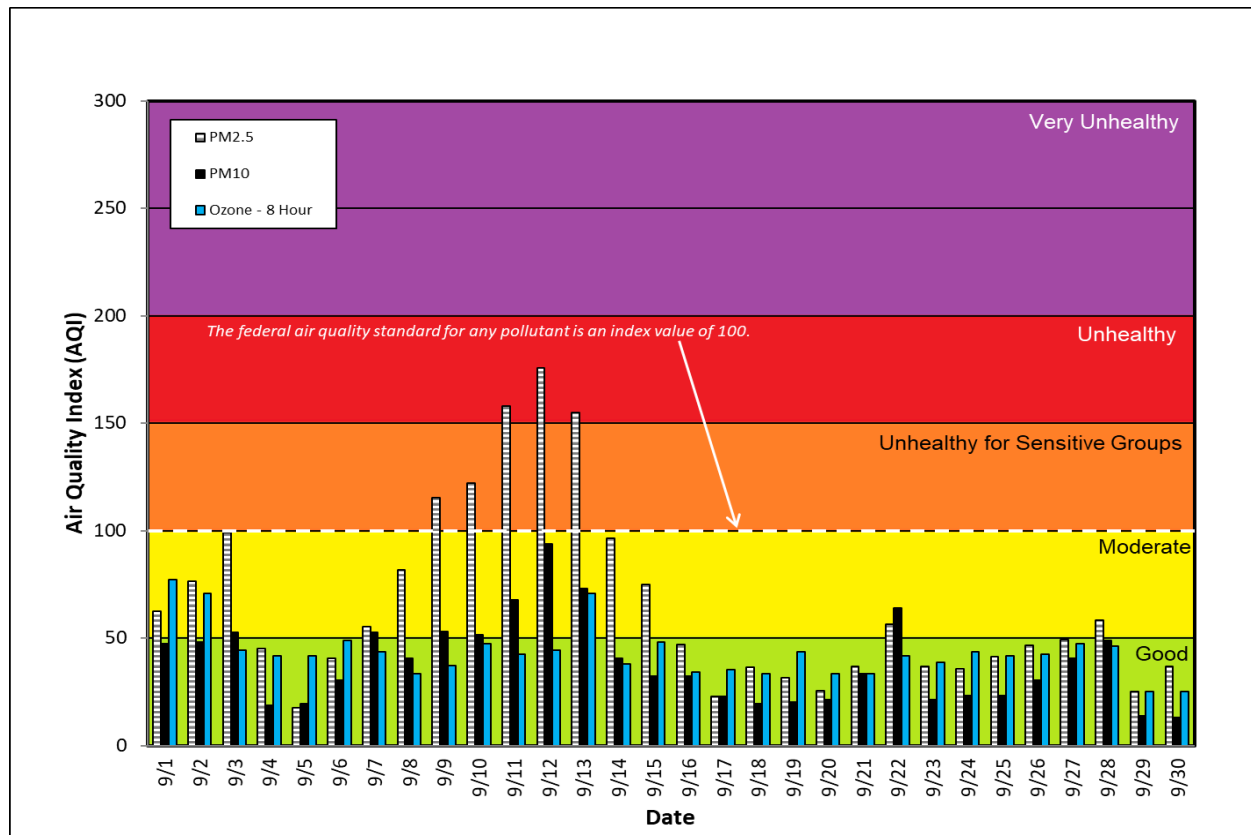


# Spokane Regional Clean Air Agency Air Quality Report – September 2022

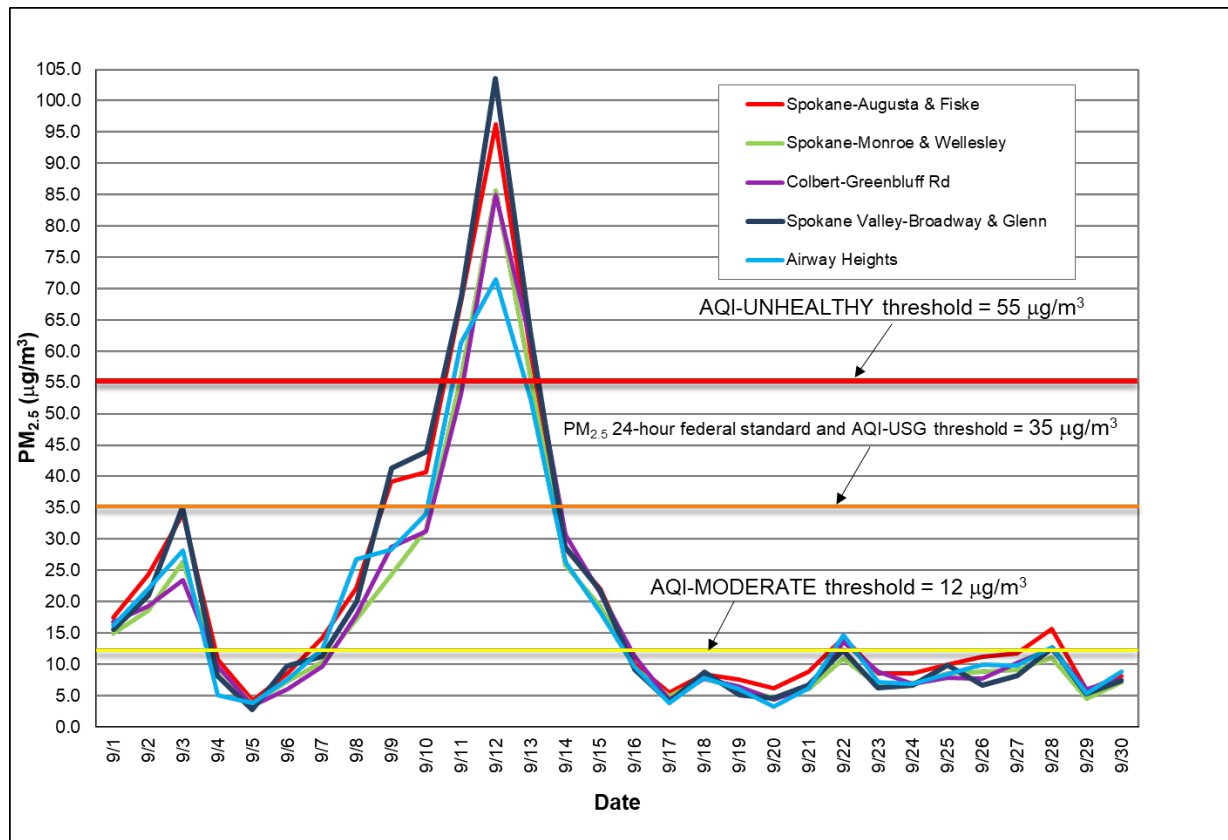
Smoke from regional wildfires pushed the Air Quality Index (AQI) into the Unhealthy for Sensitive Groups (USG, Orange) category on September 9<sup>th</sup> and 10<sup>th</sup> and the Unhealthy (Red) category September 11<sup>th</sup> through 13<sup>th</sup> based on daily average PM<sub>2.5</sub> concentrations (Figure 1). The maximum daily AQI for the month was 176 (UNHEALTHY air quality), based on a 24-hour average PM<sub>2.5</sub> mass concentration of 103.5 µg/m<sup>3</sup> reported by the Spokane Valley-Broadway Ave monitoring station on September 12<sup>th</sup> (Figure 2). It was the highest AQI for this year (as of September 30<sup>th</sup>). The AQI for PM<sub>10</sub> reached 94 (MODERATE air quality, 24-hour avg mass concentration = 59 µg/m<sup>3</sup>; Figure 3) at Spokane Valley-E Broadway Ave, also on the 12<sup>th</sup>. The maximum AQI for ozone was 77, based on an 8-hour average ozone concentration of 0.063 ppm recorded at Greenbluff on the 1<sup>st</sup> (Figure 4). PM<sub>2.5</sub> was the predominant pollutant in the Spokane area on 20 days in September.

The Washington State Department of Ecology operates PM<sub>2.5</sub> sensors at Greenbluff and Turnbull ozone monitoring stations. PM<sub>2.5</sub> 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](http://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.

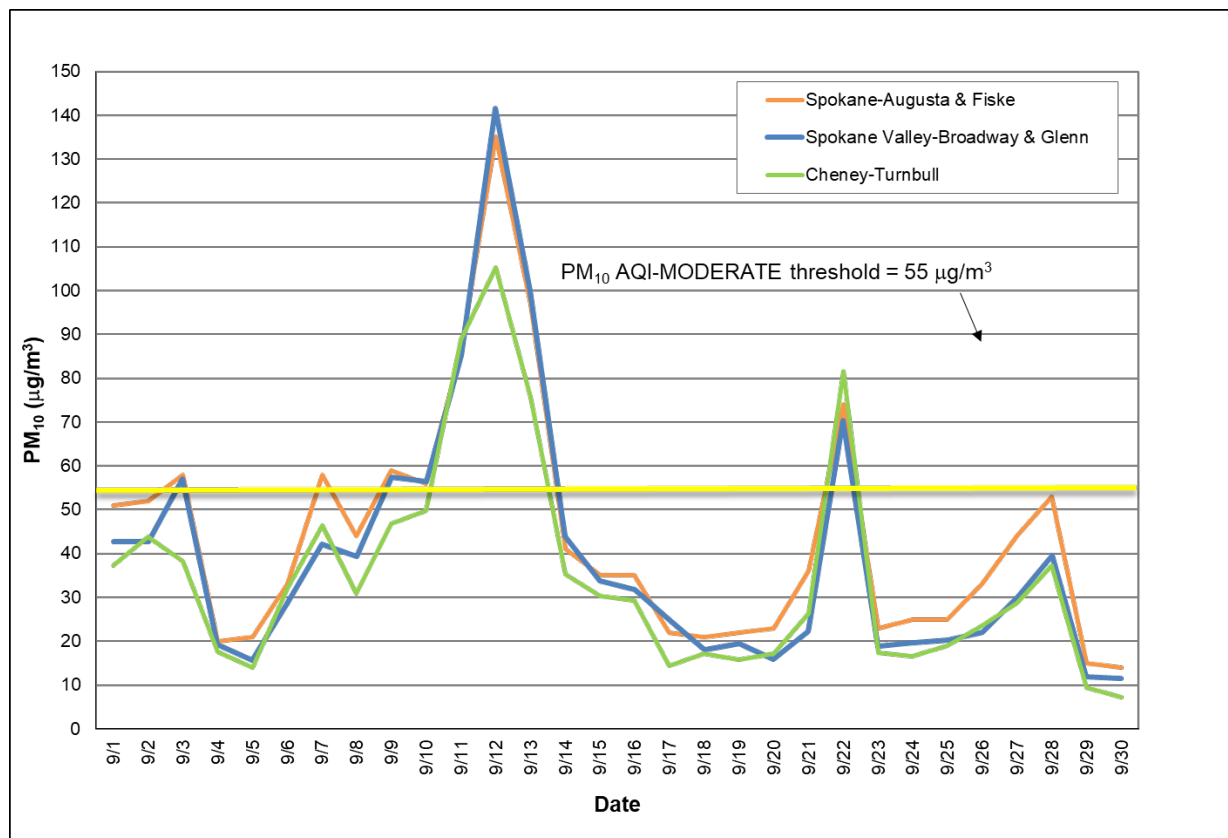
**Figure 1:** Air Quality Index (AQI) values for September 2022. The data represent the maximum AQI values across all monitoring stations within Spokane County.



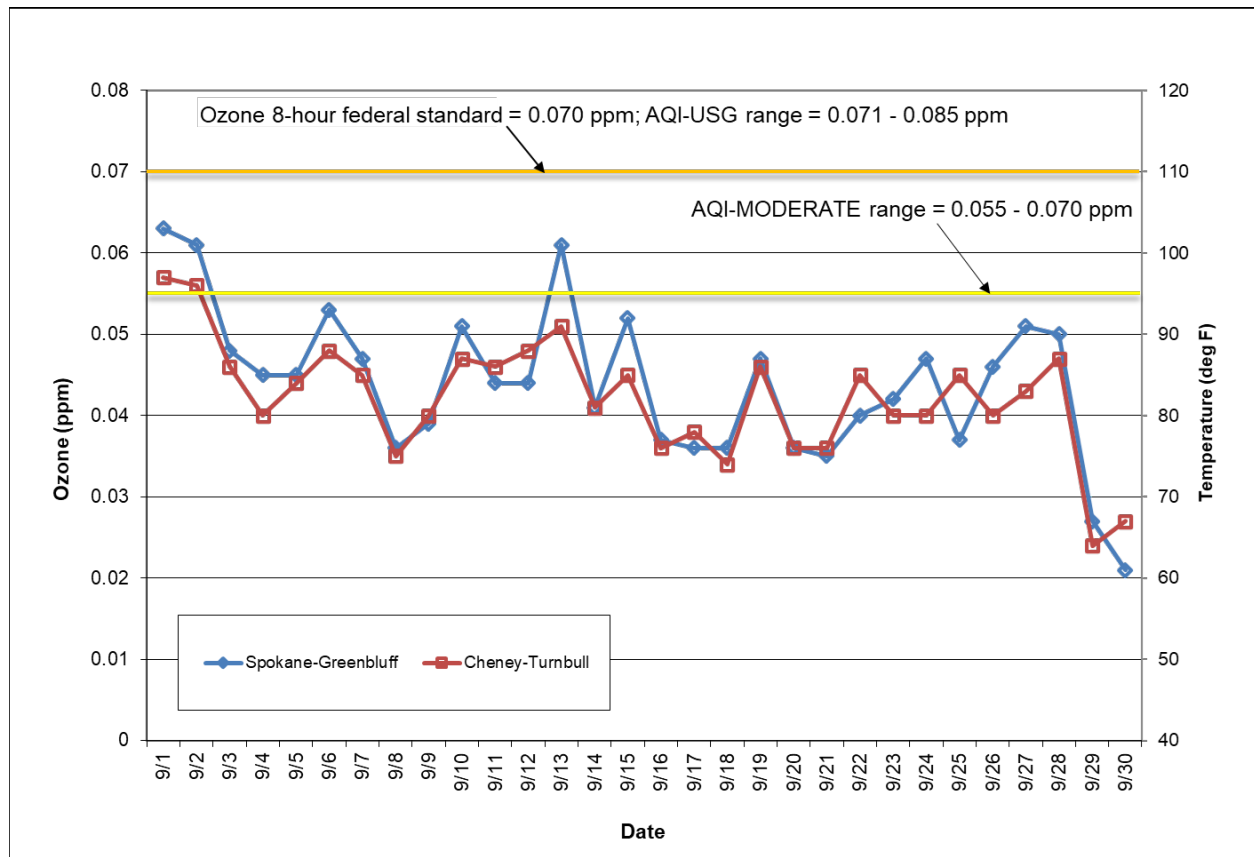
**Figure 2:** Multi-station 24-hour average PM<sub>2.5</sub> for September 2022; Spokane County.



**Figure 3:** Multi-station 24-hour average PM<sub>10</sub> for September 2022; Spokane County.



**Figure 4:** Eight-hour maximum ozone concentrations for the Spokane region in September.



From January through September 2022, there were 222 GOOD air quality days, 46 MODERATE days, 2 Unhealthy for Sensitive Groups, and 3 unhealthy days (Table 1), all of the USG and Unhealthy days occurred in September. The highest AQI value to date (January through September) is 176, based on an 8-hour average ozone concentration of 0.062 ppm recorded at the Greenbluff monitoring station on September 11<sup>th</sup> (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 September 30, 2022**

Category	Number of days in September	Number of days this year to date
Good (0-50)	16	222
Moderate (51-100)	9	46
Unhealthy for Sensitive Groups (101-150)	2	2
<b>Unhealthy (151-200)</b>	<b>3</b>	<b>3</b>
Very Unhealthy (201-300)	0	0
<b>Hazardous (&gt;300)</b>	<b>0</b>	<b>0</b>

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

Pollutant	AQI		Location	Date
O <sub>3</sub>	77 (conc. = 0.063 ppm)	Mod	Greenbluff	9/1
PM <sub>10</sub>	94 (conc. = 142 µg/m <sup>3</sup> )	Mod	Spokane Valley-Broadway Ave	9/12
<b>PM<sub>2.5</sub></b>	<b>176 (conc. = 103.5 µg/m<sup>3</sup>)</b>	<b>Unhealthy</b>	<b>Spokane Valley-Broadway Ave</b>	<b>9/12</b>

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

Pollutant	AQI		Location	Date
O <sub>3</sub>	77 (conc. = 0.063 ppm)	Mod	Greenbluff	9/1
PM <sub>10</sub>	94 (conc. = 142 µg/m <sup>3</sup> )	Mod	Spokane Valley-Broadway Ave	9/12
<b>PM<sub>2.5</sub></b>	<b>176 (conc. = 103.5 µg/m<sup>3</sup>)</b>	<b>Unhealthy</b>	<b>Spokane Valley-Broadway Ave</b>	<b>9/12</b>

## 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> (1)	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 (2)	Annual Mean
<a href="#">Ozone (O<sub>3</sub>)</a>		primary and secondary	8 hours	0.070 ppm (3)	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 (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<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 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 <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	35.5-55.4	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.
<b>Unhealthy</b>	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.
<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-3.1: Summary pollutant concentration air quality data for September 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).

Pollutant Concentration												
Date	Ozone (ppm)		PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )							PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )		
	8-Hour Max		24-Hour Avg							24-Hour Avg		
	Ozone - Turnbull NWR	Ozone - Greenbluff	PM <sub>2.5</sub> - Airway Heights, 12th & Lawson	PM <sub>2.5</sub> - Colbert, E Greenbluff Rd	PM <sub>2.5</sub> - Spokane, Augusta & Fiske	PM <sub>2.5</sub> - Spokane Valley, Broadway & Glenn	PM <sub>2.5</sub> - Spokane, Monroe & Wellesley	PM <sub>2.5</sub> - Turnbull NWR (temporary sensor)	PM <sub>2.5</sub> - Greenbluff (temporary sensor)	PM <sub>10</sub> - Turnbull NWR BAM	PM <sub>10</sub> - Spokane, Augusta & Fiske	PM <sub>10</sub> - Spokane Valley, Broadway & Glenn
9/1	0.057	0.063	16.2	16.7	17.5	15.6	14.9	14.5	16.1	37.2	51	42.7
9/2	0.056	0.061	22.0	19.3	24.2	21.0	18.6	19.1	24.1	43.9	52	42.7
9/3	0.046	0.048	28.2	23.4	34.0	35.0	26.3	26.7	35.7	38.2	58	57.1
9/4	0.04	0.045	5.0	9.7	10.8	8.2	9.4	6.8	6.9	17.6	20	19.3
9/5	0.044	0.045	3.8	3.4	4.2	2.7	3.6	1.2	1.4	14	21	15.6
9/6	0.048	0.053	7.5	6.0	8.5	9.7	7.3	3.8	5.7	32.1	33	28.5
9/7	0.045	0.047	12.5	9.7	14.2	11.3	10.3	11.1	8.7	46.3	58	42.1
9/8	0.035	0.036	26.7	17.8	22.2	20.0	17.1	14.9	24.7	30.9	44	39.3
9/9	0.04	0.039	28.3	28.7	39.2	41.3	24.3	37.9	28.7	46.8	59	57.4
9/10	0.047	0.051	34.0	31.2	40.7	44.0	31.5	47.7	34.2	49.7	56	56.4
9/11	0.046	0.044	61.3	53.1	67.9	68.8	55.7	88.2	67.8	88.7	86	85.3
9/12	0.048	0.044	71.5	85.0	96.3	103.5	85.7	100.7	120.0	105	135	142
9/13	0.051	0.061	52.4	61.4	59.8	63.2	55.7	48.2	64.0	75.7	97	99.7
9/14	0.041	0.041	26.4	30.6	28.5	28.8	25.8	19.9	33.8	35.3	41	44
9/15	0.045	0.052	18.3	21.3	22.1	21.8	19.2	15.7	23.5	30.2	35	33.7
9/16	0.036	0.037	9.7	11.3	10.0	9.1	9.5	6.0	9.4	29.2	35	31.8
9/17	0.038	0.036	3.8	4.3	5.5	4.0	4.9	2.3	2.9	14.3	22	24.8
9/18	0.034	0.036	7.8	7.7	8.4	8.7	7.7	4.6	6.0	17.1	21	18.1
9/19	0.046	0.047	6.0	6.4	7.6	5.1	6.2	3.6	4.7	15.8	22	19.5
9/20	0.036	0.036	3.3	4.3	6.1	4.5	4.6	2.8	2.6	17.2	23	15.8
9/21	0.036	0.035	6.1	6.3	8.8	6.6	6.0	3.8	4.2	26.4	36	22.2
9/22	0.045	0.04	14.7	13.5	14.2	12.2	10.9	6.4	8.2	81.6	74	70.4
9/23	0.04	0.042	7.2	8.8	8.6	6.3	6.6	3.6	5.0	17.3	23	18.9
9/24	0.04	0.047	6.9	6.8	8.6	6.6	7.0	2.6	3.4	16.5	25	19.7
9/25	0.045	0.037	8.4	7.9	9.9	9.9	8.6	3.9	4.8	18.9	25	20.2
9/26	0.040	0.046	9.9	7.7	11.2	6.7	8.8	5.1	5.2	23.5	33	22
9/27	0.043	0.051	9.8	10.2	11.8	8.2	9.1	3.9	6.8	28.6	44	29.9
9/28	0.047	0.05	12.7	12.5	15.6	12.7	11.1	7.0	8.8	37.3	53	39.5
9/29	0.024	0.027	5.4	6	5.9	5.2	4.5	2.0	4.9	9.5	15	11.9
9/30	0.027	0.021	8.8	7.6	8.1	7.4	7.2	3.5	8.2	7.2	14	11.5
AVG	0.042	0.044	17.8	18.0	21.0	20.3	17.3	17.2	19.3	35	44	39
MAX	0.057	0.063	71.5	85.0	96.3	103.5	85.7	101	120.0	105	135	142

**Table A-3.2: Summary Air Quality Index (AQI) data for September for air monitoring stations in Spokane County.** Please see Table A-3.1 for explanations of missing data. AQIs reported for temporary PM<sub>2.5</sub> 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 <sub>2.5</sub>							PM <sub>10</sub>			MAXIMUM
	Ozone - Turnbull NWR	Ozone - Greenbluff	PM <sub>2.5</sub> - Airway Heights, 12th & Lawson	PM <sub>2.5</sub> - Colbert, E Greenbluff Rd	PM <sub>2.5</sub> - Spokane - Augusta & Fiske	PM <sub>2.5</sub> - Spokane Valley, Broadway & Glenn	PM <sub>2.5</sub> - Spokane, Monroe & Wellesley	PM <sub>2.5</sub> - Turnbull NWR (temporary sensor)	PM <sub>2.5</sub> - Greenbluff (temporary sensor)	PM <sub>10</sub> - Turnbull NWR	PM <sub>10</sub> - Spokane, Augusta & Fiske	PM <sub>10</sub> - Spokane Valley, Broadway & Glenn	
9/1	58	77	60	61	62	58	57	56	59	34	47	40	77
9/2	54	71	72	66	76	70	65	66	76	41	48	40	76
9/3	43	44	85	75	97	99	81	82	101	35	52	52	101
9/4	37	42	21	40	45	34	39	28	29	16	19	18	45
9/5	41	42	16	14	18	11	15	5	6	13	19	14	42
9/6	44	49	31	25	35	40	30	16	24	30	31	26	49
9/7	42	44	52	40	55	47	43	46	36	43	52	39	55
9/8	32	33	82	63	72	68	62	57	77	29	41	36	82
9/9	37	36	85	86	110	115	77	107	86	43	53	52	115
9/10	44	47	97	91	114	122	92	131	97	46	51	52	131
9/11	43	41	154	144	157	158	151	168	157	68	66	66	168
9/12	44	41	159	166	172	176	167	174	184	76	91	94	184
9/13	47	71	143	154	153	155	151	132	155	61	72	73	155
9/14	38	38	81	90	85	86	80	67	97	33	38	41	97
9/15	42	48	64	70	72	71	66	59	75	28	32	31	75
9/16	33	34	40	47	42	38	40	25	39	27	32	29	47
9/17	35	33	16	18	23	17	20	10	12	13	20	23	35
9/18	31	33	33	32	35	36	32	19	25	16	19	17	36
9/19	43	44	25	27	32	21	26	15	20	15	20	18	44
9/20	33	33	14	18	25	19	19	12	11	16	21	15	33
9/21	33	32	25	26	37	28	25	16	17	24	33	21	37
9/22	42	37	56	54	55	51	45	27	34	64	60	59	64
9/23	37	39	30	37	36	26	28	15	21	16	21	18	39
9/24	37	44	29	28	36	28	29	11	14	15	23	18	44
9/25	42	34	35	33	41	41	36	16	20	18	23	19	42
9/26	37	43	41	32	47	28	37	21	22	22	31	20	47
9/27	40	47	41	43	49	34	38	16	28	26	41	28	49
9/28	44	46	52	52	58	52	46	29	37	35	49	37	58
9/29	22	25	23	25	25	22	19	8	21	9	14	11	25
9/30	25	19	37	32	34	31	30	15	34	7	13	11	37
AVG	39	42	57	56	63	59	55	48	54	31	38	34	70
MAX	58	77	159	166	172	176	167	174	184	76	91	94	184