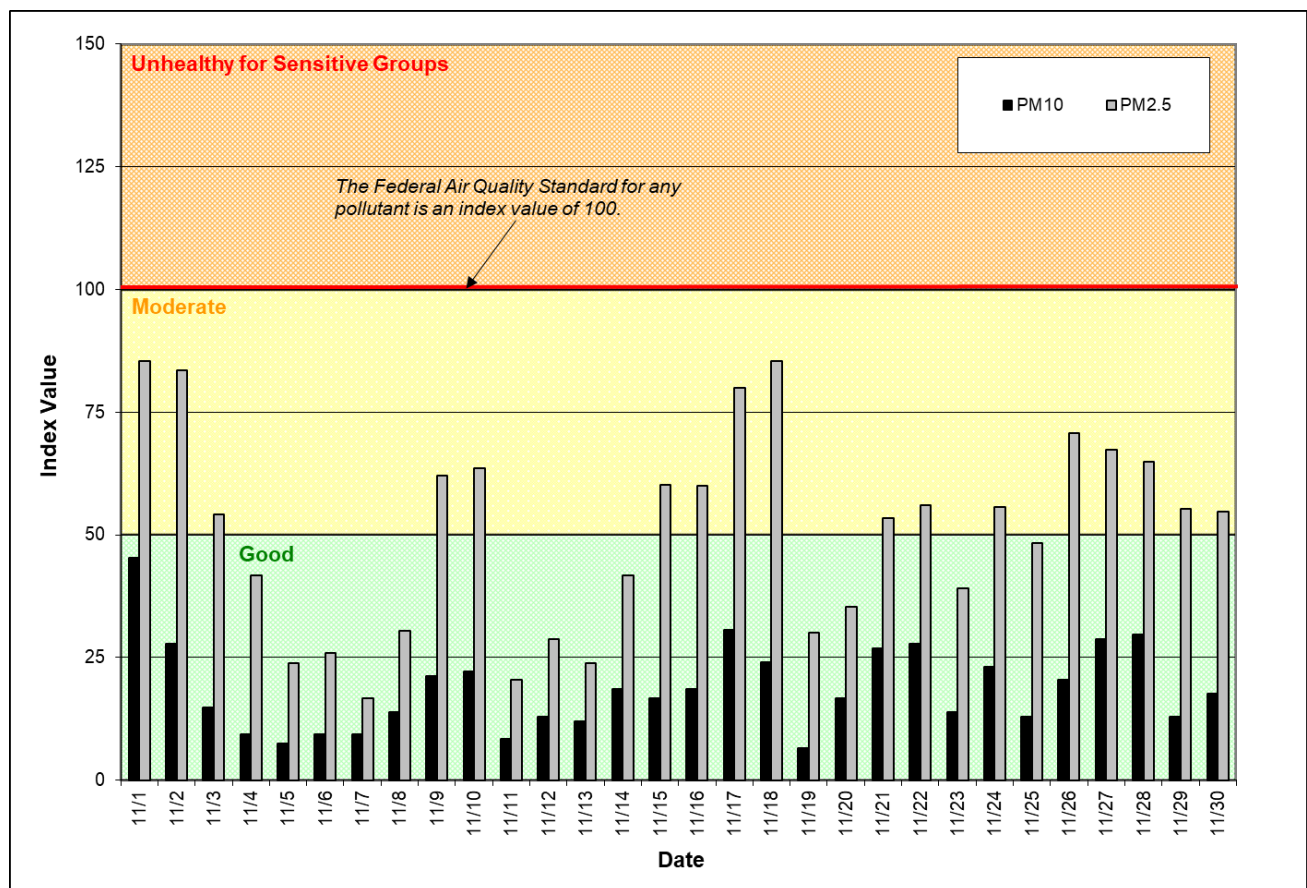


Spokane Regional Clean Air Agency

Air Quality Report - November 2023

The daily Air Quality Index (AQI) was in the MODERATE category on 17 days in November and was in the GOOD category on the remaining 13 days (**Figure 1 and Table 1**). The maximum daily AQI was 85, based on a 24-hour average PM_{2.5} concentration of 28.5 µg/m³ recorded at Spokane-Augusta & Fiske on the 1st and Colbert-E Greenbluff Rd on the 18th (**Figure 2 and Table 2**). The maximum AQI for PM₁₀ was 45 (24-hour PM_{2.5} mass concentration = 49 µg/m³), recorded on the 1st at Spokane-Augusta & Fiske.

Figure 1: Air Quality Index (AQI) values for November 2023. The data represent the maximum AQI values across all monitoring stations within Spokane County. Atmospheric high pressure brought dry and calm conditions and deteriorated (AQI-MODERATE) air quality during much of the month.



See Appendix 1 of this report for a description of the AQI, Appendix 2 for information about federal air quality standards, and Appendix 3 for a summary of daily PM_{2.5}, and PM₁₀ concentrations and AQIs across the Spokane-area ambient air monitoring network. Current and historical ambient air quality data can also be obtained from the Washington State Department of Ecology's air monitoring data website, <https://enviwa.ecology.wa.gov/home/map>.

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

Figure 2: Daily 24-hour average PM_{2.5}, all Spokane County monitoring stations, November 2023. Turnbull and Greenbluff data (dashed) are collected using “low-cost” sensors - a technology that, although slightly less accurate than the Agency’s regulatory grade monitors, enables the expansion of the monitoring network into areas that would otherwise go unmonitored. A weak cellular signal at Greenbluff causes occasional loss of data.

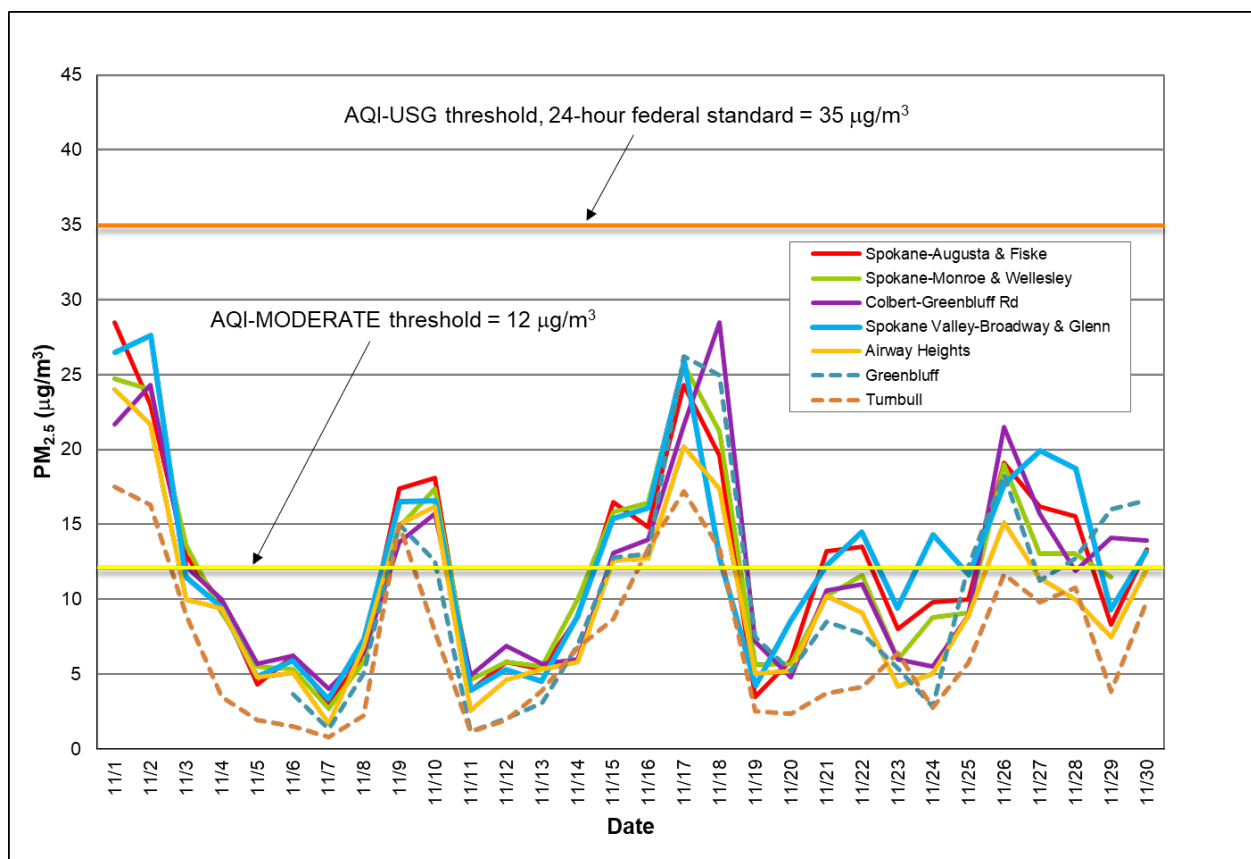


Table 1: AQI summary, November 2023

Category	Number of days in November	Number of days this year to date
Good (0-50)	13	245
Moderate (51-100)	17	84
Unhealthy for Sensitive Groups (101-150)	0	1
Unhealthy (151-200)	0	2
Very Unhealthy (201-300)	0	1
Hazardous (>300)	0	1

Table 2: Maximum AQI values and pollutant concentrations for this reporting period.

Pollutant	AQI		Location	Date
PM ₁₀	45 (conc. = 49 µg/m ³)	Good	Spokane-Augusta & Fiske	11/1
PM _{2.5}	85 (conc. = 28.5 µg/m ³)	Moderate	Spokane-Augusta & Fiske	11/1
			Colbert-E Greenbluff Rd	11/18

Table 3: Maximum AQI values and pollutant concentrations this year.

Pollutant	AQI		Location	Date
Ozone	88 (conc. = 0.066 ppm)	Moderate	Turnbull National Wildlife Refuge	8/19
PM ₁₀	164 (mass conc. = 281 µg/m ³)	Unhealthy	Spokane Valley – Broadway & Glenn	8/19
PM _{2.5}	368 (mass conc. = 317.7 µg/m ³)	Hazardous	Spokane – Greenbluff	8/19

Appendix 1 – 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” (USG; orange, 101-150), “Unhealthy” (red, 151-200), “Very Unhealthy” (purple, 201-300) and “Hazardous” (maroon, 301-500; Table A-1).

Table A-1: Air pollutant breakpoints for the Air Quality Index.

Air Quality Index Levels of Health Concern	Color Code	Index Numerical Value	Breakpoints				Health Effects
			O ₃ (ppm) 8-hour	PM _{2.5} (µg/m ³) 24-hour	PM ₁₀ (µg/m ³) 24-hour	CO (ppm) 8-hour	
Good	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.
Moderate	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.
Unhealthy for Sensitive Groups	Orange	101-150	0.071-0.085	35.5-55.4	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.
Unhealthy	Red	151-200	0.086-0.105	55.5-150.4	255-354	12.5-15.4	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	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.
Hazardous	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 2 – 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 (NO₂), particulate matter (PM₁₀ and PM_{2.5}), ground-level ozone (O₃) and sulfur dioxide (SO₂; Table A-2). 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-2: National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month period	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide (NO₂)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O₃)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	PM _{2.5}	primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO₂)		primary	1 hour	75 ppb (4)	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/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ 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) O₃ standards additionally remain in effect in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO₂ 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 SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ 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 required NAAQS.

Appendix 3

Table A-3: November summary air quality data for air monitoring stations in Spokane County. Particulate matter mass concentration is reported as 24-hour averages in micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). See Appendix 2 for an explanation of the Air Quality Index. A weak cellular connection at Greenbluff resulted in intermittent loss of PM_{2.5} sensor data.

Pollutant Concentration										
Date	PM _{2.5} (µg/m ³)							PM ₁₀ (µg/m ³)		
	24-Hour Avg							24-Hour Avg		
	PM _{2.5} - Airway Heights, 12th & Lawson	PM _{2.5} - Colbert, E Greenbluff Rd	PM _{2.5} - Spokane, Augusta & Fiske	PM _{2.5} - Spokane Valley, Broadway & Glenn	PM _{2.5} - Spokane, Monroe & Wellesley	PM _{2.5} - Turnbull NWR (temporary sensor)	PM _{2.5} - Greenbluff (temporary sensor)	PM ₁₀ - Turnbull NWR BAM	PM ₁₀ - Spokane, Augusta & Fiske	PM ₁₀ - Spokane Valley, Broadway & Glenn
11/1	24.0	21.7	28.5	26.5	24.7	17.5		20	49	36
11/2	21.7	24.3	23.0	27.6	24.0	16.3	23.2	13	25	30
11/3	10.0	12.2	12.9	11.5	13.6	9.0		8	15	16
11/4	9.4	10.0	9.7	9.5	9.1	3.5	6.2	7	10	10
11/5	4.8	5.7	4.3	4.8	5.5	1.9		3	8	7
11/6	5.1	6.2	6.2	5.9	5.3	1.5	3.7	4	10	7
11/7	1.7	4.0	3.0	3.3	2.7	0.8	1.3	3	10	4
11/8	6.8	6.4	6.3	7.3	5.8	2.2	5.0	4	13	15
11/9	15.0	13.8	17.4	16.5	14.8	15.0	15.0	17	23	22
11/10	16.2	15.7	18.1	16.6	17.4	7.8	12.5	8	24	20
11/11	2.6	4.9	3.9	3.9	4.6	1.2	1.1	4	9	7
11/12	4.6	6.9	5.8	5.3	5.8	1.9	2.0	5	14	8
11/13	5.3	5.7	5.3	4.5	5.5	3.9	3.1	5	13	7
11/14	5.8	6.0	8.8	8.8	10.0	6.8	7.0	3	20	10
11/15	12.6	13.1	16.5	15.4	15.8	8.6	12.8	8	18	16
11/16	12.7	14.0	14.8	16.1	16.4	13.4	13.0	11	19	20
11/17	20.2	21.6	24.3	25.9	25.7	17.2	26.2	15	33	30
11/18	17.4	28.5	19.6	12.7	21.2	13.4	25.0	12	26	14
11/19	5.0	7.2	3.5	4.2	5.6	2.5	7.5	4	7	5
11/20	5.2	4.8	5.9	8.5	5.7	2.3	5.2	4	18	16
11/21	10.2	10.6	13.2	12.2	10.2	3.7	8.5	5	29	18
11/22	9.1	11.0	13.5	14.5	11.6	4.1	7.7	4	30	21
11/23	4.2	6.0	8.0	9.4	6.0	6.4	5.4	5	15	12
11/24	5.0	5.5	9.8	14.3	8.8	2.8	2.8	3	25	21
11/25	8.9	8.9	10.0	11.6	9.1	5.8	12.2	3	13	14
11/26	15.1	21.5	19.1	17.7	19.0	11.6	18.3	10	22	20
11/27	11.4	15.7	16.2	19.9	13.0	9.8	11.2	10	30	31
11/28	10.0	11.9	15.5	18.7	13.0	10.8	12.7	9	32	28
11/29	7.5	14.1	8.3	9.3	11.5	3.8	16.0	1	13	14
11/30	12.0	13.9	13.3	13.2		9.9	16.6	9	17	19
AVG	10.0	11.7	12.2	12.5	11.8	7.2	10.4	7	20	17
MAX	24	28.5	28.5	27.6	25.7	17.5	26.2	20	49	36

Air Quality Index (AQI)												
Date	PM _{2.5}							PM ₁₀			MAXIMUM	
	24-Hour Avg							24-Hour Avg				
	PM _{2.5} - Airway Heights, 12th & Lawson	PM _{2.5} - Colbert, E Greenbluff Rd	PM _{2.5} - Spokane - Augusta & Fiske	PM _{2.5} - Spokane Valley, Broadway & Glenn	PM _{2.5} - Spokane, Monroe & Wellesley	PM _{2.5} - Turnbull NWR (temporary sensor)	PM _{2.5} - Greenbluff (temporary sensor)	PM ₁₀ - Turnbull NWR	PM ₁₀ - Spokane, Augusta & Fiske	PM ₁₀ - Spokane Valley, Broadway & Glenn		
11/1	76	71	85	81	77	62		19	45	33	85	
11/2	71	77	74	84	76	60	74	13	23	28	84	
11/3	42	51	53	48	54	37		8	14	15	54	
11/4	39	42	40	40	38	14	26	7	9	9	42	
11/5	20	24	18	20	23	8		3	7	6	24	
11/6	21	26	26	25	22	6	15	4	9	6	26	
11/7	7	17	13	14	11	3	5	3	9	4	17	
11/8	28	27	26	30	24	9	21	4	12	14	30	
11/9	57	55	62	60	57	57	57	17	21	20	62	
11/10	60	59	64	60	62	33	52	8	22	19	64	
11/11	11	20	16	16	19	5	5	4	8	6	20	
11/12	19	29	24	22	24	8	8	5	13	7	29	
11/13	22	24	22	19	23	16	13	5	12	6	24	
11/14	24	25	37	37	42	28	29	3	19	9	42	
11/15	52	53	60	58	59	36	52	8	17	15	60	
11/16	52	55	57	59	60	54	53	10	18	19	60	
11/17	68	71	77	80	80	62	81	15	31	28	81	
11/18	62	85	67	52	70	54	78	12	24	13	85	
11/19	21	30	15	18	23	11	31	4	6	5	31	
11/20	22	20	25	35	24	10	22	4	17	15	35	
11/21	43	44	53	51	43	15	35	5	27	17	53	
11/22	38	46	54	56	48	17	32	4	28	19	56	
11/23	18	25	33	39	25	27	23	5	14	11	39	
11/24	21	23	41	56	37	12	12	3	23	19	56	
11/25	37	37	42	48	38	24	51	3	12	13	51	
11/26	57	71	66	63	66	49	64	10	20	19	71	
11/27	48	59	60	67	53	41	47	10	28	29	67	
11/28	42	50	58	65	53	45	52	9	30	26	65	
11/29	31	55	35	39	48	16	59	2	12	13	59	
11/30	50	55	54	53		41	60	9	16	18	60	
AVG	39	44	45	47	44	29	39	7	18	15	51	
MAX	76	85	85	84	80	62	81	19	45	33	85	