



1996 Air Quality Data Summary

January 1998
Publication Number 98-200



Prepared by:
Washington State Department of Ecology
Air Quality Program

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Standards

AMBIENT AIR QUALITY STANDARDS

Pollutant	National		Washington State
	Primary	Secondary	
Total Suspended Particulates Annual Geometric Mean 24 - Hour Average	No Standard No Standard	No Standard No Standard	60 µg/m ³ 150 µg/m ³
Lead (Pb) Quarterly Average	1.5 µg/m ³	1.5 µg/m ³	No standard
Particulates (PM₁₀) Annual Arithmetic Mean 24 - Hour Average	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³
Sulfur Dioxide (SO₂) Annual Average 24 - Hour Average 3 - Hour Average 1 - Hour Average	0.03 ppm 0.14 ppm No Standard No Standard	No Standard No Standard 0.50 ppm No Standard	0.02 ppm 0.10 ppm No Standard 0.40 ppm ^a
*Carbon Monoxide (CO) 8 - Hour Average 1 - Hour Average	9 ppm 35 ppm	9 ppm 35 ppm	9 ppm 35 ppm
*Ozone (O₃) 1 - Hour Average ^b	0.12 ppm	0.12 ppm	0.12 ppm
Nitrogen Dioxide (NO₂) Annual Average	0.053 ppm	0.053 ppm	0.05 ppm

a - 0.25 not to be exceeded more than two times in any 7 consecutive days.

b - Not to be exceeded on more than 1.0 days per calendar year as determined under the conditions indicated in Chapter 173-475 WAC.

- ppm = parts per million
- µg/m³ = micrograms per cubic meter
- Annual Standards never to be exceeded, short-term standards not to be exceeded more than once per year unless noted.

**Please note: Primary standards are listed in this table as they appear in the federal regulations, ambient concentrations are rounded using the next higher decimal place to determine whether a standard has been exceeded. The data charts in this report are shown with these unrounded numbers.*

Stations Exceeding the Standard

Carbon Monoxide (8-hour standard = 9.5 ppm)

There were 4 exceedances of the carbon monoxide standard during 1996, recorded at one station in Yakima and two stations in Spokane.

Station 3996002A, Yakima, Jade Tree	02/07/96	9.5, 10.5
Station 3278044A, Spokane, 3 rd Ave	02/12/96	9.6
Station 3278039A, Spokane, Hamilton	12/30/96	10.0

Particulate Matter/PM₁₀ (24-hour standard = 150 µg/m³)

There were two exceedances of the PM₁₀ standard during 1996, recorded at two stations located in Spokane and Colville.

Station 3278009E, Spokane, Crown Z	8/30/96	186
Station 3316004A, Colville	12/17/96	236

Site Changes

Particulate Matter (PM₁₀)

0490004A	Comm. College, Wenatchee	Discontinued 7/20/96
0444001A	Cascade School, Leavenworth	Established 10/4/96
3316004A	County Courthouse, Colville	Established 12/5/96
3996003F	YVCC Anton Hall, Yakima	Discontinued 10/31/96
3996009F	YVCC Sundquist, Yakima	Reestablished 11/1/96
3484001G	Trosper, Tumwater	Discontinued 3/29/96
0566009G	Stevens, Pt. Angeles	Established 11/28/96
3978005F	Intermediate School, Sunnyside	Discontinued 6/26/96
3978006F	Chief Kamiakin, Sunnyside	Established 7/14/96

Carbon Monoxide (CO)

3278044A	3 rd Avenue, Spokane	Discontinued 10/4/96
3278047A	3 rd & Washington, Spokane	Established 11/5/96
1806003A	Midway, Bremerton	Discontinued 7/19/96
3460010A	Odd Fellows Hall, Olympia	Discontinued 5/18/96
1700004A	Enumclaw FS#3, King County	Parameter established 8/6/96 Parameter discontinued 11/25/96
1777001A	Quick Stop, Sea-Tac	Established 12/12/96
3444004A	OAPCA Office, Lacey	Established 1/4/96

Nitric Oxide (NO), Nitrogen Dioxide (NO₂), Oxides of Nitrogen (NO_x)

1700004A	Enumclaw FS#3, King County	Established 8/1/96
0600002A	Mt. View, Vancouver	Established 9/1/96

Ozone (O₃)

2700016A	Rainier #2, Pierce County	Established 6/12/96
1700004A	Enumclaw FS#3, King County	Established 7/1/96
0800003A	Castle Rock, Cowlitz County	Established 9/4/96

Air Quality Agencies



Note: Tribes may have authority over air quality within the boundaries of their reservations.

Nonattainment Areas

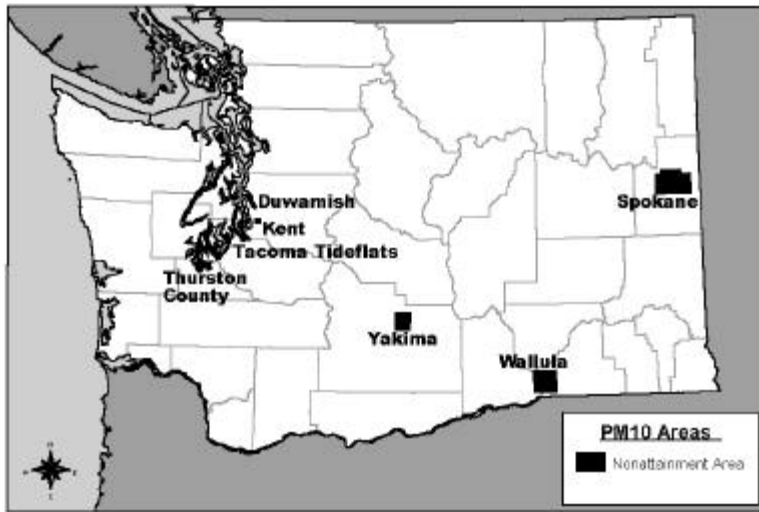


Figure 1. Summary of Automated Method Precision

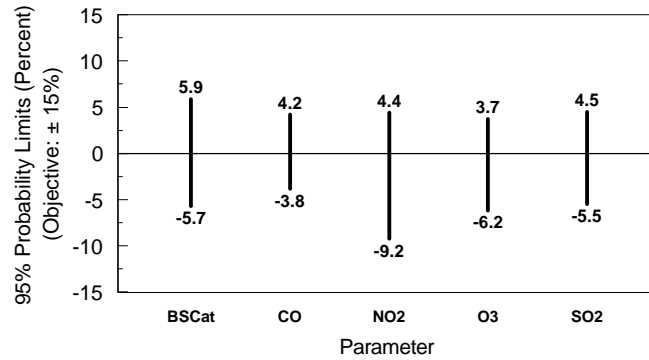


Figure 2. Summary of Carbon Monoxide (CO) Automated Method Accuracy

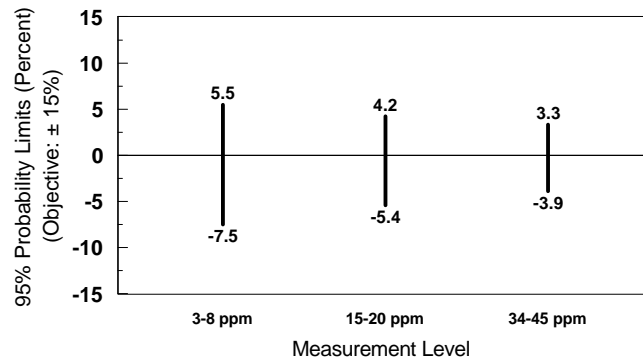
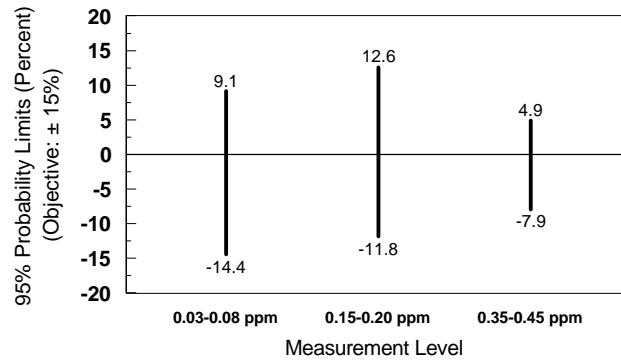


Figure 3. Summary of Nitrogen Dioxide (NO2) Automated Method Accuracy



Quality Assurance

Figure 4. Summary of Ozone (O3) Automated Method Accuracy

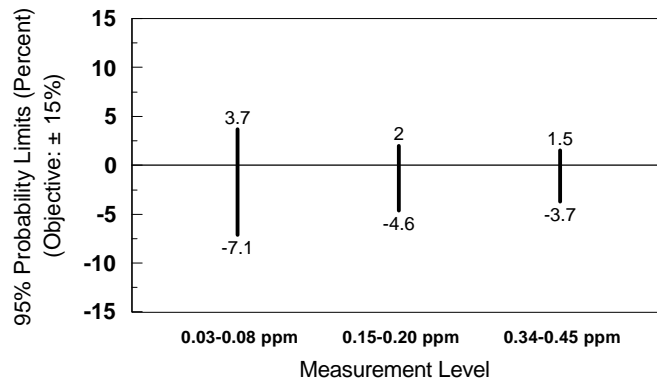


Figure 5. Summary of Sulfur Dioxide (SO2) Automated Method Accuracy

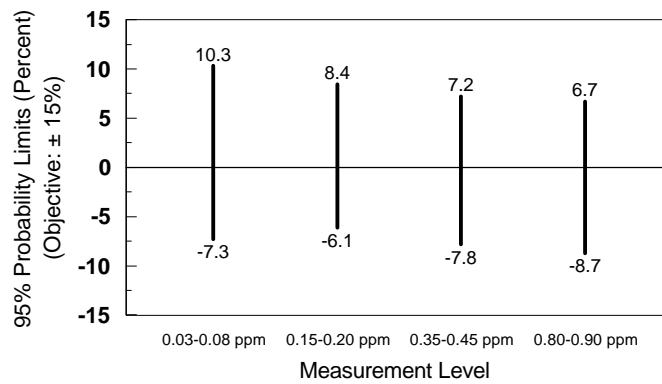


Figure 6. Summary of Manual Method Precision

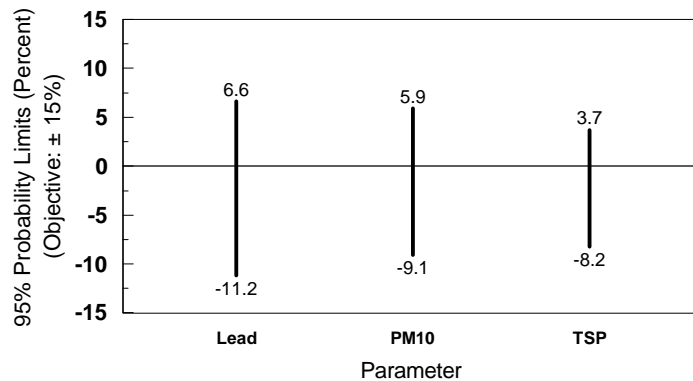


Figure 7. Summary of Lead (Pb) Manual Method Accuracy

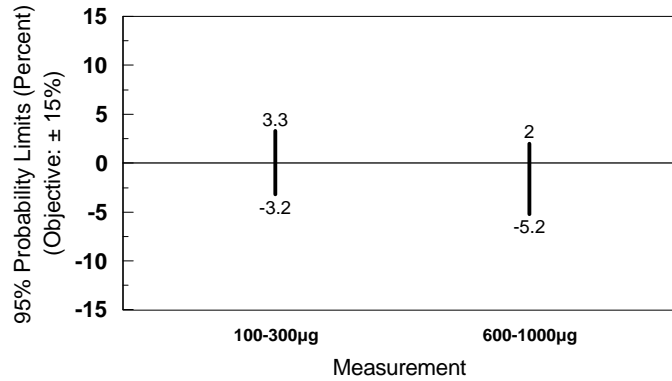
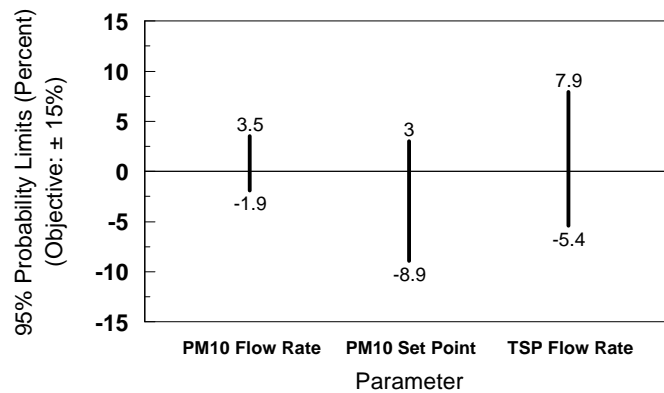


Figure 8. Summary of Particulate Matter (PM10) Manual Method Accuracy

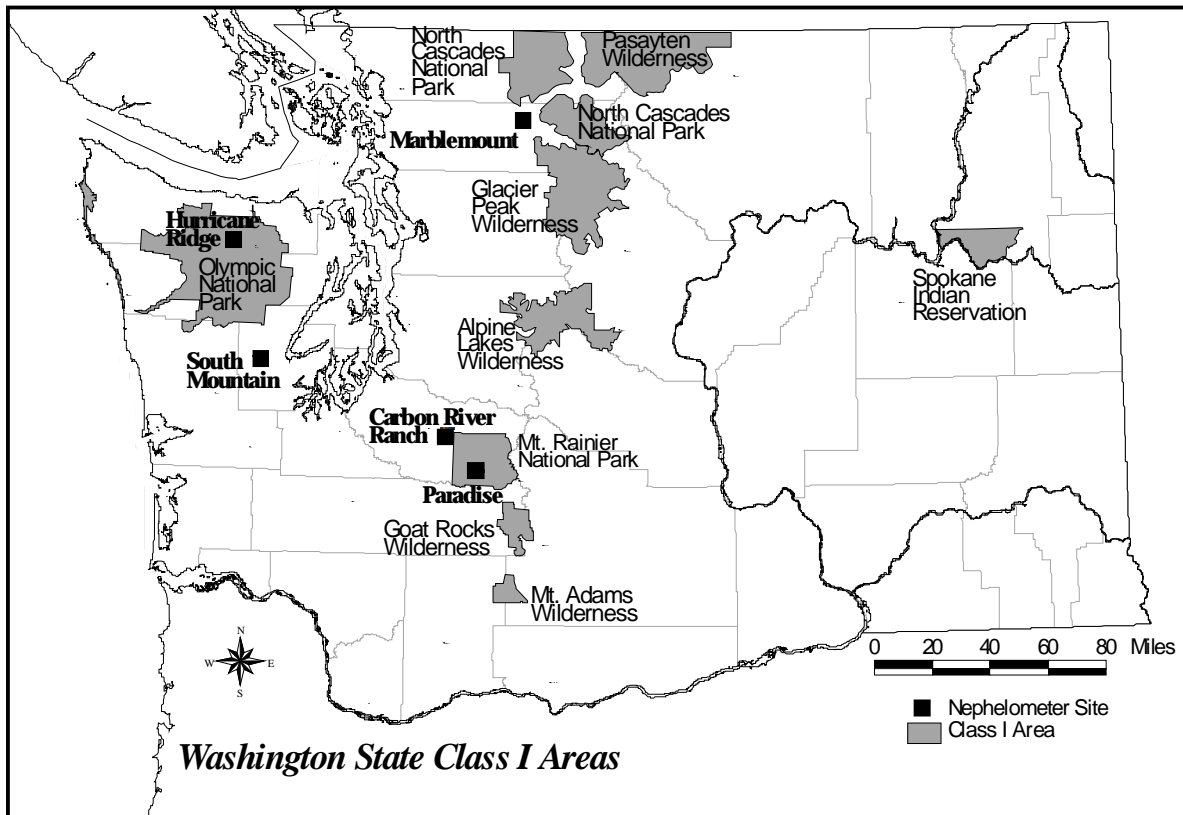


Visibility Monitoring

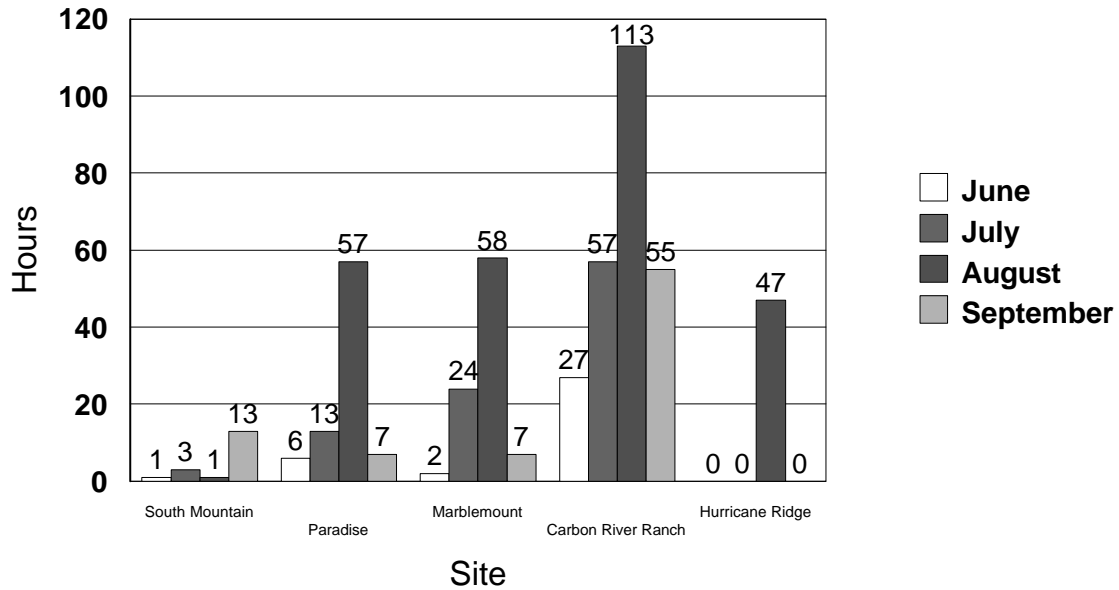
Ecology, in cooperation with the National Park Service and the U.S. Forest Service, monitors visibility conditions in Washington's Class I areas during the summer months. Class I areas are areas that are given more stringent air quality protection than other areas of the state (see map). Although monitoring is generally conducted from early June through late October, the period of most concern is July 4 through Labor Day. This "visibility protection period" coincides with the period of heaviest visitation to the Class I areas of the state.

Visibility monitoring for the 1996 season involved the operation of five nephelometer sites in western Washington. Sites operated were South Mountain, Paradise Visitor Center, Carbon River Ranch, Marblemount, and Hurricane Ridge (see map for site locations).

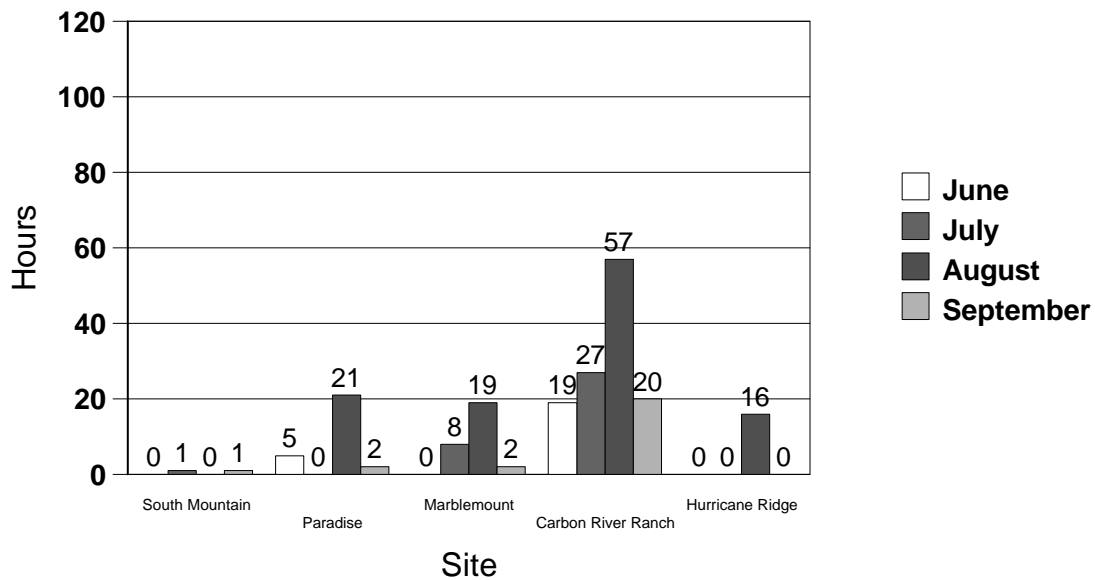
Data from these sites is presented in the graphs on pages 11-14.



Hours of Visibility Impairment 1996 (Adjusted for Missing Data)

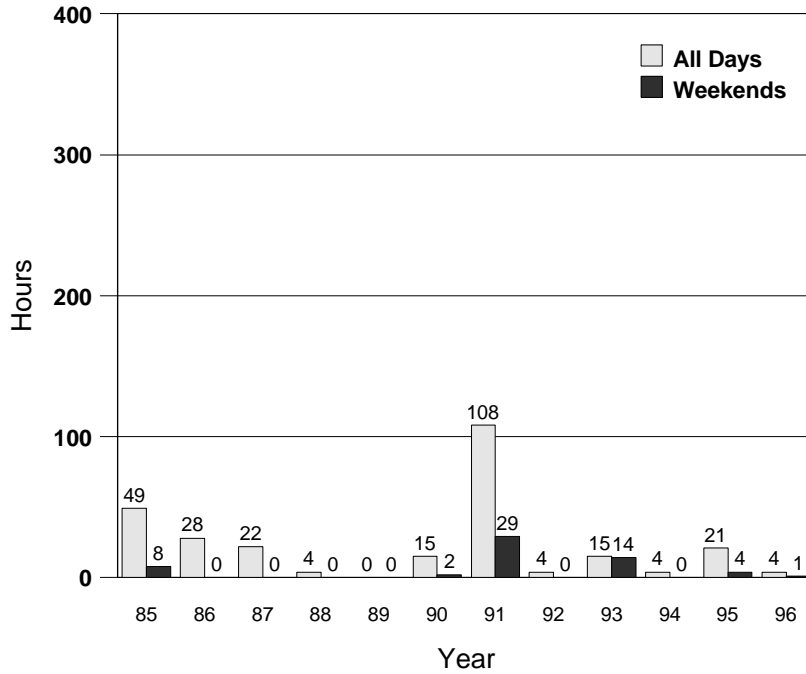


Weekend Hours of Visibility Impairment 1996 (Adjusted for Missing Data)

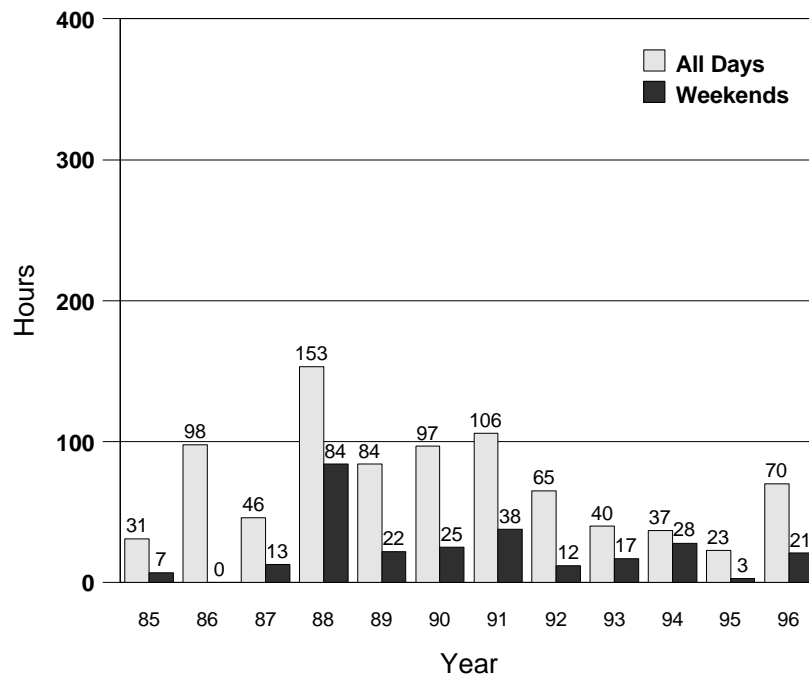


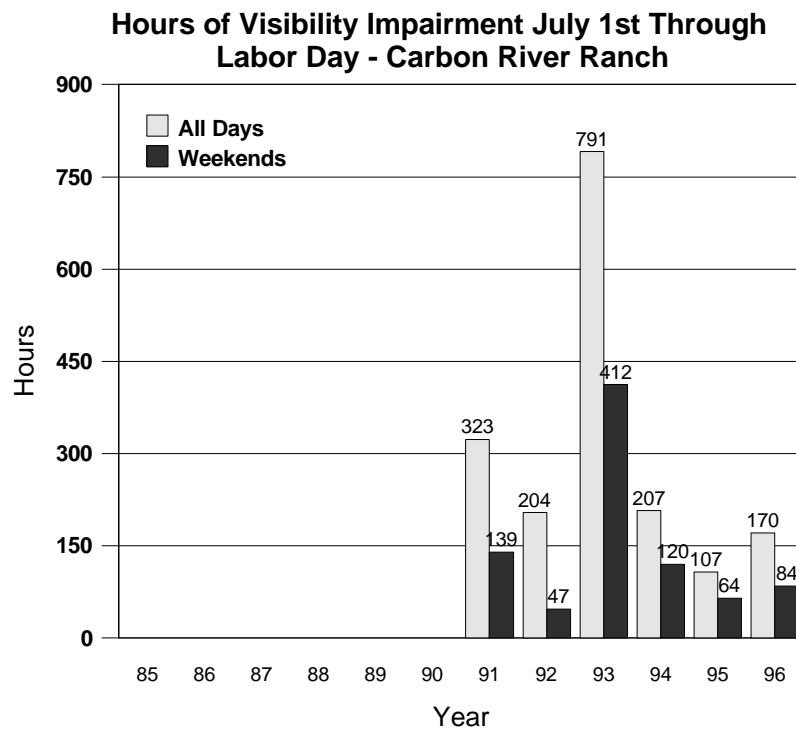
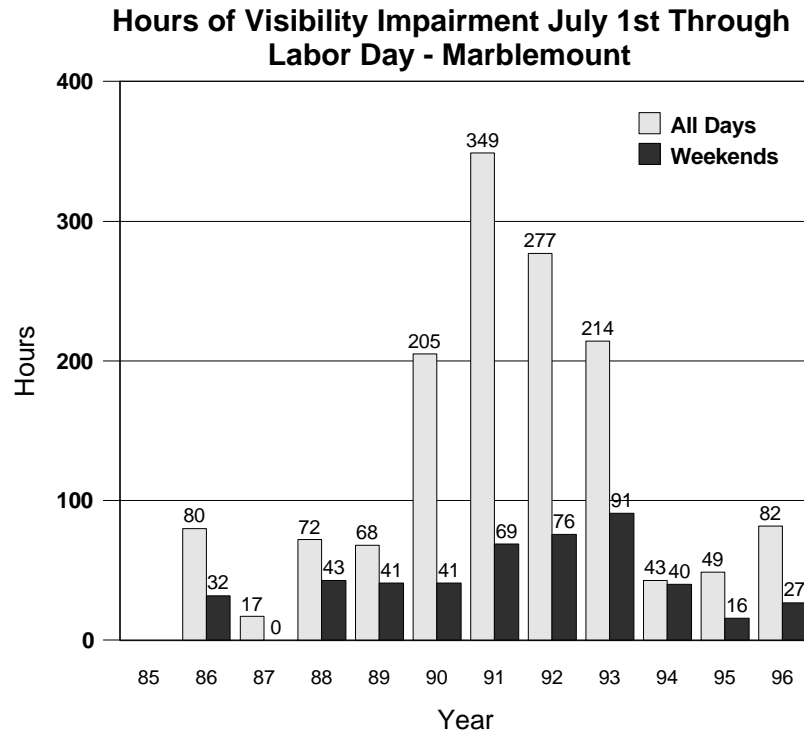
Visibility Data

Hours of Visibility Impairment July 1st Through Labor Day - South Mountain

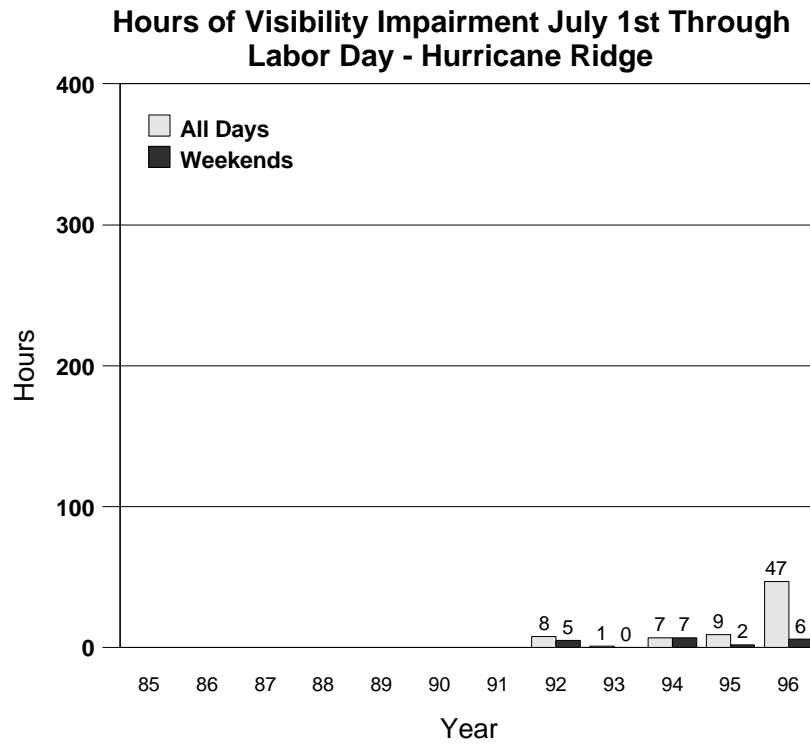


Hours of Visibility Impairment July 1st Through Labor Day - Paradise





Visibility Data



Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0444001A	Leavenworth, Cascade Mid.Sch										25*
0490004A	Wenatchee, Community College		30*	21	21	22	21	25	31	17*	18*
0490005A	Wenatchee, Columbia School								24*	24	24
1922003A	Ellensburg, Hal Holmes									21*	29

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0444001A	Leavenworth, Cascade Mid.Sch	55	12/17	43	11/11	25*
0490004A	Wenatchee, Community College	40	2/14	37	2/2	18*
0490005A	Wenatchee, Columbia School	86	12/17	58	2/12	24
1922003A	Ellensburg, Hal Holmes	109	12/19	93	12/17	29

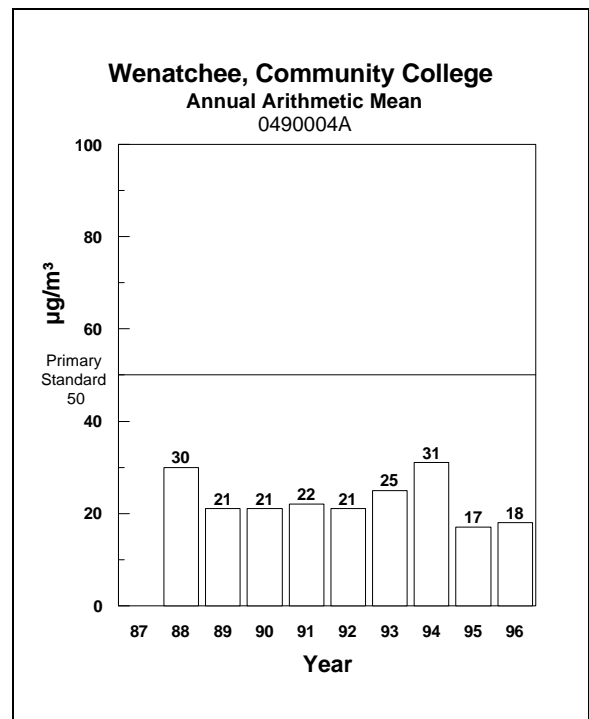
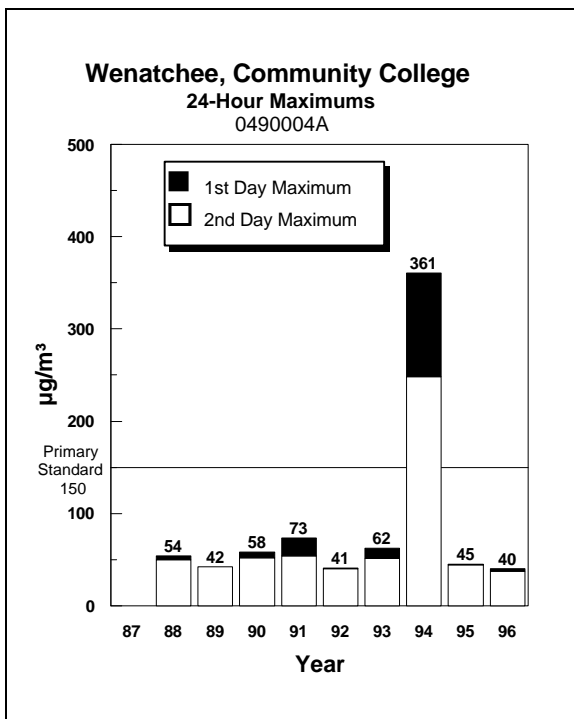
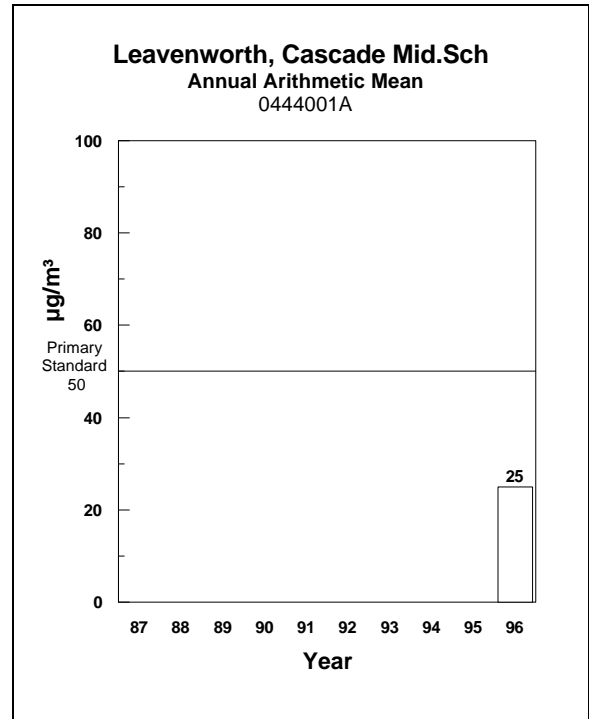
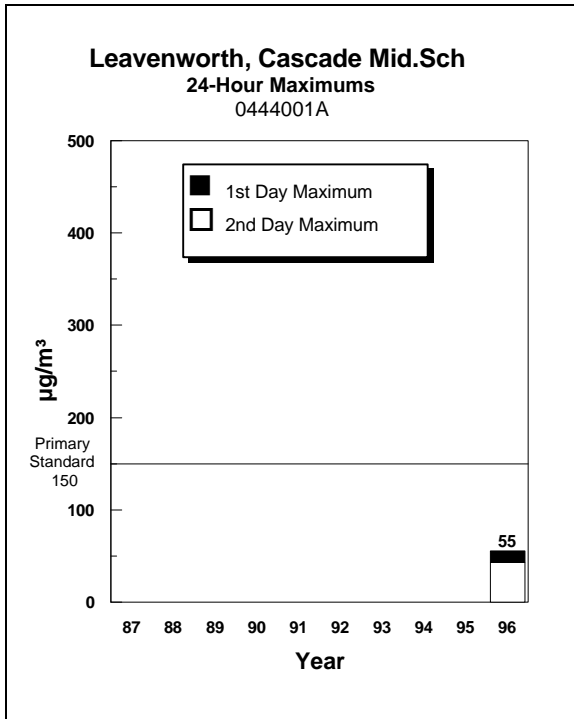
* Average based on less than 12 months of data.

PM₁₀ for 1996

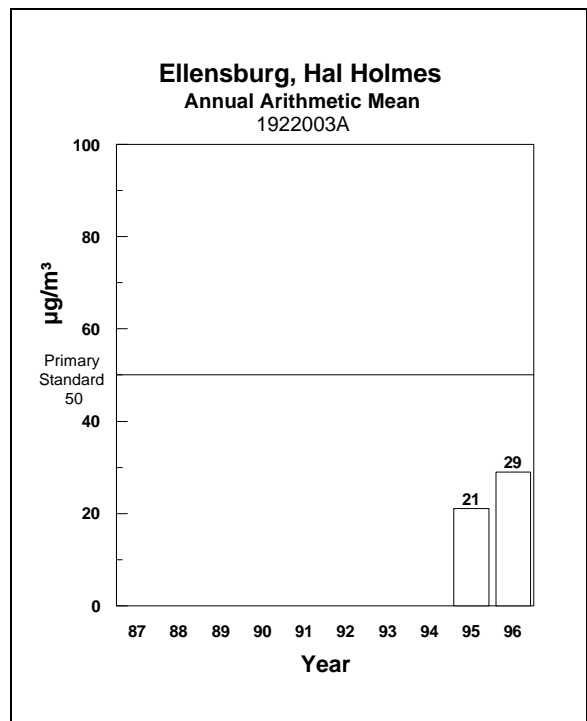
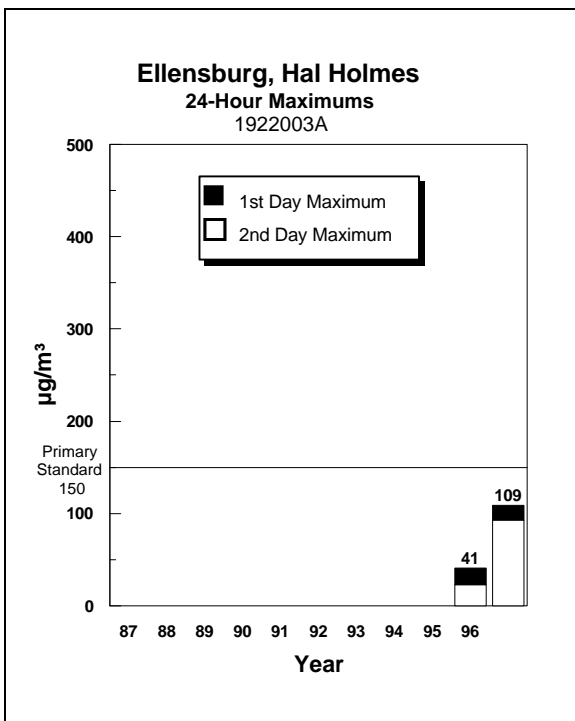
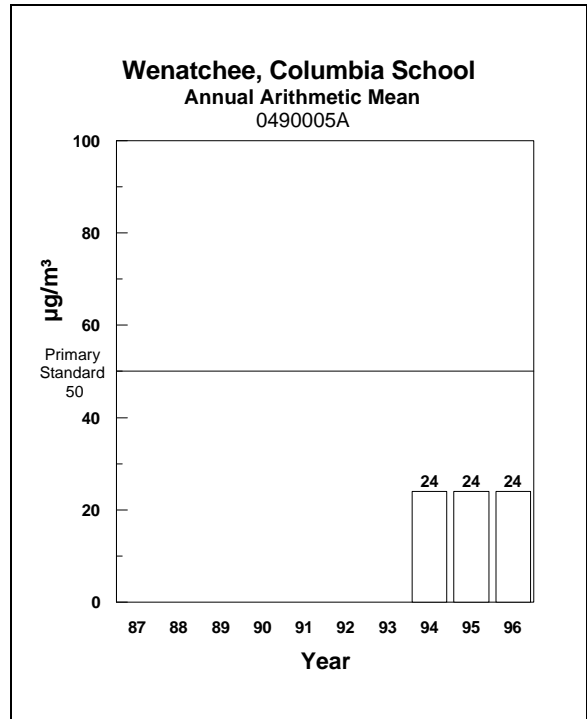
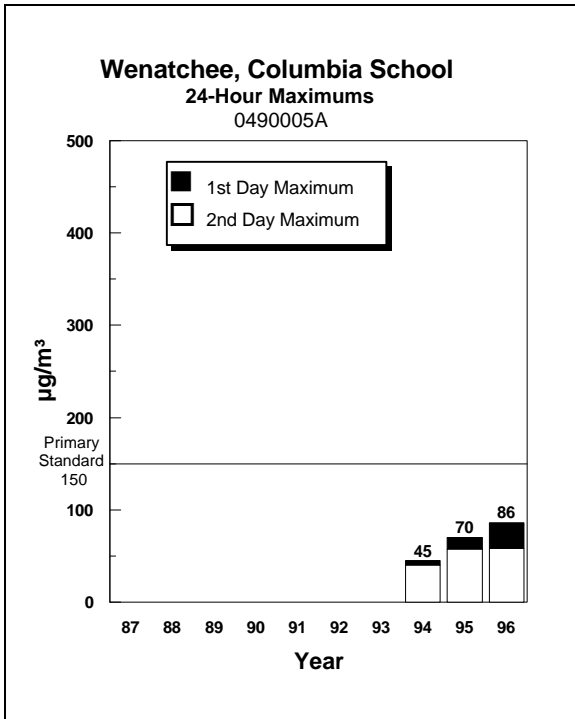
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0444001A	Leavenworth, Cascade Mid.Sch	Nov-Dec	1/6,1/3	24	96
0490004A	Wenatchee, Community College	Jan-Jul	1/6	33	97
0490005A	Wenatchee, Columbia School	Jan-Dec	1/6	73	100
1922003A	Ellensburg, Hal Holmes	Jan-Dec	1/6	72	100

Central Area

Particulate Matter



Particulate Matter



Central Area

Ozone

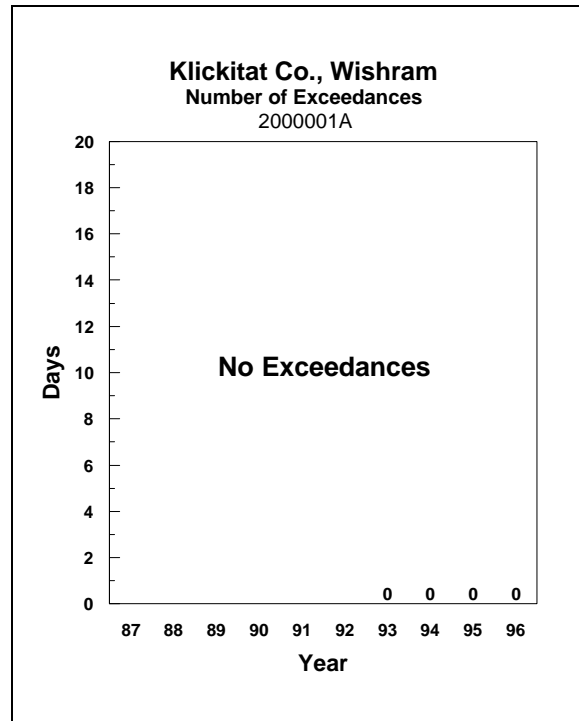
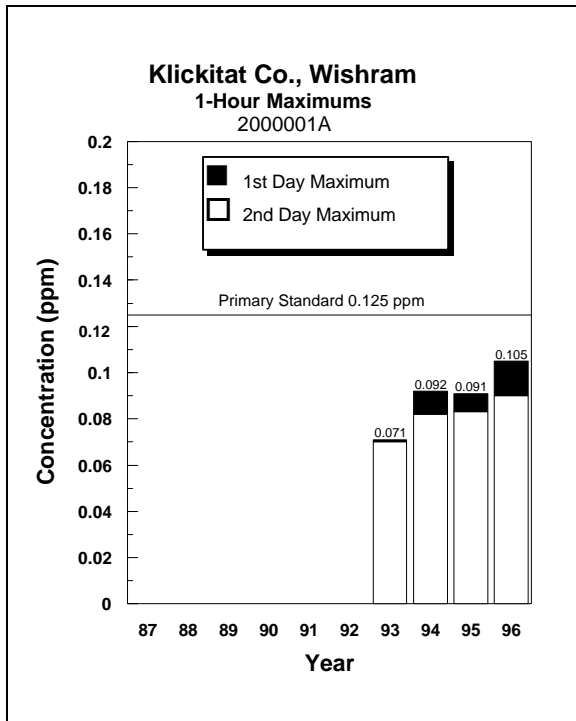
Ozone (ppm) for 1996

Station	Location	1st High		1-Hour Maximums		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
2000001A	Klickitat Co., Wishram	.105	7/14	.094	7/14	.090	7/26	0	0

*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
2000001A	Klickitat Co., Wishram	Apr-Oct	4,637	193	99



Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0566009G	Pt. Angles, Stevens Mid.Sch.										27*
0566412G	Pt. Ang., City Light			32*	28	28	28	26	22	20	22
3444003G	Lacey, Mt. View Elementary	37	34	30	24	25	26	27	19	19	16
3484001G	Tumwater, Trosper									26*	28*

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0566009G	Pt. Angles, Stevens Mid.Sch.	47	12/11	33	11/29	27*
0566412G	Pt. Ang., City Light	50	7/8	43	8/1	22
3444003G	Lacey, Mt. View Elementary	55	2/13	53	2/15	16
3484001G	Tumwater, Trosper	94	3/2	57	2/13	28*

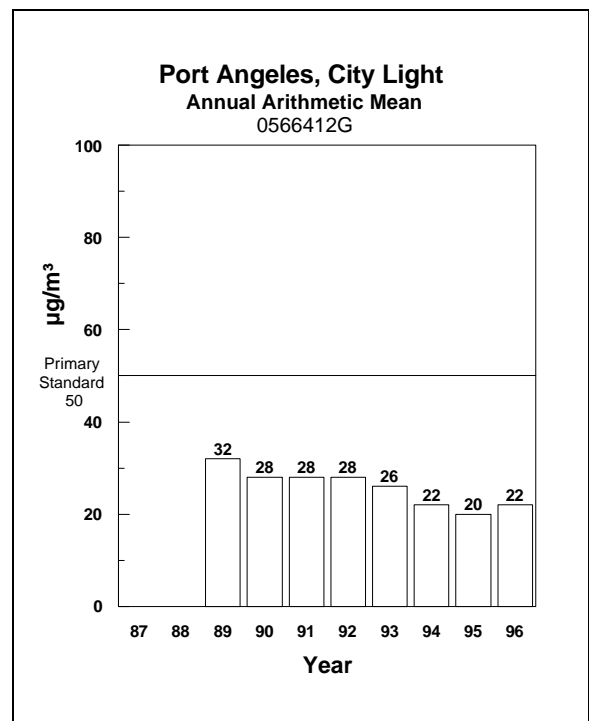
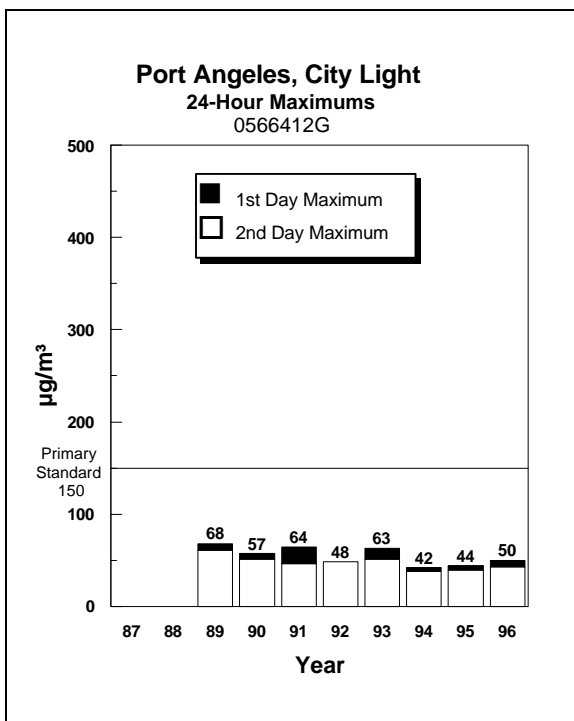
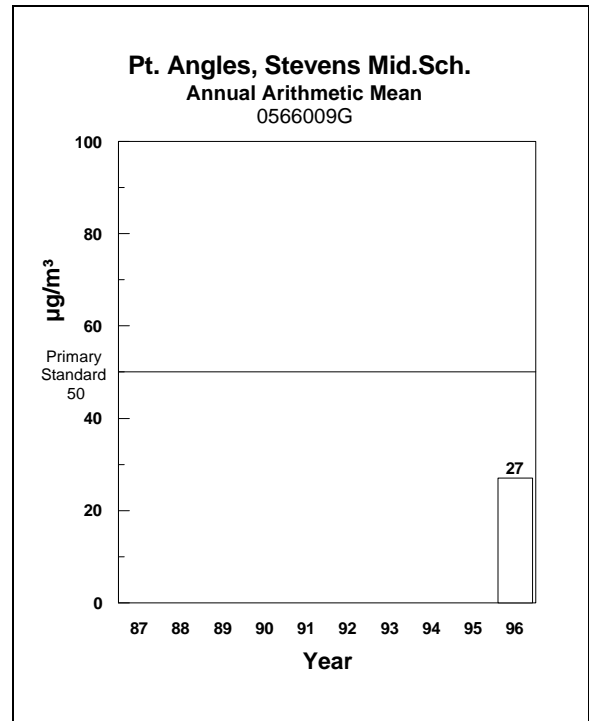
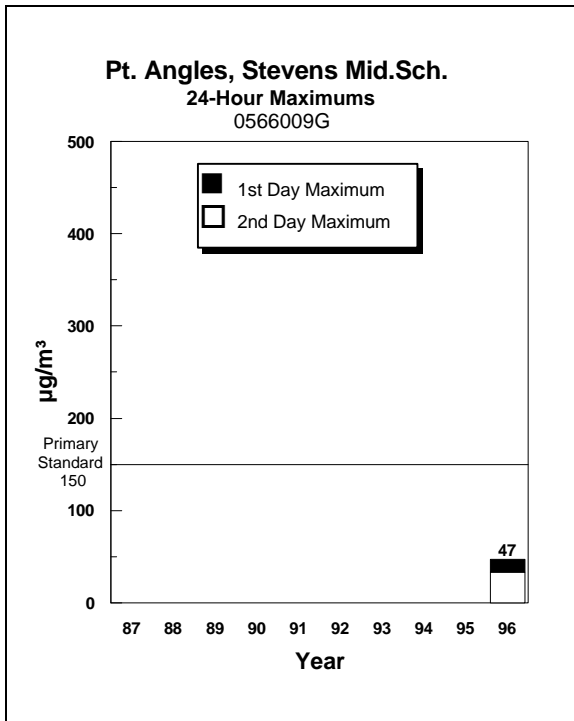
* Average based on less than 12 months of data.

PM₁₀ for 1996

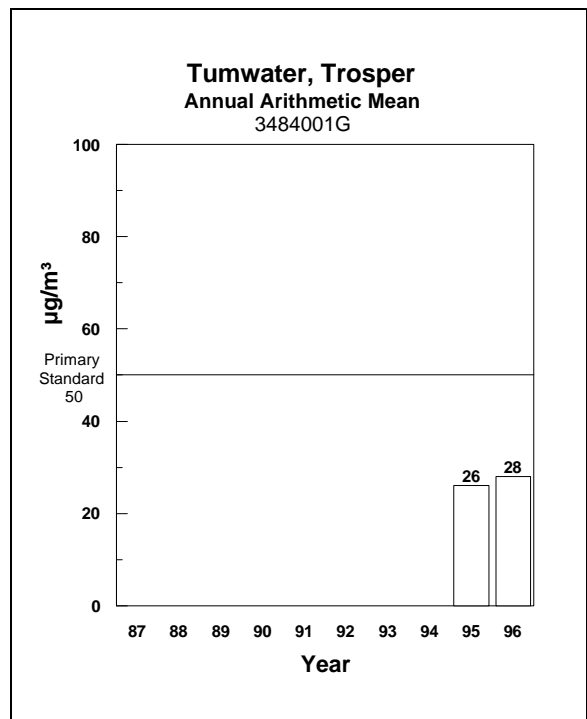
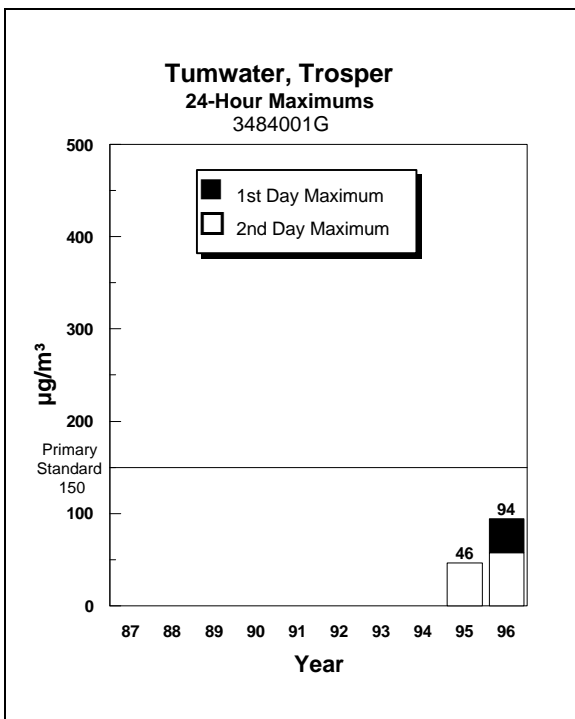
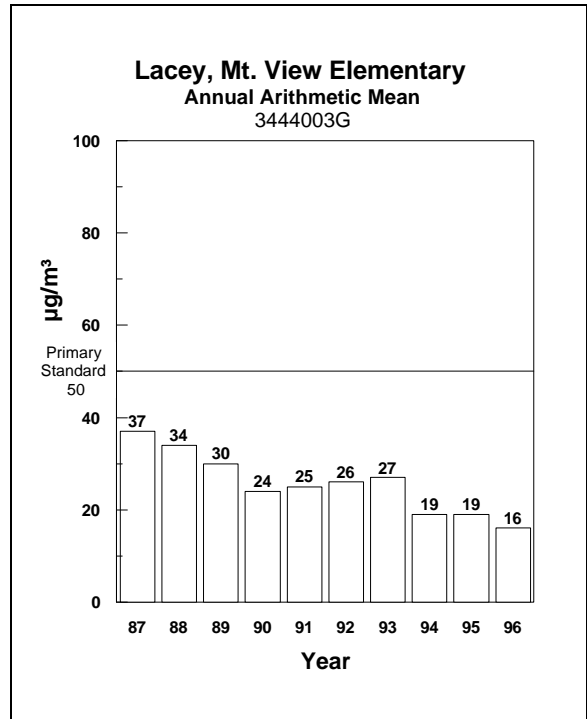
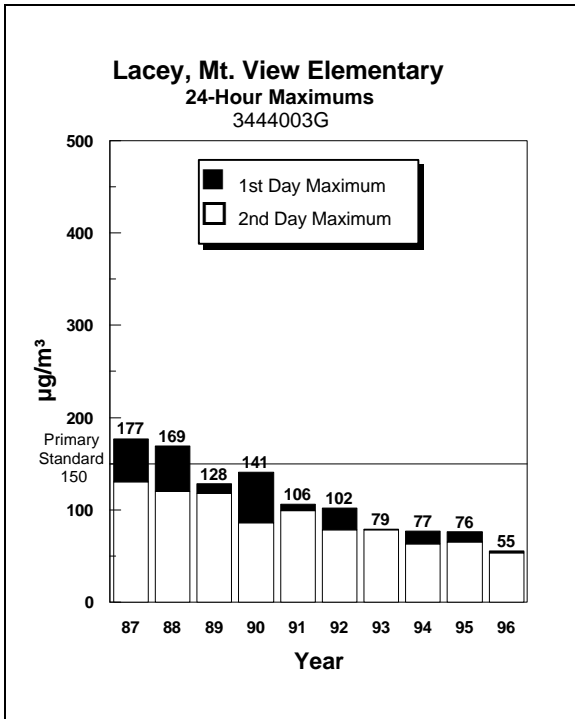
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0566009G	Pt. Angles, Stevens Mid.Sch.	Nov-Dec	1/6	6	100
0566412G	Pt. Ang., City Light	Jan-Dec	1/6	60	98
3444003G	Lacey, Mt. View Elementary	Jan-Dec	1/6, 1/2	128	97
3484001G	Tumwater, Trosper	Jan-Mar	1/6	20	100

Coastal Area

Particulate Matter



Particulate Matter



Coastal Area

Carbon Monoxide

Carbon Monoxide (ppm) for 1996

Station	Location	1-Hour Maximums				8-Hour Maximums ¹				2nd Day ²	8-Hr. Exc.	
		Conc	Date	Conc	Date	1st High	2nd High	1st High	2nd High			
3444004A	Lacey, OAPCA Office	10.0	2/12	10.0	2/13	7.5	2/13	7.5	2/12	7.5	2/12	0
3460010A	Olympia, Odd Fellows	17.4	1/14	10.8	1/14	4.7	1/14	4.0	4/19	4.0	4/19	0

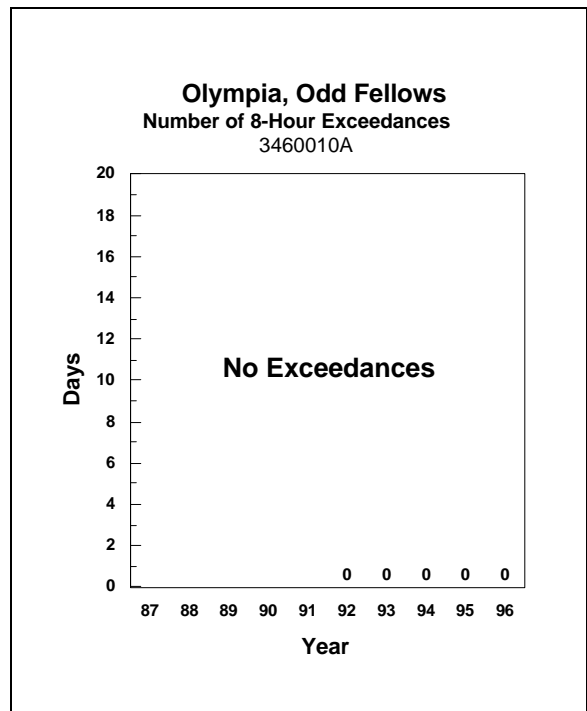
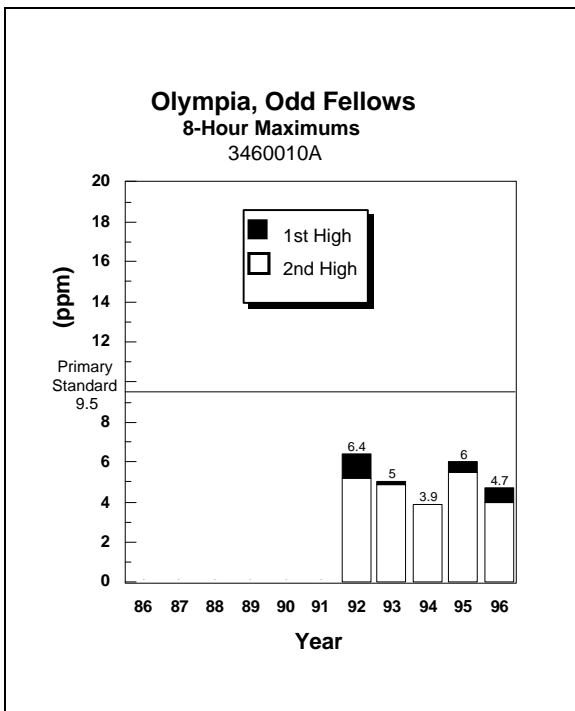
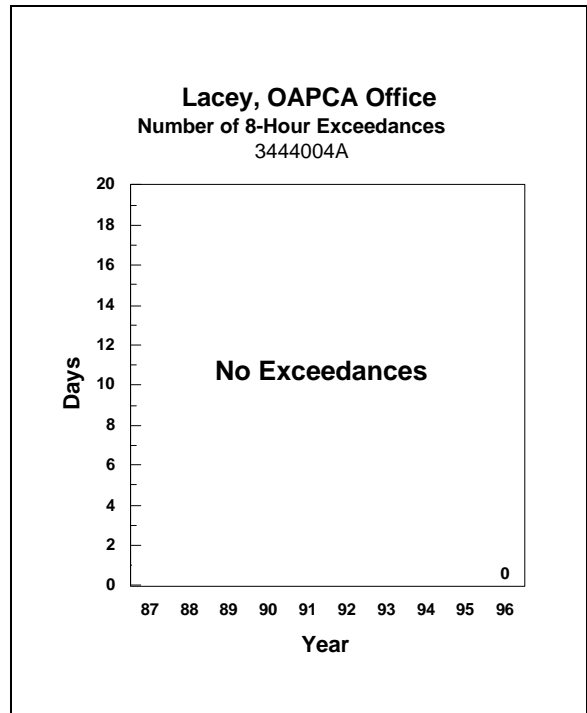
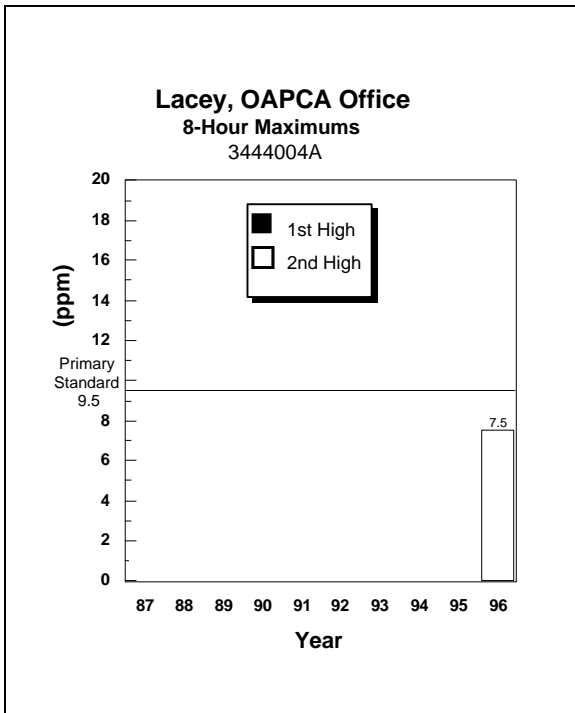
1. 8-hour readings are non-overlapping.

2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3444004A	Lacey, OAPCA Office	Jan-Dec	8,633	363	99
3460010A	Olympia, Odd Fellows	Jan-May	3,300	143	99

Carbon Monoxide



Coastal Area

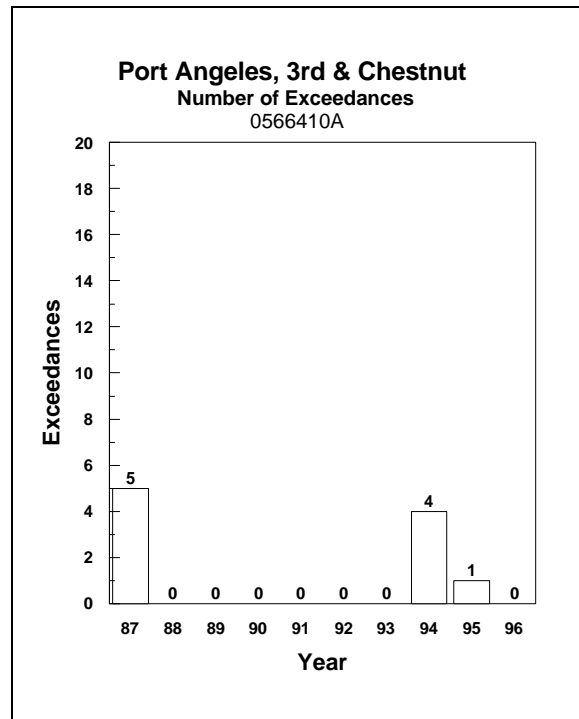
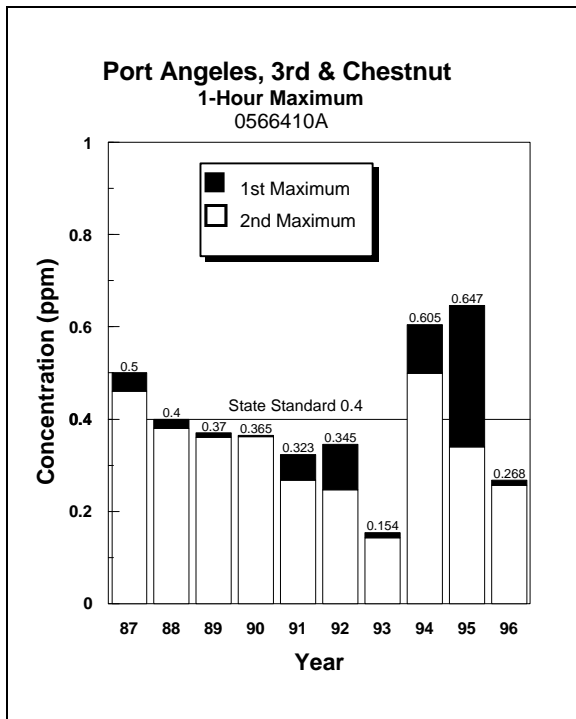
Sulfur Dioxide

Sulfur Dioxide for 1996

Station	Location	1-Hour Maximum		3-Hr Max		24-Hr Max		# 24-Hour		Annual Mean				
		1st Date	2nd Date	#1-Hr >.40 Conc	Date	#3-Hr <.50 Conc	Date	>.10	>.14					
0566410A	Pt Angeles, 3rd & Chstnt	.268	8/8	.257	7/27	0	.227	7/27	0	.085	7/27	0	0	.007

Sulfur Dioxide for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0566410A	Pt Angeles, 3rd & Chstnt	Jan-Dec	8,723	363	99



Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0214005A	Clarkston, STP							43*	37	30	32
0340003J	Kennewick VSC								15*	18	21
3316004A	Colville, County Courthouse										69*
3600002J	Walla Walla Co., Wallula	55	56	37	41	66	35	38	37	28	34
3692007A	Walla Walla, Fire Station			36*	32	44	28	28	24	22	27*

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0214005A	Clarkston, STP	96	9/12	75	8/1	32
0340003J	Kennewick VSC	84	8/17	82	9/12	21
3316004A	Colville, County Courthouse	236	12/17	36	12/29	69*
3600002J	Walla Walla Co., Wallula	148	7/2	122	8/7	34
3692007A	Walla Walla, Fire Station	71	2/15	70	9/12	27*

* Average based on less than 12 months of data.

PM₁₀ for 1996

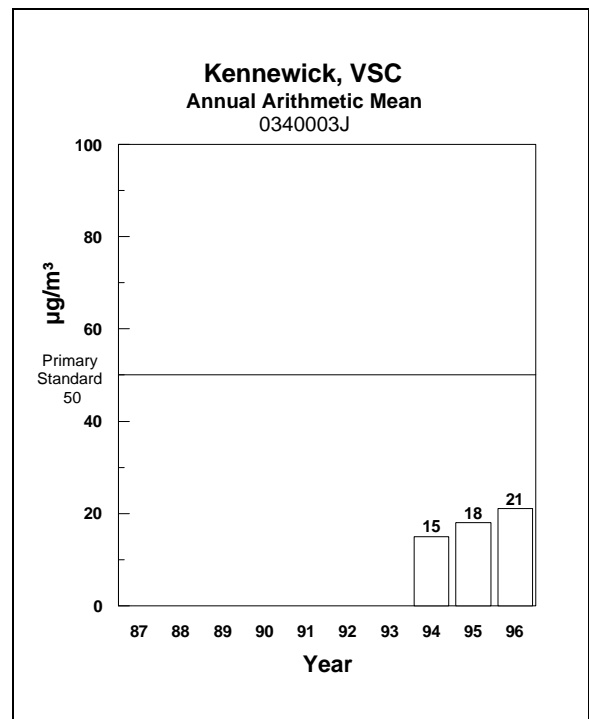
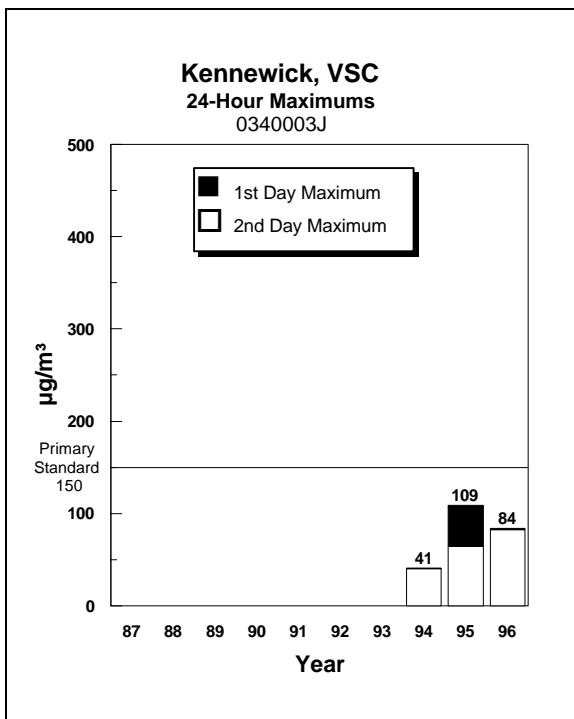
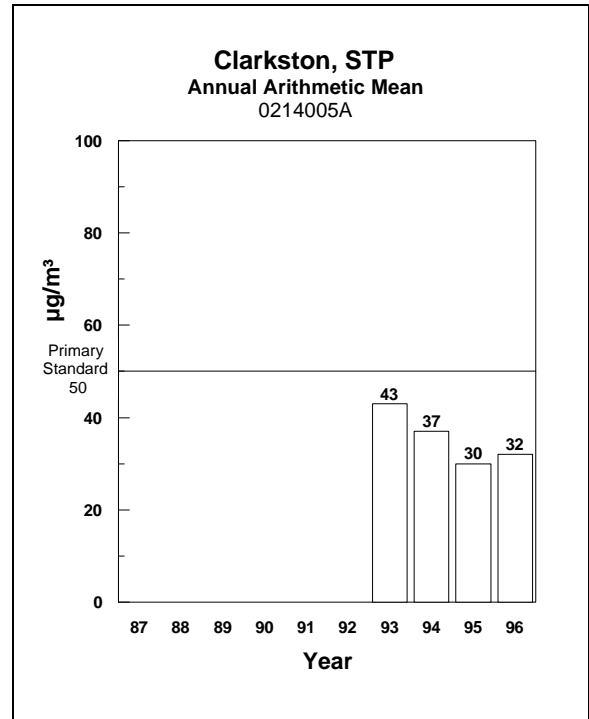
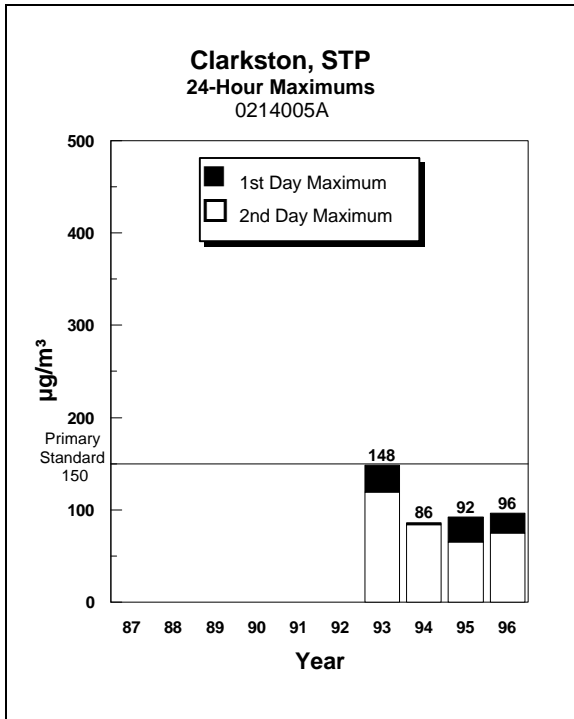
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0214005A	Clarkston, STP	Jan-Dec	1/6	56	92
0340003J	Kennewick VSC	Jan-Dec	1/1	325	89
3316004A	Colville, County Courthouse	Dec-Dec	1/6	5	100
3600002J	Walla Walla Co., Wallula	Jan-Dec	1/6	58	95
3692007A	Walla Walla, Fire Station	Jan-Dec	1/6	53	87

Frequency of PM₁₀ (µg/m³) Levels Exceeding The State Standard During 1996 (# Days Exceeding Level)

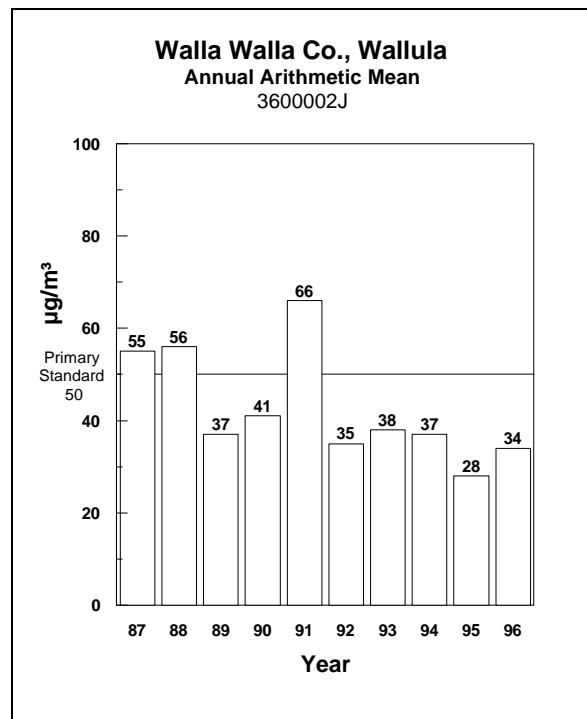
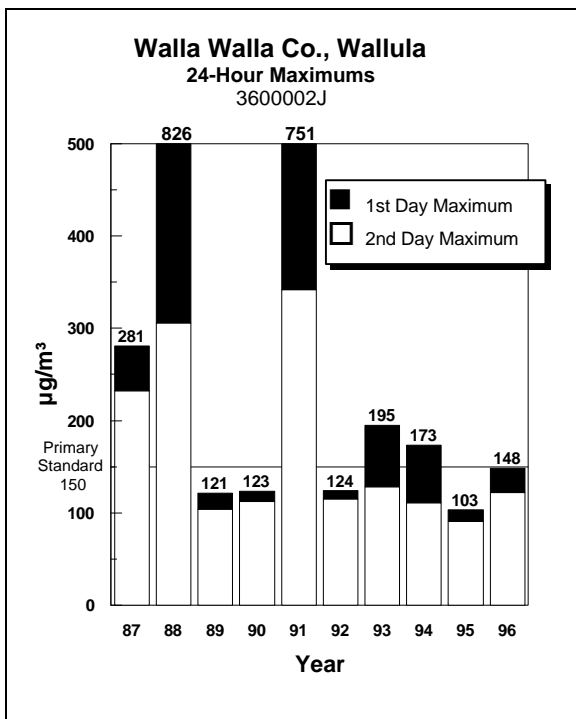
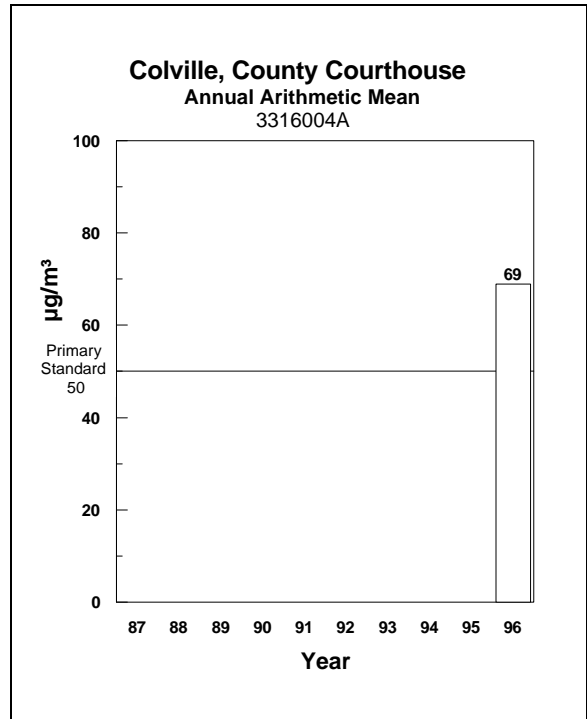
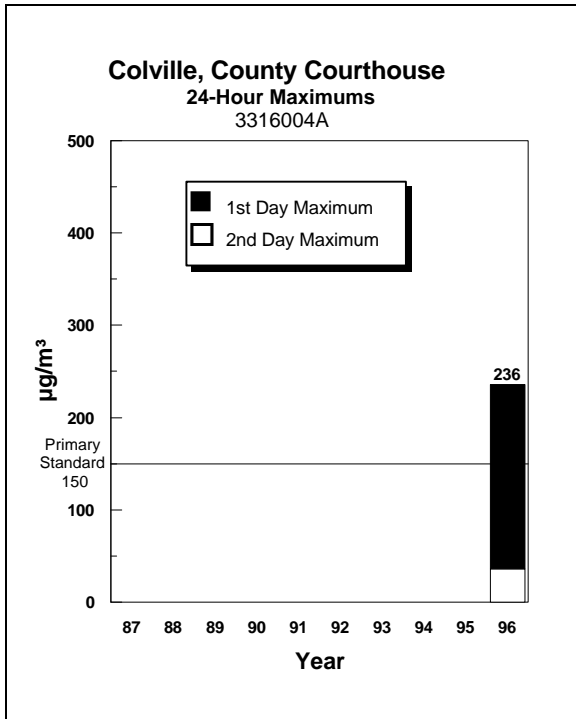
Station	Location	≥150	≥200	≥260	≥375	≥500
		<200	<260	<375	<500	<750
3316004A	Colville, County Courthouse	0	1	0	0	0

Eastern Area

Particulate Matter

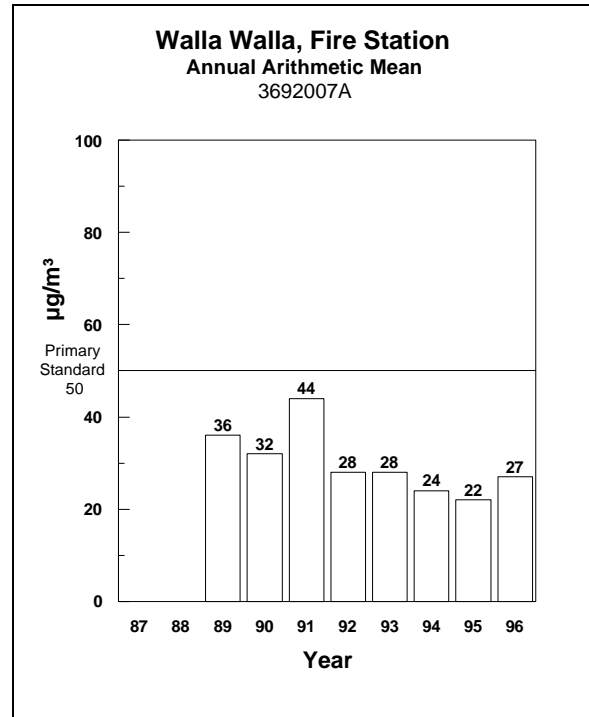
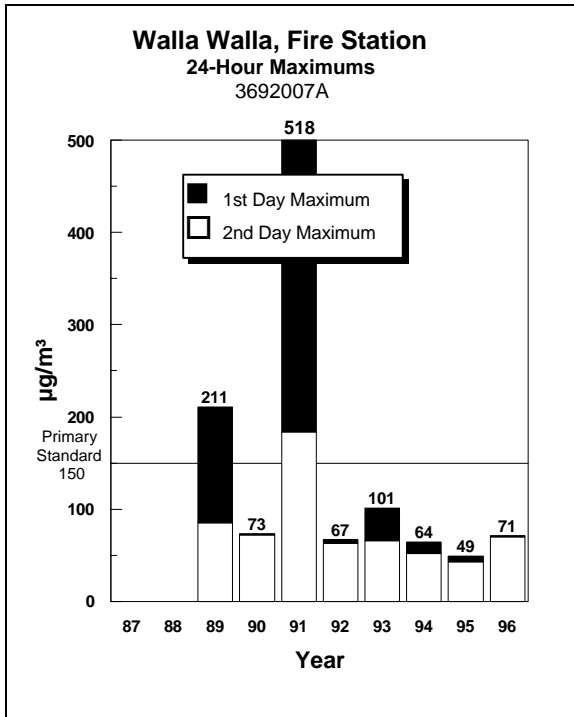


Particulate Matter



Eastern Area

Particulate Matter



Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
3706005C	Bellingham, School Dist.						18*	21	18*	16	15

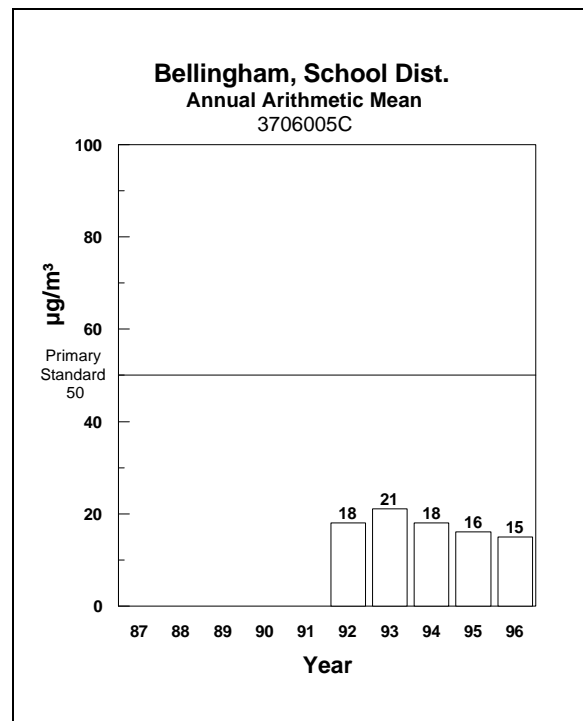
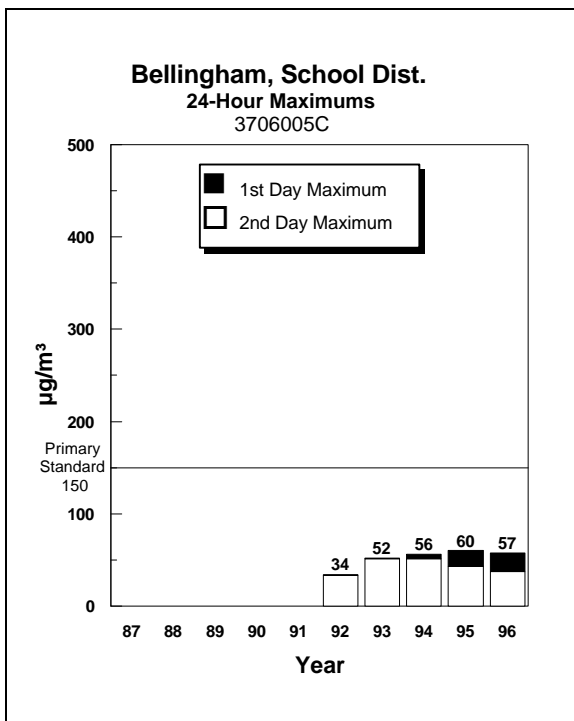
*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3706005C	Bellingham, School Dist.	57	2/15	37	12/17	15

PM₁₀ for 1996

Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3706005C	Bellingham, School Dist.	Jan-Dec	1/6	57	93



Northwest Area

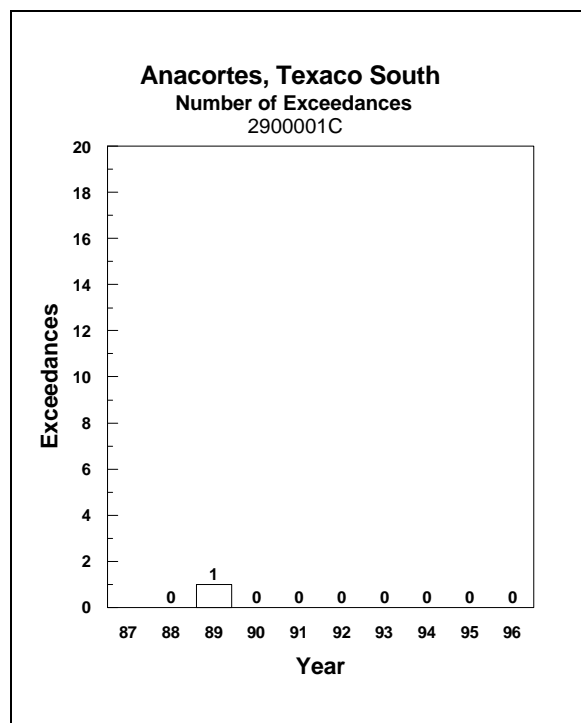
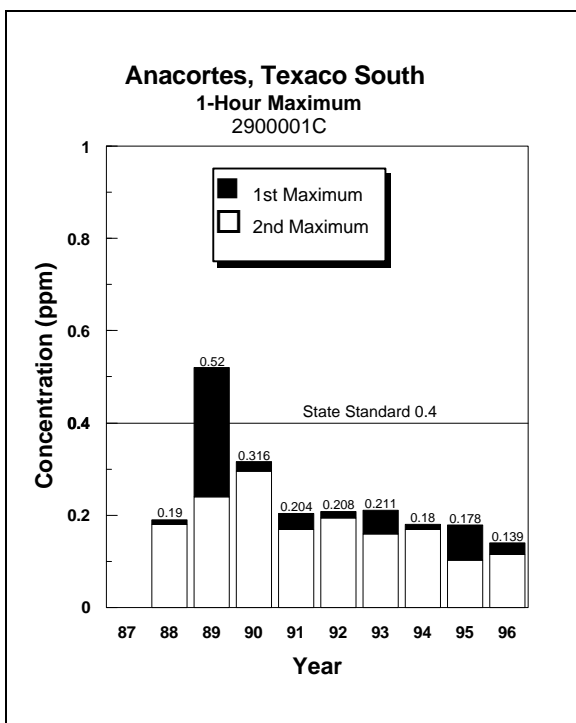
Sulfur Dioxide

Sulfur Dioxide for 1996

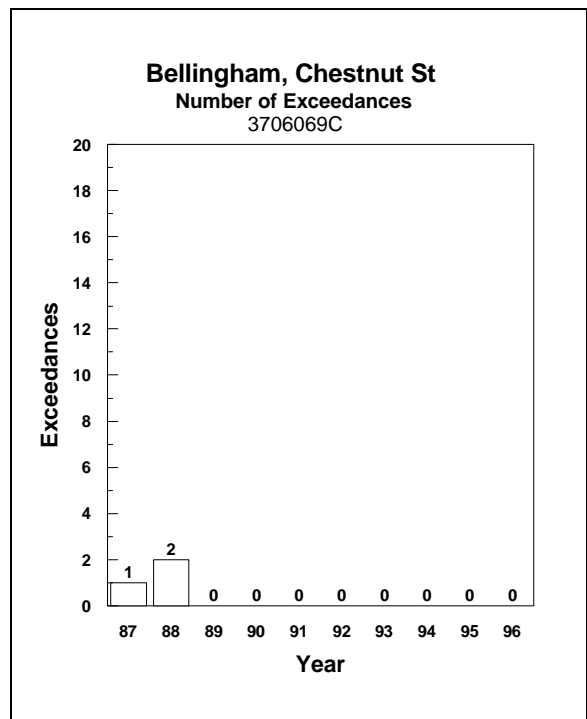
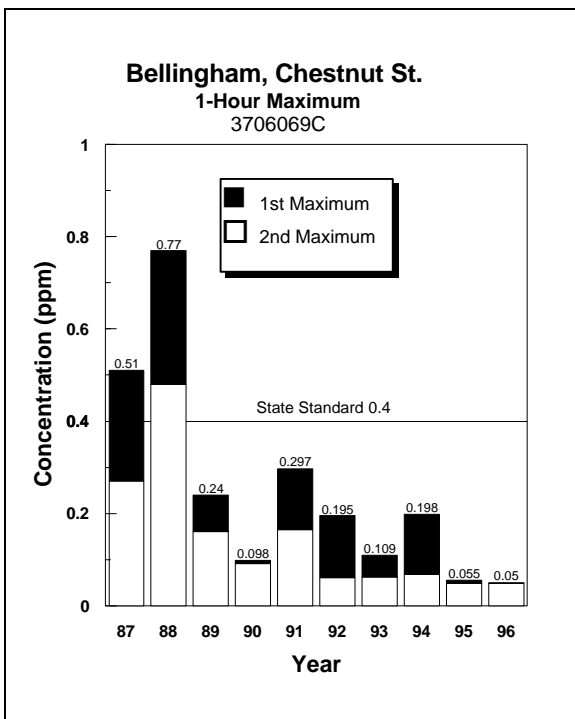
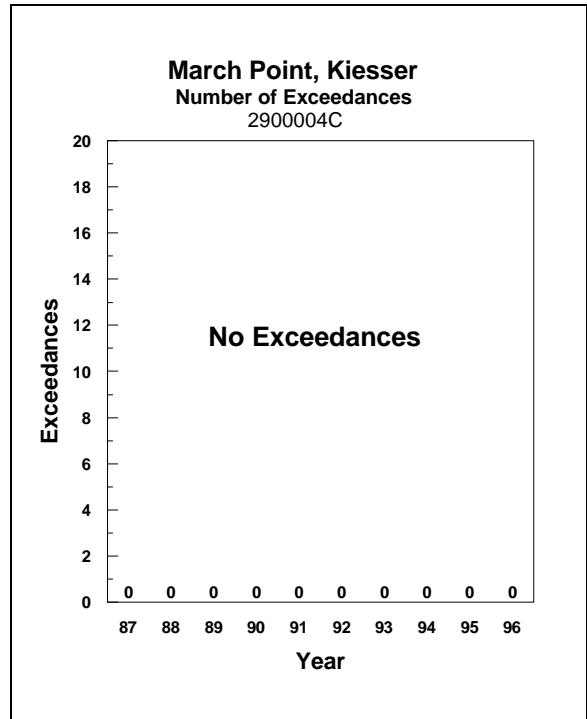
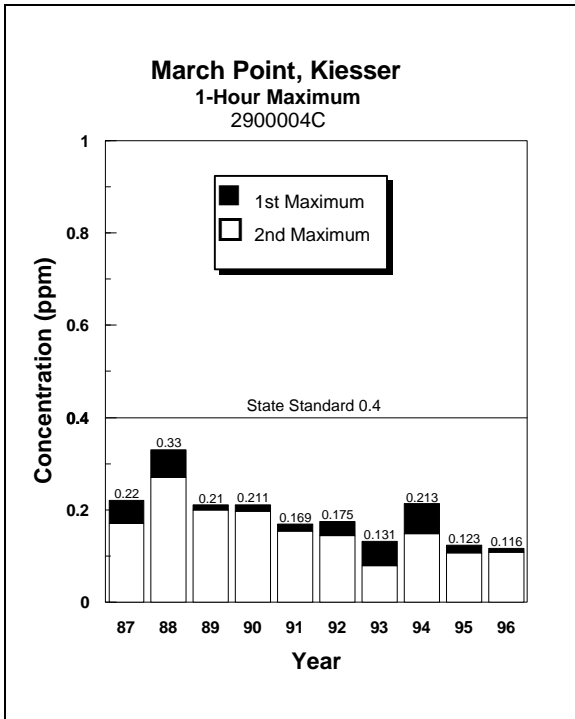
Station	Location	1-Hour Maximum		3-Hr Max		24-Hr Max		# 24-Hour		Annual Mean				
		1st	Date	2nd	Date	#1-Hr >.40	Conc	Date	#3-Hr <.50		Conc	Date	>.10	>.14
2900001C	Anacortes, Texaco South	.139	7/15	.114	7/15	0	.100	7/15	0	.034	12/25	0	0	.004
2900004C	March Pt., Kiesser	.116	8/11	.108	6/2	0	.091	8/11	0	.026	6/2	0	0	.006
3706069C	Bellingham, Chestnut St.	.050	6/4	.048	8/14	0	.031	8/14	0	.013	8/14	0	0	.004

Sulfur Dioxide for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
2900001C	Anacortes, Texaco South	Jan-Dec	8,698	362	99
2900004C	March Pt., Kiesser	Jan-Dec	8,710	363	99
3706069C	Bellingham, Chestnut St.	Jan-Dec	8,495	354	97



Sulfur Dioxide



Northwest Area

Ozone

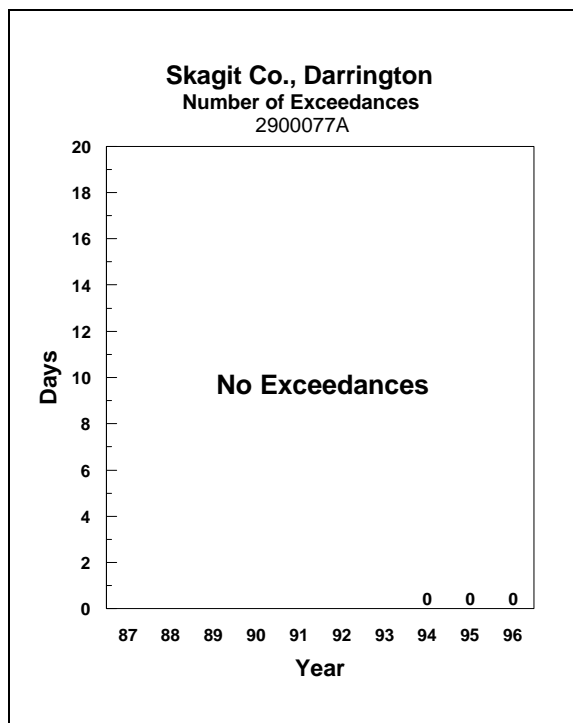
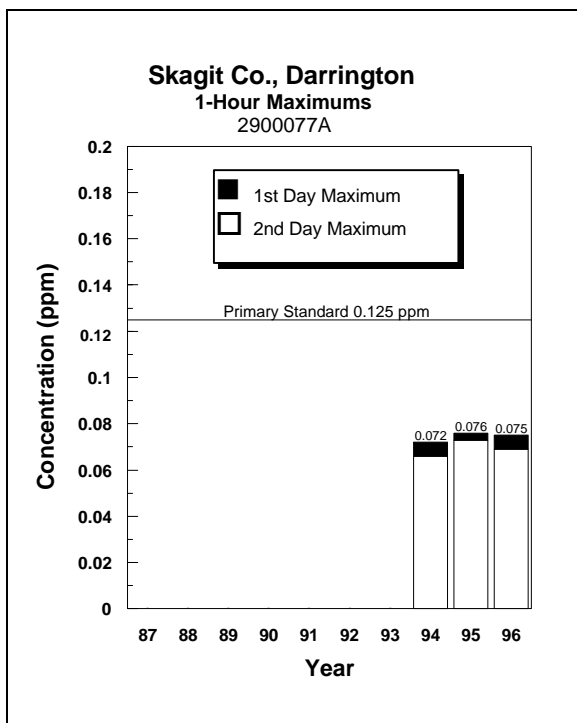
Ozone (ppm) for 1996

Station	Location	1st High		1-Hour Maximums 2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
2900077A	Skagit Co., Darrington	.075	8/10	.069	7/26	.069	7/26	0	0
3700006A	Whatcom Co., Custer FCC Bldg.	.080	8/10	.079	8/10	.078	8/8	0	0

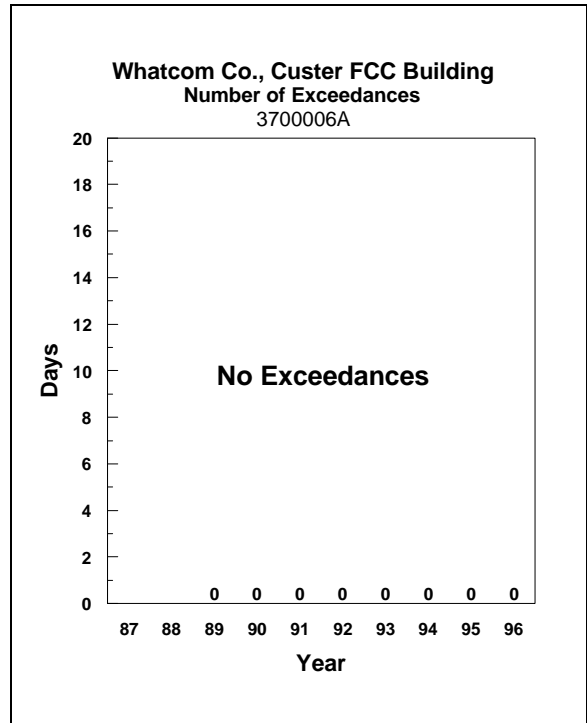
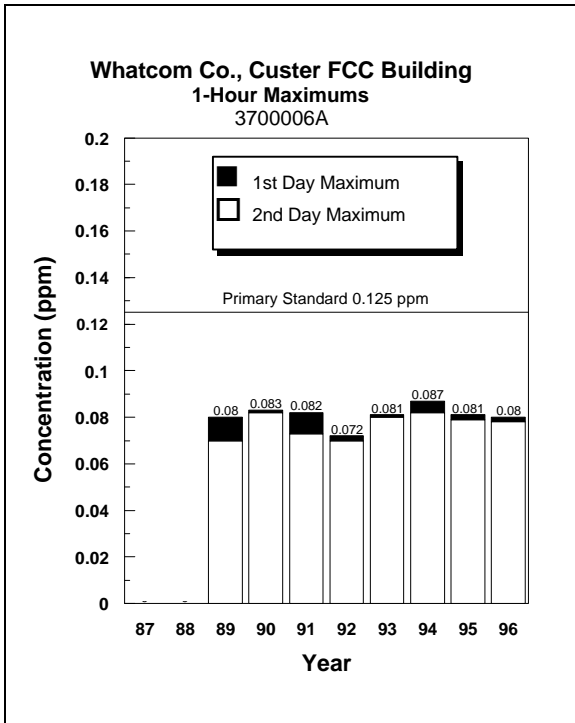
*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
2900077A	Skagit Co., Darrington	Apr-Oct	4,614	192	98
3700006A	Whatcom Co., Custer FCC Bldg.	Apr-Oct	4,719	197	99



Ozone



Puget Sound Area

Total Suspended Particulates

Total Suspended Particulates ($\mu\text{g}/\text{m}^3$) for 1996

Station	Location	1st High		2nd High		Annual Geo. Mean
		Conc	Date	Conc	Date	
1776K71B	Seattle, Harbor Island	145	8/13	91	2/27	39

Particulate Matter

PM₁₀ Annual Arithmetic Means ($\mu\text{g}/\text{m}^3$)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
1708004A	Bellevue, Scan Design	32	26	26	21	23	23	20	18	16	16
1740K73B	Kent, James and Central	43*	37*	34	30	32	33	28	25	23	23
1744K74B	Lake Forest Park, City Hall			31*	27	28	26	28	20	20	21
1776K55B	Seattle, Duwamish	44	39	39	36	37	38	35	28	28	27
1776K60B	Seattle, Harbor Island	46	37	40	35	35	34	33	27	26	24
1776K61B	Seattle, South Park	41	31	30	28	27	29	26	22	21	19
1800B05B	Kitsap Co., Meadowdale					32*	23	23	20	20	17
1868B06B	Poulsbo, Lions Park							23*	15	15	14
2700P18B	Puyallup, South Hill					38*	29	24	20	19	23
2782P01B	Tacoma, Fire Station #12	48	42	39	34	36	36	33	27	27	25
2782P16B	Tacoma, 54th Ave. NE	44	35	33	29	30	35	26	23	18	18
2782P17B	Tacoma, Alexander Ave.	40*	38	36	31	29	31	28	23	26	23
3124S04B	Everett, Hoyt Ave.			27*	24	25	24	23	19	17	16
3146S08B	Lynnwood, 59th Place								22*	16	15
3148S07B	Marysville, Jr. High School					34*	26	27	21	22	19

*Average based on less than 12 months of data.

PM₁₀ ($\mu\text{g}/\text{m}^3$) for 1996

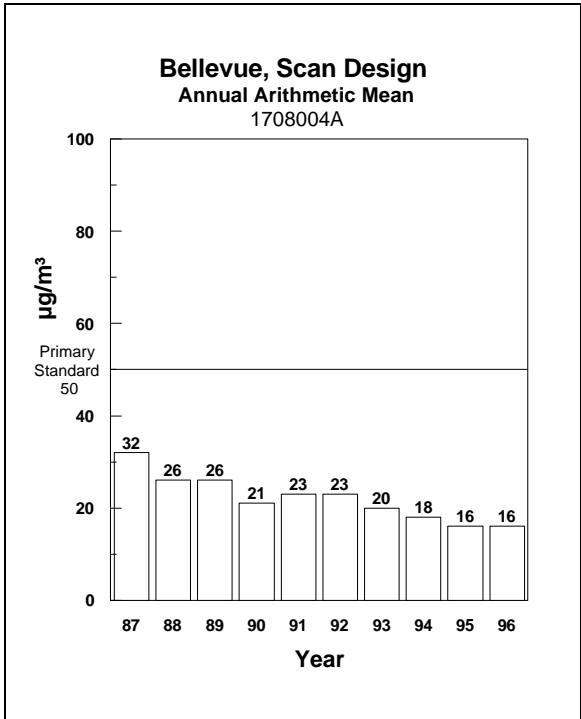
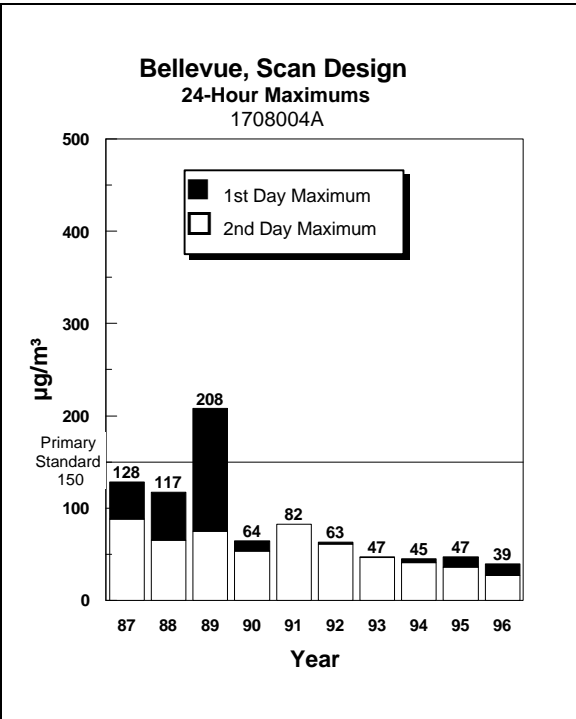
Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
1708004A	Bellevue, Scan Design	39	11/11	27	2/3	16
1740K73B	Kent, James and Central	70	2/12	70	2/15	23
1744K74B	Lake Forest Park, City Hall	95	2/13	93	2/15	21
1776K55B	Seattle, Duwamish	88	10/9	81	11/1	27
1776K60B	Seattle, Harbor Island	56	2/15	51	11/11	24
1776K61B	Seattle, South Park	51	2/15	41	11/11	19
1800B05B	Kitsap Co., Meadowdale	41	2/3	41	10/30	17
1868B06B	Poulsbo, Lions Park	34	2/15	31	2/3	14
2700P18B	Puyallup, South Hill	65	7/26	57	2/15	23
2782P01B	Tacoma, Fire Station #12	75	2/15	74	2/12	25
2782P16B	Tacoma, 54th Ave. NE	40	2/3	34	11/11	18
2782P17B	Tacoma, Alexander Ave.	82	8/29	69	3/14	23
3124S04B	Everett, Hoyt Ave.	39	2/15	32	11/23	16
3146S08B	Lynnwood, 59th Place	45	11/23	33	2/15	15
3148S07B	Marysville, Jr. High School	82	1/31	80	2/1	19

* Average based on less than 12 months of data.

Particulate Matter

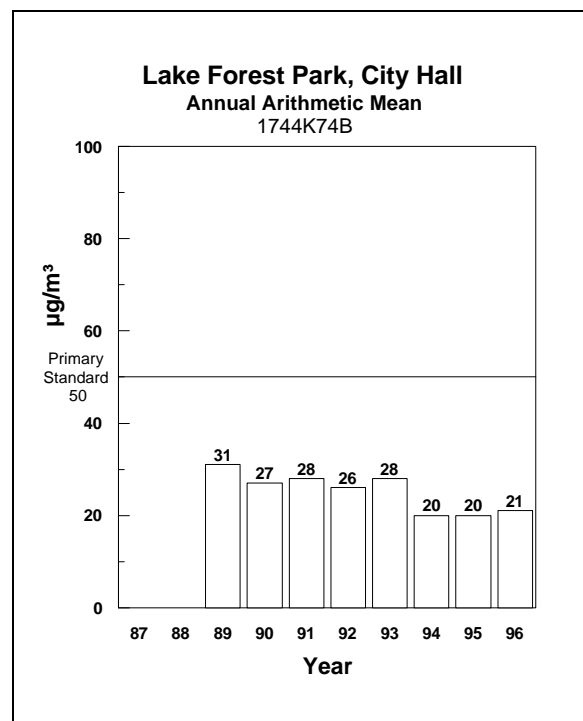
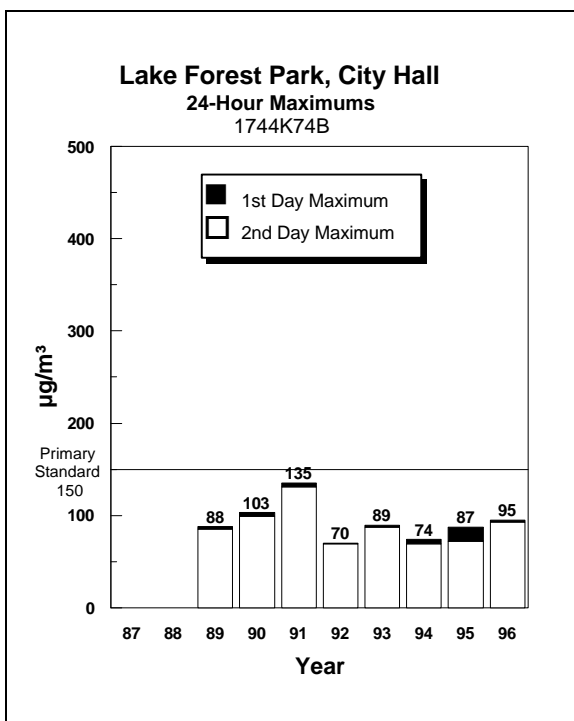
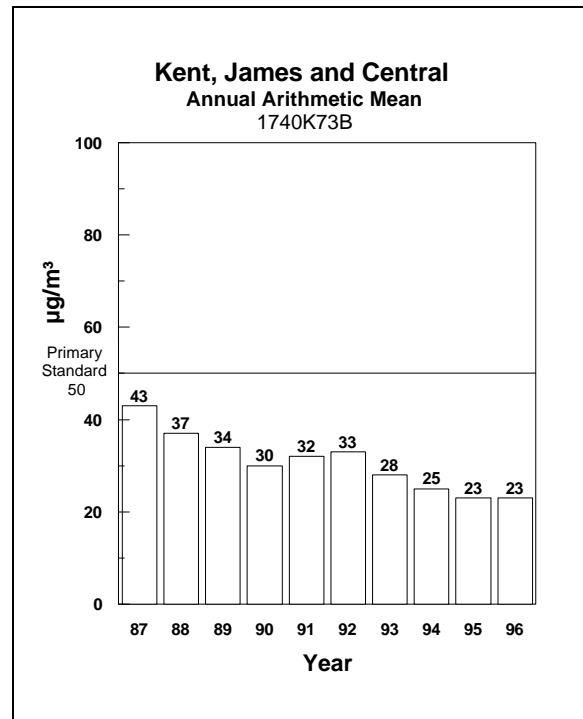
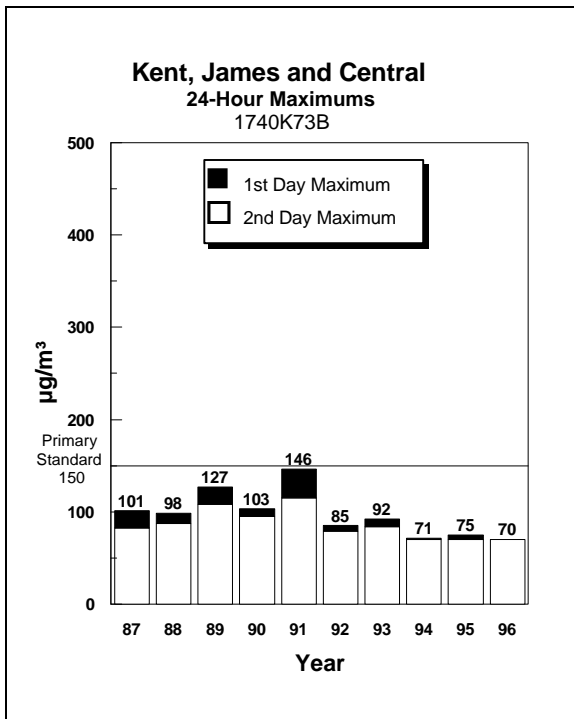
PM₁₀ for 1996

Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
1708004A	Bellevue, Scan Design	Jan-Dec	1/6	56	92
1740K73B	Kent, James and Central	Jan-Dec	1/3	198	100
1744K74B	Lake Forest Park, City Hall	Jan-Dec	1/2	167	92
1776K55B	Seattle, Duwamish	Jan-Dec	1/3	204	100
1776K60B	Seattle, Harbor Island	Jan-Dec	1/6	61	100
1776K61B	Seattle, South Park	Jan-Dec	1/6	61	100
1800B05B	Kitsap Co., Meadowdale	Jan-Dec	1/6	57	93
1868B06B	Poulsbo, Lions Park	Jan-Dec	1/6	57	93
2700P18B	Puyallup, South Hill	Jan-Dec	1/6	60	98
2782P01B	Tacoma, Fire Station #12	Jan-Dec	1/3	205	100
2782P16B	Tacoma, 54th Ave. NE	Jan-Dec	1/6	60	98
2782P17B	Tacoma, Alexander Ave.	Jan-Dec	1/3	116	95
3124S04B	Everett, Hoyt Ave.	Jan-Dec	1/6	60	98
3146S08B	Lynnwood, 59th Place	Jan-Dec	1/6	61	100
3148S07B	Marysville, Jr. High School	Jan-Dec	1/3	166	100

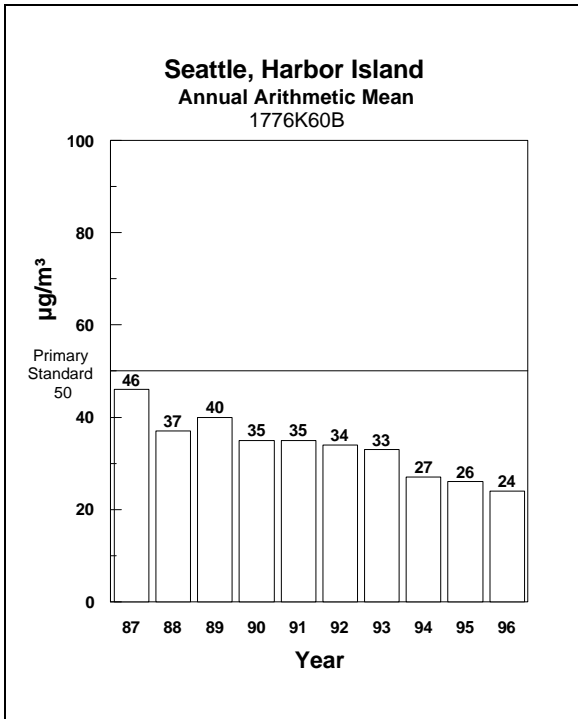
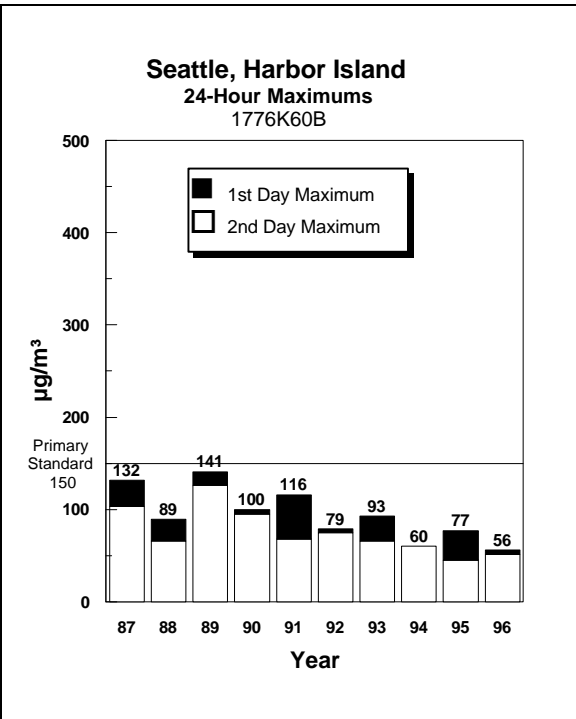
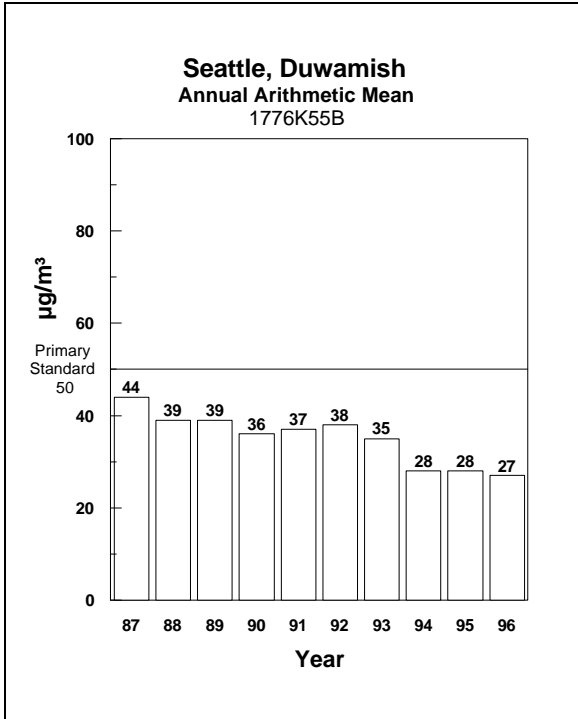
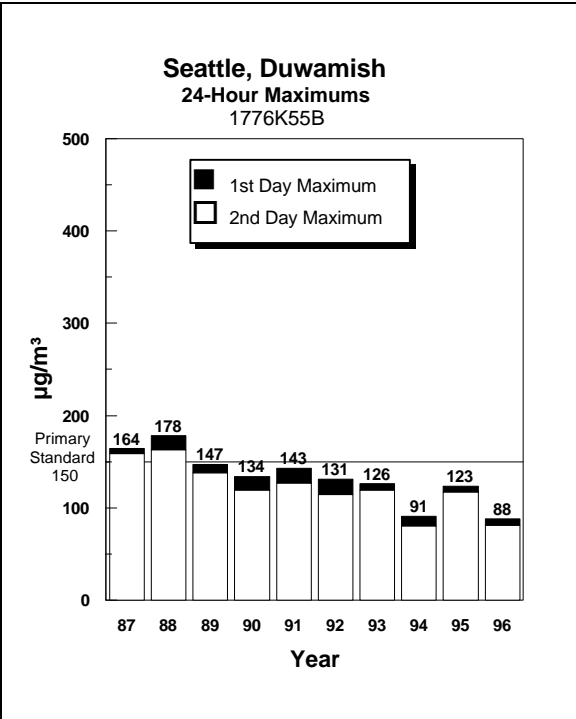


Puget Sound Area

Particulate Matter

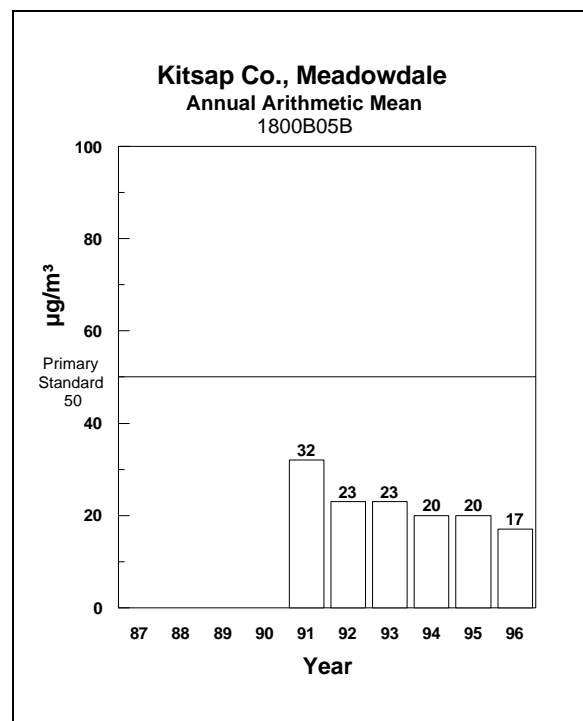
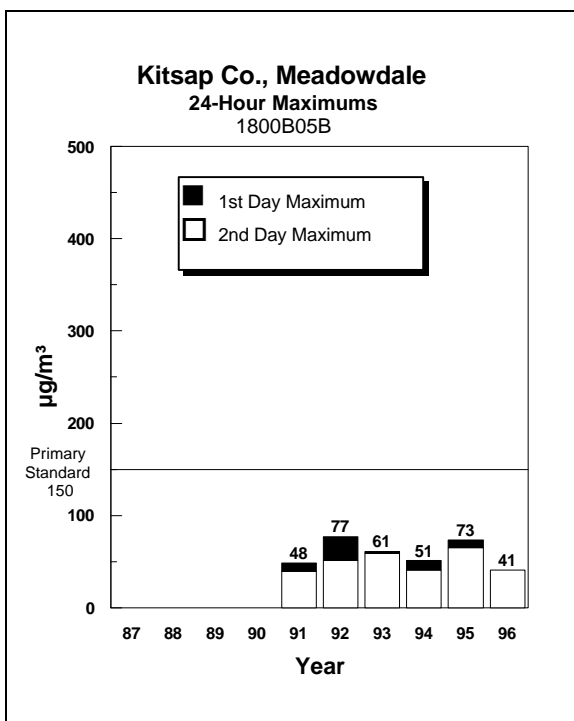
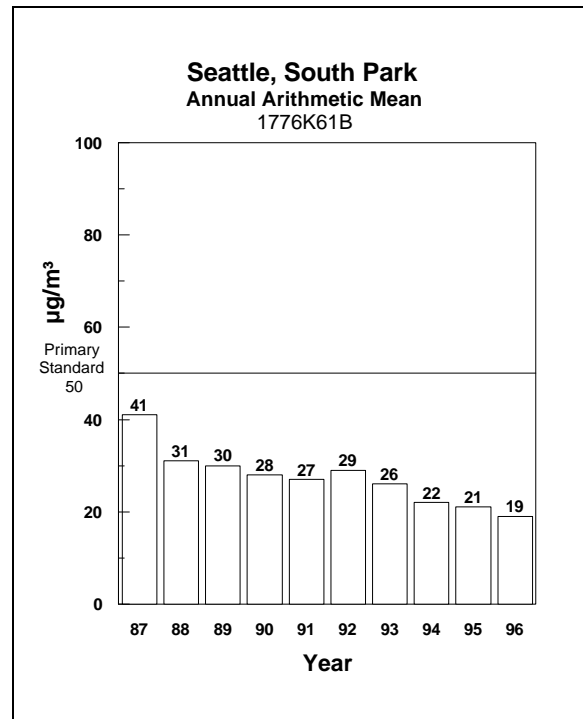
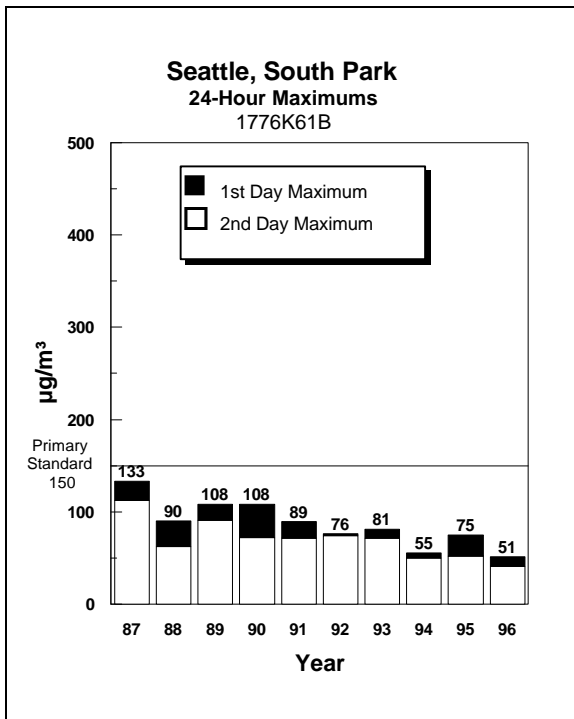


Particulate Matter

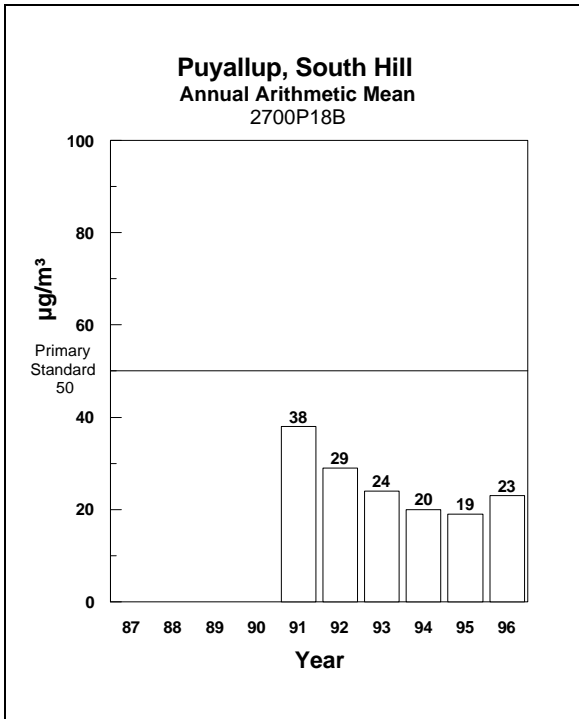
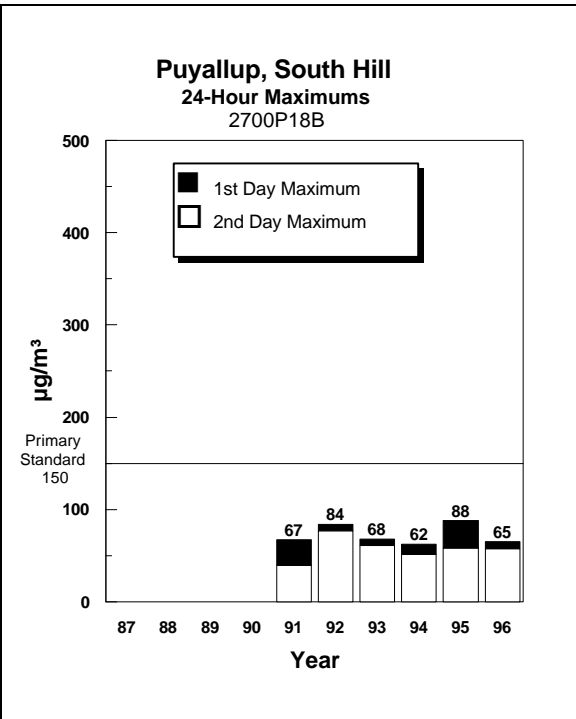
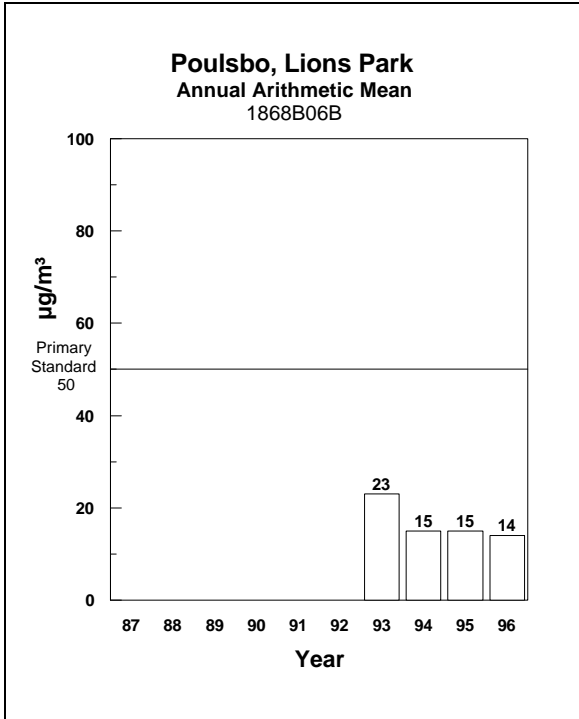
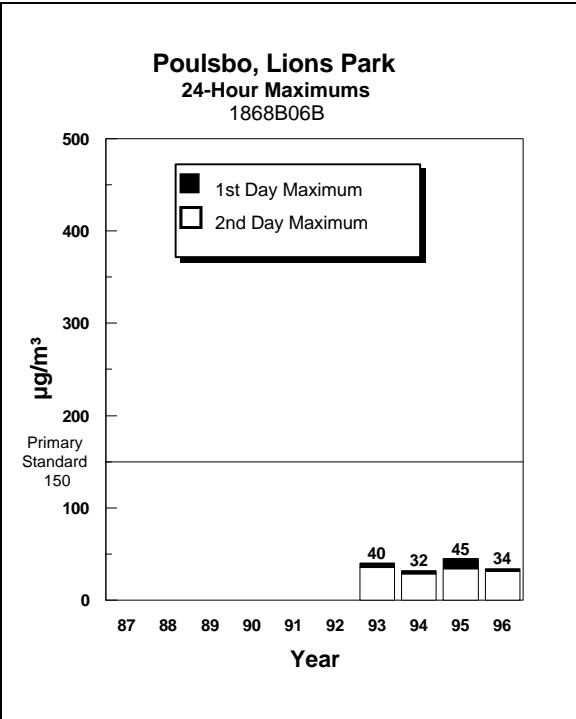


Puget Sound Area

Particulate Matter

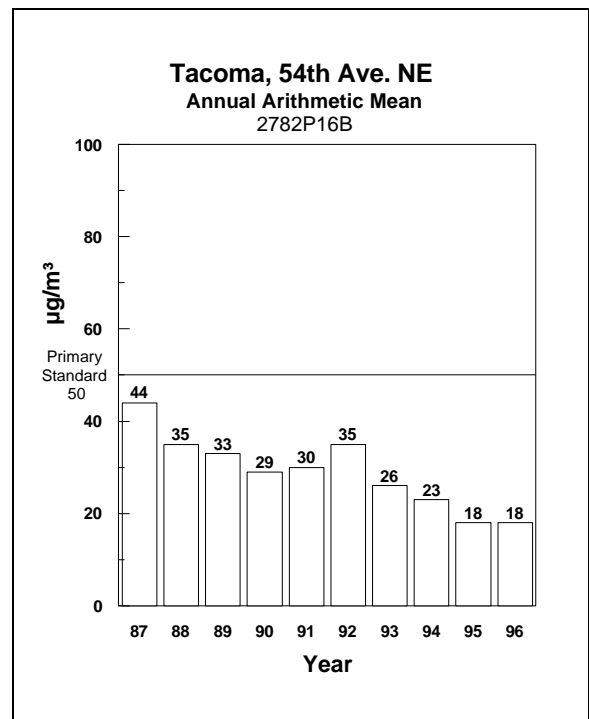
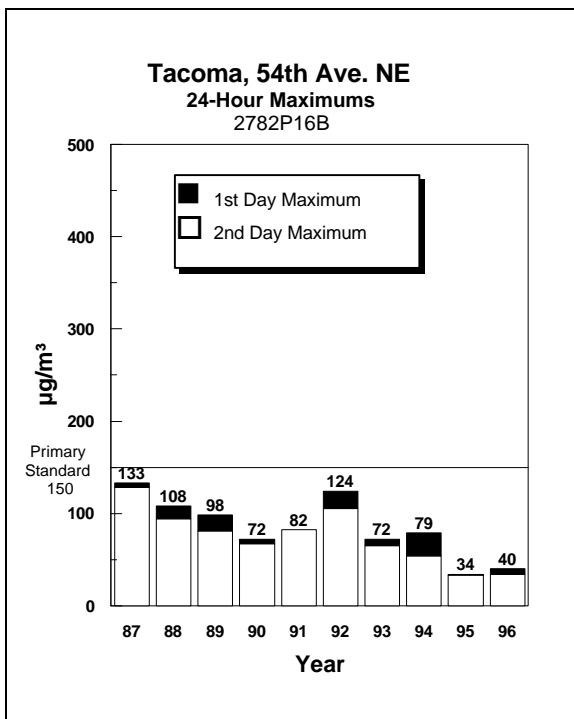
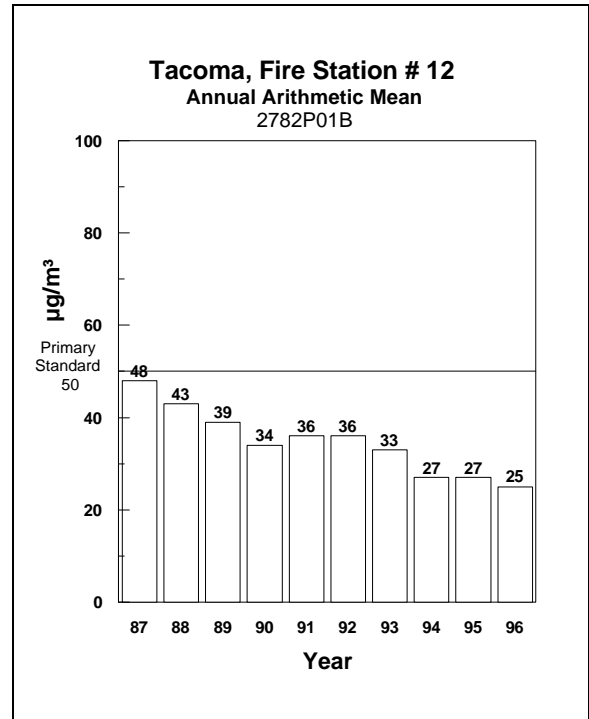
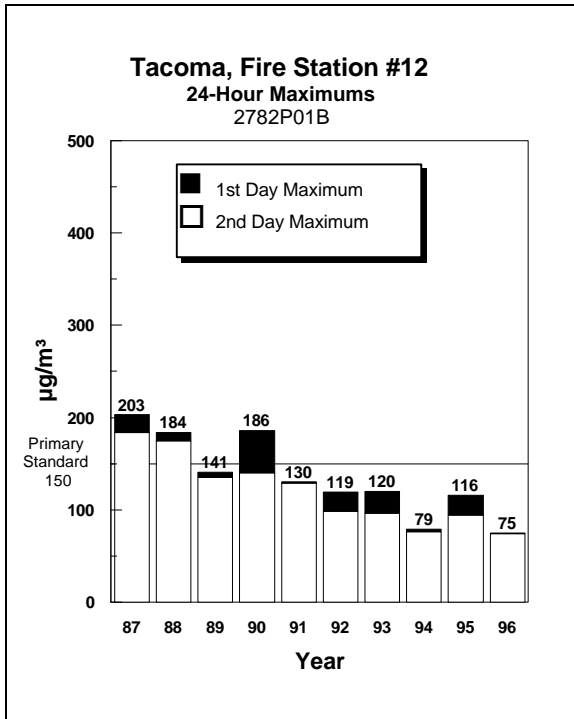


Particulate Matter

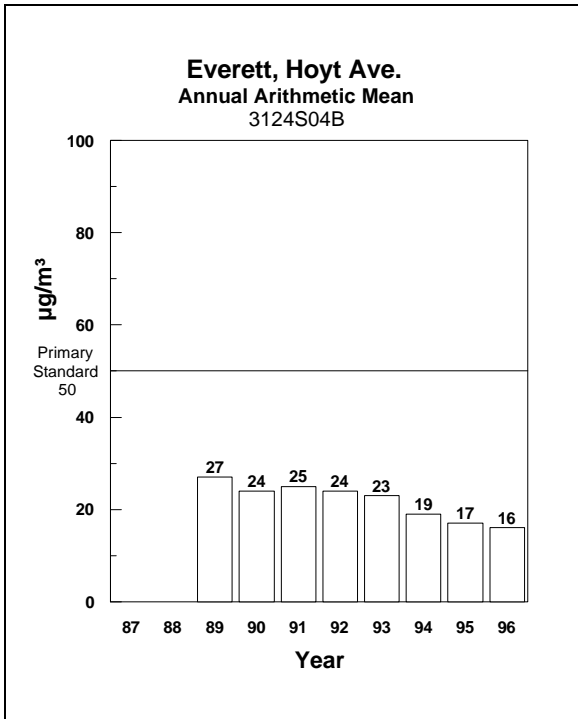
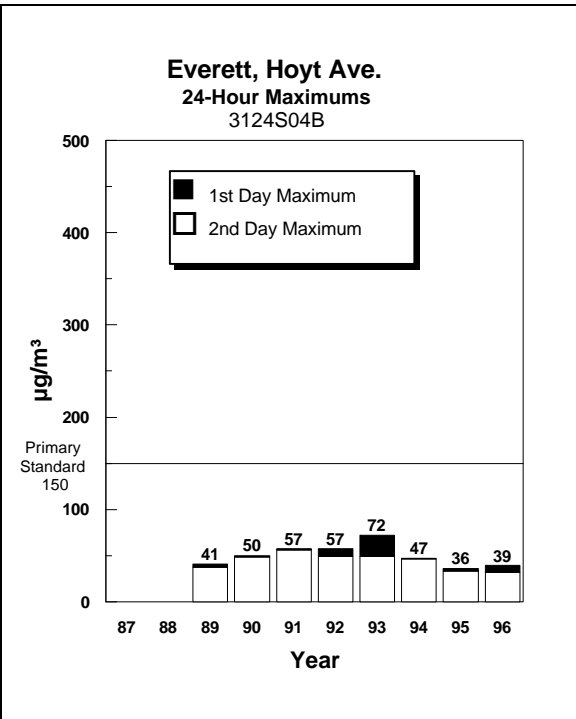
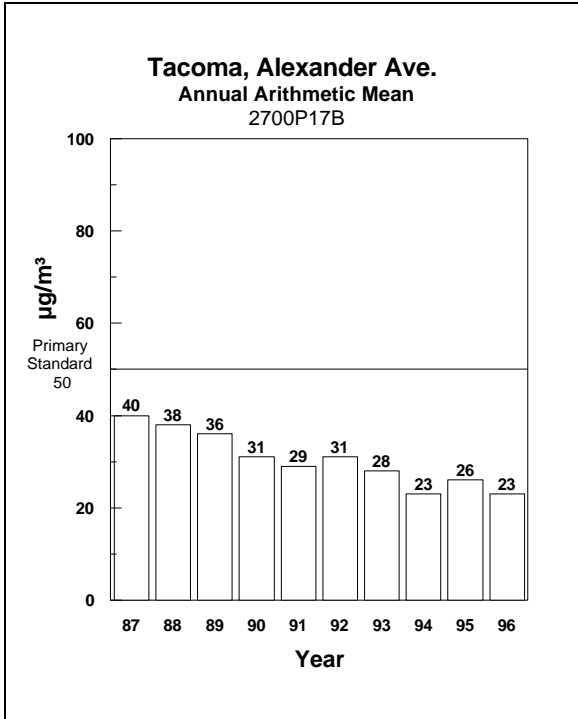
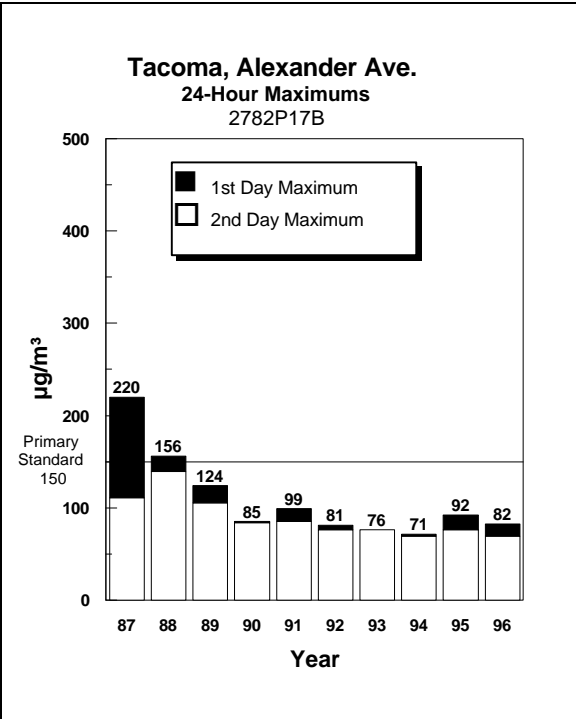


Puget Sound Area

Particulate Matter

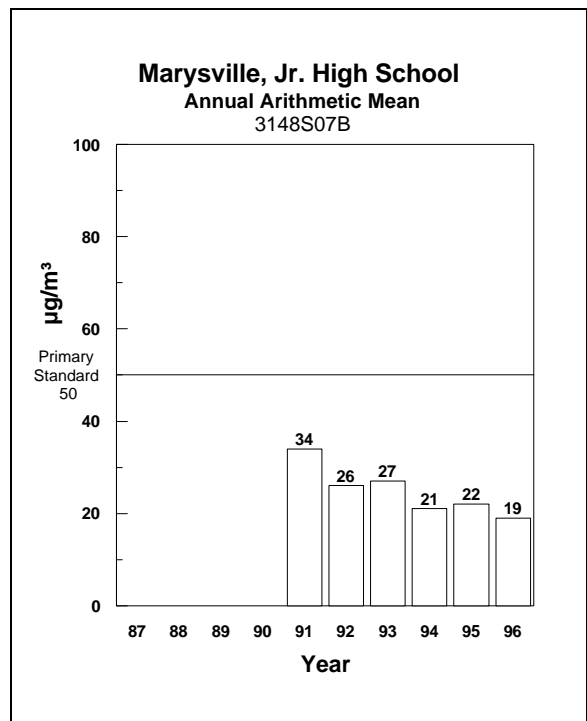
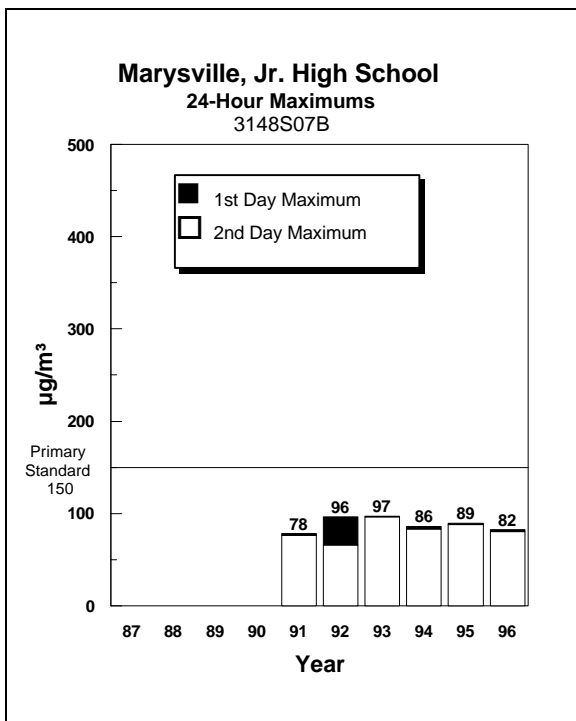
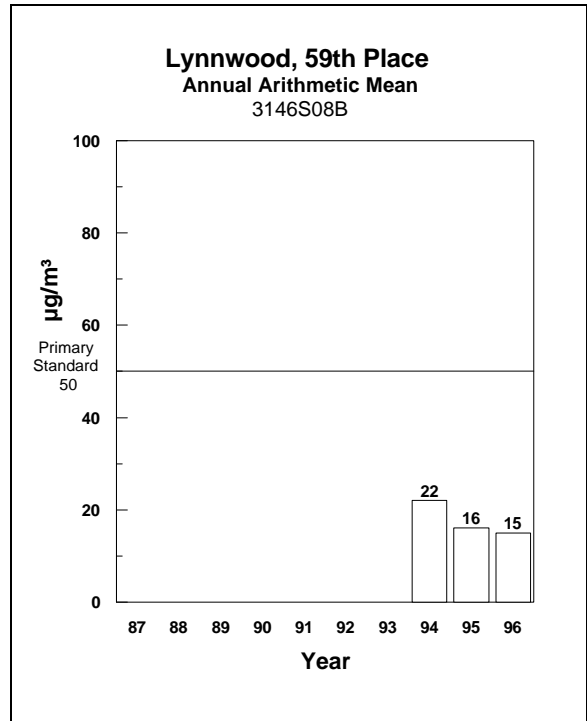
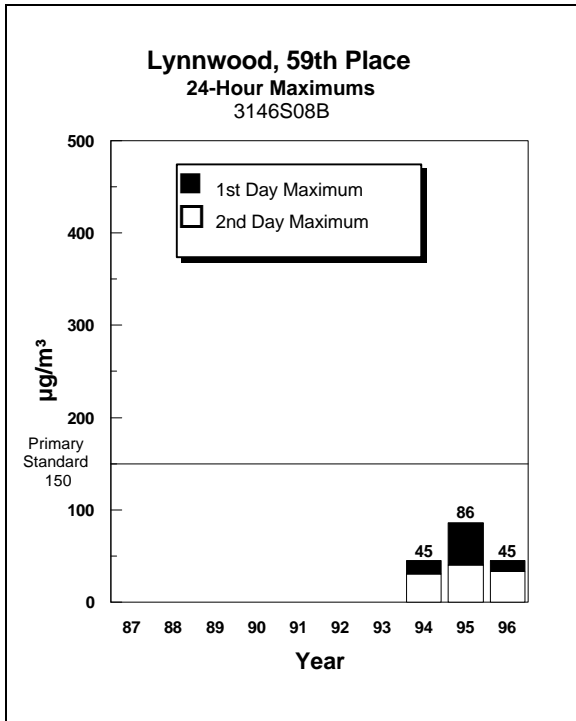


Particulate Matter



Puget Sound Area

Particulate Matter



Lead Summary

Lead Summary for 1996

Station	Location	Quarterly Avg. ($\mu\text{g}/\text{m}^3$)			
		1st	2nd	3rd	4th
1776K71B	Seattle, Harbor I. Texaco	.66	.23	.32	.63

Carbon Monoxide

Carbon Monoxide (ppm) for 1996

Station	Location	1-Hour Maximums				8-Hour Maximums ¹					8-Hr. Exc.	
		1st High		2nd High		1st High		2nd High		2nd Day ²		
		Conc	Date	Conc	Date	Conc	Date	Conc	Date	Conc		Date
1700004A	King Co., Enumclaw FS #3	2.3	11/1	2.2	11/9	1.9	11/11	1.7	11/9	1.7	11/9	0
1708003A	Bellevue, Sturtevants	6.2	1/11	6.1	10/9	4.7	10/9	4.2	11/1	4.2	11/1	0
1708005A	Bellevue, NE8th & 108thNE	9.0	10/9	8.2	10/31	5.7	12/18	5.3	10/9	5.3	10/9	0
1776020A	Seattle, Zanadu Comics	15.5	10/9	11.0	10/9	8.7	10/9	6.8	12/18	6.8	12/18	0
1776026A	Seattle, 4th and Pike	10.7	1/30	10.3	10/9	6.7	10/9	5.3	1/30	5.3	1/30	0
1776033A	Seattle, Northgate Apts.	8.5	12/18	7.3	2/13	4.9	12/18	4.9	12/18	4.8	10/9	0
1776308A	Seattle, James St.	12.1	10/9	10.1	10/9	8.7	10/9	5.6	12/18	5.6	12/18	0
1777001A	Sea-Tac, Quick Stop	6.9	12/30	6.6	12/18	5.4	12/18	3.9	12/14	3.9	12/14	0
1806003A	Bremerton, Midway Inn	6.5	2/14	6.3	3/1	3.7	3/2	3.5	2/29	3.5	2/29	0
2782013A	Tacoma, Pacific Ave.	11.4	10/9	10.7	10/9	7.3	10/9	6.3	2/15	6.3	2/15	0
3124006A	Everett, Nevada Bob's	8.5	10/30	8.4	12/9	5.2	11/25	4.9	12/9	4.9	12/9	0

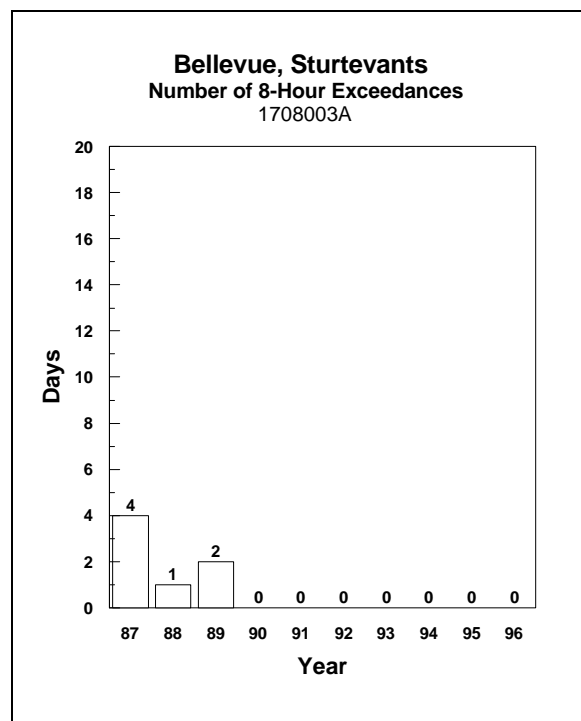
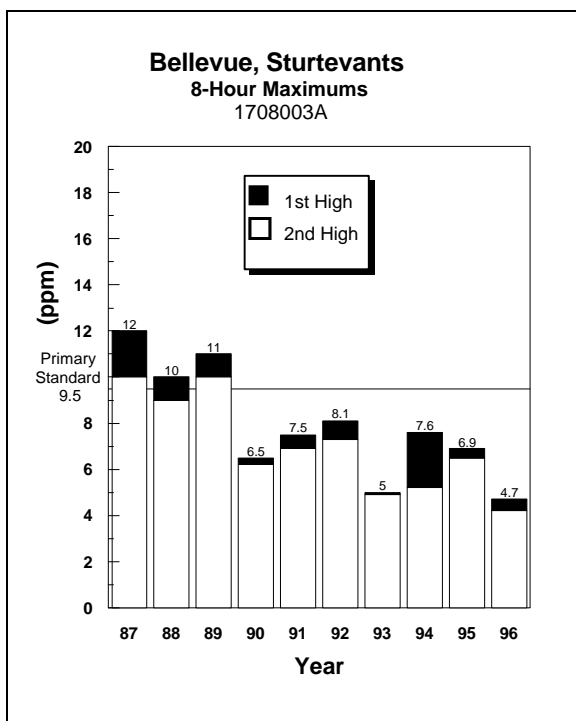
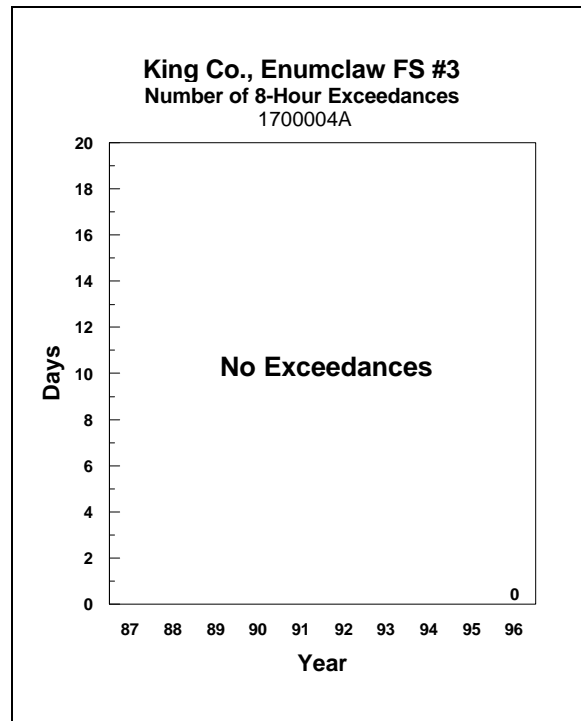
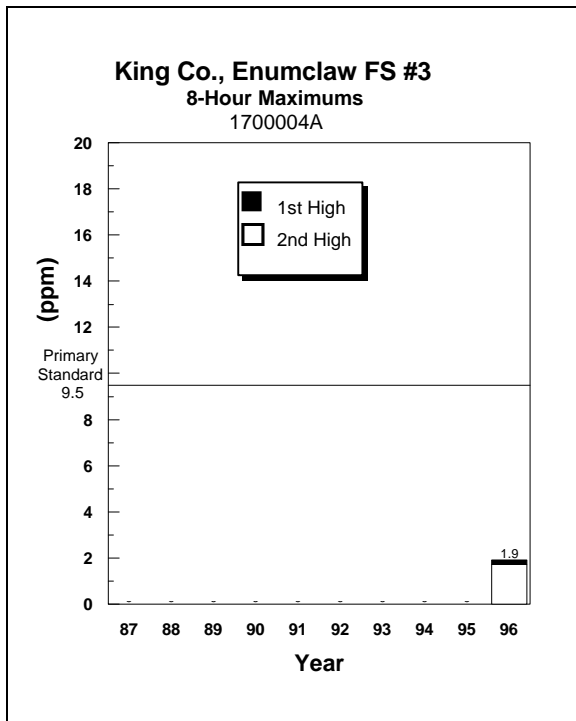
1. 8-hour readings are non-overlapping.
2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1996

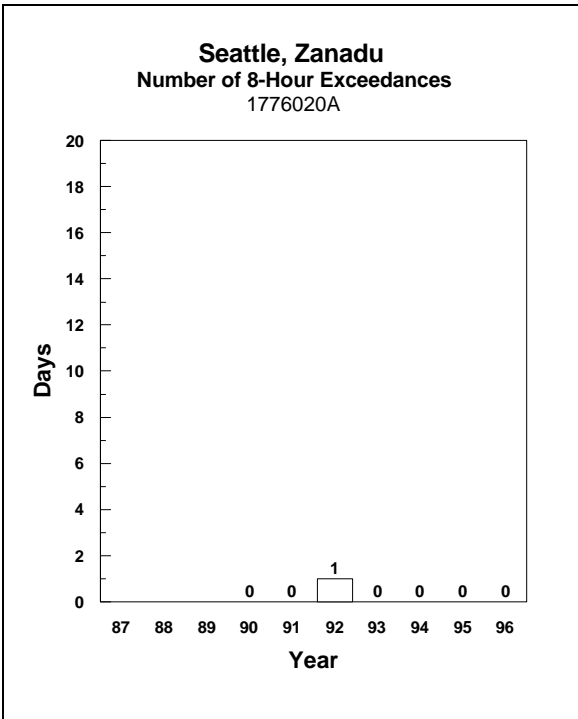
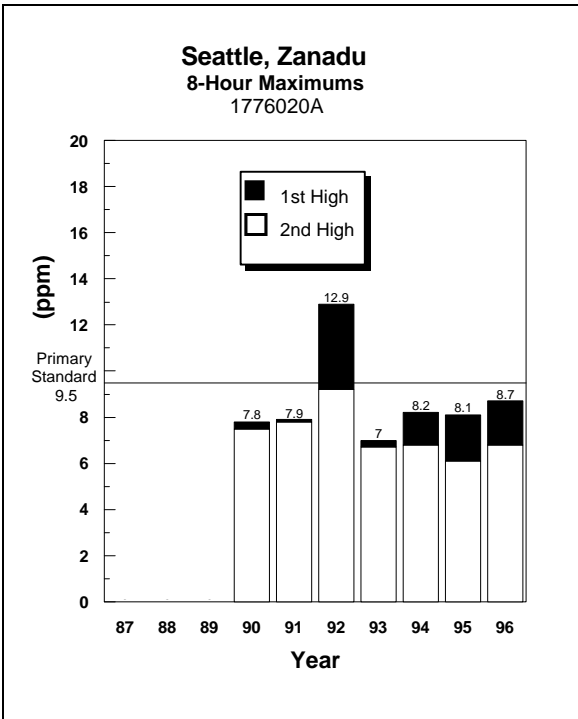
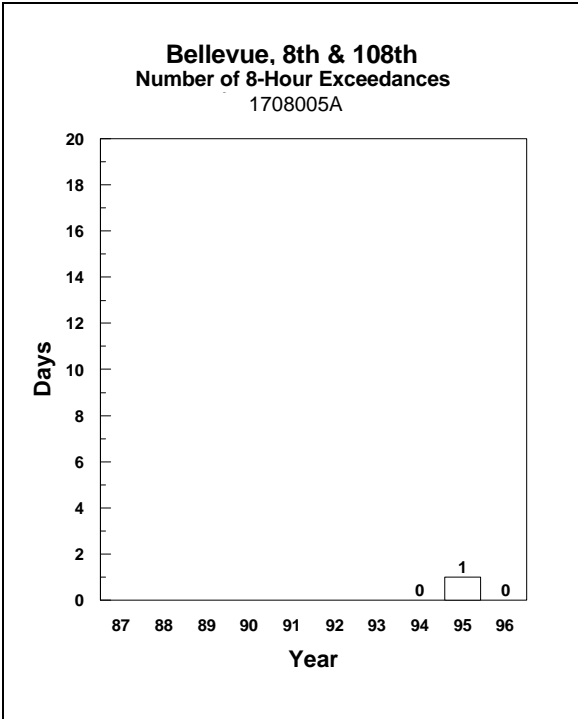
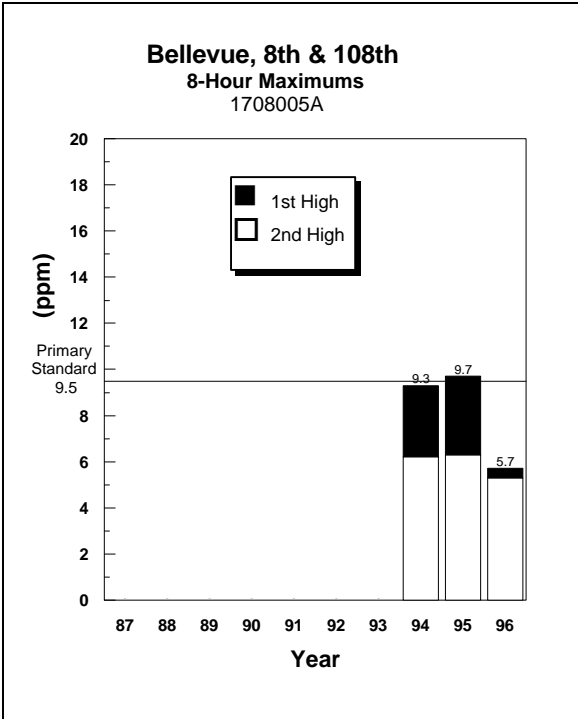
Station	Location	Period of Record	# Hours	# Days	% Valid Data
1700004A	King Co., Enumclaw FS #3	Aug-Nov	3,529	213	99
1708003A	Bellevue, Sturtevants	Jan-Dec	8,522	366	97
1708005A	Bellevue, NE8th & 108thNE	Jan-Dec	8,766	366	99
1776020A	Seattle, Zanadu Comics	Jan-Dec	8,631	366	98
1776026A	Seattle, 4th and Pike	Jan-Dec	8,412	362	96
1776033A	Seattle, Northgate Apts.	Jan-Dec	8,562	366	97
1776308A	Seattle, James St.	Jan-Dec	8,766	366	99
1777001A	Sea-Tac, Quick Stop	Dec-Dec	460	20	98
1806003A	Bremerton, Midway Inn	Jan-Jul	4,760	201	99
2782013A	Tacoma, Pacific Ave.	Jan-Dec	8,757	366	99
3124006A	Everett, Nevada Bob's	Jan-Dec	8,716	366	99

Puget Sound Area

Carbon Monoxide

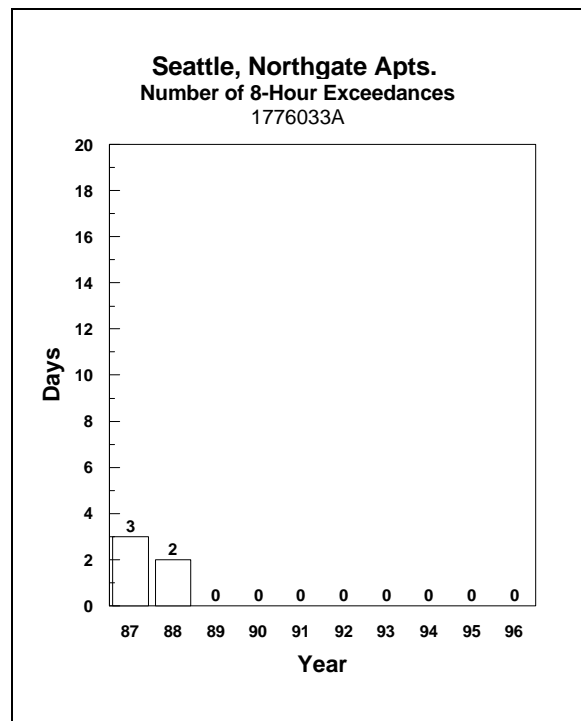
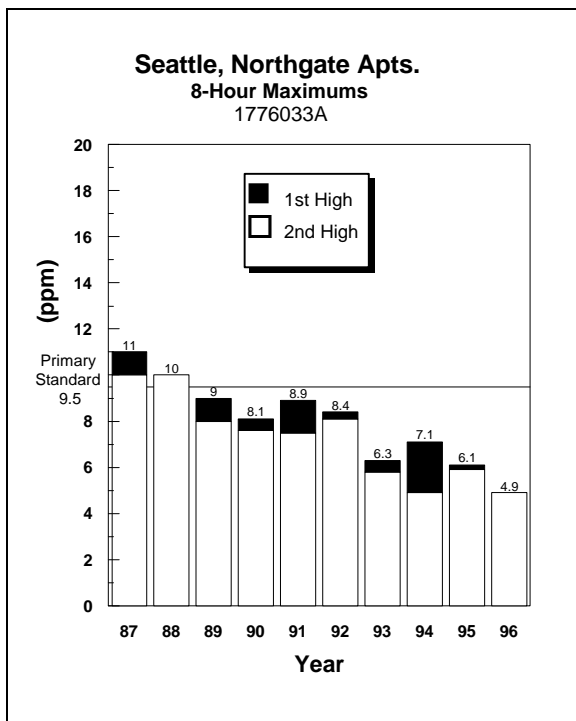
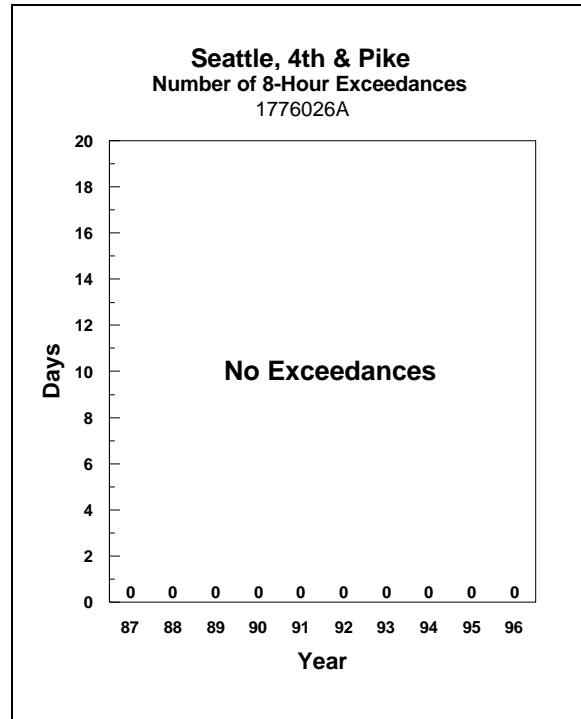
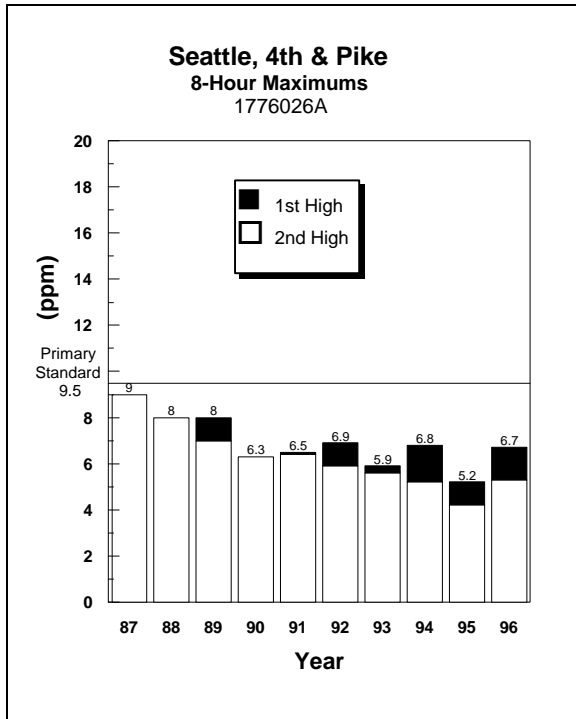


Carbon Monoxide

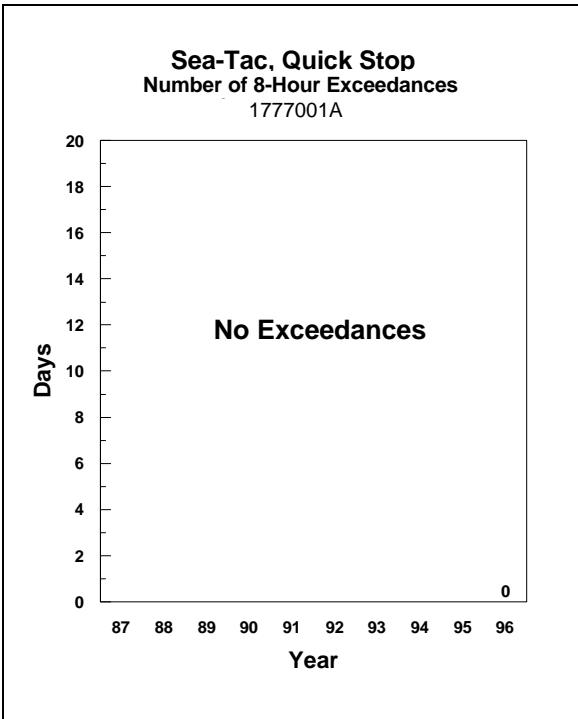
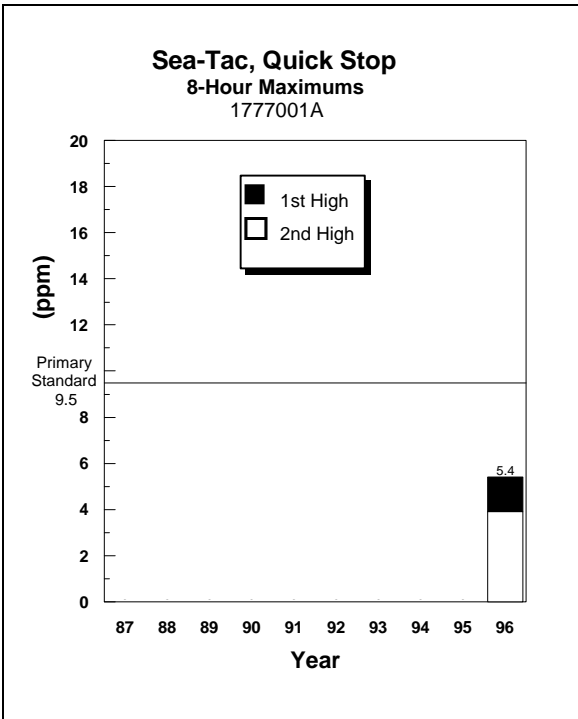
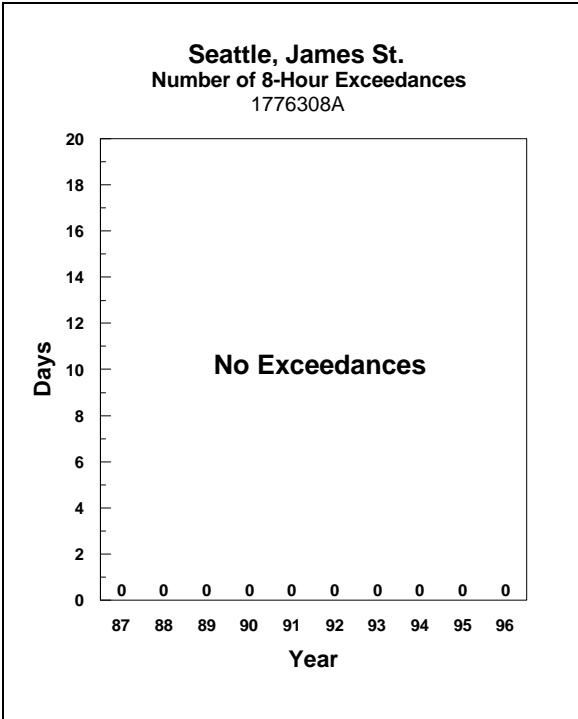
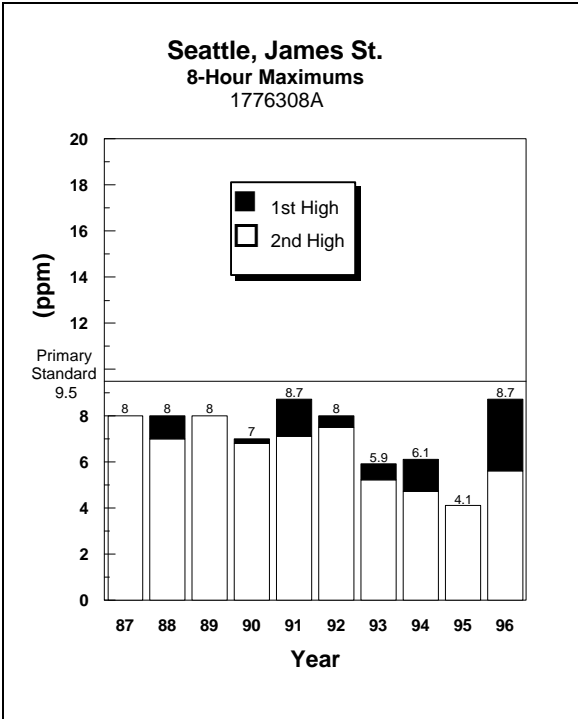


Puget Sound Area

Carbon Monoxide

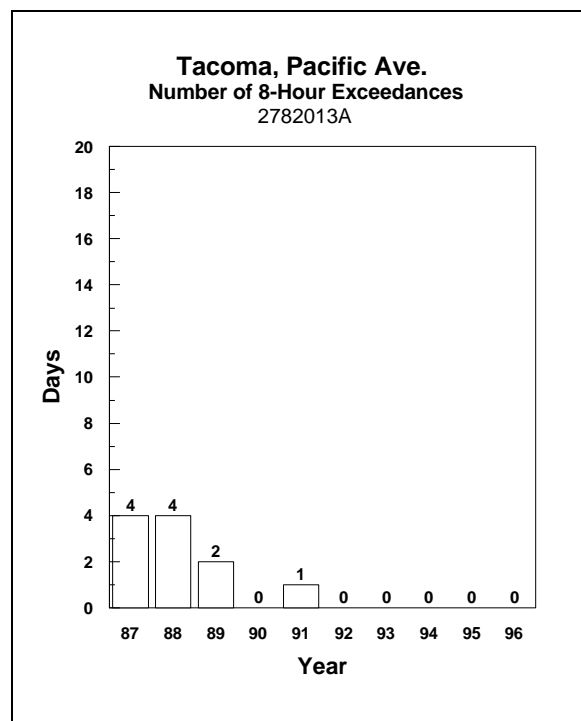
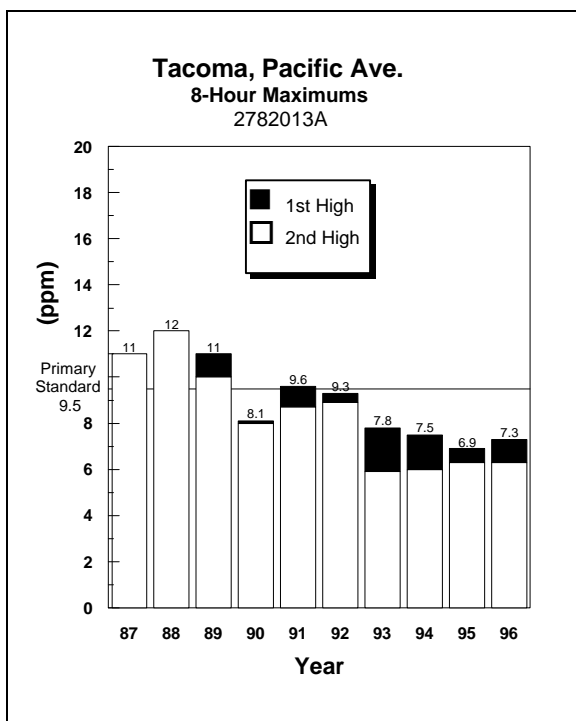
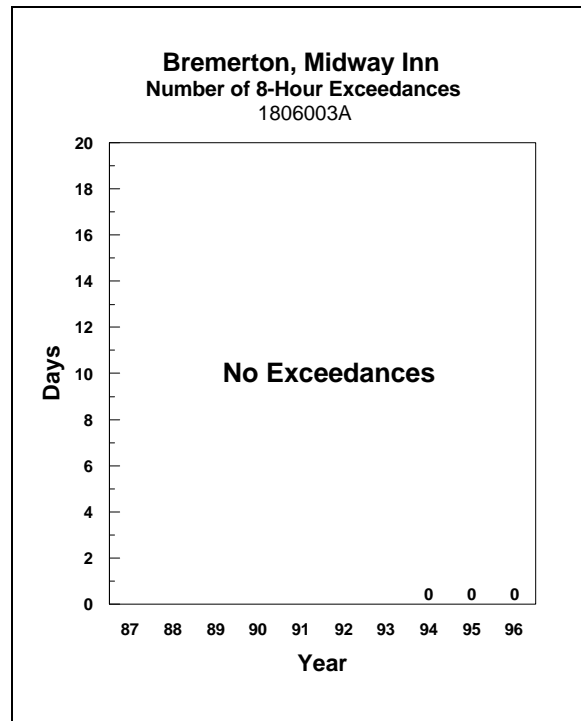
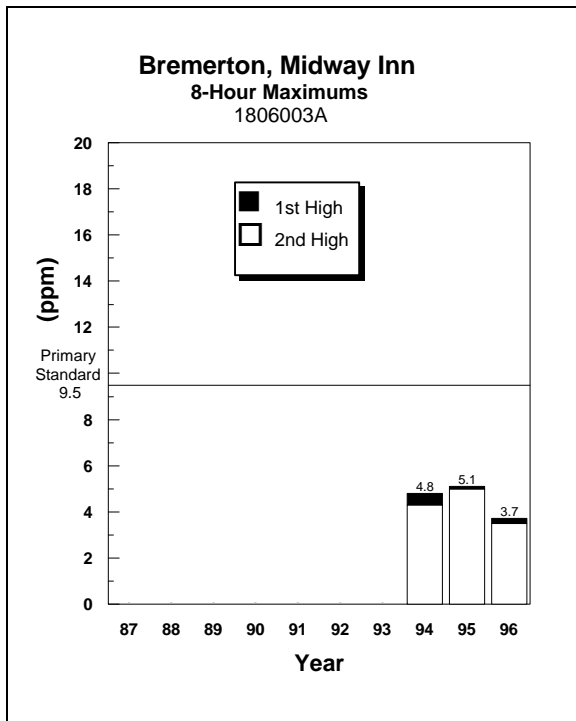


Carbon Monoxide

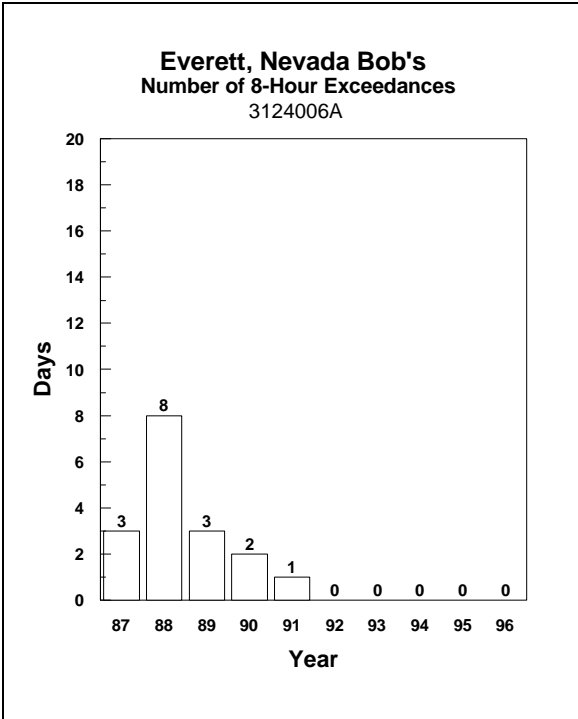
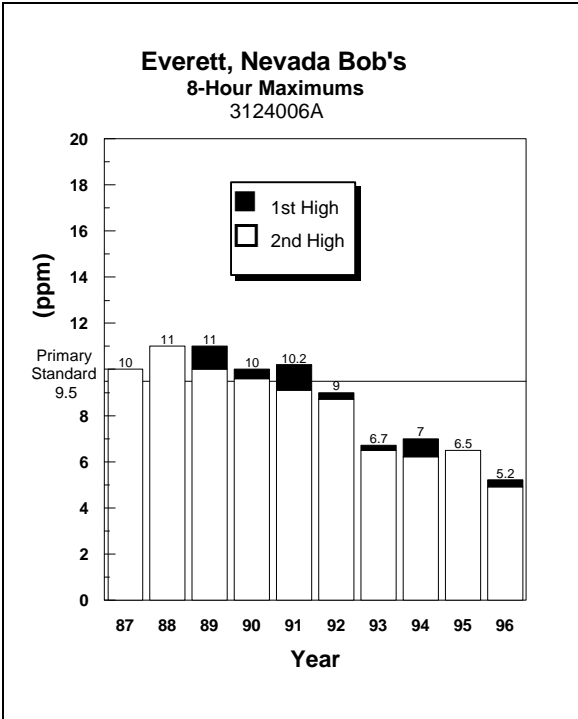


Puget Sound Area

Carbon Monoxide



Carbon Monoxide



Puget Sound Area

Ozone

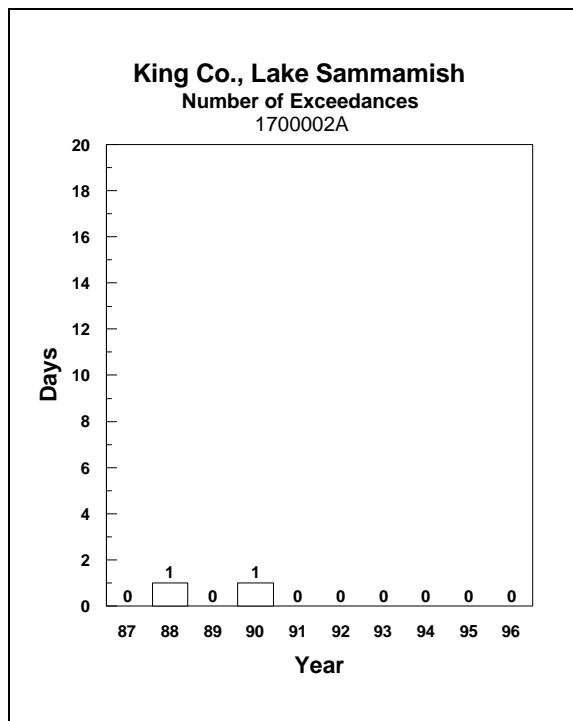
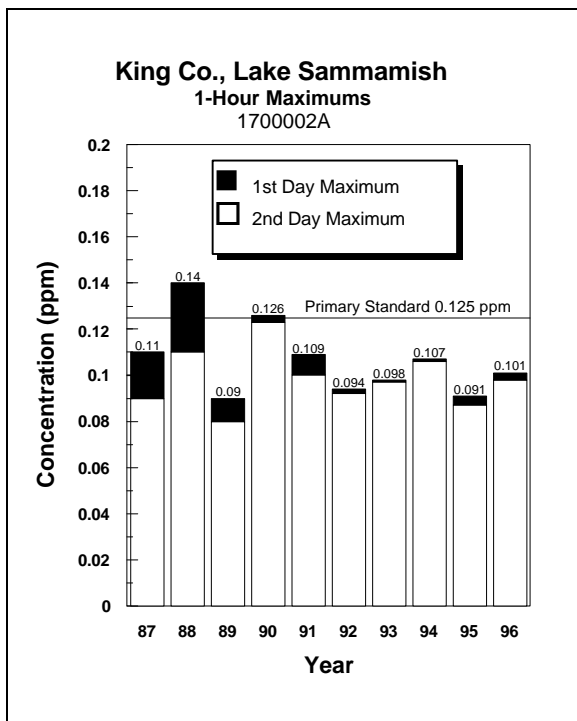
Ozone (ppm) for 1996

Station	Location	1st High		1-Hour Maximums 2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
1700002A	King Co., Lk. Sammamish St. Pk	.101	7/28	.098	7/14	.098	7/14	0	0
1700004A	King Co., Enumclaw FS#3	.108	7/14	.105	7/15	.105	7/15	0	0
1700007A	King Co., Enumclaw	.121	8/10	.118	7/14	.118	7/14	0	0
2700007A	Pierce Co., Pack Forest	.098	8/24	.097	7/26	.097	7/26	0	0
2700016A	Pierce Co., Rainier #2	.093	7/24	.090	7/24	.090	7/26	0	0
3100002A	Snohomish Co. Getchell	.084	7/26	.082	7/26	.076	7/27	0	0

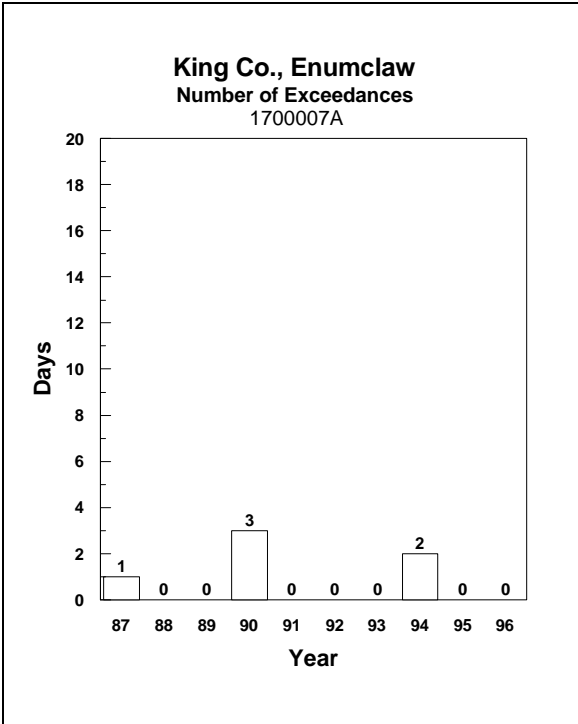
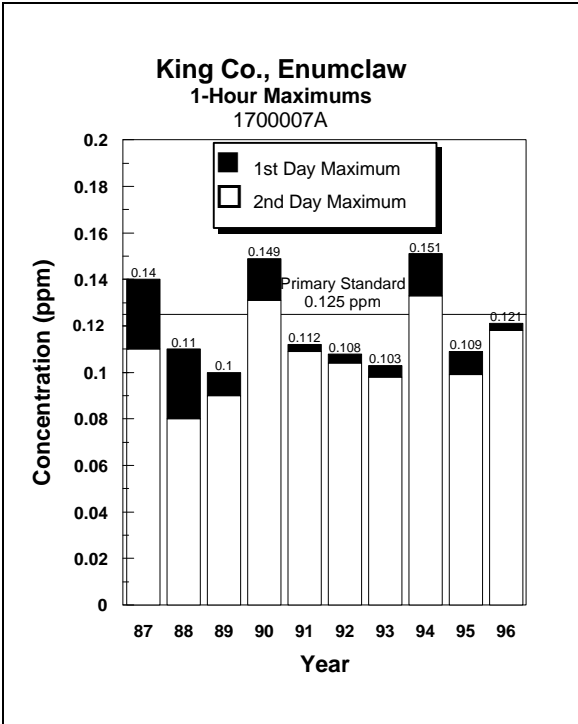
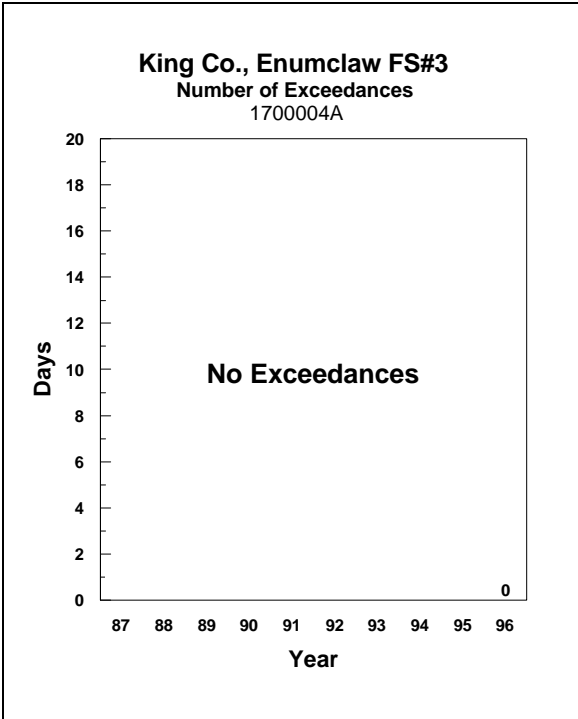
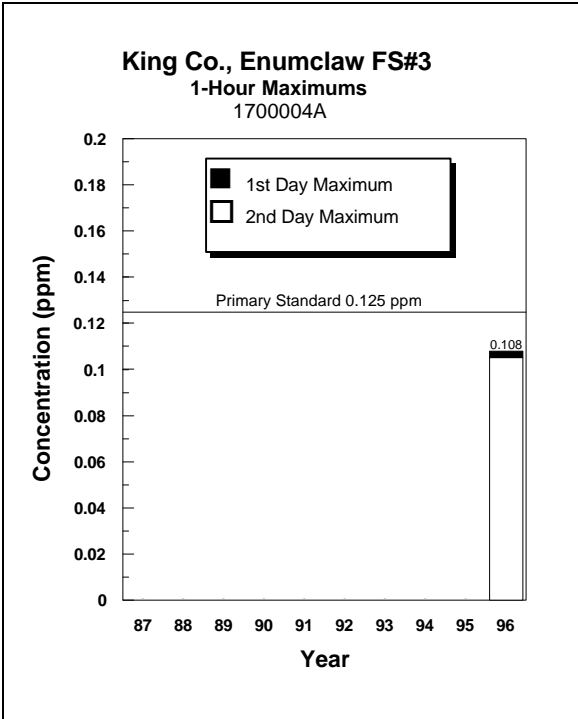
*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
1700002A	King Co., Lk. Sammamish St. Pk	Apr-Oct	4,656	194	99
1700004A	King Co., Enumclaw FS#3	Jul-Oct	2,673	111	99
1700007A	King Co., Enumclaw	Apr-Oct	4,646	194	99
2700007A	Pierce Co., Pack Forest	Apr-Oct	4,589	191	98
2700016A	Pierce Co., Rainier #2	Jun-Dec	3,894	162	88
3100002A	Snohomish Co. Getchell	Apr-Oct	4,636	193	99

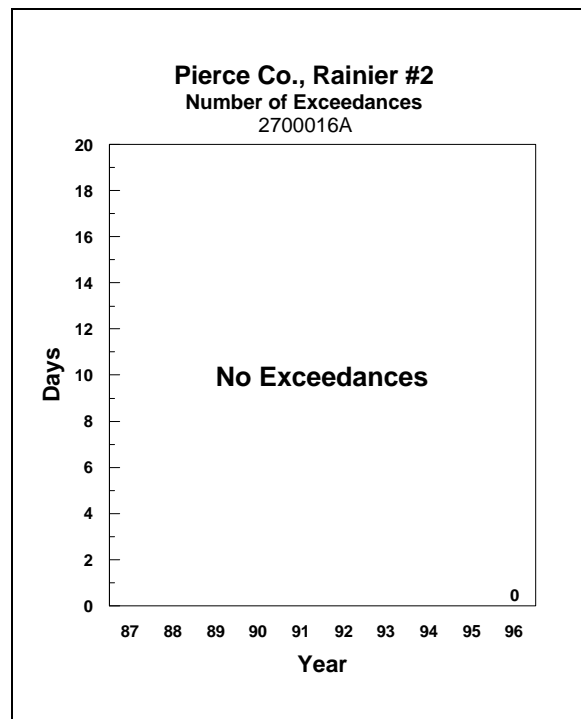
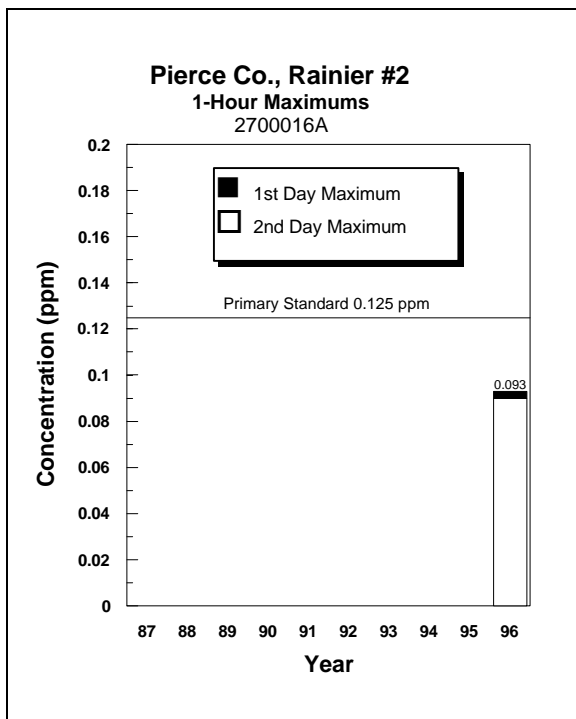
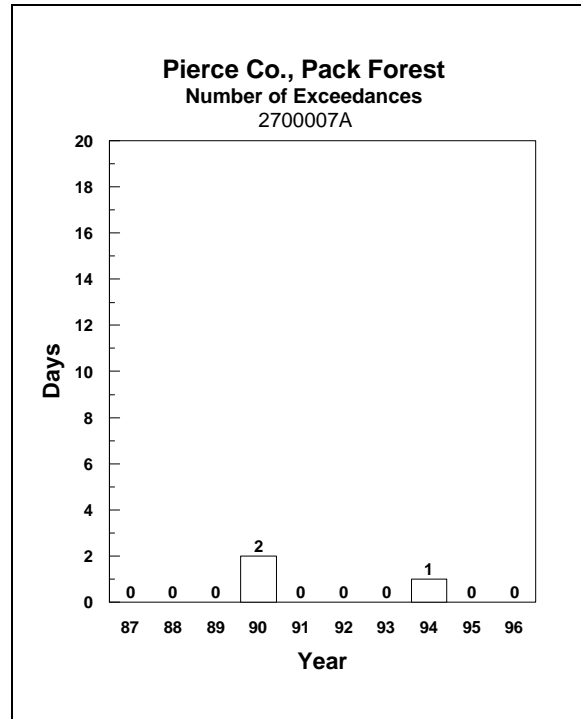
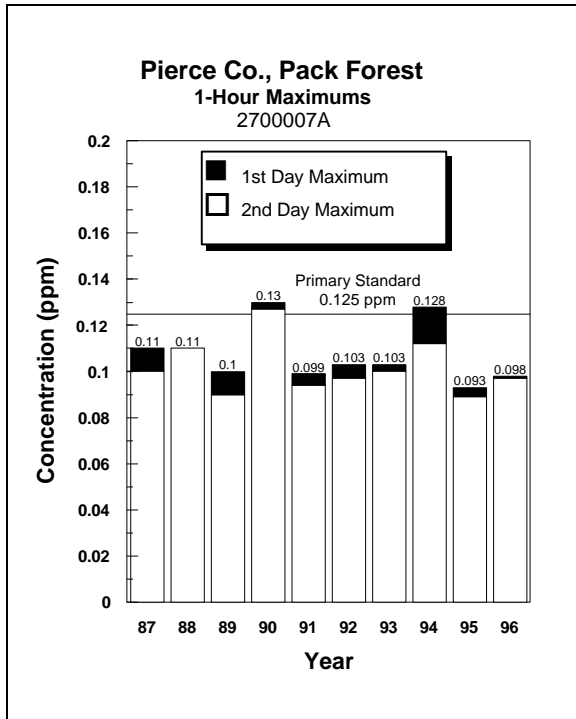


Ozone

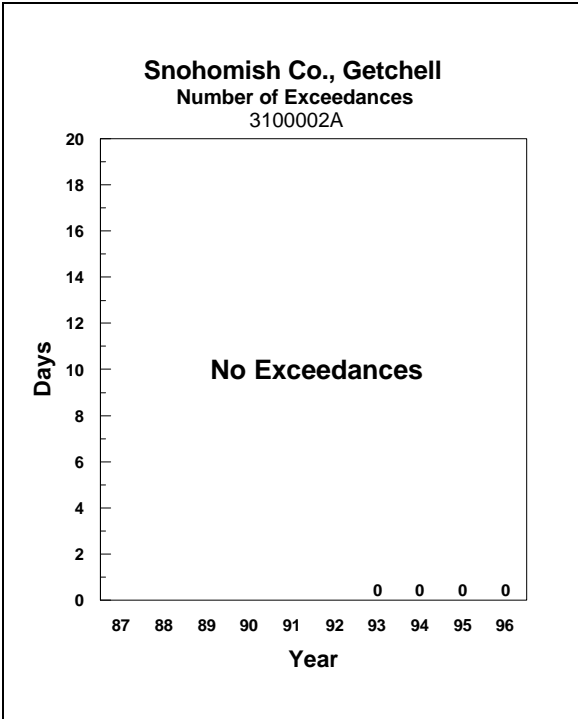
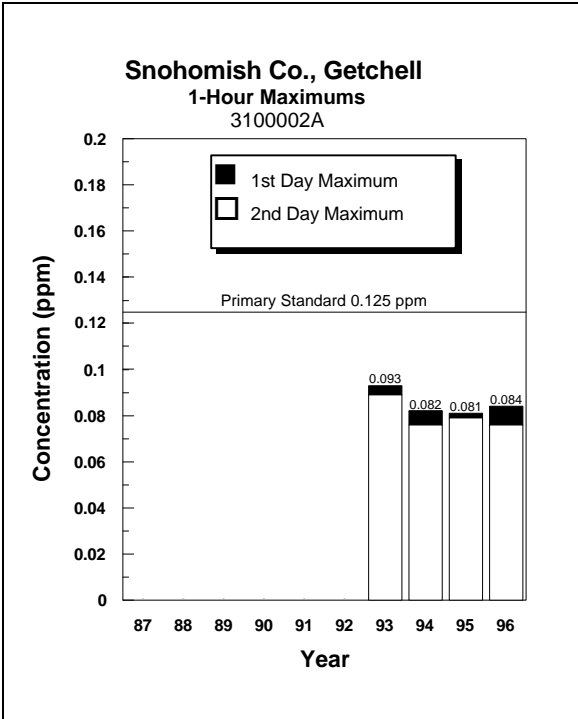


Puget Sound Area

Ozone



Ozone



Puget Sound Area

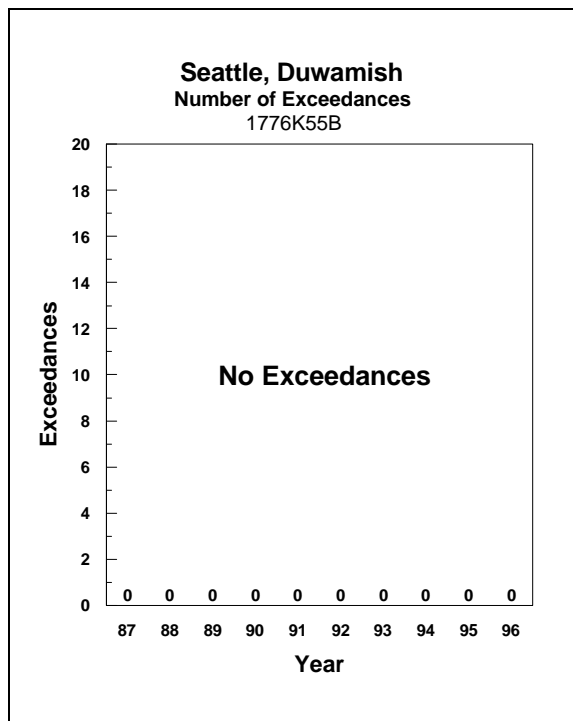
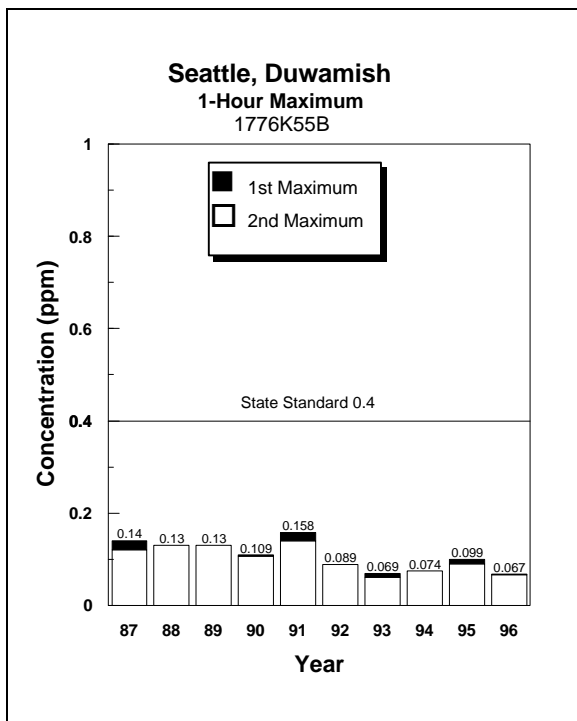
Sulfur Dioxide

Sulfur Dioxide for 1996

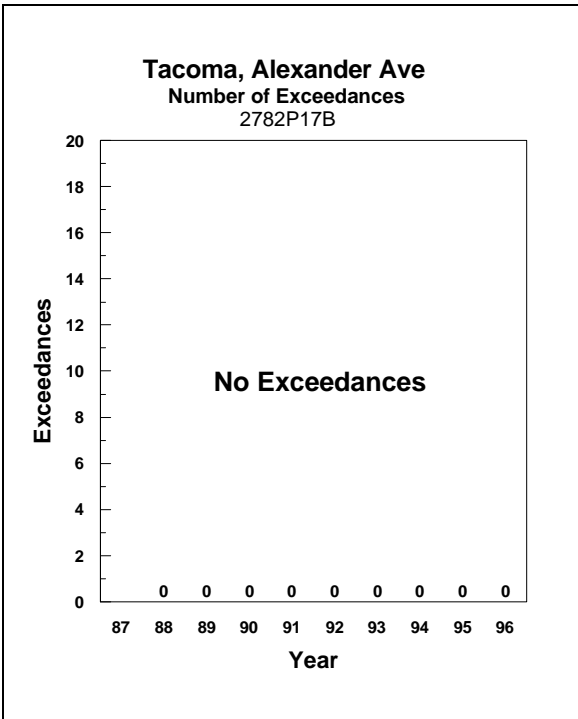
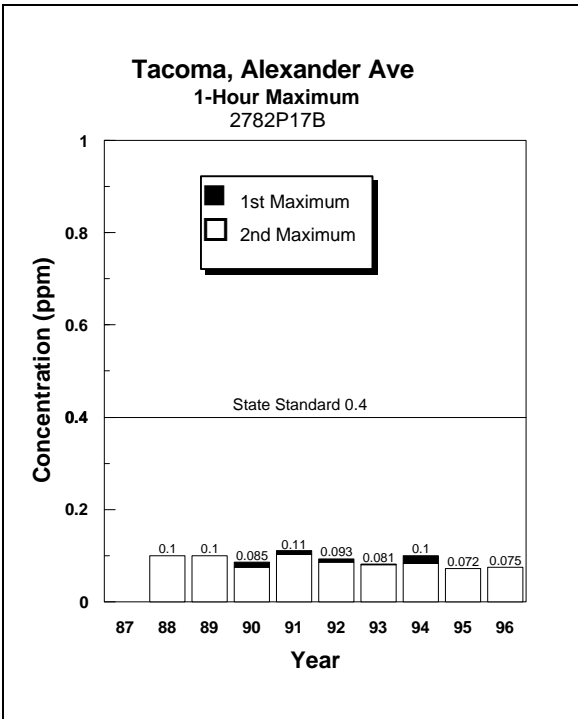
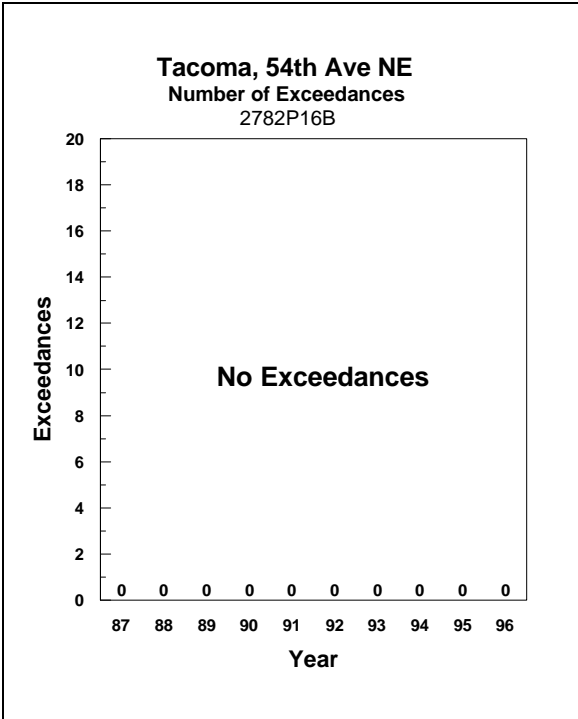
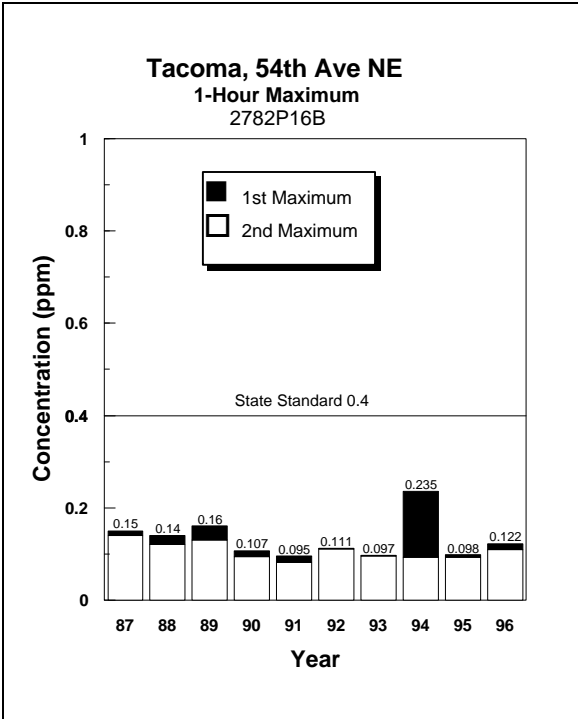
Station	Location	1-Hour Maximum		3-Hr Max		24-Hr Max		# 24-Hour		Annual Mean				
		1st	Date	2nd	Date	#1-Hr >.40	Conc	Date	#3-Hr <.50		Conc	Date	>.10	>.14
1776K55B	Seattle, Duwamish	.067	7/29	.066	1/3	0	.062	7/29	0	.021	1/3	0	0	.006
2782P16B	Tacoma, 54th Ave NE	.122	11/26	.109	2/16	0	.098	11/26	0	.031	12/19	0	0	.006
2782P17B	Tacoma, Alexander Ave	.075	11/1	.075	12/30	0	.067	11/1	0	.020	10/2	0	0	.006
3124S04B	Everett, Hoyt Ave	.088	7/11	.069	7/11	0	.067	7/11	0	.016	7/11	0	0	.003

Sulfur Dioxide for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
1776K55B	Seattle, Duwamish	Jan-Dec	8,453	352	96
2782P16B	Tacoma, 54th Ave NE	Jan-Dec	8,176	341	93
2782P17B	Tacoma, Alexander Ave	Jan-Dec	8,639	360	98
3124S04B	Everett, Hoyt Ave	Jan-Dec	8,602	358	98

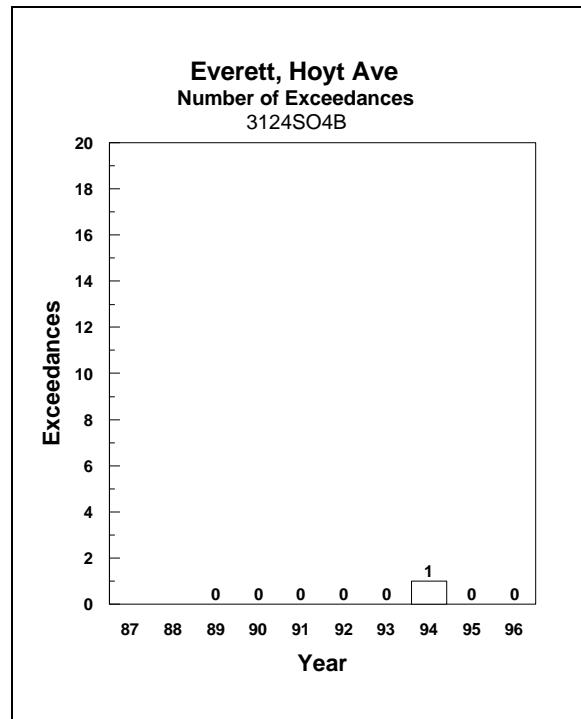
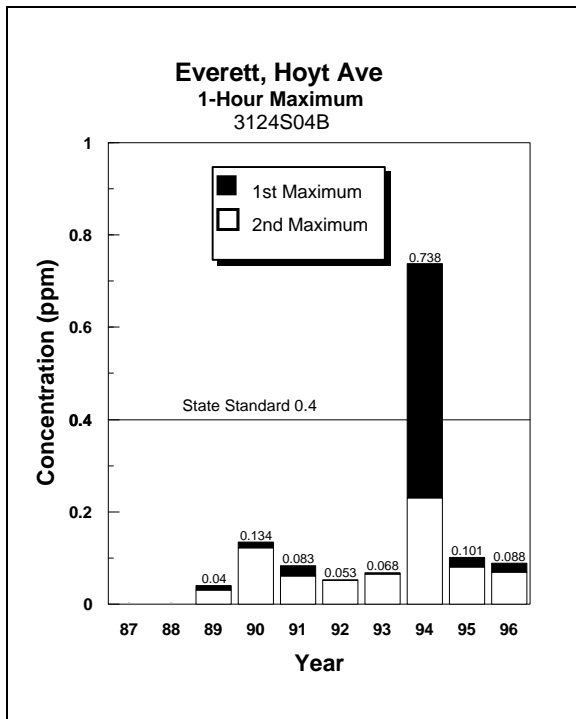


Sulfur Dioxide



Puget Sound Area

Sulfur Dioxide



Nitrogen Dioxide

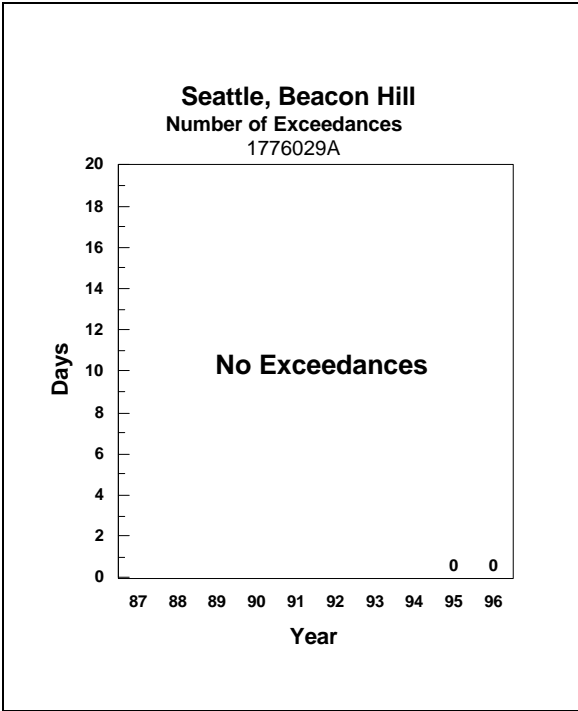
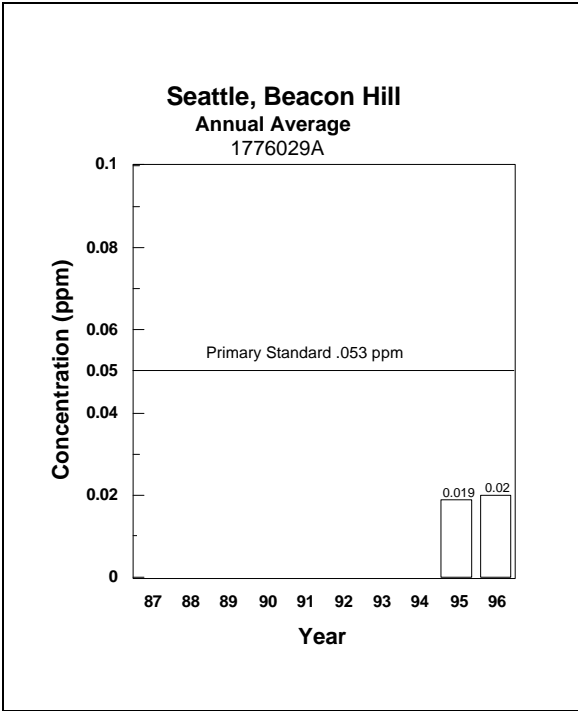
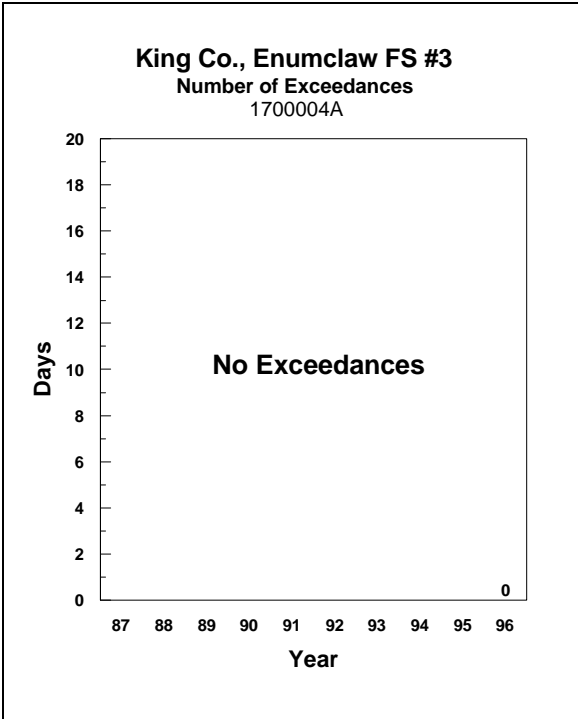
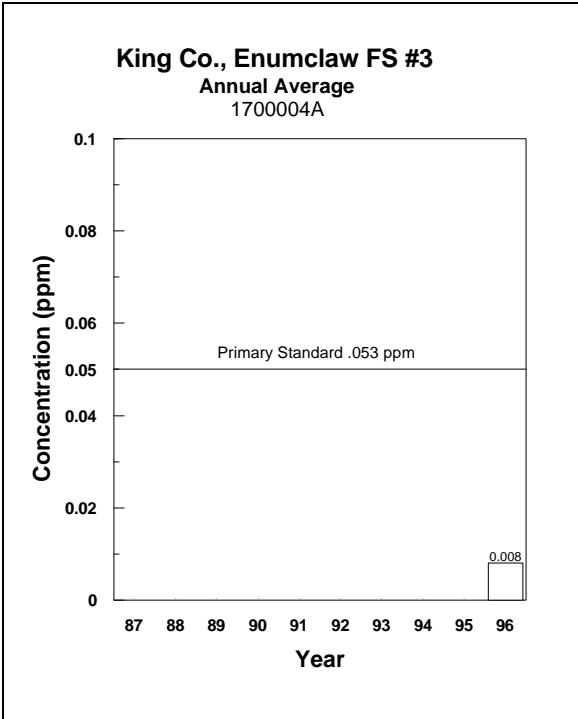
Nitrogen Dioxide for 1996

Station	Location	Max. 1-Hr	Date	Max. 24-Hr	Date	Annual Avg.
1700004A	King Co., Enumclaw FS#3	.048	8/9	.029	8/22	.008
1776029A	Seattle, Beacon Hill	.078	7/26	.047	7/27	.020

Nitrogen Dioxide for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
1700004A	King Co., Enumclaw FS#3	Aug-Dec	2,351	98	66
1776029A	Seattle, Beacon Hill	Jan-Dec	8,030	335	91

Nitrogen Dioxide



Southwest Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
0688012D	Vancouver, Moose Lodge				24*	25	23	22	22	17	17
0688014D	Vancouver, Wa. Elem. School					37*	22	22	20	16	16
0844004D	Longview, City Shops	35	32*	30	26	27	24	25	22	22	20

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

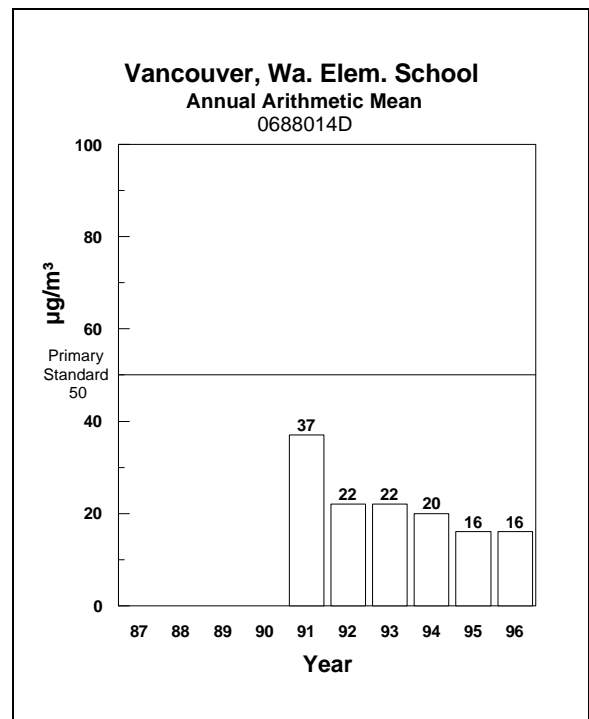
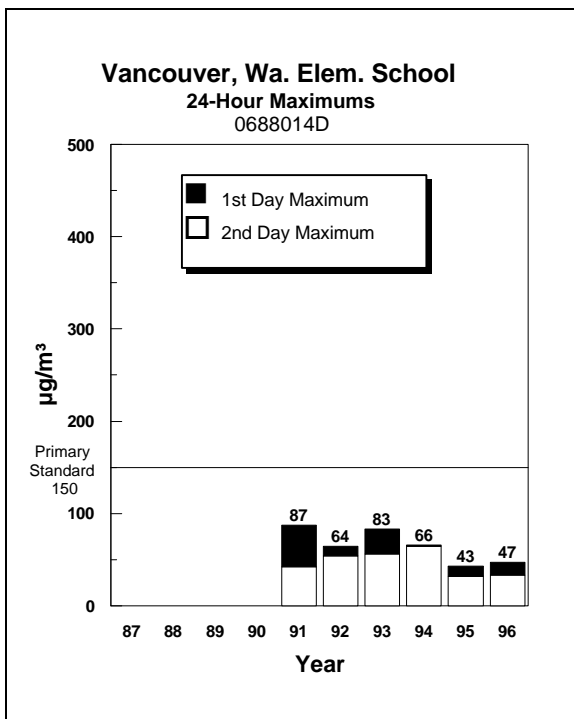
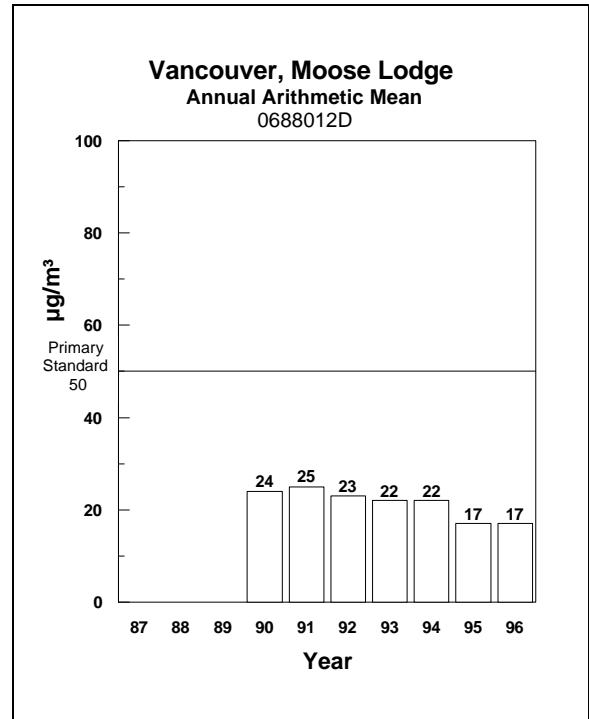
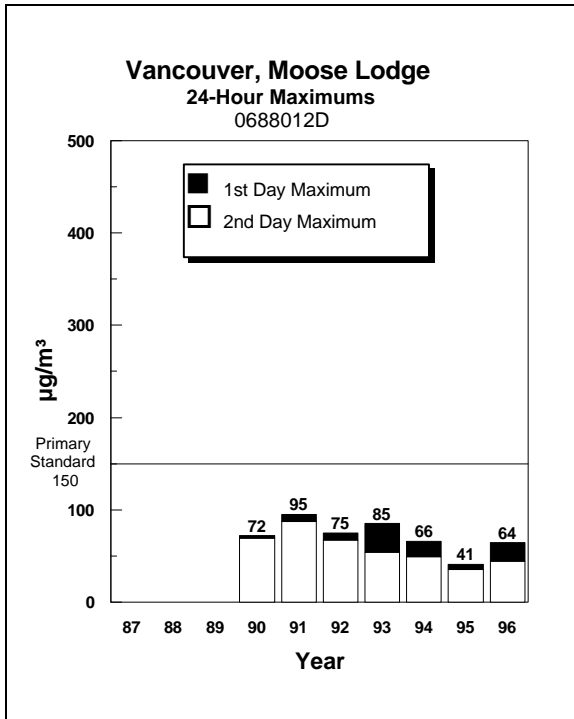
Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0688012D	Vancouver, Moose Lodge	64	2/15	44	2/3	17
0688014D	Vancouver, Wa. Elem. School	47	2/15	33	11/11	16
0844004D	Longview, City Shops	60	2/15	55	11/11	20

* Average based on less than 12 months of data.

PM₁₀ for 1996

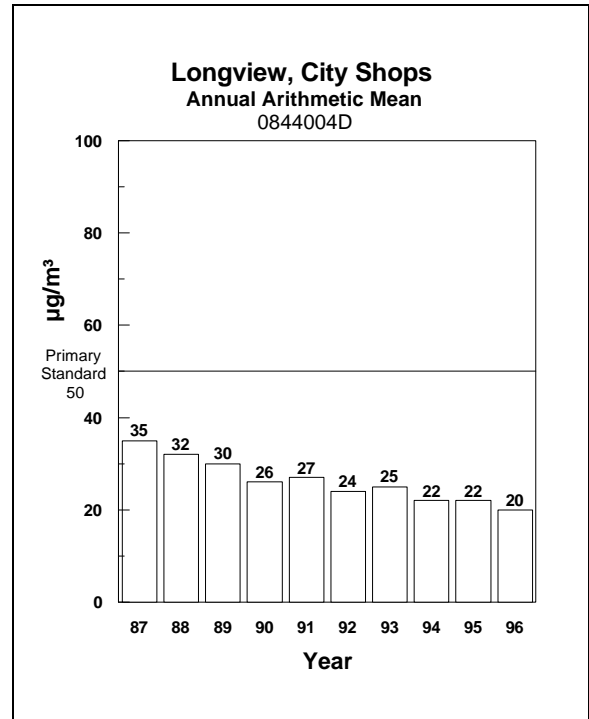
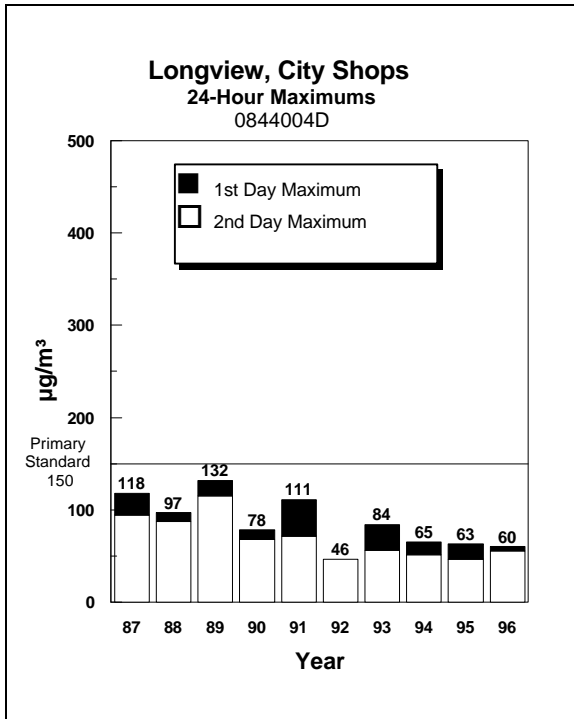
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0688012D	Vancouver, Moose Lodge	Jan-Dec	1/6	61	100
0688014D	Vancouver, Wa. Elem. School	Jan-Dec	1/6	61	100
0844004D	Longview, City Shops	Jan-Dec	1/6	61	100

Particulate Matter



Southwest Area

Particulate Matter



Carbon Monoxide

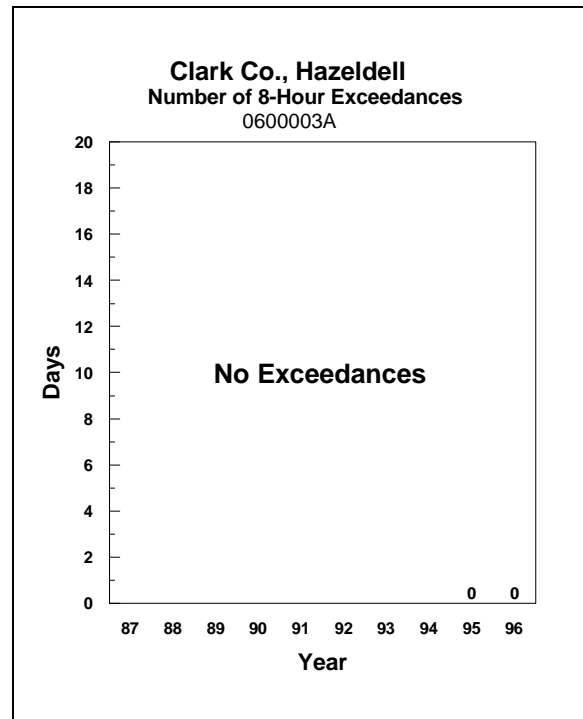
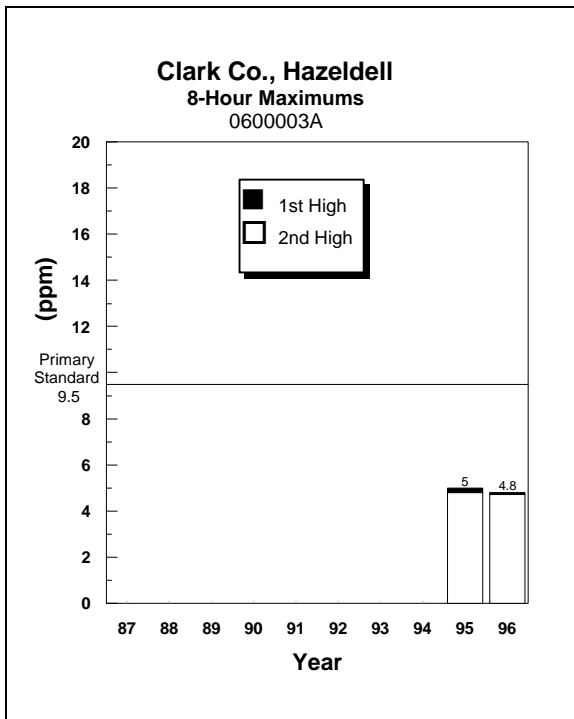
Carbon Monoxide (ppm) for 1996

Station	Location	1-Hour Maximums				8-Hour Maximums ¹				8-Hr. Exc.		
		1st High		2nd High		1st High		2nd High				
		Conc	Date	Conc	Date	Conc	Date	Conc	Date	Conc	Date	
0600003A	Clark Co., Hazeldell	7.1	1/8	7.1	11/20	4.8	11/8	4.7	2/14	4.7	2/14	0
0688011A	Vancouver, Atlas and Cox	10.1	2/27	9.3	11/9	6.8	11/1	6.4	2/29	6.4	2/29	0

1. 8-hour readings are non-overlapping.
2. 2nd Day High = Second day with the highest 8-hour average.

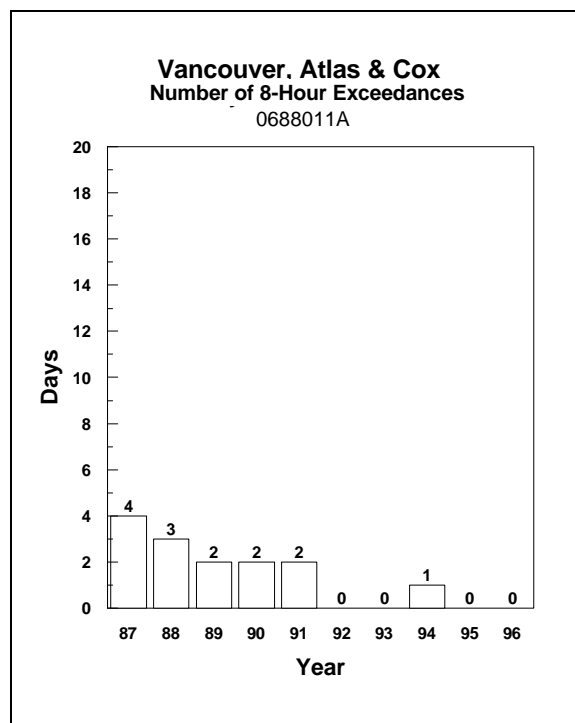
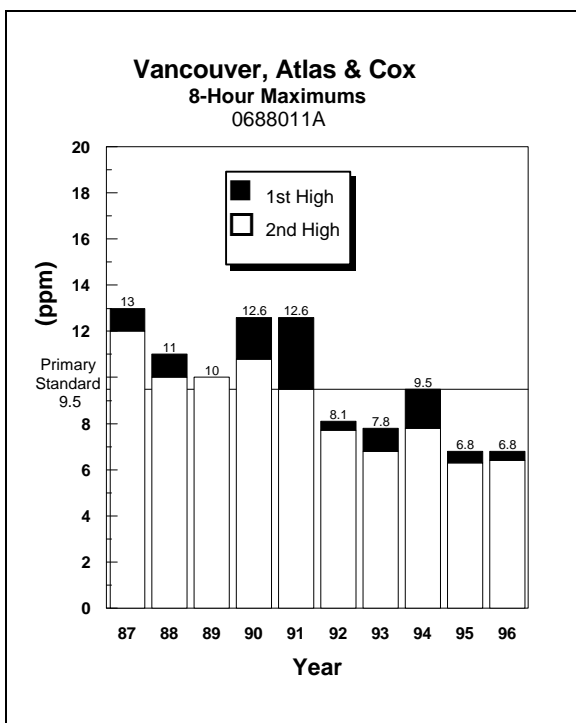
Carbon Monoxide (ppm) for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600003A	Clark Co., Hazeldell	Jan-Dec	8,643	366	98
0688011A	Vancouver, Atlas and Cox	Jan-Dec	8,722	366	99



Southwest Area

Carbon Monoxide



Ozone

Ozone (ppm) for 1996

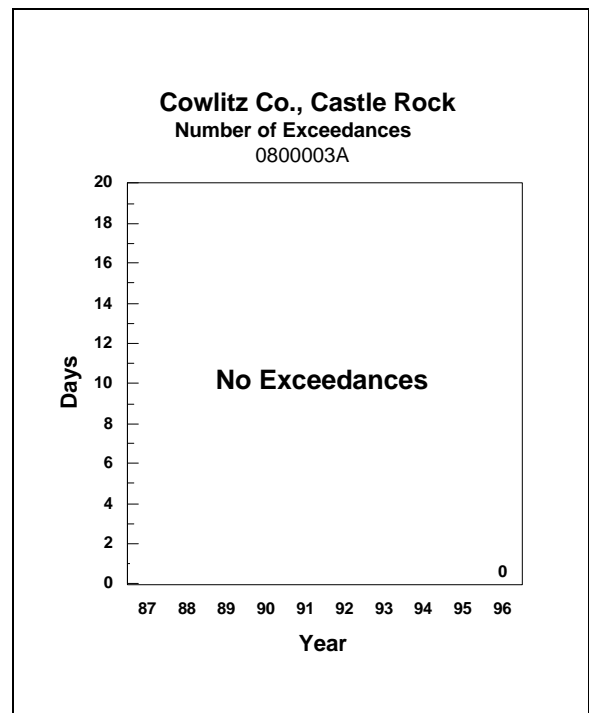
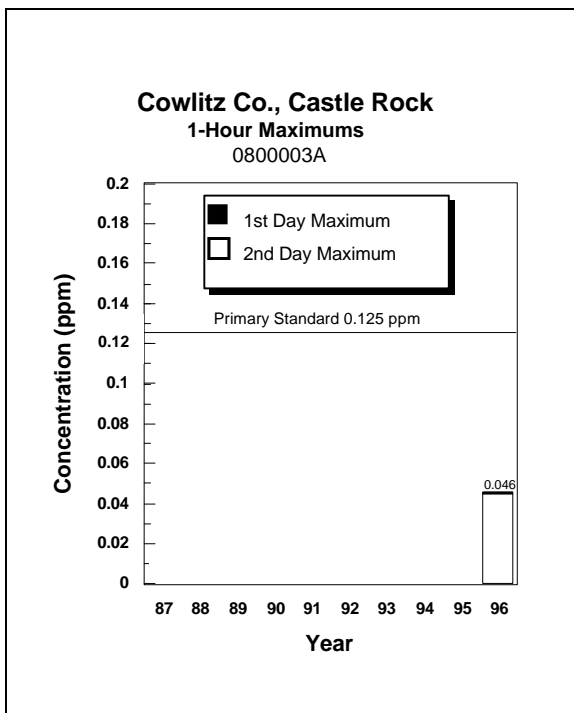
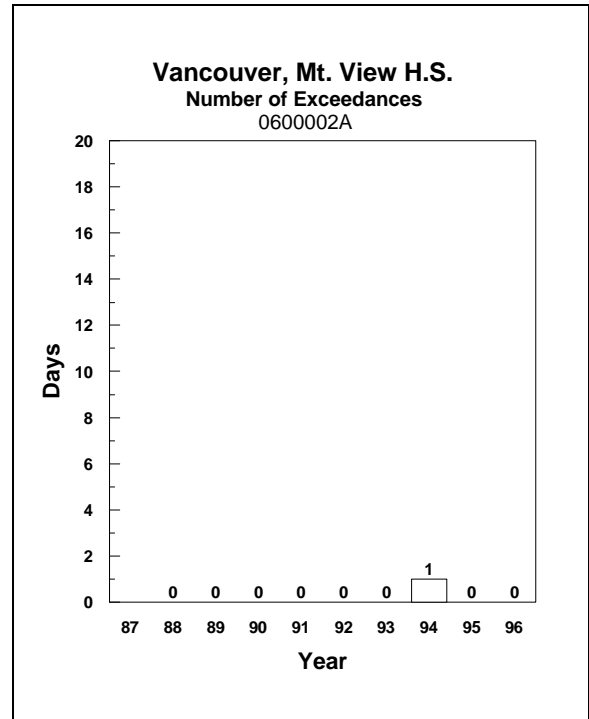
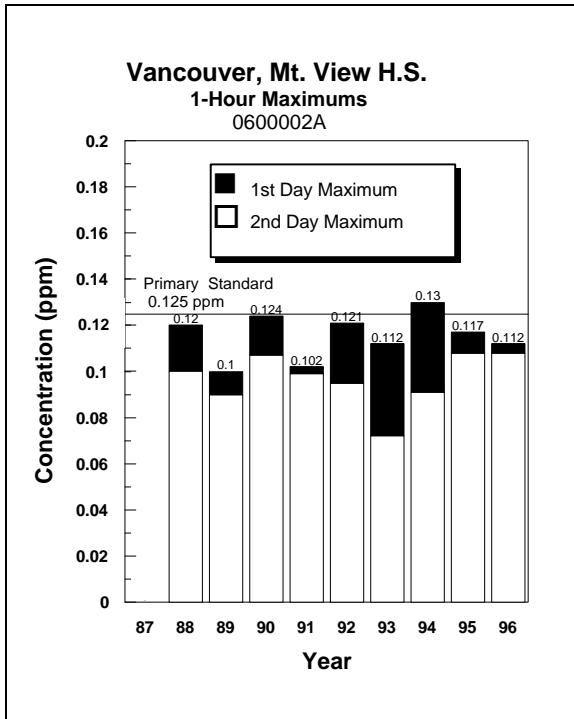
Station	Location	1-Hour Maximums						# Hrs >.124	Exceedance Days
		1st High		2nd High		2nd Day High*			
		Conc	Date	Conc	Date	Conc	Date		
0600002A	Vancouver, Mt. View High School	.112	7/14	.109	7/14	.108	7/26	0	0
0800003A	Cowlitz Co, Castle Rock	.046	9/28	.045	9/29	.045	9/29	0	0
2100006A	Packwood Lake	.068	7/8	.068	7/8	.065	7/12	0	0

*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1996

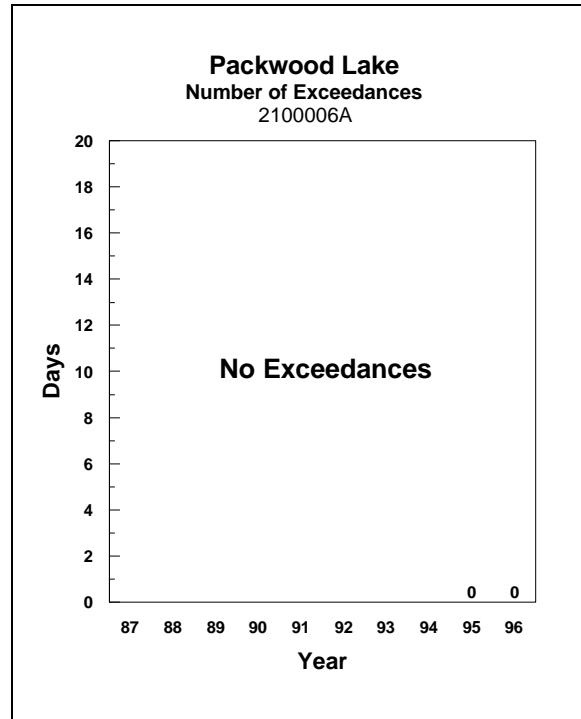
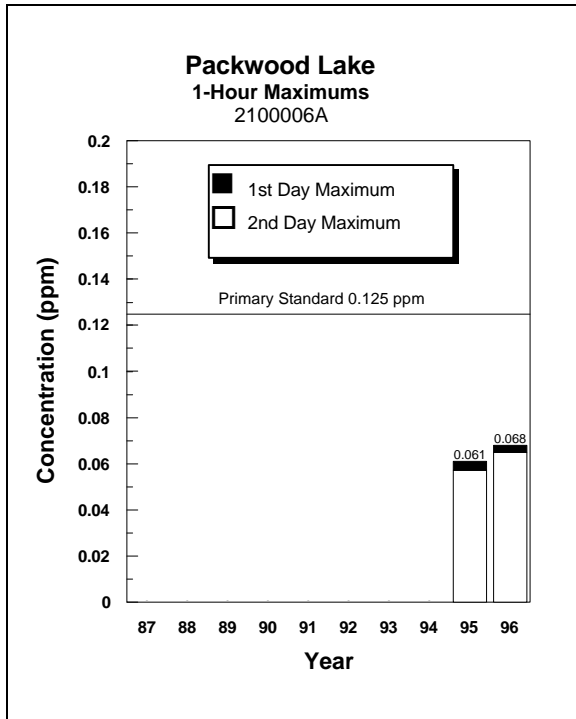
Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600002A	Vancouver, Mt. View High School	Apr-Oct	4,504	188	96
0800003A	Cowlitz Co, Castle Rock	Sep-Oct	1,022	43	99
2100006A	Packwood Lake	Jun-Oct	3,441	143	96

Ozone



Southwest Area

Ozone



Nitrogen Dioxide

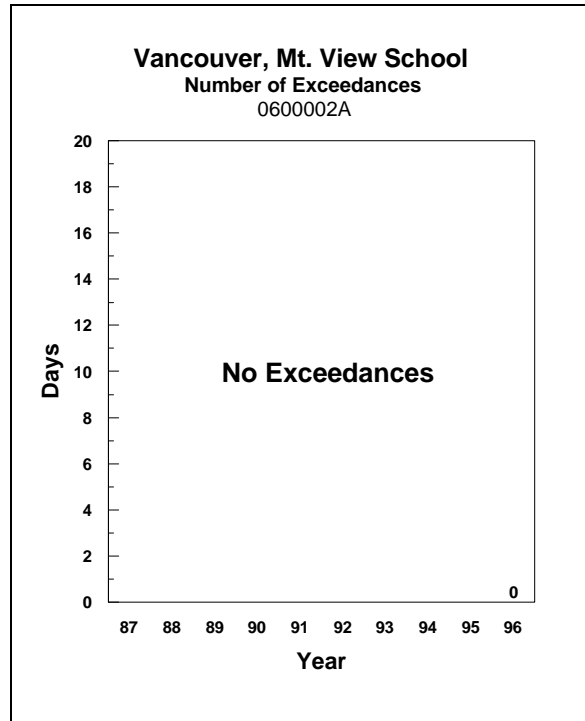
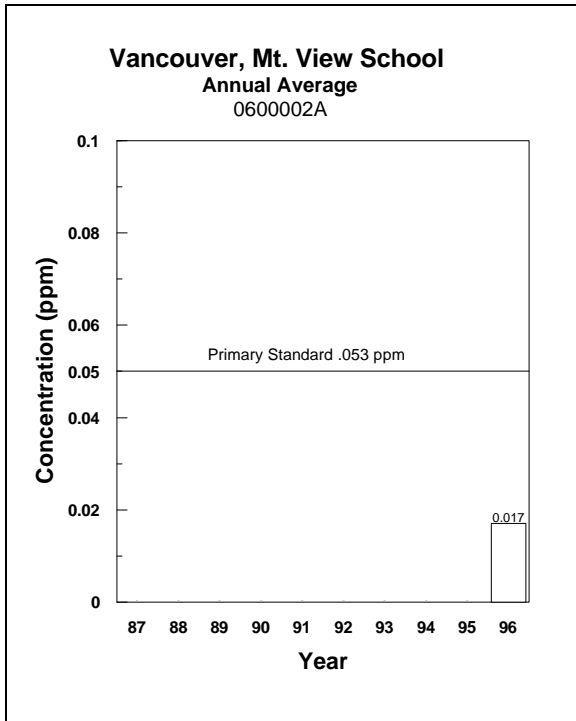
Nitrogen Dioxide for 1996

Station	Location	Max. 1-Hr	Date	Max. 24-Hr	Date	Annual Avg.
0600002A	Vancouver, Mt. View School	.051	9/10	.027	9/27	.017

Nitrogen Dioxide for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600002A	Vancouver, Mt. View School	Sep-Dec	1,030	43	35

Nitrogen Dioxide



Spokane Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
3200020E	Spokane, Rockwood								26*	24	23
3214999E	Cheney, Turnbull Slough					27*	17	18	17	11	13
3250004E	Spokane, Millwood	56*	52	43	45	41*	35	39	34	28	31
3278009E	Spokane, Crown Z.	56	52	45	48	46*	45	43	38	32	32
3278040A	Spokane, Auto Glass	49	48	41	39	37	39	43	34	28	32
3278046A	Spokane, Monroe Street									20*	23

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3200020E	Spokane, Rockwood	119	2/10	103	2/11	23
3214999E	Cheney, Turnbull Slough	47	9/12	36	8/13	13
3250004E	Spokane, Millwood	109	2/9	98	2/15	31
3278009E	Spokane, Crown Z.	186	8/30	124	2/12	32
3278040A	Spokane, Auto Glass	90	2/9	79	2/15	32
3278046A	Spokane, Monroe Street	62	2/21	49	2/15	23

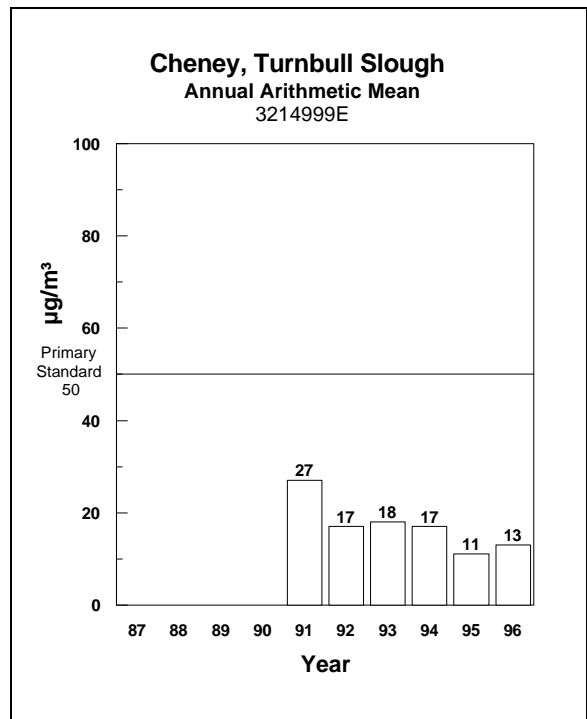
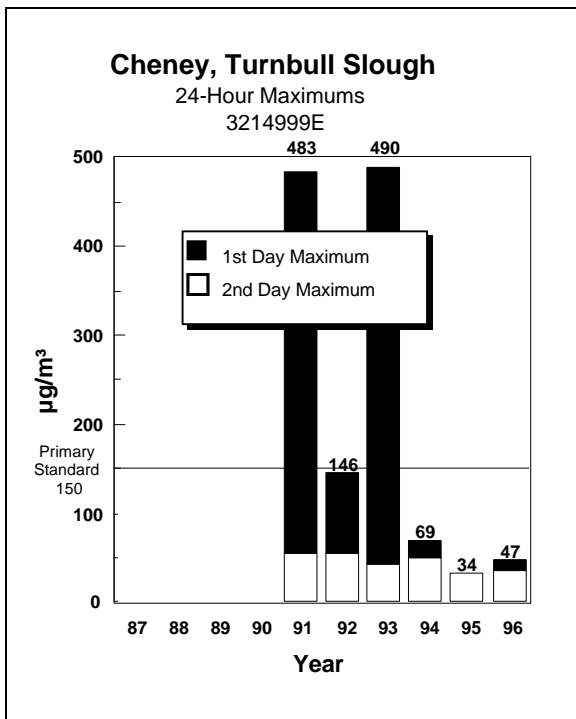
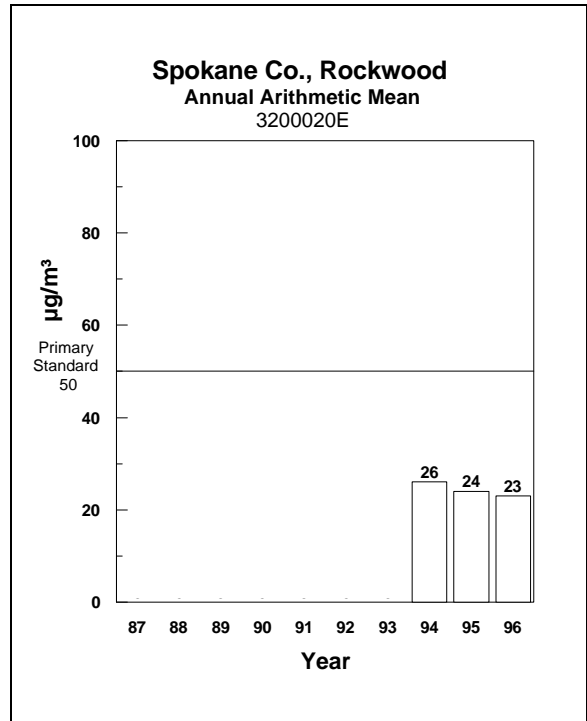
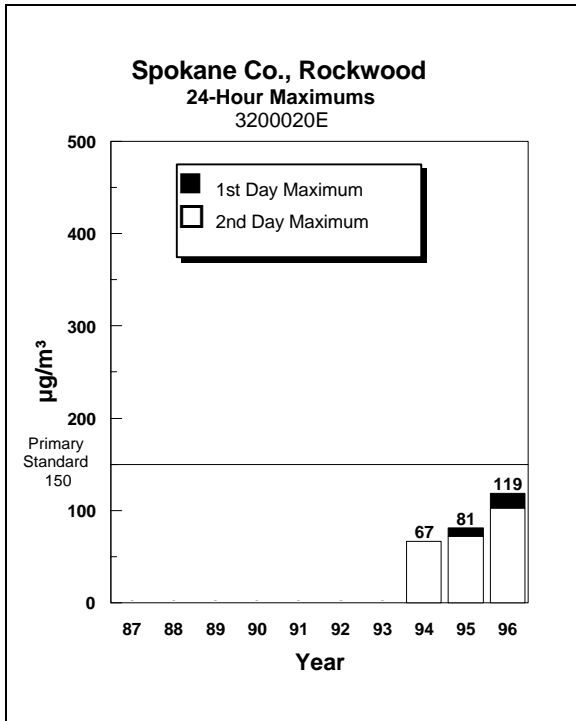
PM₁₀ for 1996

Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3200020E	Spokane, Rockwood	Jan-Dec	1/1	346	95
3214999E	Cheney, Turnbull Slough	Jan-Dec	1/6	61	100
3250004E	Spokane, Millwood	Jan-Dec	1/6	59	97
3278009E	Spokane, Crown Z.	Jan-Dec	1/1	354	97
3278040A	Spokane, Auto Glass	Jan-Dec	1/6	59	97
3278046A	Spokane, Monroe Street	Jan-Dec	1/6,1/3	77	92

Frequency of PM₁₀ (µg/m³) Levels Exceeding The State Standard During 1996 (# Days Exceeding Level)

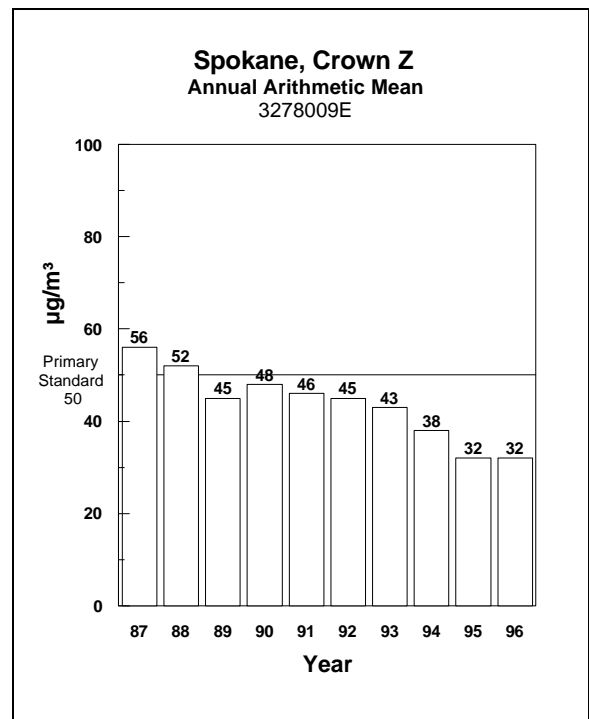
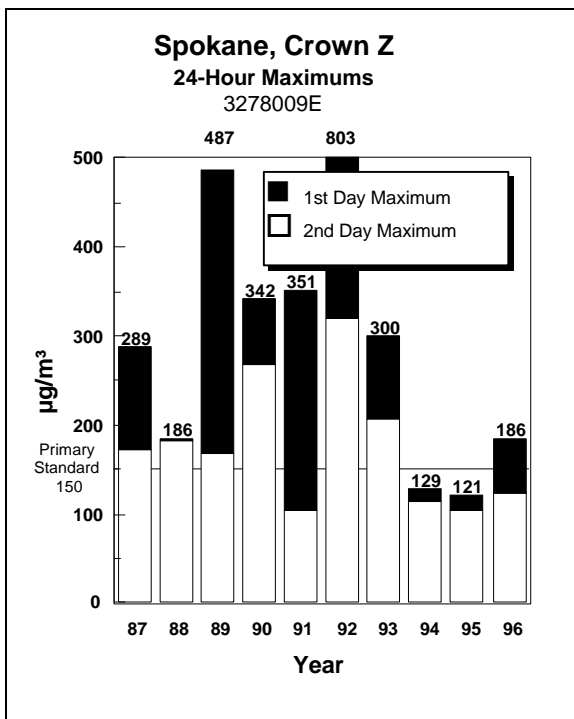
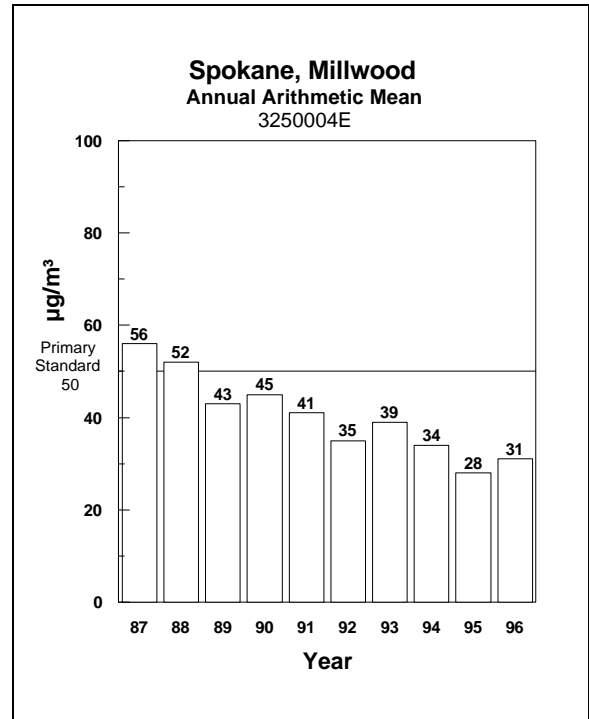
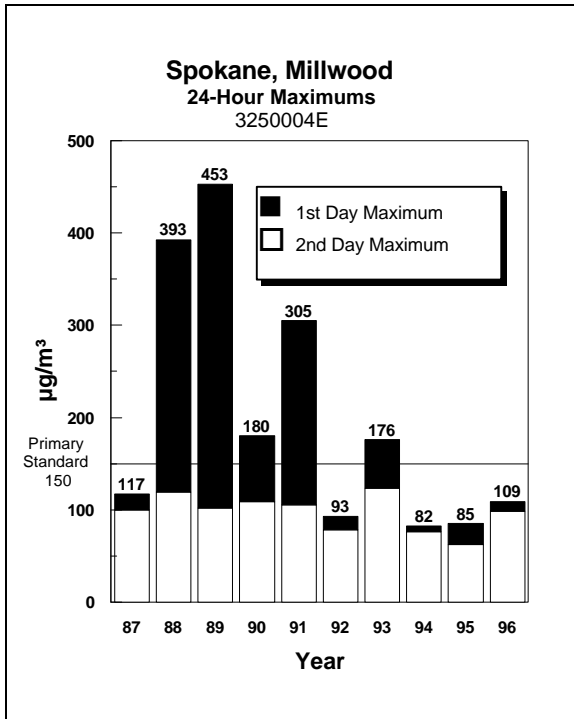
Station	Location	≥150	≥200	≥260	≥375	≥500
		<200	<260	<375	<500	<750
3278009E	Spokane, Crown Z.	1	0	0	0	0

Particulate Matter

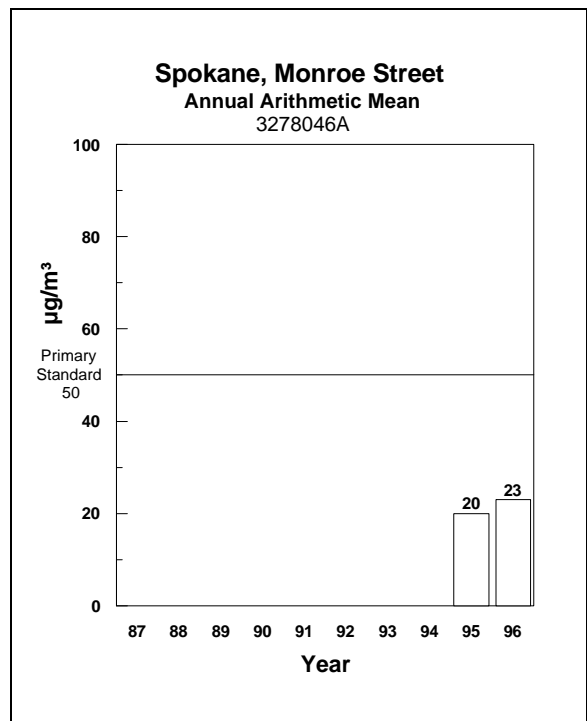
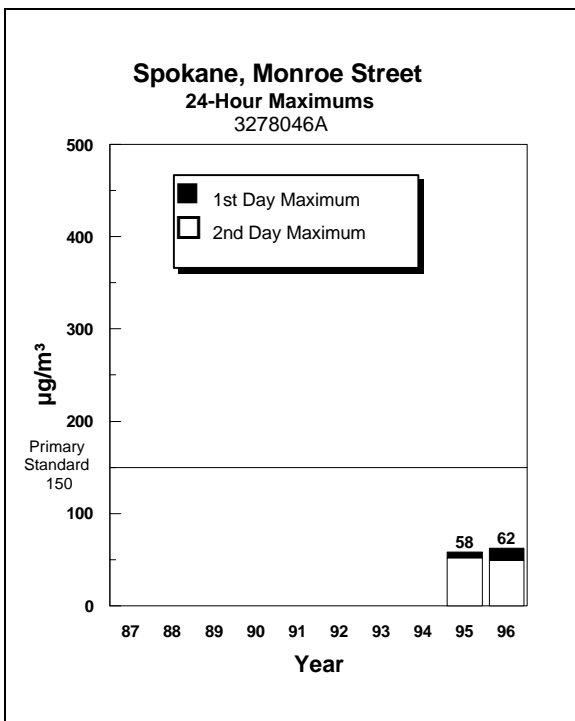
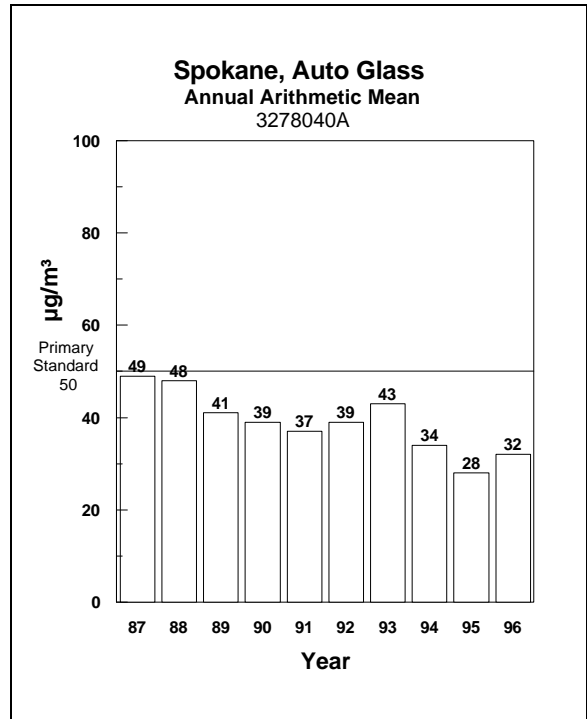
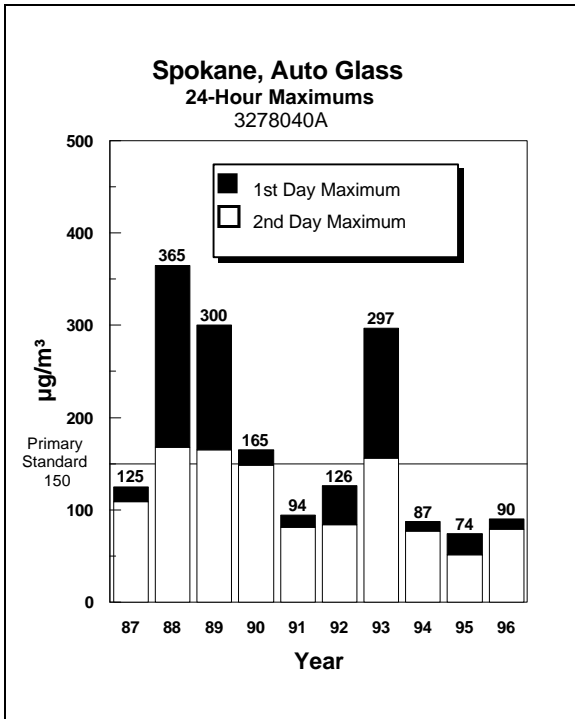


Spokane Area

Particulate Matter



Particulate Matter



Spokane Area

Carbon Monoxide

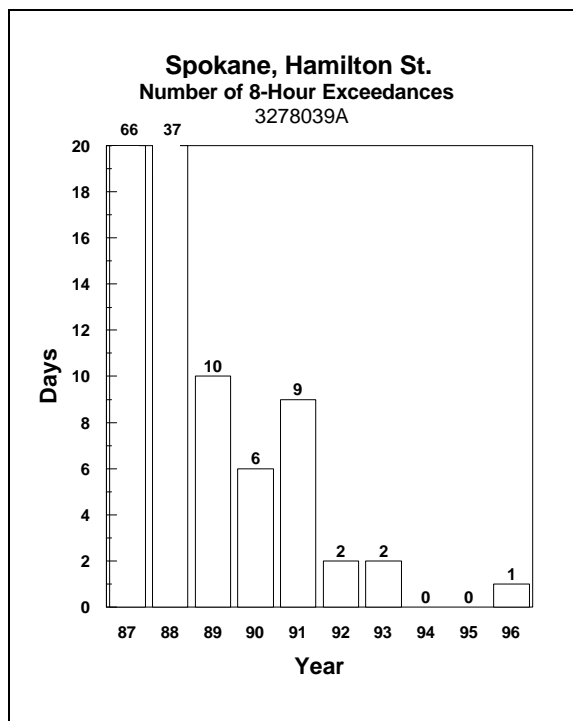
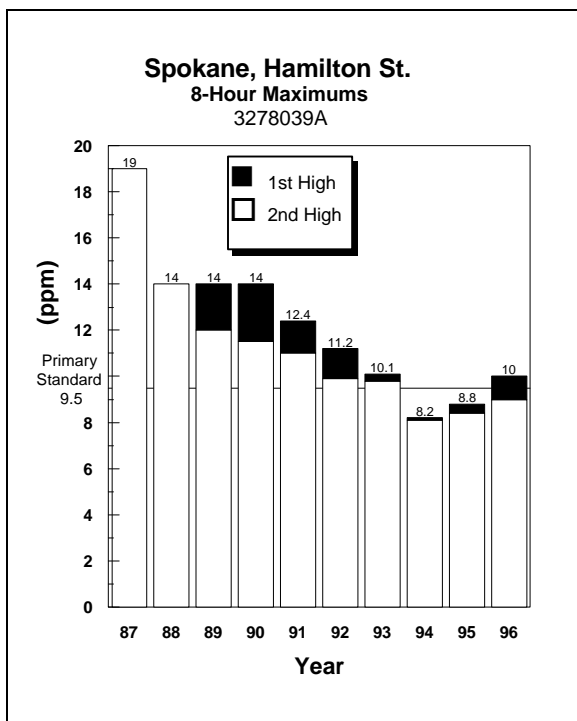
Carbon Monoxide (ppm) for 1996

Station	Location	1-Hour Maximums		8-Hour Maximums ¹				8-Hr. Exc.				
		Conc	Date	1st High	2nd High	1st High	2nd High		2nd Day ²			
3278039A	Spokane, Hamilton St.	13.4	12/30	13.1	12/30	10.0	12/30	9.0	2/13	9.0	2/13	1
3278043A	Spokane, Backdoor Tavern	10.3	12/30	8.5	2/12	6.6	12/30	6.2	2/12	6.2	2/12	0
3278044A	Spokane, 3rd Ave	13.5	2/12	13.1	1/12	9.6	2/12	8.4	2/14	8.4	2/14	1
3278045A	Spokane, Spokane Club	8.1	12/31	8.0	11/8	6.3	11/27	5.3	2/12	5.3	2/12	0
3278047A	Spokane, 3rd & Washington	17.5	12/30	9.6	12/30	2.7	11/5	2.7	11/6	2.7	11/6	0

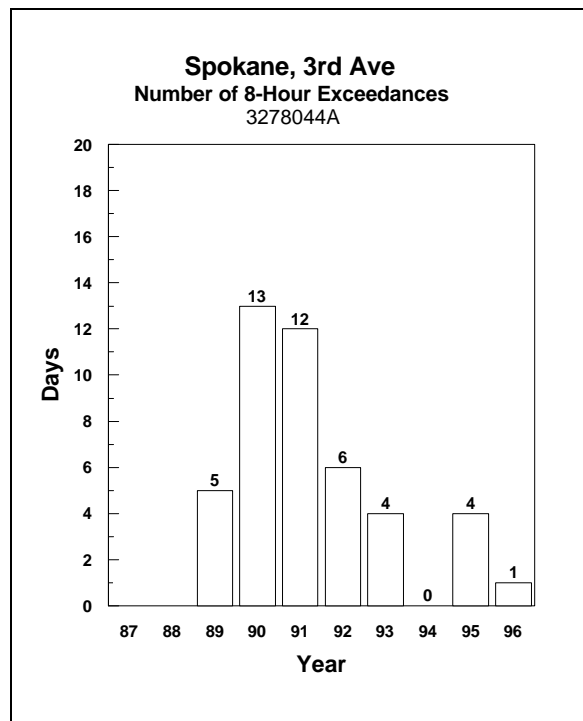
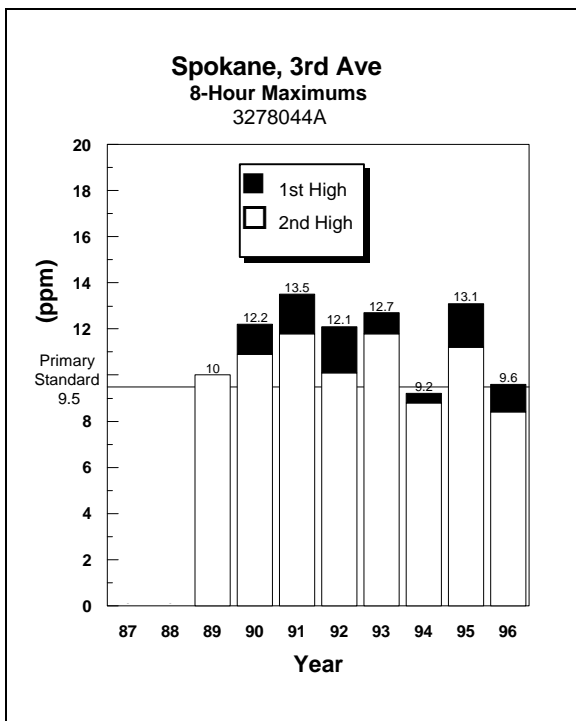
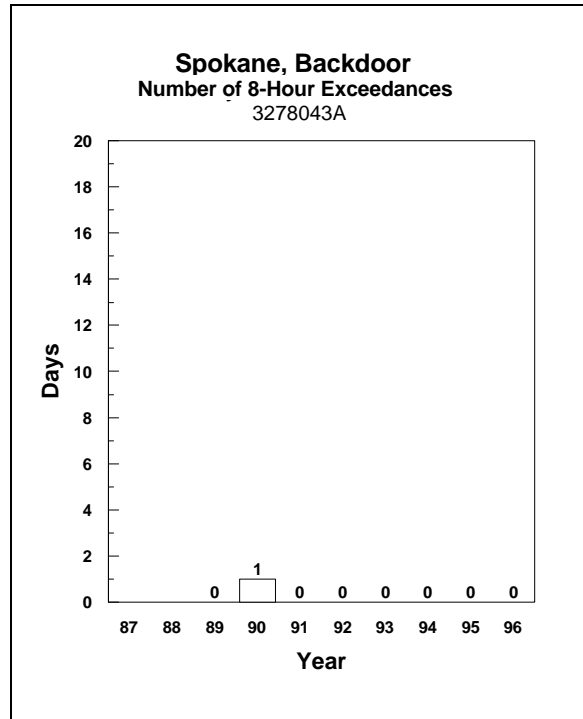
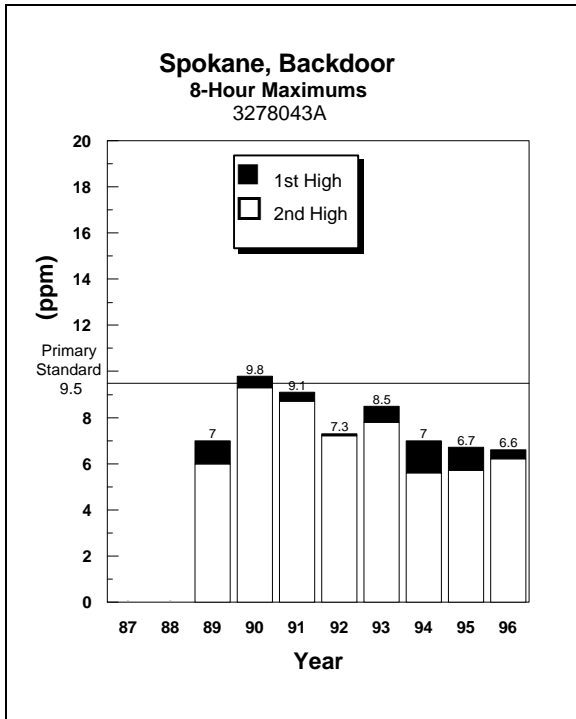
1. 8-hour readings are non-overlapping.
2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3278039A	Spokane, Hamilton St.	Jan-Dec	8,677	366	99
3278043A	Spokane, Backdoor Tavern	Jan-Dec	8,673	366	99
3278044A	Spokane, 3rd Ave	Jan-Oct	6,598	278	90
3278045A	Spokane, Spokane Club	Jan-Dec	8,713	366	99
3278047A	Spokane, 3rd & Washington	Nov-Dec	1,323	112	98

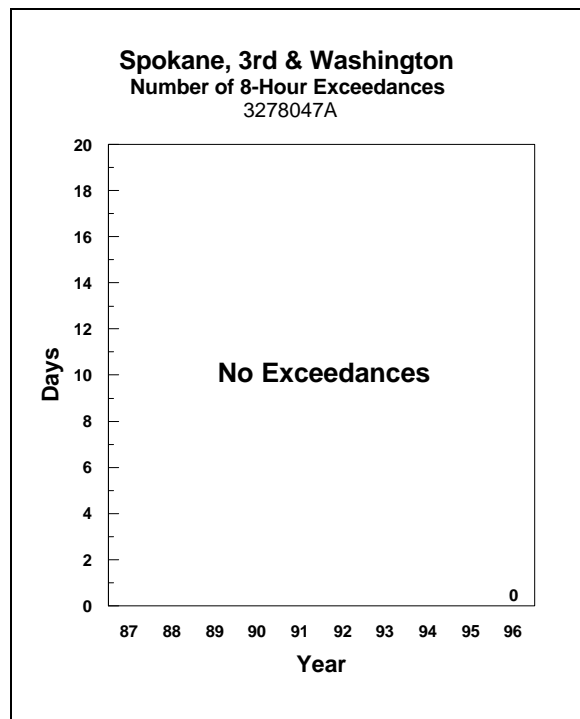
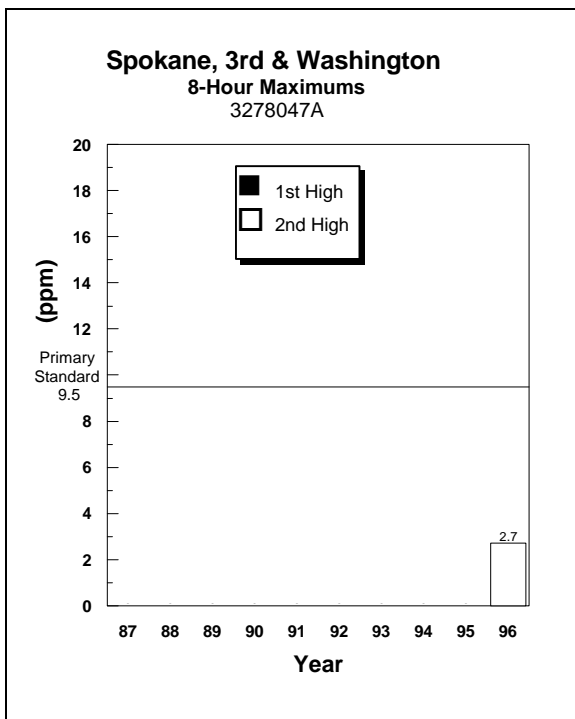
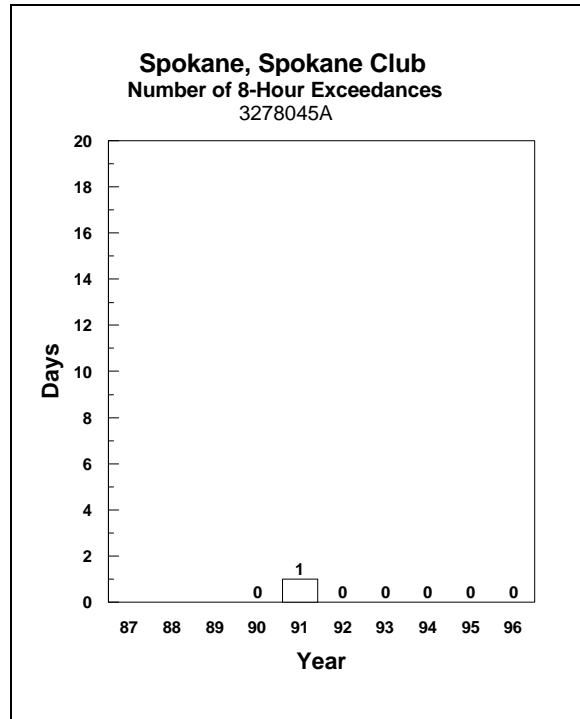
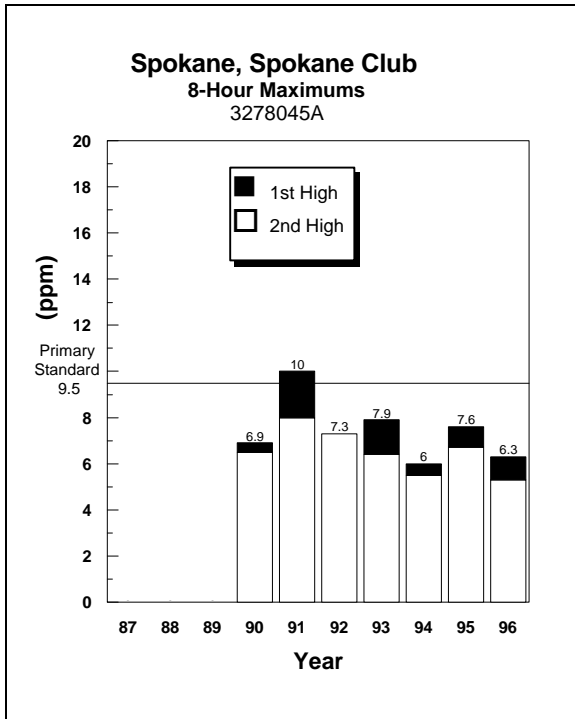


Carbon Monoxide



Spokane Area

Carbon Monoxide



Ozone

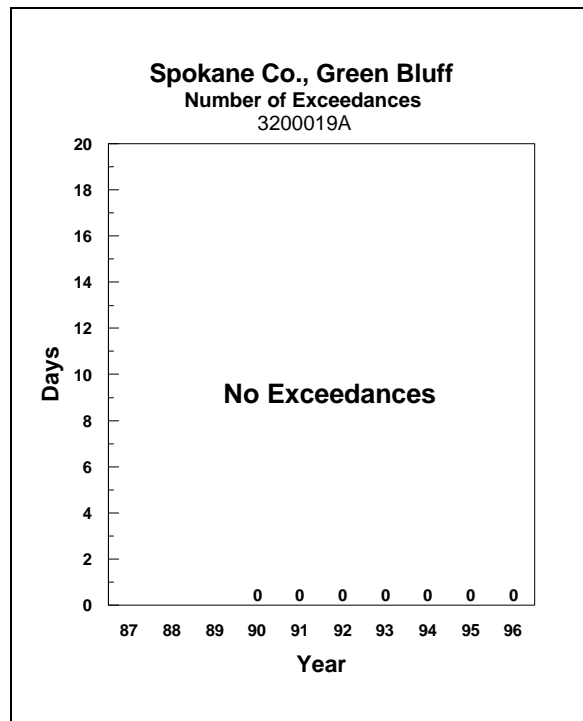
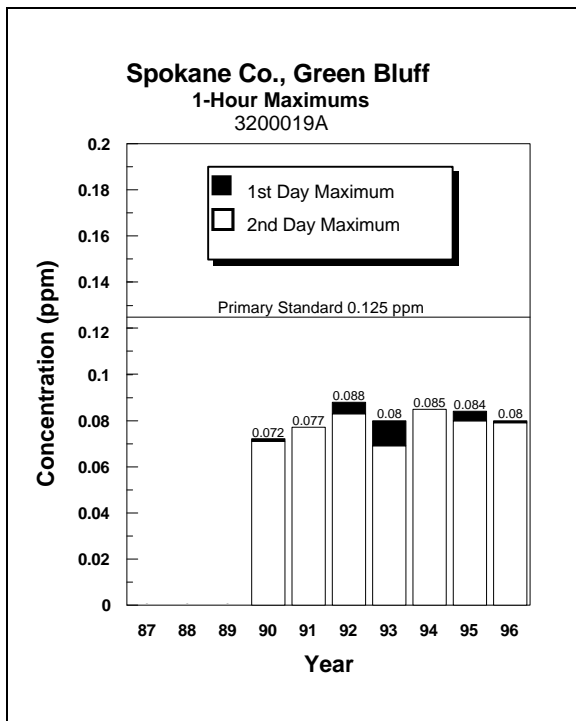
Ozone (ppm) for 1996

Station	Location	1st High		1-Hour Maximums		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
3200019A	Spokane Co., Green Bluff	.080	8/13	.079	8/13	.079	8/23	0	0

*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3200019A	Spokane Co., Green Bluff	Apr-Oct	4,509	188	96



Yakima Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
3978005F	Sunnyside Intermediate Sch.					42*	33	34	28	22	26*
3996003F	Yakima, Anthon-YVCC	78	37*	38	47*					23*	28*
3996008F	Yakima, Garfield Elem.			51*	34	44	32	38	31	24*	35
3996009F	Yakima, YVCC - Sundquist			66*	33	37	33	31	27	26*	44*
3978006F	Sunnyside, Chief Kamiakin Elem										36*

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1996

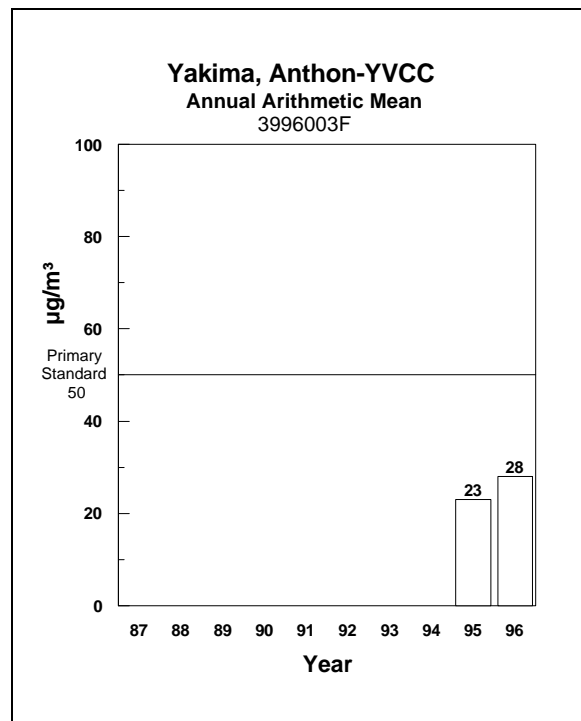
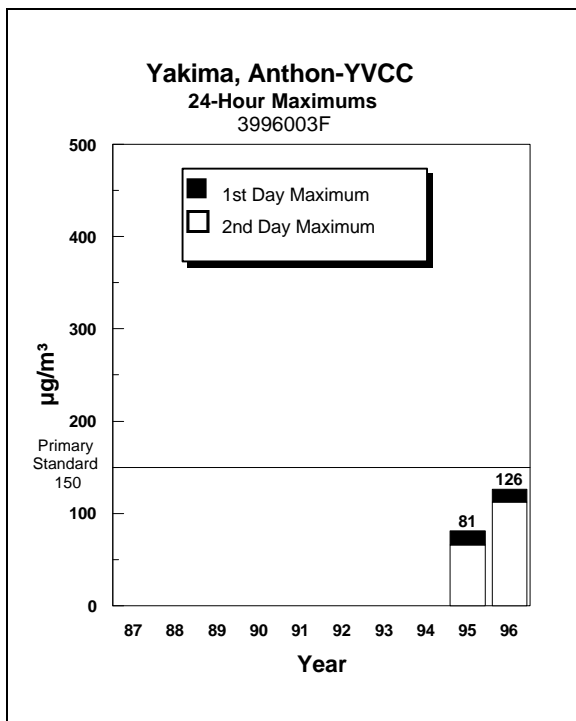
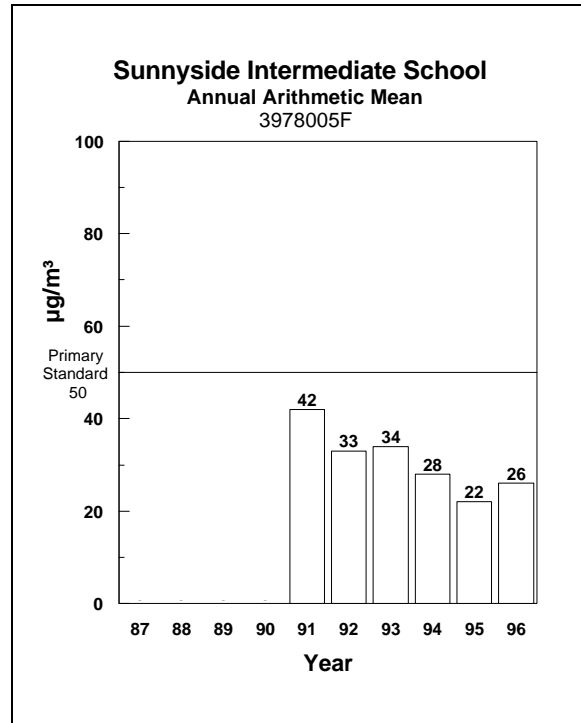
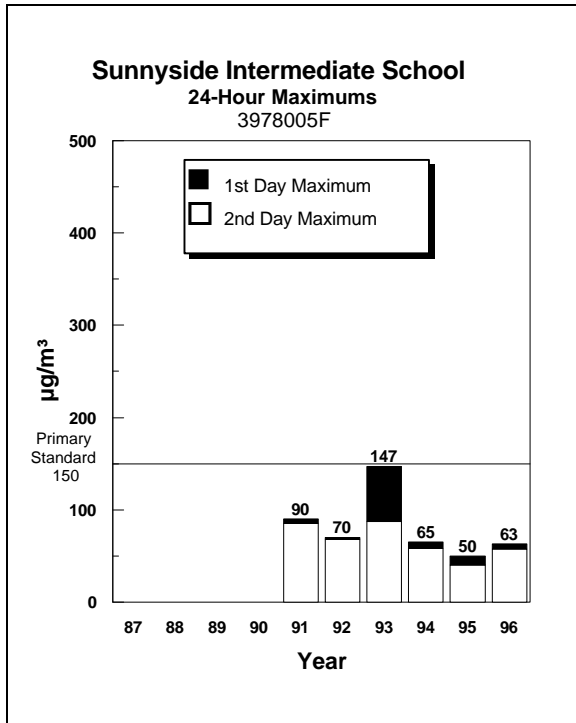
Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3978005F	Sunnyside Intermediate Sch.	63	2/3	57	2/15	26*
3996003F	Yakima, Anthon-YVCC	126	2/13	112	2/3	28*
3996008F	Yakima, Garfield Elem.	119	2/15	99	2/3	35
3996009F	Yakima, YVCC - Sundquist	89	12/5	86	11/29	44*
3978006F	Sunnyside, Chief Kamiakin Elem	70	9/12	66	8/25	36*

* Average based on less than 12 months of data.

PM₁₀ for 1996

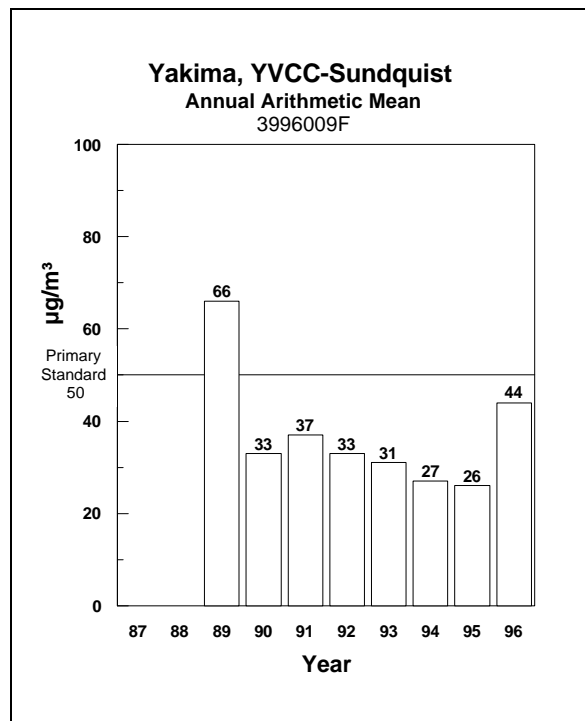
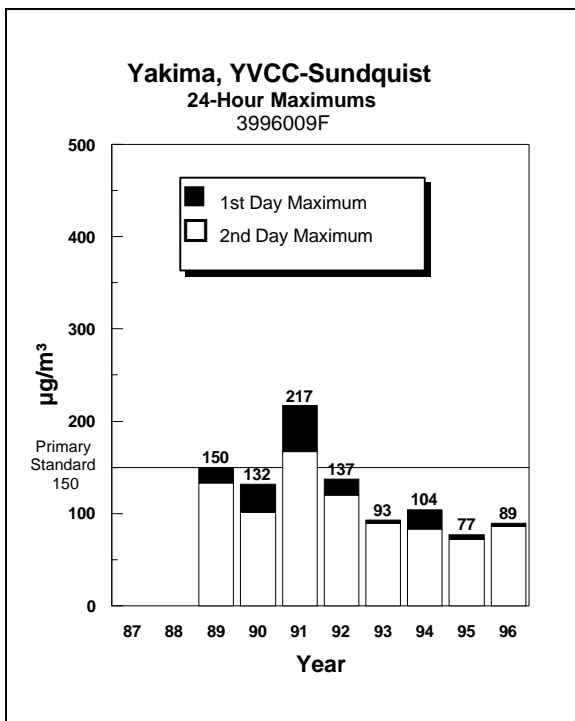
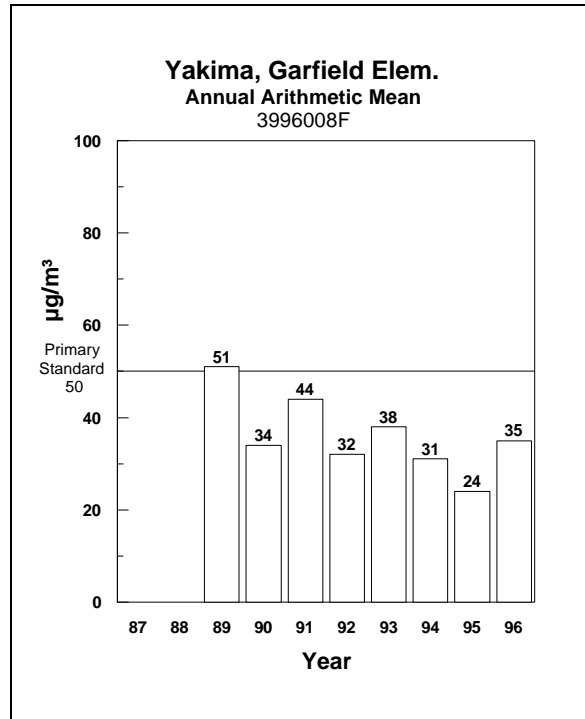
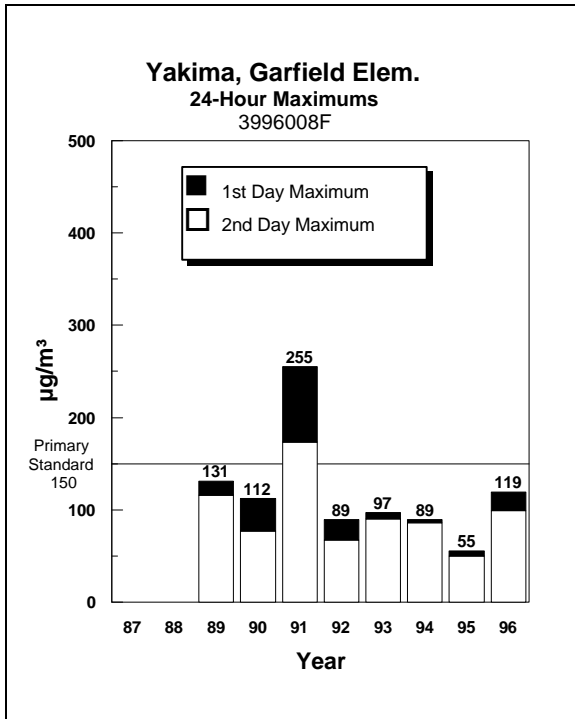
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3978005F	Sunnyside Intermediate Sch.	Jan-Jun	1/6	27	91
3996003F	Yakima, Anthon-YVCC	Jan-Oct	1/2	130	86
3996008F	Yakima, Garfield Elem.	Jan-Dec	1/6	53	87
3996009F	Yakima, YVCC - Sundquist	Nov-Dec	1/2	25	81
3978006F	Sunnyside, Chief Kamiakin Elem	Jul-Dec	1/6	25	86

Particulate Matter

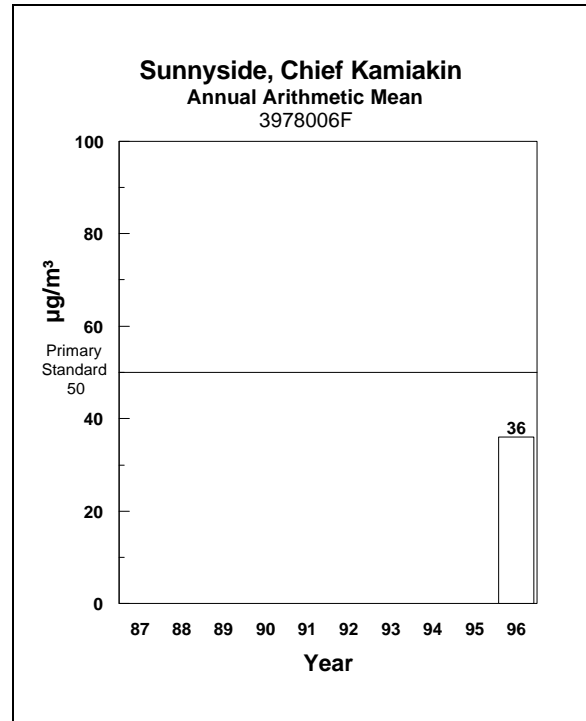
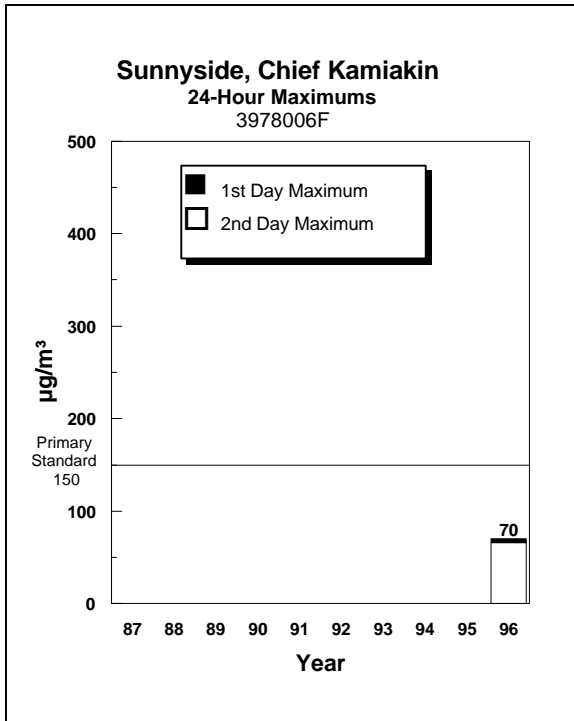


Yakima Area

Particulate Matter



Particulate Matter



Carbon Monoxide

Carbon Monoxide (ppm) for 1996

Station	Location	1-Hour Maximums		8-Hour Maximums ¹				8-Hr. Exc.				
		1st High	2nd High	1st High	2nd High	2nd Day ²						
		Conc	Date	Conc	Date	Conc	Date	Conc	Date	Conc	Date	
3996002A	Yakima, Jade Tree	14.9	2/7	13.4	2/7	10.5	2/7	9.5	2/7	7.4	1/12	2

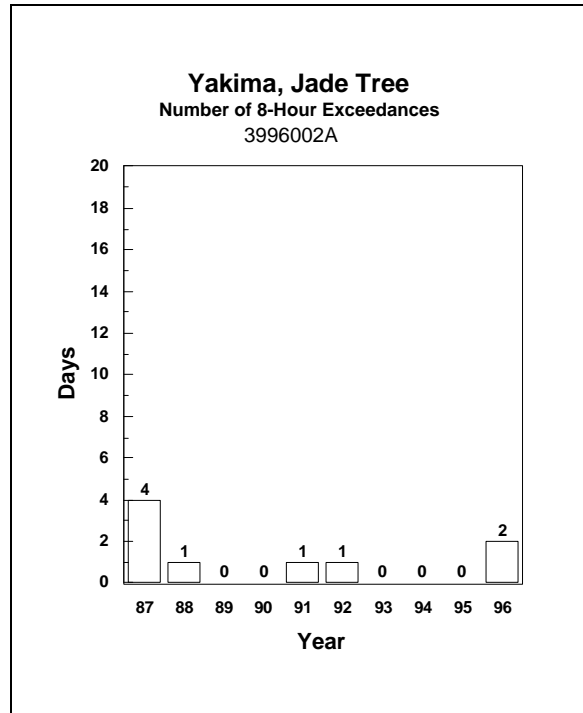
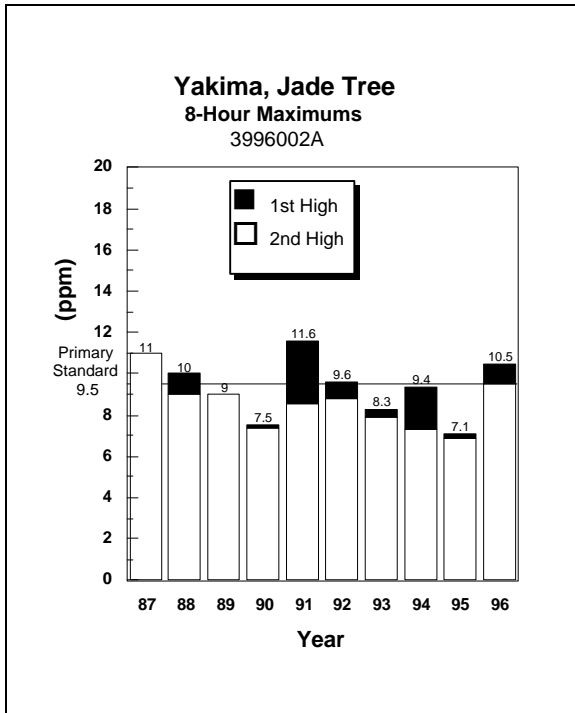
1. 8-hour readings are non-overlapping.
2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1996

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3996002A	Yakima, Jade Tree	Jan-Dec	8,709	366	99

Yakima Area

Carbon Monoxide



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