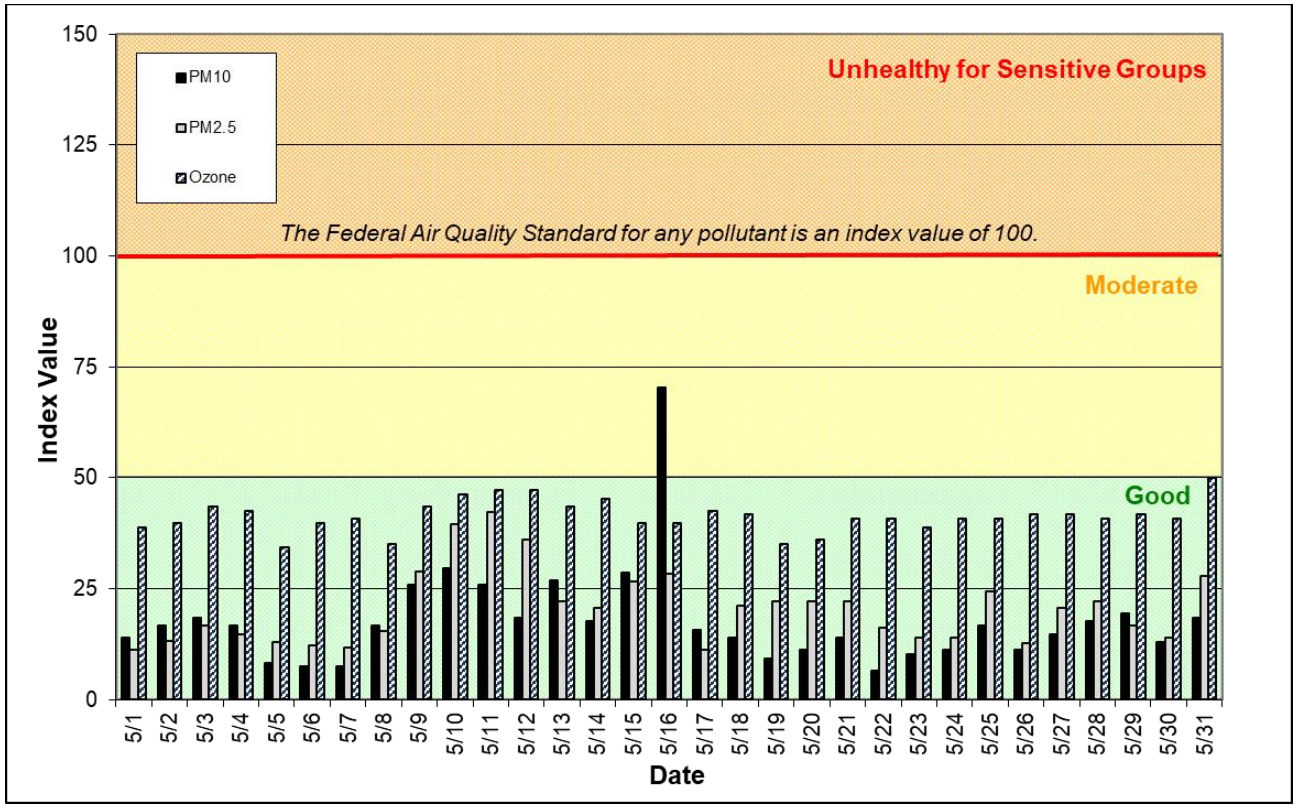
Spokane Regional Clean Air Agency
Air Quality Report - May 2024

Air quality in Spokane County was GOOD on all but one day in May as determined by the Air Quality Index (AQI, **Figures 1 and Table 1**). Blowing dust was responsible for the single occurrence of MODERATE air quality on the 16th with an AQI of 70, based on a 24-hour average PM_{10} concentration of 94 $\mu g/m^3$ at the Spokane-Augusta & Fiske air monitoring station (**Figure 2 and Table 2**), the highest recorded PM_{10} concentration so far this year (**Table 3**).

The maximum $PM_{2.5}$-based daily AQI was 42 (24-hour $PM_{2.5}$ mass concentration = 7.6 $\mu g/m^3$), recorded on the 11th at Spokane-Augusta & Fiske (**Figure 3**) and the maximum ozone-based AQI was 50 (GOOD air quality, 8-hour concentration = 0.054), recorded on the 31st at Greenbluff (**Figure 4**). Effective May 6th, EPA tightened the annual $PM_{2.5}$ standard from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$ and adjusted the AQI breakpoints for $PM_{2.5}$ accordingly (see Appendices 1 and 2).

<u>Figure 1</u>: Daily Air Quality Index (AQI) values for May 2024. The data represent the maximum AQI values across all monitoring stations within Spokane County. Air pollutants monitored in Spokane County by Spokane Regional Clean Air Agency and the Washington State Department of Ecology are represented: PM_{10}, $PM_{2.5}$, and ozone.



See Appendix 1 of this report for information about federal air quality standards, Appendix 2 for a description of the AQI, or Appendix 3 for a summary of daily ozone, $PM_{2.5}$, and PM_{10} mass 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.

Figure 2: Daily 24-hour average PM_{10}, all Spokane County monitoring stations, May 2024. Blowing dust resulted in a 24-hour average PM_{10} value of 94 $\mu g/m^3$ at Spokane-Augusta & Fiske on the 16th. The power to the monitor at Spokane-Augusta & Fiske failed to recover automatically after an interruption on Sunday the 26th. See Appendix 3 for PM_{10} sensor data.

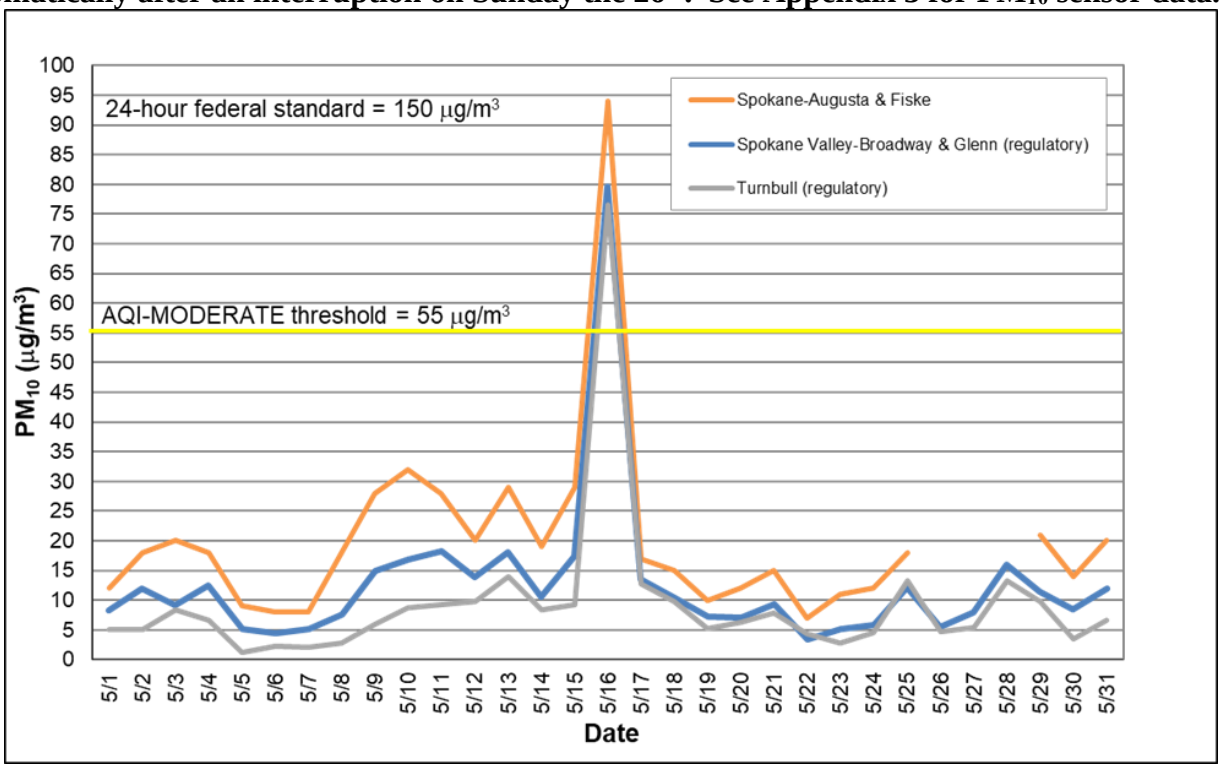


Figure 3: Daily 24-hour average PM_{10}, all Spokane County monitoring stations, May 2024. Data depicted using dashed lines were collected using "low-cost" sensors. Regulatory monitoring data (Spokane Valley-Broadway & Glenn, round markers) determine the Spokane area's compliance with federal air quality standards. Spokane-Sprague & Haven reported negative values ranging from -0.1 to -1.4 $\mu g/m^3$ on some days – see Table A-3(1), Appendix 3.

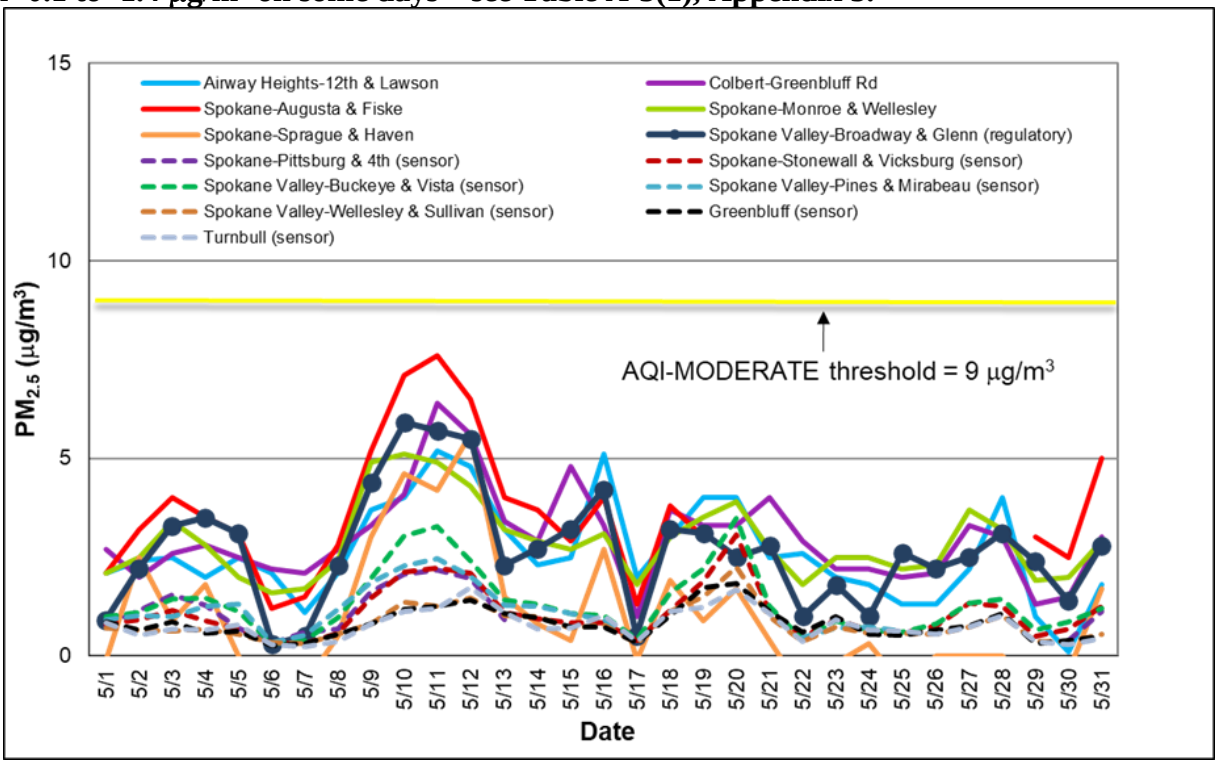


Figure 4: Eight-hour maximum ozone concentrations for the Spokane region in May. (Spokane-Greenbluff and Cheney-Turnbull air monitoring stations). The ozone analyzer at Greenbluff failed to recover from cycling the power at the monitoring station on the 12th causing the loss of data for that day.

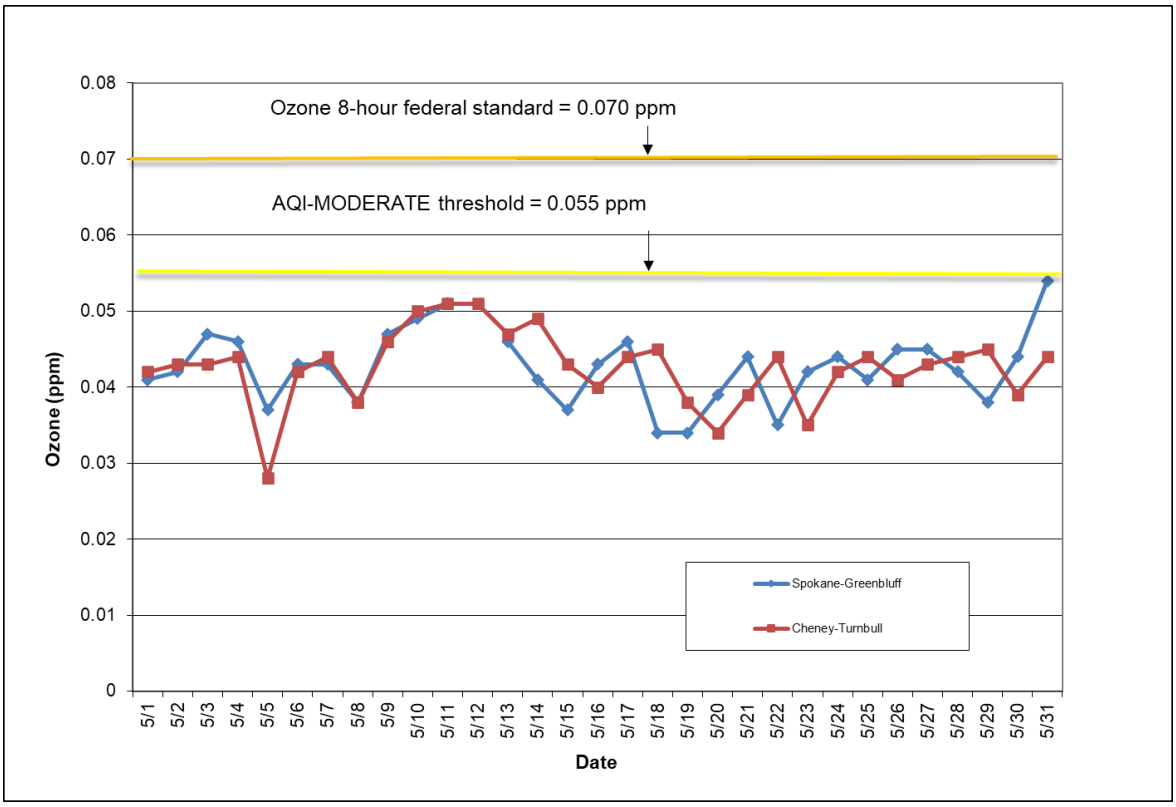


Table 1 summarizes the daily AQIs by category for the month and year-to-date and Tables 2 and 3 contain the maximum AQI values for each pollutant for the month and for the year, respectively.

Table 1: AQI summary, May 2024

Category	Number of days in May	Number of days this year to date
Good (0-50)	30	149
Moderate (51-100)	1	3
Unhealthy for Sensitive Groups (101-150)	0	0
Unhealthy (151-200)	0	0
Very Unhealthy (201-300)	0	0
Hazardous (>300)	0	0

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

Pollutant	AQI		Location	Date
Ozone	**50 (conc. = 0.054 ppm)**	**Good**	**Greenbluff**	**5/31**
PM_{10}	**70 (mass conc. = 94 µg/m^3)**	**Moderate**	**Spokane – Augusta & Fiske**	**5/16**
$PM_{2.5}$	**42 (mass conc. = 7.6 µg/m^3)**	**Good**	**Spokane – Augusta & Fiske**	**5/11**

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

Pollutant	AQI		Location	Date
Ozone	**51 (conc. = 0.055 ppm)**	**Moderate**	**Greenbluff**	**4/23**
PM_{10}	**70 (mass conc. = 94 µg/m^3)**	**Moderate**	**Spokane – Augusta & Fiske**	**5/16**
$PM_{2.5}$	**52 (conc. = 12.5 µg/m^3)**	**Moderate**	**Spokane – Sprague & Haven**	**1/26**

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_2), particulate matter (PM_{10} and $PM_{2.5}$), ground-level ozone (O_3) and sulfur dioxide (SO_2; 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
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 (NO_2)		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 (O_3)		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	9.0 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 (SO_2)		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/m^3 as a calendar quarter average) also remain in effect. **(2)** The level of the annual NO_2 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_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards. **(4)** The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (a) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (b)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_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 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 require 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" (USG; orange, 101-150), "Unhealthy" (red, 151-200), "Very Unhealthy" (purple, 201-300) and "Hazardous" (maroon, 301-500; Table A-2). The $PM_{2.5}$ breakpoints were updated when the new annual $PM_{2.5}$ standard went into effect on May 6th.

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_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	0.0-9.0	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	9.1-35.4	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	55.5-125.4	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	125.5-225.4	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)	225.5+	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(1): May summary air quality data for air monitoring stations in Spokane County. Ozone is reported as the daily maximum running 8-hour average in parts per million (ppm) and particulate matter mass concentration is reported as 24-hour averages in micrograms per cubic meter of air (μg/m^3). The ozone analyzer at Greenbluff failed to recover from cycling the power at the monitoring station on the 12th causing the loss of data for that day. The $PM_{2.5}$ monitor at Spokane-Augusta & Fiske was offline May 20–24 for annual maintenance. Failure of the monitors to recover from power interruptions on the 26th at Spokane-Augusta & Fiske and Spokane-Sprague & Haven caused the loss of $PM_{2.5}$ and PM_{10} data for those sites on the 26th through the 28th. Loss of power to an electrical outlet at Spokane-Pittsburg & 4th (Liberty Park Library) resulted in the loss of $PM_{2.5}$ data starting on the 14th. Communication with Spokane Valley-Pines & Mirabeau dropped sporadically in the last half of the month.

Pollutant Concentration																					
	Ozone (ppm) Max 8-Hour Avg		$PM_{2.5}$ (μg/m^3) 24-Hour Avg													PM_{10} (μg/m^3) 24-Hour Avg					
Date	Ozone - Turnbull NWR	Ozone - Greenbluff	$PM_{2.5}$ - Airway Heights, 12th & Lawson	$PM_{2.5}$ - Colbert, E Greenbluff Rd	$PM_{2.5}$ - Spokane, Augusta & Fiske	$PM_{2.5}$ - Spokane, Monroe & Wellesley	$PM_{2.5}$ - Spokane, Sprague & Haven	$PM_{2.5}$ - Spokane Valley, Broadway & Glenn	$PM_{2.5}$ - Spokane, Pittsburg & 4th (sensor)	$PM_{2.5}$ - Spokane, Stonewall & Vicksburg (sensor)	$PM_{2.5}$ - Spokane Valley, Buckeye & Vista (sensor)	$PM_{2.5}$ - Spokane Valley, Pines & Mirabeau (sensor)	$PM_{2.5}$ - Spokane Valley, Wellesley & Sullivan (sensor)	$PM_{2.5}$ - Greenbluff (sensor)	$PM_{2.5}$ - Turnbull NWR (sensor)	PM_{10} - Spokane, Augusta & Fiske	PM_{10} - Spokane Valley, Broadway & Glenn	PM_{10} - Turnbull NWR	PM_{10} - Airway Heights, 12th & Lawson (sensor)	PM_{10} - Spokane, Sprague & Haven (sensor)	PM_{10} - Spokane Valley, Buckeye & Vista (sensor)
5/1	0.042	0.041	2.1	2.7	2.1	2.1	-0.1	0.9	0.8	0.8	1.0	0.9	0.7	0.9	0.8	12	8	5	15	6	9
5/2	0.043	0.042	2.4	2.0	3.2	2.5	2.5	2.2	1.1	0.9	1.1	1.0	0.6	0.7	0.5	18	12	5	12	13	9
5/3	0.043	0.047	2.5	2.6	4.0	3.4	0.9	3.3	1.6	1.2	1.4	1.0	0.6	0.9	0.7	20	9	8	13	10	7
5/4	0.044	0.046	2.0	2.8	3.5	2.8	1.8	3.5	1.3	0.9	1.5	1.2	0.7	0.6	0.6	18	12	6	12	13	9
5/5	0.028	0.037	2.5	2.5	3.1	2.0	0.0	3.1	0.7	0.7	1.1	1.3	0.5	0.6	0.8	9	5	1	4	4	4
5/6	0.042	0.043	2.1	2.2	1.2	1.6	-1.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	8	4	2	5	3	5
5/7	0.044	0.043	1.1	2.1	1.5	1.7	-0.7	0.5	0.6	0.3	0.4	0.5	0.3	0.3	0.2	8	5	2	5	4	4
5/8	0.038	0.038	2.1	2.7	2.8	2.4	0.5	2.3	0.7	0.6	1.0	1.2	0.6	0.5	0.4	18	7	2	11	6	6
5/9	0.046	0.047	3.7	3.3	5.2	4.9	3.0	4.4	1.6	1.5	2.0	1.9	0.8	0.8	0.8	28	14	5	15	16	11
5/10	0.050	0.049	4.0	4.1	7.1	5.1	4.6	5.9	2.1	2.1	3.1	2.3	1.4	1.2	1.1	32	16	8	20	20	17
5/11	0.051	0.051	5.2	6.4	7.6	4.9	4.2	5.7	2.2	2.2	3.3	2.5	1.3	1.3	1.2	28	18	9	24	17	17
5/12	0.051		4.8	5.6	6.5	4.3	5.6	5.5	2.0	2.1	2.4	2.0	1.5	1.4	1.7	20	13	9	20	15	15
5/13	0.047	0.046	3.2	3.4	4.0	3.2	1.5	2.3	0.9	1.1	1.4	1.3	1.0	1.1	1.1	29	18	14	27	16	20
5/14	0.049	0.041	2.3	2.9	3.7	2.9	0.8	2.7		0.9	1.3	1.3	1.0	1.0	0.7	19	10	8	14	12	14
5/15	0.043	0.037	2.5	4.8	2.9	2.7	0.4	3.2		0.8	1.1	1.1	0.7	0.7	0.7	29	17	9	31	17	17
5/16	0.040	0.043	5.1	3.3	4.0	3.1	2.7	4.2		0.8	1.0	0.9	0.8	0.7	1.0	94	79	76	82	42	78
5/17	0.044	0.046	2.0	1.0	1.3	1.8	-0.1	0.5		0.4	0.4	0.4	0.3	0.3	0.4	17	13	12	13	12	12
5/18	0.045	0.034	3.0	3.7	3.8	3.0	1.9	3.2		1.2	1.6		1.1	1.0	1.1	15	10	9	13	9	10
5/19	0.038	0.034	4.0	3.3	3.0	3.5	0.9	3.1		1.9	2.2		1.5	1.7	1.2	10	7	5	6	7	6
5/20	0.034	0.039	4.0	3.3		3.9	1.7	2.5		3.1	3.5		2.3	1.8	1.7	12	7	6	10	9	7
5/21	0.039	0.044	2.5	4.0		2.7	0.4	2.8		1.1	1.3		1.0	1.1	1.1	15	9	7	15	8	8
5/22	0.044	0.035	2.6	2.9		1.8	-0.9	1.0		0.5	0.4	0.5	0.4	0.6	0.4	7	3	4	6	3	4
5/23	0.035	0.042	2.0	2.2		2.5	-0.2	1.8		0.9	0.9	0.7	0.7	1.0	0.9	11	5	2	8	4	5
5/24	0.042	0.044	1.8	2.2		2.5	0.3	1.0		0.6	0.7	0.7	0.6	0.6	0.7	12	5	4	10	6	6
5/25	0.044	0.041	1.3	2.0	4.4	2.2	-0.7	2.6		0.6	0.6	0.6	0.6	0.5	0.6	18	12	13	17	11	14
5/26	0.041	0.045	1.3	2.1		2.3		2.2		0.8	0.8		0.5	0.6	0.5		5	4	12	6	6
5/27	0.043	0.045	2.2	3.3		3.7		2.5		1.3	1.3	1.3	0.7	0.8	0.7		7	5	16	8	6
5/28	0.044	0.042	4.0	3.0		3.2		3.1		1.2	1.4		1.0	1.1	1.0		15	13	19	13	15
5/29	0.045	0.038	1.0	1.3	3.0	1.9	-0.9	2.4		0.5	0.7	0.6	0.4	0.3	0.4	21	11	9	14	9	13
5/30	0.039	0.044	0.1	1.5	2.5	2.0	-0.4	1.4	0.4	0.7	0.9		0.4	0.4	0.3	14	8	3	10	6	6
5/31	0.044	0.054	1.8	3.0	5.0	2.9	1.7	2.8	1.1	1.3	1.2	0.9	0.5	0.5	0.4	20	12	6	16	13	10
AVG	0.043	0.043	2.6	3.0	3.7	2.9	1.1	2.7	1.2	1.1	1.3	1.1	0.8	0.8	0.8	20	12	9	16	11	12
MAX	0.051	0.054	5.2	6.4	7.6	5.1	5.6	5.9	2.2	3.1	3.5	2.5	2.3	1.8	1.7	94	79	76	82	42	78

Table A-3(2): May summary Air Quality Index (AQI) data for air monitoring stations in Spokane County.

Air Quality Index (AQI)																						
	Ozone		$PM_{2.5}$														PM_{10}						
Date	Ozone - Turnbull NWR	Ozone - Greenbluff	$PM_{2.5}$ - Airway Heights, 12th & Lawson	$PM_{2.5}$ - Colbert, E Greenbluff Rd	$PM_{2.5}$ - Spokane, Augusta & Fiske	$PM_{2.5}$ - Spokane, Monroe & Wellesley	$PM_{2.5}$ - Spokane, Sprague & Haven	$PM_{2.5}$ - Spokane Valley, Broadway & Glenn	$PM_{2.5}$ - Spokane, Pittsburg & 4th (sensor)	$PM_{2.5}$ - Spokane, Stonewall & Vicksburg (sensor)	$PM_{2.5}$ - Spokane Valley, Buckeye & Vista (sensor)	$PM_{2.5}$ - Spokane Valley, Pines & Mirabeau (sensor)	$PM_{2.5}$ - Spokane Valley, Wellesley & Sullivan (sensor)	$PM_{2.5}$ - Greenbluff (sensor)	$PM_{2.5}$ - Turnbull NWR (sensor)	PM_{10} - Spokane, Augusta & Fiske	PM_{10} - Spokane Valley, Broadway & Glenn	PM_{10} - Turnbull NWR	PM_{10} - Airway Heights, 12th & Lawson (sensor)	PM_{10} - Spokane, Sprague & Haven (sensor)	PM_{10} - Spokane Valley, Buckeye & Vista (sensor)	MAXIMUM
5/1	39	38	9	11	9	9	0	4	3	3	4	4	3	4	3	11	7	5	14	6	8	39
5/2	40	39	10	8	13	10	10	9	5	4	5	4	3	3	2	17	11	5	11	12	8	40
5/3	40	44	10	11	17	14	4	14	6	5	6	4	3	4	3	19	8	7	12	9	6	44
5/4	41	43	8	12	15	12	8	15	5	4	6	5	3	2	3	17	11	6	11	12	8	43
5/5	26	34	10	10	13	8	0	13	3	3	5	5	2	3	3	8	5	1	4	4	4	34
5/6	39	40	12	12	7	9	0	2	2	2	2	2	2	1	2	7	4	2	5	3	5	40
5/7	41	40	6	12	8	9	0	3	3	2	2	3	2	2	1	7	5	2	5	4	4	41
5/8	35	35	12	15	16	13	3	13	4	3	5	7	3	3	2	17	6	2	10	6	6	35
5/9	43	44	21	18	29	27	17	24	9	8	11	10	5	5	5	26	13	5	14	15	10	44
5/10	46	45	22	23	39	28	26	33	11	12	17	13	8	7	6	30	15	7	19	19	16	46
5/11	47	47	29	36	42	27	23	32	12	12	18	14	7	7	7	26	17	8	22	16	16	47
5/12	47		27	31	36	24	31	31	11	12	13	11	8	8	10	19	12	8	19	14	14	47
5/13	44	43	18	19	22	18	8	13	5	6	8	7	6	6	6	27	17	13	25	15	19	44
5/14	45	38	13	16	21	16	4	15		5	7	7	6	5	4	18	9	7	13	11	13	45
5/15	40	34	14	27	16	15	2	18		5	6	6	4	4	4	27	16	8	29	16	16	40
5/16	37	40	28	18	22	17	15	23		5	6	5	4	4	6	70	63	61	64	39	62	70
5/17	41	43	11	6	7	10	0	3		2	2	2	2	2	2	16	12	11	12	11	11	43
5/18	42	31	17	21	21	17	11	18		6	9		6	6	6	14	9	8	12	8	9	42
5/19	35	31	22	18	17	19	5	17		11	12		8	10	7	9	6	5	6	6	6	35
5/20	31	36	22	18		22	9	14		17	19		13	10	9	11	6	6	9	8	6	36
5/21	36	41	14	22		15	2	16		6	7		6	6	6	14	8	6	14	7	7	41
5/22	41	32	14	16		10	0	6		3	2	3	2	3	2	6	3	4	6	3	4	41
5/23	32	39	11	12		14	0	10		5	5	4	4	5	5	10	5	2	7	4	5	39
5/24	39	41	10	12		14	2	6		4	4	4	3	3	4	11	5	4	9	6	6	41
5/25	41	38	7	11	24	12	0	14		3	3	4	3	3	4	17	11	12	16	10	13	41
5/26	38	42	7	12		13		12		4	4		3	4	3		5	4	11	6	6	42
5/27	40	42	12	18		21		14		7	7	7	4	4	4		6	5	15	7	6	42
5/28	41	39	22	17		18		17		7	8		6	6	6		14	12	18	12	14	41
5/29	42	35	6	7	17	11	0	13		3	4	3	2	2	2	19	10	8	13	8	12	42
5/30	36	41	1	8	14	11	0	8	2	4	5		2	2	2	13	7	3	9	6	6	41
5/31	41	50	10	17	28	16	9	16	6	7	7	5	3	3	2	19	11	6	15	12	9	50
AVG	39	39	14	16	20	15	7	14	6	6	7	6	4	4	4	18	11	8	14	10	11	42
MAX	47	50	29	36	42	28	31	33	12	17	19	14	13	10	10	70	63	61	64	39	62	70