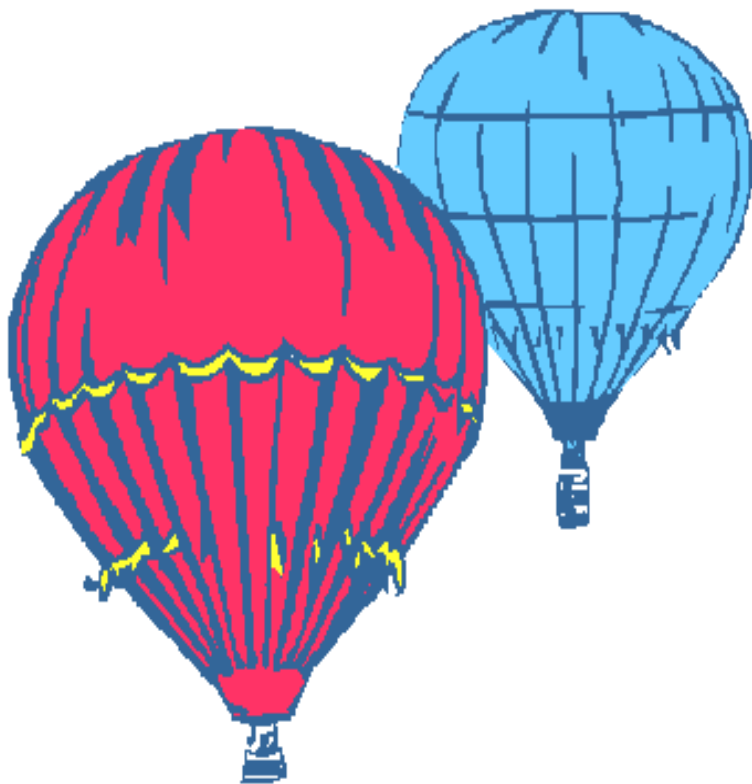


1997 Air Quality Data Summary



January 1999
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Ambient Air Quality Standards

AMBIENT AIR QUALITY STANDARDS

Pollutant	National		Washington State
	Primary	Secondary	
Total Suspended Particulates			
Annual Geometric Mean	No Standard	No Standard	60 µg/m ³
24 - Hour Average	No Standard	No Standard	150 µg/m ³
Lead (Pb)			
Quarterly Average	1.5 µg/m ³	1.5 µg/m ³	No standard
Particulates^a			
PM₁₀			
Annual Arithmetic Mean	50 µg/m ³	50 µg/m ³	50 µg/m ³
24 - Hour Average	150 µg/m ³	150 µg/m ³	150 µg/m ³
PM_{2.5}			
Annual Arithmetic Mean	15 µg/m ³	15 µg/m ³	No standard
24 - Hour Average	65 µg/m ³	65 µg/m ³	No standard
Sulfur Dioxide (SO₂)			
Annual Average	0.03 ppm	No Standard	0.02 ppm
24 - Hour Average	0.14 ppm	No Standard	0.10 ppm
3 - Hour Average	No Standard	0.50 ppm	No standard
1 - Hour Average	No Standard	No Standard	0.40 ppm ^b
Carbon Monoxide (CO)^c			
8 - Hour Average	9 ppm	9 ppm	9 ppm
1 - Hour Average	35 ppm	35 ppm	35 ppm
Ozone (O₃)^{c,d}			
1 - Hour Average ^e	0.12 ppm	0.12 ppm	0.12 ppm
8 - Hour Average	0.08 ppm	0.08 ppm	No standard
Nitrogen Dioxide (NO₂)			
Annual Average	0.053 ppm	0.053 ppm	0.05 ppm

a - New Particulate standards went into effect on September 16, 1997.

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

c - 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,

d - Eight-hour ozone standard went into effect on September 16, 1997. One-hour ozone standard was revoked on June 5, 1998.

e - 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.

Stations Exceeding the Standard

Total Suspended Particles (24-hour standard = 150 $\mu\text{g}/\text{m}^3$)

There were two exceedances of the state TSP standard during 1997, recorded in Seattle.

Station 1776K71B, Harbor Island, Seattle	1/16/97	190
	12/12/97	172

Particulate Matter/ PM_{10} (24-hour standard = 150 $\mu\text{g}/\text{m}^3$)

There were six exceedances of the PM_{10} standard during 1997, recorded at four stations located in Colville, Kennewick, Wallula, and Walla Walla.

Station 3316004A, Colville, County Courthouse	1/16/97	305
	2/21/97	153
Station 0340003J, Kennewick VSC	3/30/97	165
Station 3600002J, Wallula, Nedrow Farm	6/21/97	160
	7/3/97	210
Station 3692007A, Walla Walla, Fire Station	09/25/97	155

Site Changes

Total Suspended Particles (TSP)

33000006A Northport School, Stevens Co. Established 8/14/97

Particulate Matter (PM₁₀)

0566009G Stevens, Pt. Angeles Discontinued 4/18/97
1776K60B Harbor Island, Seattle Discontinued 12/30/97
1868B06B Lions Park, Poulsbo Discontinued 12/12/97

Carbon Monoxide (CO)

1777001A Quick Stop, Sea-Tac Discontinued 3/11/97
3278048A 3rd & Washington, South Side Established 1/7/97
3996002A Yakima, Jade Tree Discontinued 5/9/97
3996005A Yakima, Courthouse Established 9/12/97

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

0800003A Castle Rock, Cowlitz County Established 4/11/97
0800004A Woodland, Cowlitz County Established 7/24/97

Ozone (O₃)

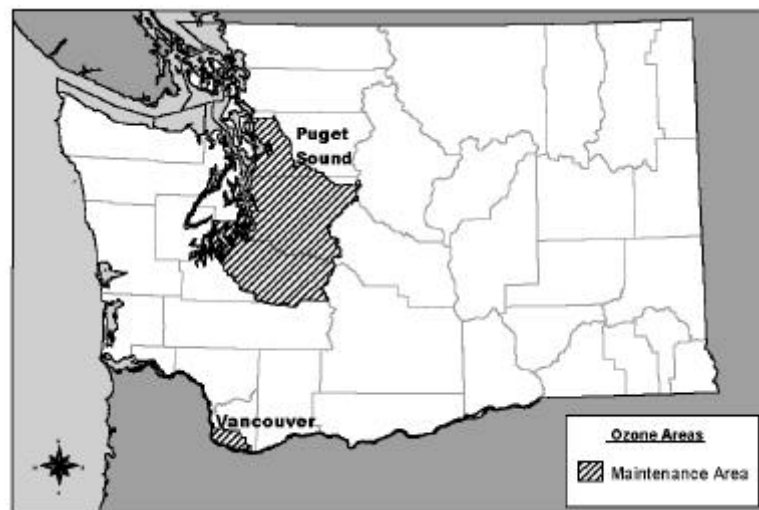
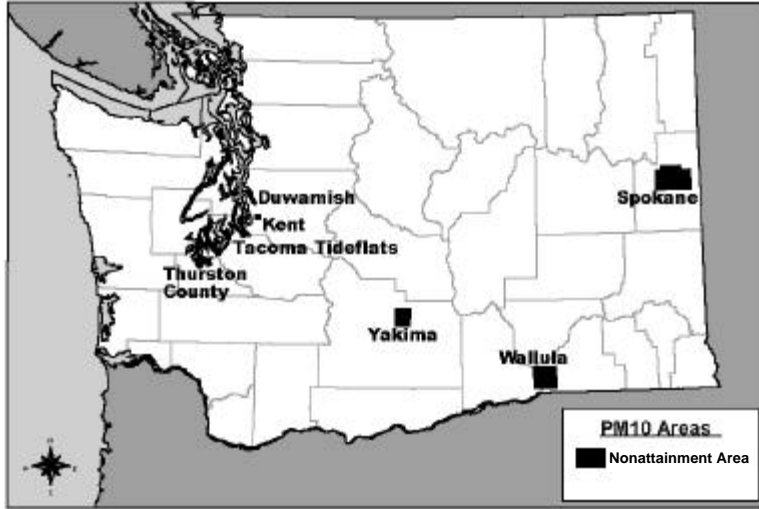
0600005A Hockinson, Clark County Established 4/1/97
0800004A Woodland, Cowlitz County Established 4/2/97
1776029A Seattle, Beacon Hill Parameter established 4/1/97
3100002A Snohomish Co., Getchell Discontinued 10/31/97
3496001G Yelm, Thurston County Established 5/8/97

Air Quality Agencies



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

Nonattainment and Maintenance Areas



Geographical Air Monitoring

Ecology's air monitoring network is established with the intent of determining air quality in areas of the state that have experienced higher levels of air pollution. The number and location of monitors may change each year based on changing conditions in an area (see "Site Changes" on page 4). The data on the following pages is organized by geographic area for the purposes of this report. This table identifies which counties and monitoring sites are located in which geographic areas.

<u>County</u>	<u>Geographic Area</u>	<u>Site No.</u>	<u>Site Location</u>
Asotin	Eastern	0214005	Clarkston, STP
Benton	Eastern	0340003	Kennewick VSC
Chelan	Central	0444001	Leavenworth, Cascade Mid. School
Chelan	Central	0490004	Wenatchee, Community College
Chelan	Central	0490005	Wenatchee, Columbia School
Clallam	Coastal	0566009	Pt. Angeles, Stevens Mid. School
Clallam	Coastal	0566410	Pt. Angeles, 3 rd & Chestnut
Clallam	Coastal	0566412	Pt. Angeles, City Light
Clark	Southwest	0600002	Vancouver, Mt. View High School
Clark	Southwest	0600003	Clark Co., Hazel Dell
Clark	Southwest	0688011	Vancouver, Atlas and Cox
Clark	Southwest	0688012	Vancouver, Moose Lodge
Clark	Southwest	0688014	Vancouver, Wa. Elem. School
Cowlitz	Southwest	0800003	Cowlitz Co., Castle Rock
Cowlitz	Southwest	0844004	Longview, City Shops
King	Puget Sound	1740K73	Kent, James and Central
King	Puget Sound	1744K74	Lake Forest Park, City Hall
King	Puget Sound	1776K55	Seattle, Duwamish
King	Puget Sound	1776K60	Seattle, Harbor Island
King	Puget Sound	1776K61	Seattle, South Park
King	Puget Sound	1776K71	Seattle, Harbor Island
King	Puget Sound	1700002	King Co., Lk. Sammamish St. Pk.
King	Puget Sound	1700004	King Co., Enumclaw FS #3
King	Puget Sound	1700007	King Co., Enumclaw
King	Puget Sound	1708003	Bellevue, Sturtevant's
King	Puget Sound	1708004	Bellevue, Scan Design
King	Puget Sound	1708005	Bellevue, NE 8 th & 108 th NE
King	Puget Sound	1776020	Seattle, Zanadu Comics
King	Puget Sound	1776026	Seattle, 4 th & Pike
King	Puget Sound	1776029	Seattle, Beacon Hill
King	Puget Sound	1776033	Seattle, Northgate Apts.
King	Puget Sound	1776308	Seattle, James St.
King	Puget Sound	1777001	Sea-Tac, Quick Stop
Kitsap	Puget Sound	1800B05	Kitsap Co., Meadowdale
Kitsap	Puget Sound	1868B06	Poulsbo, Lions Park
Kitsap	Puget Sound	1806003	Bremerton, Midway Inn
Kittitas	Central	1922003	Ellensburg, Hal Holmes

Geographical Air Monitoring

<u>County</u>	<u>Geographic Area</u>	<u>Site No.</u>	<u>Site Location</u>
Klickitat	Central	2000001	Klickitat Co., Wishram
Lewis	Southwest	2100006	Packwood Lake
Pierce	Puget Sound	2700P18	Puyallup, South Hill
Pierce	Puget Sound	2782P01	Tacoma, Fire Station #12
Pierce	Puget Sound	2782P16	Tacoma, 54 th Ave. NE
Pierce	Puget Sound	2782P17	Tacoma, Alexander Ave.
Pierce	Puget Sound	2700007	Pierce Co., Pack Forest
Pierce	Puget Sound	2700016	Pierce Co., Rainier #2
Pierce	Puget Sound	2782013	Tacoma, Pacific Ave.
Skagit	Northwest	2900001	Anacortes, Texaco South
Skagit	Northwest	2900004	March Pt., Kiesser
Skagit	Northwest	2900077	Skagit Co., Darrington
Snohomish	Puget Sound	3124S04	Everett, Hoyt Ave.
Snohomish	Puget Sound	3146S08	Lynnwood, 59 th Place
Snohomish	Puget Sound	3148S07	Marysville, Jr. High School
Snohomish	Puget Sound	3100002	Snohomish Co. Getchell
Snohomish	Puget Sound	3124006	Everett, Navada Bob's
Spokane	Spokane	3200019	Spokane Co., Green Bluff
Spokane	Spokane	3200020	Spokane, Rockwood
Spokane	Spokane	3214999	Cheney, Turnbull Slough
Spokane	Spokane	3250004	Spokane, Millwood
Spokane	Spokane	3278009	Spokane, Crown Z.
Spokane	Spokane	3278039	Spokane, Hamilton St.
Spokane	Spokane	3278040	Spokane, Auto Glass
Spokane	Spokane	3278043	Spokane, Backdoor Tavern
Spokane	Spokane	3278044	Spokane, 3 rd Ave.
Spokane	Spokane	3278045	Spokane, Spokane Club
Spokane	Spokane	3278046	Spokane, Monroe Street
Spokane	Spokane	3278047	Spokane, 3 rd & Washington
Stevens	Eastern	3316004	Colville, County Courthouse
Thurston	Coastal	3444003	Lacey, Mt. View Elementary
Thurston	Coastal	3444004	Lacey, OAPCA Office
Thurston	Coastal	3460010	Olympia, Odd Fellows
Thurston	Coastal	3484001	Tumwater, Trosper
Walla Walla	Eastern	3600002	Walla Walla Co., Wallula
Walla Walla	Eastern	3692007	Walla Walla, Fire Station
Whatcom	Northwest	3700006	Whatcom Co., Custer FCC Bldg.
Whatcom	Northwest	3706005	Bellingham, School Dist.
Whatcom	Northwest	3706069	Bellingham, Chestnut St.
Yakima	Yakima	3978005	Sunnyside Intermediate School
Yakima	Yakima	3978006	Sunnyside, Chief Kamiakin Elementary
Yakima	Yakima	3996002	Yakima, Jade Tree
Yakima	Yakima	3996003	Yakima, Anthon – YVCC
Yakima	Yakima	3996008	Yakima, Garfield Elementary
Yakima	Yakima	3996009	Yakima, YVCC – Sundquist

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
0444001A	Leavenworth, Cascade Mid.Sch									25*	21
0490005A	Wenatchee, Columbia School							24*	24	24	27
1922003A	Ellensburg, Hal Holmes								21*	29	29

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0444001A	Leavenworth, Cascade Mid.Sch	58	1/13	51	1/16	21
0490005A	Wenatchee, Columbia School	73	2/21	70	1/13	27
1922003A	Ellensburg, Hal Holmes	112	1/16	105	1/14	29

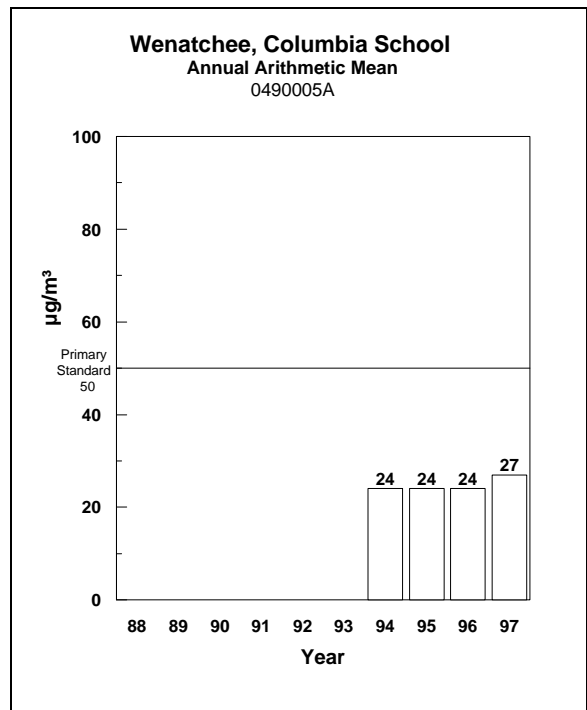
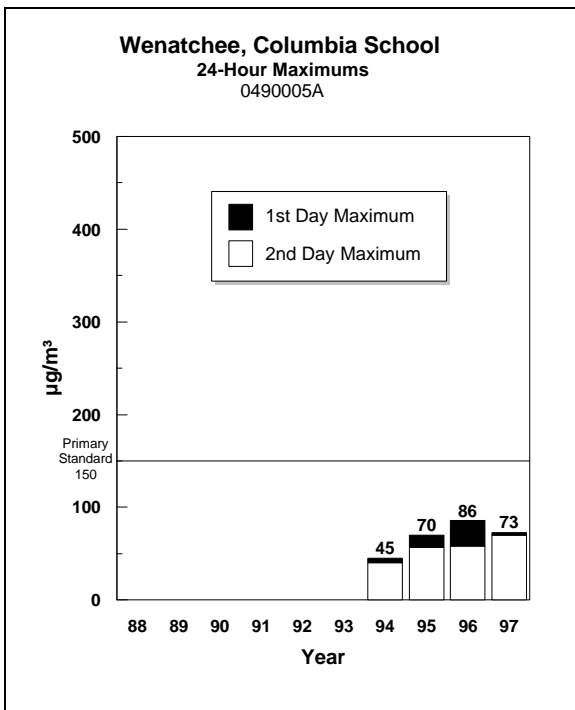
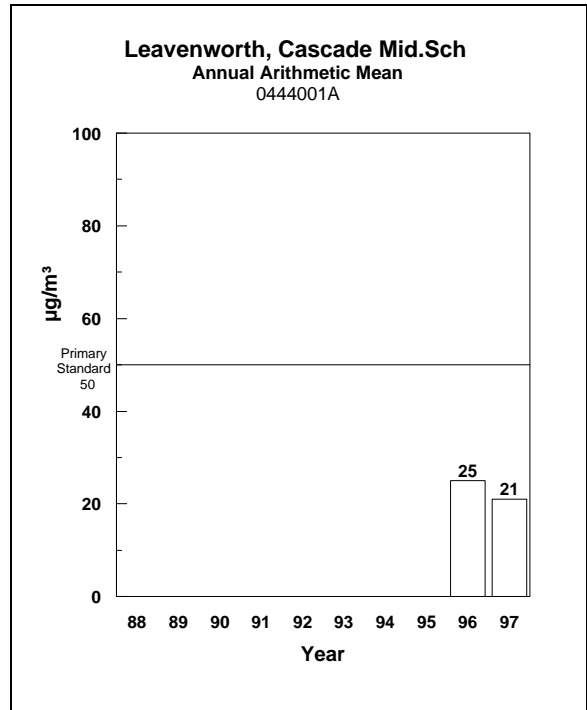
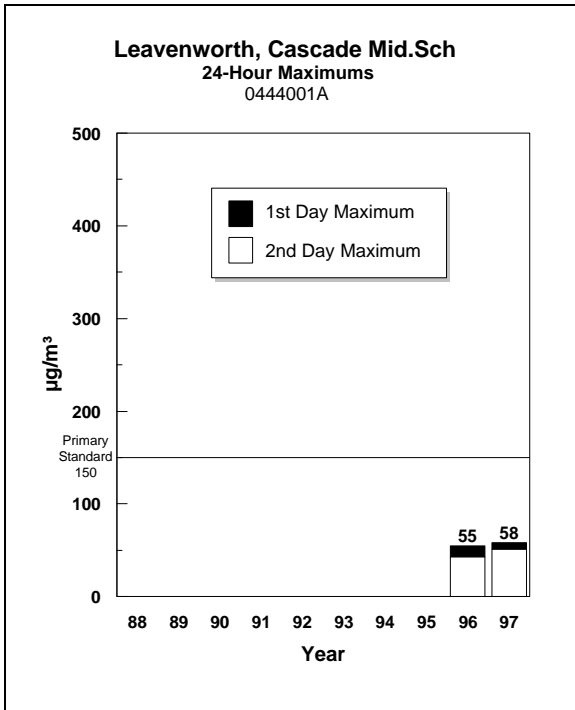
* Average based on less than 12 months of data.

PM₁₀ for 1997

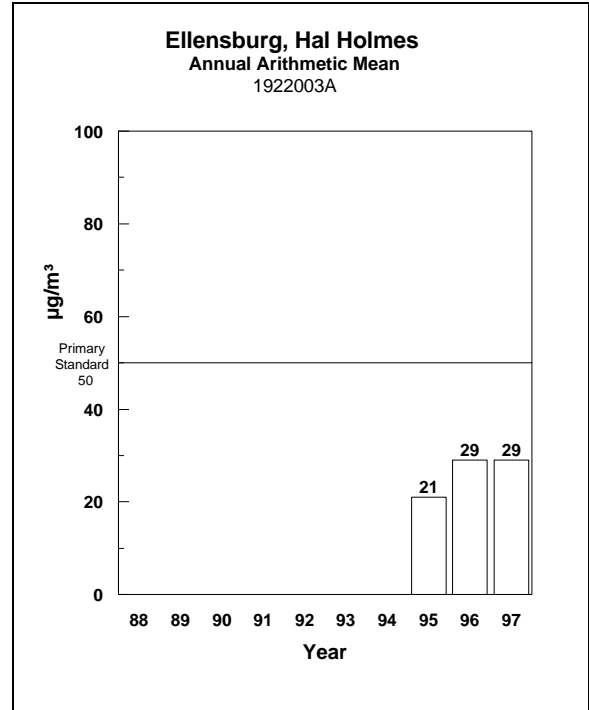
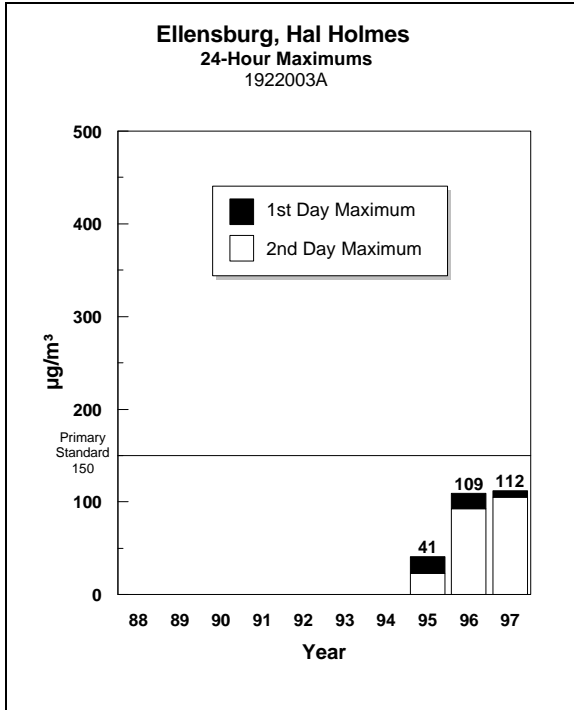
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0444001A	Leavenworth, Cascade Mid.Sch	Jan-Dec	1/6	86	100
0490005A	Wenatchee, Columbia School	Jan-Dec	1/6	73	100
1922003A	Ellensburg, Hal Holmes	Jan-Dec	1/6	94	100

Central Area

Particulate Matter



Particulate Matter



Central Area

Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High		4th High	
		Conc	Date	Conc	Date
2000001A	Wishram, Columbia River Gorge	0.062	5/12	0.058	8/12

Ozone (ppm) for 1997 (1-Hour)

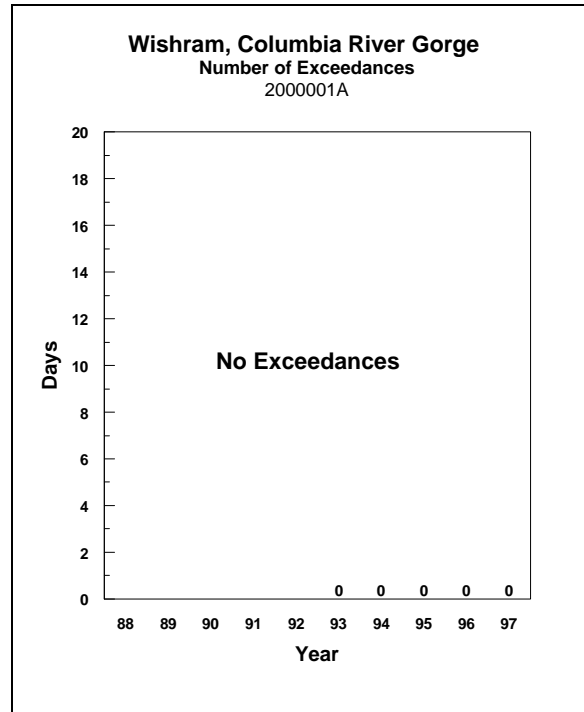
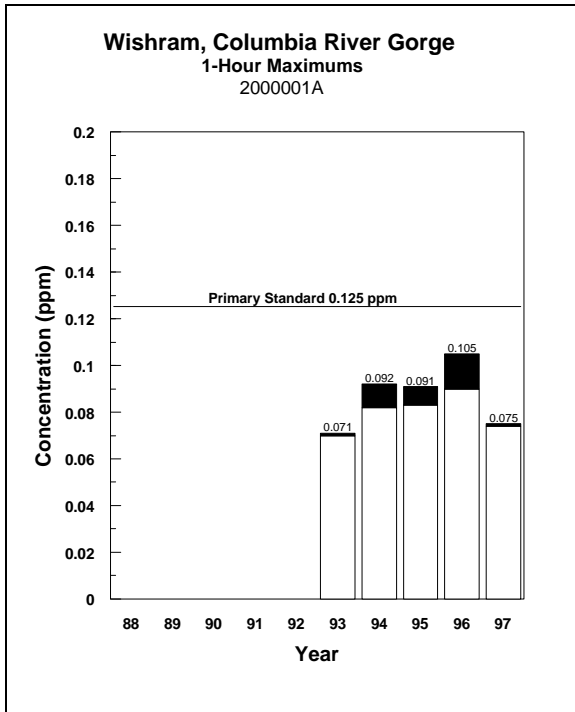
Station	Location	1st High		1-Hour Maximums 2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
2000001A	Wishram, Columbia River Gorge	.075	5/19	.074	8/14	.074	8/14	0	0

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

Ozone for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
2000001A	Wishram, Columbia River Gorge	Apr-Oct	5,090	214	99

Ozone



Coastal Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
0566009G	Pt. Angeles, Stevens Mid.Sch.									27*	26*
0566412G	Pt. Angeles, City Light		32*	28	28	28	26	22	20	22	23
3444003G	Lacey, Mt. View Elementary	34	30	24	25	26	27	19	19	16	18

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1997

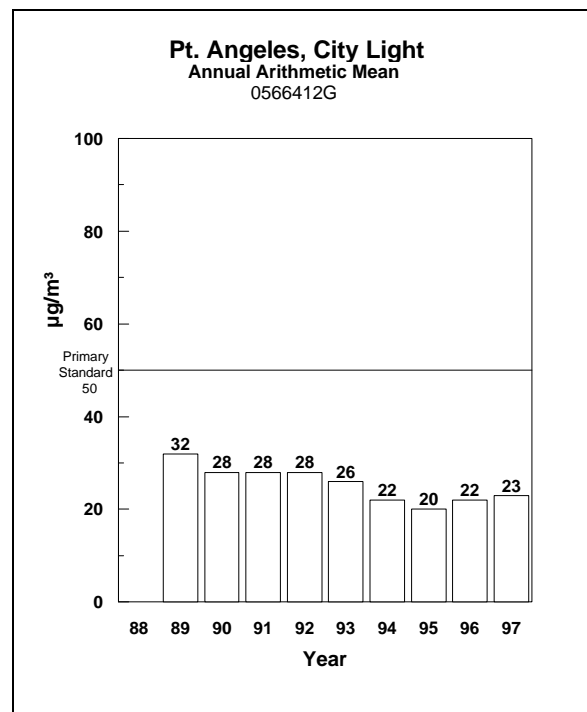
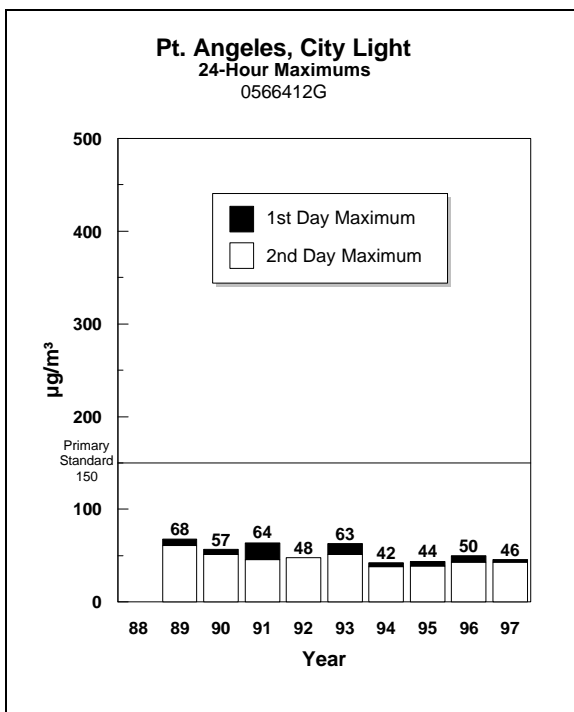
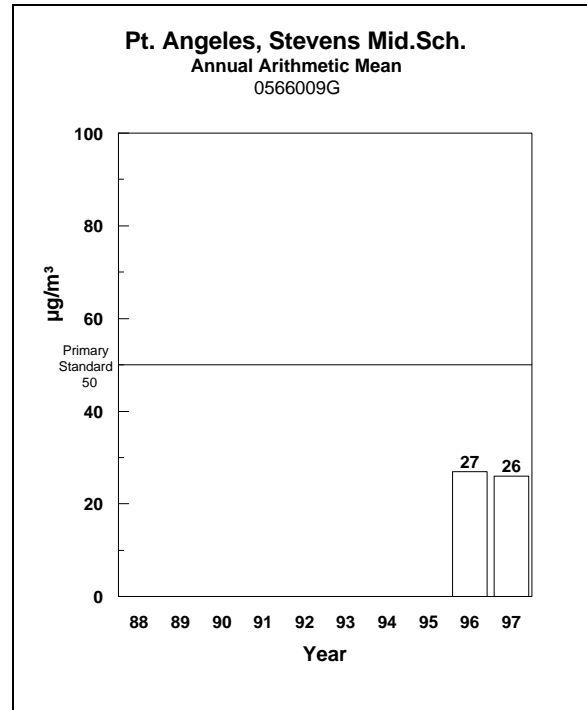
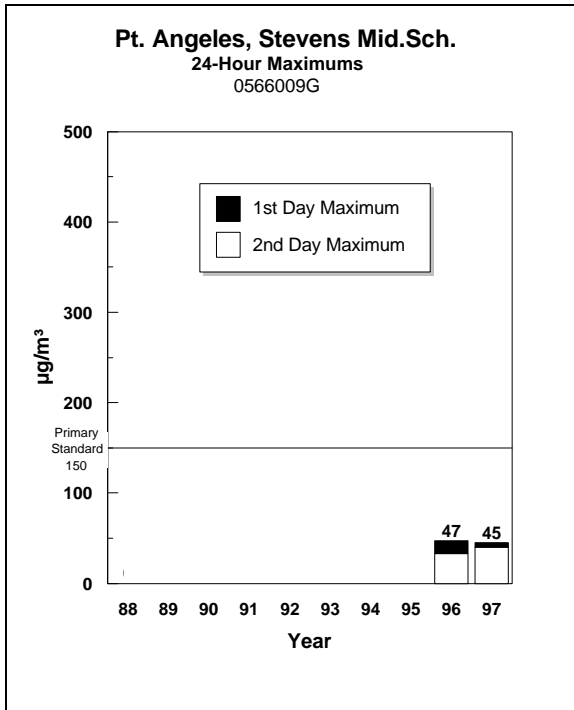
Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0566009G	Pt. Angeles, Stevens Mid.Sch.	45	2/21	40	1/16	26*
0566412G	Pt. Angeles, City Light	46	7/27	43	1/14	23
3444003G	Lacey, Mt. View Elementary	66	1/16	58	1/14	18

* Average based on less than 12 months of data.

PM₁₀ for 1997

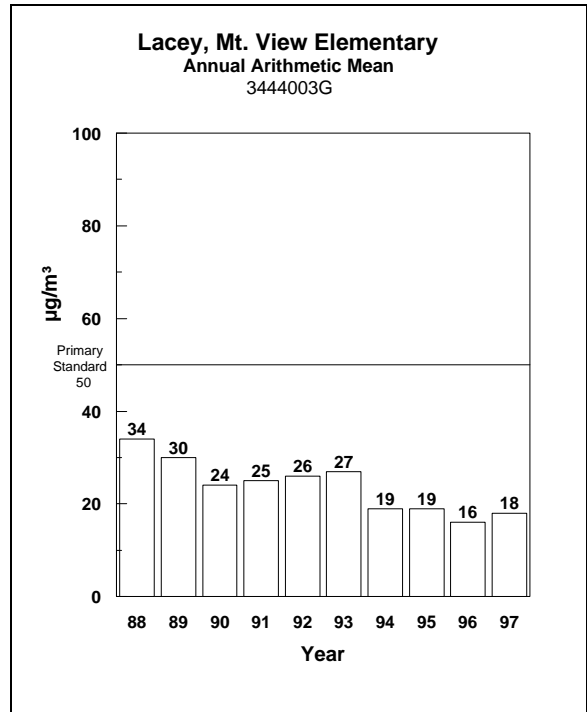
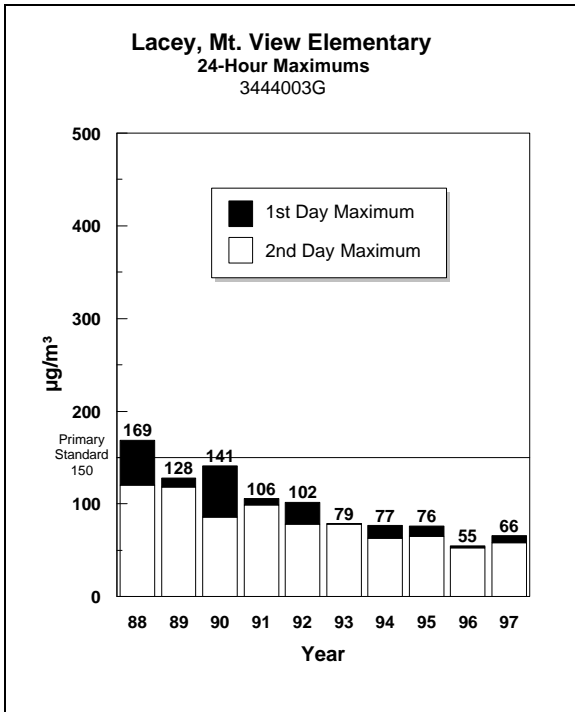
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0566009G	Pt. Angeles, Stevens Mid.Sch.	Jan-Apr	1/6	27	100
0566412G	Pt. Angeles, City Light	Jan-Dec	1/6	69	100
3444003G	Lacey, Mt. View Elementary	Jan-Dec	1/6	126	100

Particulate Matter



Coastal Area

Particulate Matter



Carbon Monoxide

Carbon Monoxide (ppm) for 1997

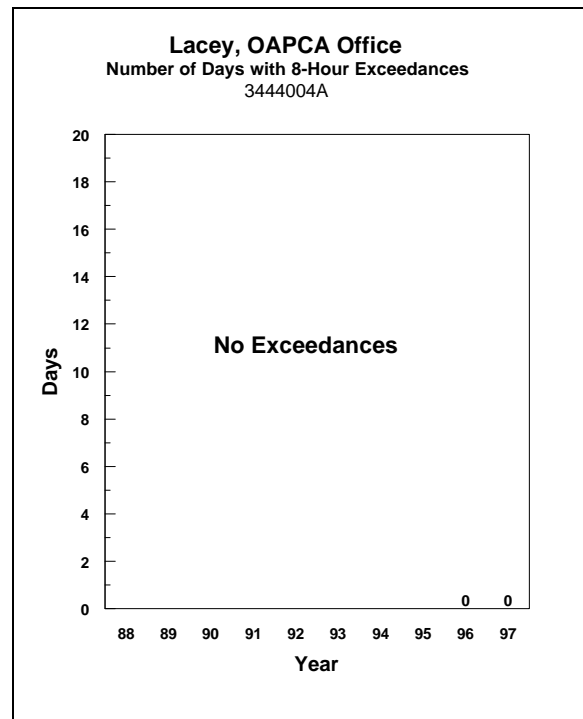
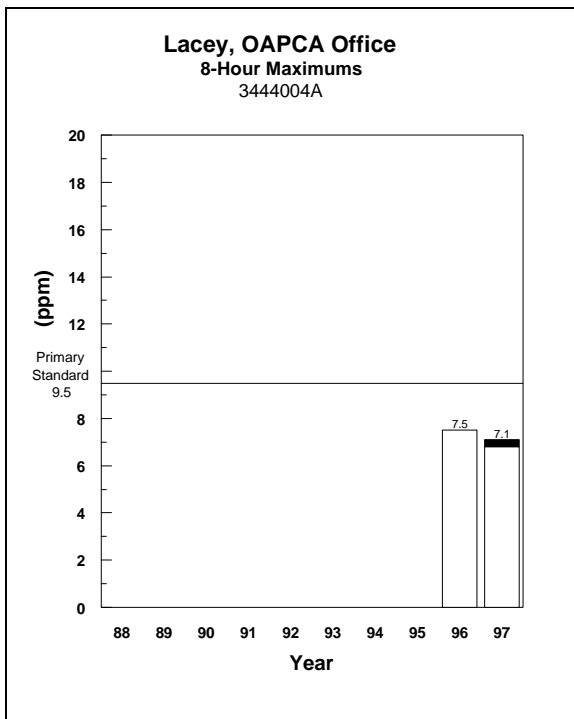
Station	Location	1-Hour Maximums		8-Hour Maximums ¹				8-Hr. Exc.				
		1st High	2nd High	1st High	2nd High	2nd Day ²						
		Conc	Date	Conc	Date	Conc	Date	Conc	Date	Conc	Date	
3444004A	Lacey, OAPCA Office	10.5	1/13	10.4	11/26	7.1	11/14	6.8	1/15	6.8	1/15	0

1. 8-hour readings are non-overlapping.

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

Carbon Monoxide (ppm) for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3444004A	Lacey, OAPCA Office	Jan-Jun, Oct-Dec	6,478	273	99



Coastal Area

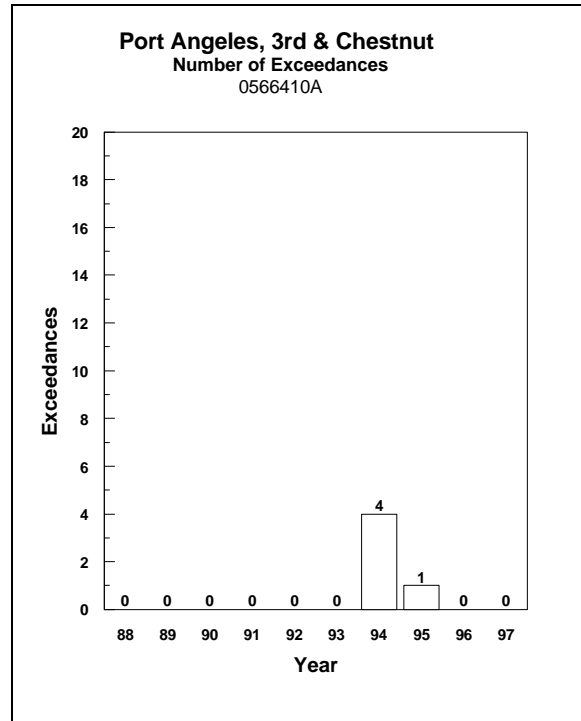
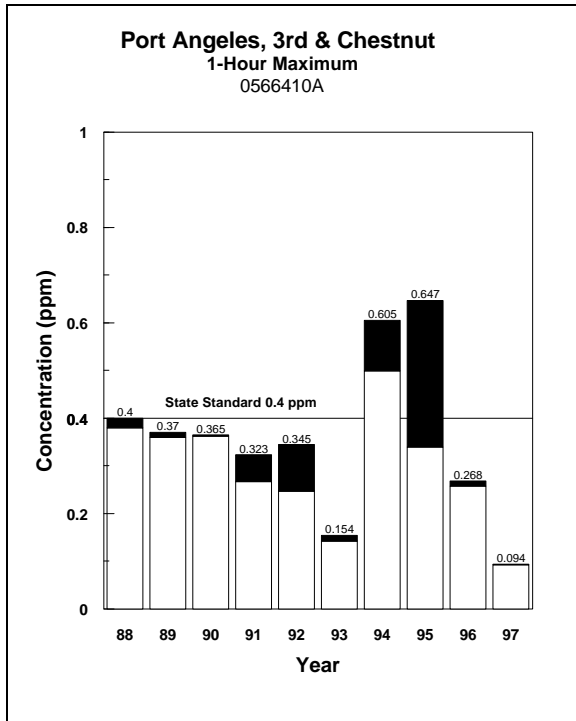
Sulfur Dioxide

Sulfur Dioxide for 1997

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	.094	2/26	.093	2/26	0	.077	2/26	0	.021	8/11	0	0	.004

Sulfur Dioxide for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0566410A	Pt Angeles, 3rd & Chstnt	Jan-Dec	8,602	358	98



Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High		4th High	
		Conc	Date	Conc	Date
3496001G	Yelm, Fire Station	0.060	5/11	0.053	5/10

Ozone (ppm) for 1997 (1-Hour)

Station	Location	1-Hour Maximums						# Hrs >.124	Exceedance Days
		1st High		2nd High		2nd Day High*			
		Conc	Date	Conc	Date	Conc	Date		
3496001G	Yelm, Fire Station	.076	5/11	.074	5/13	.074	5/13	0	0

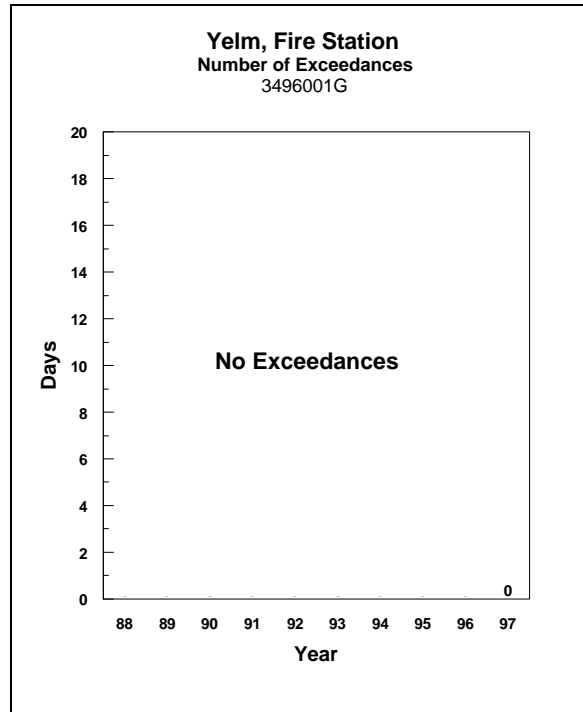
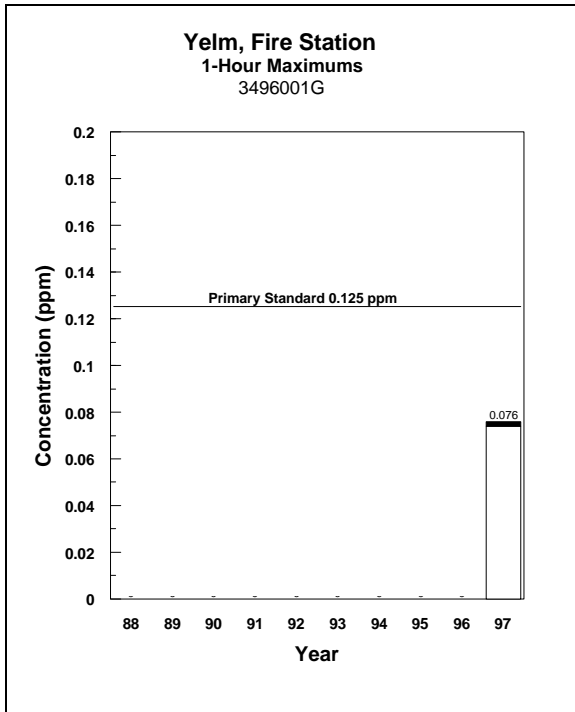
*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3496001G	Yelm, Fire Station	May-Oct	4,168	177	98

Coastal Area

Ozone



Total Suspended Particulates

Total Suspended Particulates ($\mu\text{g}/\text{m}^3$) for 1997

Station	Location	1st High		2nd High		Annual Geo. Mean
		Conc	Date	Conc	Date	
3300006A	Northport School, Stevens County	60	12/24	60	12/24	36.1

Particulate Matter

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

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
0214005A	Clarkston, STP						43*	37	30	32	37*
0340003J	Kennewick VSC							15*	18	21	20
3316004A	Colville, County Courthouse									69*	56
3600002J	Wallula, Nedrow Farm	56	37	41	66	35	38	37	28	34	38
3692007A	Walla Walla, Fire Station		36*	32	44	28	28	24	22	27*	31

*Average based on less than 12 months of data.

PM₁₀ ($\mu\text{g}/\text{m}^3$) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0214005A	Clarkston, STP	142	10/1	122	8/20	37*
0340003J	Kennewick VSC	165	3/30	136	9/25	20
3316004A	Colville, County Courthouse	305	1/16	153	2/21	56
3600002J	Wallula, Nedrow Farm	210	7/3	160	6/21	38
3692007A	Walla Walla, Fire Station	155	9/25	105	8/26	31

* Average based on less than 12 months of data.

PM₁₀ for 1997

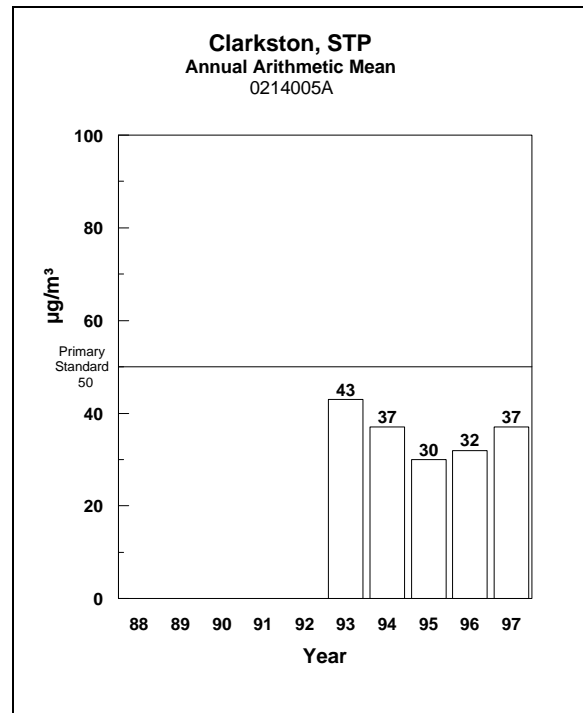
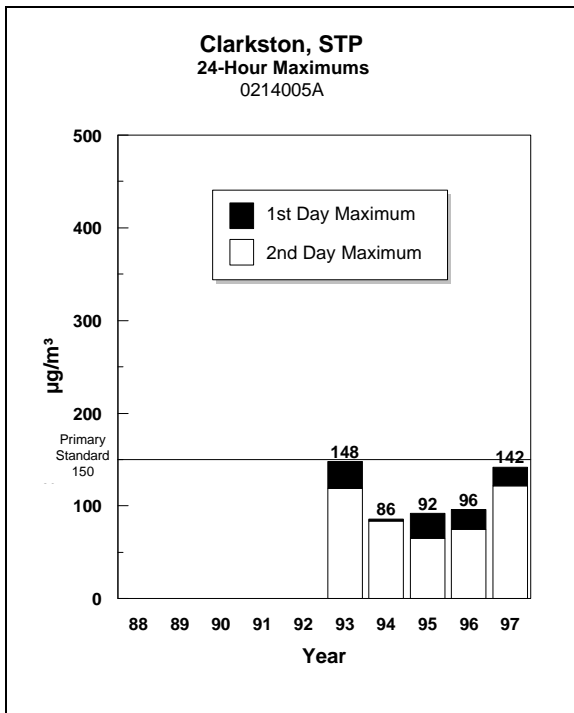
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0214005A	Clarkston, STP	Jan-Dec	1/6	54	89
0340003J	Kennewick VSC	Jan-Dec	1/1	313	86
3316004A	Colville, County Courthouse	Jan-Dec	1/6	52	85
3600002J	Wallula, Nedrow Farm	Jan-Dec	1/6	60	98
3692007A	Walla Walla, Fire Station	Jan-Dec	1/6	60	98

Eastern Area

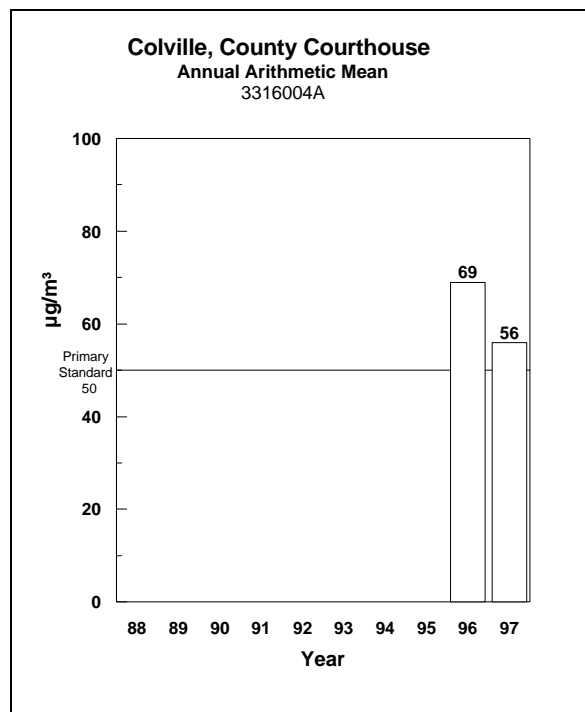
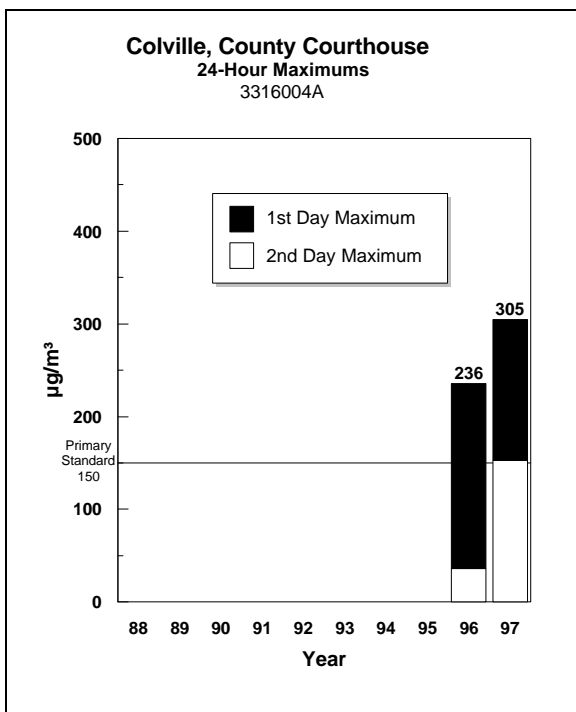
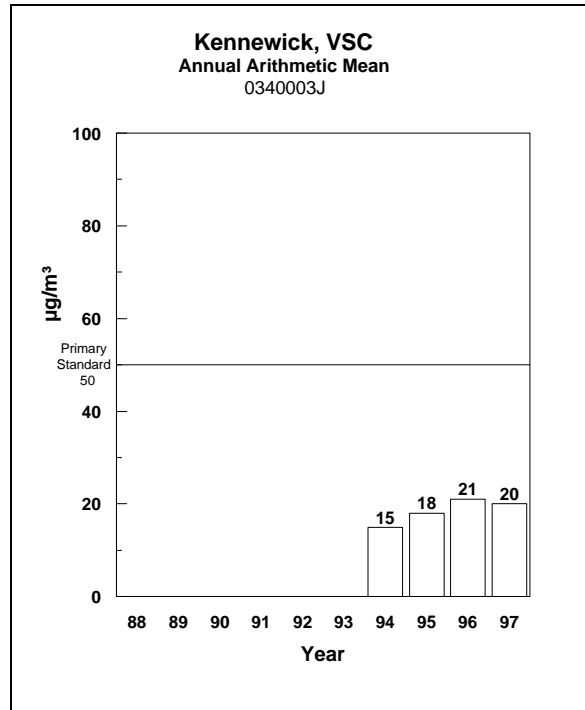
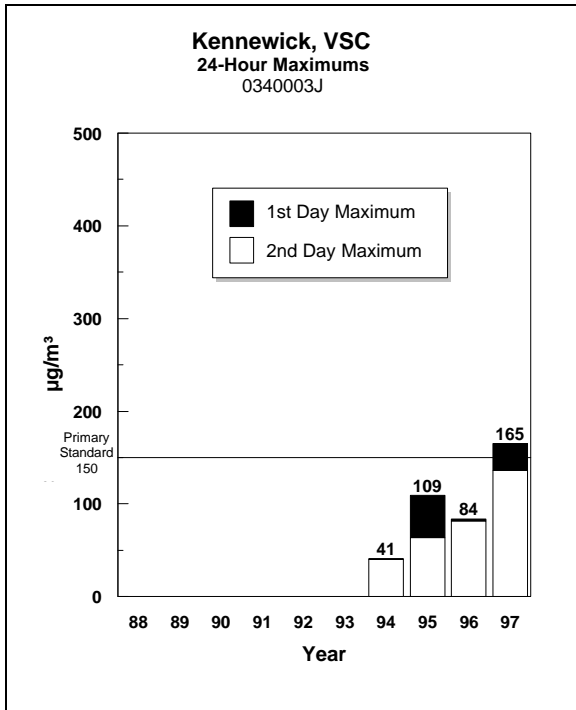
Frequency of PM₁₀ (µg/m³) Levels Exceeding the Standard During 1997 (# Days Exceeding Level)

Station	Location	≥150	≥200	≥260	≥375	≥500
		<200	<260	<375	<500	<750
0340003J	Kennewick VSC	1	0	0	0	0
3316004A	Colville, County Courthouse	1	0	1	0	0
3600002J	Walla Walla, Nedrow Farm	1	1	0	0	0
3692007A	Walla Walla, Fire Station	1	0	0	0	0

Particulate Matter

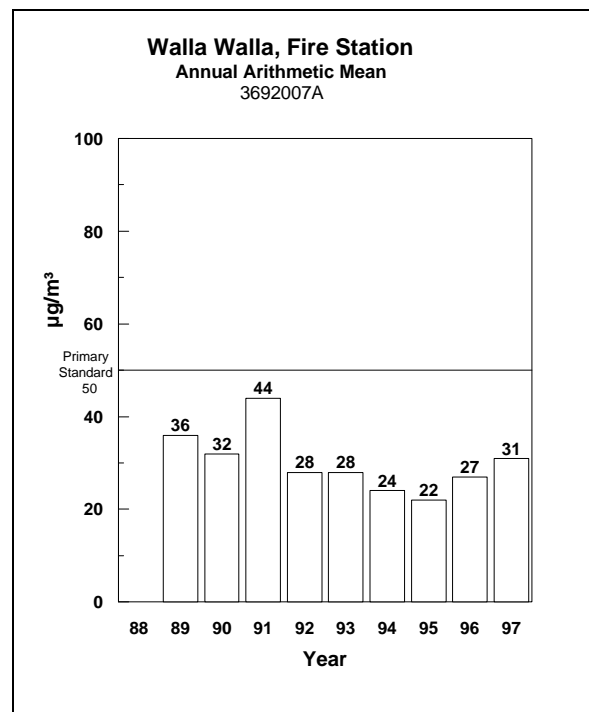
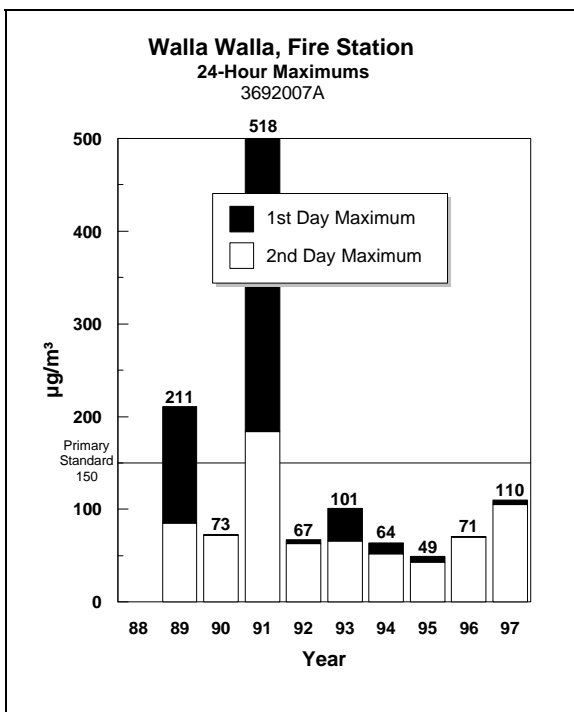
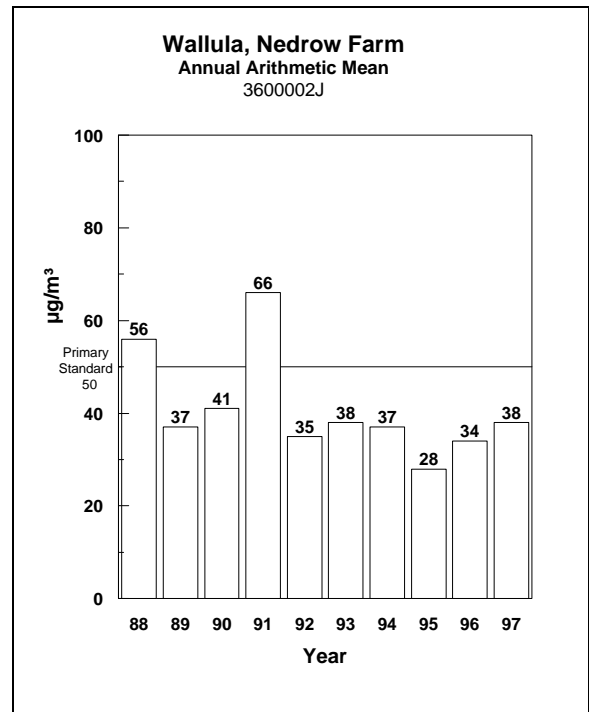
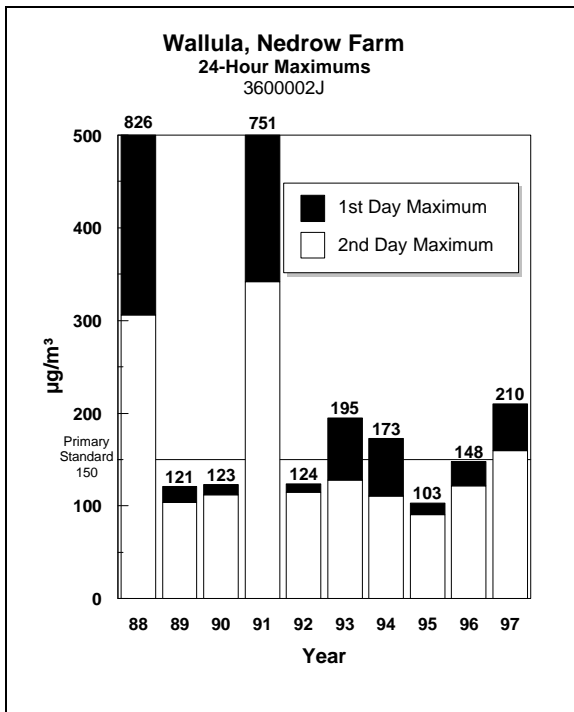


Particulate Matter



Eastern Area

Particulate Matter



Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
3706005C	Bellingham, School Dist.					18*	21	18*	16	15	16

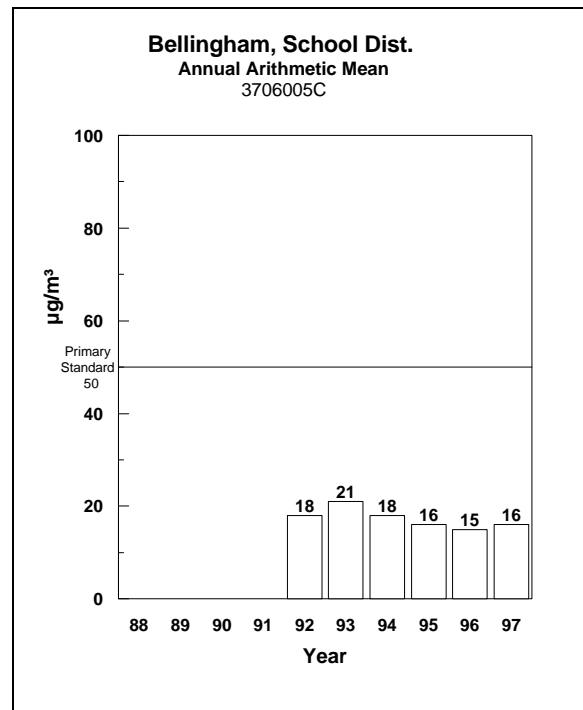
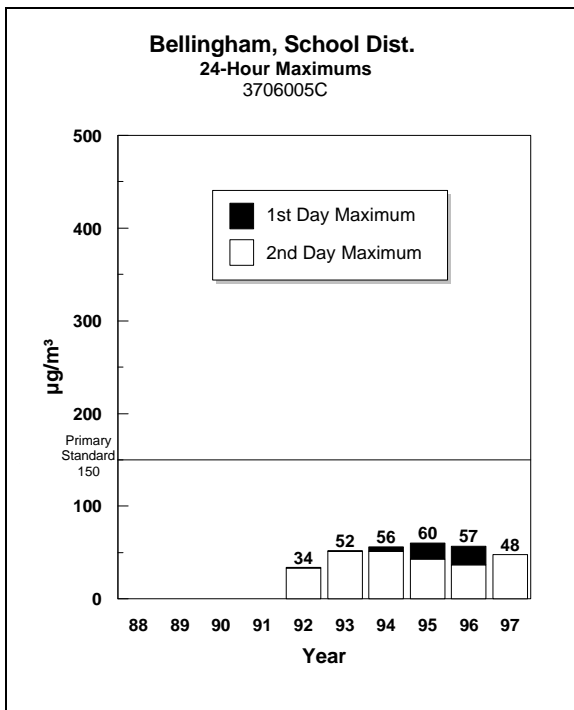
*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3706005C	Bellingham, School Dist.	48	2/6	48	12/12	16

PM₁₀ for 1997

Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3706005C	Bellingham, School Dist.	Jan-Dec	1/6	58	95



Northwest Area

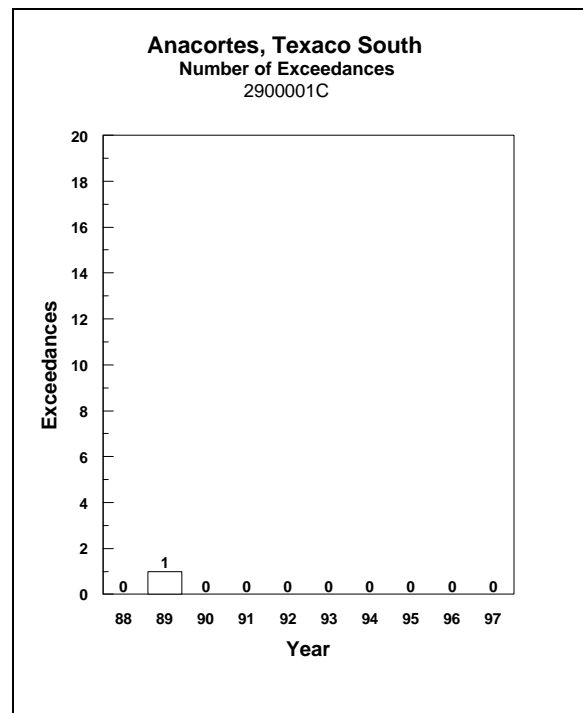
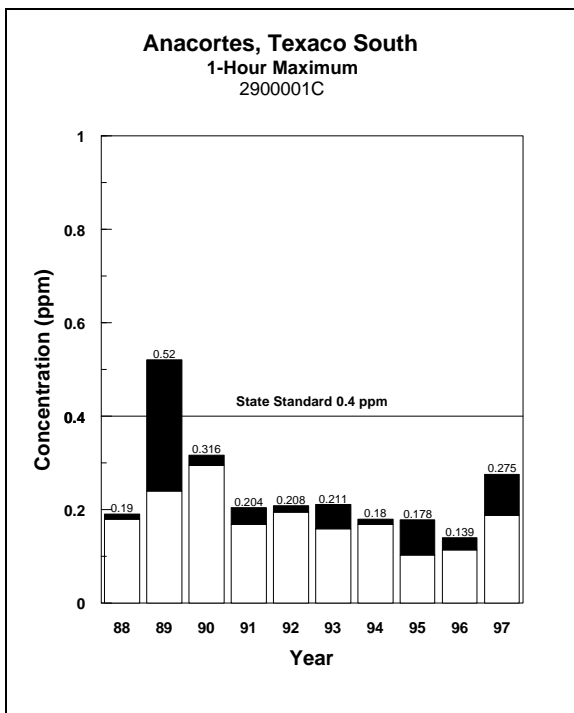
Sulfur Dioxide

Sulfur Dioxide for 1997

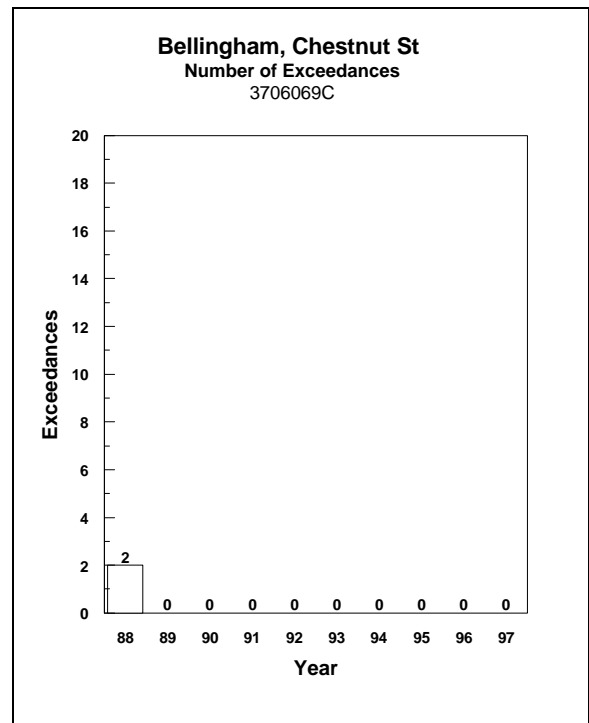
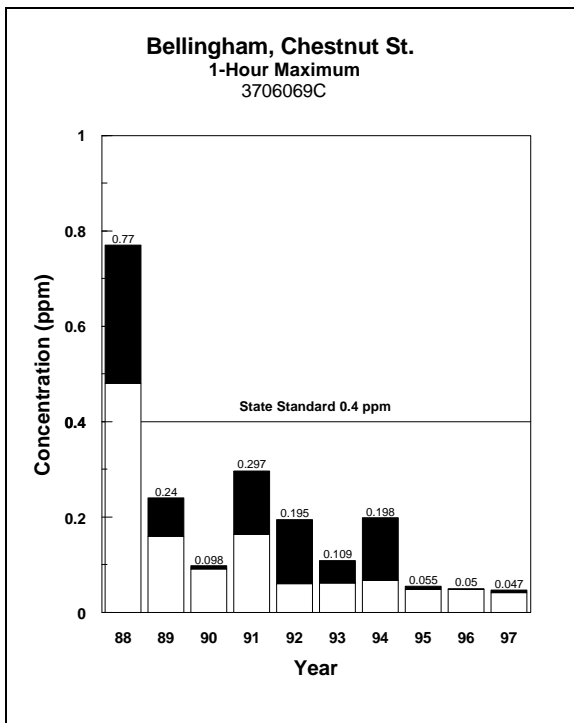
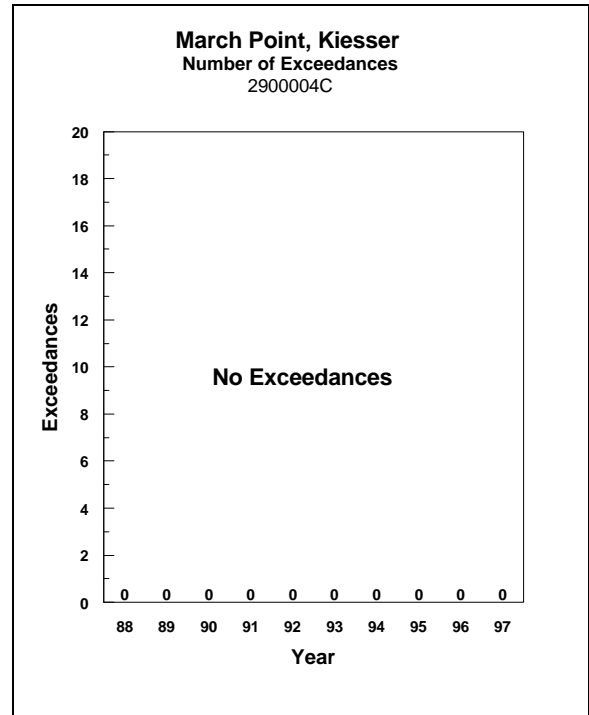
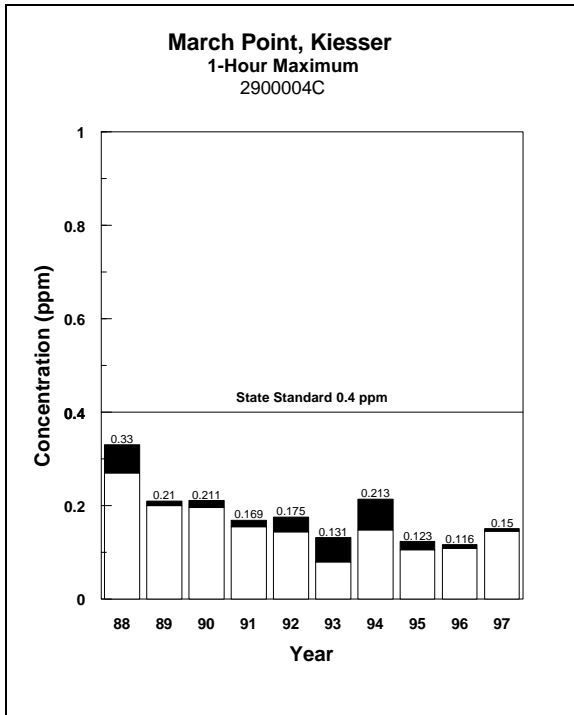
Station	Location	1-Hour Maximum				3-Hr Max		24-Hr Max		# 24-Hour		Annual Mean		
		1st	Date	2nd	Date	#1-Hr >.40	Conc	Date	#3-Hr >.50	Conc	Date		>.10	>.14
2900001C	Anacortes, Texaco South	.275	1/15	.187	1/25	0	.182	1/15	0	.093	1/25	0	0	.004
2900004C	March Pt., Kiesser	.150	7/20	.145	6/13	0	.102	6/15	0	.043	6/15	0	0	.007
3706069C	Bellingham, Chestnut St.	.047	8/11	.041	7/20	0	.032	7/20	0	.013	12/8	0	0	.005

Sulfur Dioxide for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
2900001C	Anacortes, Texaco South	Jan-Dec	8,451	352	96
2900004C	March Pt., Kiesser	Jan-Dec	8,426	351	96
3706069C	Bellingham, Chestnut St.	Jan-Dec	6,004	250	69



Sulfur Dioxide



Northwest Area

Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High		4th High	
		Conc	Date	Conc	Date
3700007A	Whatcom Co., Custer FCC Bldg.	0.058	5/3	0.0475	6/9

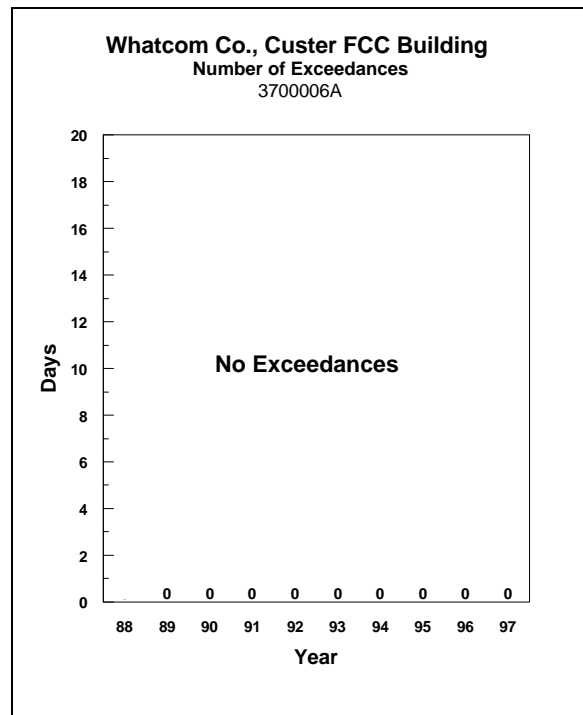
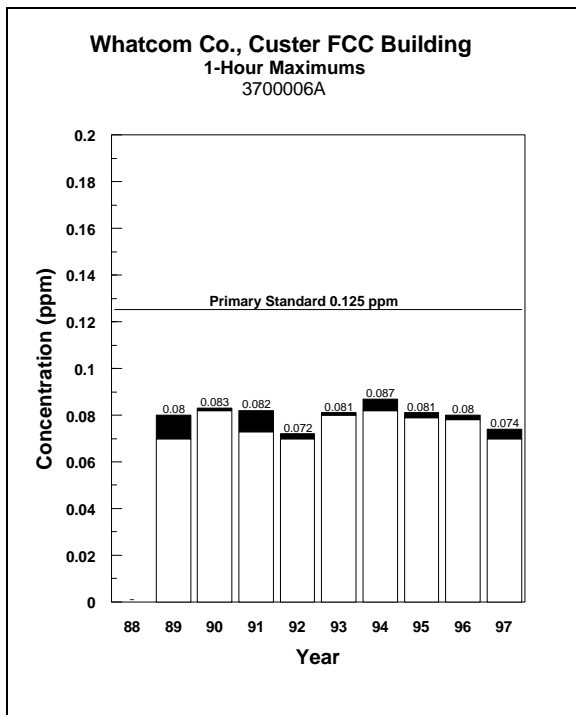
Ozone (ppm) for 1997 (1-Hour)

Station	Location	1-Hour Maximums							
		1st High		2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
3700007A	Whatcom Co., Custer FCC Bldg.	.074	5/14	.070	5/13	.070	5/13	0	0

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

Ozone for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3700007A	Whatcom Co., Custer FCC Bldg.	Apr-Oct	5,046	214	98



Puget Sound Area

Total Suspended Particulates

Total Suspended Particulates ($\mu\text{g}/\text{m}^3$) for 1997

Station	Location	1st High		2nd High		Annual Geo. Mean
		Conc	Date	Conc	Date	
1776K71B	Seattle, Harbor Island	190	1/16	172	1/16	47.5

Frequency of TSP ($\mu\text{g}/\text{m}^3$) Levels Exceeding the State Standard During 1997 (# Days Exceeding Level)

Station	Location	≥ 150	≥ 200	≥ 260	≥ 375	≥ 500
		<200	<260	<375	<500	<750
1776K71B	Seattle, Harbor Island	2	0	0	0	0

Particulate Matter

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

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
1708004A	Bellevue, Scan Design	26	26	21	23	23	20	18	16	16	17
1740K73B	Kent, James and Central	37*	34	30	32	33	28	25	23	23	23
1744K74B	Lake Forest Park, City Hall		31*	27	28	26	28	20	20	21	19
1776K55B	Seattle, Duwamish	39	39	36	37	38	35	28	28	27	31
1776K60B	Seattle, Harbor Island	37	40	35	35	34	33	27	26	24	29
1776K61B	Seattle, South Park	31	30	28	27	29	26	22	21	19	21
1800B05B	Kitsap Co., Meadowdale				32*	23	23	20	20	17	17
1868B06B	Poulsbo, Lions Park						23*	15	15	14	14
2700P18B	Puyallup, South Hill				38*	29	24	20	19	23	20
2782P01B	Tacoma, Fire Station #12	42	39	34	36	36	33	27	27	25	27
2782P16B	Tacoma, 54th Ave. NE	35	33	29	30	35	26	23	18	18	20
2782P17B	Tacoma, Alexander Ave.	38	36	31	29	31	28	23	26	23	27
3124S04B	Everett, Hoyt Ave.		27*	24	25	24	23	19	17	16	17
3146S08B	Lynnwood, 59th Place							22*	16	15	16
3148S07B	Marysville, Jr. High School				34*	26	27	21	22	19	19

*Average based on less than 12 months of data.

Puget Sound Area

Particulate Matter

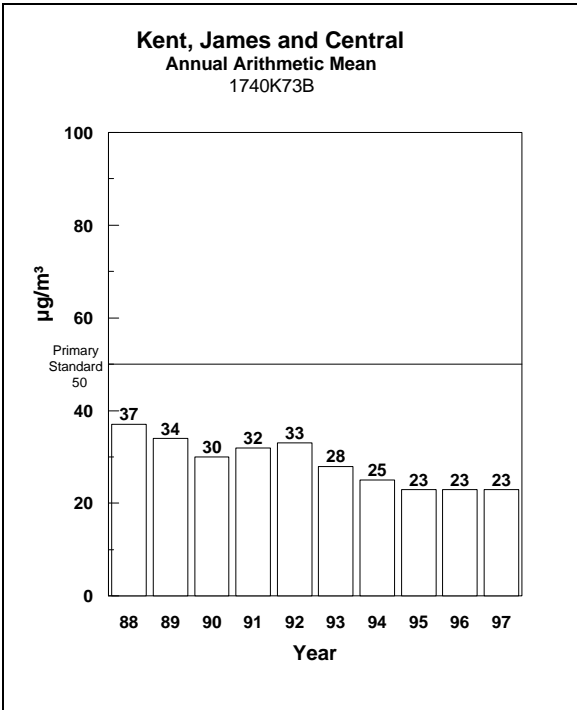
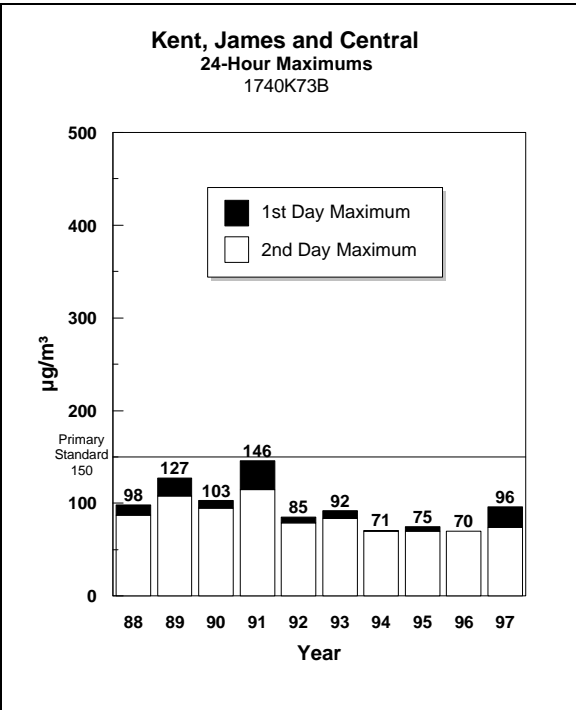
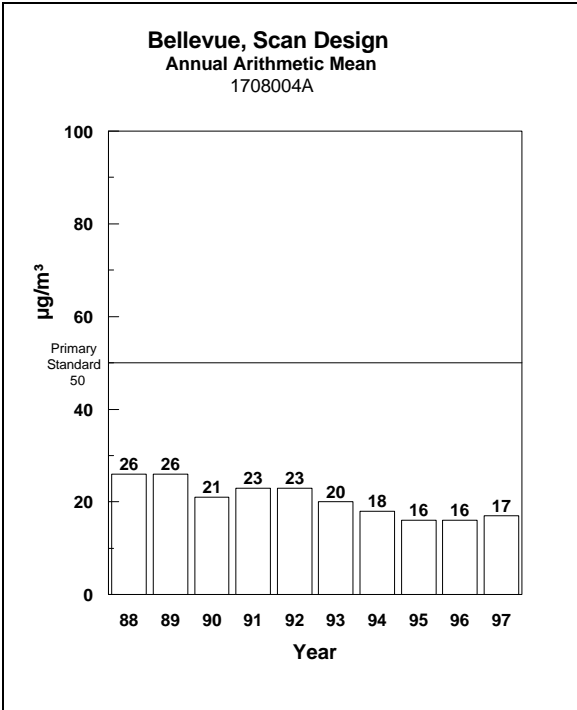
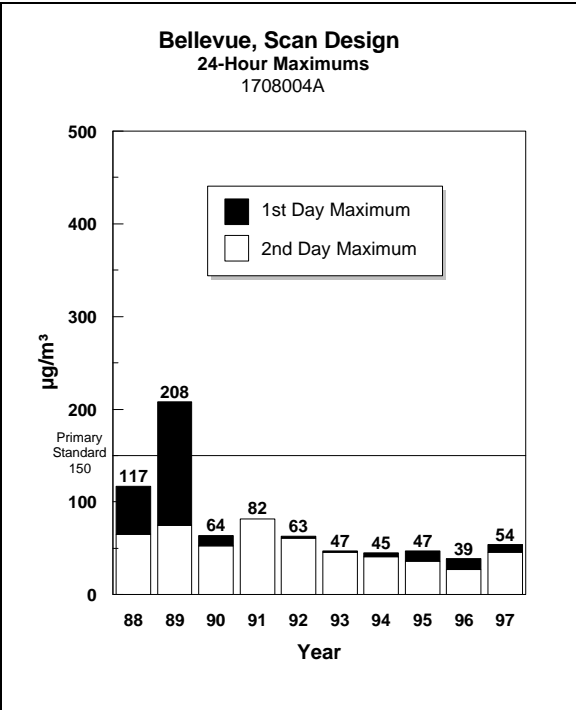
PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
1708004A	Bellevue, Scan Design	54	1/16	46	12/6	17
1740K73B	Kent, James and Central	96	1/15	74	2/10	23
1744K74B	Lake Forest Park, City Hall	89	1/14	78	1/16	19
1776K55B	Seattle, Duwamish	137	1/16	115	1/15	31
1776K60B	Seattle, Harbor Island	122	1/16	102	12/12	29
1776K61B	Seattle, South Park	69	12/12	68	1/16	21
1800B05B	Kitsap Co., Meadowdale	49	12/6	48	1/16	17
1868B06B	Poulsbo, Lions Park	36	12/6	35	1/16	14
2700P18B	Puyallup, South Hill	73	1/16	61	12/12	20
2782P01B	Tacoma, Fire Station #12	117	1/16	97	1/15	27
2782P16B	Tacoma, 54th Ave. NE	67	12/12	46	11/12	20
2782P17B	Tacoma, Alexander Ave.	102	1/16	82	12/12	27
3124S04B	Everett, Hoyt Ave.	37	12/6	34	2/9	17
3146S08B	Lynnwood, 59th Place	54	12/6	47	11/12	16
3148S07B	Marysville, Jr. High School	84	1/14	63	11/14	19

PM₁₀ for 1997

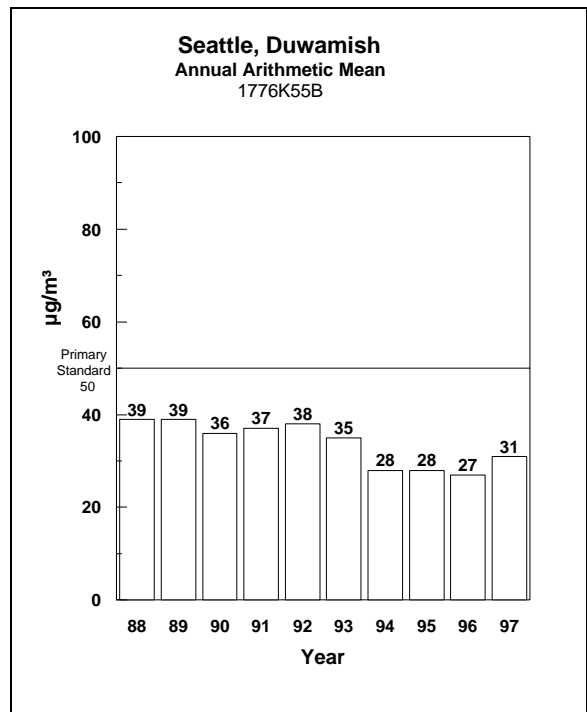
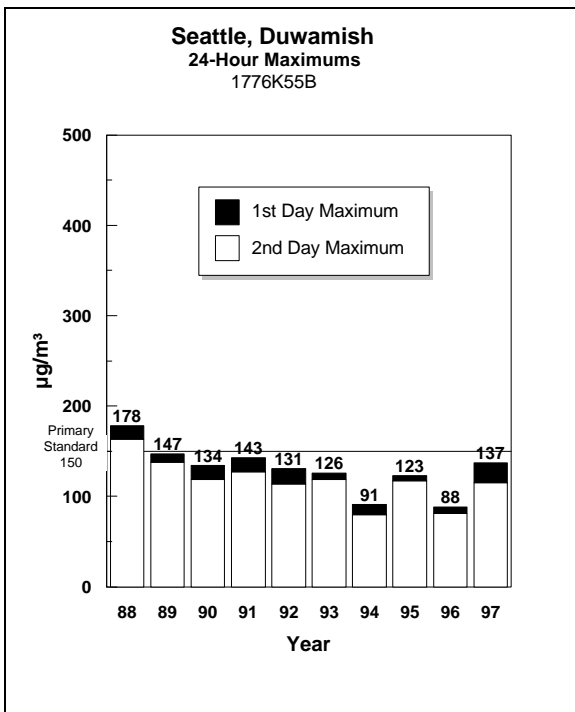
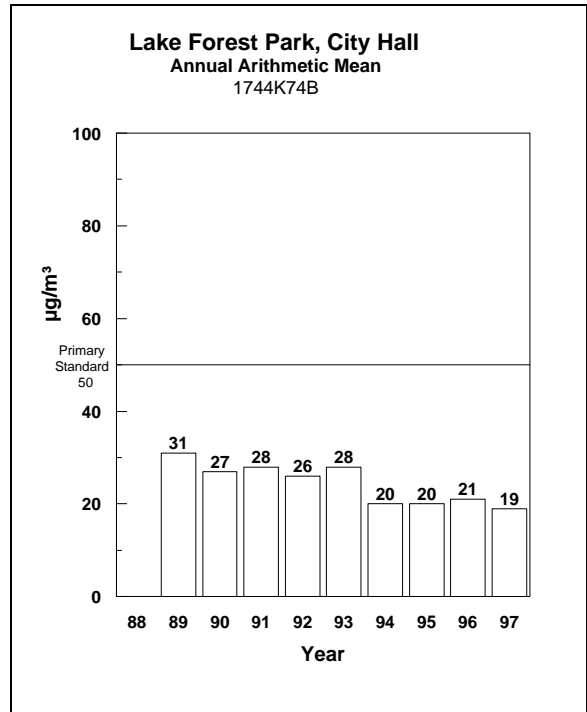
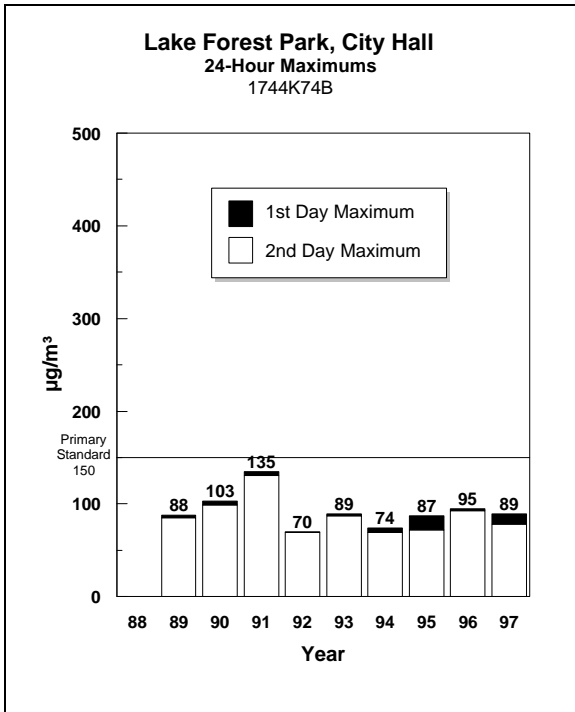
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
1708004A	Bellevue, Scan Design	Jan-Dec	1/6	60	98
1740K73B	Kent, James and Central	Jan-Dec	1/3	246	100
1744K74B	Lake Forest Park, City Hall	Jan-Dec	1/2	161	88
1776K55B	Seattle, Duwamish	Jan-Dec	1/3	246	100
1776K60B	Seattle, Harbor Island	Jan-Dec	1/6	60	98
1776K61B	Seattle, South Park	Jan-Dec	1/6	60	98
1800B05B	Kitsap Co., Meadowdale	Jan-Dec	1/6	60	98
1868B06B	Poulsbo, Lions Park	Jan-Dec	1/6	57	98
2700P18B	Puyallup, South Hill	Jan-Dec	1/6	61	100
2782P01B	Tacoma, Fire Station #12	Jan-Dec	1/3	251	100
2782P16B	Tacoma, 54th Ave. NE	Jan-Dec	1/6	60	98
2782P17B	Tacoma, Alexander Ave.	Jan-Dec	1/3	117	97
3124S04B	Everett, Hoyt Ave.	Jan-Dec	1/6	61	100
3146S08B	Lynnwood, 59th Place	Jan-Dec	1/6	61	100
3148S07B	Marysville, Jr. High School	Jan-Dec	1/3	153	100

Particulate Matter

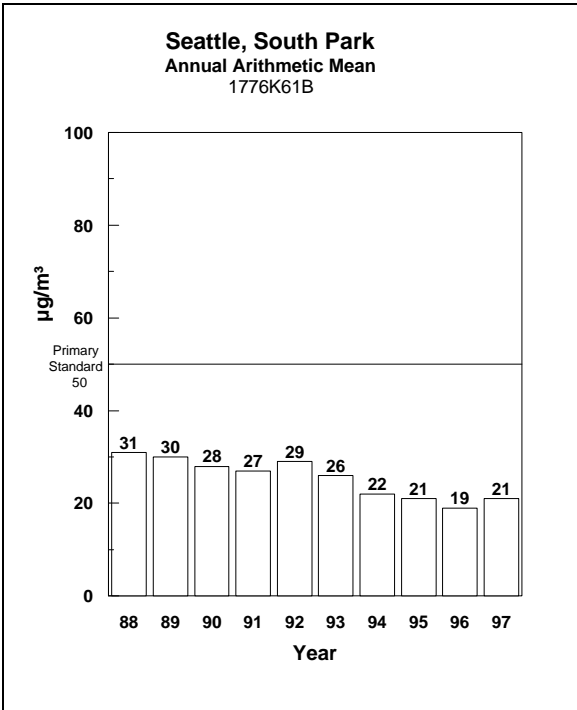
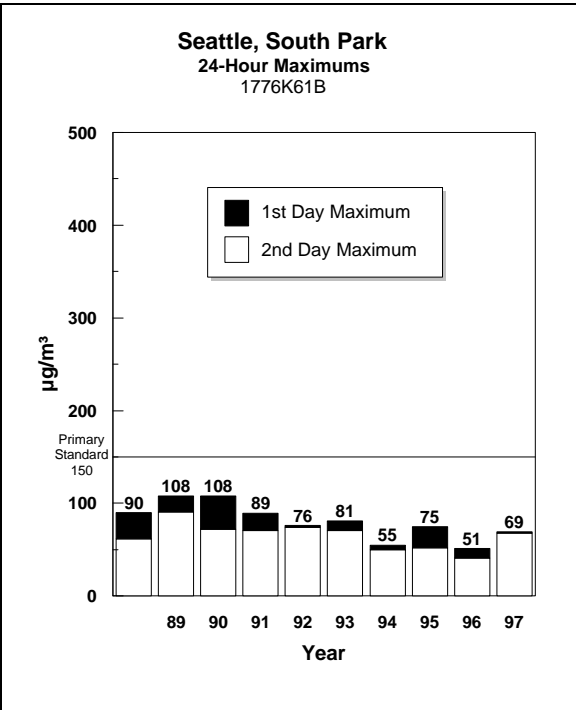
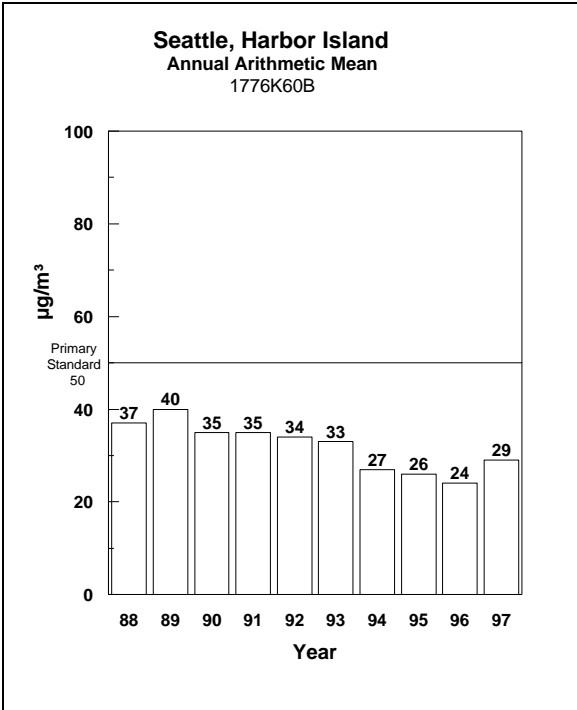
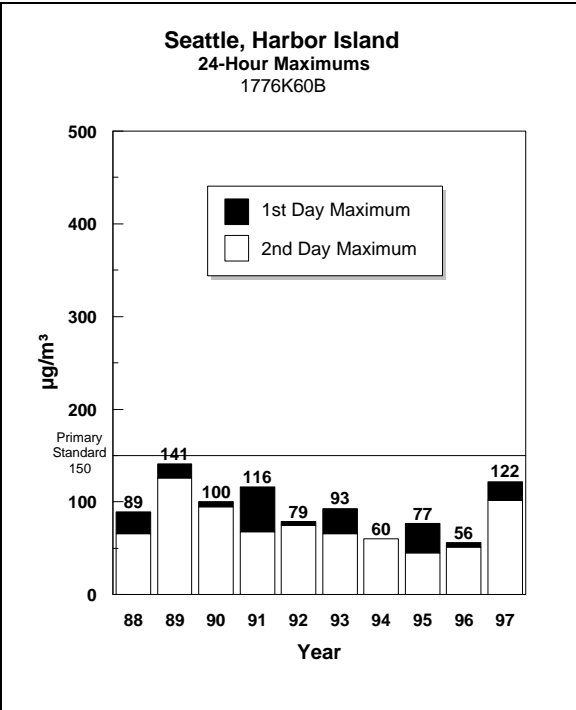


Puget Sound Area

Particulate Matter

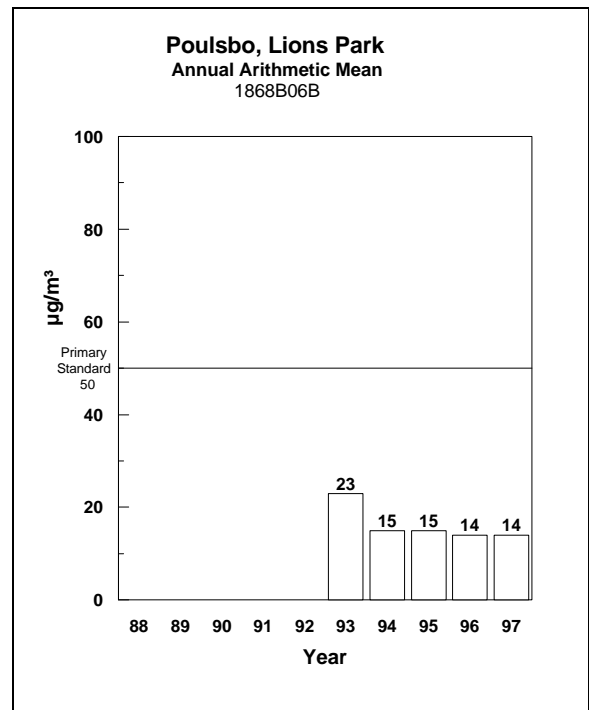
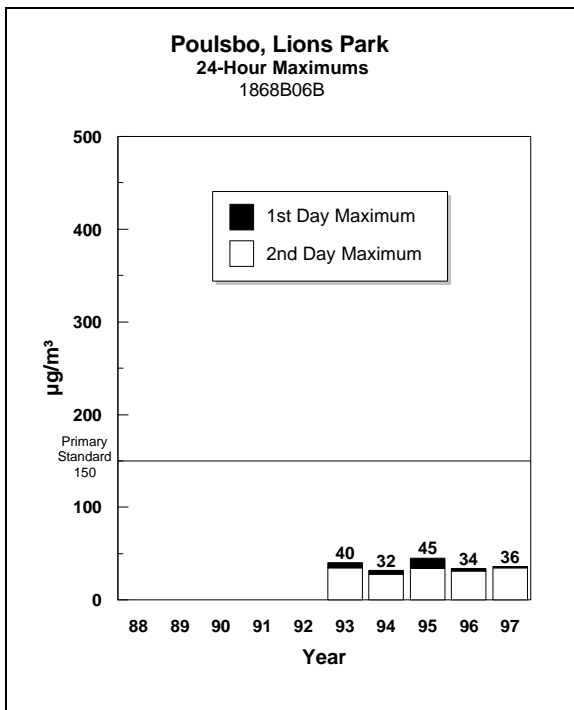
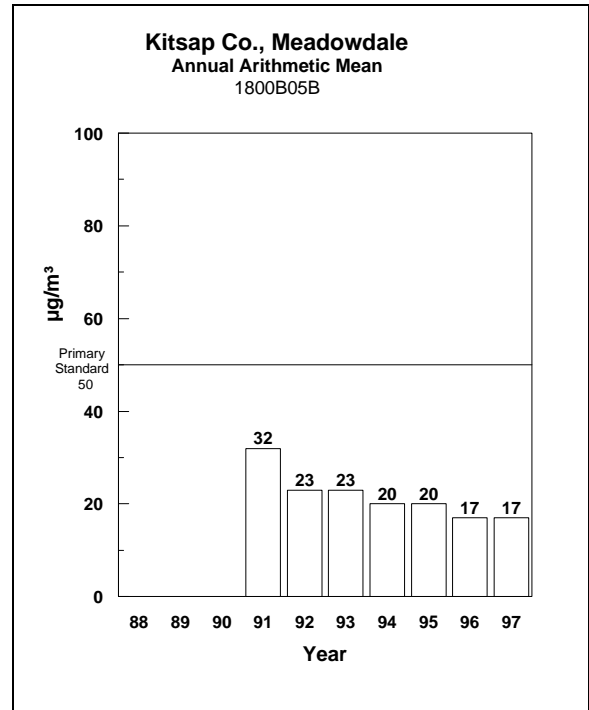
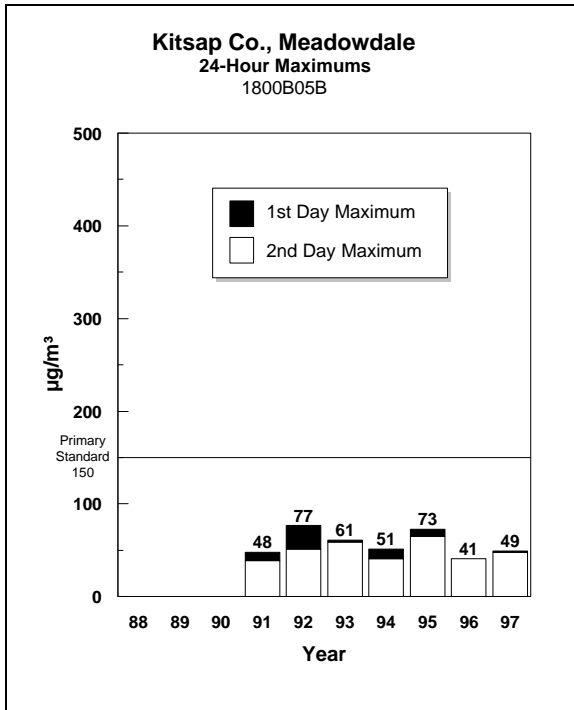


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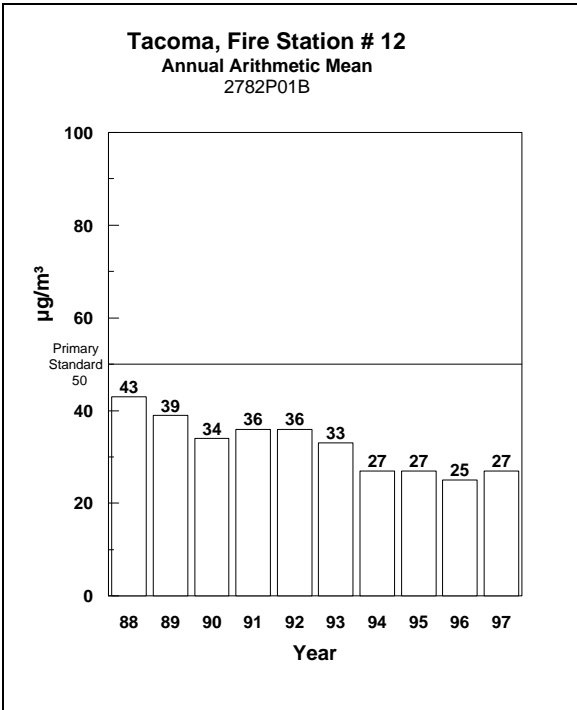
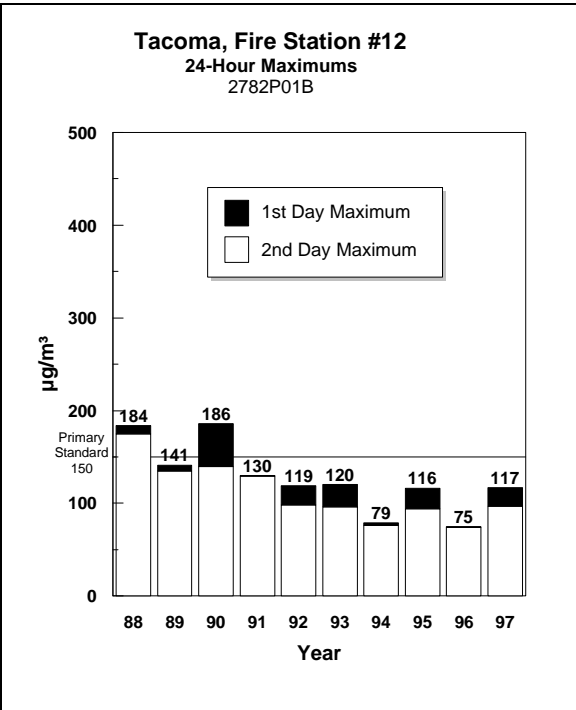
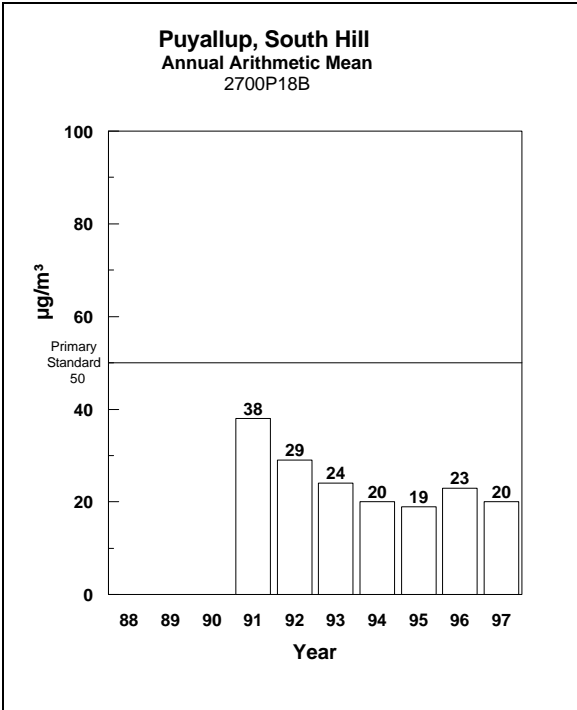
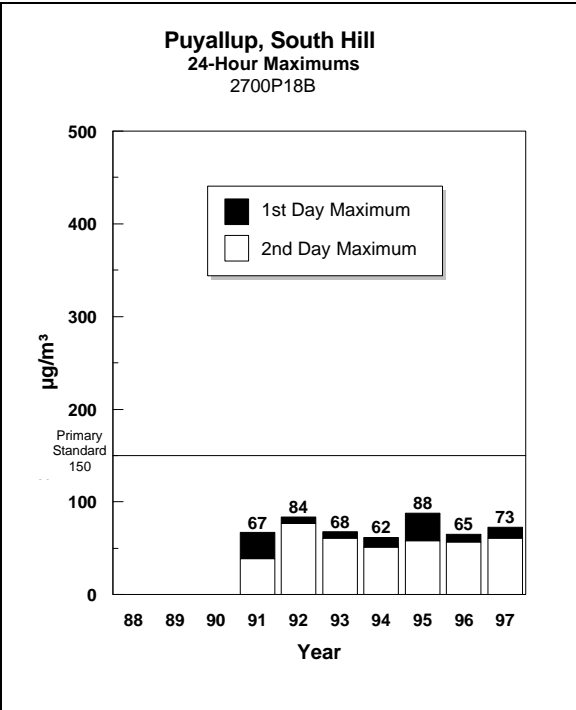


Puget Sound Area

Particulate Matter

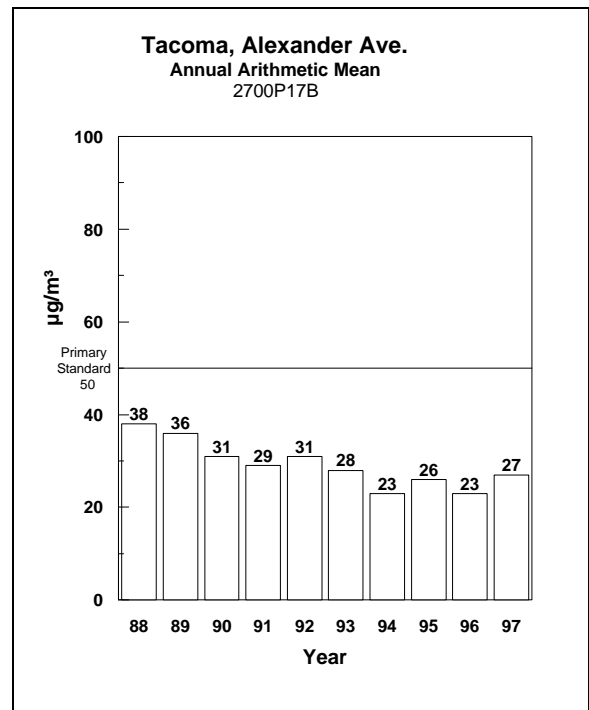
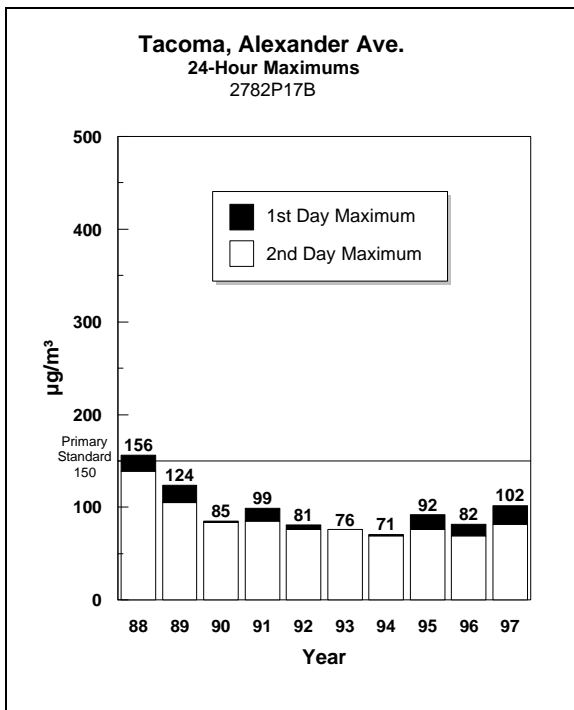
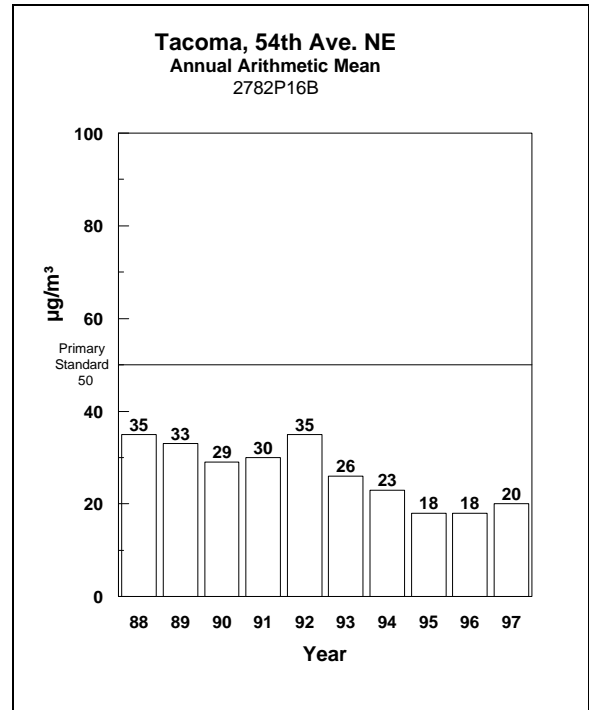
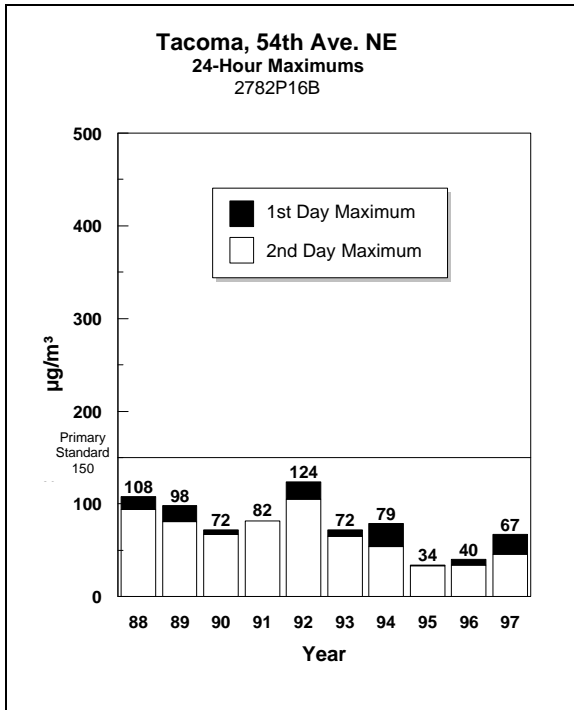


Particulate Matter

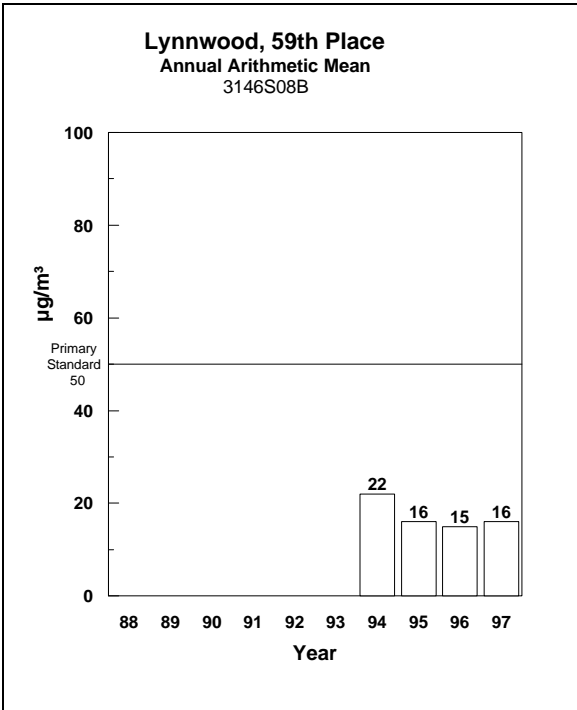
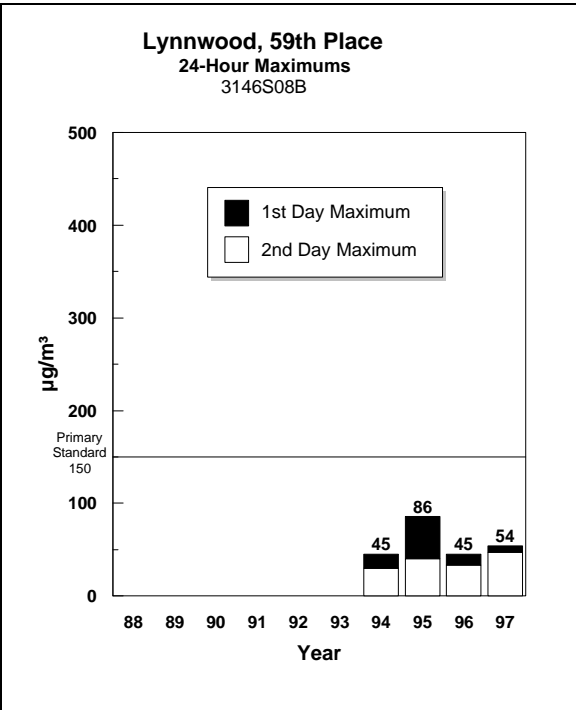
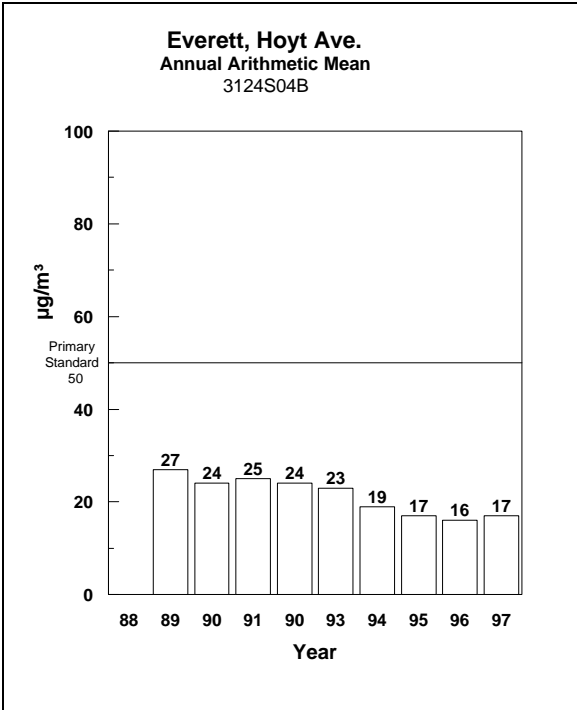
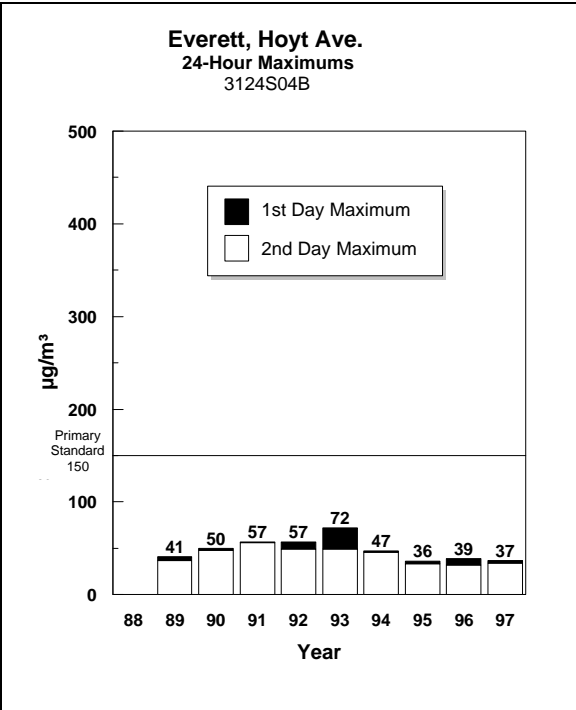


Puget Sound Area

Particulate Matter

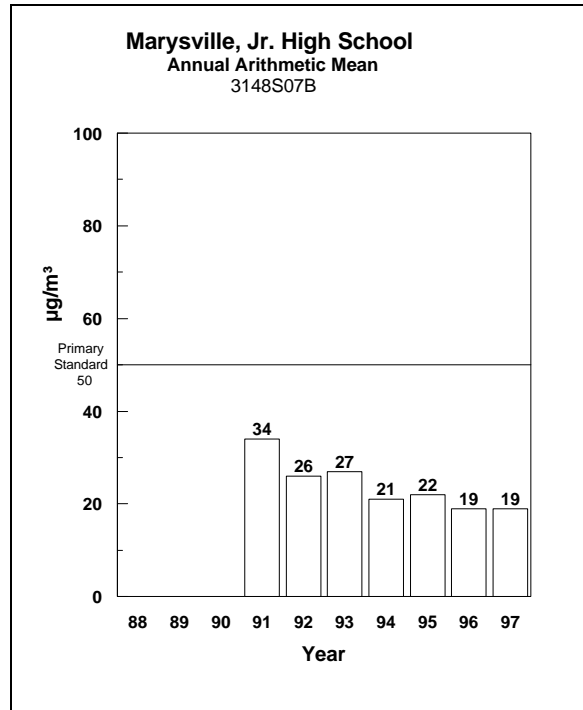
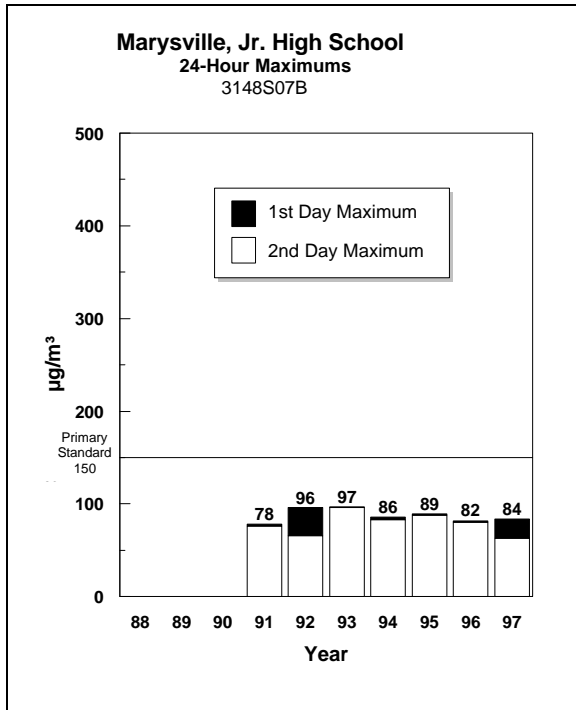


Particulate Matter



Puget Sound Area

Particulate Matter



Lead Summary

Lead Summary for 1997

Station	Location	Quarterly Avg. (µg/m ³)			
		1st	2nd	3rd	4th
1776K71B	Seattle, Harbor Island, Texaco	.40	.44	.48	.86

Carbon Monoxide

Carbon Monoxide (ppm) for 1997

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	
1708003A	Bellevue, Sturtevant's	8.8	1/15	8.5	12/11	6.6	1/15	6.5	12/11	6.5	12/11	0
1708005A	Bellevue, NE8th & 108thNE	16.8	1/15	10.8	1/15	8.6	1/15	6.3	12/11	6.3	12/11	0
1776020A	Seattle, Zanadu Comics	9.1	10/23	9.1	12/3	6.5	12/6	6.3	1/16	6.3	1/16	0
1776026A	Seattle, 4th and Pike	7.0	9/24	6.8	12/6	5.7	12/6	4.4	9/24	4.4	9/24	0
1776033A	Seattle, Northgate Apts.	10.5	12/3	9.4	2/6	5.9	1/15	5.7	12/6	5.7	12/6	0
1776308A	Seattle, James St.	8.4	1/15	7.5	9/24	4.9	9/24	4.6	11/12	4.6	11/12	0
1777001A	Sea-Tac, Quick Stop	6.1	2/6	5.7	1/15	3.7	2/5	3.3	1/14	3.3	1/14	0
2782013A	Tacoma, Pacific Ave.	13.4	1/15	9.5	12/11	7.1	1/16	6.7	12/11	6.7	12/11	0
3124006A	Everett, Nevada Bob's	9.5	12/5	9.4	1/15	5.1	12/6	4.3	11/9	4.3	11/9	0

1. 8-hour readings are non-overlapping.

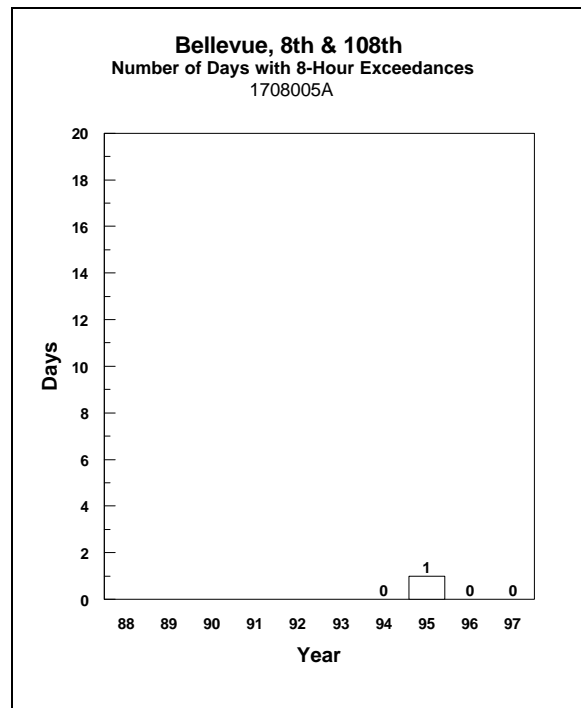
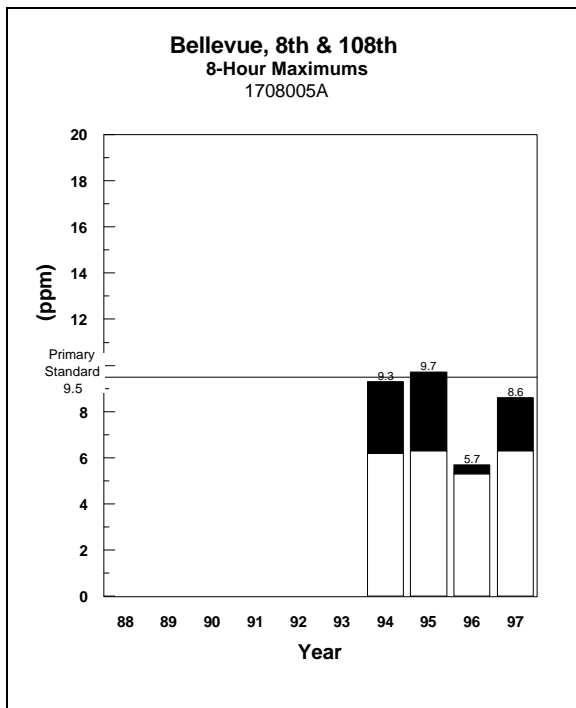
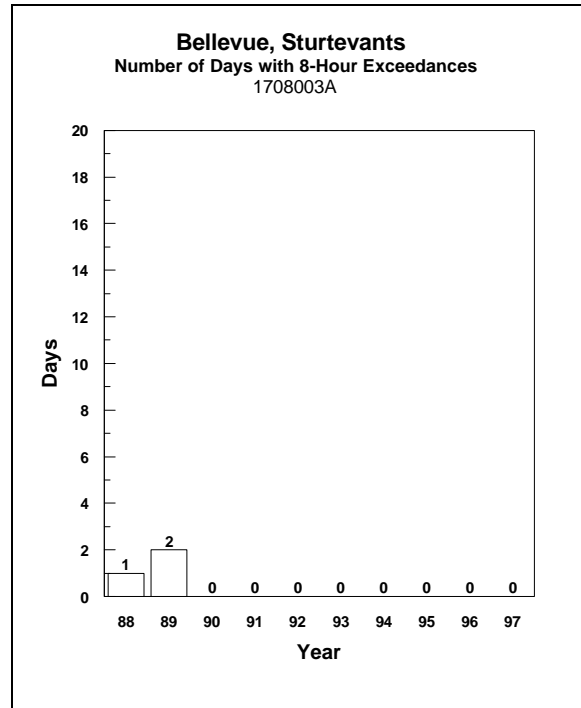
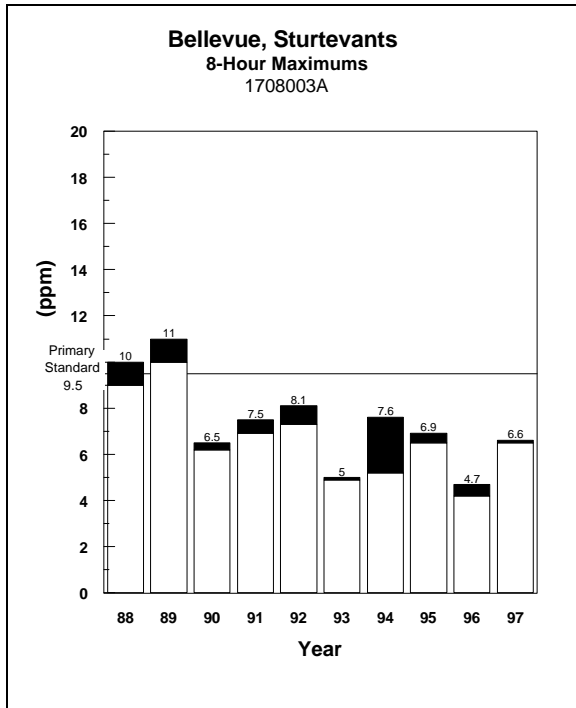
2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1997

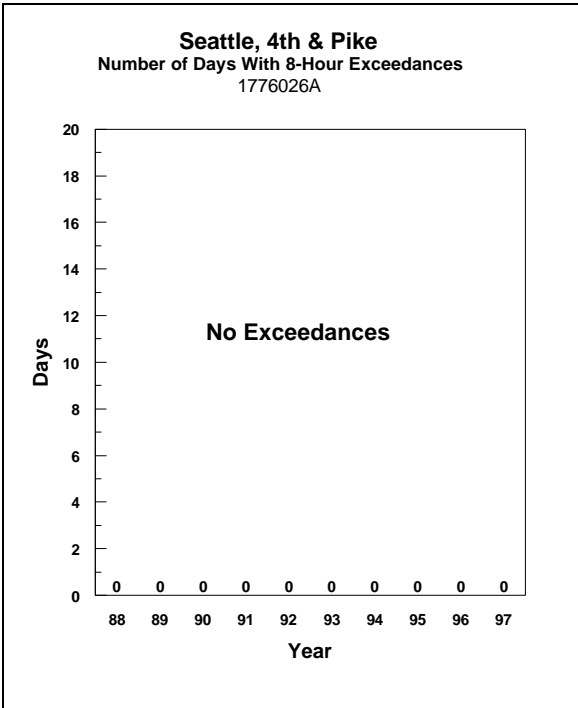
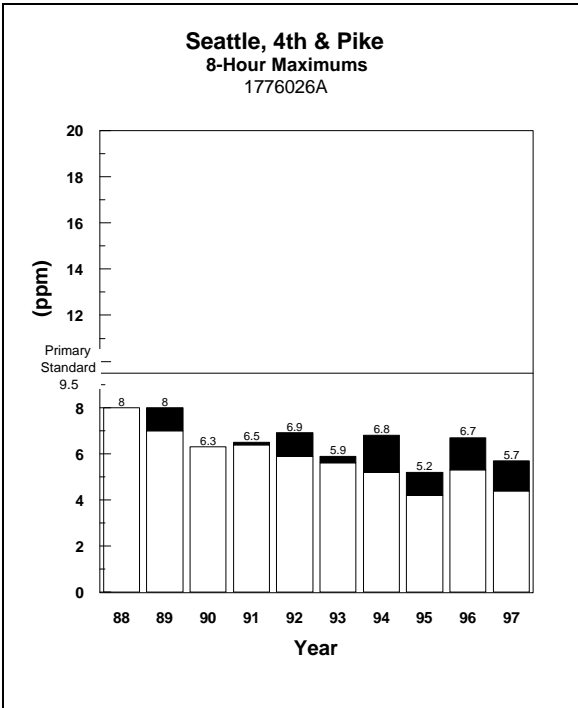
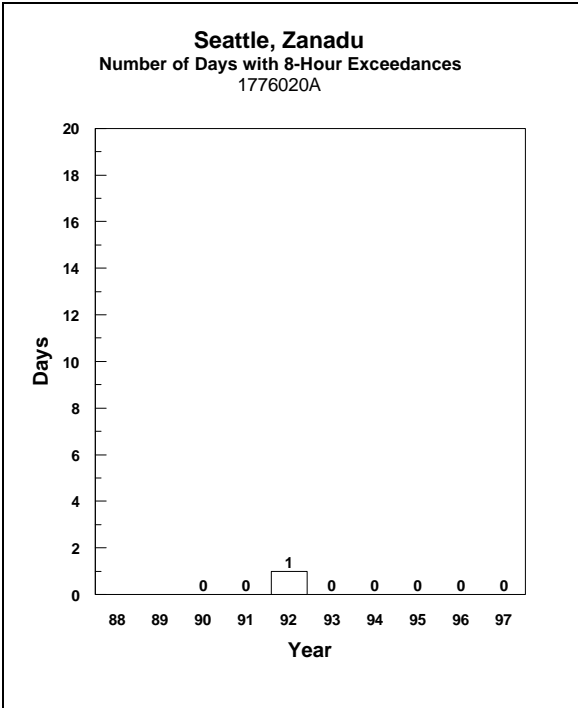
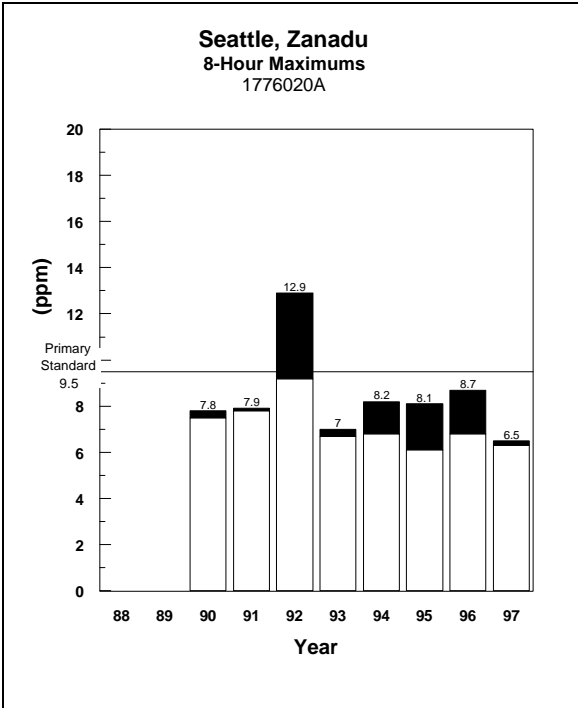
Station	Location	Period of Record	# Hours	# Days	% Valid Data
1708003A	Bellevue, Sturtevant's	Jan-Dec	8,666	365	99
1708005A	Bellevue, NE8th & 108thNE	Jan-Dec	8,424	365	96
1776020A	Seattle, Zanadu Comics	Jan-Dec	8,479	365	97
1776026A	Seattle, 4th and Pike	Jan-Dec	8,450	365	96
1776033A	Seattle, Northgate Apts.	Jan-Dec	8,708	364	99
1776308A	Seattle, James St.	Jan-Dec	8,494	365	97
1777001A	Sea-Tac, Quick Stop	Jan-Mar	1,660	70	99
2782013A	Tacoma, Pacific Ave.	Jan-Dec	8,724	365	99
3124006A	Everett, Nevada Bob's	Jan-Dec	8,640	365	99

Puget Sound Area

Carbon Monoxide

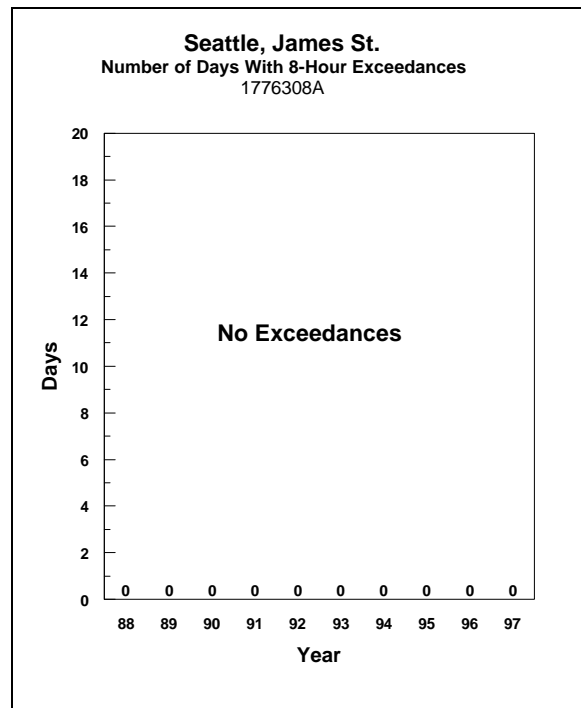
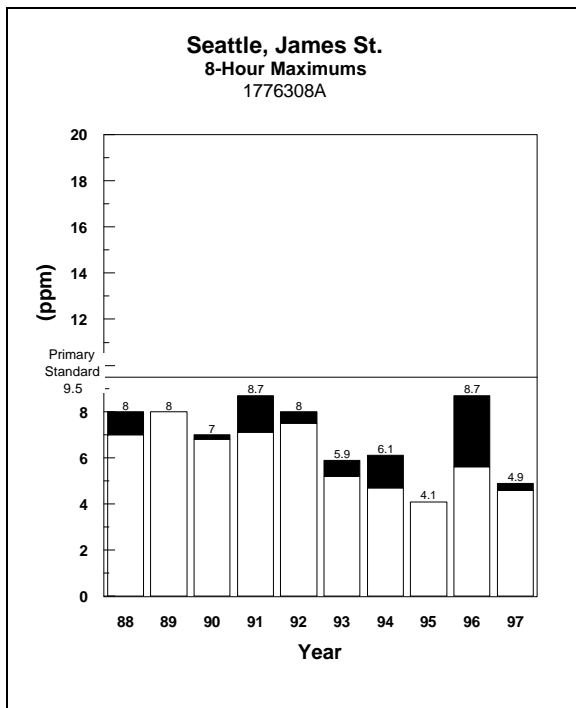
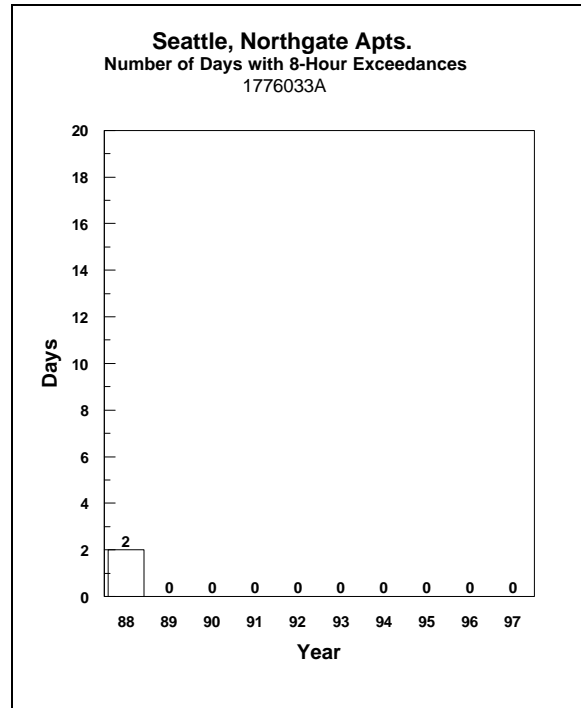
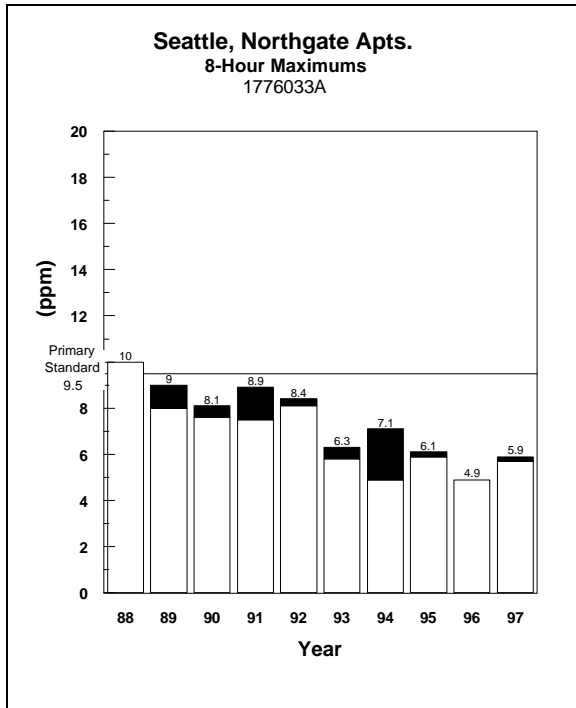


Carbon Monoxide

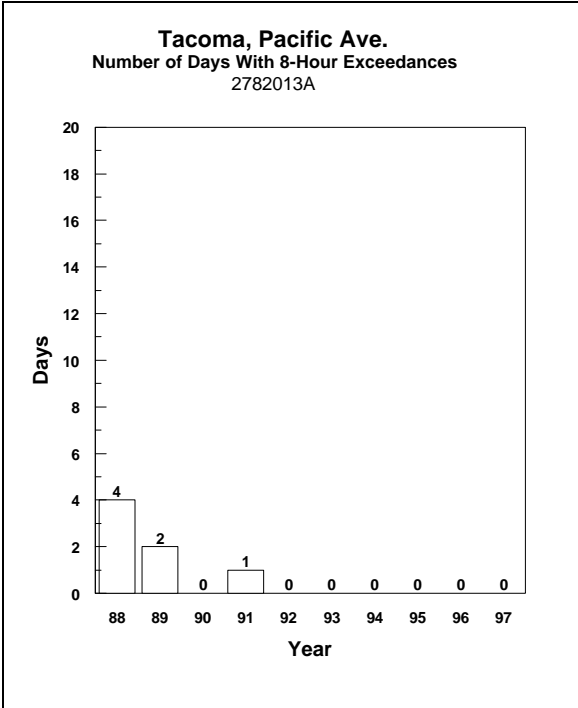
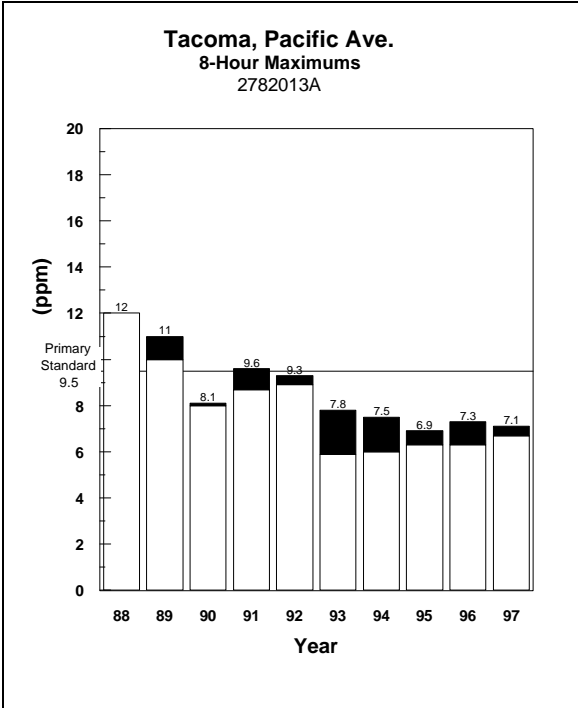
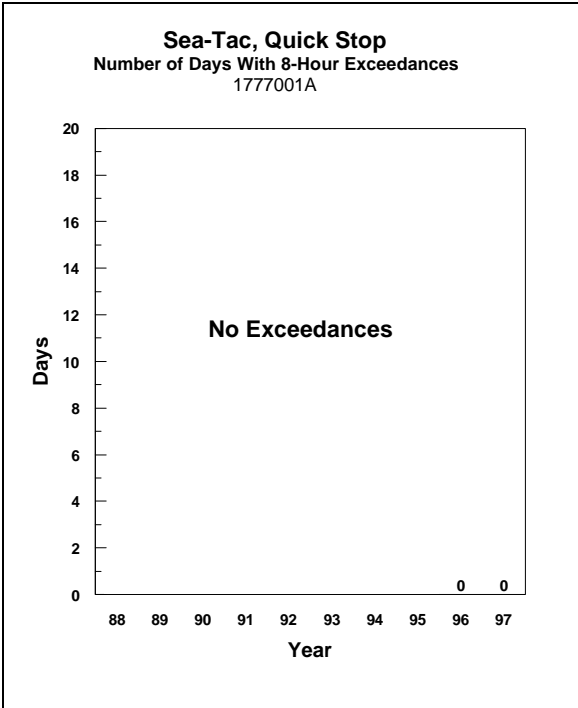
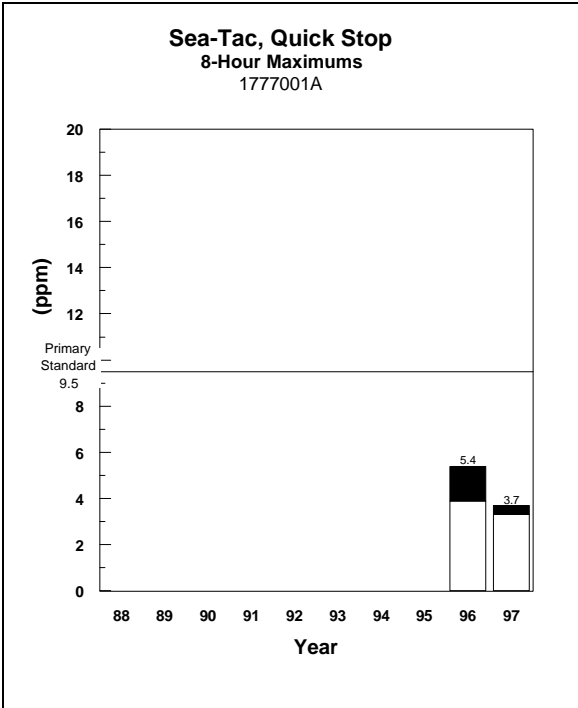


Puget Sound Area

Carbon Monoxide

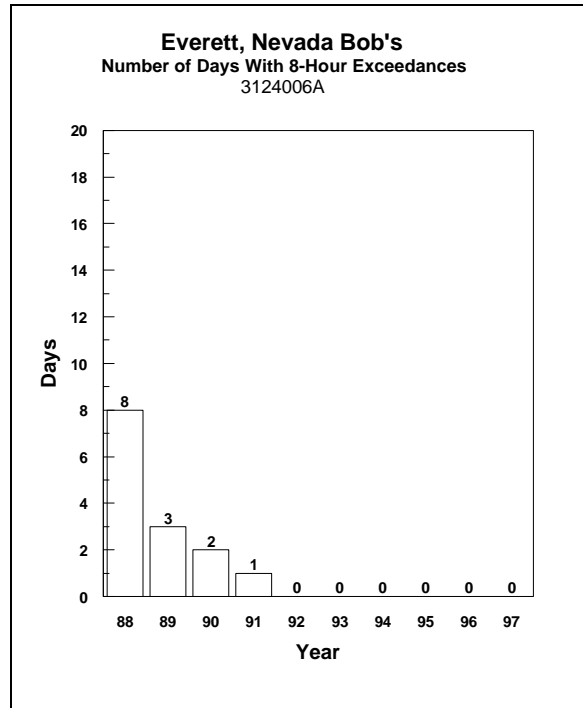
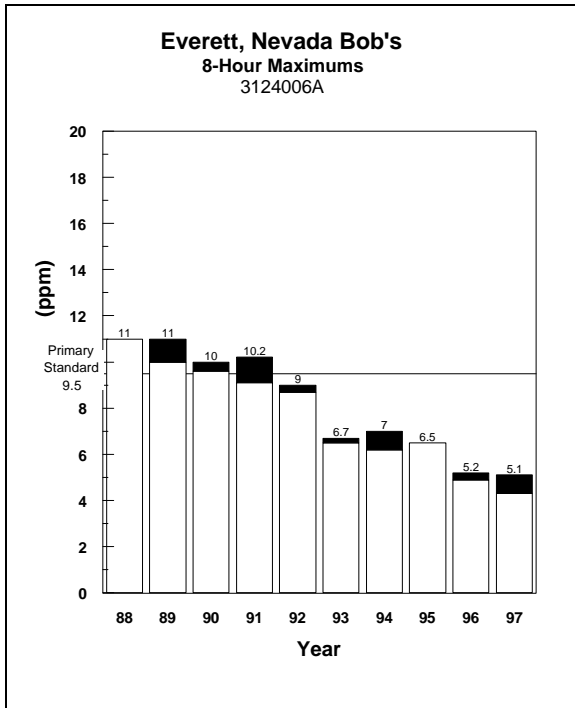


Carbon Monoxide



Puget Sound Area

Carbon Monoxide



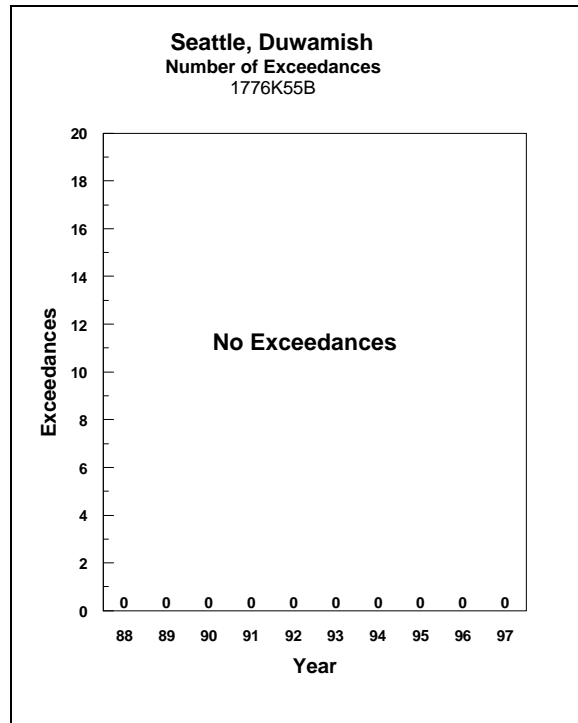
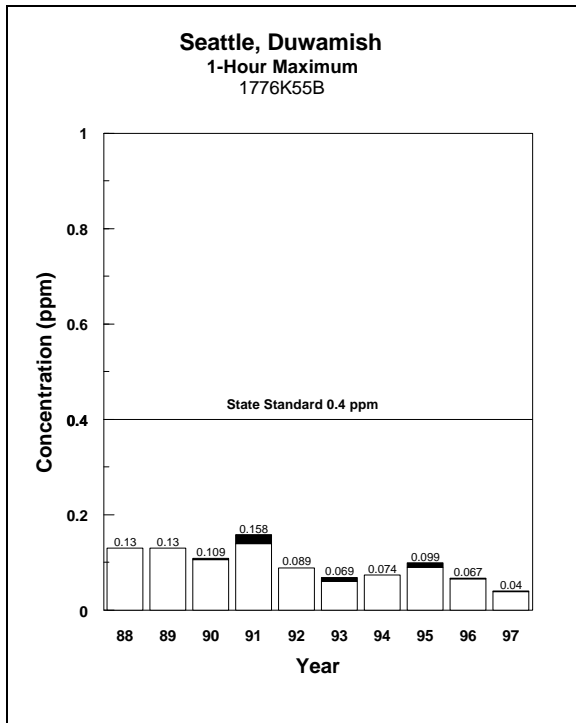
Sulfur Dioxide

Sulfur Dioxide for 1997

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	.040	5/19	.039	4/16	0	.035	4/16	0	.015	4/25	0	0	.005
2782P16B	Tacoma, 54th Ave NE	.103	1/14	.093	12/4	0	.073	1/14	0	.031	12/12	0	0	.006
2782P17B	Tacoma, Alexander Ave	.114	4/12	.107	4/12	0	.080	4/12	0	.018	2/6	0	0	.006
3124S04B	Everett, Hoyt Ave	.058	5/11	.043	5/11	0	.029	5/11	0	.014	5/11	0	0	.003

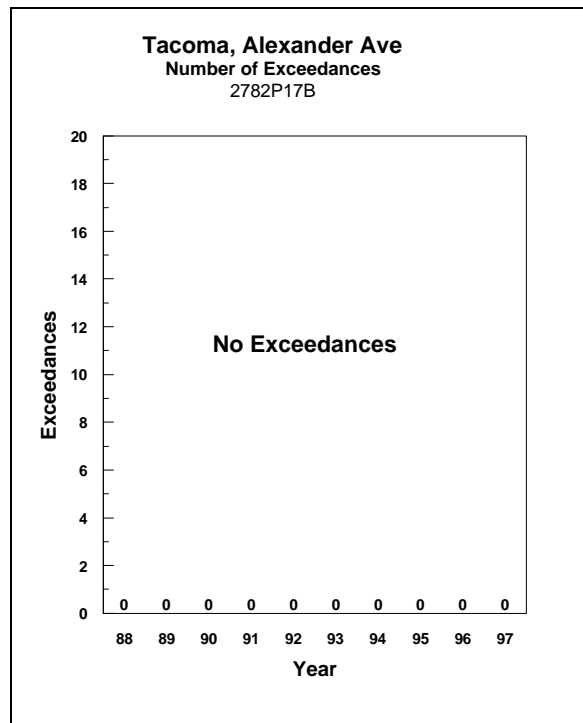
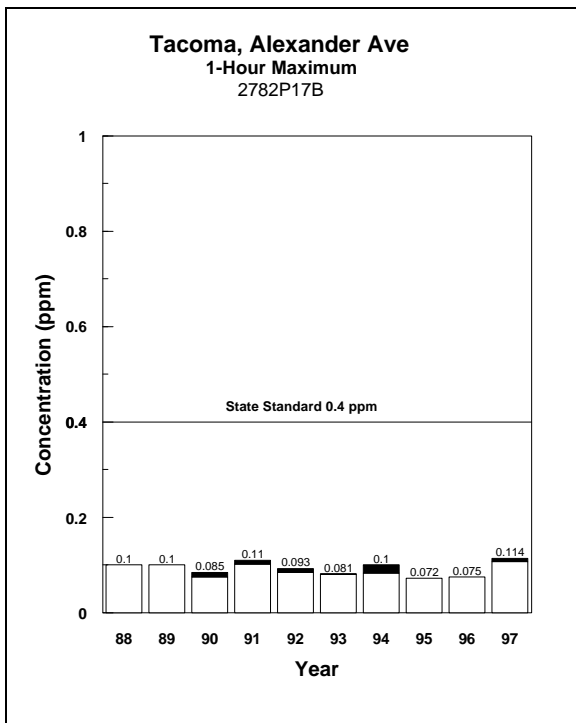
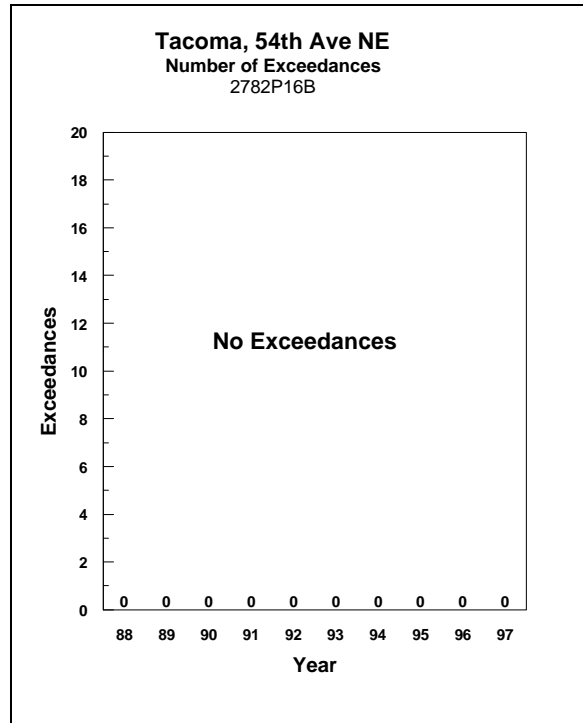
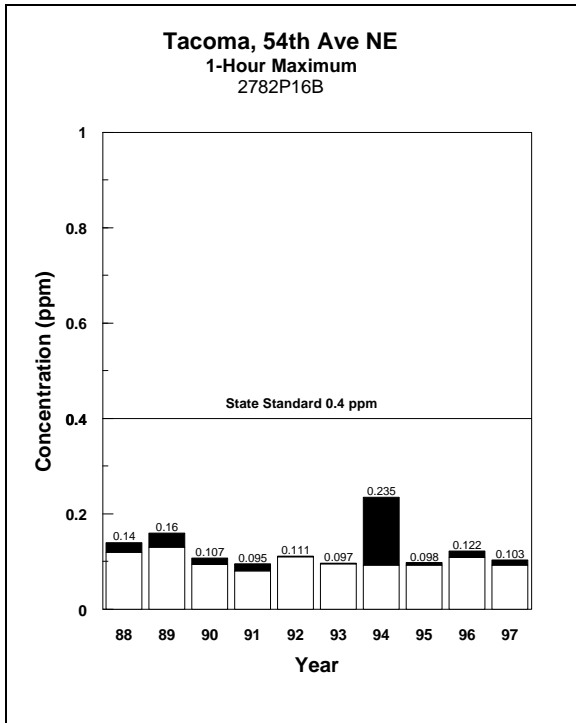
Sulfur Dioxide for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
1776K55B	Seattle, Duwamish	Jan-Dec	8,504	354	98
2782P16B	Tacoma, 54th Ave NE	Jan-Dec	8,663	361	99
2782P17B	Tacoma, Alexander Ave	Jan-Dec	8,515	355	97
3124S04B	Everett, Hoyt Ave	Jan-Dec	8,467	353	97

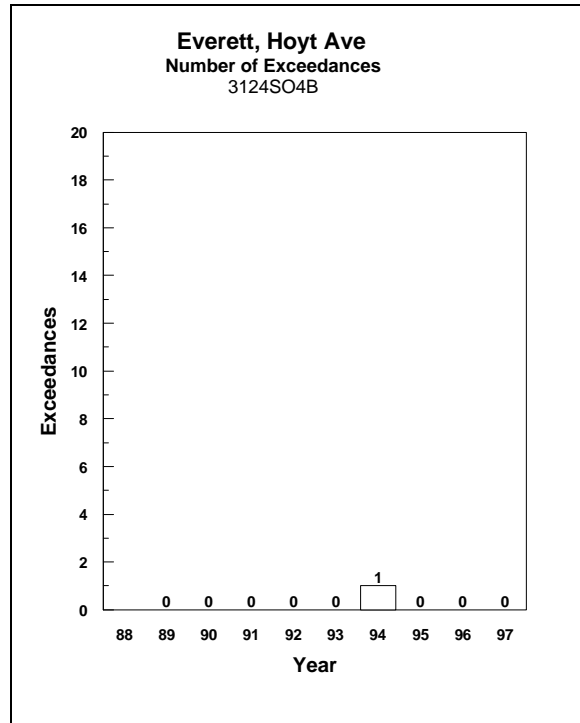
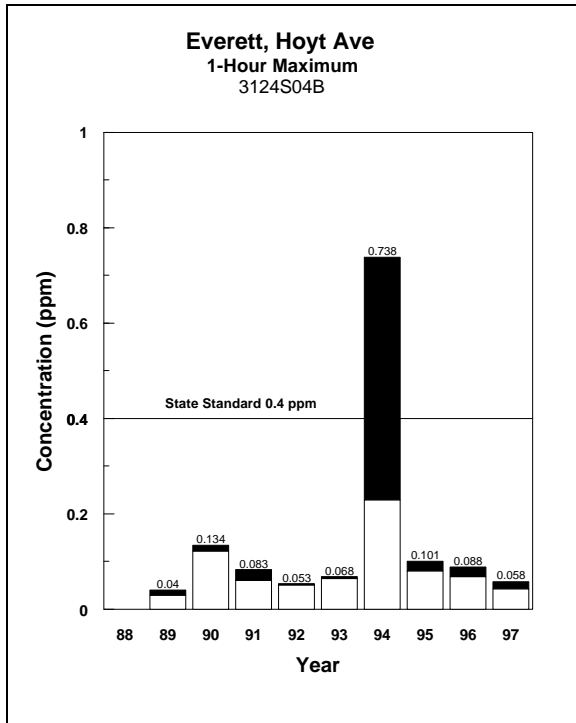


Puget Sound Area

Sulfur Dioxide



Sulfur Dioxide



Nitrogen Dioxide

Nitrogen Dioxide for 1997

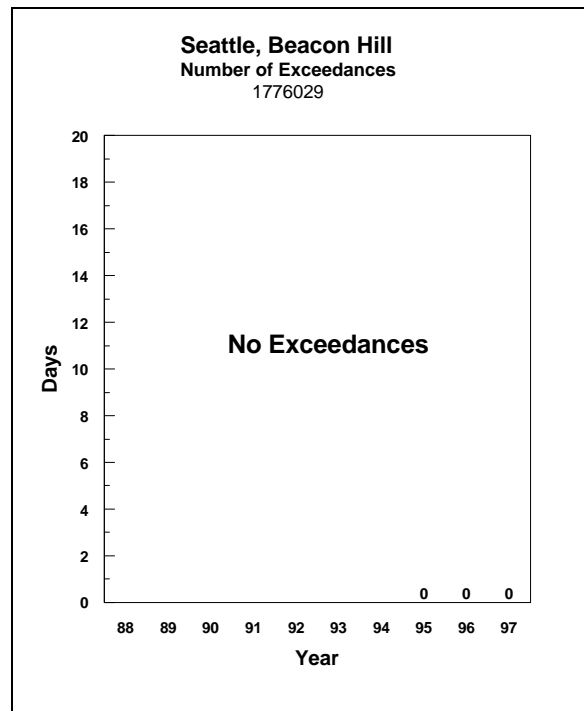
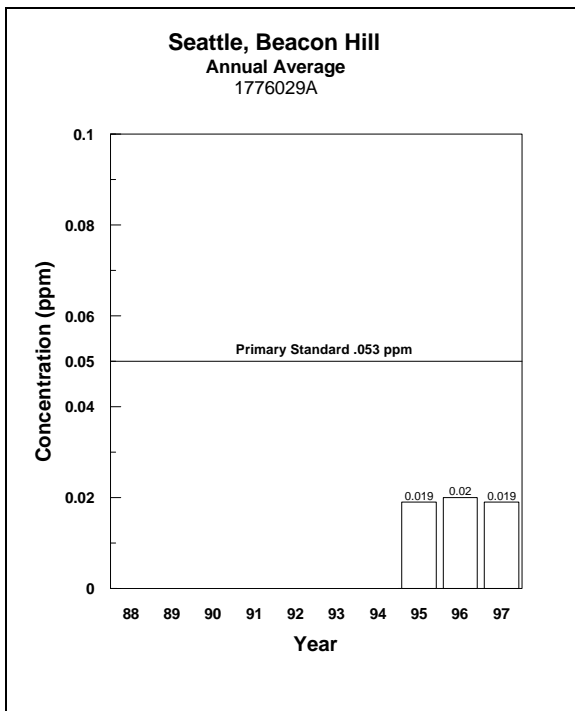
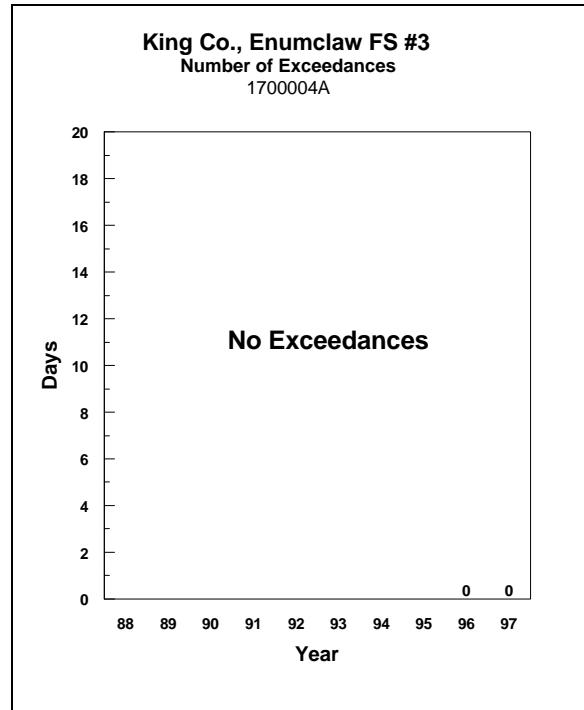
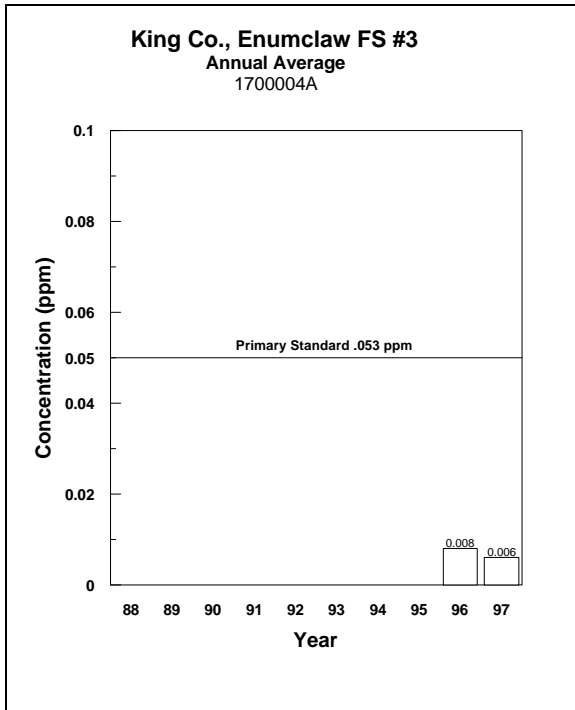
Station	Location	Max. 1-Hr	Date	Max. 24-Hr	Date	Annual Avg.
1700004A	King Co., Enumclaw FS#3	.049	10/15	.022	9/24	.006
1776029A	Seattle, Beacon Hill	.075	9/24	.045	9/24	.019

Nitrogen Dioxide for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
1700004A	King Co., Enumclaw FS#3	Jan-Dec	5,532	231	76
1776029A	Seattle, Beacon Hill	Jan-Dec	7,963	332	91

Puget Sound Area

Nitrogen Dioxide



Puget Sound Area

Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High		4th High	
		Conc	Date	Conc	Date
1700002A	King Co., Lk. Sammamish St. Pk	0.063	7/3	0.049	5/10
1700004A	King Co., Enumclaw FS#3	0.072	7/19	0.059	5/11
1700007A	King Co., Enumclaw	0.078	7/19	0.064	5/12
1776029A	Seattle, Beacon Hill	0.044	5/3	0.042	4/16
2700007A	Pierce Co., Pack Forest	0.064	5/11	0.059	5/10
2700016A	Pierce County, Rainier #2	0.069	5/12	0.060	4/17
3100002A	Snohomish Co., Getchell	0.053	5/12	0.047	7/4

Ozone (ppm) for 1997 (1-Hour)

Station	Location	1-Hour Maximums						# Hrs >.124	Exceedance Days
		1st High		2nd High		2nd Day High*			
		Conc	Date	Conc	Date	Conc	Date		
1700002A	King Co., Lk. Sammamish St. Pk	.096	7/4	.088	7/4	.072	7/20	0	0
1700004A	King Co., Enumclaw FS#3	.094	7/20	.090	7/20	.086	7/4	0	0
1700007A	King Co., Enumclaw	.107	7/20	.104	7/20	.095	7/4	0	0
1776029A	Seattle, Beacon Hill	.060	8/31	.059	9/1	.059	9/1	0	0
2700007A	Pierce Co., Pack Forest	.086	5/11	.083	5/12	.083	5/12	0	0
2700016A	Pierce Co., Rainier #2	.080	5/12	.076	5/12	.074	7/28	0	0
3100002A	Snohomish Co., Getchell	.070	7/4	.070	8/14	.070	8/14	0	0

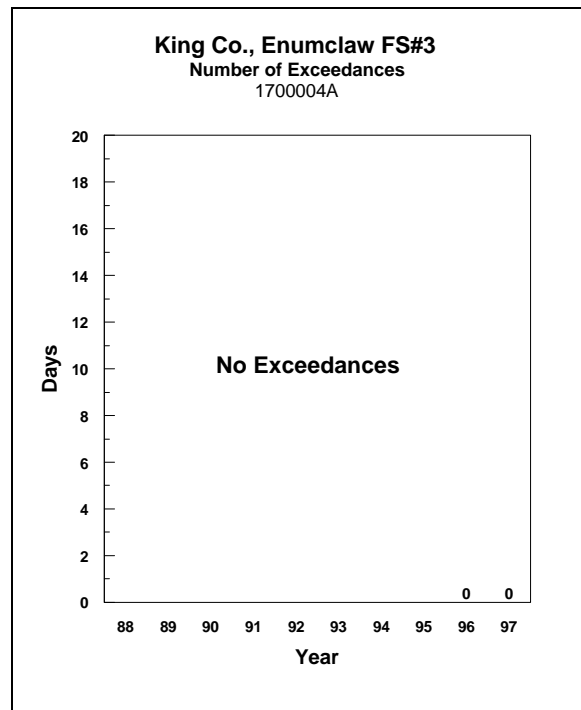
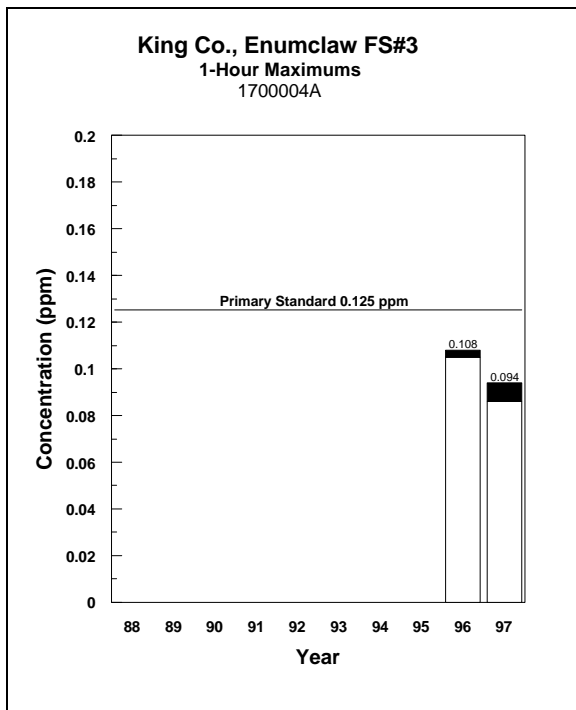
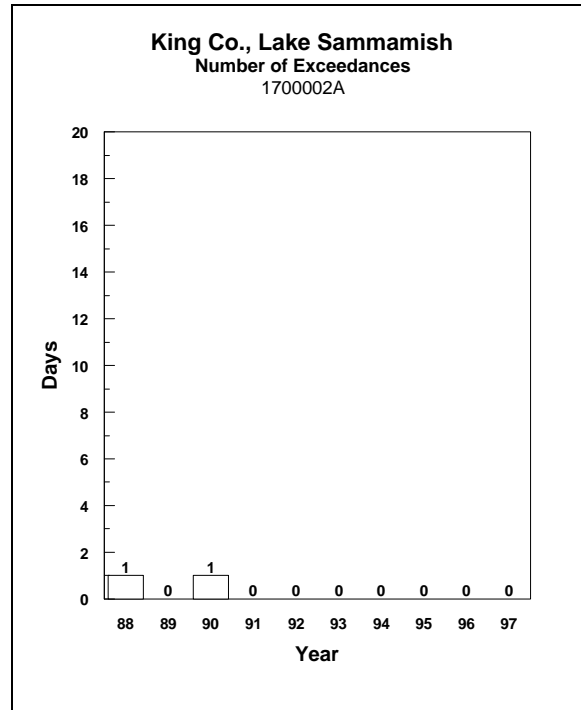
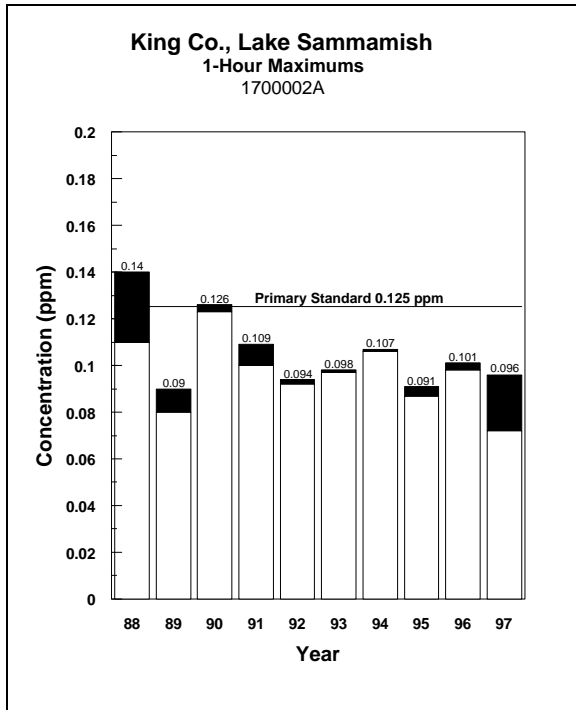
*2nd Day High - Second day with the highest 1-hour average.

Ozone for 1997

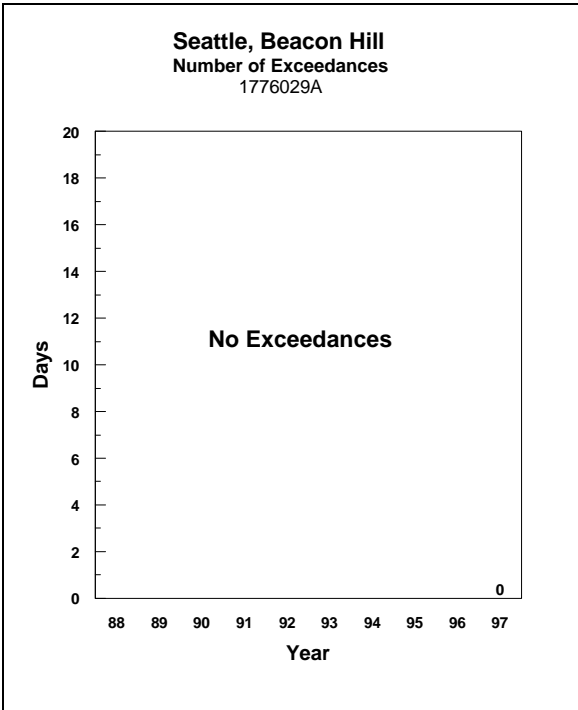
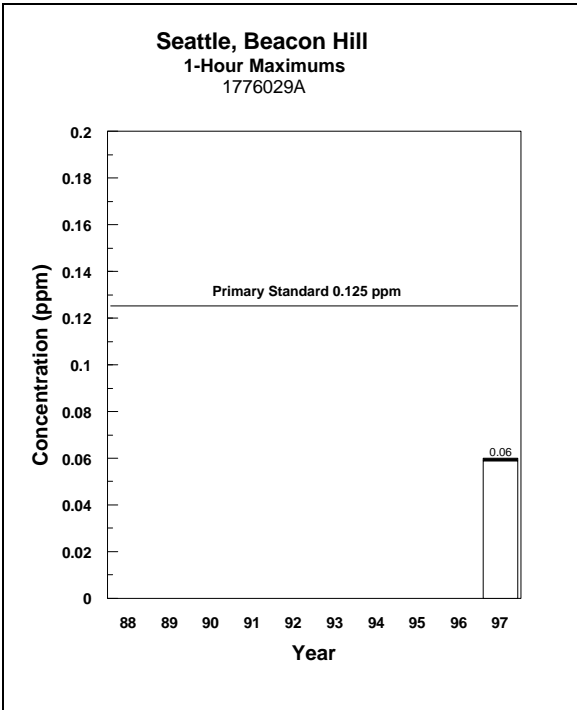
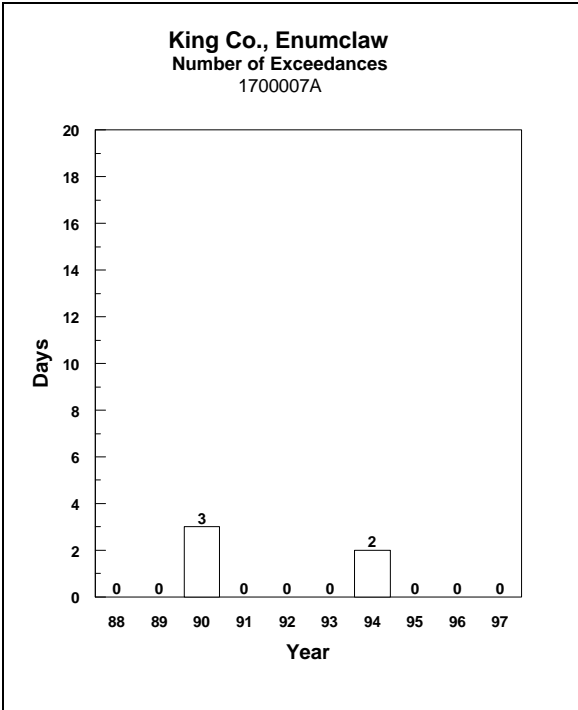
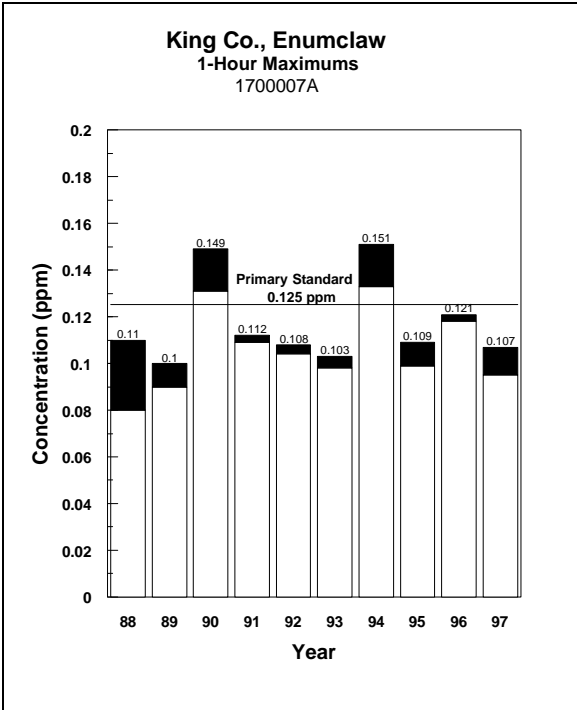
Station	Location	Period of Record	# Hours	# Days	% Valid Data
1700002A	King Co., Lk. Sammamish St. Pk	Apr-Oct	5,052	214	98
1700004A	King Co., Enumclaw FS#3	Apr-Oct	5,070	214	99
1700007A	King Co., Enumclaw	Apr-Oct	5,073	214	99
1776029A	Seattle, Beacon Hill	Apr-Oct	5,032	214	98
2700007A	Pierce Co., Pack Forest	Apr-Oct	4,974	211	97
2700016A	Pierce Co., Rainier #2	Jan-Feb, Apr-Dec	6,033	268	69
3100002A	Snohomish Co., Getchell	Apr-Oct	5,040	214	98

Puget Sound Area

Ozone

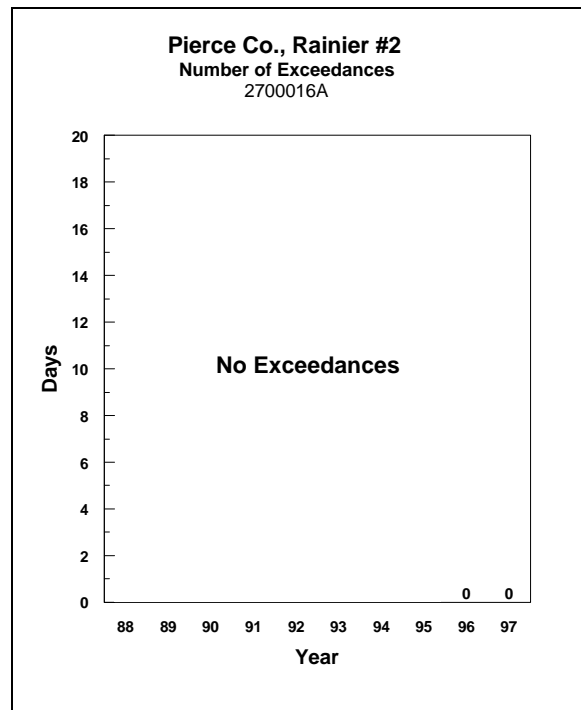
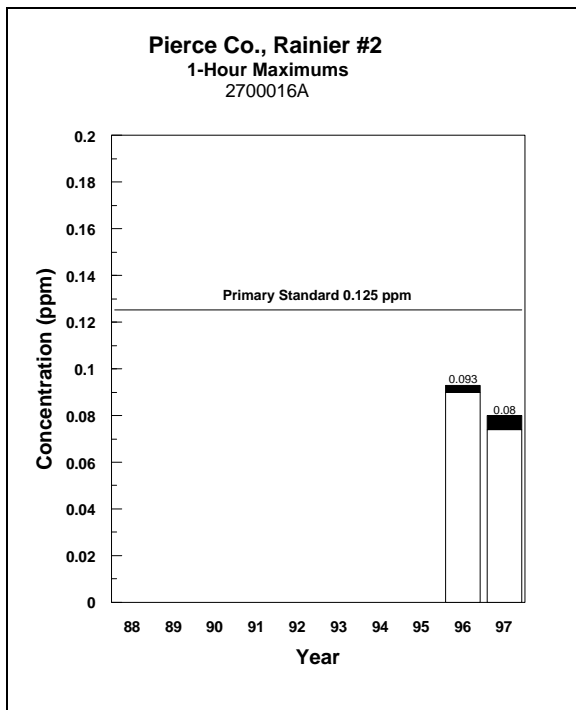
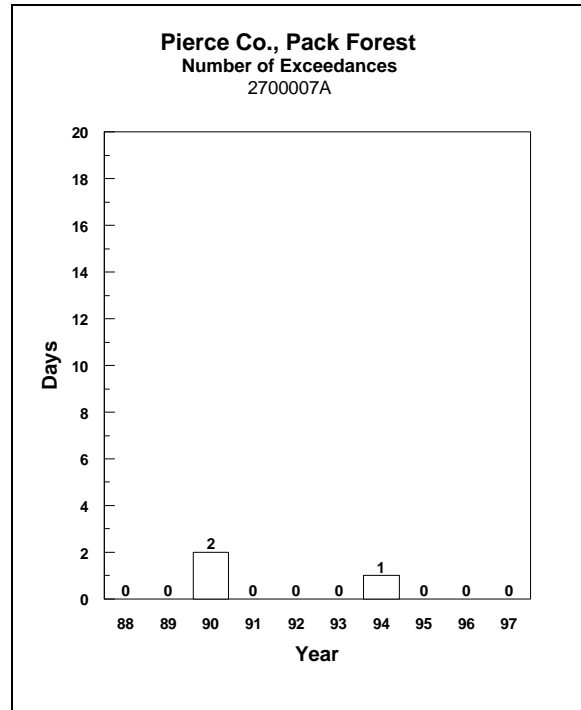
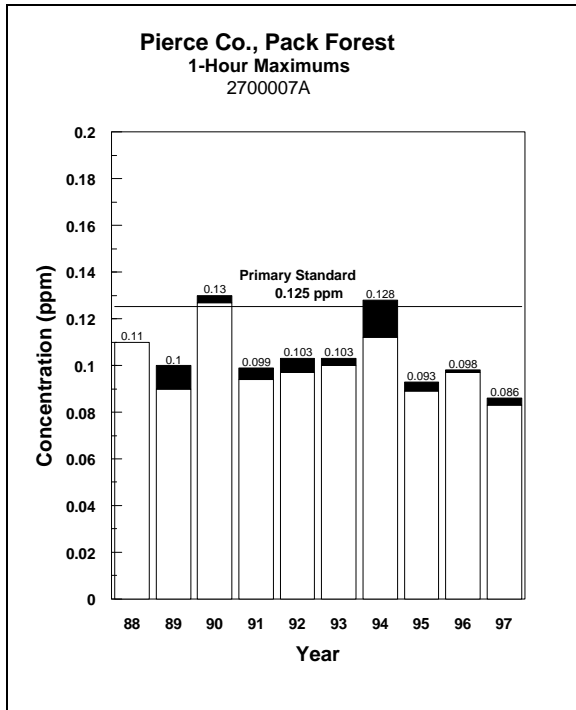


Ozone

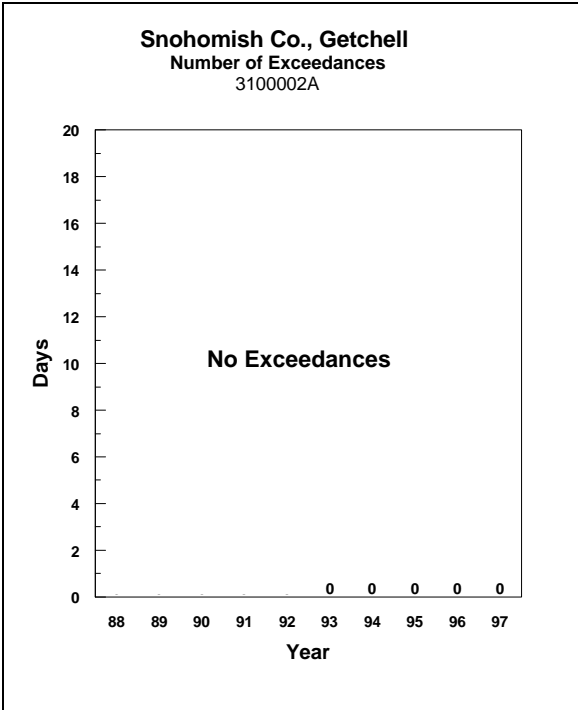
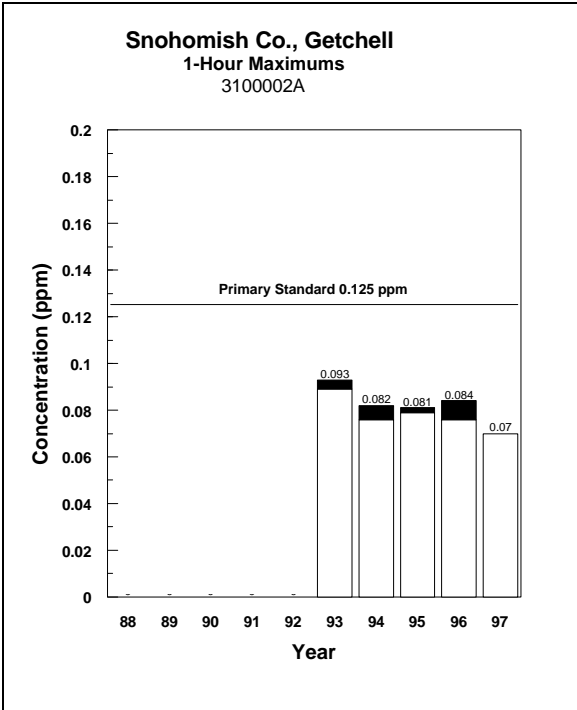


Puget Sound Area

Ozone



Ozone



Southwest Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
0688012D	Vancouver, Moose Lodge			24*	25	23	22	22	17	17	19
0688014D	Vancouver, Wa. Elem. School				37*	22	22	20	16	16	18
0844004D	Longview, City Shops	32*	30	26	27	24	25	22	22	20	23*

*Average based on less than 12 months of data.

PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
0688012D	Vancouver, Moose Lodge	42	12/12	41	12/6	19
0688014D	Vancouver, Wa. Elem. School	42	2/9	40	1/16	18
0844004D	Longview, City Shops	53	11/12	46	1/28	23*

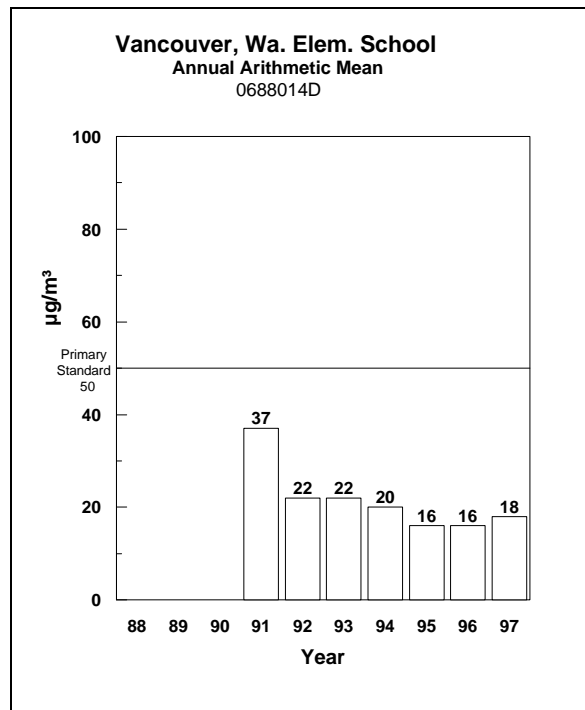
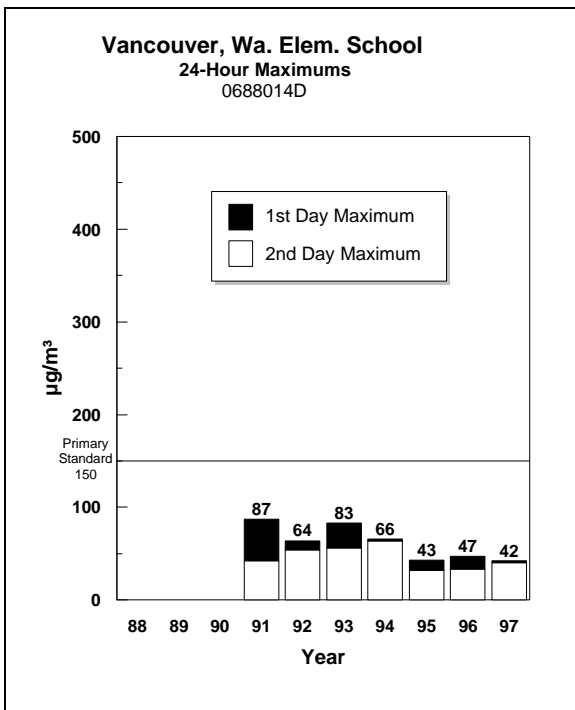
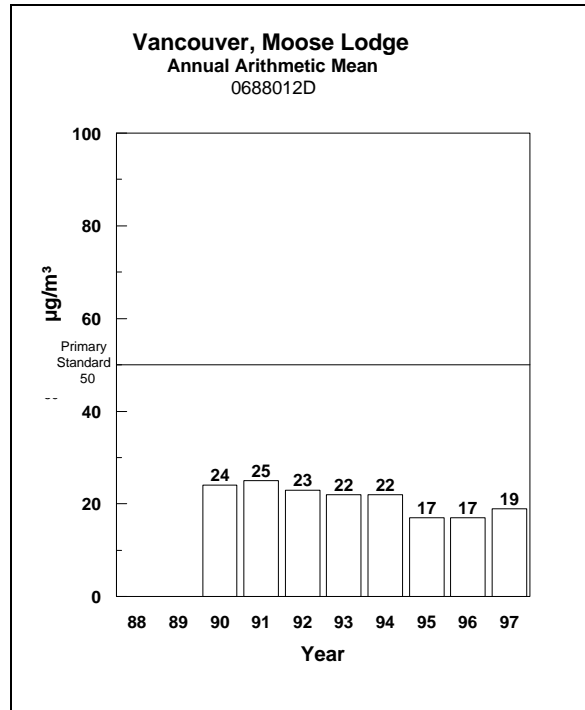
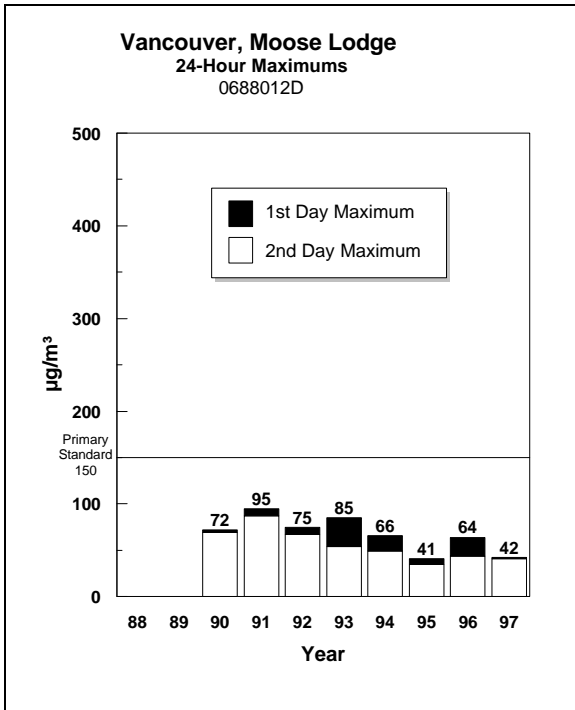
* Average based on less than 12 months of data.

PM₁₀ for 1997

Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
0688012D	Vancouver, Moose Lodge	Jan-Dec	1/6	59	97
0688014D	Vancouver, Wa. Elem. School	Jan-Dec	1/6	61	100
0844004D	Longview, City Shops*	Jan-Apr Jun-Dec	1/6	50	97

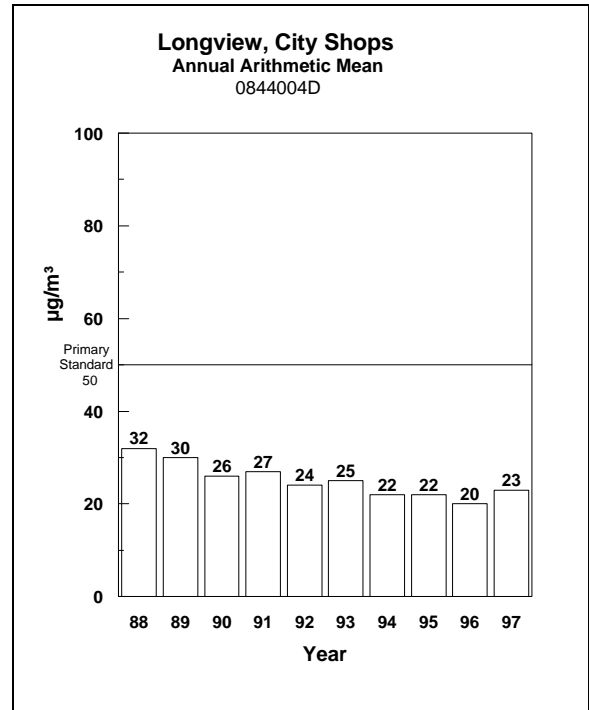
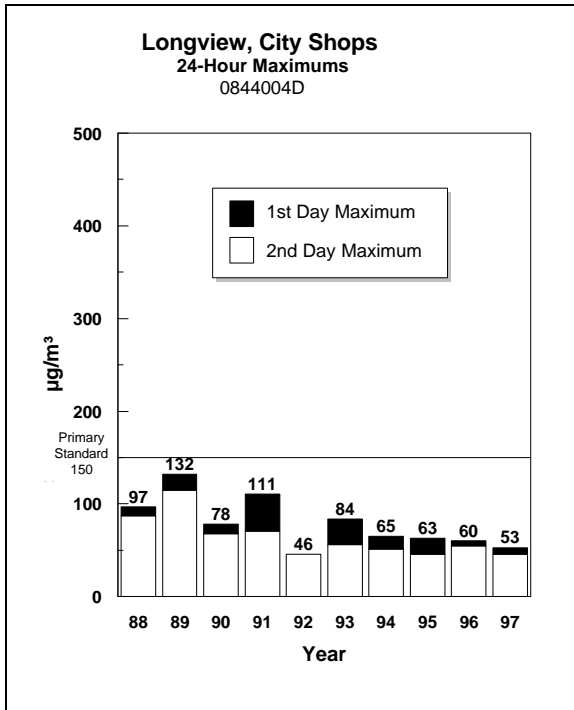
* station temporarily discontinued for construction 4/17 – 6/14

Particulate Matter



Southwest Area

Particulate Matter



Carbon Monoxide

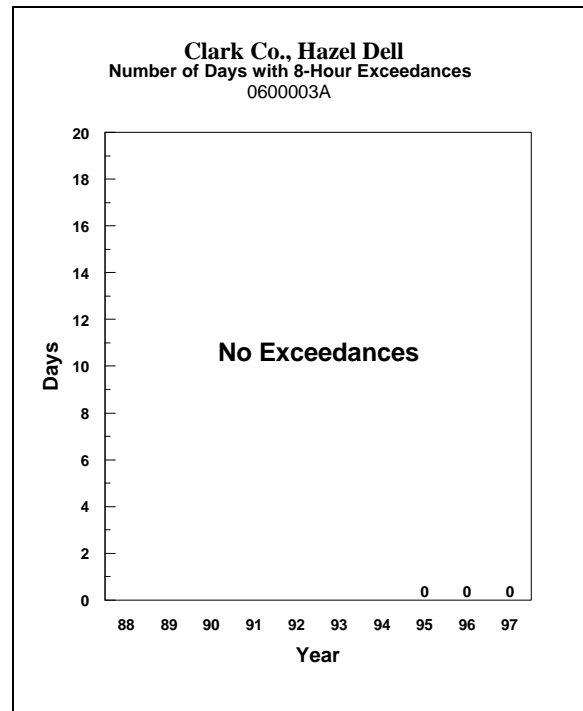
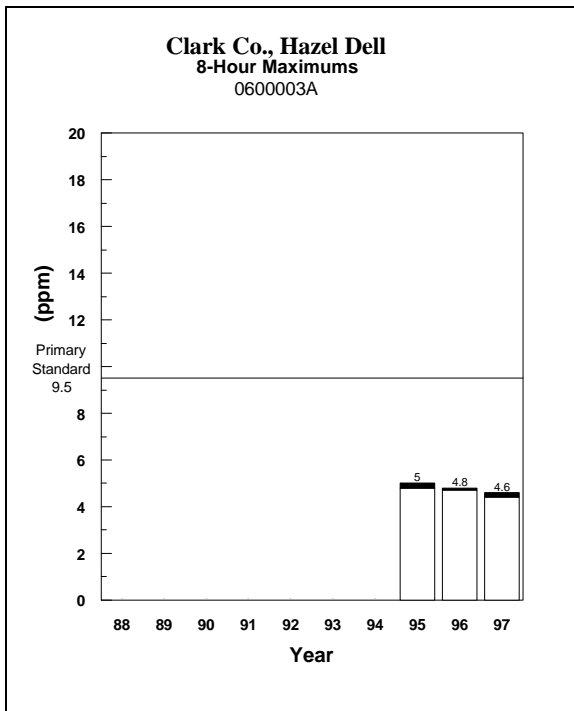
Carbon Monoxide (ppm) for 1997

Station	Location	1-Hour Maximums		8-Hour Maximums ¹			8-Hr. Exc.					
		Conc	Date	1st High	2nd High	2nd Day ²						
0600003A	Clark Co., Hazel Dell	6.4	12/5	5.9	1/15	4.6	12/11	4.4	12/10	4.4	12/10	0
0688011A	Vancouver, Atlas and Cox	11.5	2/24	10.9	1/14	6.2	1/14	5.5	11/1	5.5	11/1	0

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

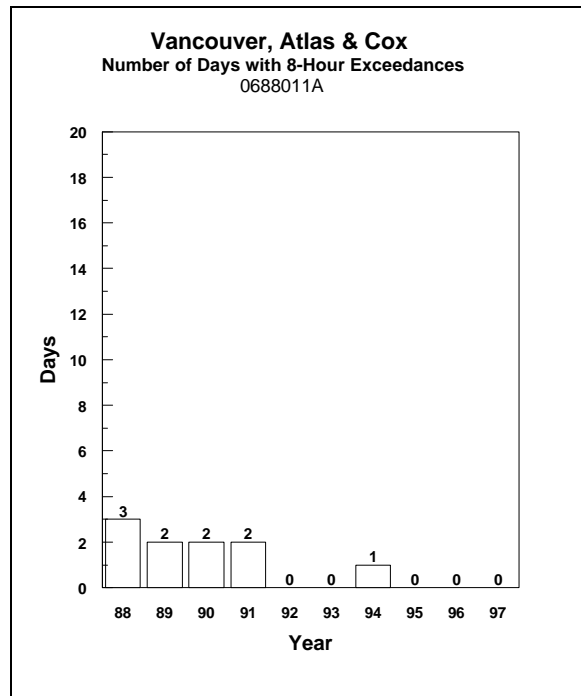
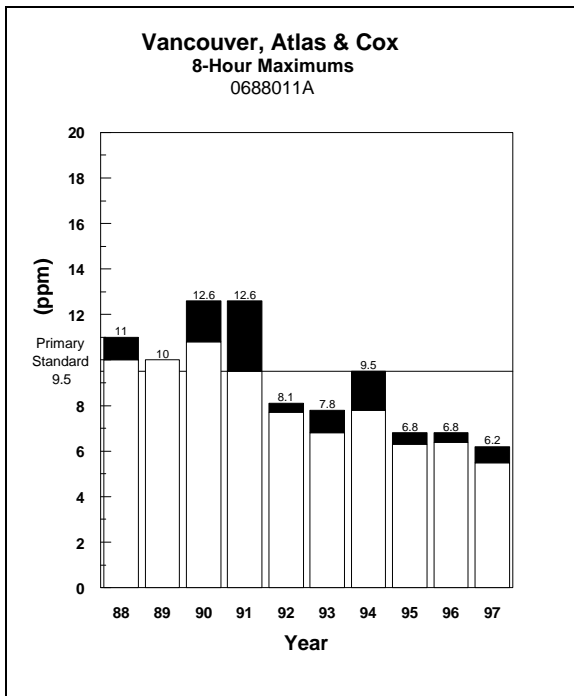
Carbon Monoxide (ppm) for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600003A	Clark Co., Hazel Dell	Jan-Dec	8,657	365	99
0688011A	Vancouver, Atlas and Cox	Jan-Dec	8,393	365	96



Southwest Area

Carbon Monoxide



Nitrogen Dioxide

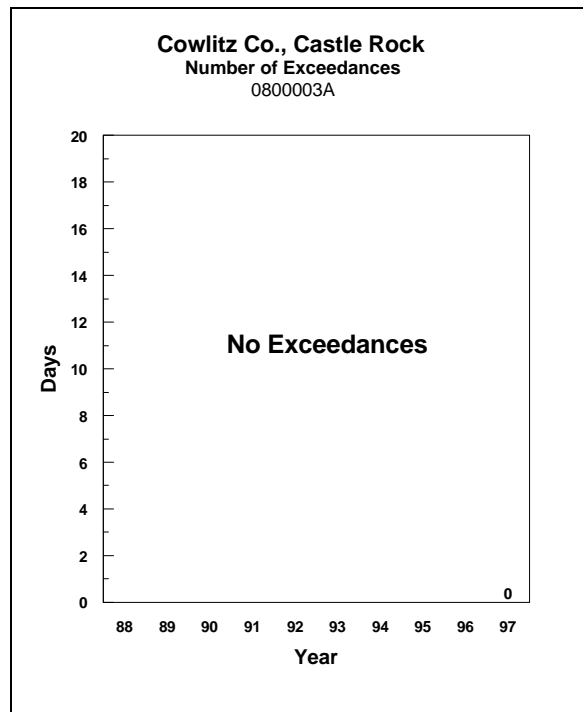
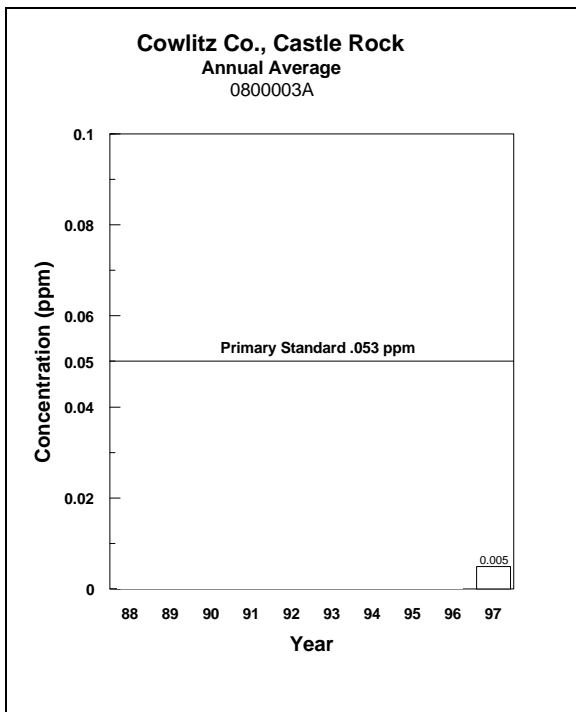
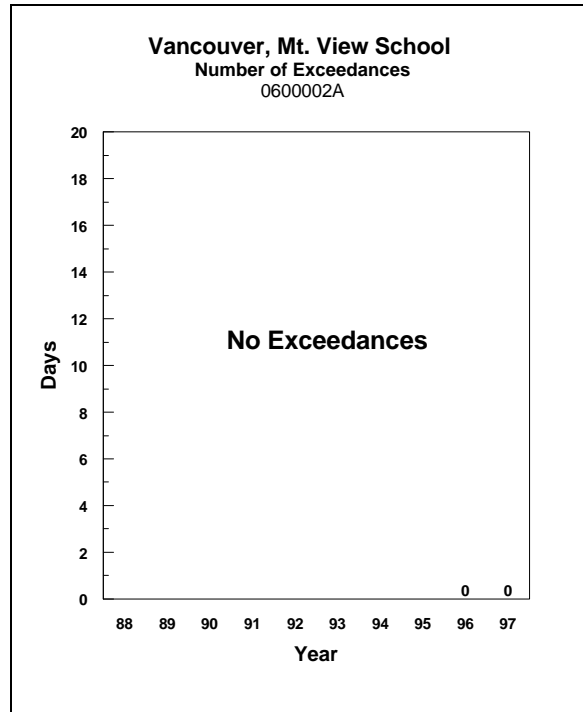
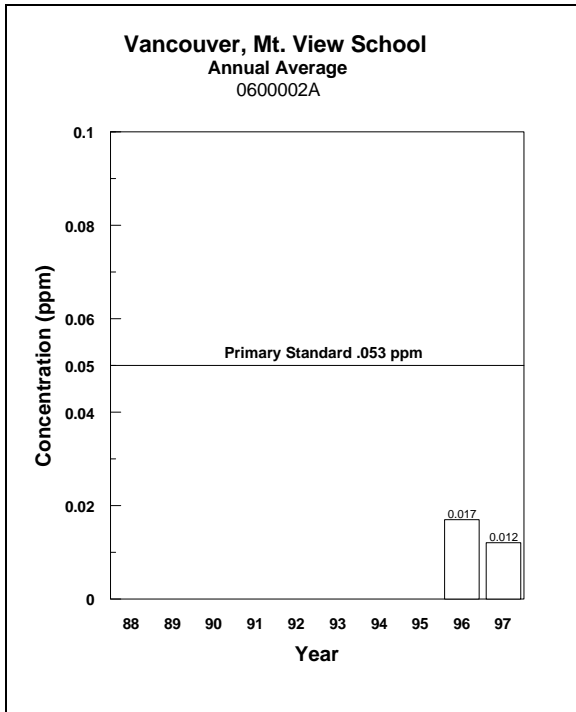
Nitrogen Dioxide for 1997

Station	Location	Max. 1-Hr	Date	Max. 24-Hr	Date	Annual Avg.
0600002A	Vancouver, Mt. View Sch.	.051	9/22	.028	9/24	.012
0800003A	Cowlitz Co., Castle Rock	.026	9/23	.015	10/22	.005
0800004A	Cowlitz Co., Woodland	.035	9/9	.022	9/24	.008

Nitrogen Dioxide for 1997

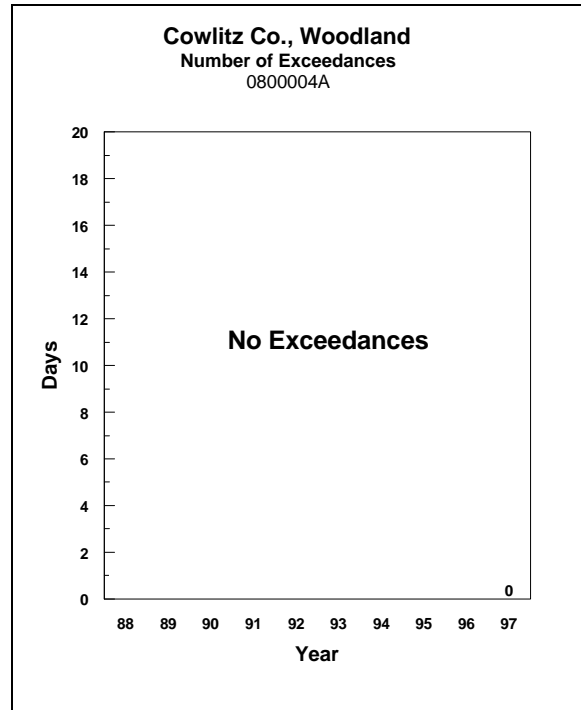
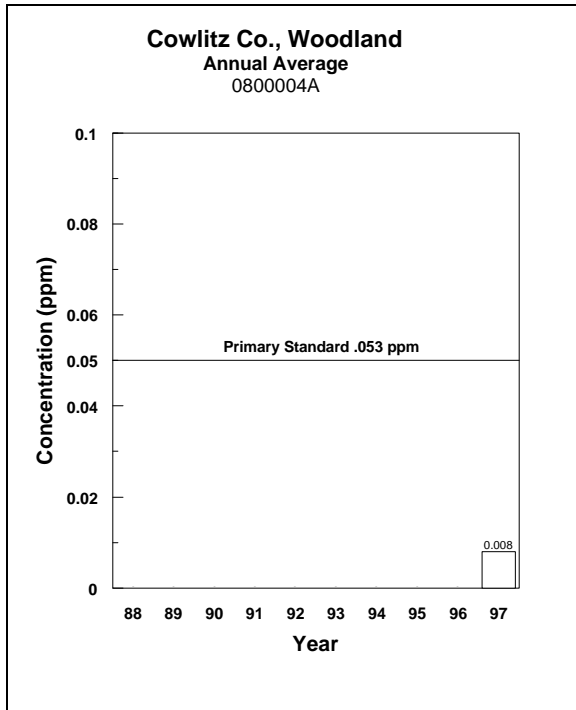
Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600002A	Vancouver, Mt. View Sch.	Jan-Dec	5,932	247	90
0800003A	Cowlitz Co., Castle Rock	Apr-Oct	4,551	190	93
0800004A	Cowlitz Co., Woodland	Jul-Nov	2,275	95	91

Nitrogen Dioxide



Southwest Area

Nitrogen Dioxide



Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High	Date	4th High	Date
0600002A	Vancouver, Mt. View High Sch.	0.060	7/3	0.050	5/7
0600005A	Clark Co., Hockinson	0.059	5/11	0.056	7/4
0800003A	Cowlitz Co., Castle Rock	0.071	5/11	0.051	5/8
0800004A	Cowlitz Co., Woodland	0.057	7/3	0.051	7/3
2100006A	Lewis County, Packwood Lake	0.048	8/11	0.043	8/10

Ozone

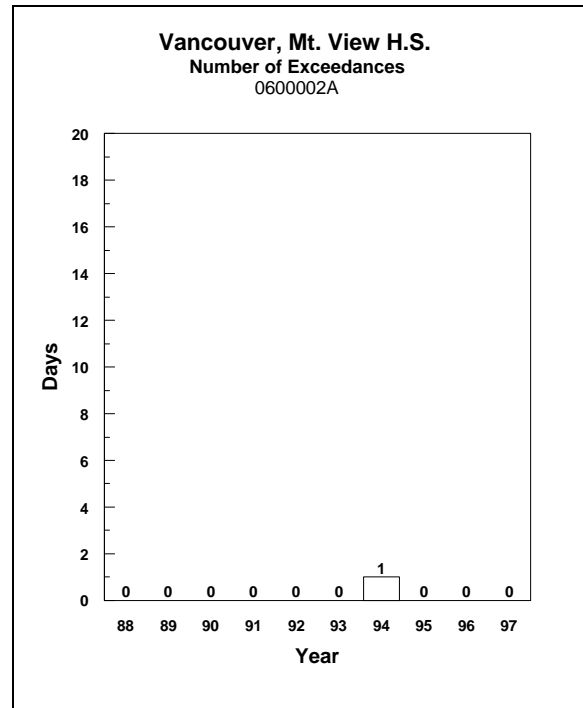
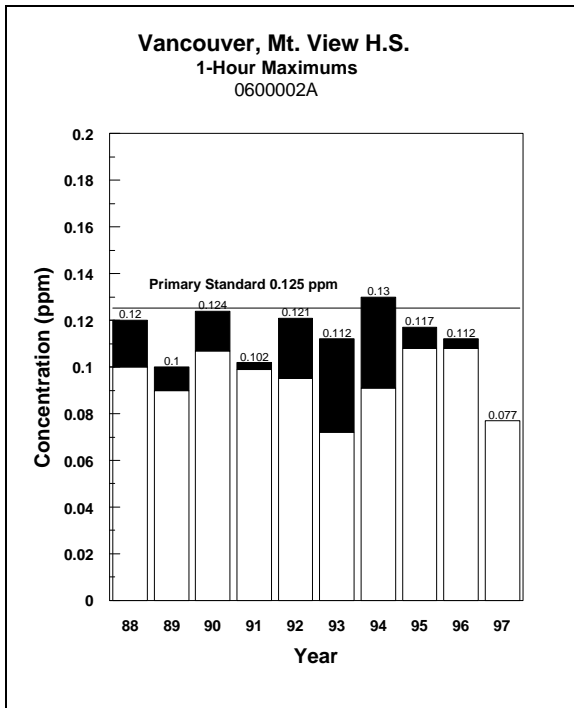
Ozone (ppm) for 1997 (1-Hour)

Station	Location	1st High		1-Hour Maximums 2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
0600002A	Vancouver, Mt. View H.S.	.077	7/4	.077	7/20	.077	7/20	0	0
0600005A	Clark Co., Hockinson	.075	5/12	.075	7/4	.075	7/4	0	0
0800003A	Cowlitz Co, Castle Rock	.078	5/11	.076	5/11	.070	5/11	0	0
0800004A	Cowlitz Co., Woodland	.079	7/4	.077	5/11	.077	5/11	0	0
2100006A	Lewis Co., Packwood Lk	.061	8/11	.059	8/6	.059	8/6	0	0

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

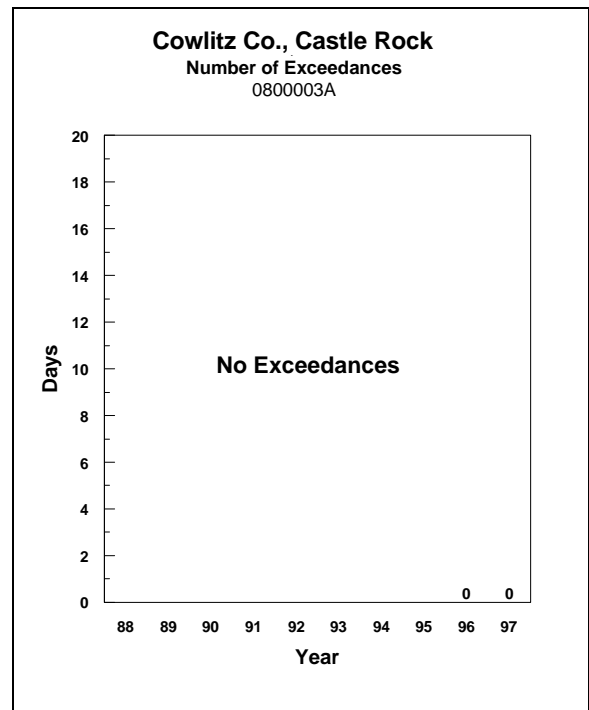
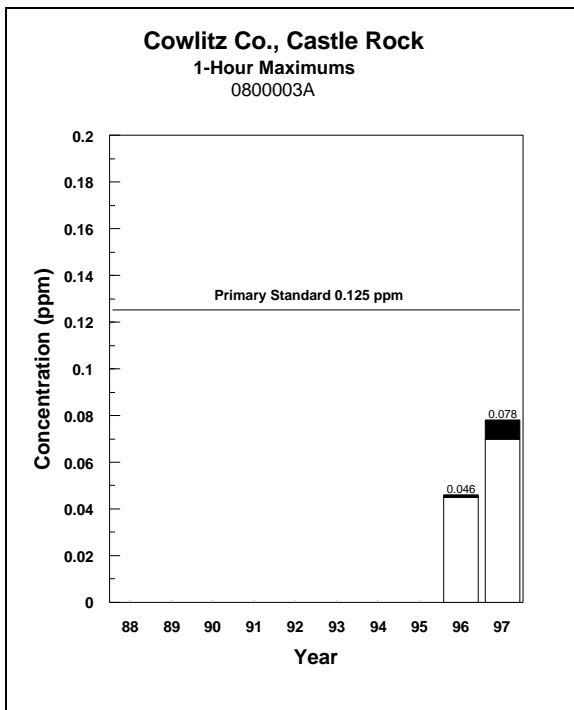
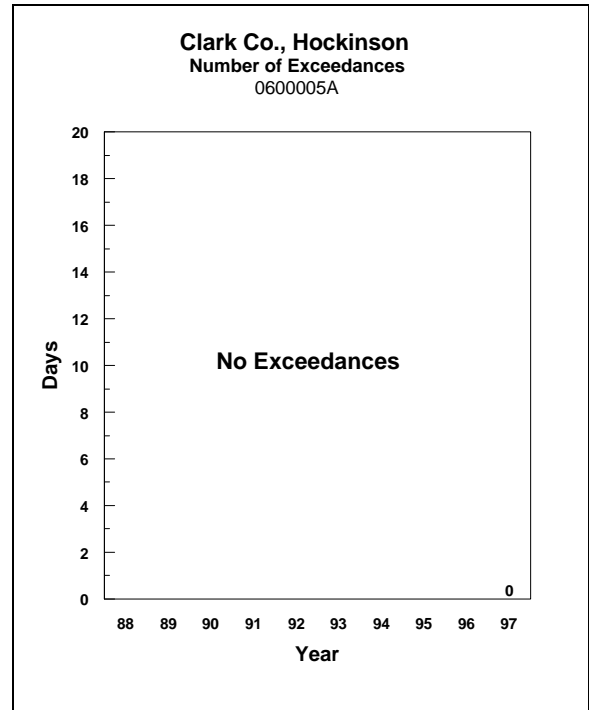
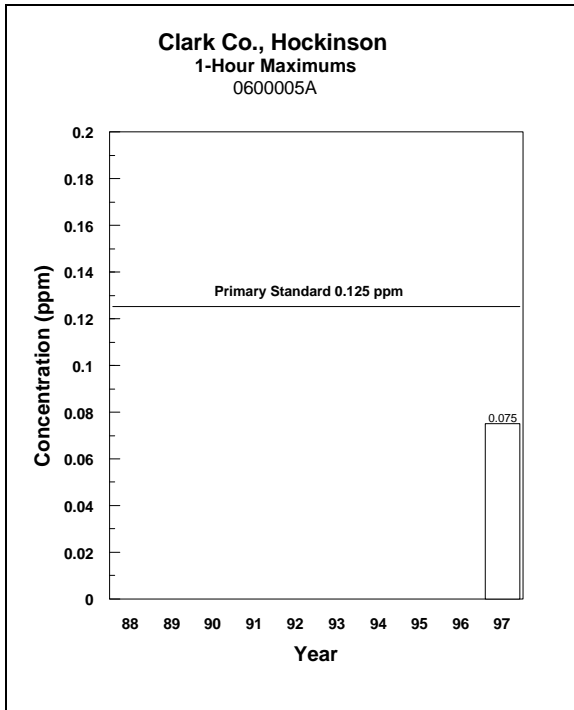
Ozone for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
0600002A	Vancouver, Mt. View H.S.	Apr-Oct	5,020	213	98
0600005A	Clark Co., Hockinson	Apr-Oct	5,048	213	98
0800003A	Cowlitz Co, Castle Rock	Apr-Oct	5,059	214	99
0800004A	Cowlitz Co., Woodland	Apr-Oct	4,887	209	95
2100006A	Lewis Co., Packwood Lake	Jun-Oct	3,257	138	98

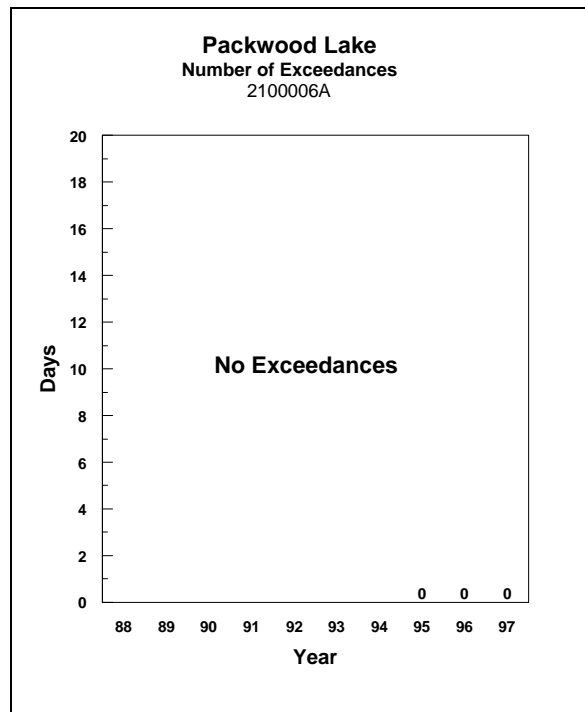
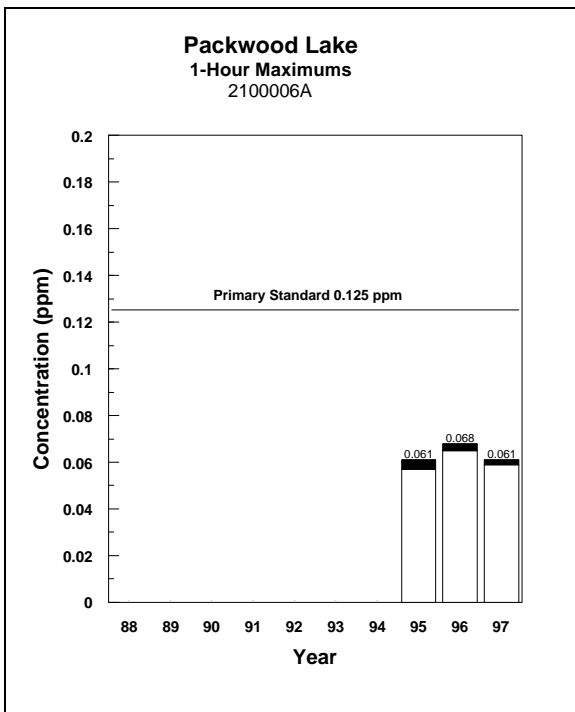
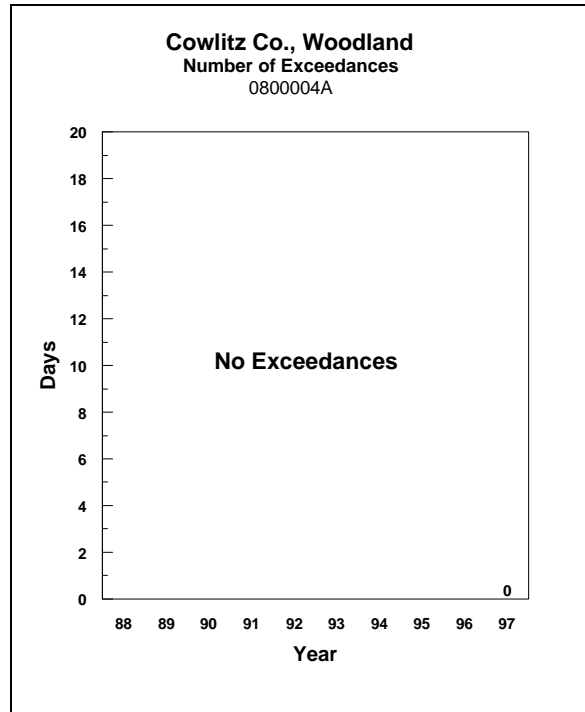
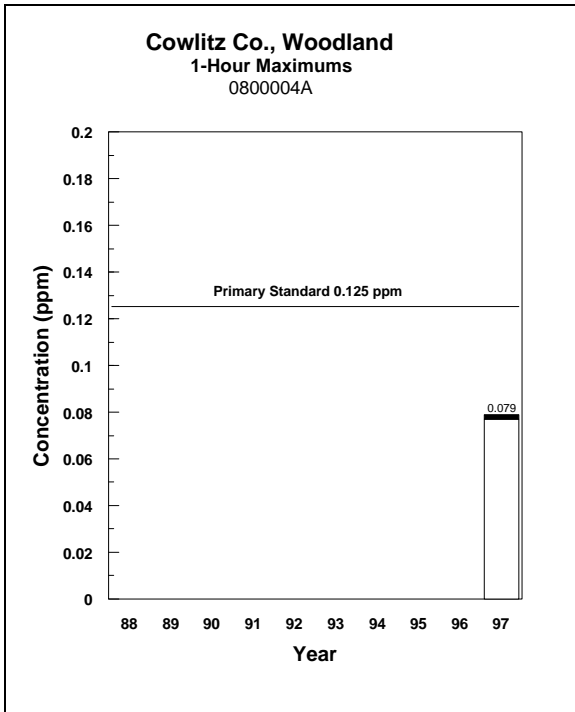


Southwest Area

Ozone



Ozone



Spokane Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
3200020E	Spokane, Rockwood							26*	24	23	25
3214999E	Cheney, Turnbull Slough				27*	17	18	17	11	13	13
3250004E	Spokane, Millwood	52	43	45	41*	35	39	34	28	31	26
3278009E	Spokane, Crown Z.	52	45	48	46*	45	43	38	32	32	29
3278040A	Spokane, Auto Glass	48	41	39	37	39	43	34	28	32	29
3278046A	Spokane, Monroe Street								20*	23	24

*Average based on less than 12 months of data.

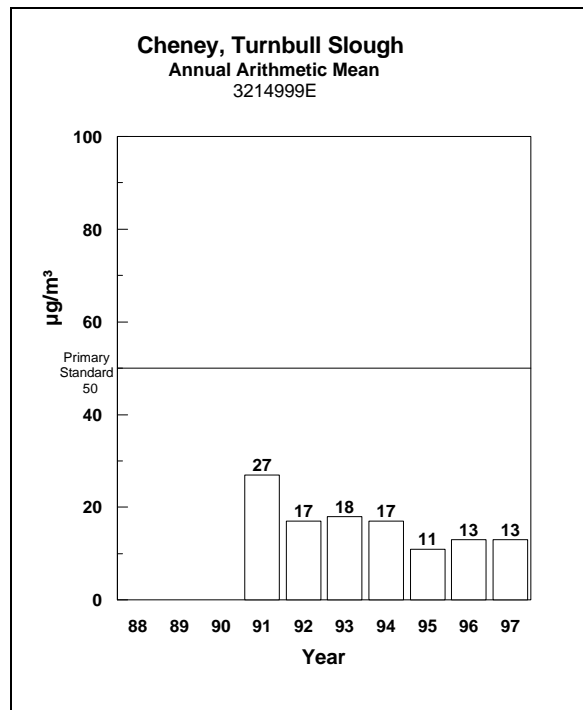
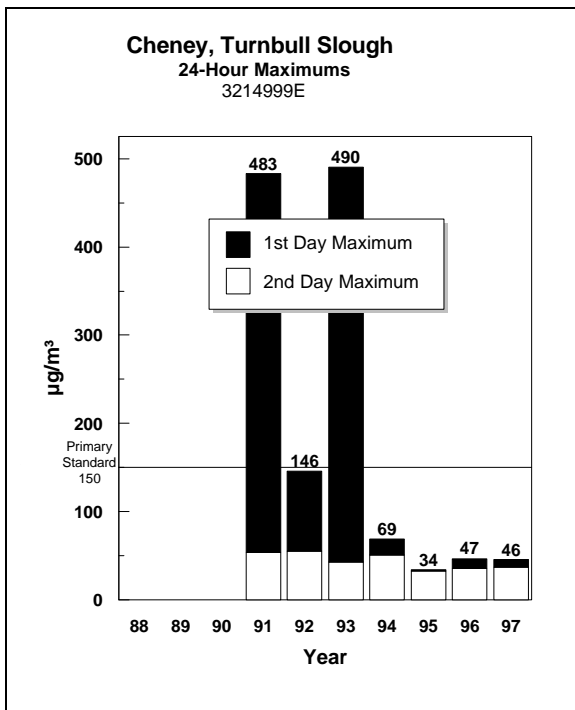
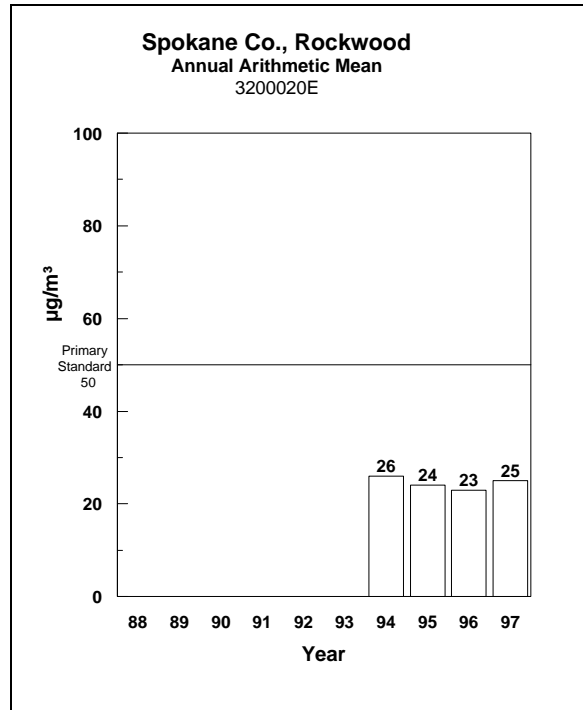
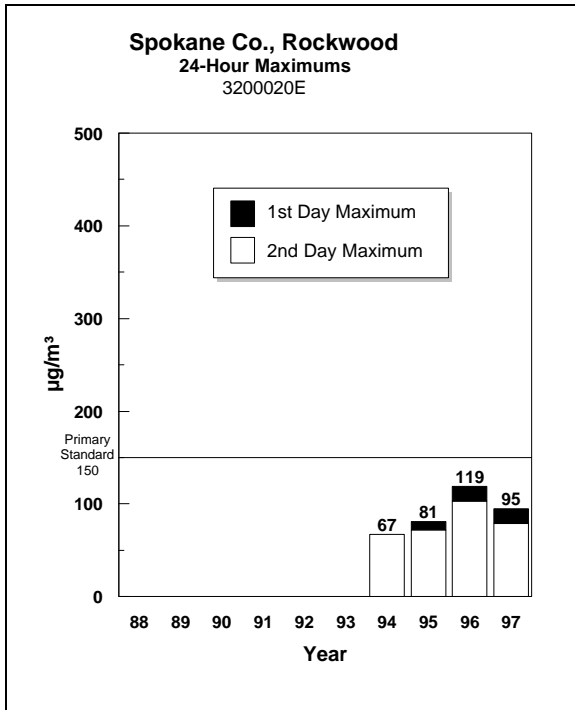
PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3200020E	Spokane, Rockwood	95	8/14	79	8/11	25
3214999E	Cheney, Turnbull Slough	46	8/14	37	9/25	13
3250004E	Spokane, Millwood	57	1/16	56	8/20	26
3278009E	Spokane, Crown Z.	91	1/15	77	1/14	29
3278040A	Spokane, Auto Glass	53	8/20	48	1/16	29
3278046A	Spokane, Monroe Street	53	2/9	51	11/15	24

PM₁₀ for 1997

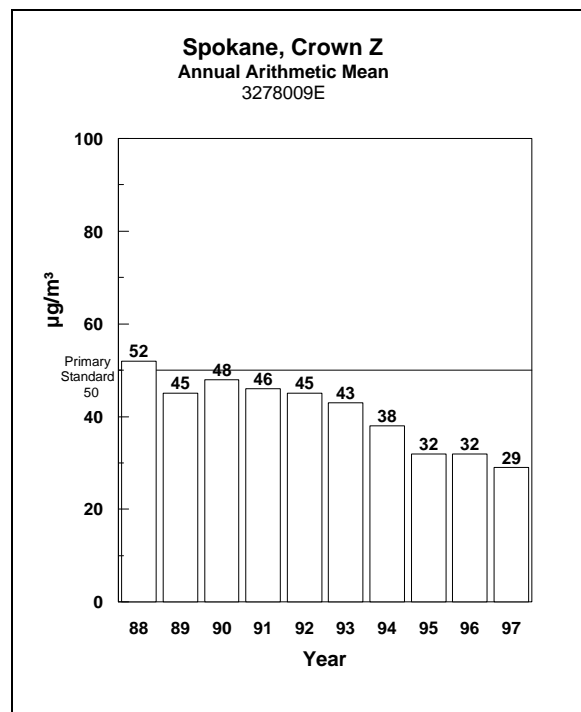
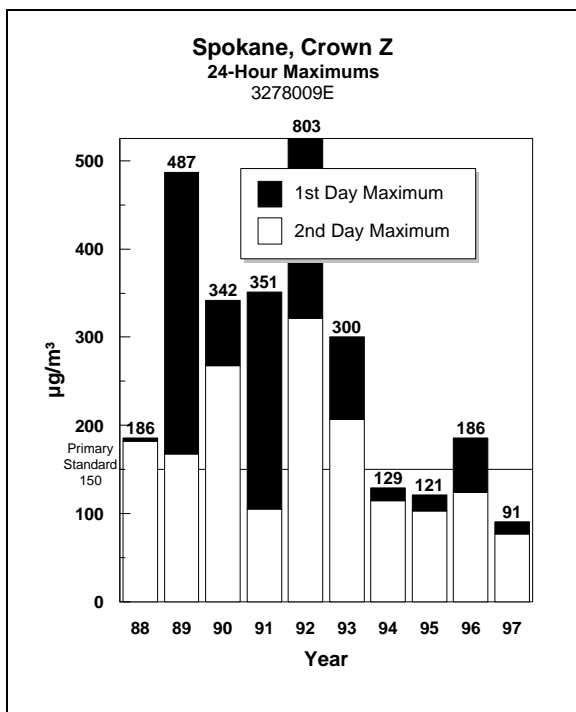
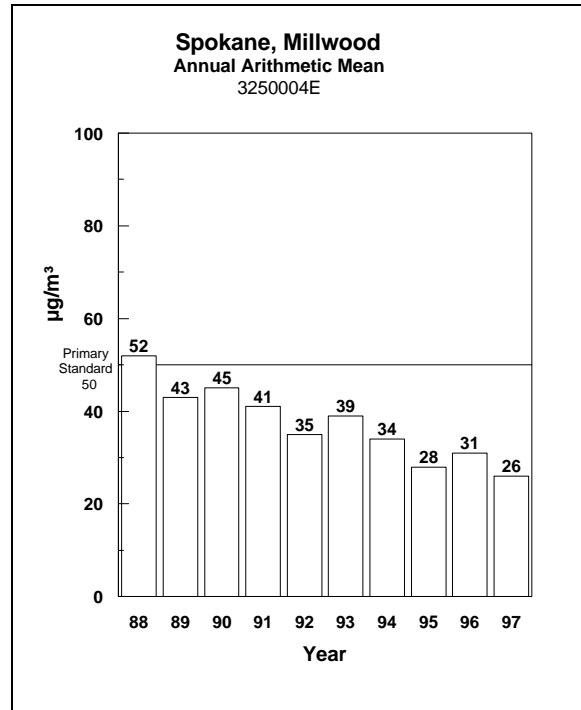
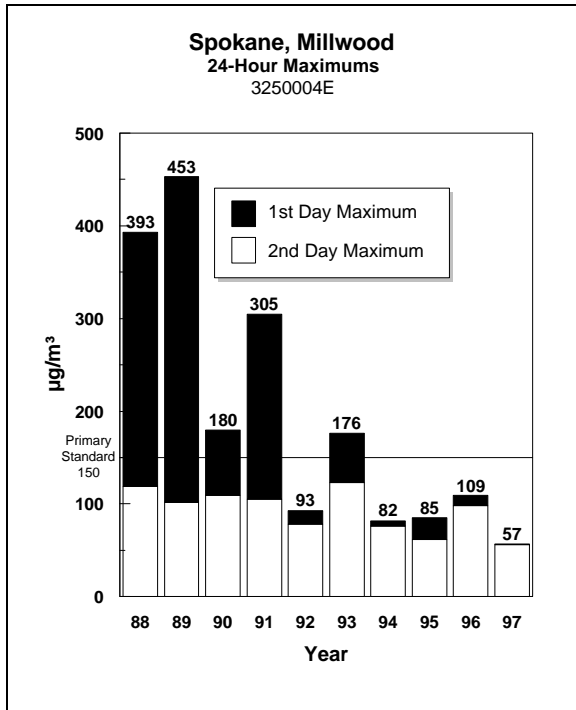
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3200020E	Spokane, Rockwood	Jan-Dec	1/1	341	93
3214999E	Cheney, Turnbull Slough	Jan-Dec	1/6	61	100
3250004E	Spokane, Millwood	Jan-Dec	1/6	59	97
3278009E	Spokane, Crown Z.	Jan-Dec	1/1	341	93
3278040A	Spokane, Auto Glass	Jan-Dec	1/6	58	95
3278046A	Spokane, Monroe Street	Jan-Dec	1/6	60	98

Particulate Matter

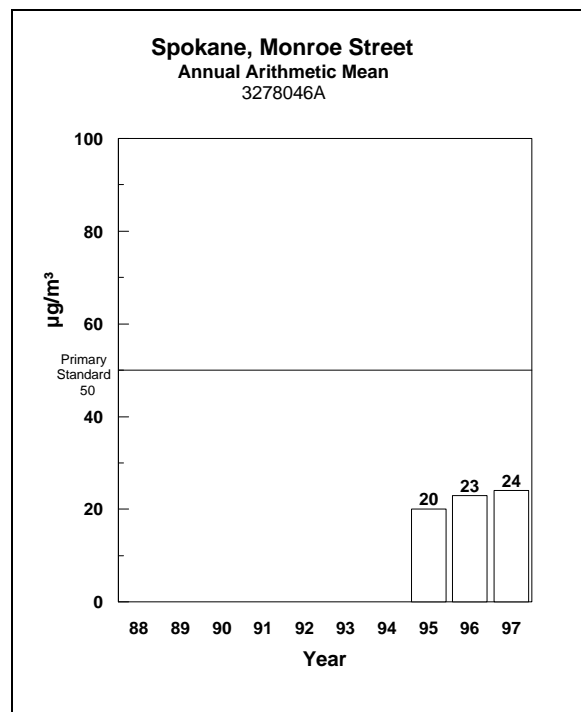
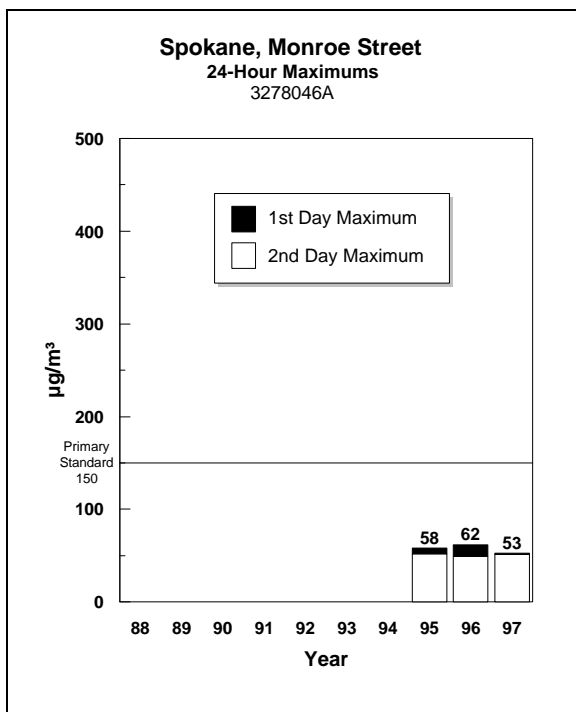
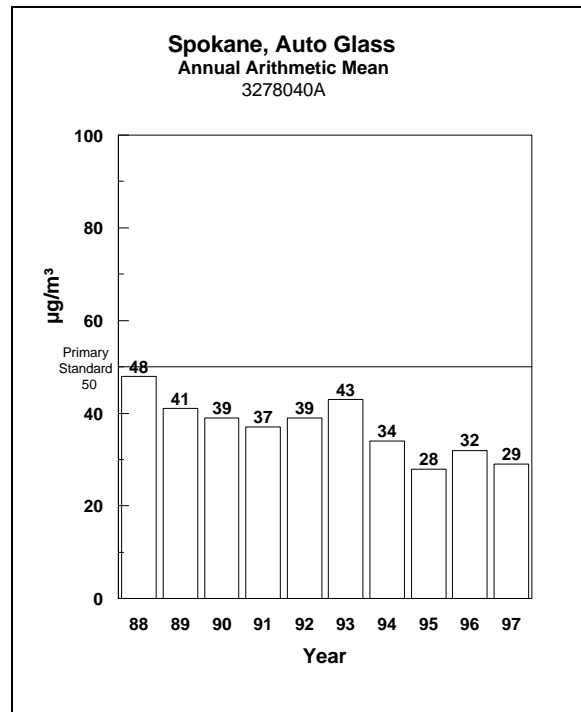
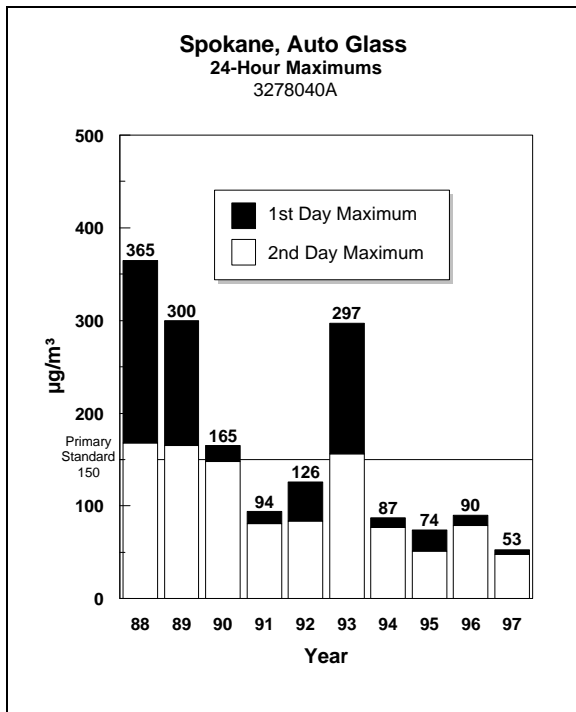


Spokane Area

Particulate Matter



Particulate Matter



Spokane Area

Carbon Monoxide

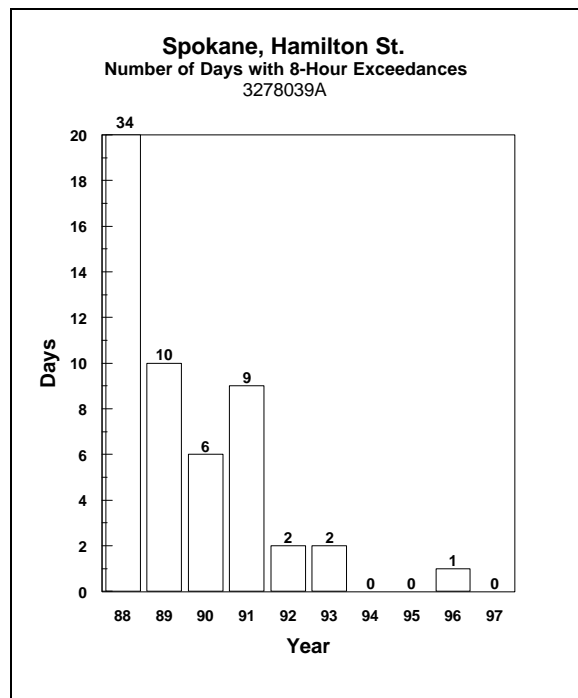
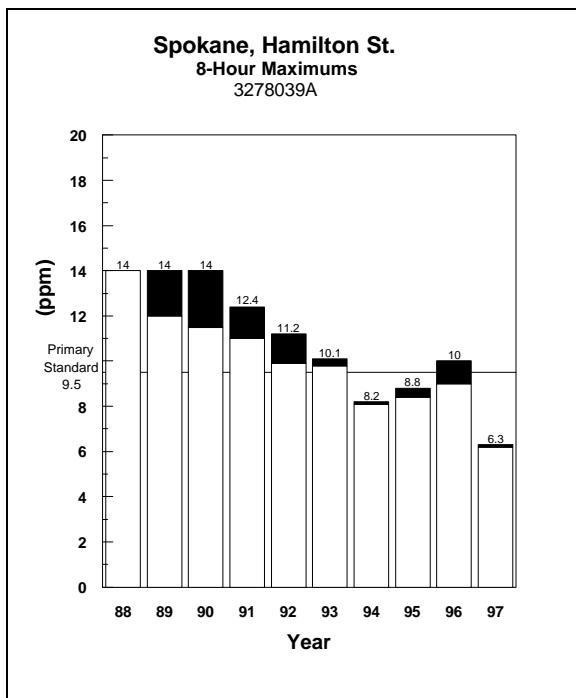
Carbon Monoxide (ppm) for 1997

Station	Location	1-Hour Maximums		8-Hour Maximums ¹				8-Hr. Exc.				
		Conc	Date	1st High	2nd High	Conc	Date		Conc	Date	2nd Day ²	
3278039A	Spokane, Hamilton St.	15.9	11/14	13.6	11/14	6.3	11/14	6.2	11/14	5.8	12/1	0
3278043A	Spokane, Backdoor Tavern	12.9	6/17	7.9	11/14	5.7	12/1	4.3	12/4	4.3	12/4	0
3278045A	Spokane, Spokane Club	7.9	11/14	7.7	11/13	4.4	1/29	4.0	2/14	4.0	2/14	0
3278047A	Spokane, 3rd & Washington	11.6	11/14	8.3	11/11	5.0	10/16	4.8	11/11	4.8	11/11	0
3278048A	Spokane, 3rd & Washington So.	16.1	11/14	12.2	11/14	6.7	11/14	6.4	11/11	6.4	11/11	0

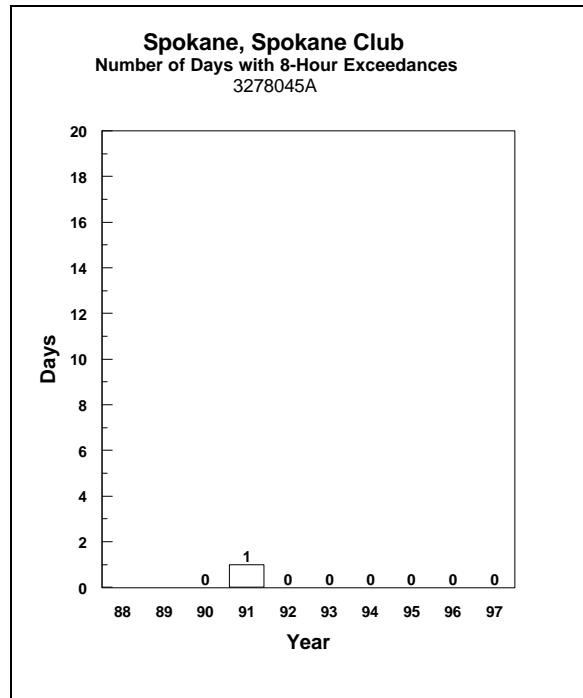
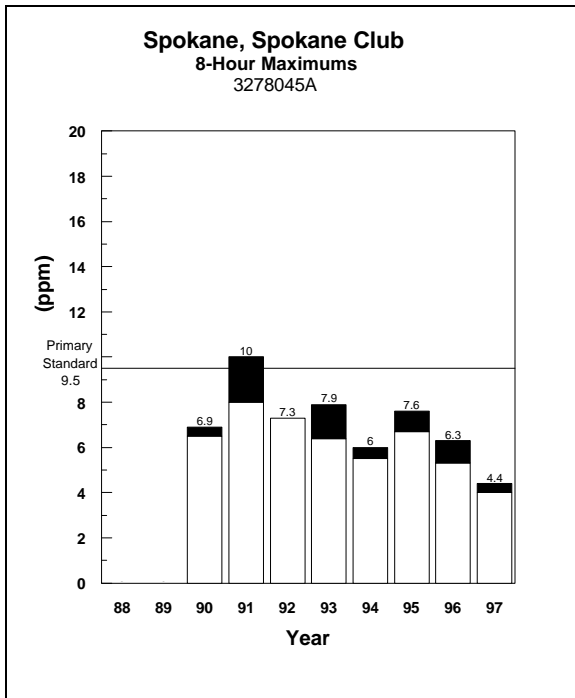
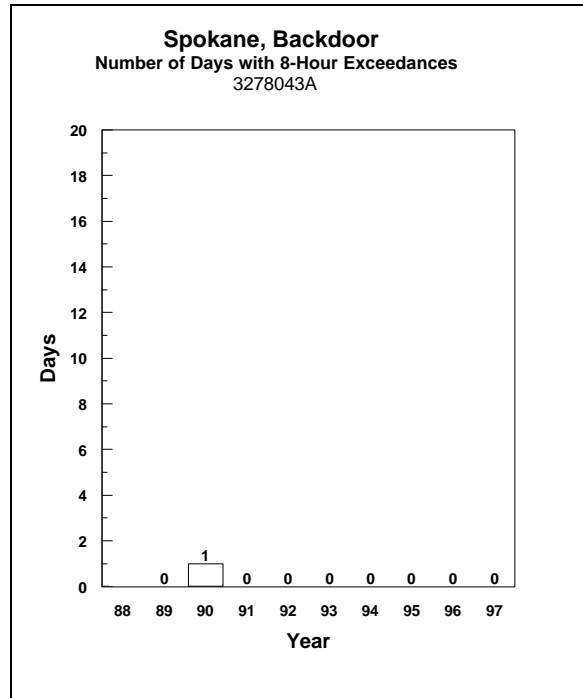
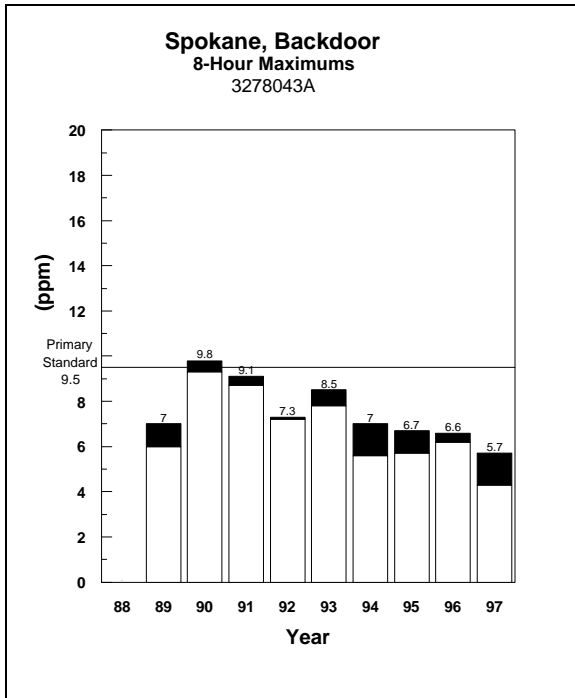
1. 8-hour readings are non-overlapping.
2. 2nd Day High = Second day with the highest 8-hour average.

Carbon Monoxide (ppm) for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3278039A	Spokane, Hamilton St.	Jan-Dec	8,650	365	99
3278043A	Spokane, Backdoor Tavern	Jan-Dec	8,690	365	99
3278045A	Spokane, Spokane Club	Jan-Dec	8,584	365	98
3278047A	Spokane, 3rd & Washington	Jan-Dec	8,593	365	99
3278048A	Spokane, 3rd & Washington So.	Jan-Dec	8,433	365	98

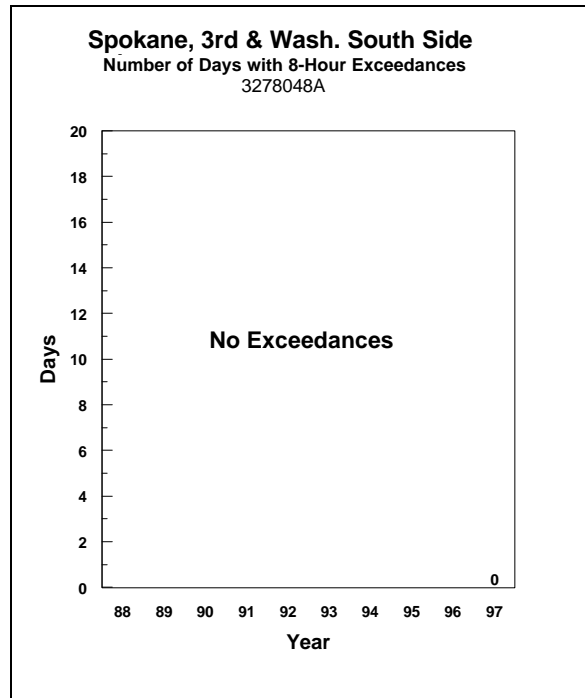
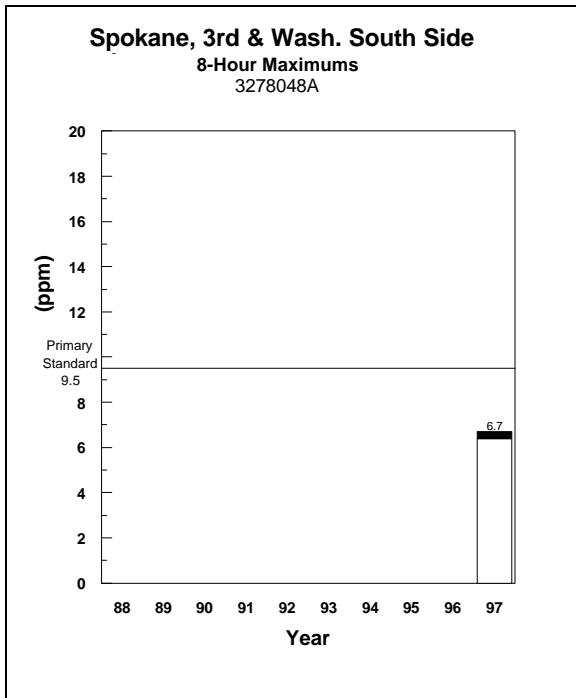
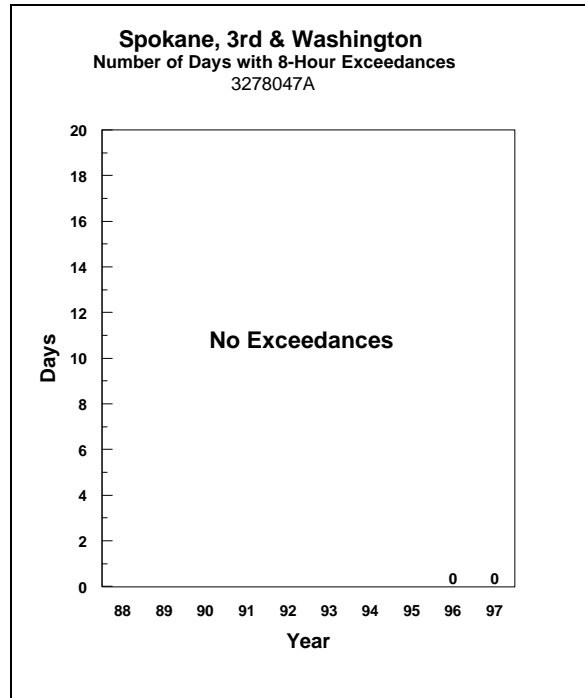
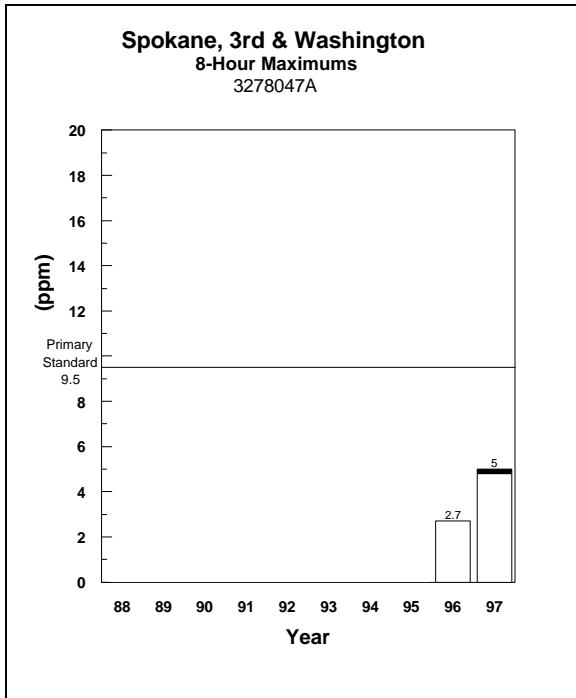


Carbon Monoxide



Spokane Area

Carbon Monoxide



Ozone

Ozone (ppm) for 1997 (8-Hour)

Station	Location	8-Hour Maximums			
		1st High		4th High	
		Conc	Date	Conc	Date
3200019A	Spokane County, Green Bluff	0.0689	8/3	0.0645	5/13

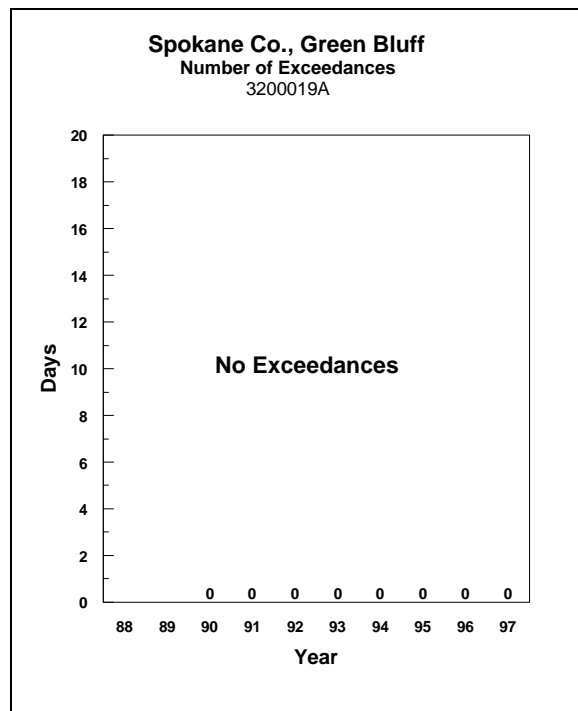
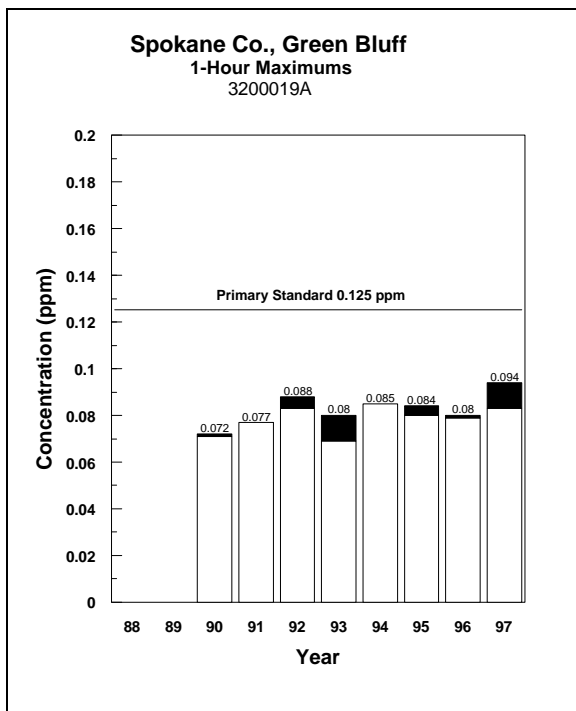
Ozone (ppm) for 1997 (1-Hour)

Station	Location	1-Hour Maximums							
		1st High		2nd High		2nd Day High*		# Hrs >.124	Exceedance Days
		Conc	Date	Conc	Date	Conc	Date		
3200019A	Spokane Co., Green Bluff	.094	8/4	.089	8/4	.083	5/15	0	0

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

Ozone for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3200019A	Spokane Co., Green Bluff	Apr-Oct	5,085	214	99



Yakima Area

Particulate Matter

PM₁₀ Annual Arithmetic Means (µg/m³)

Station	Location	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
3978006F	Sunnyside, Chief Kamiakin Elem									36*	29
3996008F	Yakima, Garfield Elem.		51*	34	44	32	38	31	24*	35	37
3996009F	Yakima, YVCC - Sundquist		66*	33	37	33	31	27	26*	44*	29

*Average based on less than 12 months of data.

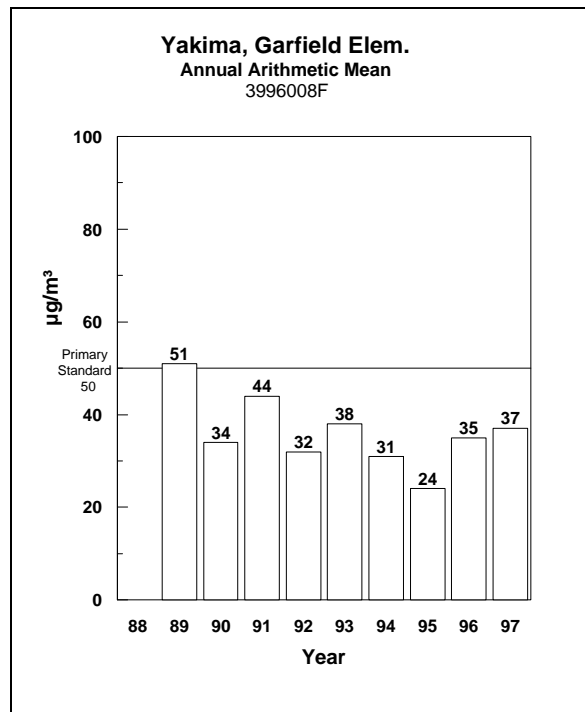
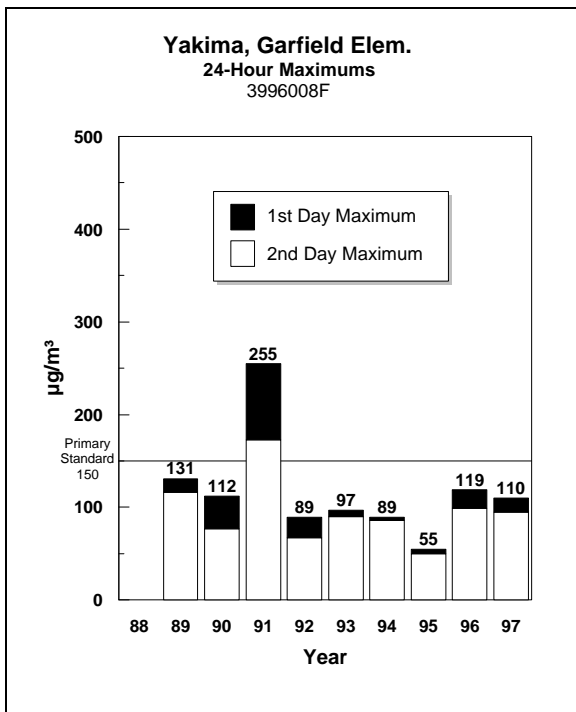
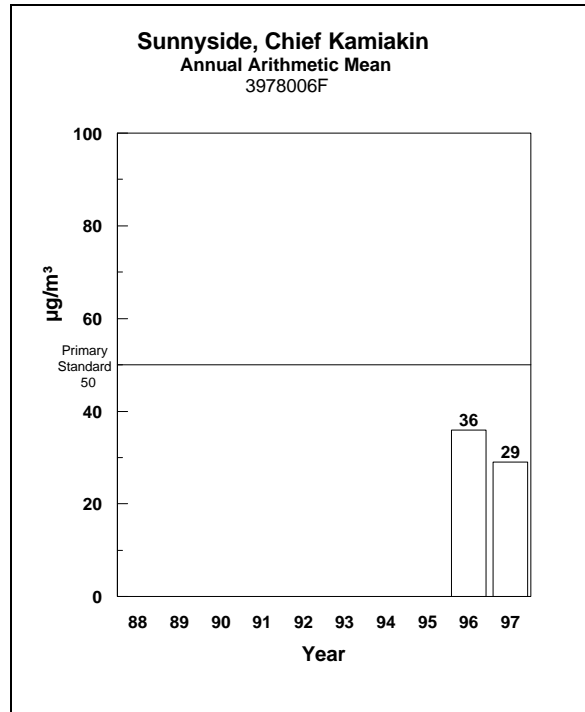
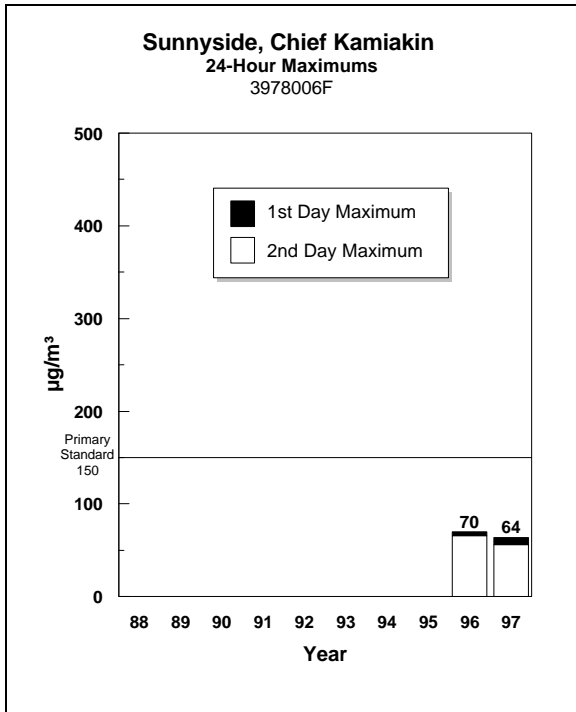
PM₁₀ (µg/m³) for 1997

Station	Location	1st High		2nd High		Annual Arith. Mean
		Conc	Date	Conc	Date	
3978006F	Sunnyside, Chief Kamiakin Elem	64	1/10	56	8/20	29
3996008F	Yakima, Garfield Elem.	110	2/25	95	1/10	37
3996009F	Yakima, YVCC - Sundquist	88	1/30	86	1/22	29

PM₁₀ for 1997

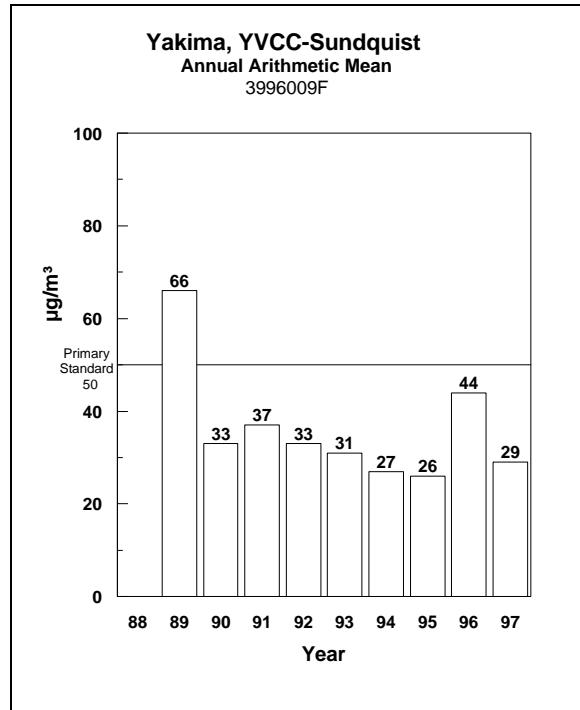
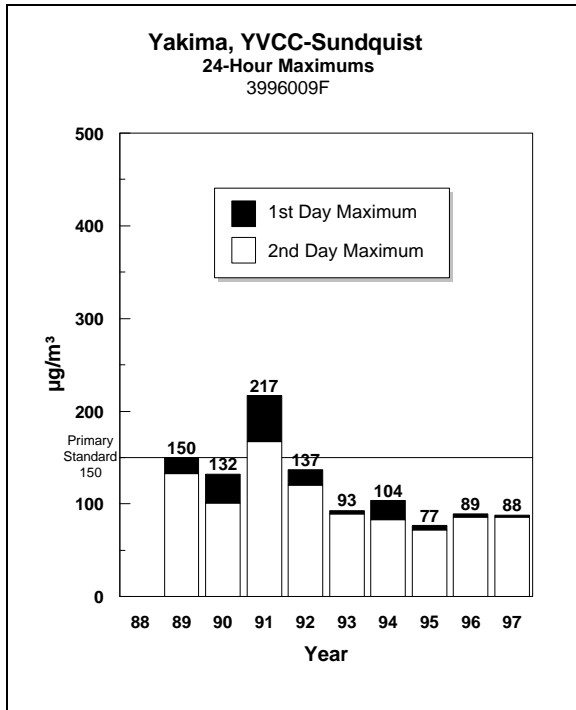
Station	Location	Period of Record	Samp. Freq.	# Samples	% Valid Data
3978006F	Sunnyside, Chief Kamiakin Elem	Jan-Dec	1/6	58	95
3996008F	Yakima, Garfield Elem.	Jan-Dec	1/6	62	85
3996009F	Yakima, YVCC - Sundquist	Jan-Dec	1/2	174	96

Particulate Matter



Yakima Area

Particulate Matter



Carbon Monoxide

Carbon Monoxide (ppm) for 1997

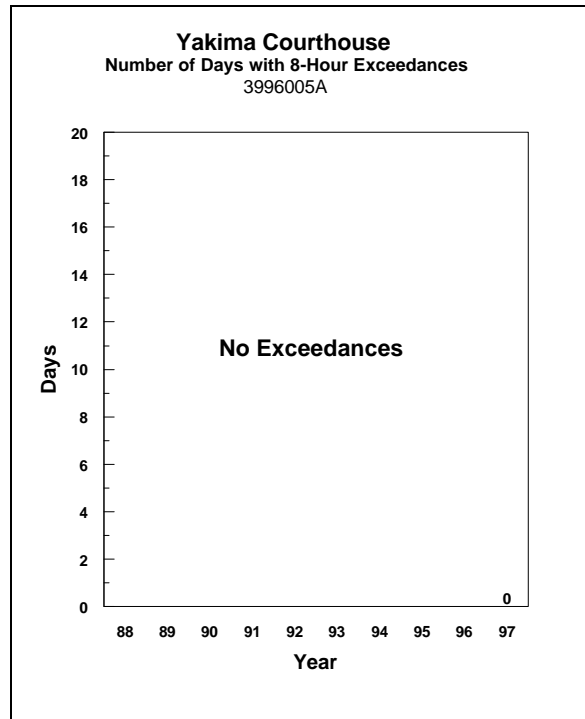
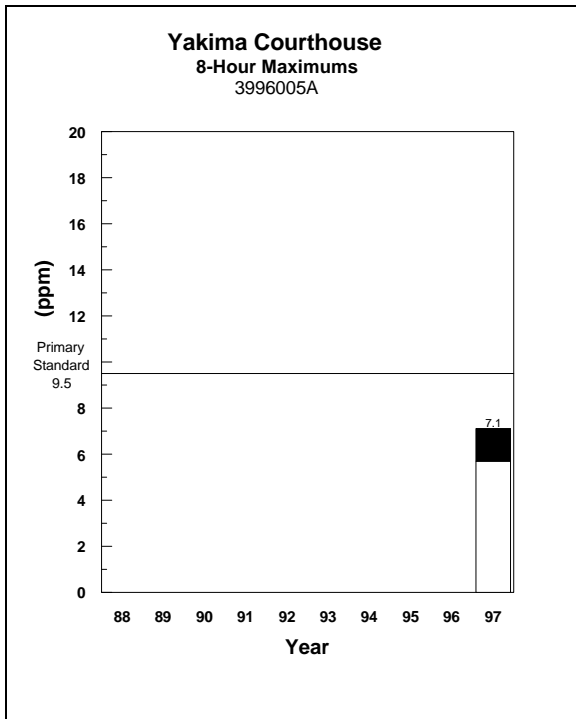
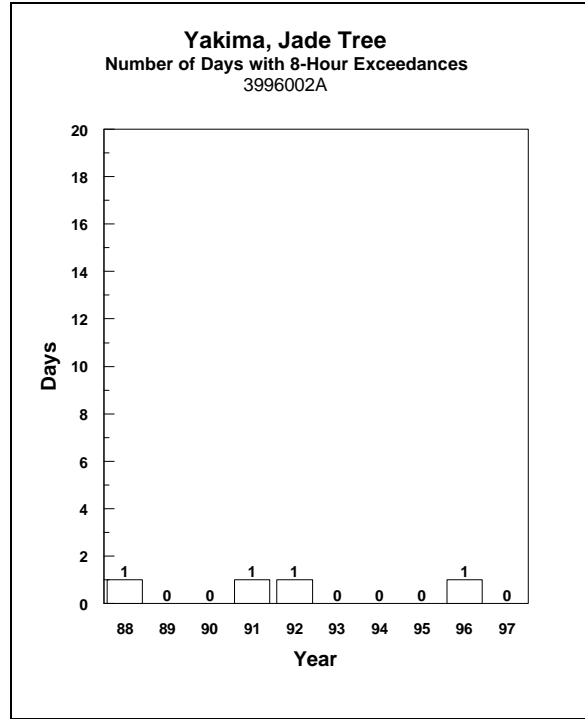
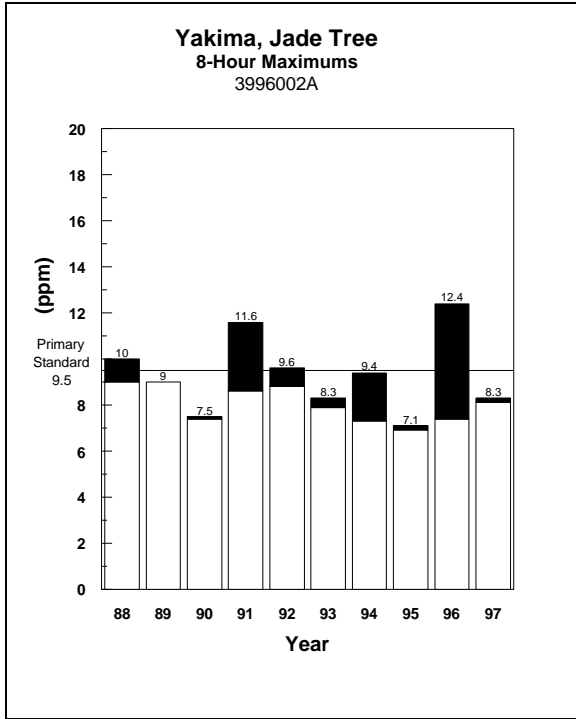
Station	Location	1-Hour Maximums		8-Hour Maximums ¹				8-Hr. Exc.				
		Conc	Date	1st High	2nd High	Conc	Date		Conc	Date	Conc	Date
3996002A	Yakima, Jade Tree	16.1	1/2	14.8	1/10	8.3	1/10	8.1	1/2	8.1	1/2	0
3996005A	Yakima Courthouse	12.4	12/30	11.6	11/21	7.1	12/30	5.7	12/18	5.7	12/18	0

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

Carbon Monoxide (ppm) for 1997

Station	Location	Period of Record	# Hours	# Days	% Valid Data
3996002A	Yakima, Jade Tree	Jan-May	2,723	129	88
3996005A	Yakima Courthouse	Sep-Dec	2,640	126	99

Carbon Monoxide



Visibility Monitoring

Visibility Monitoring for 1997

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 for Class I area and monitoring locations). Although monitoring at the state-operated sites is generally conducted from June through October, the period of most concern is July 1st through Labor Day. This "visibility protection period" coincides with the period of heaviest visitation to the Class I areas of the state.

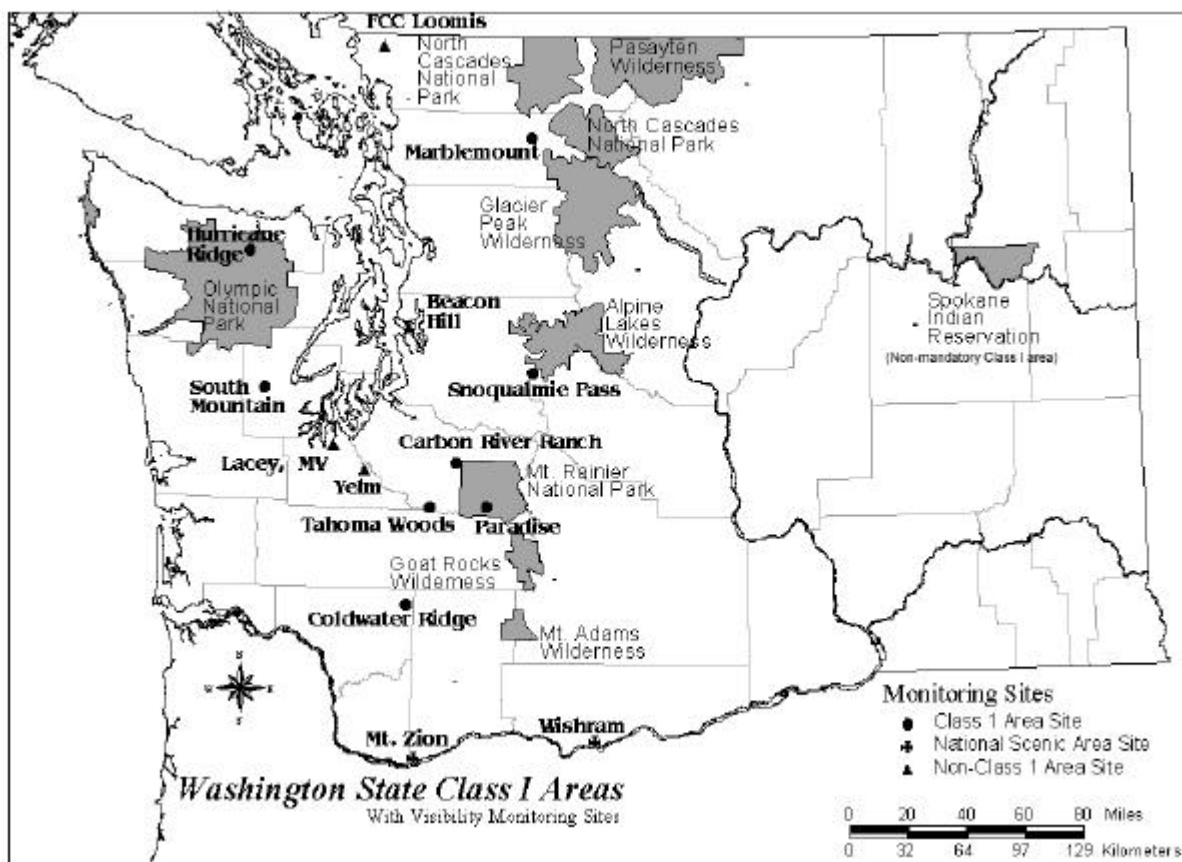
As in past years, state visibility monitoring at or near Class I areas for the 1997 season involved the operation of nephelometers at sites in western Washington. Sites operated were South Mountain, Paradise Visitor Center, Carbon River Ranch, Marblemount, Hurricane Ridge, and Coldwater Ridge. The Coldwater Ridge site, located at the Mt. St. Helens National Monument, is new this year. Monitoring at Coldwater Ridge did not begin until July 24, 1997 and data from this site will not be reported here. Ecology added IMPROVE (Interagency Monitoring of PROtected Visual Environments) PM_{2.5} particulate monitors at three of the state sites: South Mountain, Marblemount and Coldwater Ridge. PM_{2.5} monitoring did not begin until late July/early August and the data is not presented here.

It is interesting to note the unusually high number of impairments at Hurricane Ridge in August. Most of these impairments occurred over a period when six wildfires burned in the interior of the park, one within five miles of the monitoring site. Anecdotal evidence from park staff suggests these fires may have been responsible for the high number of impairments.

The local air authorities also monitor visibility at various non-Class I area sites in western Washington: FCC Loomis, Beacon Hill, Yelm and Lacey MV. In addition, Ecology operates a visibility site in the Columbia River Gorge National Scenic Area at Mt. Zion. Nephelometer data from these sites is presented here for comparison with the Class I area sites.

The National Park Service and the U.S. Forest Service monitor visibility at two Class I area sites: Tahoma Woods and Snoqualmie Pass. PM_{2.5} data from these two sites plus data from Beacon Hill in Seattle were the subject of a recent source apportionment study ("Western Washington 1996 – 1997 PM_{2.5} Source Apportionment Study," Judy Chow and John Watson, June 1998). Charts summarizing the data from this study are presented on the following pages.

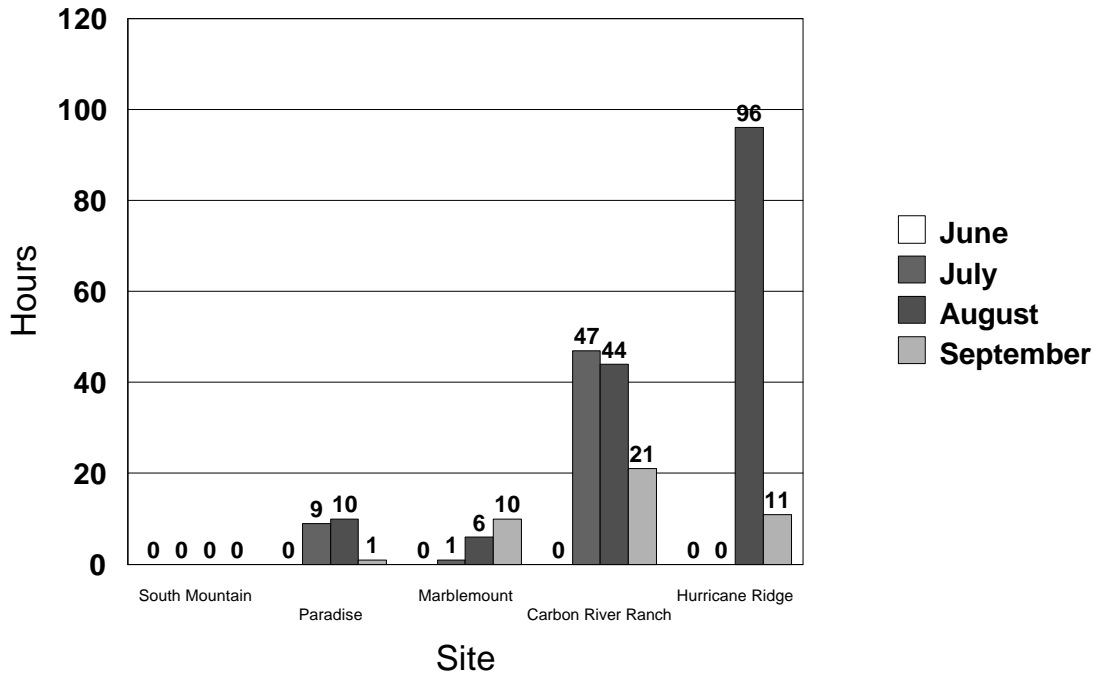
Visibility Monitoring



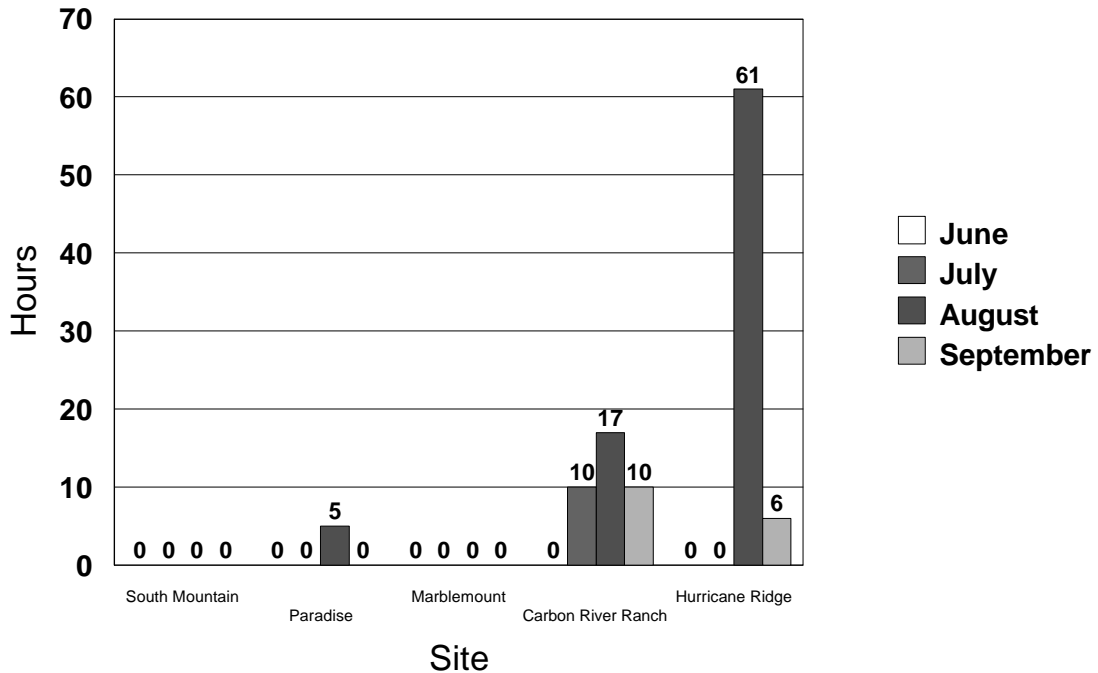
Data from these sites is presented in the graphs on pages 78 - 82.

Visibility Data

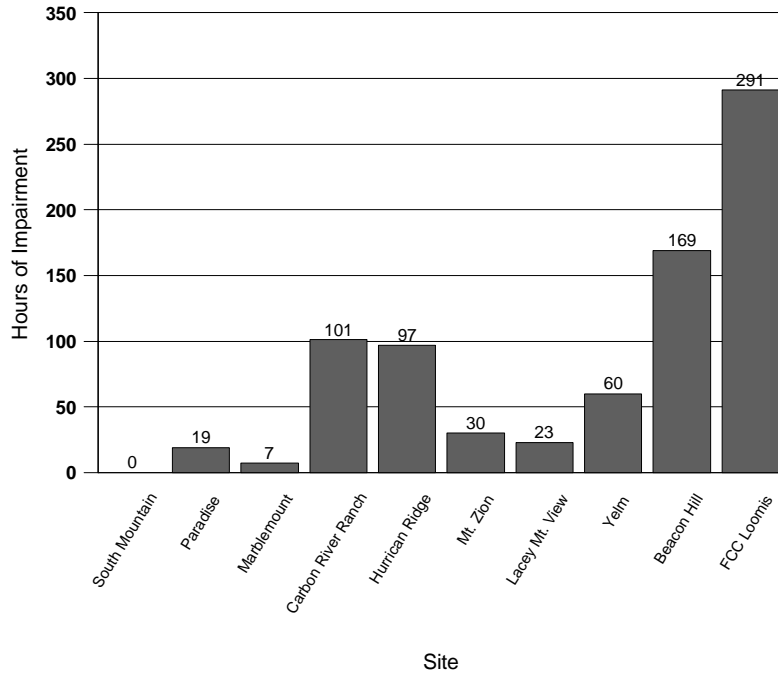
Hours of Visibility Impairment at Class I Areas - 1997



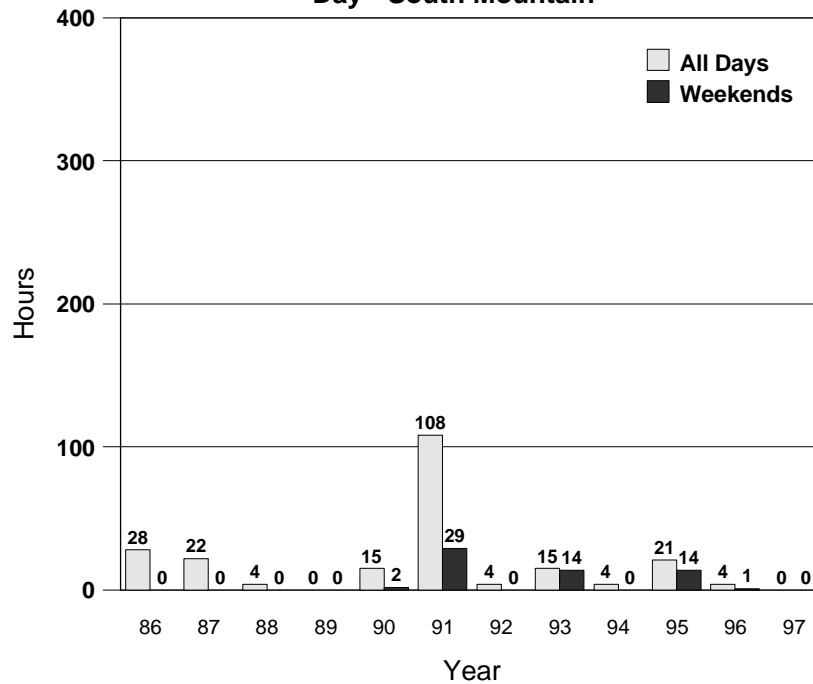
Weekend Hours of Visibility Impairment at Class I Areas - 1997



**Comparison of Class I Area Visibility Impairment
With Other Non-Class I Areas
July 1st through Labor Day, 1997**

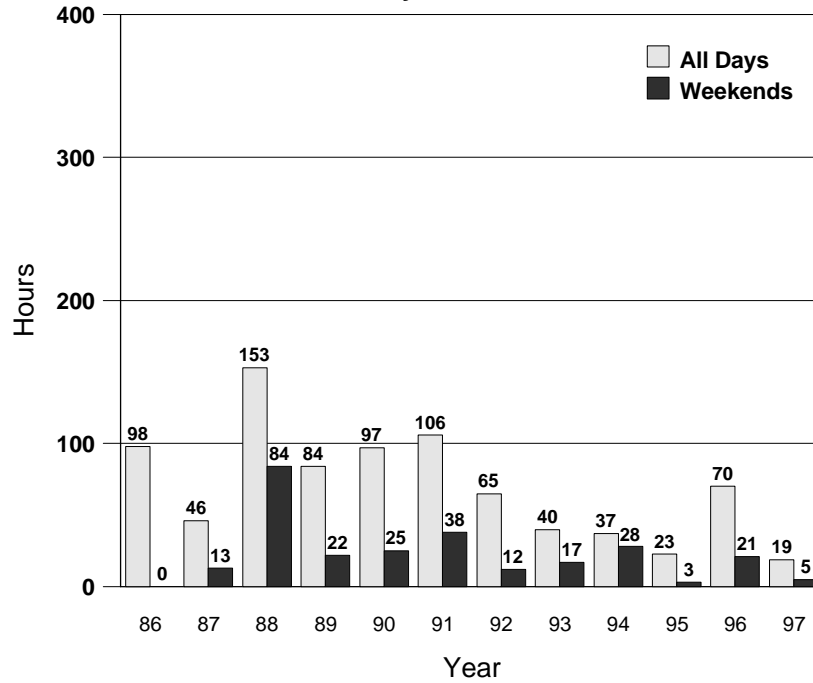


Hours of Visibility Impairment July 1st Through Labor Day - South Mountain

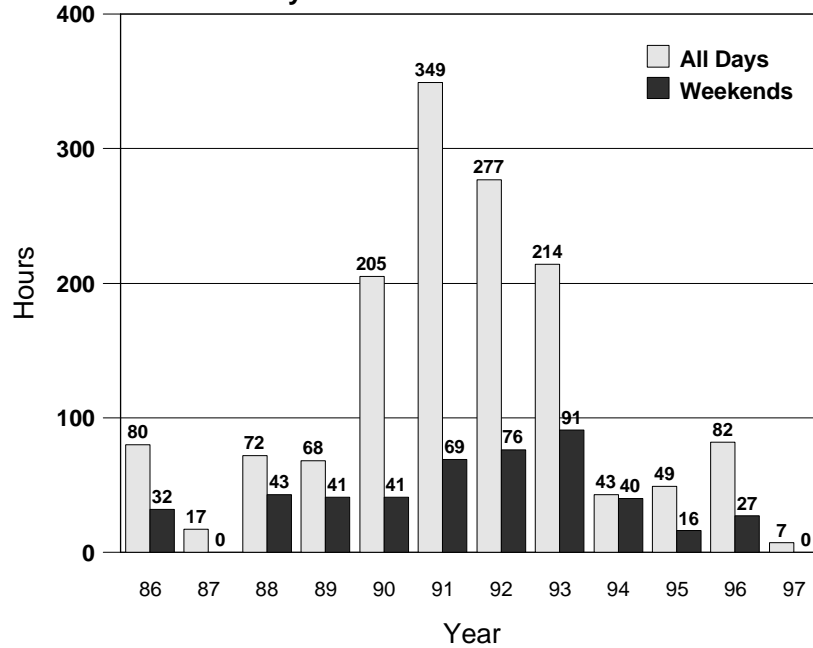


Visibility Data

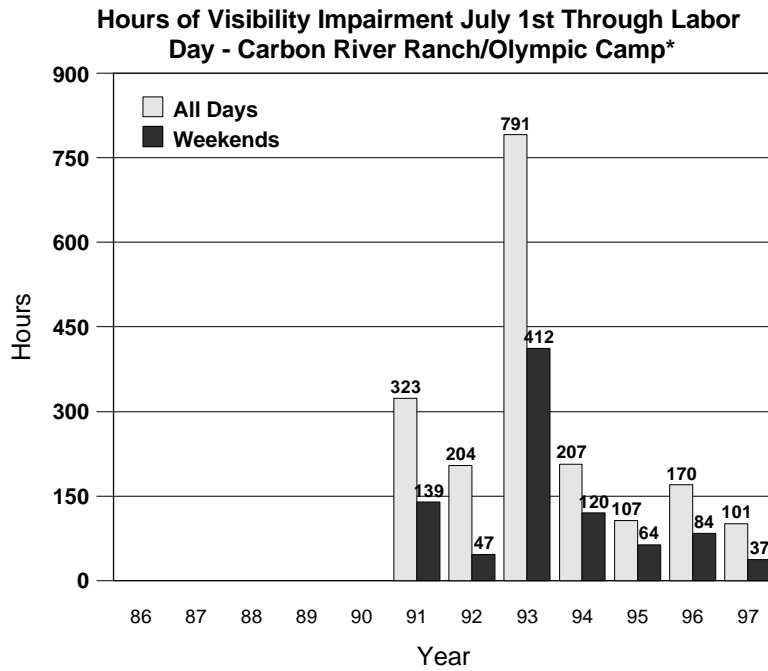
Hours of Visibility Impairment July 1st Through Labor Day - Paradise



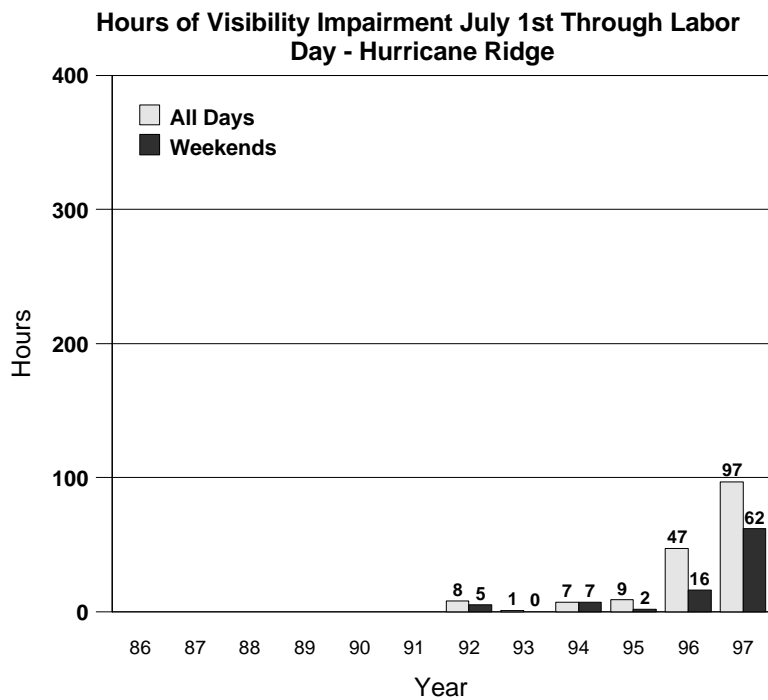
Hours of Visibility Impairment July 1st Through Labor Day - Marblemount/Newhalem*



*Site moved from Newhalem to Marblemount in 1991

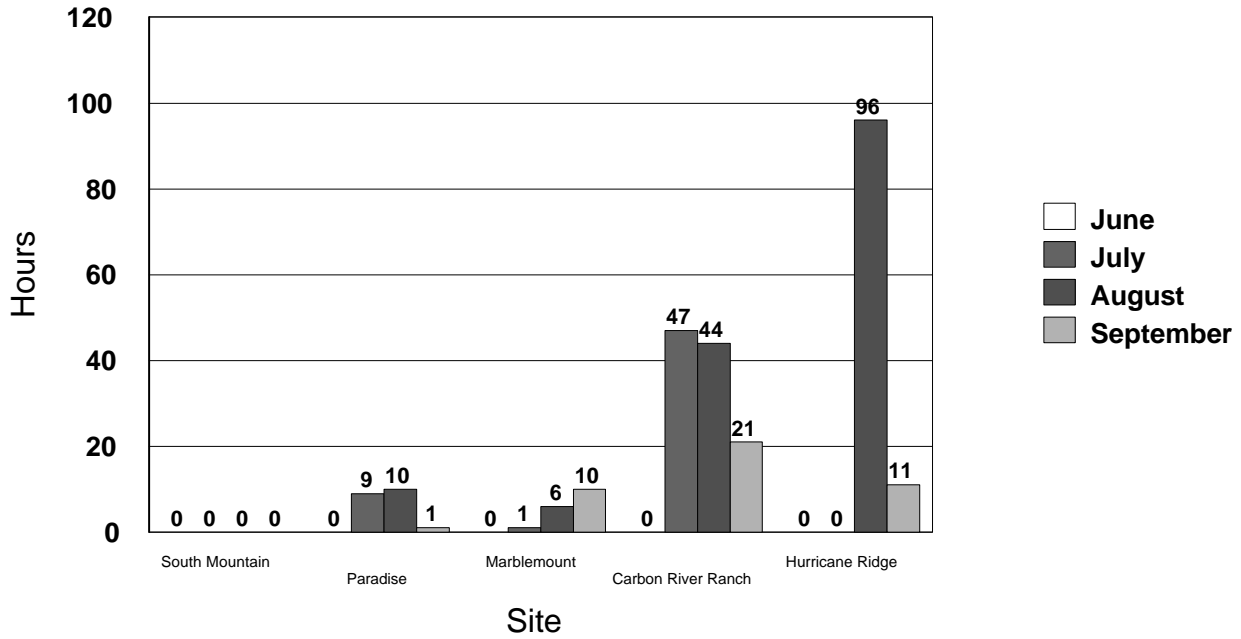


*Site moved from Olympic Camp to Carbon River Ranch in 1994

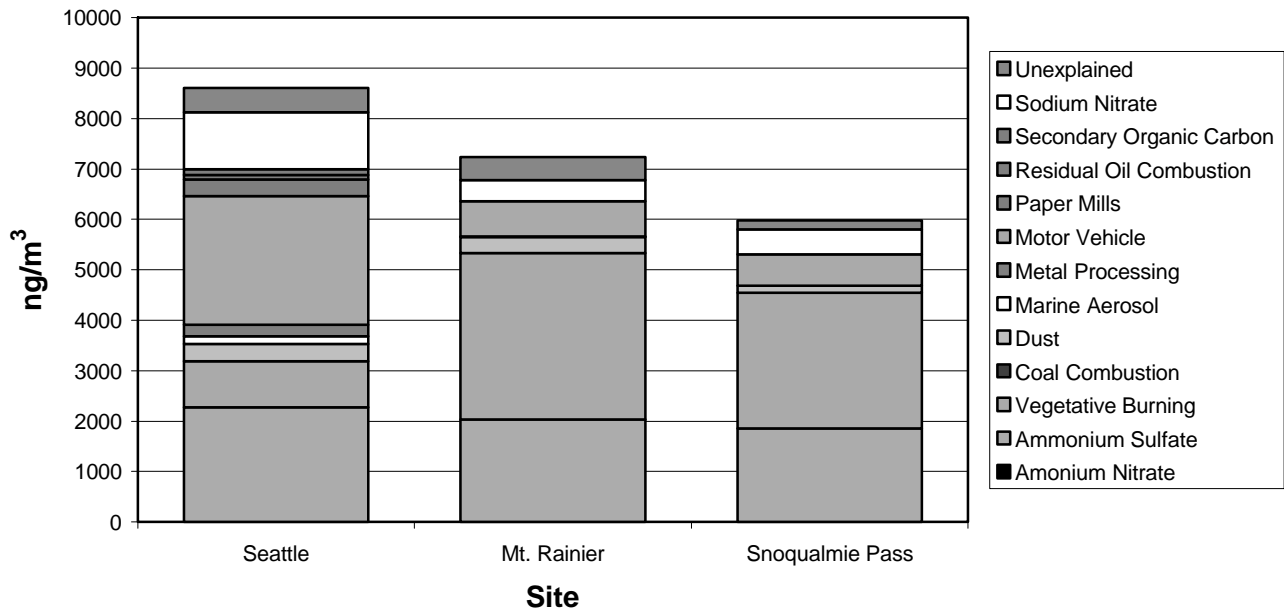


Visibility Data

Hours of Visibility Impairment at Class I Areas - 1997



Summer PM_{2.5} Source Contributions (Chow and Watson, 6/98)



Air Quality Program staff check the automated and manual method data received from air monitoring sites for precision and accuracy. The following graphs show the 95 percent probability limits for each parameter measured. The horizontal lines show the Air Quality Program's objectives.

Figure 1. Summary of Automated Method Precision

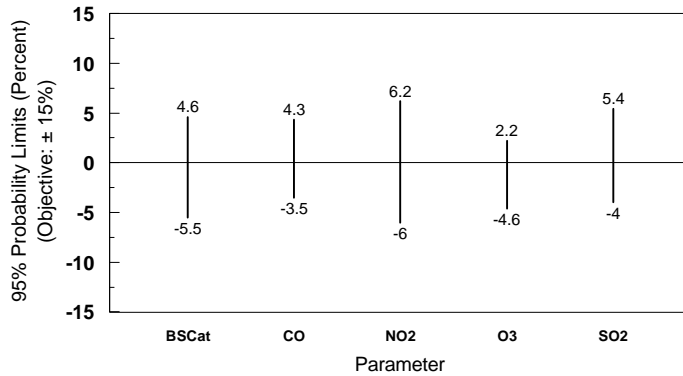


Figure 2. Summary of Carbon Monoxide (CO) Automated Method Accuracy

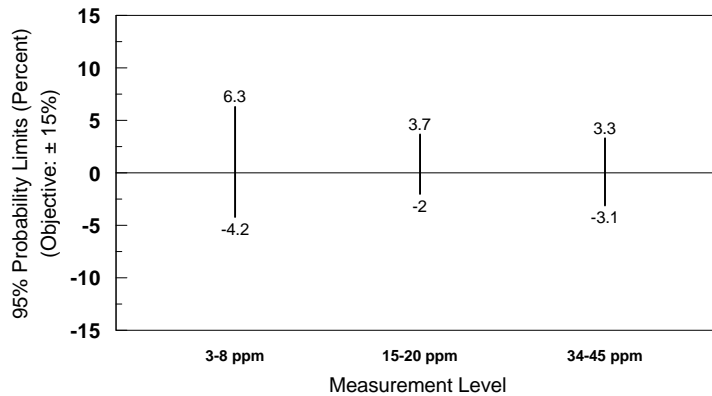


Figure 3. Summary of Nitrogen Dioxide (NO₂) Automated Method Accuracy

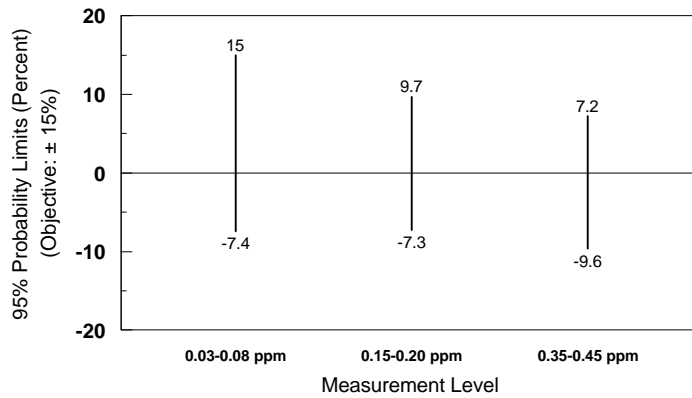


Figure 4. Summary of Ozone (O₃) Automated Method Accuracy

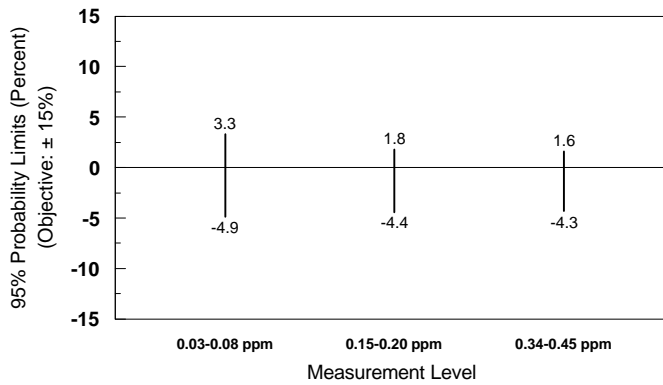


Figure 5. Summary of Sulfur Dioxide (SO₂) Automated Method Accuracy

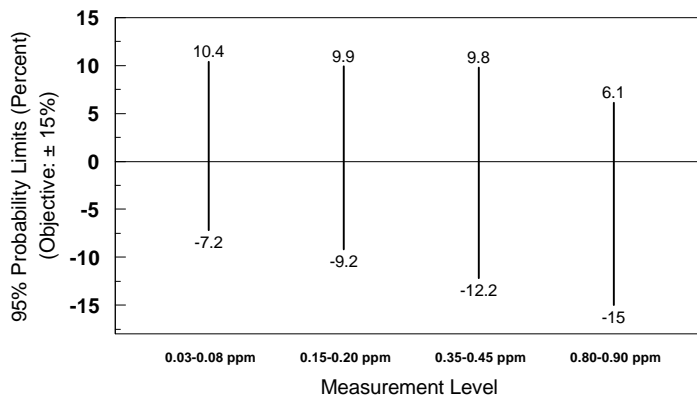


Figure 6. Summary of Manual Method Precision

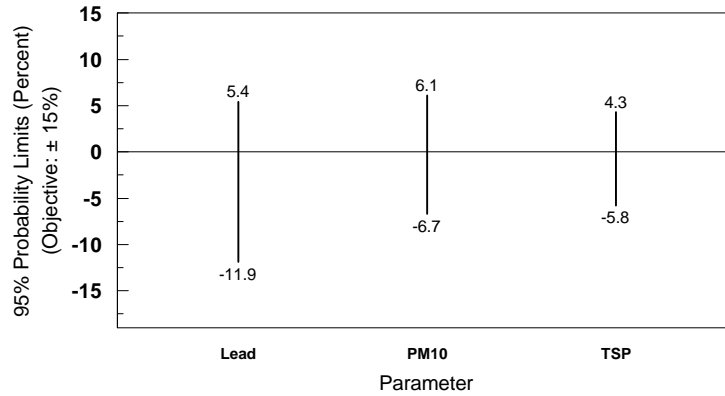


Figure 7. Summary of Lead (Pb) Manual Method Accuracy

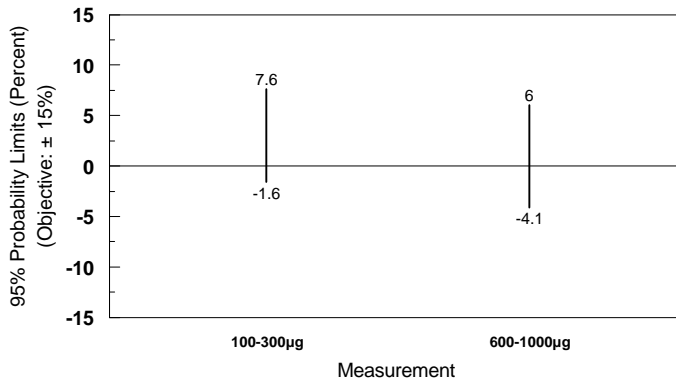
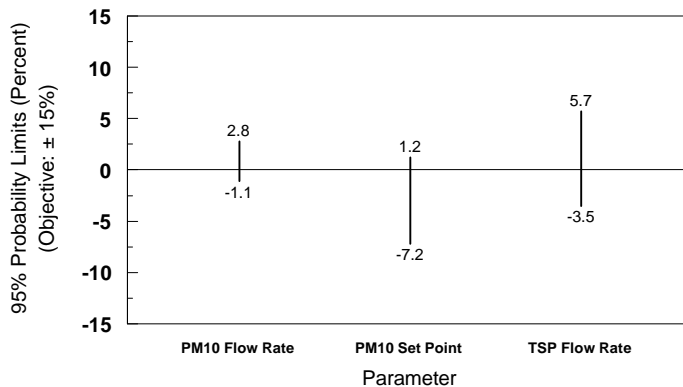


Figure 8. Summary of Particulate Matter Manual Method Accuracy



Quality Assurance
