

**AIR QUALITY DATA SUMMARY**

**1972**

**King, Pierce, Snohomish, and Kitsap Counties**

**Measured and Compiled**

**by**

**Air Monitoring Division**

**Puget Sound Air Pollution Control Agency**

410 West Harrison Street  
Seattle, Washington 98119

PUGET SOUND AIR POLLUTION CONTROL AGENCY

AIR QUALITY DATA SUMMARY

1972

CONTENTS

	PAGE
Introduction	1
Sampling System Description	2
Atmospheric Sampling Network	4
Air Quality Index	6
Air Stagnation Advisories	6
Collecting Air Quality Data by Telemetry	7
Suspended Particulate	
For 1972	8
Five Year Average by Source Area Class (Graph)	8
Annual Geometric Means (Five Year Table)	9
Coefficient of Haze Summary, 1972	10
Particle Fallout Summary, 1972	10
Sulfation Rate Summary, 1972	11
Total Oxidants, 1972	11
Nitrogen Dioxide, 1972	11
Carbon Monoxide, 1972	11
Graphic Summary, All Station Monthly Averages	12
Suspended Particulate Exceeding Specified Levels	13
Sulfur Dioxide Exceeding Specified Levels	14
Sulfur Dioxide, 1972	15
Wind Roses	16

## INTRODUCTION

Presented herein is the air quality data collected for the Central Puget Sound Region for the Year 1972. Data is presented so as to be intelligible to persons who may not be familiar with air quality data, yet detailed enough for those who require information for decision making or scientific purposes.

The report begins with a description of the Agency's air monitoring system and the location of monitoring sites. The body of the report contains summaries of concentrations of each pollutant measured during 1972.

The report contains wind roses for twelve of the Agency's monitoring stations. The measurement of wind speed and direction concomitant with air quality is essential to the evaluation and control of air pollution in any given area. Wind speeds below four knots usually result in higher air pollutant concentrations. Wind direction information is essential for determining which sources or source areas affect a specific station.

## SAMPLING SYSTEM DESCRIPTION

During 1972, the Puget Sound Air Pollution Control Agency operated air sampling devices at 35 different sites within the 4-county area of jurisdiction. These sites are categorized as: Automatic with telemetry, movable with semiautomatic and static samplers, and manually operated stations containing static and semiautomatic samplers.

The telemetry network, consisting of ten sites located in industrial, commercial, and residential areas, provides real-time data for continuous surveillance of wind speed, wind direction, coefficient of haze (a measure of suspended particulate sometimes referred to as "soiling index"), and sulfur dioxide. A computer at the Agency's Seattle office operates the network, and compiles, processes and prints out the data and summary information at regular intervals. During normal operation, five-minute averages are obtained every 15 minutes, with one-hour and 24-hour moving averages compiled and printed each hour. Four-hour averages are also provided six times daily. During periods of poor air quality, continuous sampling may be selected with a printout every five minutes.

The processed data is converted to a scaled index which defines air quality in relation to the stages of an air pollution episode. The index consists of three numbers, each of which represents the station with the highest 24-hour average of suspended particulate and/or sulfur dioxide for the Seattle, Everett, and Tacoma areas. This information is made available to the news media and serves to keep the citizens informed of air quality on a continuing day-to-day basis.

The movable instrumented trailer was the Agency's most complete sampling facility during 1972; it was equipped to measure the following:

Sulfur Dioxide	Particle Fallout
Nitrogen Dioxide	Wind Speed
Carbon Monoxide	Wind Direction
Total Oxidants	Temperature
Total Sulfates	Humidity
Suspended Particulate	

The gaseous samplers and meteorological equipment operate continuously and record data on strip charts. The high-volume samplers (for suspended particulates) were operated for a 24-hour period every fourth day. The lead peroxide candles (for total sulfate) and particle fallout samplers were exposed to collect 30-day samples.

The movable trailer is normally operated for periods of three to six months at a location to evaluate the requirement for establishing a permanent station, and to monitor in areas where special problems exist.

The manually operated network consists of stations with high-volume samplers, lead peroxide candles, and particle fallout collectors; it also includes one sulfur dioxide, two oxidant, and three wind sensors. Some stations contain one sampling device, others have several.

The tables and graphs provided in this data summary are generally self-explanatory. The data shows both seasonal and geographic variability. Sufficient suspended particulate data was available to show five year means by station and site classification.

ATMOSPHERIC SAMPLING NETWORK

December 31, 1972

Site No.	LOCATION	1	2	3	4	5	6	7	8	9	10	11	12
K 1	8th Floor Roof, Public Safety Bldg., Seattle	X	X										X
K 4	U.S.C.G.S., 2700 W. Commodore Way, Seattle	X											
K 5	Tolt River Watershed, Op. Bldg. (East of Lake Joy)	X											
K 9	SE Dist. Health Ctr., 12015 SW 128th St., Renton	X											
K10	Food Circus Building, Seattle Center	X	X	X	X	X			X	X	X	X	
K11	Reservoir, Lake Forest Park, Seattle								X				
K12	West Point Light Coast Guard Station, Seattle								X				
K15	KIRO Radio & TV Transmitter, Maury Island		X										
K34	Industrial Chemical Inc., 1200 W. Nickerson, Seattle												X
K35	Port of Seattle Maintenance Shop, 25 S. Hanford		X										X
K36	Standard Service Sta., 5940 E. Marginal Way, Seattle												X
K46	Mobil Service Station, 3423 W. McGraw, Seattle		X										X
K48	Gold Beach, Maury Island		X										
K50	AMCI, 227 Andover Park E., Tukwila, Wash.			X	X				X				
K51	Auburn Apts. Roof, 115 E. Main, Auburn, Wash.	X	X										X
K52	Green Lake Reservoir, 12th NE & NE 73rd, Seattle			X	X				X				X
K53	Puget Power Bldg., 10604 NE 4th, Bellevue, Wash.	X											X
K54	Municipal Bldg., 200 Mill Avenue S., Renton, Wash.	X	X										X
K55	Duwamish Pumping Sta., 4500 Bl. E. Marq.Wy.S., Seattle	X	X	X	X				X				X
K56	Fire Sta. #2, SW 240th & 103rd SW, Burton, Wash.			X					X				
K57	Hancock Ranch, SW 240th & 49th Ave. SW, Maury Island		X										
P 1	Mann-Russell Electric, 1401 Thorne Road, Tacoma	X	X										X
P 2	Benny's Nursery, N. 26th & Pearl, Tacoma	X	X	X	X				X				
P 3	Fife Senior High School, 5616 - 20th E., Fife, Wash.	X		X	X				X				
P 4	Clover Park Educ.Ctr., 4500 Steilacoom Blvd., Tacoma		X										X
P 5	Hess Building, 901 Tacoma Avenue, Tacoma	X											
P 6	Meeker Junior High School, 1526 - 51st NE, Tacoma	X		X	X				X				
P 7	City Light Substation, 21st & Adams St., Tacoma			X	X				X				
S 2	Marysville School Dist. Ofc., 1513 - 7th, Marysville	X	X	X	X				X				X
S 3	Medical-Dental Bui ding, 2730 Colby Ave., Everett	X	X	X	X				X				X
S 4	Madison School Lib. Bldg., 506 Peck's Drive, Everett												X
B 1	Dewey Junior High School, Perry Ave. & Holman, Brem.	X	X										X
B 2	Winslow City Hall, Winslow, Wash., Kitsap County		X										X
B 3	Kitsap County Airport, Kitsap County		X										X
T	Movable Air Sampling Site (Trailer) *	X	X	X		X	X	X	X	X	X		X

\* Trailer moved from Hunt Jr. High School, Tacoma to McMicken Heights, King County on April 20, 1972.

TYPE OF SAMPLING

- |                                      |  |                      |
|--------------------------------------|--|----------------------|
| 1. High-Volume Sampler               | 5. Total Oxidants                      | 9. Temperature       |
| 2. Sulfation Rate                    | 6. Carbon Monoxide (CO)                | 10. Humidity         |
| 3. Sulfur Dioxide (SO <sub>2</sub> ) | 7. Nitrogen Dioxide (NO <sub>2</sub> ) | 11. Nephelometer     |
| 4. Soiling Index (COH)               | 8. Wind Speed & Direction              | 12. Particle Fallout |

*Network*  
TYPE OF SAMPLERS

AUTOMATIC (Telemetry)

Measuring cycles established by computer program. System operates on command of central station computer; computer may be by-passed for off-schedule interrogation of remote stations by central station personnel.

*Data automatically transmitted, interpreted, and printed out under control*

SEMI-AUTOMATIC

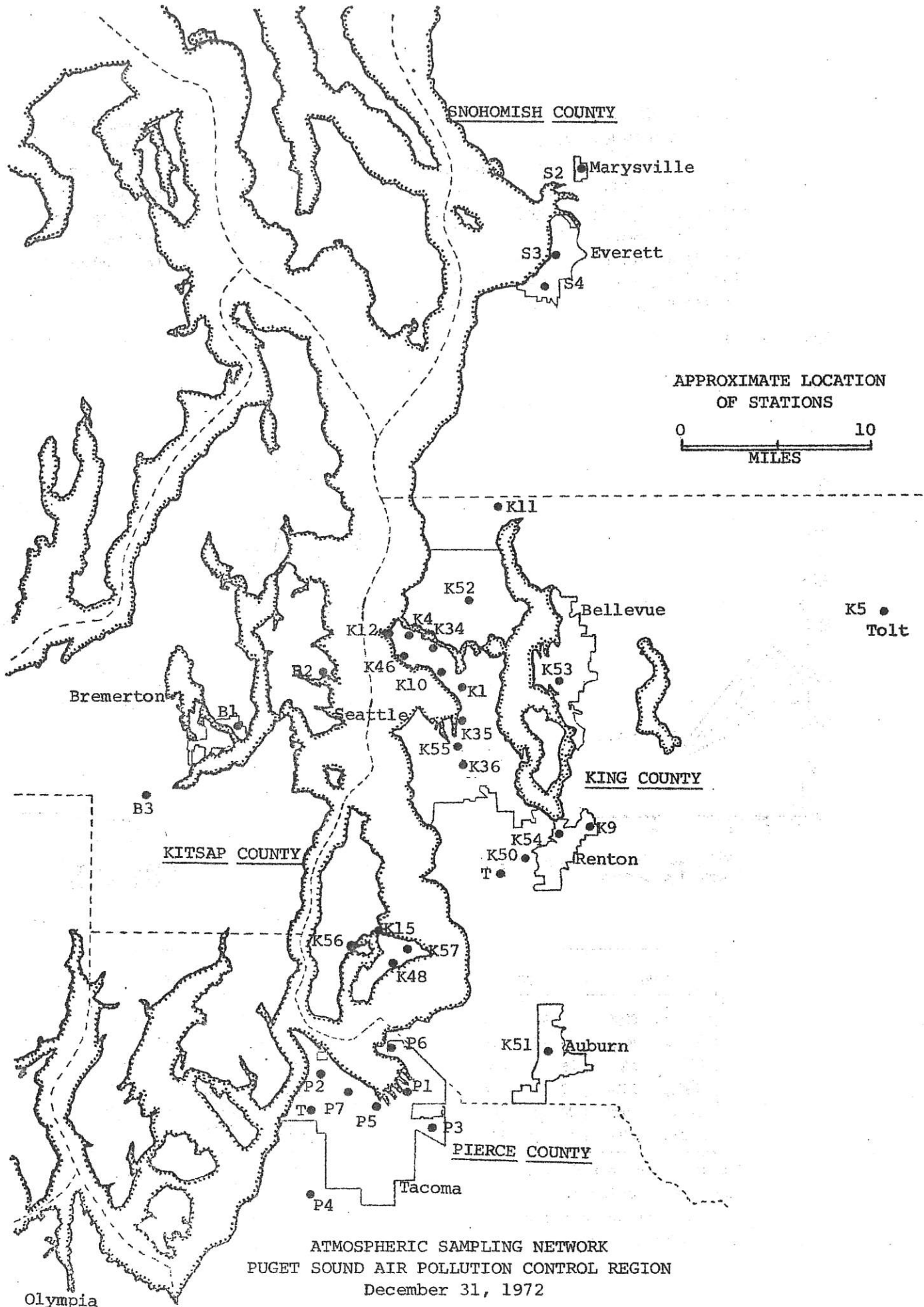
Samplers which operate on automatically timed cycles, recording data on strip charts or on specially conditioned filters; which are replaced on a regular schedule by monitoring personnel.

*continuous or intermittent cycles controlled by integral timers  
strip charts or filters must be removed by field personnel for later analysis and data reduction.*

STATIC

Samplers not requiring automatic metering or timing. These include particle fallout samplers sometimes called dust buckets, and lead peroxide candles which measure sulfur - containing compounds that can form sulfate. Both kinds of samplers are exposed to the ambient air on 30 day sampling cycles, and replaced by monitoring personnel.

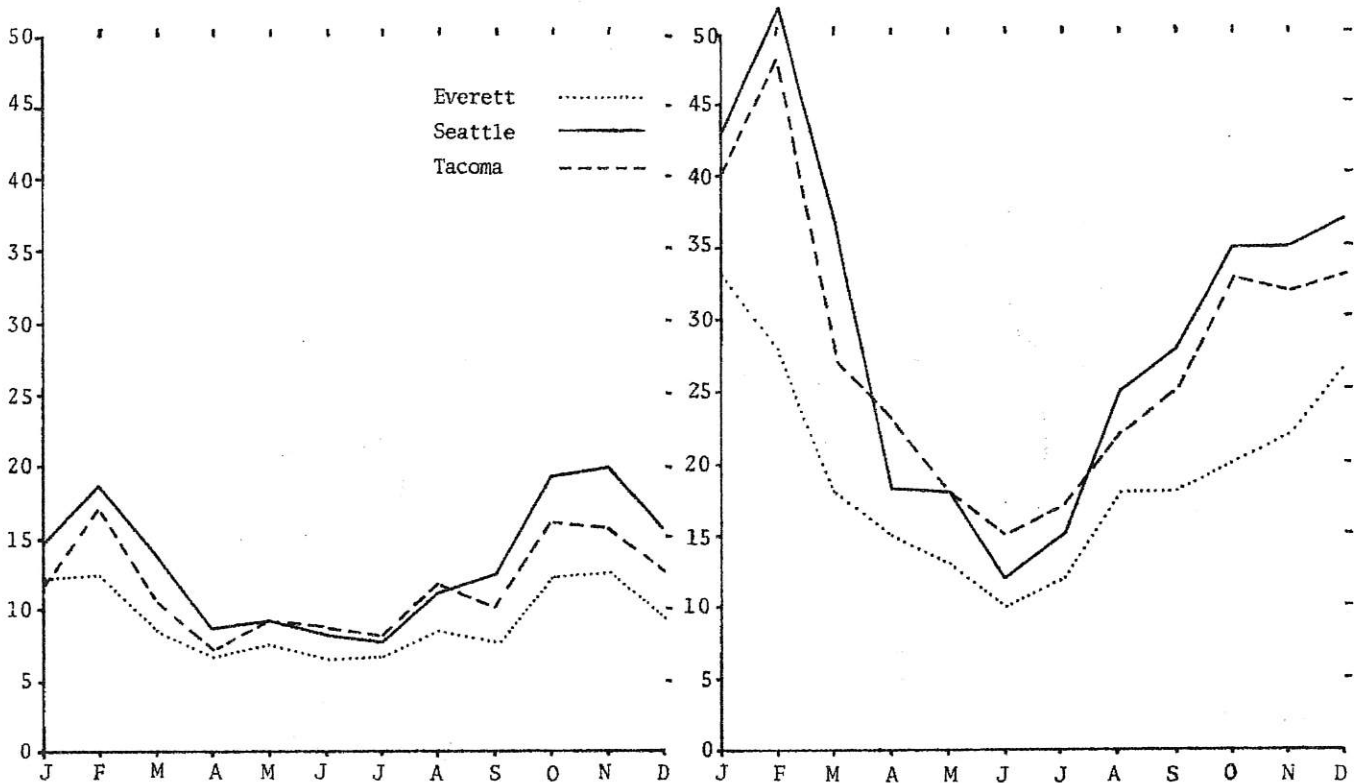
*removed field for later analysis and data reduction.*



ATMOSPHERIC SAMPLING NETWORK  
 PUGET SOUND AIR POLLUTION CONTROL REGION  
 December 31, 1972

## AIR QUALITY INDEX

The air quality index is a scalar value representing the average concentration of pollutants over a 24-hour period. An index is calculated three times a day, at 0800, 1200, and 1600 hours for each of the three geographic areas - Everett, Seattle, and Tacoma. These values are tape-recorded Monday through Friday and are available to the news media through an unlisted telephone number. An index of 50 is defined as the alert stage of the Washington State Episode Avoidance Plan and is the lower limit for implementation of first stage source emission reduction actions. Values of 100 and 150 correspond to the warning and emergency stages respectively.



This plot shows the monthly arithmetic mean of each area.

This plot shows the 24-hour maximum value by month for each area.

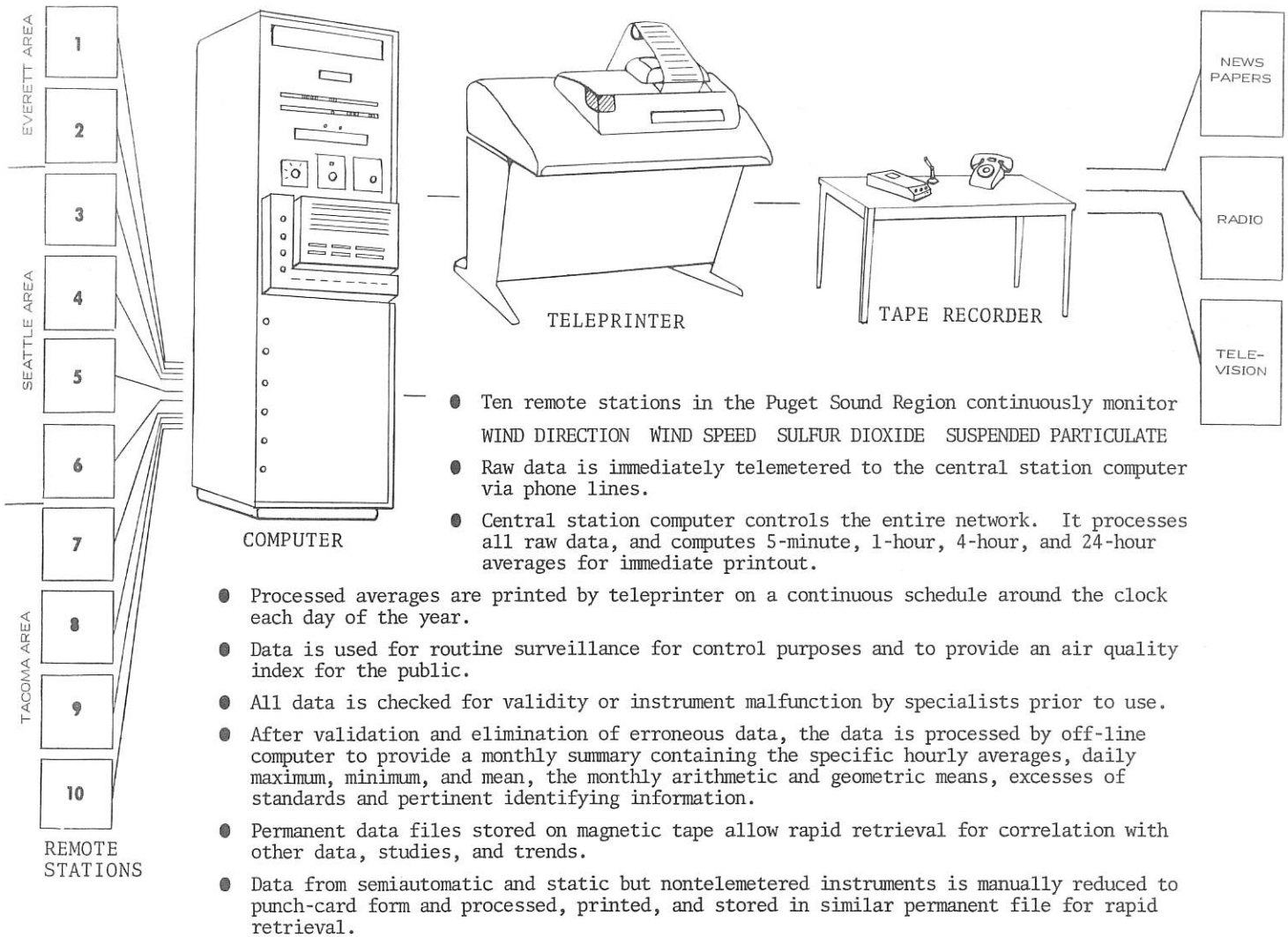
### AIR STAGNATION ADVISORIES

START	END	MAX. AIR QUALITY INDEX	MAX. INDEX LOCATION
29 Jan. 0900	30 Jan. 0900	42	Duwamish Pumping Station, Seattle
4 Feb. 1000	5 Feb. 1600	52	Duwamish Pumping Station, Seattle
30 Mar. 1600	31 Mar. 1200	22	Duwamish Pumping Station, Seattle
7 Oct. 1300	9 Oct. 0730	25	Duwamish Pumping Station, Seattle
16 Oct. 1000	20 Oct. 1000	40	Duwamish Pumping Station, Seattle
15 Nov. 1400	16 Nov. 1400	28	Duwamish Pumping Station, Seattle

The above periods during 1972 were covered by air stagnation advisories. Air stagnation advisories are issued by the National Weather Service when meteorological conditions are such that a significant build up of air pollutants is considered likely.



## COLLECTING AIR QUALITY DATA BY TELEMETRY



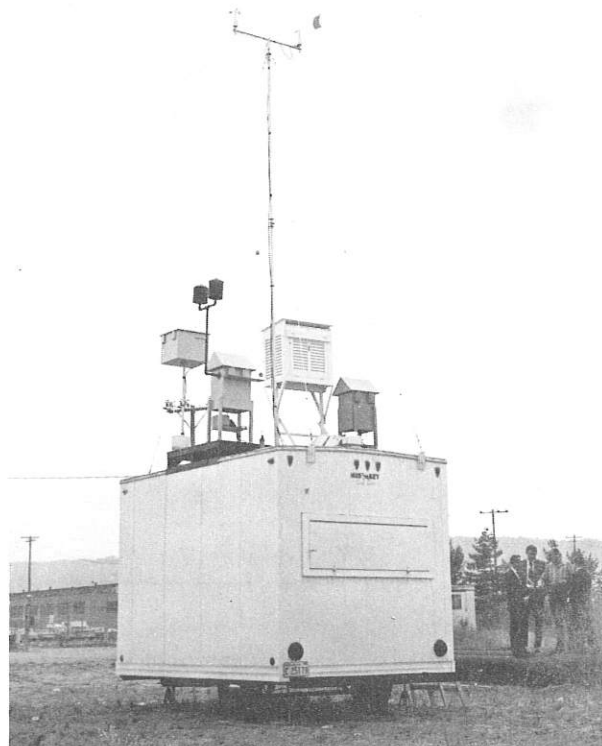
The Agency's moveable monitoring station shown on location in the Seattle industrial area.

Instrumentation on the roof:

- Wind speed-wind direction sensors
- Meteorological shelter (Temperature and relative humidity)
- Two high volume samplers (suspended particulate)
- Two lead peroxide candles (sulfates)
- Oxidant sensor
- Particle fallout collector

Inside the station:

- Recorders for wind speed/direction and oxidant sensors
- Sensors and recorders for sulfur dioxide, carbon monoxide and nitrogen dioxide.



SUSPENDED PARTICULATE for Year 1972  
(Micrograms per cubic meter)

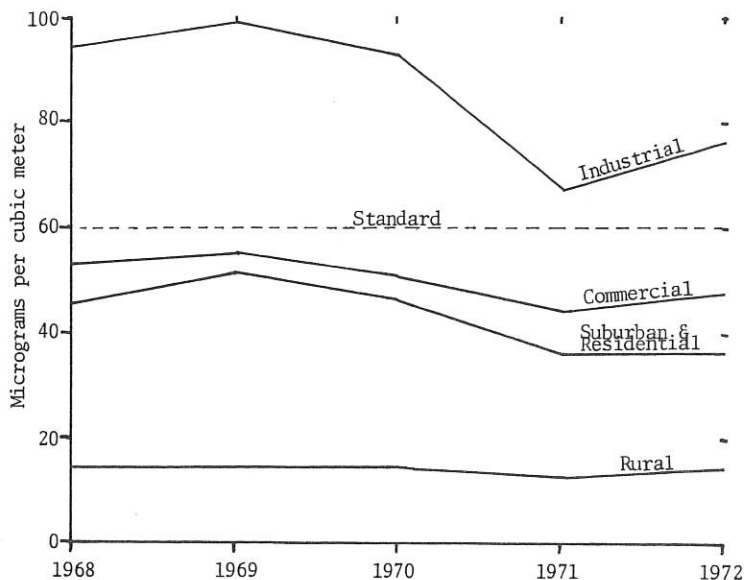
Location	Area Class	Monthly Arithmetic Averages												No. of Samples	Arith. Mean	Geo. Mean
		J	F	M	A	M	J	J	A	S	O	N	D			
Tolt River Watershed	RUR	9.6	9.9	19.2	16.3	24.6	21.5	35.7	30.2	24.4	7.3	8.2	13.8	89	19	14
School District Office, Marysville	COM	42.0	76.9	88.0	48.6	72.0	52.7	57.6	65.9	55.8	55.4	56.9	43.0	90	60	50
Medical-Dental Building, Everett	COM	42.9	67.4	59.8	42.4	63.2	56.0	59.4	66.1	50.1	61.9	40.6	37.9	90	54	50
2700 W. Commodore Way, Seattle	COM	44.9	66.7	51.5	33.1	39.6	33.8	36.7	33.4	32.5	58.4	44.8	41.3	92	43	38
Food Circus Bldg., Seattle Center	COM	41.4	74.7	54.0	39.8	47.6	39.4	45.5	45.7	41.8	66.4	42.0	40.7	93	49	45
Public Safety Building, Seattle	COM	83.9	106.0	59.6	51.8	58.3	50.4	44.9	63.8	67.1	87.9	51.2	56.8	93	66	59
Duwamish Pumping Sta., Seattle	IND	74.9	125.0	106.0	74.0	91.4	74.1	73.3	100.0	79.1	114.0	81.9	77.7	93	90	81
Puget Power Building, Bellevue	COM	41.2	78.8	48.9	36.9	45.6	38.8	42.1	43.0	36.6	49.9	36.3	32.0	91	44	40
S. E. Public Health Center, Renton	SUB	29.7	49.4	41.8	33.0	50.1	37.9	50.9	59.0	37.8	46.8	30.3	27.4	90	41	36
Municipal Building, Renton	COM	36.9	58.0	51.6	35.8	51.1	43.3	50.0	57.9	44.7	60.8	43.4	40.7	90	48	44
115 East Main, Auburn	COM	44.7	115.0	63.8	36.6	63.3	55.3	61.9	73.3	55.7	67.3	55.9	46.8	93	62	55
Dewey Jr. High School, Bremerton	RES	27.9	38.2	32.8	23.9	35.2	32.0	27.8	28.0	23.5	37.1	25.5	22.9	91	29	27
Meeker Jr. High School, Tacoma	RES	36.5	64.0	55.2	45.4	52.7	47.2	45.0	50.4	46.4	70.9	47.0	42.6	93	51	44
Tideflats, Tacoma	IND	52.4	87.1	85.7	61.4	88.1	85.1	85.0	114.0	74.2	102.0	64.5	50.3	92	79	71
Fife Sr. High School, Fife	COM	26.8	74.8	60.9	38.4	61.4	69.1	66.8	77.9	49.7	73.9	46.7	27.1	88	56	44
Hess Building, Tacoma	COM	35.1	93.1	51.6	43.2	39.8	36.2	47.1	53.9	63.0	117.0	81.0	50.8	91	60	47
N. 26th and Pearl, Tacoma	COM	28.1	54.4	42.5	37.8	71.2	68.5	55.9	81.6	52.9	64.8	44.4	48.8	92	54	44
Arithmetic Mean		41.3	74.0	57.0	41.3	56.3	49.7	51.8	61.5	49.2	68.5	46.7	41.2			

The amount of suspended particulate per unit volume of air is determined by operating high-volume samplers for a 24-hour period at each site approximately once every four days.

STANDARDS: (24-hour & Annual)    150  $\mu\text{g}/\text{m}^3$     24-hour average not to be exceeded more than once per year.  
     60  $\mu\text{g}/\text{m}^3$     Annual geometric mean never to be exceeded.

FIVE-YEAR SUSPENDED PARTICULATE AVERAGE BY SOURCE AREA CLASS

The average of the annual means of the sampling sites in different source area classifications are compared to the annual standard. The data from which this plot was derived is found on the following page.



SUSPENDED PARTICULATE  
ANNUAL GEOMETRIC MEANS ( $\mu\text{g}/\text{m}^3$ )

	Location	1968	1969	1970	1971	1972
Industrial	Duwamish Pumping Sta., Seattle				68*	81
	Tideflats, Tacoma	87	90	82	67	71
	Boeing Missile Prod. Center, Seattle			78		
	3224 - 4th Avenue S., Seattle	101	108	118*		
	AVERAGE	94.0	99.0	92.7	67.5	76.0
Commercial	Public Safety Bldg., Seattle	68	71	57	59	59
	2700 W. Commodore Way, Seattle	56	53	45	42	38
	Food Circus Bldg., Seattle Center	49	56	50	44	45
	115 East Main, Auburn			56	52	55
	Puget Power Bldg., Bellevue			36	36	40
	Municipal Bldg., Renton			61	43	44
	N. 26th & Pearl, Tacoma	40	46	50	40	44
	Fife Sr. High School, Fife	66	65	51	41	44
	Hess Building, Tacoma		58	61	48	47
	School District Office, Marysville	49	57	54	36	50
	Medical-Dental Bldg., Everett			54	42	50
	Clover Park, Tacoma	48	48	43*		
Wash. State Highway Dept., Everett	45	38	45*			
	AVERAGE	52.6	54.7	51.0	43.9	46.9
Residential & Suburban	S. E. Public Health Center, Renton	38	45	35	29	36
	Dewey Jr. High School, Bremerton			28*	25	27
	Meeker Jr. High School, Tacoma			74	54	44
	5960 Rainier South, Seattle	56	61	66*		
	Animal Shelter, Auburn	45	51	37*		
	14822 Bellevue-Redmond Road, Bellevue	42	46	39*		
	AVERAGE	45.2	50.8	46.5	36.0	35.7
Rural	Tolt River Watershed	14	14	14	13	14

\* Data base for geometric mean less than 9 months.

ANNUAL STANDARD:  $60 \mu\text{g}/\text{m}^3$  Annual geometric mean never to be exceeded.

COEFFICIENT OF HAZE SUMMARY For Year 1972

(COH's/1000 Linear Feet)

Location	Monthly Arithmetic Averages												Arith <sup>b</sup> Mean	Geo. <sup>b</sup> Mean
	J	F	M	A	M	J	J	A	S	O	N	D		
School District Office, Marysville	0.61	0.47	0.27	0.16	0.20	0.18	0.15	0.26	0.35	0.74	0.66	0.47	0.38	0.22
Medical-Dental Building, Everett	0.62	0.68	0.48	0.41	0.45	0.40	0.40	0.51	0.47	0.64	0.62	0.44	0.51	0.43
Green Lake Reservoir, Seattle	0.53	0.62	0.48	0.35	0.21	0.23	0.21	0.28	-- <sup>a</sup>	1.00	0.88	0.70	0.54	0.39
Food Circus Bldg., Seattle Center	0.69	0.82	0.59	0.38	0.37	0.36	0.31	0.40	0.43	0.72	-- <sup>a</sup>	0.77	0.53	0.41
Duwamish Pumping Sta., Seattle	0.92	1.07	0.78	0.50	0.55	0.46	0.46	0.65	0.72	1.16	1.13	0.90	0.78	0.57
227 Andover Park East, Tukwila	0.59	0.93	0.48	0.27	0.41	0.36	0.30	0.54	0.59	0.83	0.88	0.58	0.56	0.41
Meeker Jr. High School, Tacoma	0.55	0.84	0.50	0.34	0.30	0.35	0.26	0.34	0.42	0.67	0.68	0.55	0.48	0.35
Fife Sr. High School, Fife	0.66	0.88	0.56	0.37	0.53	0.49	0.49	0.71	0.58	0.97	0.85	0.70	0.65	0.46
City Light Substa., Adams St., Tacoma	0.63	0.87	0.53	0.30	0.33	0.24	0.22	0.34	0.41	0.64	0.70	0.57	0.48	0.34
N. 26th & Pearl, Tacoma	0.53	0.70	0.40	0.25	0.28	0.24	0.24	0.34	0.34	0.59	0.52	0.38	0.40	0.28
Arithmetic Mean	0.63	0.71	0.51	0.33	0.36	0.33	0.30	0.44	0.48	0.80	0.77	0.61		

a. Insufficient Data

b. Developed from all available hourly values.

Coefficient of Haze is a measure of the light extinction produced by the suspended particulate in air. These measurements are made over half hour periods on a continuing basis using tape samplers. Federal, State or local standards have not been established for this measurement. In the Washington State Episode Avoidance Plan, a 24-hour average of 3.0 COH is the Alert level, 5.0 COH is the Warning level and 7.0 COH is the Emergency level. A 24-hour average of 3.1 COH was reached once in 1972, during the February 4-5 stagnation period. On several occasions, hourly averages in excess of 5.0 COH have been recorded in the industrial areas.

PARTICLE FALLOUT SUMMARY FOR YEAR 1972  
(Total weight grams/m<sup>2</sup>/mo)

Location	Area Class	Monthly Arithmetic Averages												Arith Mean	Geo. Mean	No. of Occ. Exc. Std.
		J	F	M	A	M	J	J	A	S	O	N	D			
School District Office, Marysville	Com	2.3	4.2	4.8	3.5	2.7	3.3	2.2	2.2	2.7	2.2	2.4	2.1	2.9	2.8	0
Medical-Dental Building, Everett	Com	6.0	6.5	7.8	6.8	6.2	7.4	7.1	6.4	6.3	4.4	3.7	4.4	6.1	5.9	8
Madison School Building, Everett	Res	1.5	1.5	2.9	2.3	3.8	2.7	1.6	1.7	1.8	1.6	1.2	-	2.0	1.9	0
Public Safety Building, Seattle	Com	7.0	9.8	12.6	8.3	11.5	7.7	5.5	7.1	5.9	5.5	6.2	11.0	8.2	7.9	12
1200 W. Nickerson, Seattle	Ind	3.3	5.6	5.9	4.8	1.7	4.3	3.0	3.4	3.8	2.8	3.2	4.7	3.9	3.7	0
25 S. Hanford St., Seattle	Ind	25.0	42.7	38.7	34.4	18.6	15.5	10.6	12.6	14.2	8.0	11.2	18.2	20.8	18.1	11
5940 E. Marginal Way, Seattle	Ind	6.6	12.8	11.8	7.3	6.8	6.0	5.6	6.6	6.2	6.5	7.4	6.0	7.5	7.2	2
3423 W. McGraw, Seattle	Com	2.6	3.0	5.0	2.0	1.9	2.1	1.9	1.4	4.2	1.5	-	-	2.6	2.4	0
115 East Main, Auburn	Com	3.2	6.9	6.4	4.7	3.9	4.1	3.9	4.0	4.4	4.9	3.3	5.0	4.6	4.4	3
Green Lake Reservoir, Seattle	Res	2.6	3.4	4.6	3.0	2.0	5.0	1.5	1.8	2.3	1.8	1.7	3.6	2.8	2.6	0
Puget Power Building, Bellevue	Com	4.4	6.1	7.6	5.4	3.0	5.5	3.4	2.8	4.1	2.0	1.7	3.6	4.1	3.8	4
Municipal Building, Renton	Com	5.4	5.8	9.2	7.3	4.2	5.7	3.7	4.4	4.5	2.9	4.3	4.9	5.2	5.0	5
Duwamish Pump. Sta., Seattle	Ind	7.9	9.8	12.6	5.6	6.8	6.3	5.1	9.0	7.6	8.0	5.6	7.7	7.7	7.4	1
Tideflats, Tacoma	Ind	6.1	7.1	-	8.4	7.0	5.1	4.9	5.7	6.2	4.1	4.8	5.3	5.9	5.8	0
Clover Park, Tacoma	Com	1.6	1.7	3.6	8.3	3.2	2.2	1.9	2.7	2.7	2.6	1.8	2.3	2.9	2.6	0
Dewey Jr. H.S., Bremerton	Res	2.2	3.4	4.9	2.8	2.0	2.1	2.3	1.6	2.3	1.2	1.6	2.8	2.4	2.3	0
Winslow City Hall	Res	3.9	6.8	6.9	12.8	3.8	5.6	2.6	3.1	3.4	2.7	2.7	3.4	4.8	4.2	4
Kitsap County Airport	Rur	0.9	1.2	1.9	7.2	4.7	-	-	1.6	5.5	1.7	-	1.6	2.9	2.3	2
Arithmetic Mean		5.1	7.7	8.6	7.5	5.2	5.3	3.9	4.3	4.9	3.6	3.9	5.4			

1 gram per square meter per month = 2.86 tons per square mile per month.

Particulate Fallout is measured by exposing a specially designed open container to the ambient air for a one-month period to determine the total amount of solids collected.

STANDARDS: Industrial Area 10.0 g/m<sup>2</sup>/mo.

Residential & Commercial Areas 5.0 g/m<sup>2</sup>/mo.

SULFATION RATE SUMMARY FOR YEAR 1972  
(Milligrams of Sulfur Trioxide per 100 square centimeters per day)

Location	Monthly Arithmetic Averages												Arith. Mean	Geo. Mean
	J	F	M	A	M	J	J	A	S	O	N	D		
School District Office, Marysville	0.33	0.34	0.25	0.28	0.23	0.24	0.22	0.21	0.20	0.16	0.28	0.29	0.25	0.25
Medical-Dental Building, Everett	0.90	0.83	0.60	0.58	0.56	0.46	0.54	0.53	0.23	0.40	0.55	0.62	0.57	0.54
Public Safety Building, Seattle	1.28	1.33	0.82	0.78	0.47	0.59	0.44	0.46	0.59	0.53	0.76	0.99	0.75	0.70
Food Circus Bldg., Seattle Center	1.79	1.58	1.12	1.14	0.54	0.66	0.55	0.51	0.75	0.81	1.26	1.56	1.02	0.93
KIRO Transmitter, Maury Island	1.41	0.83	0.50	0.80	0.31	0.48	0.28	0.32	0.44	0.32	0.54	0.95	0.60	0.53
Gold Beach, Maury Island	1.40	1.67	1.25	1.79	0.82	0.98	0.64	0.50	0.94	0.50	0.64	1.16	1.02	0.94
Hancock Ranch, Maury Island								0.68	0.90	0.45	0.54	0.78	0.67 <sup>a</sup>	0.65
25 S. Hanford Street, Seattle	0.85	0.83	0.64	0.64	0.58	0.60	0.60	0.76	0.63	0.55	0.60	0.76	0.67	0.66
3423 W. McGraw, Seattle	0.64	0.76	0.48	0.52	0.31	0.33	0.34	0.32	0.41	0.40			0.45 <sup>b</sup>	0.43
115 East Main, Auburn	0.44	0.46	0.30	0.41	0.28	0.24	0.21	0.27	0.23	0.33	0.35	0.36	0.32	0.31
Municipal Building, Renton	0.43	0.38	0.59	0.44	0.61	0.62	0.49	0.44	0.38	0.39	0.40	0.32	0.46	0.45
Duwamish Pumping Station, Seattle	0.98	1.06	0.77	0.95	0.68	0.70	0.61	0.86	0.81	0.64	0.71	0.96	0.81	0.80
Tideflats, Tacoma	0.46	0.50	0.47	0.53	0.50	0.53	0.53	0.66	0.32	0.38	0.32	0.34	0.46	0.45
N. 26th and Pearl, Tacoma	0.53	0.42	0.48	0.40	0.71	0.67	0.73	0.91	0.53	0.70	0.44	0.52	0.59	0.57
Clover Park, Tacoma	0.35	0.28	0.28	0.22	0.32	0.22	0.21	0.34	0.23	0.40	0.27	0.23	0.28	0.27
Dewey Jr. H. S., Bremerton	0.48	0.57	0.46	0.33	0.22	0.25	0.18	0.18	0.26	0.28	0.42	0.52	0.35	0.32
Winslow City Hall	0.29	0.31	0.26	0.32	0.18	0.25	0.26	0.20	0.26	0.18	0.26	0.33	0.26	0.25
Kitsap County Airport	0.18	0.15	0.12	0.08	0.11	0.17	0.11	0.16	0.16	0.21	0.15	0.14	0.14	0.14
Arithmetic Mean	0.75	0.72	0.55	0.60	0.44	0.47	0.41	0.46	0.46	0.42	0.50	0.64		

a. Site established 7/31/72

b. Site discontinued 10/31/72

Total sulfate concentration is determined by exposing a lead peroxide surface to the air for a one-month period and analyzing the sample for sulfates. Standards have not been established, and the various sulfate compounds cannot be economically analyzed and identified. In the Puget Sound area, the data shows both geographic and seasonal variations.

TOTAL OXIDANTS FOR YEAR 1972  
(Concentrations in parts per million)

STANDARD: 0.08 ppm for 1 hour not to be exceeded more than once per year.

Location	Period of Operation	Highest 24-Hour Average	Highest 4-Hour Average	Highest 1-Hour Average	Occurrences exceeding 0.08 ppm
Hess Building, Tacoma	Jan. 1-16, Mar. 22, - Aug. 9	0.05	0.10	0.14	12
Hunt Jr. High School, Tacoma	Apr. 1 - Apr. 20	0.02	0.03	0.03	
McMicken Heights, King County	Apr. 21 - Dec. 31	0.05	0.10	0.11	7
Food Circus Bldg., Seattle Center	Sept. 8 - Dec. 31	0.03	0.08	0.10	2

Total oxidants are measured on a continuous basis using the coulometric method and readings are corrected for SO<sub>2</sub> only. The Table lists the highest average concentrations observed for the periods indicated and the number of hours exceeding 0.08 ppm.

NITROGEN DIOXIDE FOR YEAR 1972.  
(Concentrations in parts per million)

STANDARD: 0.05 ppm annual arithmetic mean not to be exceeded.

Location	Period of Operation	Highest 24-Hour Average	Highest 1-Hour Average	Arith. Mean for Period of Operation
Hunt Jr. High School, Tacoma	Jan. 1 - Apr. 20	0.04 ppm	0.06 ppm	0.020 ppm
McMicken Heights, King County	Apr. 21 - Dec. 31	0.06 ppm	0.10 ppm	0.025 ppm

Nitrogen dioxide is measured on a continuous basis using the colorimetric - Saltzman method. The Table lists the highest average concentrations observed for the periods indicated and the arithmetic mean for the period of operation.

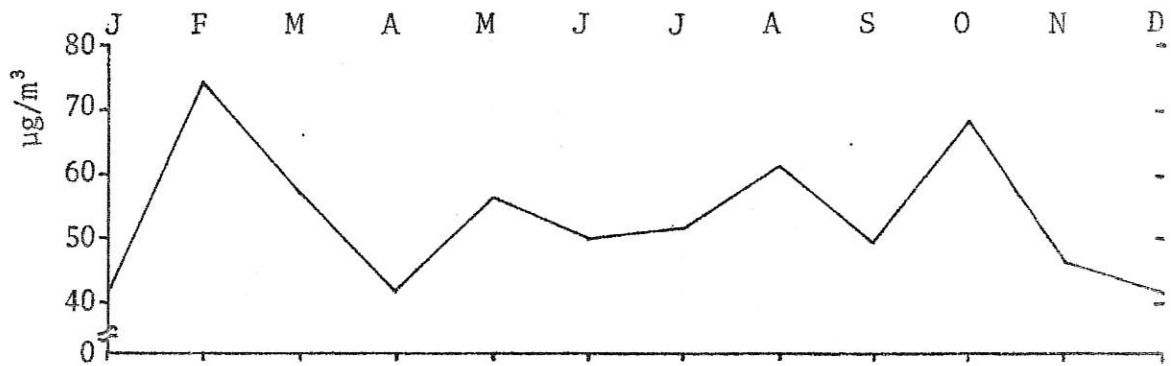
CARBON MONOXIDE FOR YEAR 1972  
(Concentrations in parts per million)

Location	Period of Operation	Highest 24-Hour Average	Highest 8-Hour Average	Highest 1-Hour Average	Occurrences exceeding 9 ppm
Hunt Jr. High School, Tacoma	Jan. 1 - Apr. 20	5 ppm	8 ppm	11 ppm	None
McMicken Heights, King County	Apr. 24 - Dec. 31	4 ppm	4 ppm	6 ppm	None

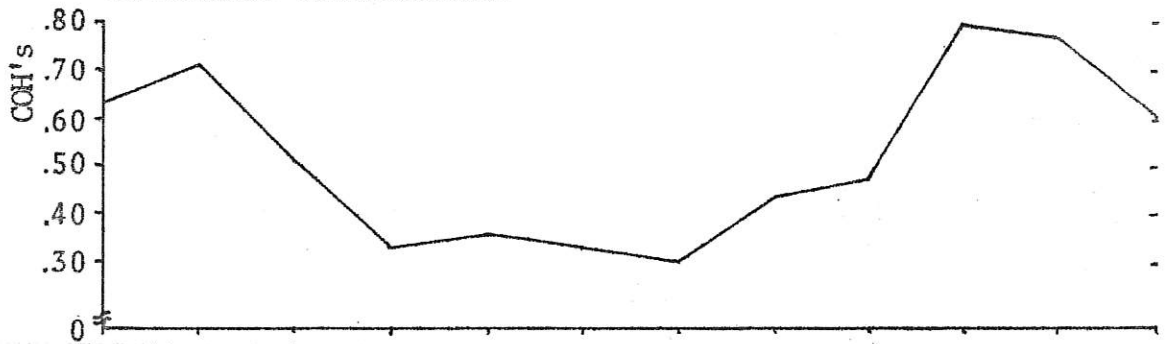
Carbon monoxide is measured on a continuous basis using the nondispersive infrared method. The Table lists the highest average concentrations observed for the periods indicated.

STANDARDS: 35 ppm for 1-hour average not to be exceeded more than once per year.  
9 ppm for 8-hour average not to be exceeded more than once per year.

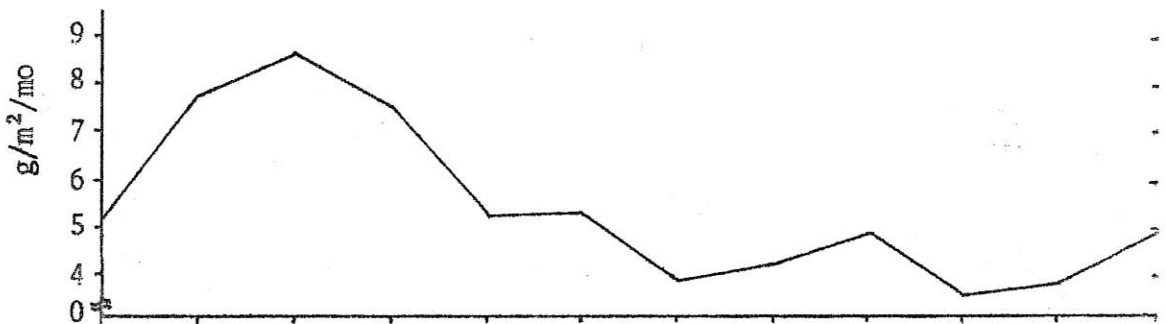
GRAPHIC SUMMARY OF ALL STATION MONTHLY AVERAGES



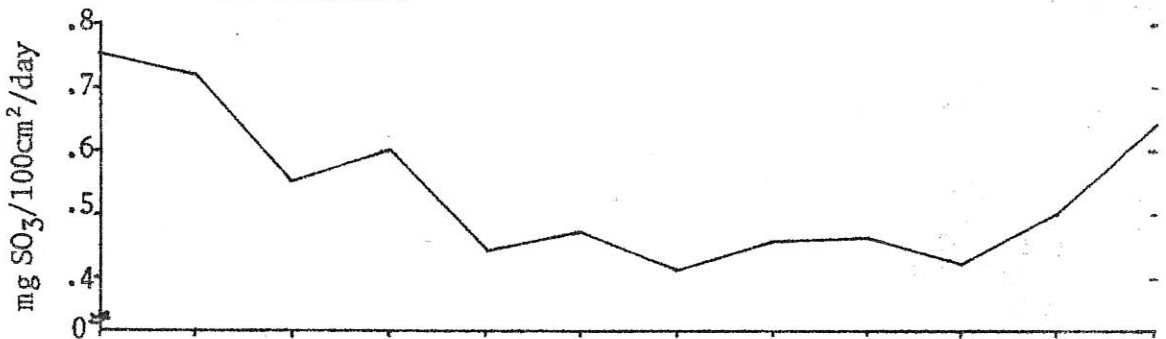
SUSPENDED PARTICULATE



COEFFICIENT OF HAZE



PARTICLE FALLOUT



SULFATION RATE

The all-station monthly arithmetic means from the 1972 summary tables on pages 9, 10 and 11.

SUSPENDED PARTICULATE FOR YEAR 1972  
(Micrograms per cubic meter)

Frequency of Concentrations Exceeding Specified Levels

- A. Number of observations exceeding 150  $\mu\text{g}/\text{m}^3$
- B. Number of observations exceeding 60  $\mu\text{g}/\text{m}^3$
- C. Total number of observations

Location	Jan.			Feb.			Mar			Apr			May			June			July			Aug			Sept			Oct			Nov			Dec			Annual			
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	
ToIt River Watershed			9			7			8			8			6			6			9			7	1	8				8			7			6	1		89	
School District Office, Marysville	2	8	2	3	7	1	6	8		2	8		4	7	3	8	4	8	3	7	3	8	1	2	8	4	7	1	6	4	37	90								
Medical-Dental Building, Everett	1	8		3	7		4	8			8		4	6	2	8	4	8	4	7	3	8	4	9	1	7		6	30	90										
2700 W. Commodore Way, Seattle	1	8	1	2	7		3	8			8		7		8		8			7		8	4	9	2	7	1	7	1	13	92									
Food Circus Bldg., Seattle Center	2	9	1	4	8		3	8			8		1	7	1	8		8	1	7	1	8	5	9	2	7	1	6	1	21	93									
Public Safety Building, Seattle	1	5	8	2	5	8	2	7	3	10	3	8	1	7	1	8	1	8	6	9	4	7	7	9	1	5	2	7	3	40	93									
Duwamish Pumping Sta., Seattle	5	9	1	7	8	2	7	8	5	8	7	7	5	8	4	8	1	6	7	4	8	1	9	9	4	7	3	6	5	66	93									
Puget Power Building, Bellevue	1	8	1	3	7		2	8		8	7			8		8		8	1	7		8	3	9		7		6	1	10	91									
S. E. Public Health Center, Renton	1	8		2	7		2	8		8	2	7	1	8	3	8	3	7	1	8	3	7	2	8		7		6	17	90										
Municipal Building, Renton	1	7		2	7		3	8		8	1	7	1	8	2	8	3	7	2	8	3	9	1	7	1	6	20	90												
115 East Main, Auburn	2	8	2	6	8		3	8		8	5	7	1	8	3	8	5	7	3	8	4	9	3	7	1	7	2	36	93											
Dewey Jr. High School, Bremerton		8		2	7			8		8		7		8		9		6		7	1	8		7			8	3	91											
Meeker Jr. High School, Tacoma	1	8	1	2	8		3	8	2	8	4	7	2	8	1	8	1	7	1	8	5	9	2	7	1	7	1	25	93											
Tideflats, Tacoma	2	8	1	5	8	1	5	7	5	8	1	5	7	7	8	7	8	1	6	7	6	8	1	7	9	4	7	3	7	5	62	92								
Fife Sr. High School, Fife	1	8		4	7		4	8		8	4	7	3	6	5	8	4	6	3	8	1	5	9	3	7	1	6	1	37	88										
Hess Building, Tacoma		5	3	4	8		2	7	3	10	1	8		7	2	8	2	9	3	8	1	7	9	1	3	6	3	6	5	30	91									
N. 26th and Pearl, Tacoma	1	8		4	8		1	8	1	8	4	7	5	8	5	8	1	4	7	2	8	5	8	3	7	1	7	1	36	92										
Hunt Jr. High School, Tacoma*	2	14	1	4	12		3	16		9		4															1	9	55											
McMicken Heights, King County*										5	15		2	15	4	16	6	15	2	14	6	14		15		13	25	117												
All-Station Totals	1	28	149	16	62	139	4	53	149	21	149	1	50	138	34	145	45	154	3	55	136	39	148	5	79	162	1	33	131	19	123	31	518	1723						

\*Hunt Jr. High School, Tacoma 1-1-72 thru 4-18-72  
McMicken Heights, King County 4-22-72 thru 12-31-72

SULFUR DIOXIDE FOR YEAR 1972  
(Concentrations in parts per million by volume)

Frequencies of Concentrations Exceeding Specified Levels

- A. Number of occurrences > 1.00 ppm for 5 minutes.  
B. Number of occurrences > 0.25 ppm for 1 hour.  
C. Number of occurrences > 0.40 ppm for 1 hour.

Location	Jan.			Feb.			Mar.			Apr.			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Annual											
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C												
School District Office, Marysville																																																
Medical-Dental Building, Everett																1			3						1			1												6								
Green Lake Reservoir, Seattle																																																
Food Circus Bldg., Seattle Center																																																
Duwamish Pumping Station, Seattle	1			1									1																		1											4						
227 Andover Park E., Tukwila																			1		2				1			1												1		6						
Meeker Jr. High School, Tacoma										1		3	1		3	1		2	2			1															2			3	14	3						
Fife Sr. High School, Fife																												2		1										2		1						
City Light Substa., Adams St., Tacoma																1																								3		9						
N. 26th and Pearl, Tacoma	1									1		2	1		1	1		9	4		2	2		3	1		1	1		3	1		3	6		1	4		10	8		6	1		1	27	34	11
Burton Fire Station, Vashon Island																																														2		2
Hunt Jr. High School, Tacoma																																													2			
McMicken Heights, King County																						4			1		3	2			2		1	1		1	2						1	12	4			
All-Station Frequencies	4			1			1	5	1	1	4		10	9	3	5	11	3	5	8	3	4	9	1	2	7	1	10	19	7		4					4						38	85	19			

STANDARDS: 1.00 ppm for 5 minutes not to be exceeded more than once in 8 hours.  
0.40 ppm for 1 hour never to be exceeded.  
0.25 ppm for 1 hour not to be exceeded more than twice in seven consecutive days.

Hunt Jr. High School - discontinued sampling 4/20/72  
McMicken Heights - site established 4/21/72  
Burton Fire Station - site established 8/10/72

14



SULFUR DIOXIDE FOR YEAR 1972  
(Concentrations in parts per million by volume)

Location	Annual Arith. Mean	Highest 24-Hour Average	Highest 1-Hour Average	Highest 5-Minute Average Exc. 1.00 ppm
School District Office, Marysville	0.002 <sup>a</sup>	0.02	0.10	
Medical-Dental Building, Everett	0.004	0.02	0.14	1.58
Green Lake Reservoir, Seattle	0.010	0.06	0.33	
Food Circus Bldg., Seattle Center	0.009	0.04	0.23	
Duwamish Pumping Station, Seattle	0.010	0.05	0.33	
227 Andover Park, East, Tukwila	0.004	0.04	0.33	1.69
Meeker Jr. High School, Tacoma	0.004	0.06	0.70	1.16
Fife Sr. High School, Fife	0.003	0.03	0.43	
City Light Substa., Adams St., Tacoma	0.004	0.06	0.40	
North 26th and Pearl, Tacoma	0.007	0.07	0.65	1.96
Burton Fire Station, Vashon Island	0.005 <sup>b</sup>	0.05	0.30	
Hunt Jr. High School, Tacoma	0.003 <sup>a</sup>	0.04	0.31	
McMicken Heights, King County	0.007	0.06	0.58	1.07

a Based on Jan. - Apr. data.

b Based on Aug. - Dec. data.

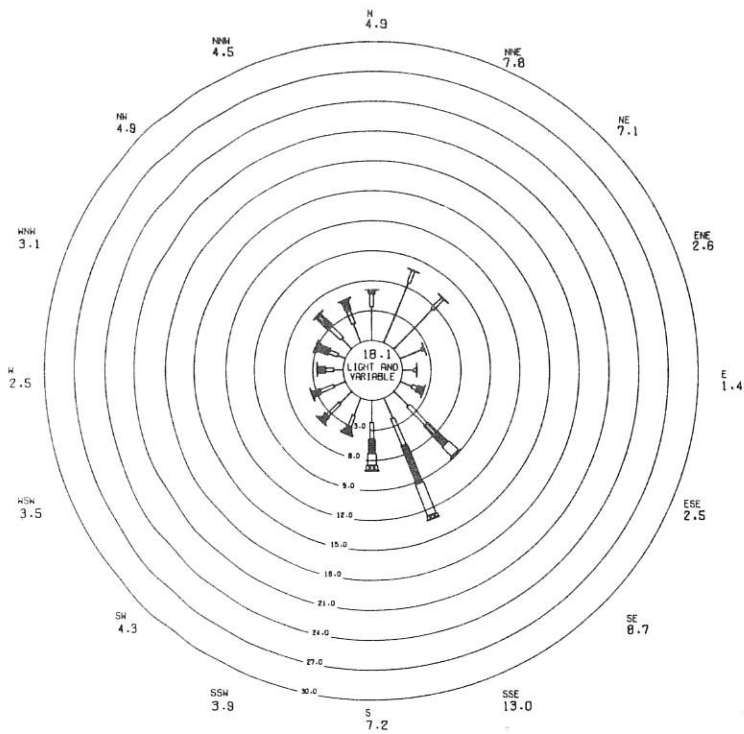
Sulfur dioxide is measured on a continuous basis by conductometric - distilled water method at 11 sampling sites and conductometric-hydrogen peroxide method at one site.

## WIND ROSES

A wind rose is a graphical means of summarizing the winds for a given time period. It is essentially a count, expressed as a percentage frequency, of the number of observations which had a particular direction and speed during that time period.

In these roses, representing 1972 winds, each spoke points in the direction from which the wind blows. The length of each segment of a spoke indicates the relative frequency of winds of different speeds. Using the scale located to the lower right of each rose, these lengths may be converted to percentages of the total observations.

The percentage frequency of winds from any given direction (without regard to speed) is expressed numerically beneath that direction on the perimeter of the roses. The percentage frequency of light and variable winds (winds less than 1.5 knots) is shown in the center of the rose.



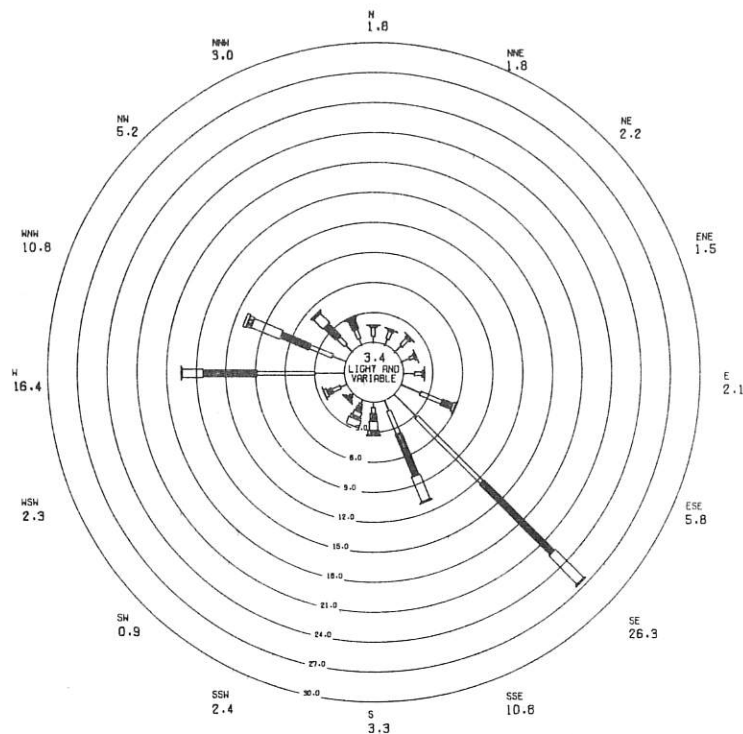
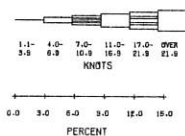
HOOR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
MARYSVILLE SCHOOL DIST. OFF, 1513 7TH ST.

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8518



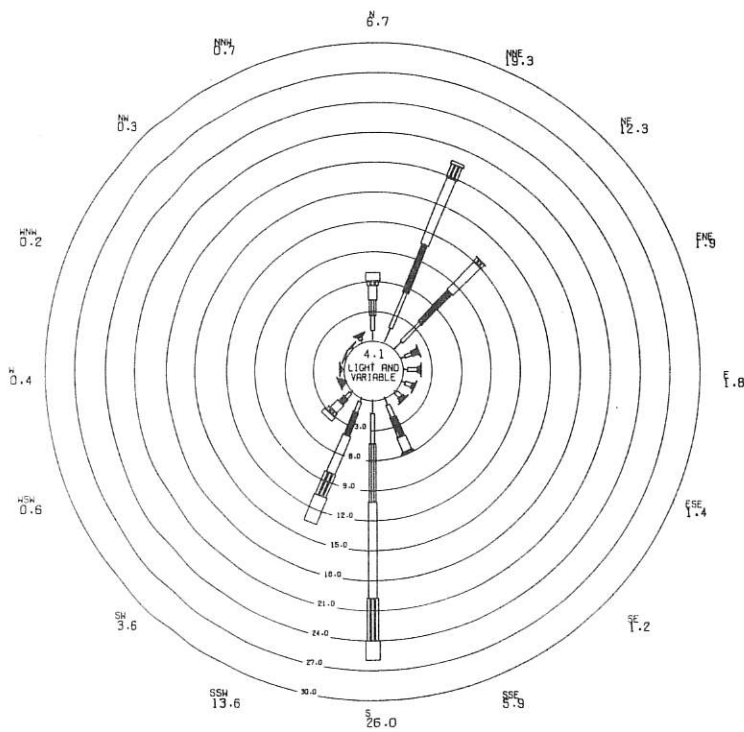
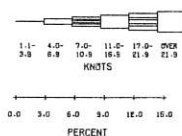
HOOR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
MED-DENTAL BLDG, 2730 COLBY AVE, EVERETT

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8331



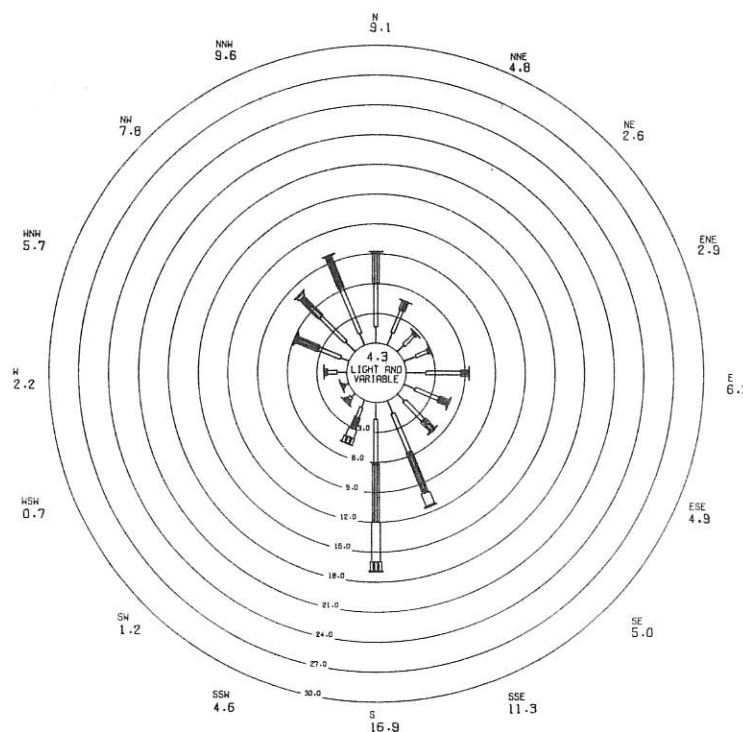
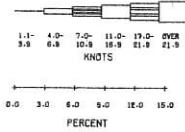
HOOR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
WEST POINT LIGHT, SEATTLE

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 7997



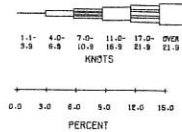
HOOR AVERAGE SURFACE WINDS

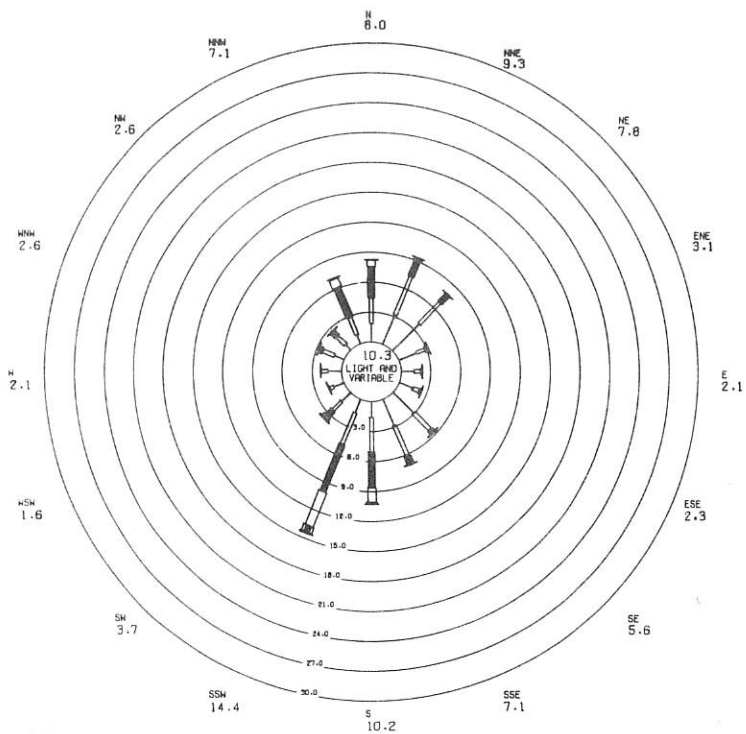
PERCENTAGE FREQUENCY OF OCCURENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
LAKE FOREST PARK RESERVOIR

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8448



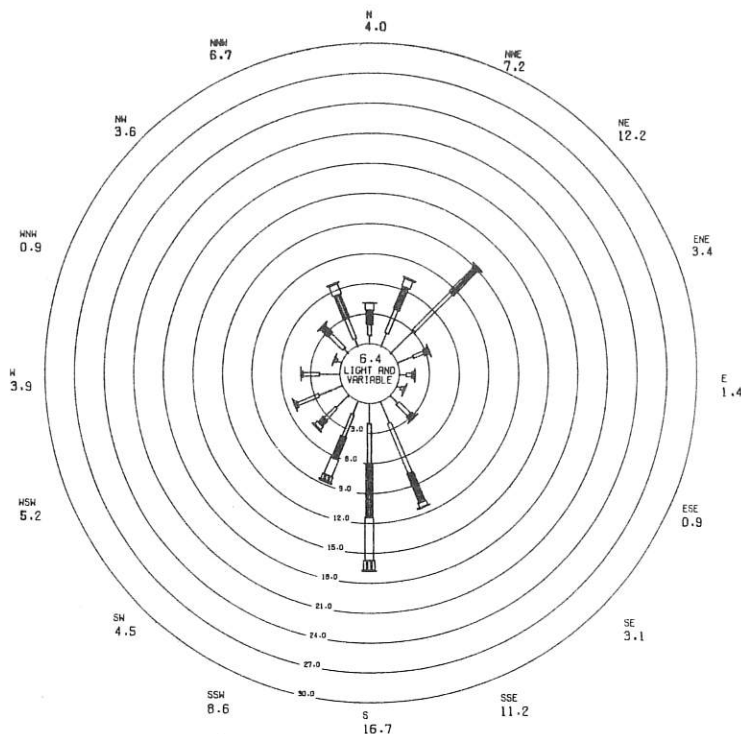
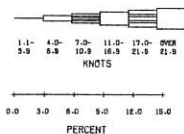


HOUR AVERAGE SURFACE WINDS  
PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
GREENLAKE RSVR, 12TH NE & NE 73RD, SEATTLE

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8537

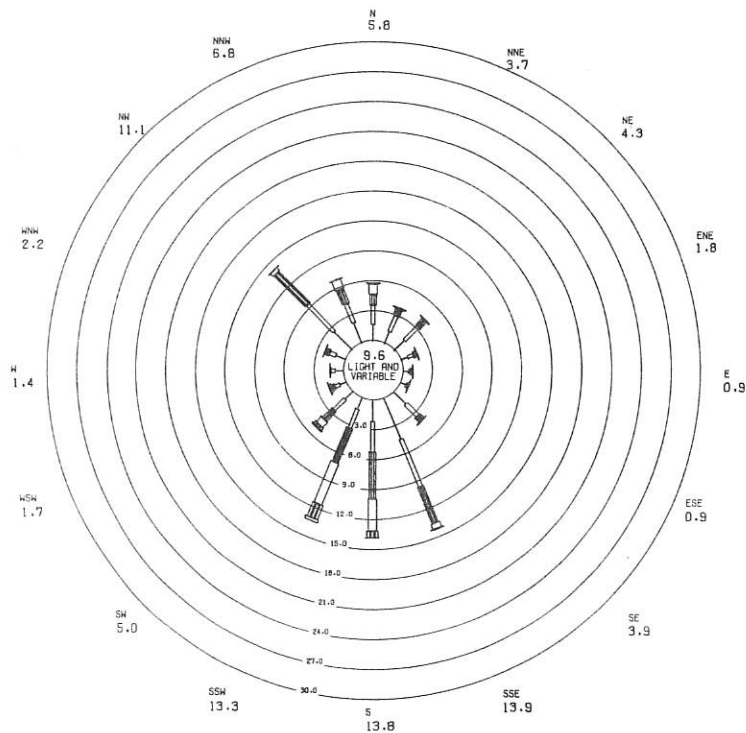
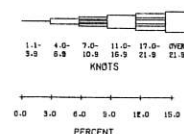


HOUR AVERAGE SURFACE WINDS  
PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
FOOD CIRCUS BLDG, SEATTLE CENTER

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8490

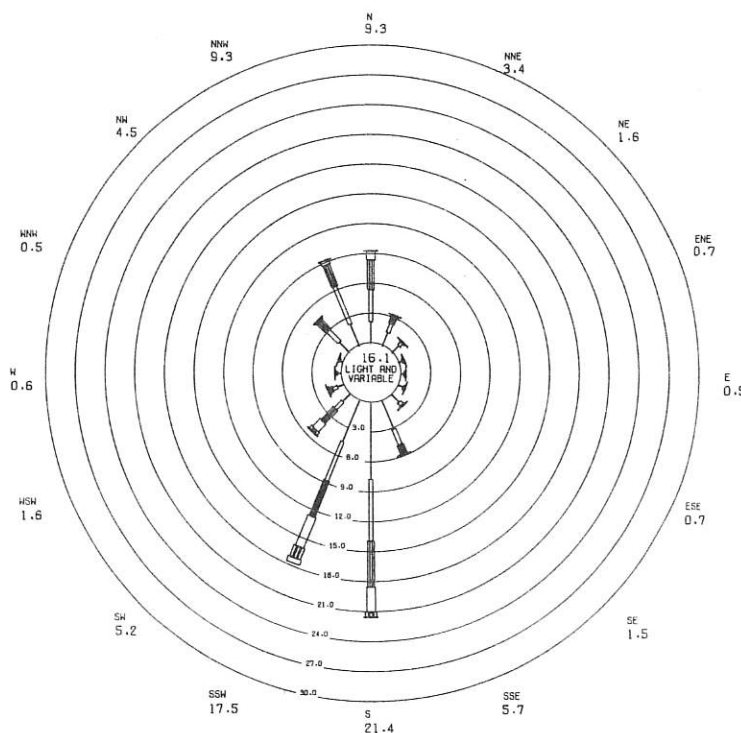
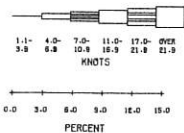


HOUR AVERAGE SURFACE WINDS  
PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
DUWAMISH, 4500 BLK E MARG WAY, SEATTLE

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8532

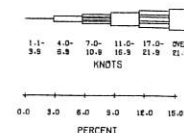


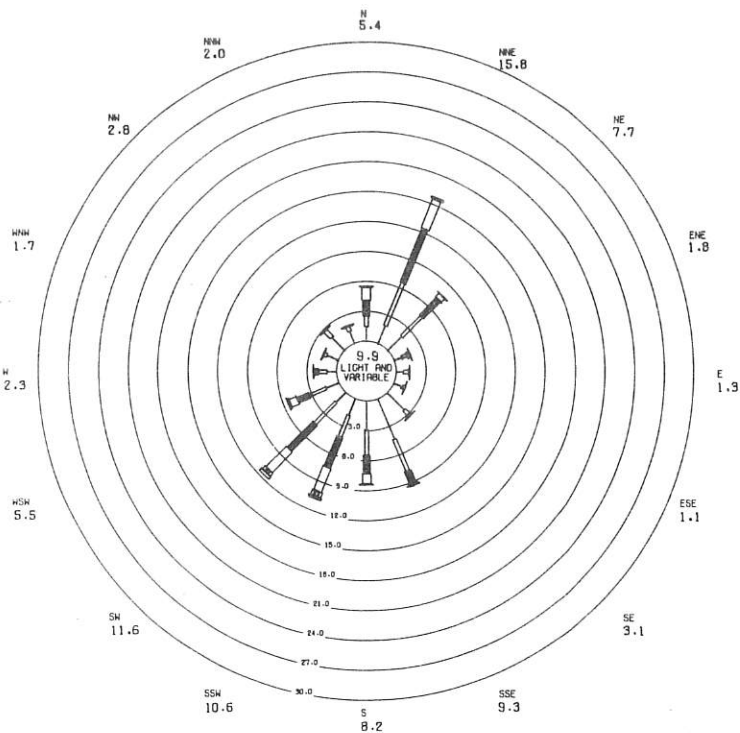
HOUR AVERAGE SURFACE WINDS  
PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
227 ANDOVER PARK E, TUKWILA

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8536





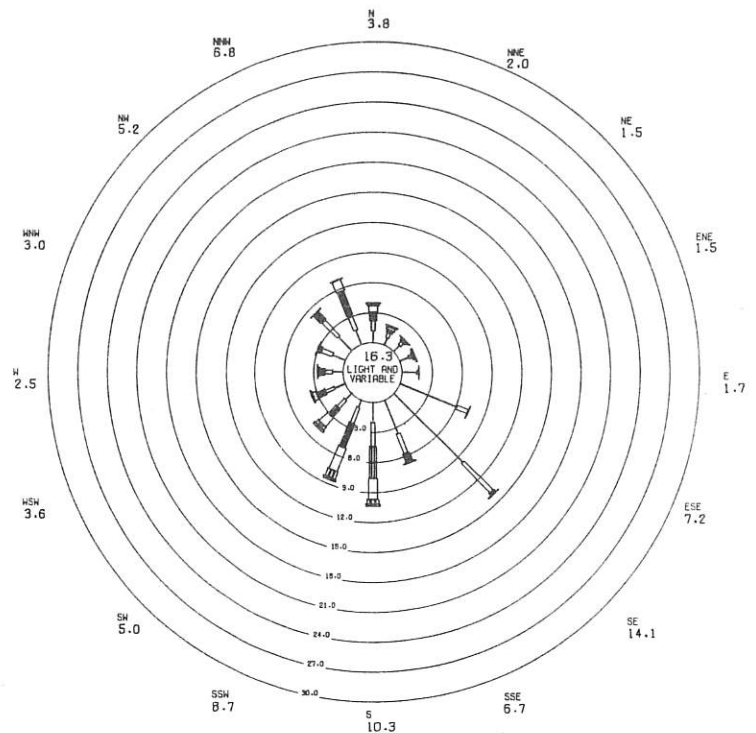
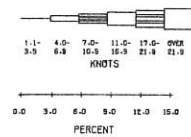
HOUR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
MEEKER JHS, 1526 51ST STREET NE, TACOMA

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8374



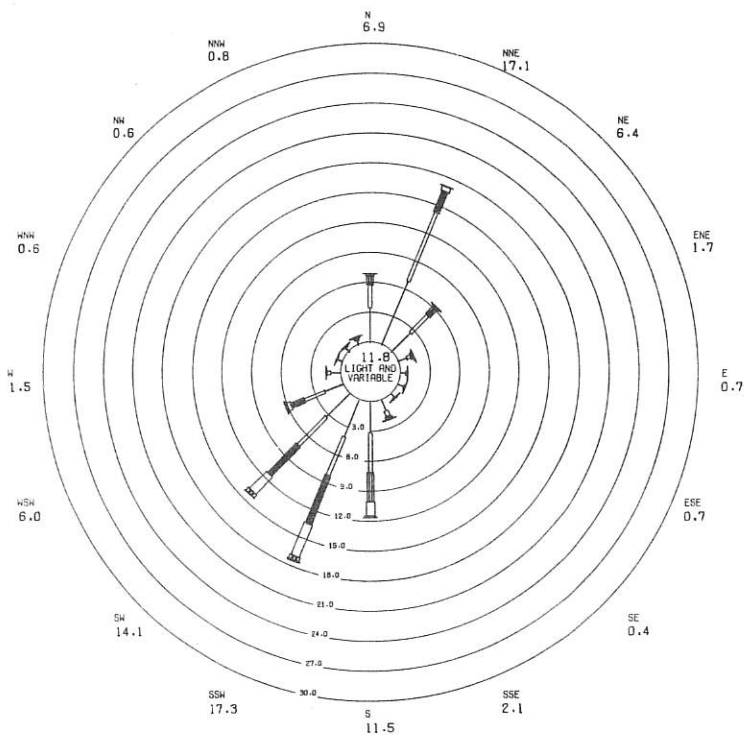
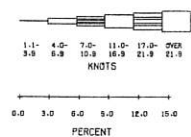
HOUR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
FIFE SR HIGH SCHOOL, 5616 20TH E, FIFE

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8549



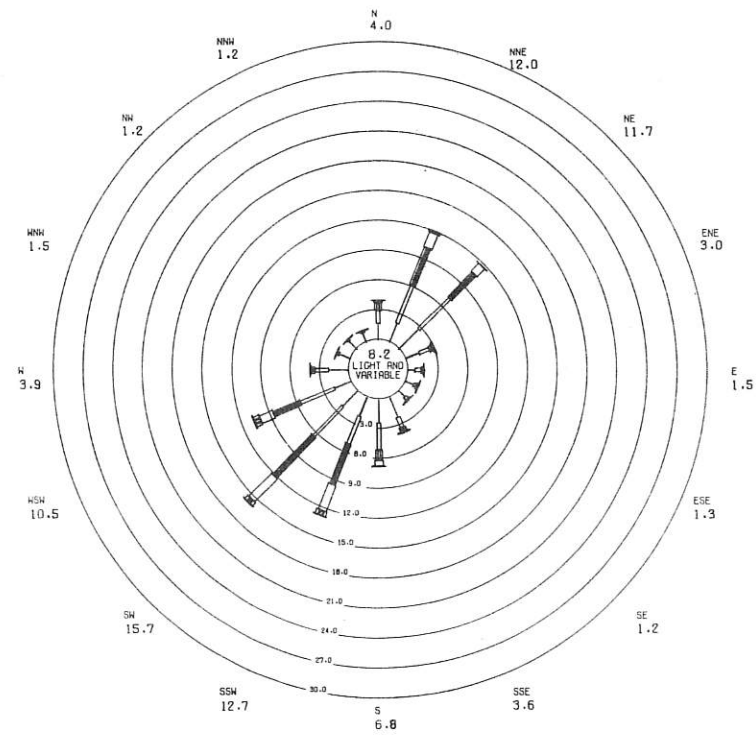
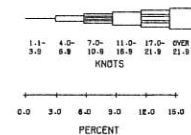
HOUR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
CITY LIGHT SUBSTN 21ST AND ADAMS, TACOMA

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8482



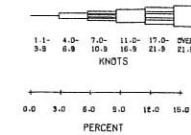
HOUR AVERAGE SURFACE WINDS

PERCENTAGE FREQUENCY OF OCCURRENCE

STATION LOCATION- PUGET SOUND AIR POLLUTION CONTROL AGENCY  
BENNY'S NURSERY, N 26TH & PEARL, TACOMA

INCLUSIVE DATES- ALL MONTHS 1972

TOTAL OBSERVATIONS- 8531



## AMBIENT AIR QUALITY STANDARDS

### SULFUR OXIDES

The presence of sulfur oxides in the ambient air has been associated with a variety of respiratory diseases and increased mortality rates. They represent a significant economic burden and have a nuisance impact. When sulfur oxides are inhaled with small particles, the health effect is increased. Inhalation of sulfur dioxide can cause increased airway resistance by constricting lung passages.

### PARTICULATES

Small discrete masses of solid or liquid matter dispersed in the atmosphere, especially those of one micron or less in diameter, are associated with a variety of adverse effects on public health and welfare. Particulate matter in the respiratory tract may produce injury by itself, or it may act in conjunction with gases to increase the effect on the body. Small particles suspended in the air are chiefly responsible for reduced visibility in the Puget Sound area. Soiling of buildings and other property is a common effect of high particulate levels.

### CARBON MONOXIDE

Carbon monoxide reacts with the hemoglobin in red blood cells to decrease the oxygen-carrying capacity of the blood. The national primary standard for carbon monoxide was based on evidence that levels of carboxyhemoglobin in human blood as low as 2.5% may be associated with impairment of ability to discriminate time intervals. The national ambient air quality standards for carbon monoxide are intended to protect against the occurrence of carboxyhemoglobin levels above 2%. Note: Smoking up to 2 packs of cigarettes a day raises carboxyhemoglobin levels to about 5%. This is equivalent to exposure for 8 or more hours to 30 ppm of carbon monoxide.

	NATIONAL				Notes	PUGET SOUND REGION	
	PRIMARY		Notes	SECONDARY			
	ug/m <sup>3</sup>	ppm		ug/m <sup>3</sup>	ppm		
SULFUR OXIDES							
Annual Average	80	.03	a	60	.02	a	.02 ppm
30-day Average						a	.04 ppm
24-hour Average	365	.14	b	260	.10	a	.10 ppm
3-hour Average			b	1,300	.50		
1-hour Average						c	.25 ppm
1-hour Average						a	.40 ppm
5-min. Average						d	1.00 ppm
SUSPENDED PARTICULATES	ug/m <sup>3</sup>	---		ug/m <sup>3</sup>	---		
Annual Geom. Mean	75	---	a	60		a	60 ug/m <sup>3</sup>
24-hour Average	260	---	b	150		b	150 ug/m <sup>3</sup>
CARBON MONOXIDE	mg/m <sup>3</sup>	ppm					
8-hour Average	10	9	b	same			same
1-hour Average	40	35	b	same			same
PHOTOCHEMICAL OXIDANTS	ug/m <sup>3</sup>	ppm					
1-hour Average	160	.08	b	same			same
NITROGEN DIOXIDE	ug/m <sup>3</sup>	ppm					
Annual Average	100	.05	a	same			same
HYDROCARBONS	ug/m <sup>3</sup>	ppm					
3-hour Average	160	.24	b	same			same

### STATE AND REGION PARTICLE FALLOUT STANDARDS (No National Standard)

Industrial Areas (a) 10 grams/meter<sup>2</sup>/month (28.6 tons/mile<sup>2</sup>/month)  
 Commercial-Residential Areas (a) 5 grams/meter<sup>2</sup>/month (14.3 tons/mile<sup>2</sup>/month)

ppm = parts per million  
 ug/m<sup>3</sup> = micrograms per cubic meter  
 mg/m<sup>3</sup> = milligrams per cubic meter

a Never to be exceeded  
 b Not to be exceeded more than once per year  
 c Not to be exceeded more than twice in seven days  
 d Not to be exceeded more than once in eight hours

### PHOTOCHEMICAL OXIDANTS

Photochemical oxidants are produced in the atmosphere when nitrogen oxides and some hydrocarbons are exposed to sunlight. Photochemical oxidants cause irritation to the mucous membranes, damage to vegetation and deterioration of materials. They affect the clearance mechanism of the lungs and alter resistance to respiratory bacterial infections. The national primary air quality standard for photochemical oxidants is based on evidence of increased frequency of asthma attacks for some people on days when hourly averages reach 0.1 ppm. Eye irritation is possible when atmospheric concentrations reach this level.

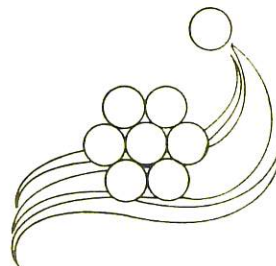
### NITROGEN DIOXIDE

Nitric oxide results from the fixation of nitrogen and oxygen at high temperatures as in fuel combustion. There are several atmospheric reactions which lead to the oxidation of nitric oxide to nitrogen dioxide, and the presence of nitrogen dioxide in ambient air is essential to the production of photochemical oxidants. The presence of nitrogen dioxide in ambient air has been associated with a variety of respiratory diseases.

### HYDROCARBONS

Defined as organic compounds composed exclusively of carbon and hydrogen, hydrocarbons are primarily associated with the use of petroleum products. They are the main components of photochemical smog. Hydrocarbons alone have no known effect on human health; therefore the sole purpose of prescribing a hydrocarbon standard is to control photochemical oxidants.

## HISTORY OF AIR QUALITY STANDARDS IN THE PUGET SOUND REGION



PUGET SOUND  
AIR POLLUTION  
CONTROL AGENCY

410 West Harrison Street, Seattle, Washington 98119

(MARCH 13, 1968) The first air quality standards in the Puget Sound region were for sulfur dioxide. Adopted as part of Regulation I of the Puget Sound Air Pollution Control Agency, they were called "maximum allowable ground level concentrations."

(FEBRUARY 13, 1969) The Washington State Air Pollution Control Board adopted the first state-wide ambient air quality standard. It set the limits of carbon monoxide in the air at an eight hour average of 20 parts per million.

(APRIL 17, 1970) The State Air Pollution Control Board adopted state-wide ambient air quality standards for sulfur oxides, suspended particulate, and particle fallout.

(JULY 8, 1970) The Agency's Board of Directors amended the sulfur dioxide standards to conform to those of the State, retaining a five minute average standard set in 1968, and adding a thirty day average standard not included in the State standard. At the same time, the State standards for suspended particulate and particle fallout were adopted locally.

(NOVEMBER 10, 1971) The Agency's Board of Directors adopted the new national secondary ambient air quality standards. The monthly standard for suspended particulate, first adopted by the State was retained. The sulfur dioxide standards, adopted by the Board in 1970, are equal to or more stringent than the national standards. The State Department of Ecology adopted the national secondary ambient air quality standards on January 24, 1972.

### *Serving*

#### **KING, KITSAP, PIERCE & SNOHOMISH COUNTIES**

KING COUNTY  
410 West Harrison St.  
Seattle, 98119  
(206) 344-7330  
KITSAP COUNTY  
Dial Operator for Toll  
Free Number Zenith 8385  
Bainbridge Island, Dial 344-7330

PIERCE COUNTY  
213 Hess Building  
Tacoma, 98402  
(206) FU 3-5851  
SNOHOMISH COUNTY  
703 Medical-Dental Bldg.  
Everett, 98201  
(206) AL 9-0288

## NATIONAL AMBIENT AIR QUALITY STANDARDS

A new approach to air pollution control came into being with the Federal Clean Air Act of 1970. The law requires the U. S. Environmental Protection Agency (reporting directly to the President) to promulgate national primary and secondary ambient air quality standards. The primary standards for each pollutant are based upon known health effects for that particular substance as detailed in "air quality criteria" documents published by the federal government.

Primary standards protect the public health and must allow an adequate margin of safety. Secondary standards must protect the public welfare against other adverse effects. These include effects on soils, water, crops, vegetation, man-made materials, animals, wild life, weather, visibility, climate, property, transportation, economic values and personal comfort and well being.

Pursuant to the schedule established by the Congress, the Environmental Protection Agency published on April 30, 1971, the first national ambient air quality standards. As of Nov. 10, 1971, the Puget Sound Air Pollution Control Agency Regulation I contains the same or more stringent ambient air quality standards.