

Spokane Regional Clean Air Agency Air Quality Report – August 2022

The maximum daily AQI for the month was 74 (MODERATE air quality), based on an 8-hour average ozone concentration of 0.062 ppm recorded at Greenbluff on the 11th (Figure 1, 2, and 4). It was the highest AQI reading so far this year (through August). Ozone was the predominant pollutant in the Spokane area on 24 days in August.

The maximum daily AQI for PM_{2.5} of 68 (MODERATE air quality) was recorded at Spokane-Augusta Ave on the 19th. It was based on a 24-hour average PM_{2.5} mass concentration of 20.1 mg/m³ (AQI = 68, MODERATE), recorded at the Spokane - Augusta Ave monitoring station (Figure 3). The AQI for PM₁₀ reached 53 (MODERATE air quality, 24-hour avg mass concentration = 59 µg/m³) at Spokane-Augusta Ave on the 31st (Figure 4).

The Washington State Department of Ecology runs PM_{2.5} sensors at Greenbluff and Turnbull ozone monitoring stations. PM_{2.5} data for those locations are reported on Spokane Regional Clean Air Agency's Current Air Quality webpage (<https://spokanecleanair.org/air-quality/current-air-quality/>), EPA-AirNow (www.airnow.gov) and the AirNow Fire and Smoke map (<https://fire.airnow.gov/>), and the Washington State Department of Ecology's air quality map (<https://enviwa.ecology.wa.gov/home/map>). Those data are included in Appendix 3 but not elsewhere in this report because the sensors produce less accurate data than the Agency's regulatory-grade monitors.

Figure 1: Air Quality Index (AQI) values for August 2022. The data represent the maximum AQI values across all monitoring stations within Spokane County.

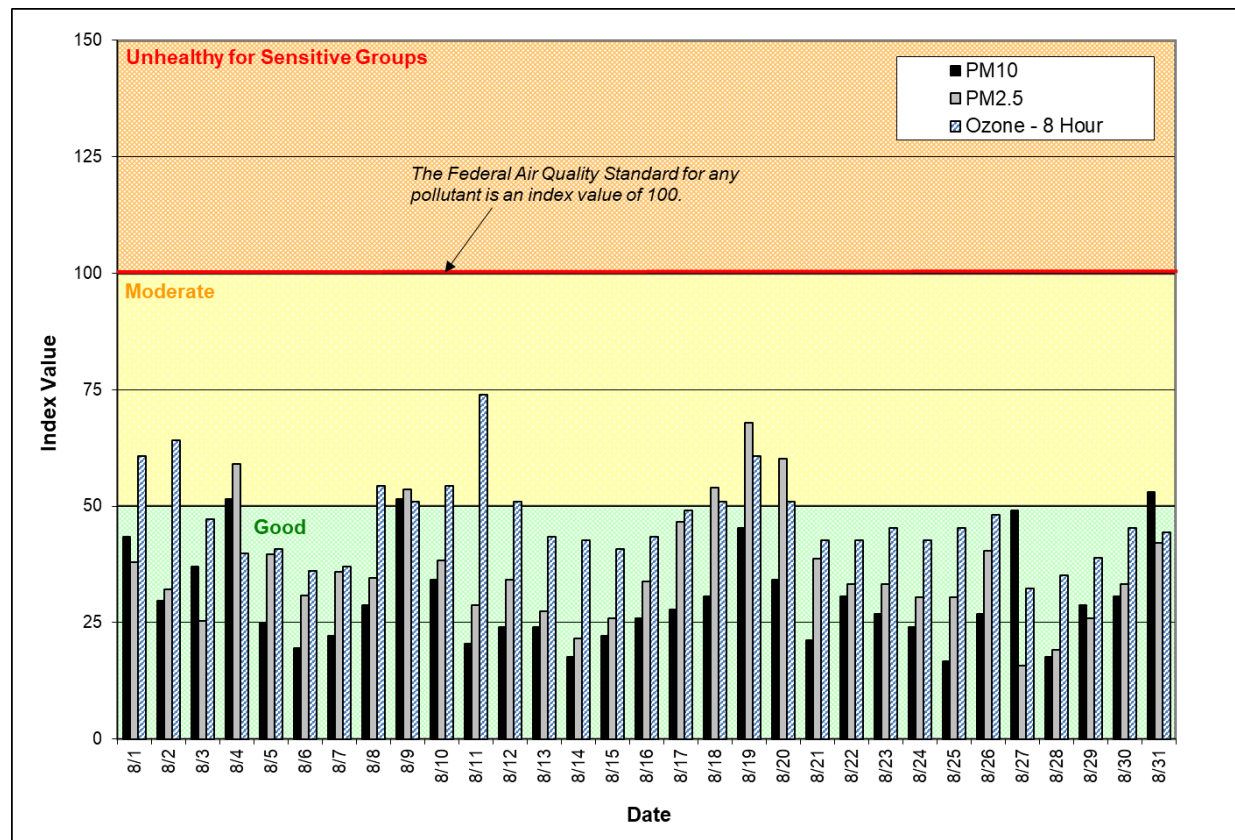


Figure 2: Eight-hour maximum ozone concentrations for the Spokane region in August. Higher temperatures are generally associated with higher ozone concentrations.

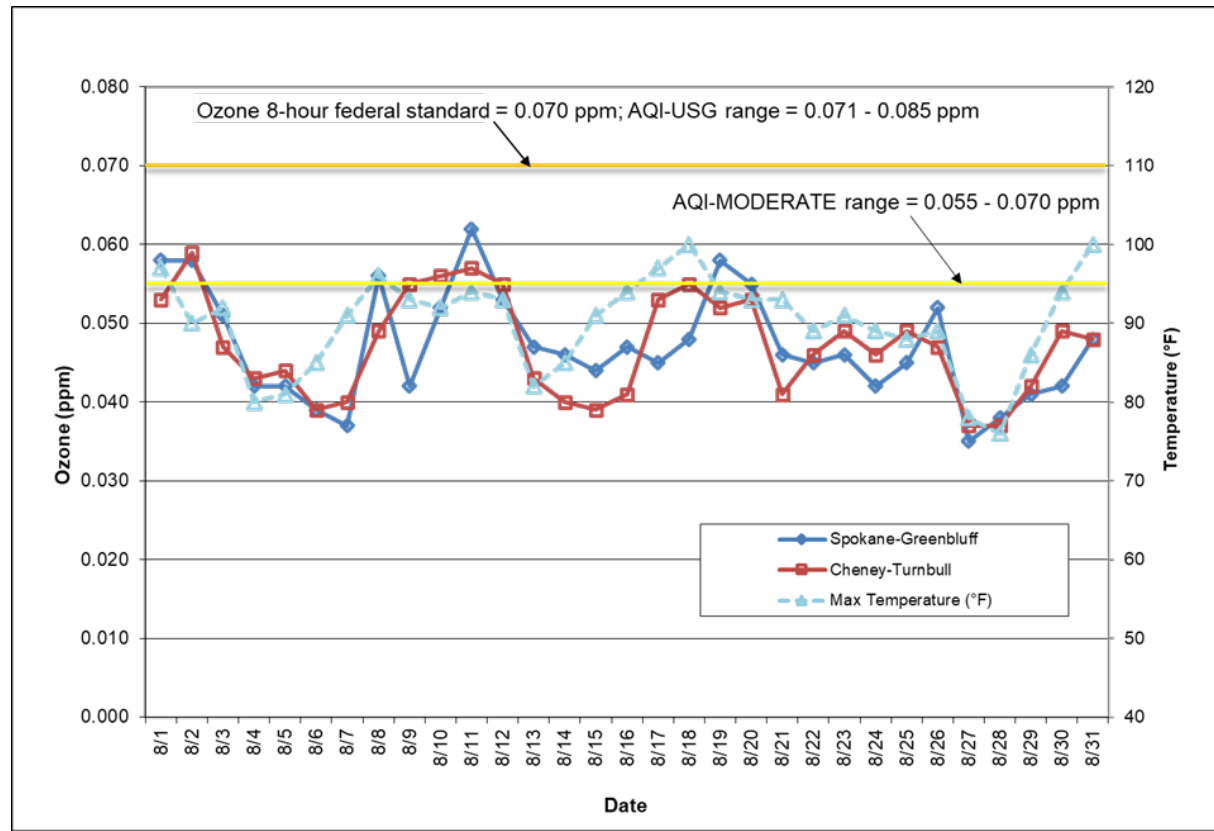


Figure 2: Multi-station 24-hour average PM_{2.5} for August 2022; Spokane County.

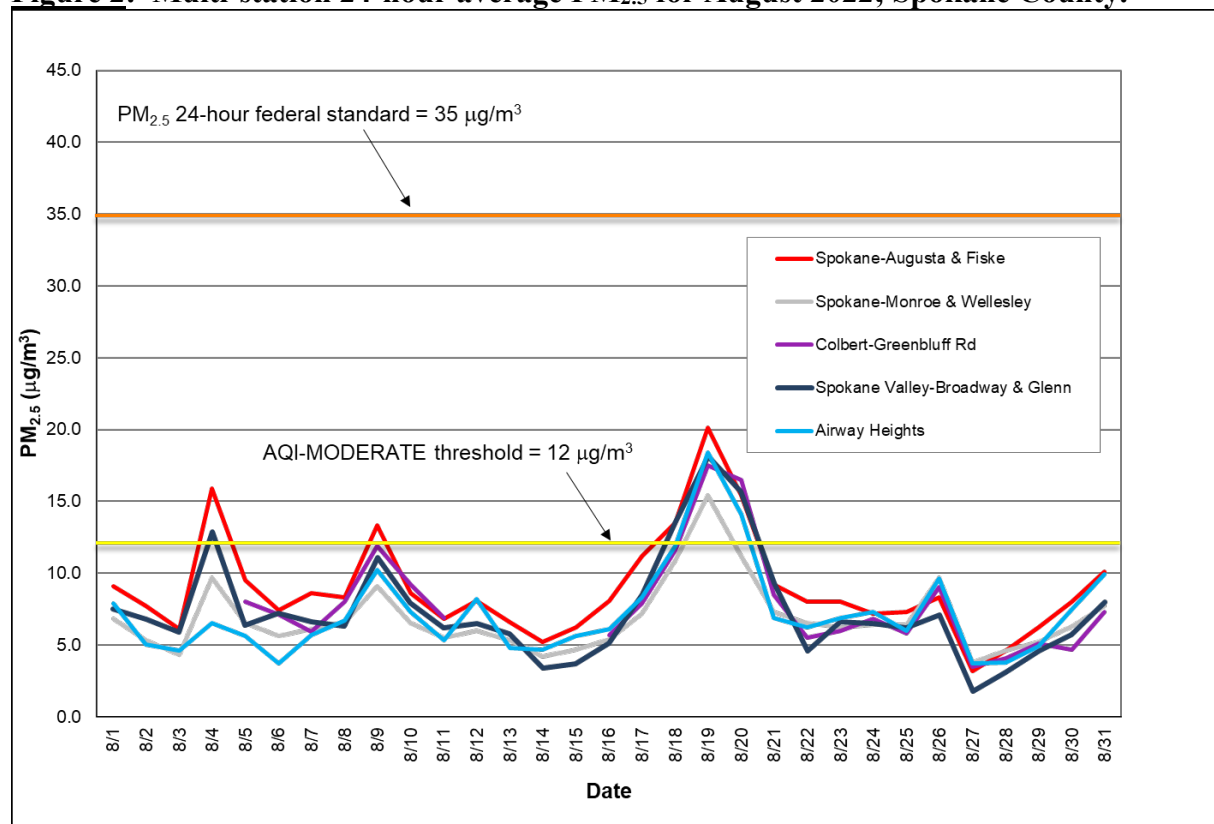
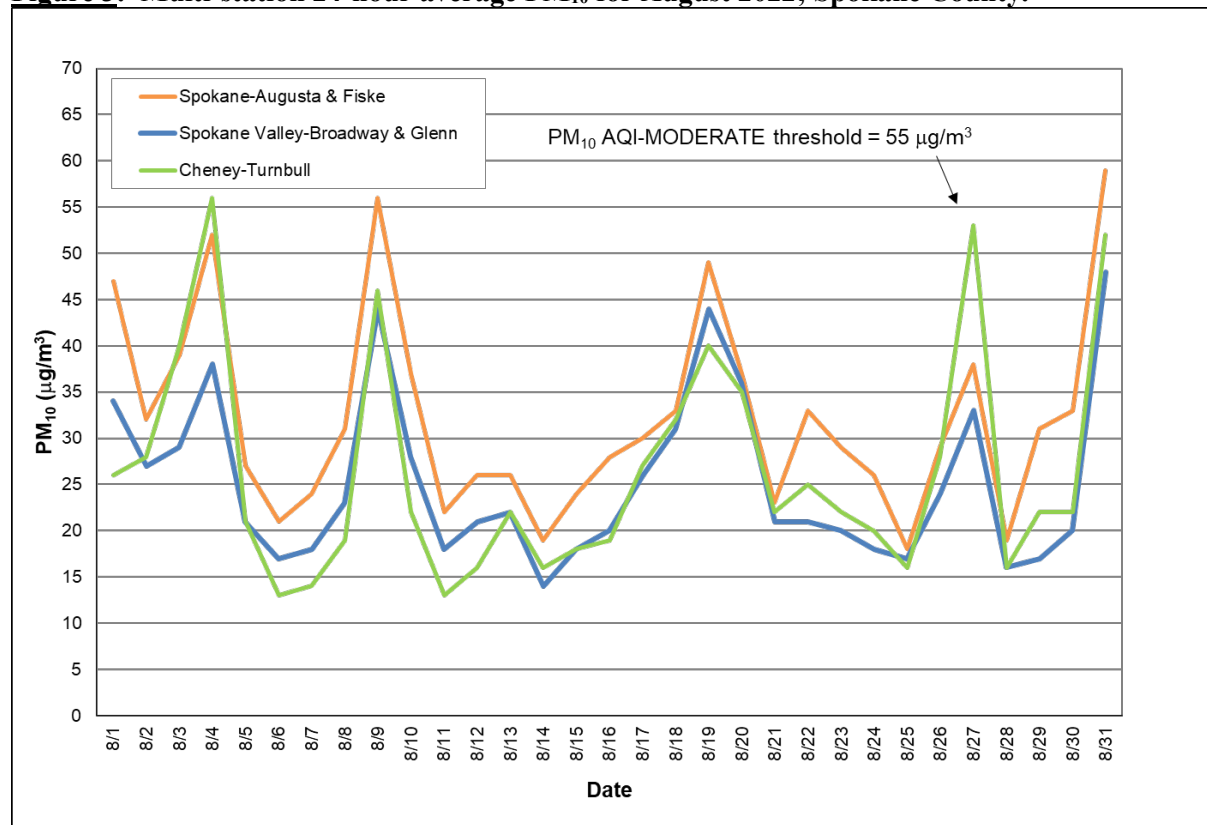


Figure 3: Multi-station 24-hour average PM₁₀ for August 2022; Spokane County.

From January through August 2022, there were 206 GOOD air quality days and only 37 MODERATE days (Table 1), including 19 GOOD days and 12 MODERATE days in August. The highest AQI value to date (January through August) is 74, based on an 8-hour average ozone concentration of 0.062 ppm recorded at the Greenbluff monitoring station on August 11th (Table 3).

See Appendix 1 of this report for information about federal air quality standards and Appendix 2 for a description of the AQI. The daily air quality data for September for all monitoring stations in the Spokane region are provided in Appendix 3. Current and historical air quality data can be obtained electronically 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-to-date, respectively.

Table 1: AQI summary as of August 31, 2022

Category	Number of days in August	Number of days this year to date
Good (0-50)	19	206
Moderate (51-100)	12	37
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
O ₃	74 (conc. = 0.062 ppm)	Mod	Greenbluff	8/11
PM ₁₀	53 (conc. = 59 µg/m ³)	Mod	Spokane-Augusta Ave (Augusta & Fiske)	8/31
PM _{2.5}	68 (conc. = 20.1 µg/m ³)	Mod	Spokane-Augusta Ave (Augusta & Fiske)	8/19

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

Pollutant	AQI		Location	Date
O ₃	74 (conc. = 0.062 ppm)	Mod	Greenbluff	8/11
PM ₁₀	53 (conc. = 59 µg/m ³)	Mod	Spokane-Augusta Ave (Augusta & Fiske)	8/31
PM _{2.5}	70 (conc. = 21.2 µg/m ³)	Mod	Airway Heights (12 th & Lawson)	7/4

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 (NO₂), particulate matter (PM₁₀ and PM_{2.5}), ground-level ozone (O₃) and sulfur dioxide (SO₂; 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 (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 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).

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	0.0-12.0	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 3

Table A-3.1: Summary pollutant concentration air quality data for August for air monitoring stations in Spokane County.

Particulate matter mass concentration is reported as 24-hour averages in micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) and daily 8-hour maximum ozone concentrations are reported in parts per million (ppm). PM_{2.5} monitoring was re-established at the Colbert monitoring station on the 5th after replacement of the monitor but was offline again on the 12th through the 15th because of data communications problems. Data communications setting prevented polling of the temporary PM2.5 sensor at Turnbull on August 26th through 29th.

Date	Pollutant Concentration											
	Ozone (ppm)		PM _{2.5} ($\mu\text{g}/\text{m}^3$)							PM ₁₀ ($\mu\text{g}/\text{m}^3$)		
	8-Hour Max		24-Hour Avg							24-Hour Avg		
	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 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
8/1	0.053	0.058	7.9		9.1	7.5	6.0	5.3	5.9	26	47	34
8/2	0.059	0.058	5.0		7.7	6.8	3.6	4.7	3.6	28	32	27
8/3	0.047	0.051	4.6		6.1	5.9	2.5	13.6	2.5	40	39	29
8/4	0.043	0.042	6.5		15.9	12.9	8.7	28.5	8.7	56	52	38
8/5	0.044	0.042	5.6	8.0	9.5	6.4	5.4	7.1	5.4	21	27	21
8/6	0.039	0.039	3.7	7.1	7.4	7.2	5.2	4.1	5.1	13	21	17
8/7	0.040	0.037	5.7	5.9	8.6	6.6	3.2	4.3	3.2	14	24	18
8/8	0.049	0.056	6.7	8.0	8.3	6.3	4.5	5.0	4.4	19	31	23
8/9	0.055	0.042	10.2	11.9	13.3	11.1	7.7	7.2	7.6	46	56	44
8/10	0.056	0.052	7.3	9.2	8.6	7.9	5.3	4.3	5.3	22	37	28
8/11	0.057	0.062	5.3	6.9	6.8	6.2	3.8	4.4	3.8	13	22	18
8/12	0.055	0.053	8.2		8.1	6.5	4.7	4.6	4.6	16	26	21
8/13	0.043	0.047	4.8		6.6	5.8	4.1	3.2	4.0	22	26	22
8/14	0.040	0.046	4.7		5.2	3.4	2.8	2.0	2.8	16	19	14
8/15	0.039	0.044	5.6		6.2	3.7	2.0	2.1	1.9	18	24	18
8/16	0.041	0.047	6.1	5.7	8.1	5.1	2.8	2.4	2.7	19	28	20
8/17	0.053	0.045	8.3	7.9	11.2	8.5	5.5	6.1	5.5	27	30	26
8/18	0.055	0.048	11.9	11.6	13.5	13.5	10.3	10.3	10.3	32	33	31
8/19	0.052	0.058	18.4	17.5	20.1	18.1	16.4	13.7	16.3	40	49	44
8/20	0.053	0.055	14.1	16.5	15.4	15.7	13.7	12.1	13.7	35	37	36
8/21	0.041	0.046	6.9	8.5	9.2	9.3	7.6	6.7	7.6	22	23	21
8/22	0.046	0.045	6.2	5.5	8.0	4.6	3.7	3.6	3.7	25	33	21
8/23	0.049	0.046	6.9	6.0	8.0	6.6	4.6	4.2	4.6	22	29	20
8/24	0.046	0.042	7.3	6.8	7.2	6.5	5.6	6.0	5.5	20	26	18
8/25	0.049	0.045	6.0	5.8	7.3	6.2	6.4	6.1	6.0	16	18	17
8/26	0.047	0.052	9.6	9.0	8.3	7.1	9.7		8.3	28	29	24
8/27	0.037	0.035	3.7	3.5	3.2	1.8	3.8		1.6	53	38	33
8/28	0.037	0.038	3.8	4.1	4.6	3.1	4.6		1.9	16	19	16
8/29	0.042	0.041	4.9	5.1	6.2	4.6	5.2		2.9	22	31	17
8/30	0.049	0.042	7.5	4.7	8.0	5.7	6.3	4.6	3.9	22	33	20
8/31	0.048	0.048	9.9	7.3	10.1	8.0	7.7	6.8	5.7	52	59	48
AVG	0.047	0.047	7.2	7.9	8.9	7.4	5.9	6.8	5.5	26	32	25
MAX	0.059	0.062	18.4	17.5	20.1	18.1	16.4	28.5	16.3	56	59	48

Table A-3.2: Summary Air Quality Index (AQI) data for August for air monitoring stations in Spokane County. Please see Table A-3.1 for explanations of missing data. AQIs reported for temporary PM_{2.5} sensors at Turnbull and Greenbluff in this table are not reported elsewhere in this report. See Appendix 2 for an explanation of AQI color codes.

Air Quality Index (AQI)													
Date	Ozone		PM _{2.5}							PM ₁₀			MAXIMUM
	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 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	
8/1	49	61	33		38	31	28	22	25	24	44	31	61
8/2	64	61	21		32	28	22	20	15	26	30	25	64
8/3	44	47	19		25	25	18	54	10	37	36	27	54
8/4	40	39	27		59	53	40	85	36	51	48	35	85
8/5	41	39	23	33	40	27	27	30	23	19	25	19	41
8/6	36	36	15	30	31	30	23	17	21	12	19	16	36
8/7	37	34	24	25	36	28	25	18	13	13	22	17	37
8/8	45	54	28	33	35	26	28	21	18	18	29	21	54
8/9	51	39	43	50	54	46	38	30	32	43	51	41	54
8/10	54	48	30	38	36	33	27	18	22	20	34	26	54
8/11	58	74	22	29	28	26	23	18	16	12	20	17	74
8/12	51	49	34		34	27	25	19	19	15	24	19	51
8/13	40	44	20		28	24	22	13	17	20	24	20	44
8/14	37	43	20		22	14	18	8	12	15	18	13	43
8/15	36	41	23		26	15	20	9	8	17	22	17	41
8/16	38	44	25	24	34	21	23	10	11	18	26	19	44
8/17	49	42	35	33	47	35	30	25	23	25	28	24	49
8/18	51	44	50	48	54	54	45	43	43	30	31	29	54
8/19	48	61	64	62	68	64	58	54	60	37	45	41	68
8/20	49	51	55	60	58	59	47	51	54	32	34	33	60
8/21	38	43	29	35	38	39	30	28	32	20	21	19	43
8/22	43	42	26	23	33	19	27	15	15	23	31	19	43
8/23	45	43	29	25	33	28	26	18	19	20	27	19	45
8/24	43	39	30	28	30	27	27	25	23	19	24	17	43
8/25	45	42	25	24	30	26	27	26	25	15	17	16	45
8/26	44	48	40	38	35	30	40		35	26	27	22	48
8/27	34	32	15	15	13	8	16		7	49	35	31	49
8/28	34	35	16	17	19	13	19		8	15	18	15	35
8/29	39	38	20	21	26	19	22		12	20	29	16	39
8/30	45	39	31	20	33	24	26	19	16	20	31	19	45
8/31	44	44	41	30	42	33	32	28	24	48	53	44	53
AVG	44	45	29	32	36	30	28	27	22	25	30	23	50
MAX	64	74	64	62	68	64	58	85	60	51	53	44	85