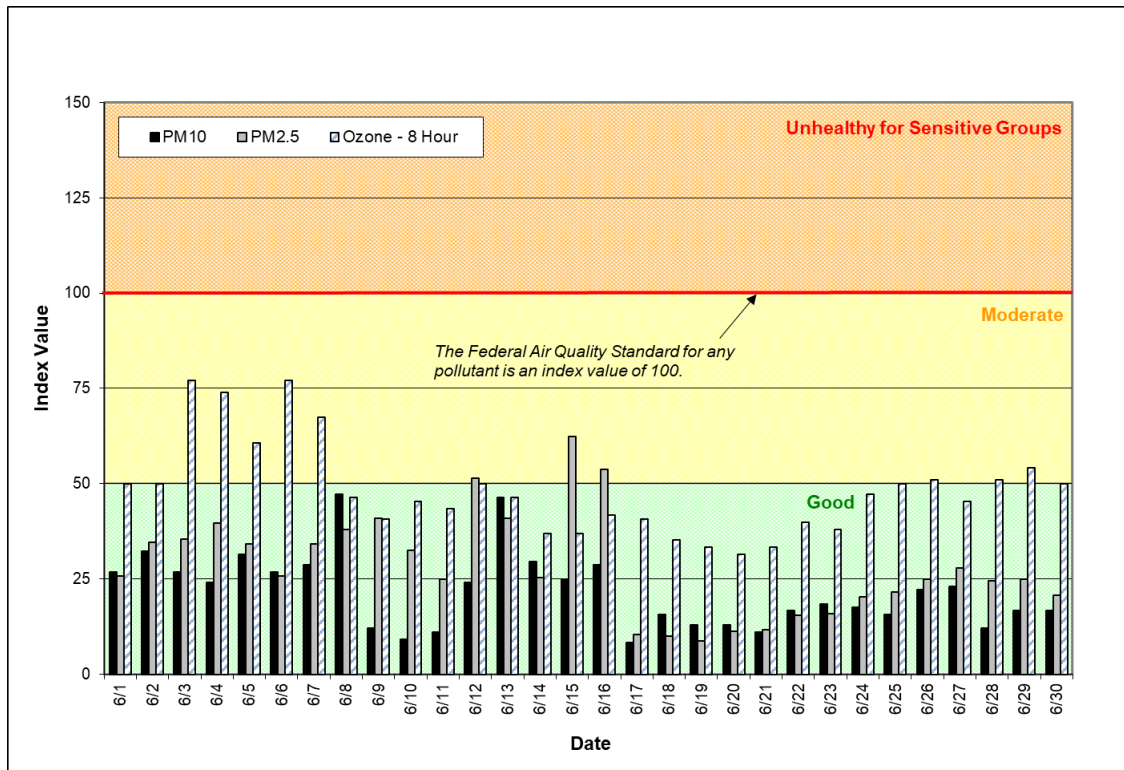


Spokane Regional Clean Air Agency Air Quality Report - June 2023

In June, the daily Air Quality Index (AQI) was in the MODERATE category on 11 days and in the GOOD category on the remaining 19 days (**Figure 1 and Table 1**). Ground-level ozone was the predominant pollutant on all but five days. The maximum daily AQI was 77, based on an 8-hour average ozone concentration of 0.063 ppm recorded at Greenbluff on the 3rd and at Turnbull on the 6th (**Figure 2 and Table 2**). The maximum PM_{2.5}-based daily AQI was 62 (MODERATE air quality, 24-hour PM_{2.5} mass concentration = 17.5 µg/m³), recorded on the 15th at Airway Heights – 12th & Larson (**Figure 3**) and the maximum PM₁₀-based AQI was 47 (GOOD air quality, 24-hour PM₁₀ mass concentration = 51 µg/m³), recorded on the 8th at Spokane-Augusta & Fiske (**Figure 4**).

Figure 1: Daily Air Quality Index (AQI) values for June 2023. 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: PM₁₀, PM_{2.5}, and ozone.



The Washington State Department of Ecology operates 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/>) and the Washington State Department of Ecology’s air quality map (<https://enwiwa.ecology.wa.gov/home/map>). Those data are included in Appendix 3 but not elsewhere in this report because of greater data uncertainty (less accurate, lower quality) with the use of low-cost sensors compared to the Agency’s regulatory-grade monitors.

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 PM_{2.5} and PM₁₀ 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://enwiwa.ecology.wa.gov/home/map>.

Figure 2: Eight-hour maximum ozone concentrations for the Spokane region in June. Spokane-Greenbluff and Cheney-Turnbull air monitoring stations.

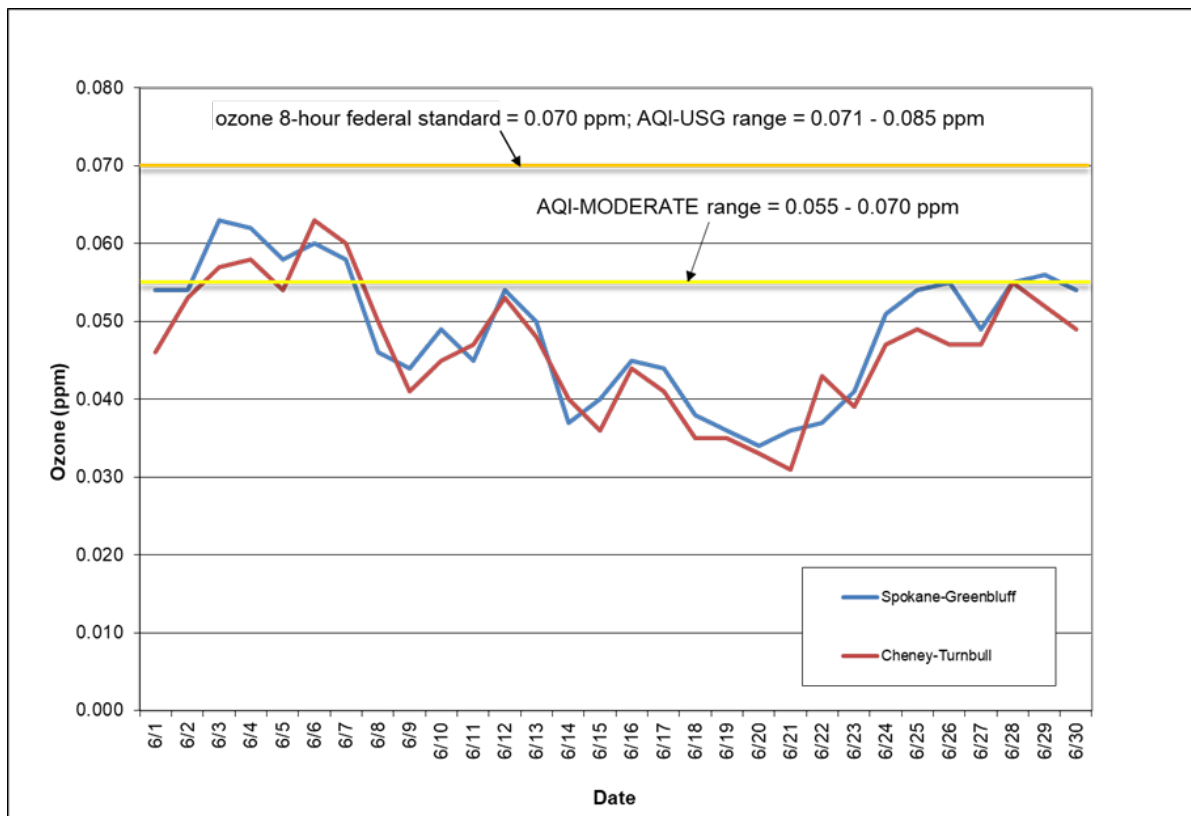


Figure 3: Multi-station 24-hour average PM_{2.5} for June 2023; Spokane County.

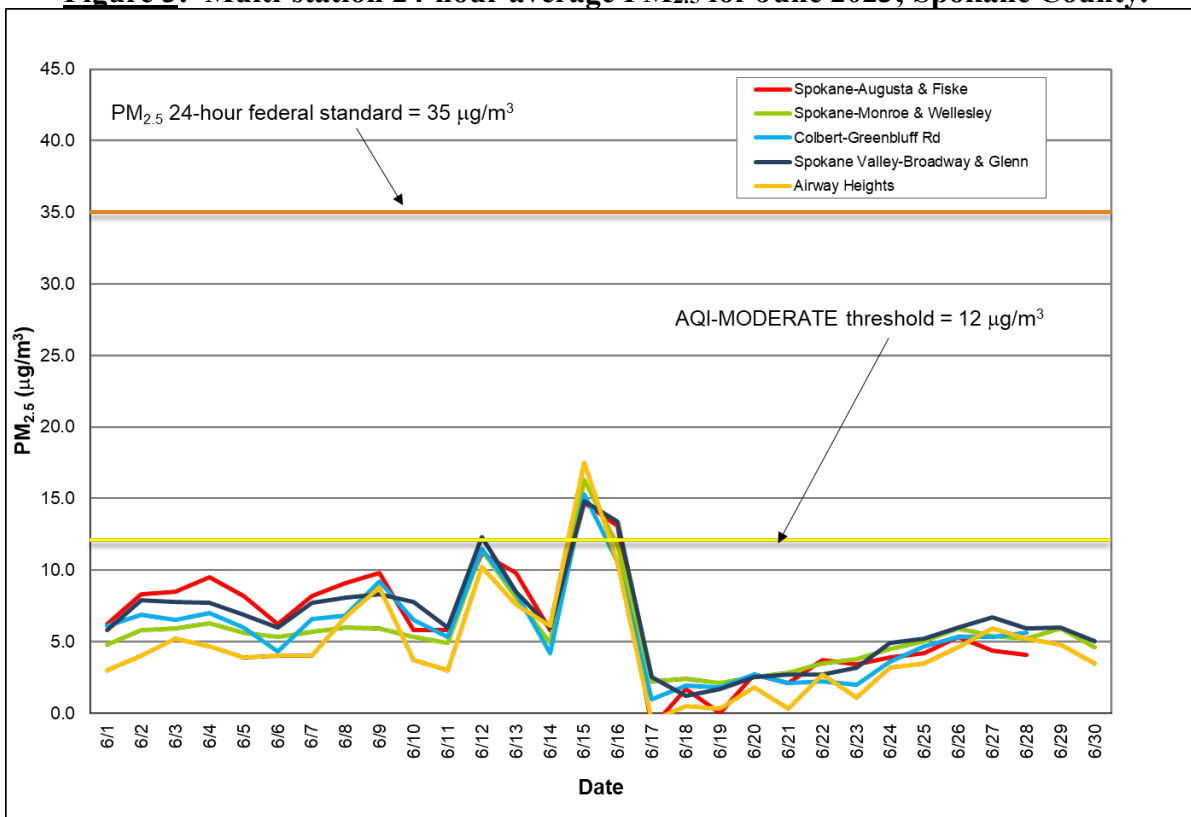


Figure 4: Multi-station 24-hour average PM₁₀ for June 2023; Spokane County.

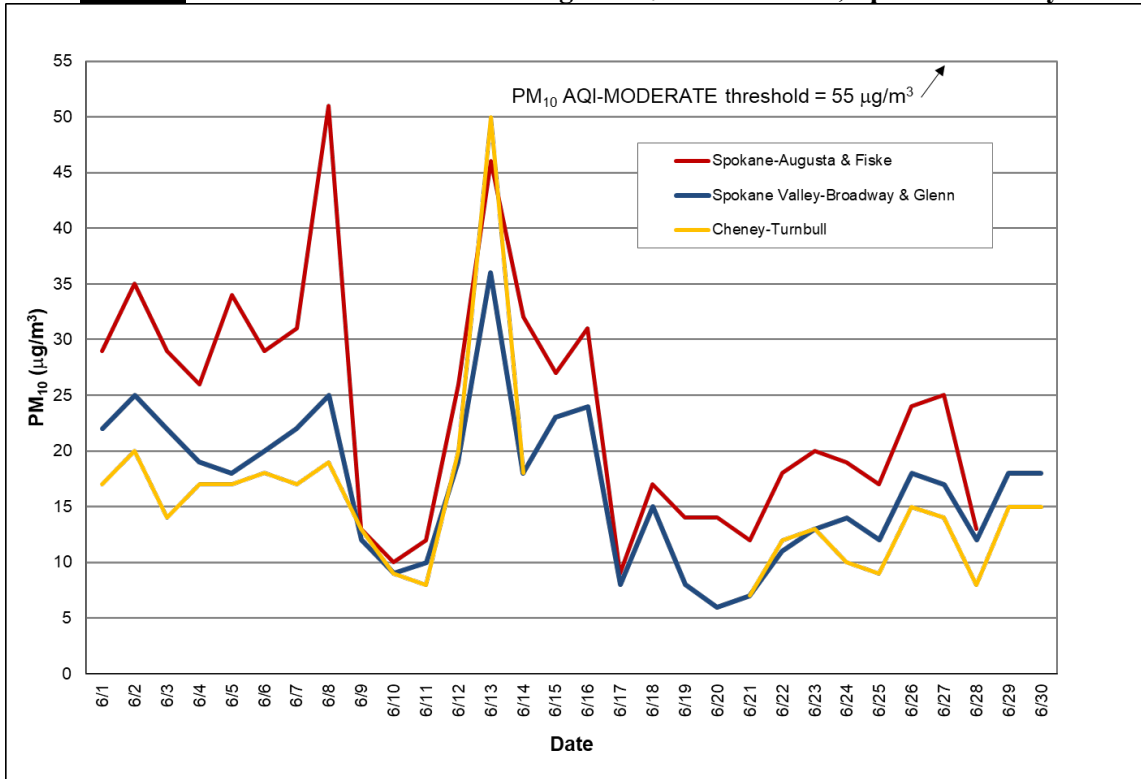


Table 1 summarizes the daily AQIs by category for the month and year-to-date and Tables 2 and 3 contain the maximum AQI values for each pollutant for the month and for the year, respectively.

Table 1: AQI summary, June 2023

Category	Number of days in June	Number of days this year to date
Good (0-50)	19	152
Moderate (51-100)	11	29
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	77 (conc. = 0.063 ppm)	Moderate	Greenbluff	6/3
			Turnbull	6/6
PM ₁₀	47 (mass conc. = 51 µg/m ³)	Good	Spokane – Augusta & Fiske	6/8
PM _{2.5}	62 (mass conc. = 17.5 µg/m ³)	Moderate	Airway Heights – 12 th & Lawson	6/15

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

Pollutant	AQI		Location	Date
Ozone	84 (conc. = 0.065 ppm)	Moderate	Greenbluff	5/20
PM ₁₀	53 (mass conc. = 58 µg/m ³)	Moderate	Turnbull National Wildlife Refuge	2/20
PM _{2.5}	78 (mass conc. = 25.1 µg/m ³)	Moderate	Spokane – Monroe & Wellesley	5/19

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: (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 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: June 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. Turnbull and Greenbluff $\text{PM}_{2.5}$ sensor data are reported here but not elsewhere in the report because of greater data uncertainty with use of low-cost sensors. The $\text{PM}_{2.5}$ monitor at Colbert – E Greenbluff Rd was offline for annual maintenance and calibration on the 29th and 30th. The failure of a surge protector at Spokane – Augusta & Fiske resulted in loss of power on the 29th and 30th. The PM_{10} monitor at Turnbull was offline for annual maintenance and calibration from the 15th until power was lost when a GFCI tripped on the 18th. Monitoring resumed after power was restored on the 20th.

Date	Pollutant Concentration											
	Ozone (ppm) Max 8-Hour Avg		$\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$) 24-Hour Avg						PM_{10} ($\mu\text{g}/\text{m}^3$) 24-Hour Avg			
	Ozone - Turnbull NWR	Ozone - Greenbluff	$\text{PM}_{2.5}$ - Airway Heights, 12th & Lawson	$\text{PM}_{2.5}$ - Colbert, E Greenbluff Rd	$\text{PM}_{2.5}$ - Spokane, Augusta & Fiske	$\text{PM}_{2.5}$ - Spokane Valley, Broadway & Glenn	$\text{PM}_{2.5}$ - Spokane, Monroe & Wellesley	$\text{PM}_{2.5}$ - Turnbull NWR (temporary sensor)	$\text{PM}_{2.5}$ - Greenbluff (temporary sensor)	PM_{10} - Spokane, Augusta & Fiske	PM_{10} - Spokane Valley, Broadway & Glenn	PM_{10} - Turnbull NWR
6/1	0.046	0.054	3.0	6.1	6.2	5.8	4.8	2.1	1.7	29	22	17
6/2	0.053	0.054	4.0	6.9	8.3	7.9	5.8	2.5	1.9	35	25	20
6/3	0.057	0.063	5.2	6.5	8.5	7.8	5.9	2.6	2.2	29	22	14
6/4	0.058	0.062	4.7	7.0	9.5	7.7	6.3	2.8	2.2	26	19	17
6/5	0.054	0.058	3.9	6.0	8.2	6.9	5.6	2.4	1.7	34	18	17
6/6	0.063	0.060	4.0	4.3	6.2	6.0	5.3	2.6	1.5	29	20	18
6/7	0.060	0.058	4.0	6.6	8.2	7.7	5.7	2.8	1.7	31	22	17
6/8	0.050	0.046	6.7	6.8	9.1	8.1	6.0	3.8	2.5	51	25	19
6/9	0.041	0.044	8.8	9.2	9.8	8.3	5.9	6.1	4.4	13	12	13
6/10	0.045	0.049	3.7	6.5	5.8	7.8	5.3	2.2	2.7	10	9	9
6/11	0.047	0.045	3.0	5.3	5.8	6.0	4.9	1.6	2.2	12	10	8
6/12	0.053	0.054	10.2	11.5	11.2	12.3	11.4	7.5	6.7	26	19	20
6/13	0.048	0.050	7.6	8.4	9.8	8.5	8.1	4.5	5.1	46	36	50
6/14	0.040	0.037	6.1	4.2	5.8	6.0	4.9	3.0	2.2	32	18	18
6/15	0.036	0.040	17.5	15.3	14.7	14.8	16.3	12.4	10.3	27	23	
6/16	0.044	0.045	10.5	10.6	13.1	13.4	11.7	10.3	6.9	31	24	
6/17	0.041	0.044	-0.5	1.0	-1.0	2.5	2.2	0.4	0.5	9	8	
6/18	0.035	0.038	0.5	1.9	1.7	1.2	2.4	0.5	0.4	17	15	
6/19	0.035	0.036	0.3	1.8	0.0	1.7	2.1	0.4	0.3	14	8	
6/20	0.033	0.034	1.8	2.7	2.7	2.5	2.5	0.4	0.6	14	6	
6/21	0.031	0.036	0.3	2.1	2.1	2.7	2.8	0.5	0.5	12	7	7
6/22	0.043	0.037	2.7	2.2	3.7	2.7	3.5	1.5	0.8	18	11	12
6/23	0.039	0.041	1.1	2.0	3.4	3.2	3.8	1.7	1.0	20	13	13
6/24	0.047	0.051	3.2	3.6	3.9	4.9	4.5	2.0	1.7	19	14	10
6/25	0.049	0.054	3.5	4.7	4.2	5.2	5.0	2.2	1.9	17	12	9
6/26	0.047	0.055	4.6	5.3	5.3	6.0	5.9	2.7	2.5	24	18	15
6/27	0.047	0.049	5.9	5.3	4.4	6.7	5.4	3.0	2.5	25	17	14
6/28	0.055	0.055	5.2	5.6	4.1	5.9	5.2	2.7	2.9	13	12	8
6/29	0.052	0.056	4.8			6.0	5.9	2.9	2.5		18	15
6/30	0.049	0.054	3.5			5.0	4.6	1.9	1.5		18	15
AVG	0.047	0.049	4.7	5.7	6.2	6.4	5.7	3.1	2.5	24	17	16
MAX	0.063	0.063	17.5	15.3	15	14.8	16.3	12.4	10.3	51	36	50

Date	Air Quality Index (AQI)												
	Ozone		$\text{PM}_{2.5}$						PM_{10}			MAXIMUM	
	Ozone - Turnbull NWR	Ozone - Greenbluff	$\text{PM}_{2.5}$ - Airway Heights, 12th & Lawson	$\text{PM}_{2.5}$ - Colbert, E Greenbluff Rd	$\text{PM}_{2.5}$ - Spokane - Augusta & Fiske	$\text{PM}_{2.5}$ - Spokane Valley, Broadway & Glenn	$\text{PM}_{2.5}$ - Spokane, Monroe & Wellesley	$\text{PM}_{2.5}$ - Turnbull NWR (temporary sensor)	$\text{PM}_{2.5}$ - Greenbluff (temporary sensor)	PM_{10} - Spokane, Augusta & Fiske	PM_{10} - Spokane Valley, Broadway & Glenn		PM_{10} - Turnbull NWR
6/1	43	50	13	25	26	24	20	9	7	27	20		16
6/2	49	50	17	29	35	33	24	10	8	32	23	19	50
6/3	58	77	22	27	35	33	25	11	9	27	20	13	77
6/4	61	74	20	29	40	32	26	12	9	24	18	16	74
6/5	50	61	16	25	34	29	23	10	7	31	17	16	61
6/6	77	67	17	18	26	25	22	11	6	27	19	17	77
6/7	67	61	17	28	34	32	24	12	7	29	20	16	67
6/8	46	43	28	28	38	34	25	16	10	47	23	18	47
6/9	38	41	37	38	41	35	25	25	18	12	11	12	41
6/10	42	45	15	27	24	33	22	9	11	9	8	8	45
6/11	44	42	13	22	24	25	20	7	9	11	9	7	44
6/12	49	50	43	48	47	51	48	31	28	24	18	19	51
6/13	44	46	32	35	41	35	34	19	21	43	33	46	46
6/14	37	34	25	18	24	25	20	13	9	30	17	17	37
6/15	33	37	62	58	56	57	60	52	43	25	21		62
6/16	41	42	44	44	53	54	49	43	29	29	22		54
6/17	38	41	-2	4	-4	10	9	2	2	8	7		41
6/18	32	35	2	8	7	5	10	2	1	16	14		35
6/19	32	33	1	8	0	7	9	2	1	13	7		33
6/20	31	31	8	11	11	10	10	2	2	13	6		31
6/21	29	33	1	9	9	11	12	2	2	11	6	6	33
6/22	40	34	11	9	15	11	15	6	3	17	10	11	40
6/23	36	38	5	8	14	13	16	7	4	19	12	12	38
6/24	44	47	13	15	16	20	19	8	7	18	13	9	47
6/25	45	50	15	20	18	22	21	9	8	16	11	8	50
6/26	44	51	19	22	22	25	25	11	10	22	17	14	51
6/27	44	45	25	22	18	28	23	12	10	23	16	13	45
6/28	51	51	22	23	17	25	22	11	12	12	11	7	51
6/29	48	54	20			25	25	12	10		17	14	54
6/30	45	50	15			21	19	8	6		17	14	50
AVG	45	47	19	24	26	26	23	13	10	22	15	14	24
MAX	77	77	62	58	56	57	60	52	43	47	33	46	77