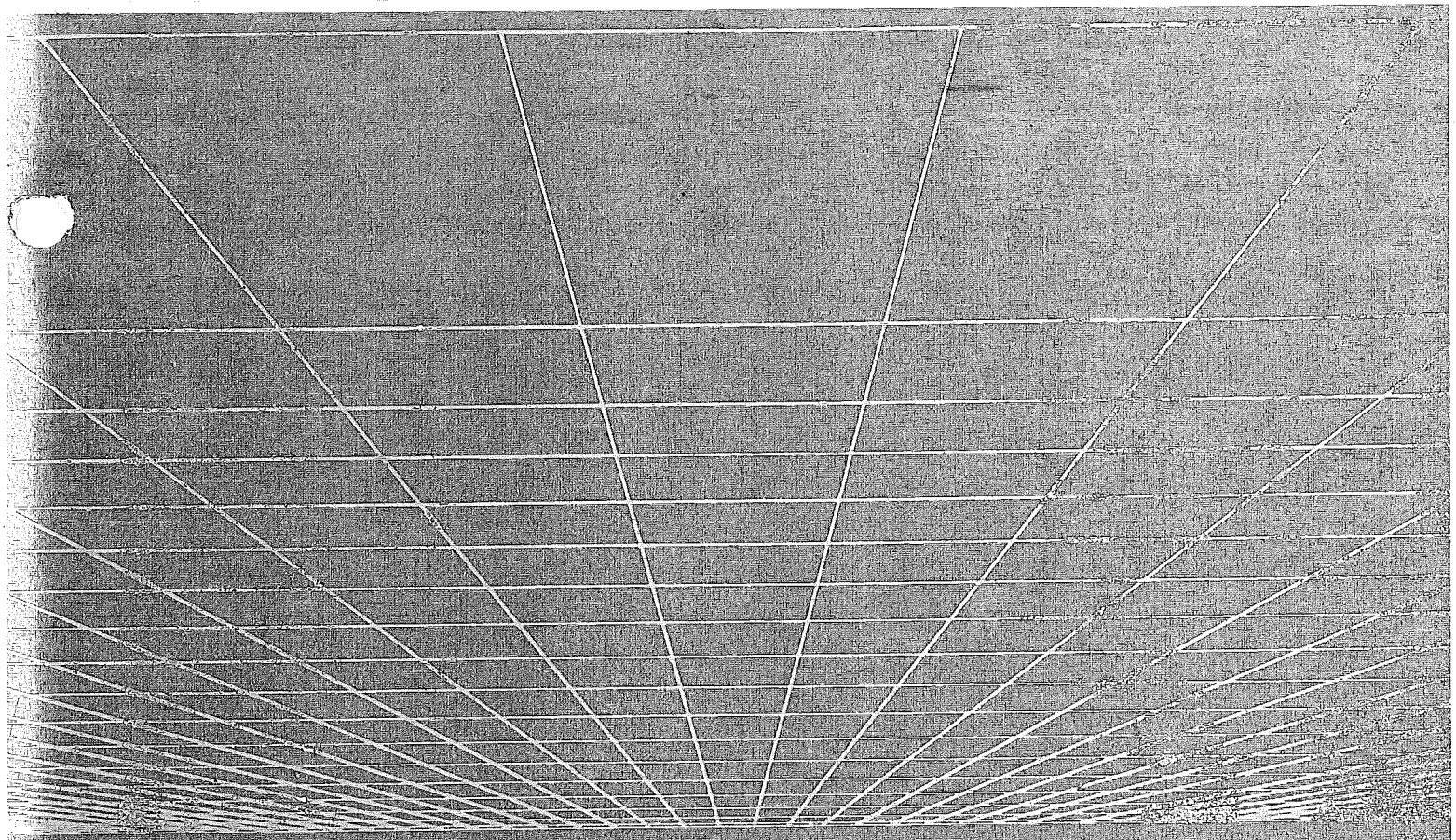
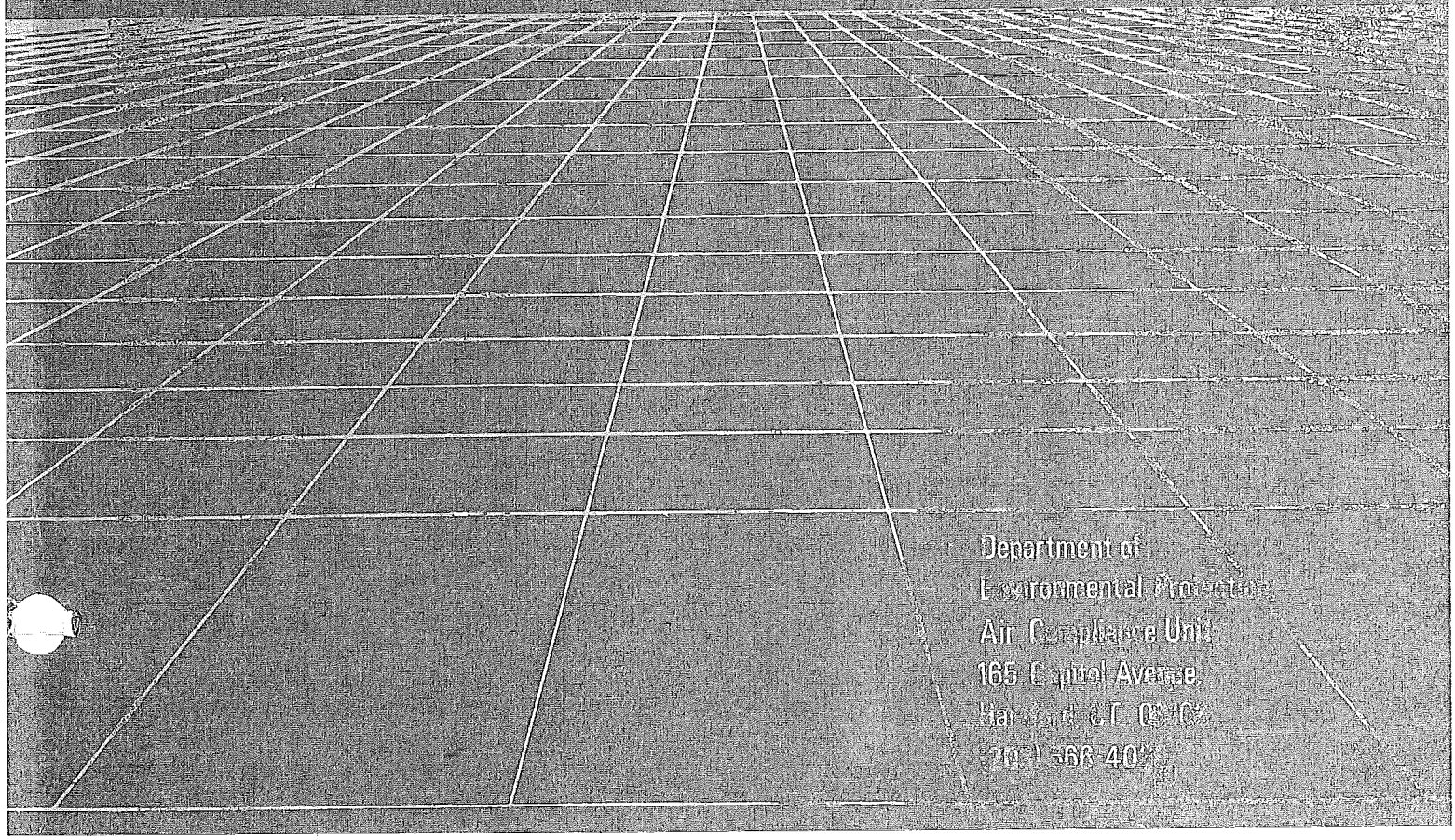


1982
STATE OF CONNECTICUT
ANNUAL AIR QUALITY SUMMARY



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I. INTRODUCTION

The 1982 Air Quality Summary of Ambient Air Quality in Connecticut is a compilation of all air pollutant measurements made at the Department of Environmental Protection (DEP) air monitoring network sites.

A. Overview of Air Pollutant Concentrations in Connecticut

This section briefly describes the status of Connecticut's air quality for the year 1982. The measured concentrations of six pollutants are compared to two categories of Federal and State air quality standards. The first is the primary standard which is established to protect public health with an adequate margin of safety; the second category is the secondary standard which is established to protect plants and animals and to prevent economic damage. More detailed discussions of each of the six pollutants are provided in subsequent sections of this Air Quality Summary.

1. Total Suspended Particulates (TSP)

Measured total suspended particulates (TSP) levels did not exceed the primary annual standard of 75 ug/m^3 or the secondary annual standard of 60 ug/m^3 in Connecticut during 1982. No sites recorded measured values exceeding the primary 24-hour standard of 260 ug/m^3 in 1982, but measured values at two (2) sites exceeded the secondary 24-hour standard of 150 ug/m^3, down from fourteen (14) sites in 1981. Two (2) exceedances of the 24-hour standard are required at a particular site for the standard to be violated. No sites recorded measured values which violated the secondary standard by exceeding the 150 ug/m^3 level at least two times (see Table 1).

In general, measured TSP levels were slightly higher in terms of annual average concentration values in 1982, as compared to 1981.

2. Sulfur Dioxide (SO2)

None of the air quality standards for sulfur dioxide were exceeded in Connecticut in 1982. Measured concentrations were below the 80 ug/m^3 primary annual standard, the 365 ug/m^3 primary 24-hour standard, and the 1300 ug/m^3 secondary 3-hour standard.

The continued attainment of the SO_2 standards can be primarily attributed to Connecticut's low sulfur-in-fuel regulations.

The results of sulfation rate monitoring indicate that sulfur dioxide levels were significantly lower in 1982 than 1981. Temperature is an important factor in determining SO_2 emissions. The general decrease in measured SO_2 levels was probably due to the fact that, for coastal Connecticut, 1982 was warmer than 1981. The last quarter of 1982 was warmer statewide compared to the last quarter of 1981. This can be shown by the number of "degree days": a measure of heating requirement. As the number of degree days increases, the amount of fuel that must be burned to heat buildings also increases (see Tables 28 and 29); the more fossil fuel burned, the greater the emissions of sulfur oxides.

3. Ozone (O3)

National Ambient Air Quality Standards - (NAAQS) - On February 8, 1979, the EPA established an ambient air quality standard for ozone of 0.12 ppm for a one-hour average. That level is not to be exceeded more than once per year. Furthermore, in order to determine compliance with the 0.12 ppm ozone standard, EPA directs the states to record the number of daily exceedances of 0.12 ppm at a given monitoring site over a consecutive 3-year period and then calculate the average number of daily exceedances for this interval. If the resulting average value is less than or equal to 1.0; that is, if the fourth highest daily value in a consecutive 3-year period is less than 0.12 ppm, the ozone standard is considered attained. The definition of the pollutant was also changed along with the numerical value partly because the instruments used to measure photochemical oxidants in the air really measure only ozone. Ozone is only one of a group of chemicals which are formed photochemically in the air and are called photochemical oxidants. In the past, the two terms have often been used interchangeably. This 1982 Air Quality Summary uses the term "ozone" in conjunction with the new NAAQS to reflect the changes in both the numerical value of the NAAQS and the definition of the pollutant.

The primary 1-hour ozone standard was exceeded at all the DEP monitoring sites in 1982 (see Table 1).

The incidence of ozone levels in excess of the 1-hour 0.12 ppm ozone standard increased from 1981 to 1982 (see Tables 18 and 19). Some of this difference is attributable to the changes in meteorological factors which occur from year-to-year. High temperatures and strong sunlight in the presence of hydrocarbons and oxides of nitrogen facilitate the formation of ozone. The prevailing southwest wind transports hydrocarbons and nitrogen oxides generated in the New York City Metropolitan Area into Connecticut. Along the way, these chemicals react in the presence of strong sunlight, forming ozone. Consequently, the ozone levels across Connecticut are

highest when the prevailing wind flow is out of the southwest (see Table 21). However, there are recorded exceedences of the NAAQS for ozone on non-southwest wind days, and this indicates that pollution control programs currently being implemented in this state are needed to protect the public health of Connecticut's citizenry on days when this state is responsible for its own pollution problem.

4. Nitrogen Dioxide (NO2)

The method by which the DEP measures NO_2 was changed in 1981. This change was the reason for the incomplete nature of the 1981 data. 1982 was the first full year the DEP used continuous electronic analyzers to measure NO_2 levels. The annual average NO_2 standard, 100 ug/m^3, was not exceeded in 1982 at any site in Connecticut.

5. Carbon Monoxide (CO)

The primary eight-hour standard of 9 ppm was exceeded at ~~three~~ two of the five carbon monoxide monitoring sites in Connecticut during 1982 (see Table 1). These sites were ~~Hartford 012~~, New Britain 002, and Stamford 020. The standard was exceeded ~~three~~ two times at each of these sites. In 1981, at Stamford 020, the standard was exceeded 113 times. The large decrease in exceedances at this site is attributed to changing traffic flow of the nearby street to one-way.

There were no violations of the primary one-hour standard of 35 ppm.

A definite decrease in carbon monoxide levels took place between 1981 and 1982.

6. Lead (Pb)

The primary and secondary ambient air quality standard for lead is 1.5 ug/m^3, maximum arithmetic mean averaged over three consecutive calendar months. As in 1981, the lead standard was not exceeded at any site in Connecticut during 1982.

A downward trend in measured concentrations of lead has been observed since 1978. This trend is probably due to the increasing use of unleaded gasoline.

TABLE 1

AIR QUALITY STANDARDS EXCEEDED IN CONNECTICUT IN 1982 BASED SOLELY UPON MEASURED CONCENTRATIONS

TOWN	SITE	TOTAL SUSPENDED PARTICULATES: Level Exceeding Secondary Annual Standard — Highest Observed Level (ug/m3)	TOTAL SUSPENDED PARTICULATES: Level Exceeding Secondary 24-Hour Standard — Highest Observed Level (ug/m3)	TOTAL SUSPENDED PARTICULATES: Level Exceeding Secondary 24-Hour Standard — Number of Times Standard Exceeded	OZONE: Level Exceeding 1-Hour Standard — Highest Observed Level (ppm)	OZONE: Level Exceeding 1-Hour Standard — Number of Days Standard Exceeded	CARBON MONOXIDE: Level Exceeding 8-Hour/1-Hour Standards — Highest Observed Level 8-Hour/1-Hour (ppm)	CARBON MONOXIDE: Level Exceeding 8-Hour/1-Hour Standards — Number of Times Standard Exceeded
Ansonia	003	-	239	1	X	X	X	X
Bridgeport	001	-	-	-	X	X	X	X
Bridgeport	004	X	X	X	X	X	-	-
Bridgeport	009	-	-	-	X	X	X	X
Bridgeport	123	-	-	-	0.183	9	X	X
Bristol	001	-	-	-	X	X	X	X
Burlington	001	-	-	-	X	X	X	X
Danbury	002	-	-	-	X	X	X	X
Danbury	123	-	-	-	0.201	9	X	X
East Hartford	003	X	X	X	0.153	6	X	X
East Hartford	004	-	-	-	X	X	X	X
Greenwich	008	-	-	-	X	X	X	X
Greenwich	017	X	X	X	0.237	15	X	X
Groton	005	X	X	X	0.198	18	X	X
Haddam	002	-	-	-	X	X	X	X
Hartford	003	-	-	-	X	X	X	X
Hartford	012	X	X	X	X	X	~~9.47~~	~~3.07~~ X
Hartford	013	-	-	-	X	X	X	X
Hartford	014	-	-	-	X	X	X	X
Madison	002	X	X	X	0.220	11	X	X
Manchester	001	-	-	-	X	X	X	X
Meriden	002	-	-	-	X	X	X	X
Meriden	008	-	-	-	X	X	X	X
Middletown	003	-	-	-	X	X	X	X
Middletown	007	X	X	X	0.181	19	X	X
Milford	002	-	-	-	X	X	X	X
Morris	001	-	-	-	X	X	X	X
Naugatuck	001	-	-	-	X	X	X	2 X
New Britain	002	X	X	X	X	X	9.9/-	~~3.0~~/-
New Britain	007	-	-	-	X	X	X	X
New Britain	008	-	-	-	X	X	X	X
New Britain	009	-	-	-	X	X	X	X
New Britain	010	X	X	X	0.155	11	X	X
New Haven	002	-	-	-	X	X	X	X
New Haven	007	X	X	X	X	X	-	-
New Haven	013	-	-	-	X	X	X	X

TABLE 1, continued

AIR QUALITY STANDARDS EXCEEDED IN CONNECTICUT IN 1982 BASED SOLELY UPON MEASURED CONCENTRATIONS

		TOTAL SUSPENDED PARTICULATES			OZONE		CARBON MONOXIDE	
		Level Exceeding Secondary Annual Standard	Level Exceeding Secondary 24-Hour Standard		Level Exceeding 1-Hour Standard		Level Exceeding 8-Hour/1-Hour Standards	
TOWN	SITE	Highest Observed Level (ug/m3)	Highest Observed Level (ug/m3)	Number of Times Standard Exceeded	Highest Observed Level (ppm)	Number of Days Standard Exceeded	Highest Observed Level 8-Hour/1-Hour (ppm)	Number of Times Standard Exceeded
New Haven	123	X	X	X	0.190	9	X	X
Norwalk	001	-	-	-	X	X	X	X
Norwalk	005	-	-	-	X	X	X	X
Norwalk	012	-	-	-	X	X	X	X
Norwich	001	-	-	-	X	X	X	X
Stafford	001	X	X	X	0.196	10	X	X
Stamford	001	-	-	-	X	X	X	X
Stamford	007	-	-	-	X	X	X	2 X
Stamford	020	X	X	X	X	X	9.7/-	[illegible]/-
Stamford	021	-	-	-	X	X	X	X
Stratford	005	-	-	-	X	X	X	X
Stratford	007	X	X	X	0.233	22	X	X
Voluntown	001	-	-	-	X	X	X	X
Wallingford	001	-	-	-	X	X	X	X
Waterbury	005	-	-	-	X	X	X	X
Waterbury	006	-	-	-	X	X	X	X
Waterbury	007	-	185	1	X	X	X	X
Waterford	001	-	-	-	X	X	X	X
Willimantic	002	-	-	-	X	X	X	X

X: Pollutant not monitored at site
-: No violation

B. Trends

Any attempt to assess statewide trends in air pollution levels must account for the tendency of local changes to obscure the statewide pattern. In order to reach some statistically valid conclusions concerning trends in pollutant levels in Connecticut, the DEP has applied the Wilcoxon matched pairs, signed rank statistical test to the annual average data for two pollutants. The Wilcoxon test has been applied to 1968-1982 total suspended particulate (TSP) data, to 1968-1982 sulfation rate/sulfur dioxide (SO_2) data, and to 1978-1982 continuous SO_2 data.

The Wilcoxon Test is a non-parametric test which can ascertain statistically significant changes (increases or decreases) in the annual average pollutant concentrations at all the monitoring sites in Connecticut. The test makes it possible to overcome the trend analyses problems which arise due to the changes in the number and location of monitoring sites from year-to-year, as well as problems associated with making equitable comparisons among sites. The annual mean levels for consecutive years are compared at each site; there is no inter-site comparison. Data for two consecutive years are required and the size of the change (increase or decrease) is noted. For example, if a high proportion of sites experienced an increase and/or if the magnitude of an increase at several sites is of much greater importance than the magnitude of a decrease at other sites, the test will show if the increase was statistically significant for those two years.

The results of the Wilcoxon test for TSP, sulfation rate/SO_2 and continuous SO_2 data are presented in Tables 2, 3 and 3A, respectively. These analyses were performed only on data computed for sites where the U.S. Environmental Protection Agency (EPA) minimum sampling criteria were met. The years of data that were paired, the number of sites used, and the statewide arithmetic mean and standard deviation of the pollutant concentrations at the sites are provided in the first four columns of each table. The statistical significance of any change in the statewide pollutant average is provided in the last three columns of each table. The significance of change is indicated by arrows for two confidence limits, 95% and 99%, and is also given numerically as the number of chances in 10,000 under the heading "actual significance of change". For example, the statewide annual average for TSP decreased between 1971 and 1972 from 68.4 to 61.9. The downward arrows indicate that this change represented a significant decrease at the 95% and 99% confidence levels. The "actual significance of change" is given as 0.0013, meaning that there are only 13 chances in 10,000 that this measured decrease in TSP levels did not occur.

1. TSP

The results from the Wilcoxon test for TSP (see Table 2) show that total suspended particulate levels in Connecticut decreased significantly from 1968 to 1969. From 1969 through 1971 there was no significant change. Then, from 1971 to 1974 TSP levels decreased significantly again, but from 1974 to 1975 this decreasing trend was reversed and TSP levels demonstrated a significant increase. TSP concentrations remained relatively constant from 1975 to 1977 and 1978. Between 1978 and 1979 there was a significant, but not exceedingly large, reduction of measured concentrations. Between 1979 and 1980 there was a significant drop in measured TSP levels. This has been attributed to the elimination of passive sampling error through the use of retractable lids on the hi-vol monitors. The lids retract when the monitor is in operation and return to a covered position when it is not in operation. This prevents any particulates from depositing on, or being removed from, the filter during non-operating hours. TSP levels again fell significantly from 1980 to 1981: the largest decrease in concentrations since 1973. From 1981 to 1982 TSP levels increased slightly. These trend analyses do not account for the uncertainty associated with the individual annual mean computed for each TSP site. Most TSP sampling is conducted only every sixth day, producing a total of 61 samples per year. Therefore, the Wilcoxon test really compares year-to-year averages of the sampling date concentrations, not actual annual averages. However, the every-sixth-day sampling schedule is believed to be sufficient to produce representative annual averages. The every-sixth-day schedule for TSP sampling did not start until 1971. Since fewer samples were taken at each site for 1968 to 1970 than during recent years, the test results from the early years are not as conclusive as the results from the later years.

Significant changes in annual TSP levels can also be caused simply by changes of weather, particularly the wind. Such changes probably explain most of the decrease in TSP levels observed between 1968 and 1969, the increase observed between 1974 and 1975, and the decrease from 1977 to 1979. The persistent decrease in TSP levels observed from 1971 to 1974 (amounting to 20 ug/m^3), however, can certainly be attributed to the emission controls implemented by DEP during those years.

Figure 1 shows the long-term trend of TSP concentrations in Connecticut in a graphical form. The trend chart is based on data obtained from ~~both~~ high volume ~~and low volume~~ sampling devices. High volume sampler data are included only if there was a sufficient number of samples taken in each year to compute valid geometric means. ~~Low volume sampler data are included for those sites where low volume samplers replaced high volume samplers in 1976.~~

2. SO_2

Connecticut has been measuring ambient levels of sulfur dioxide since prior to the inception of the SO_2 standards in 1971. Several monitoring methods have been employed over that time including bubblers, sulfation plates, and various types of continuous instruments. The bubblers became the EPA reference method, but unfortunately, the field data have turned out to be very unreliable. The sulfation plates have been in use for 10 years and the data are reliable, but they do not measure SO_2 directly. Continuous monitors presently yield reliable data, but this has not always been the case. The earliest continuous monitors (conductometric and coulometric) were subject to interference from many chemicals other than SO_2 and also had difficulties with quality control. As a result, these monitors produced unreliable data. Later generations of instruments (flame photometric and pulsed fluorescent) alleviated these problems, and there has been a corresponding increase in the reliability of the data, especially since 1978.

In order to perform a valid trend analysis, the data for the period of interest must be reliable and from similar sampling methods. Up until 1978, the only method which fit these criteria was the sulfation plate. Between 1978 and 1982 there were approximately three times as much sulfation rate data as continuous SO_2 data and the former method was used for the purpose of analyzing SO_2 trends. However, the air quality standards are not written in terms of sulfation rate, but rather as SO_2 concentrations. There are several suggested conversions in the literature. In order to determine the "best" conversion to use in Connecticut, DEP undertook a study comparing SO_2 levels with sulfation rate. This study involved exposing three sulfation plates at the same location with a flame photometric or pulsed fluorescent continuous SO_2 monitor. Monthly averages were taken at 11 sites, from November, 1975 through September, 1978, resulting in a data set of 245 matched pairs. The sulfation rates and SO_2 levels were compared using a least squares regression technique. The equation resulting from this is as follows:

$$SO_2 \text{ (ppm)} = 0.0056 + 0.0195 \text{ (sulfation rate)(mg/100 cm}^2\text{/day)}$$

The level of significance of this regression equation was found to be less than 0.001, and the associated sample correlation coefficient was 0.72.

By means of the above equation and other conversion factors, historical sulfation rate data were then converted to equivalent SO_2 levels and these levels were used as input to the Wilcoxon test previously described.

The results of the Wilcoxon test are presented in Table 3. Beginning in 1977, SO_2 levels decreased significantly through 1979. From 1979-1980 measured SO_2 levels rose significantly, but fell significantly from 1980-1982.

As with TSP, annual changes in SO_2 levels can be caused simply by changes in weather. The dramatic step-by-step drop in SO_2 levels from 1970 to 1973 corresponds exactly to the step-by-step phase-in of Connecticut's low sulfur-in-fuel regulations. As of September 1, 1971, the oil sold and burned in Connecticut was limited to a sulfur content not to exceed 1.0%. As of September 1, 1972, the sulfur content of the oil sold in Connecticut could not exceed 0.5%, and the burning of oil with a higher sulfur content than 0.5% was not allowed after April 1, 1973. The inescapable conclusion is that the implementation of these sulfur-in-fuel regulations caused the significant reduction in SO_2 levels from 1970 to 1973, such that all SO_2 standards have been attained in Connecticut. During the winter of 1973 to 1974, certain utilities were given emergency permission to burn higher sulfur oil and coal. The temporary increase in SO_2 levels observed in 1974 could have been due in part to this relaxation of the sulfur-in-fuel limitations. The increase from 1979 to 1980 can be attributed to the fact that the winter months of 1980 were colder than 1979. In colder winter months, more oil is required for energy to heat homes. Between 1980 and 1981, SO_2 levels decreased slightly.

In response to the skyrocketing prices of low sulfur fuels in the late 1970's, most states relaxed their sulfur-in-fuel requirements to the full extent the law allows, creating considerable pressure on Connecticut to follow suit. This caused Connecticut to reevaluate its philosophy for controlling sulfur oxide emissions in 1981. To meet the challenge of a new high cost fuel economy, DEP restructured its air pollution control requirements for fuel burning sources. Under this new "three-pronged" program Connecticut's businesses and industries are (1) now allowed (effective November 1981) to burn a less expensive grade of oil with a higher sulfur content -- one percent (1.0%) sulfur oil and (2) are allowed to burn higher sulfur content oil in exchange for reductions in energy use.

The third aspect of the program is the repeal of the 24-hour air quality standard for sulfur oxides. This action increased statewide sulfur oxide emissions by almost 60%. (Sulfur oxide emissions were not doubled by going from 0.5% to 1.0% sulfur-in-fuel since residential fuel users, which account for almost one-third of annual statewide sulfur oxide emissions, use distillate fuel oil with a sulfur content of 0.5%.) One would have expected measured SO_2 levels to increase in 1982, as compared to 1981, due to the use of 1.0% sulfur oil; however, the trend was slightly down. This may be attributable to the year-to-year fluctuations in meteorology or the decreased fuel use caused by the increased price of this energy source.

The long-term trend of SO_2 concentrations, as determined from the sulfation rate data, is shown in graphical form in Figure 2.

Recent information now indicates that sulfation rate-derived SO_2 values may not be as accurate as once thought. Sulfation rate data are dependent on relative humidity and wind speed -- being extremely sensitive to the latter -- and the precision of the data suffers even under uniform conditions. Furthermore, EPA has requested that DEP use continuous SO_2 data in order to analyze SO_2 trends. Consequently, a second SO_2 trend analysis between 1978 and 1982 using continuous SO_2 data was conducted and is summarized in Table 3A and Figures 2A, 2B and 2C.

Table 3A indicates that there has been little year-to-year change in ambient SO_2 levels since 1978. Continuous SO_2 monitors were operated each year at five (5) sites between 1978 and 1982. Based on measurements at these five (5) locations, mean SO_2 levels are depicted in Figures 2A and 2B. Figure 2A shows SO_2 levels decreasing at four (4) sites and exhibiting essentially no trend at the fifth site. Figure 2B shows the average of the mean SO_2 concentrations for all the sites steadily decreasing over the 5-year period. Using the data presented in Figure 2B, Figure 2C shows the three-year running average of the mean SO_2 concentrations. Three-year running averages tend to smooth out the year-to-year effects of meteorology on pollutant levels. Like Figures 2A and 2B, Figure 2C illustrates again that SO_2 levels are decreasing. In any event, neither the trend analysis using sulfation rate data nor the one using continuous data indicates an increase in ambient SO_2 levels between 1981 and 1982, even though fuel-burning sources were allowed to use 1% sulfur oil in 1982.

Is there any need to correct this? Next year we use "t test"

TABLE 2

TSP TREND, 1968-1982
(WILCOXON SIGNED-RANK TEST)

Paired Years	Number Of Sites	Average Of Annual Geometric Means* (ug/m3)	Standard Deviation (ug/m3)	Significance Level Trend at 95% Level**	Significance Level Trend at 99% Level**	Actual Significance Of Change
68	~~17~~ 16	~~73.6~~ 74.9	21.~~6~~7			0.0067
69	~~17~~ 16	~~66.9~~ 67.8	18.~~6~~7	↓	↓	~~0.0075~~
69	21	69.0	23.0			
70	21	71.7	25.5	N.C.	N.C.	0.2891
70	23	67.8	20.6			
71	23	66.2	18.2	N.C.	N.C.	0.34585
71	40	68.4	22.5			
72	40	61.9	17.3	↓	↓	0.0013
72	39	59.1	13.4			
73	39	51.9	10.2	↓	↓	<0.00005
73	41	51.9	11.6			
74	41	48.3	10.3	↓	N.C.	0.0143
74	40	49.9	10.7			
75	40	52.3	10.1	↑	N.C.	0.0101
75	29	53.~~2~~3	9.8			0.9310
76	29	53.~~1~~3	9.~~3~~5	N.C.	N.C.	~~0.7539~~
76	35	53.6	8.8			0.8505
77	35	53.~~7~~6	9.~~2~~1	N.C.	N.C.	~~0.8982~~
77	30	54.~~8~~6	9.8			0.0333
78	30	52.~~7~~8	9.3	↓	N.C.	0.0166
78	32	51.~~4~~5	12.1			0.0407
79	32	49.9	12.5	~~N.C.~~ ↓	N.C.	~~0.0540~~
79	32	49.3	13.2			
80	32	45.4	10.0	↓	↓	<0.00005
80	26	45.2	10.1			
81	26	38.0	8.4	↓	↓	<0.00005
81	37	38.3	6.8			
82	37	40.5	8.0	↑	↑	<0.00005

* Note that as the year pairings change, the sites available also change. This explains the different averages for a given year, i.e., the averages are taken from different sets of sites.

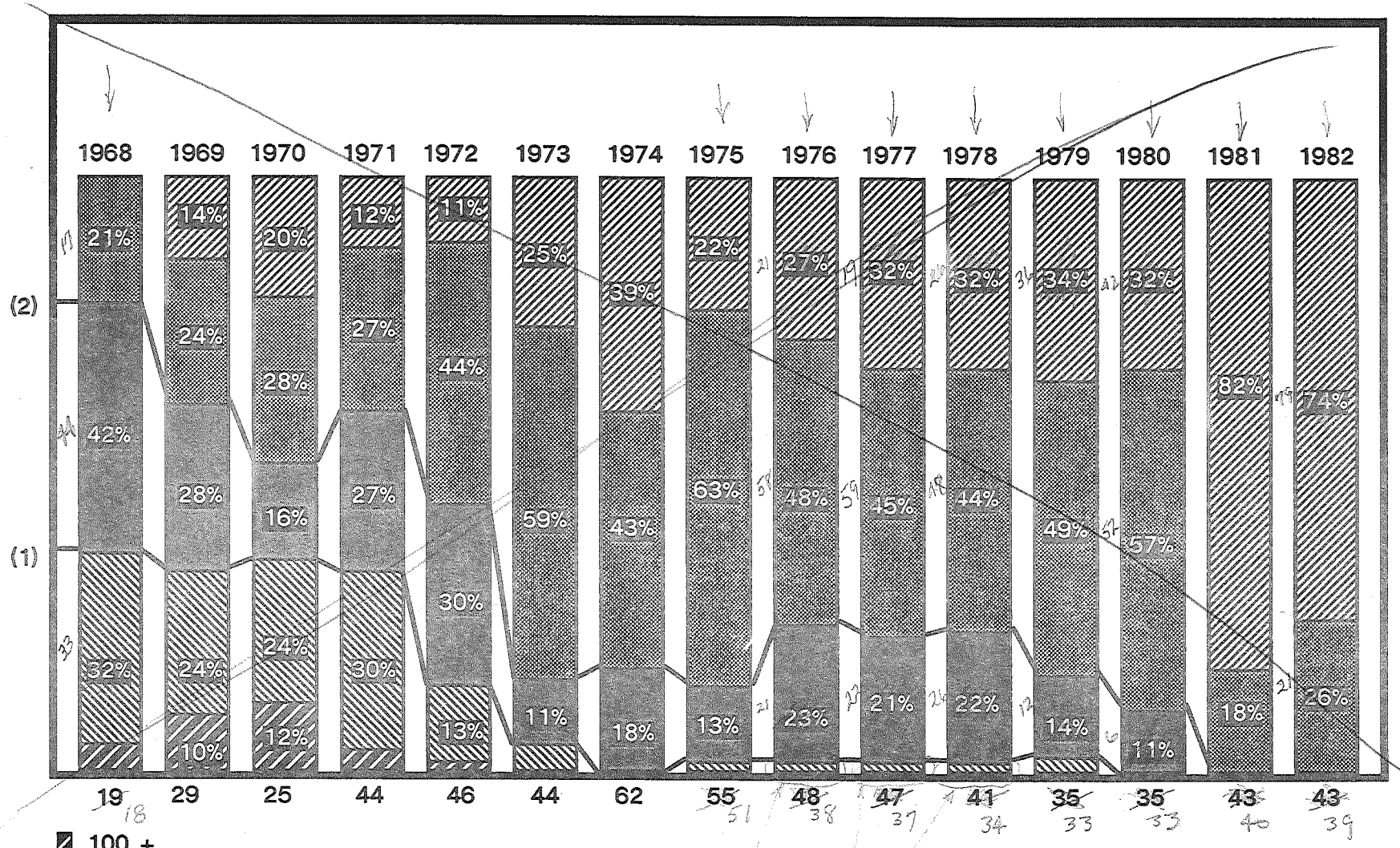
** Key to Symbols: ↓ = Significant Downward Trend
↑ = Significant Upward Trend
N.C. = No Significant Change

SEE FIGURE 1 IN THE 1983 AIR QUALITY SUMMARY

FIGURE 1

TOTAL SUSPENDED PARTICULATE MATTER TREND

"PERCENT OF SITES WITHIN EACH RANGE"



(1) PRIMARY ANNUAL STANDARD 75 ug/m³

(2) SECONDARY ANNUAL STANDARD 60 ug/m³

- Eliminate in 1983
— Use Table 3A

TABLE 3

EQUIVALENT SO2 TREND FROM SULFATION RATE, 1968-1982
(WILCOXON SIGNED-RANK TEST)

Paired Years	Number Of Sites	Average Of Annual Arithmetic Means*	Standard Deviation	Significance Level Trend at 95% Level**	Significance Level Trend at 99% Level**	Actual Significance Of Change
68	12	75.4	29.3			
69	12	65.3	21.3	N.C.	N.C.	0.0619
69	22	56.6	18.8			
70	22	64.4	20.3	↑	↑	0.0006
70	34	62.4	20.9			
71	34	50.1	13.9	↓	↓	<0.00005
71	40	51.6	14.9			
72	40	40.3	6.8	↓	↓	<0.00005
72	38	41.3	6.9			
73	38	34.0	4.5	↓	↓	<0.00005
73	25	35.4	5.2			
74	25	38.2	6.3	↑	↑	0.0004
74	25	35.9	8.2			
75	25	33.2	7.8	↓	↓	0.0002
75	18	33.1	7.7			
76	18	33.6	6.0	N.C.	N.C.	0.1070
76	29	35.2	4.7			
77	29	34.9	4.3	N.C.	N.C.	0.8009
77	25	35.1	4.2			
78	25	30.4	3.4	↓	↓	<0.00005
78	25	30.0	4.1			
79	25	27.8	3.1	↓	↓	0.0001
79	25	27.8	3.1			
80	25	29.2	3.4	↑	↑	0.0004
80	21	29.6	3.5			
81	21	27.0	2.9	↓	↓	0.0001
81	52	26.6	2.7			
82	52	25.4	3.1	↓	↓	0.0001

* Note that as the year pairings change, the sites available also change. This explains the different averages for a given year, i.e., the averages are taken from different sets of sites.

** Key to Symbols: ↓ = Significant Downward Trend
↑ = Significant Upward Trend
N.C. = No Significant Change

FIGURE 2

SULFUR DIOXIDE TREND FROM SULFATION RATE DATA

"PERCENT OF SITES WITHIN EACH RANGE"

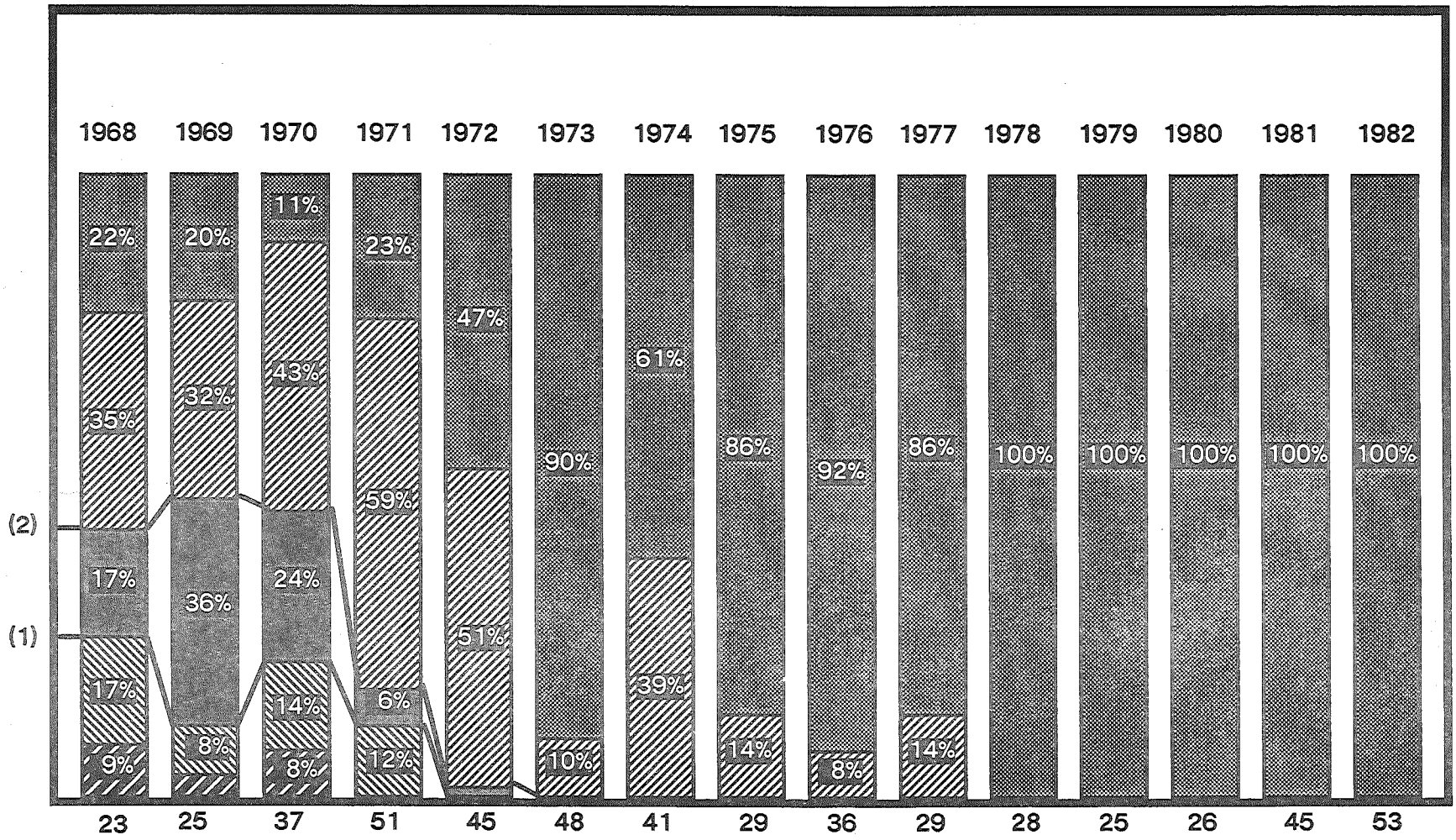


TABLE 3A

SO_2 TREND FROM CONTINUOUS DATA, 1978-1982 (WILCOXON SIGNED-RANK TEST)

Paired Years	Number Of Sites	Average Of Annual Geometric Means (ppb)	Standard Deviation (ppb)	Significance Level: Trend at 95% Level**	Trend at 99% Level**	Actual Significance Of Change
78	~~7~~ 9	~~9.14~~ 9.10	~~2.61~~ 2.34			
79	~~7~~ 9	~~7.71~~ 8.14	~~2.36~~ 2.04	N.C.	N.C.	~~0.06~~ 0.10
79	~~7~~ 10	~~8.14~~ 8.30	~~2.04~~ 1.94			
80	~~7~~ 10	~~7.43~~ 7.56	1.99	~~N.C.~~ ↓	N.C.	~~0.07~~ 0.022
80	~~7~~ 8	~~7.57~~ 8.04	~~1.81~~ 1.58			
81	~~7~~ 8	~~7.71~~ 7.97	~~1.80~~ 1.67	N.C.	N.C.	~~0.10~~ 0.30
81	~~8~~ 9	~~7.63~~ 7.97	~~1.69~~ 1.67			
82	~~8~~ 9	~~7.50~~ 8.01	~~1.69~~ 1.70	N.C.	N.C.	~~0.19~~ 0.27

N.B. The new numbers account for all the continuous instruments. The coulometric instruments were originally omitted.

* Note that as the year pairings change, the sites available also change. This explains the different averages for a given year, i.e., the averages are taken from different sets of sites.

** Key to Symbols: N.C. = No Significant Change

For 1983 add 50%, 75%, 90% ?

FIGURE 2A

ANNUAL GEOMETRIC MEAN CONCENTRATION OF SO2 (PPB) FROM 1978-1982

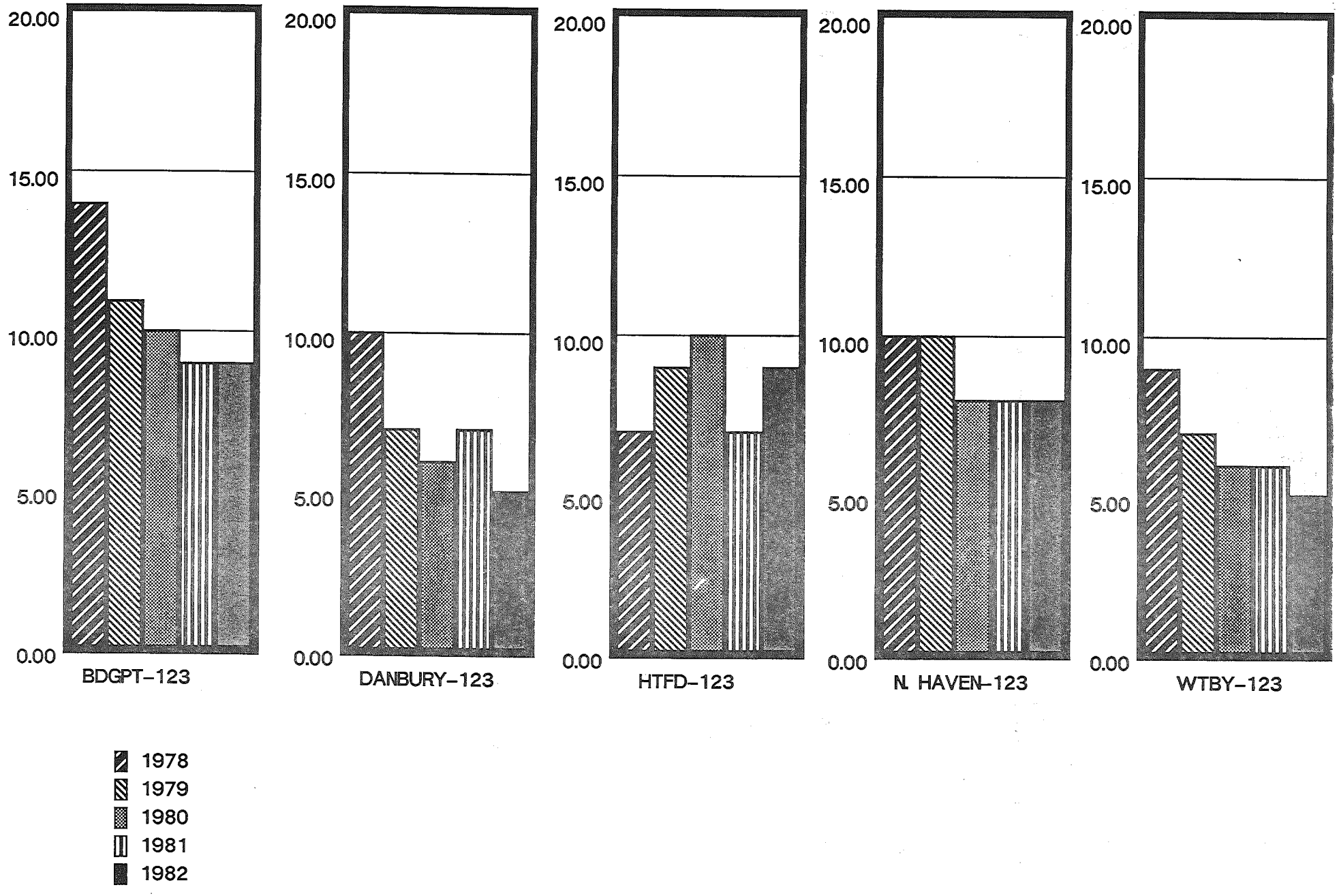


FIGURE 2B

THE AVERAGE OF THE ANNUAL GEOMETRIC MEAN SO2 CONCENTRATIONS AT 5 CONCURRENTLY OPERATING SO2 SITES WITH CONTINUOUS MONITORS

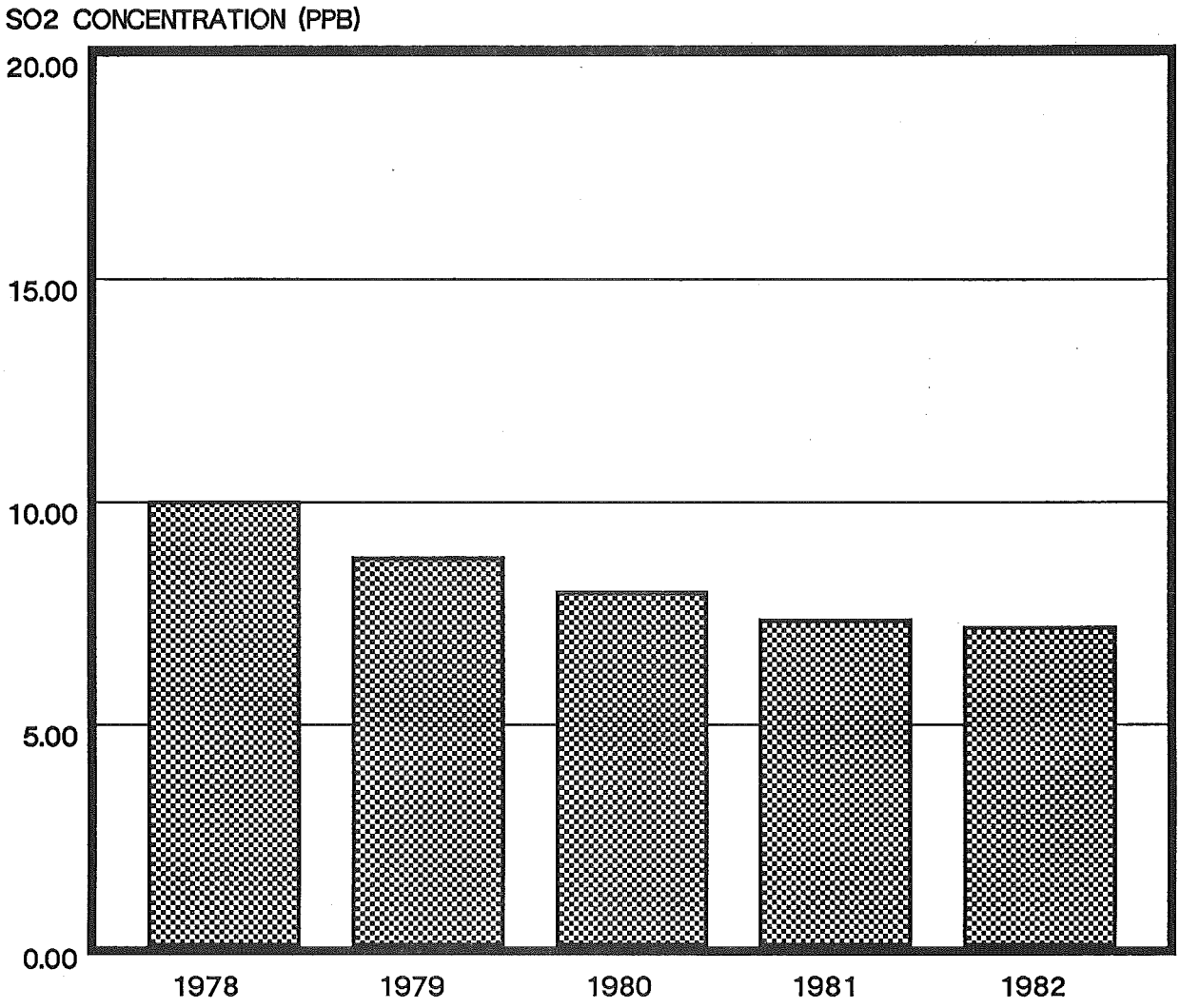
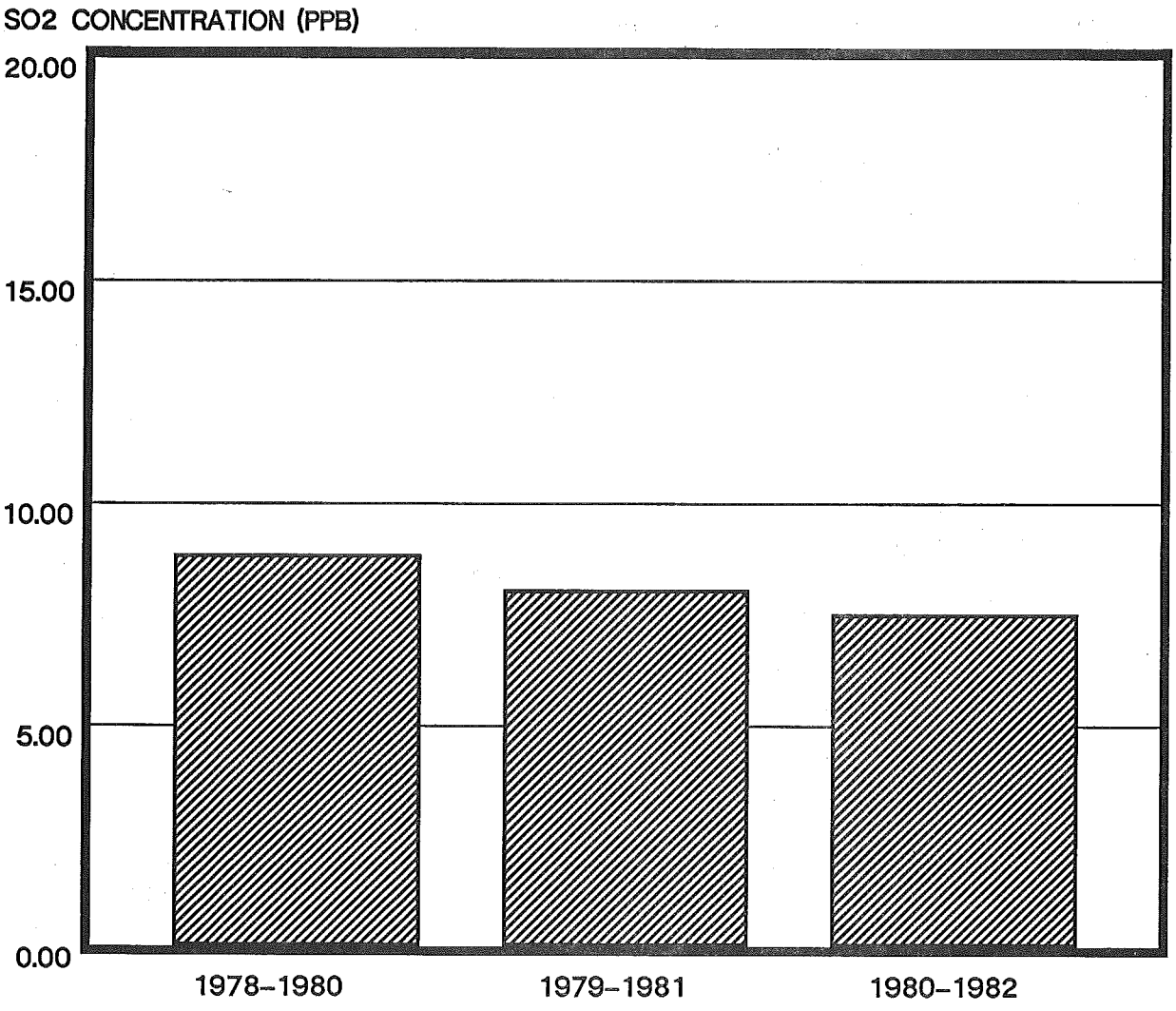


FIGURE 2C

THREE-YEAR RUNNING AVERAGE OF THE ANNUAL GEOMETRIC MEAN SO2 CONCENTRATIONS AT 5 CONCURRENTLY OPERATING SO2 SITES WITH CONTINUOUS MONITORS



Future Air Quality Summaries will no longer contain a discussion of SO_2 trends based upon sulfation rate data. Instead, all future SO_2 trend analyses will be based upon continuous SO_2 measurements.

C. Air Monitoring Network

A computerized Air Monitoring Network consisting of an IBM System 7 computer and 12 telemetered monitoring sites was put into full operation in 1975. Presently, up to 12 measurement parameters from each site are transmitted via telephone lines to the System 7 unit located in the DEP Hartford office. The data are then compiled into 24-hour summaries twice daily. The telemetered sites are located in the towns of Bridgeport, Danbury, Greenwich, Hartford, New Britain, New Haven, Stamford, and Waterbury.

Measured parameters include the pollutants nitrogen oxide, sulfur dioxide, particulates (COH), carbon monoxide and ozone. Meteorological data consists of wind speed and direction, wind horizontal sigma, temperature, dew point, precipitation, barometric pressure and solar radiation (insolation).

The real-time capabilities of the System 7 telemetry network have enabled the Air Monitoring Unit to report the Pollutant Standards Index for 10 towns on a daily basis while keeping a close watch for high pollution levels which may occur during adverse weather conditions throughout the year.

The complete monitoring network used in 1982 consisted of:

41 ~~43~~	Total suspended particulate hi-vol sites (16 are also approved lead sites)
2	Total suspended particulate lo-vol sites
5	Lead lo-vol sites
9	Sulfur dioxide sites (continuous monitors)
11	Ozone sites
6 ~~7~~	Nitrogen dioxide sites
5	Carbon monoxide sites

A complete description of all permanent air monitoring sites in Connecticut operated by DEP in 1982 is available from the Department of Environmental Protection, Air Compliance Unit, Monitoring Section, State Office Building, Hartford, Connecticut, 06106.

D. Air Quality Standards

Table 4 lists analysis methods and National Ambient Air Quality Standards (NAAQS) for each pollutant. The NAAQS were established by the U.S. Environmental Protection Agency (EPA) and are divided into two categories: primary - established to protect the public health; and secondary - established to protect plants and animals and to prevent economic damage.

Each standard specifies a concentration and an exposure time developed from studies of the effect of various levels of the particular pollutant.

E. Pollutant Standards Index

The Pollutant Standards Index (PSI) is a daily air quality index recommended for common use in state and local agencies by the U.S. Environmental Protection Agency. Starting on November 15, 1976, Connecticut began reporting the PSI on a 7-day basis. The PSI incorporates ~~four~~ three pollutants - ~~carbon monoxide~~, sulfur dioxide, total suspended particulates and ozone. The index converts each air pollutant concentration into a normalized number where the National Ambient Air Quality Standard for each pollutant corresponds to PSI = 100 and the Significant Harm Level corresponds to PSI = 500.

Figure 3 shows the breakdown of index values for the commonly reported pollutants (TSP, SO_2, ~~CO~~ and O_3) in Connecticut. For the winter of 1981, Connecticut reported the PSI for the towns of Hartford, New Haven, Bridgeport, Stamford, Greenwich, Danbury, Waterbury, and New Britain. For the summer, the PSI was reported for the towns of Bridgeport, Danbury, East Hartford, Greenwich, Groton, Madison, Middletown, New Britain, New Haven, Stafford, and Stratford. Each day the pollutant with the highest PSI value of all the pollutants being monitored is reported for each town, along with the dimensionless PSI number and a descriptor word to characterize the daily air quality.

A telephone recording of the PSI is taped each afternoon at 3 PM, seven days a week, and can be heard by dialing 566-3449. For residents outside of the Hartford telephone exchange, the PSI is now available toll-free from the DEP representative at the Governor's State Information Bureau. The number is 1-800-842-2220. This information is also available to the public weekday afternoons from the Connecticut Lung Association in East Hartford. The number there is 289-5401.

TABLE 4

ASSESSMENT OF AMBIENT AIR QUALITY

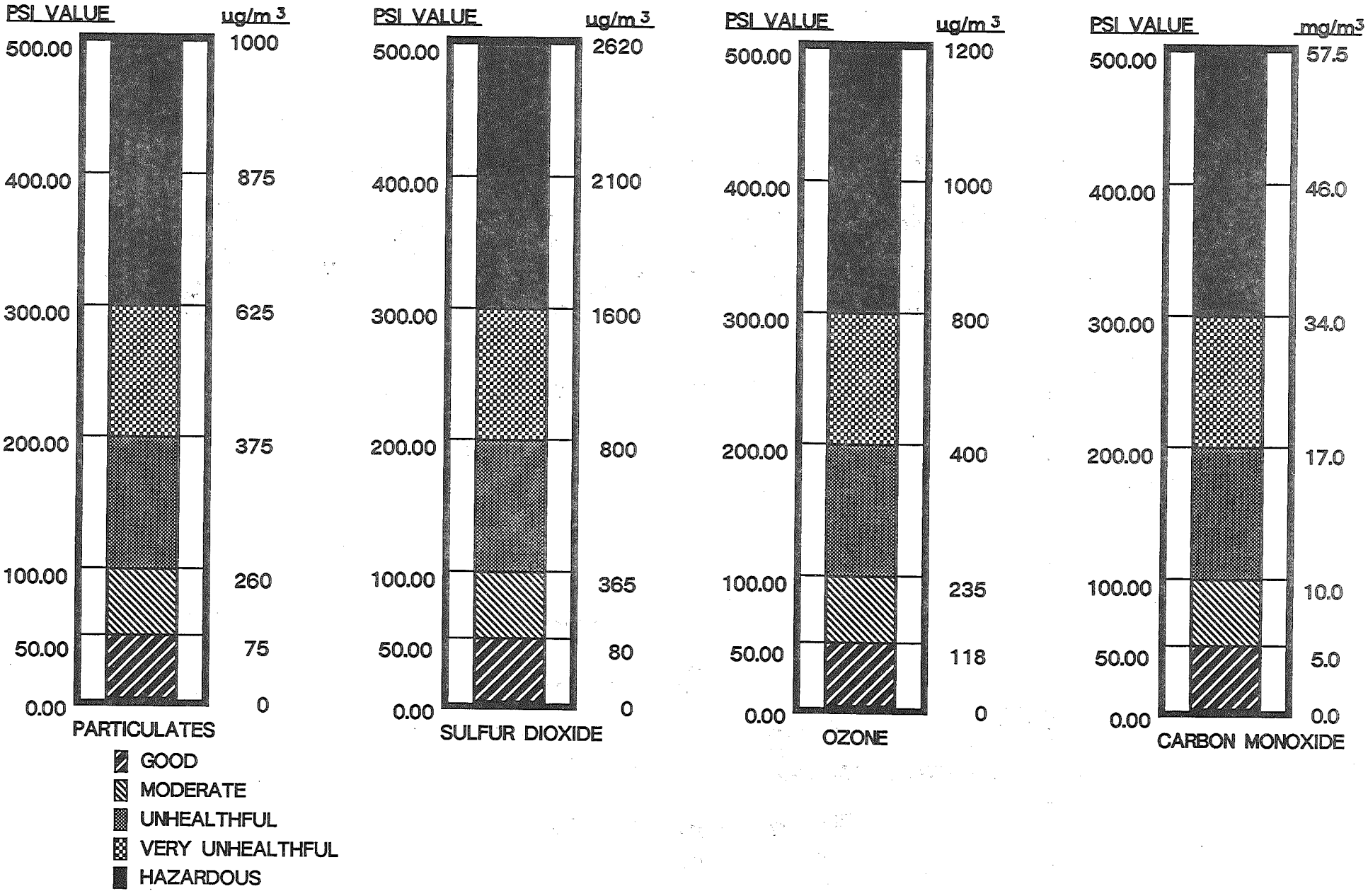
POLLUTANT	SAMPLING PERIOD	DATA REDUCTION	STATISTICAL BASE	NATIONAL AMBIENT AIR QUALITY STANDARDS			
				PRIMARY STANDARD		SECONDARY STANDARD	
				ug/m3	ppm	ug/m3	ppm
Total Suspended Particulates	24-Hours Every Sixth Day[1]	24-Hour Average	Annual Geometric Mean 24-Hour Average[3]	75 260		60* 150	
Sulfur Oxides (Measured as Sulfur Dioxide)	Continuous[2]	1-Hour Average	Annual Arithmetic Mean 24-Hour Average[3] 3-Hour Average[3]	80 365	0.03 0.14	 1300	 0.50
Nitrogen Dioxide	Continuous[2]	1-Hour Average	Annual Arithmetic Mean	100	0.05	Same as Primary	
Ozone	Continuous[2]	1-Hour Average	1-Hour Average[4]	235	0.12	Same as Primary	
Lead	24 Hours Every Sixth Day[5]	Monthly Composite	3-Month Average	1.5		Same as Primary.	
Carbon Monoxide	Continuous[2]	1-Hour Average	8-Hour Average[3] 1-Hour Average[3]	10** 40**	9 35	Same as Primary Same as Primary	

[1] EPA assessment criteria require at least 5 samples per calendar quarter, and, if one month has no samples, then the other two months in that quarter must have at least two samples each.
[2] EPA assessment criteria require 75% of possible data to compute valid averages.
[3] Not to be exceeded more than once per year.
[4] Not to be exceeded more than an average of once per year in three years.
[5] State of Connecticut assessment criteria require 75% of possible data to compute valid averages.
* A guide to be used in assessing implementation plans to achieve the 24-hour standard.
** Units are mg/m3

Units: ug/m3 = micrograms per cubic meter; mg/m3 = milligrams per cubic meter; ppm = parts per million

FIGURE 3

POLLUTANT STANDARDS INDEX



F. Quality Assurance

Quality Assurance requirements for State and Local Air Monitoring Stations (SLAMS) and the National Air Monitoring Stations (NAMS) which, as part of the (SLAMS) network, are specified by the code of Federal Regulations, Title 40, Part 58, Appendix A.

The regulations were enacted to provide a consistent approach to Quality Assurance activities across the country so that ambient data with a defined precision and accuracy is produced.

To this end a Quality Assurance program was initiated in Connecticut with written procedures covering, but not limited to, the following:

Equipment Procurement
Equipment Installation
Equipment Calibration
Equipment Operation
Sample Analysis
Maintenance Audits
Performance Audits
Data Handling and Assessment

Quality Assurance procedures for the above activities were initiated and fully operational on January 1, 1981 for all NAMS monitoring sites. On January 1, 1983 the above procedures will be initiated and fully operational for all SLAMS monitoring sites.

Data precision and accuracy values are reported in the form of 95% probability limits as defined by equations found in Appendix A of the Federal regulations cited above.

1. Precision

Precision is a measure of data repeatability (grouping) and is determined in the following manner:

a. Manual Samplers (TSP and Lead)

A second (co-located) TSP hi-vol sampler is placed alongside a regular TSP network sampler and operated concurrently. The concentration values from the co-located hi-vol sampler are compared to the network sampler and precision values are generated from the comparison.

b. Automated Analyzers (SO_2, O_3, CO and NO_2)

All NAMS and SLAMS analyzers are challenged with a low level pollutant concentration (.08 to .10 PPM) a minimum of once every two weeks. The comparison of analyzer response to input concentration is used to generate automated analyzer precision values.

2. Accuracy

Accuracy is an estimate of the closeness of a measured value to a known value: i.e., how close each value is to the bull's eye.

a. Manual Methods (TSP ~~and Lead~~)

TSP accuracy is assessed by auditing the flow measurement phase of the TSP sampling method. In Connecticut this is accomplished by attaching a secondary standard calibrated orifice to the hi-vol inlet and comparing the flow rates. A minimum of 25% of the TSP network samplers are audited each quarter.

~~c~~ b. Automated Analyzers (SO_2, O_3, CO and NO_2)

Automated analyzer data accuracy is determined by challenging each analyzer with three predetermined concentration levels. Accuracy values are calculated for a number of analyzers, in a pollutant sampling network, at each concentration level. Automated analyzer response is audited at three concentration levels and zero. The results for each concentration for a particular pollutant are used to assess automated analyzer accuracy. The audit concentration levels are as follows:

SO_2, O_3, NO_2 (PPM)	CO (PPM)
0.03 to 0.08	3 to 8
0.15 to 0.20	15 to 20
0.35 to 0.45	35 to 45

Statistical computations are performed on the results of the precision and span checks.

b. Manual Methods (Lead)

Lead accuracy is assessed by analyzing spiked audit strips and comparing the analyzed results to the known spiked values. A low- and a high-valued spike are analyzed during lead filter processing -- approximately once per month.

II. TOTAL SUSPENDED PARTICULATES

Health Effects

Particulates are solid particles or liquid droplets small enough to remain suspended in air. They include dust, soot, and smoke -- particles that may be irritating but are usually not poisonous -- and bits of solid or liquid substances that may be highly toxic. The smaller the particles, the more likely they are to reach the innermost parts of the lungs and work their damage.

The harm may be physical: clogging the lung sacs, as in anthracosis, or coal miners' "black lung" from inhaling coal dust; asbestosis or silicosis in people exposed to asbestos fibers or dusts from silicate rocks; and byssinosis, or textile workers' "brown lung" from inhaling cotton fibers.

The harm may also be chemical: changes in the human body caused by chemical reactions with pollution particles that pass through the lung membranes to poison the blood or be carried by the blood to other organs. This can happen with inhaled lead, cadmium, beryllium, and other metals, and with certain complex organic compounds that can cause cancer.

Many studies indicate that particulates and sulfur oxides (they often occur together) increase the incidence and severity of respiratory disease.

Conclusions

Two different time categories are used in the standards that limit exposure to high levels of TSP. One is the annual standard, which protects the public from any long-term effects. The other is the 24-hour standard, the purpose of which is to insure that TSP levels are minimized for the short-term. If either standard is violated at a site, the region in which the site is located is then considered to have a non-attainment status.

Measured TSP levels did not exceed the primary annual standard of 75 ug/m^3 or the secondary annual standard of 60 ug/m^3 during 1982. And no sites had a measured value exceeding the primary 24-hour standard of 260 ug/m^3. The 24-hour secondary standard of 150 ug/m^3 was exceeded, at least once, at 2 monitoring sites in 1982, compared to 14 sites in 1981. However, in order to violate the secondary standard, the second highest TSP level must also exceed 150 ug/m^3. No sites violated the standard in 1982, whereas six sites did in 1981.

Overall, measured total suspended particulate levels in Connecticut increased from 1981 to 1982. As can be seen in Table 2, the average of the annual mean concentrations increased slightly in 1981-82, but is still well below earlier years. The number of sites increased dramatically from 26 in 1980-81 to 37 in 1981-82, but only 2 sites exceeded the 24-hour secondary standard in 1982, as compared to 14 sites in 1981.

More than half of the particulate emissions in Connecticut are caused by motor vehicles. One third of these emissions are due to fuel combustion. Most of the remaining two-thirds occurs when road dust is stirred up by the motion of the vehicles; so road dust emissions are not dependent upon fuel combustion, but rather upon vehicle miles traveled (VMT's). VMT's for 1982 increased by less than one percent over 1981, while gasoline consumption continued to decrease. In 1982 the decrease in gasoline consumption amounted to one-half of one percent.

Sample Collection and Analysis

Hi-volume Sampler (Hi-vol) - "Hi-vols" resemble vacuum cleaners in their operation, with an 8" x 10" piece of fiberglass filter paper replacing the vacuum bag. Retractable lids have been installed on the hi-vols in order to eliminate the passive sampling error. The samplers operate (from midnight to midnight) every sixth day at most sites and every third day at certain urban stations.

The matter collected on the filters is analyzed for weight and chemical composition. The air flow through the filter is recorded during sampling. The weight in micrograms (ug) divided by the volume of air in cubic meters (m^3) yields the pollutant concentration for the day, in micrograms per cubic meter.

The chemical composition of the suspended particulate matter is determined as follows. A standardized strip of every hi-vol filter collected in each quarter-year is cut-out and made into one composite sample. This procedure is repeated three times so that three quarterly composite samples are made for each site. One of the composite filter samples is digested in benzene. The organic materials in the sample dissolve and are extracted into the benzene. The benzene is evaporated and the organic residue is weighed. The weight of this residue represents the organic material in the sample and the result is reported as the benzene soluble fraction of the TSP, in ug/m^3. (This method of determining the benzene solubles, or organic, fraction of the particulates was used until 1977 when the analysis for benzene solubles was discontinued because of health hazards associated with the use of benzene, which is a carcinogen). Another sample is dissolved in water, re-fluxed and the resulting solution is analyzed to determine the water soluble fraction of the TSP using

wet chemistry techniques. Results are reported for each individual constituent of the water soluble fraction in ug/m^3. The last composite sample is digested in acid and the resulting solution is analyzed for the different metals in the TSP using an atomic absorption spectrophotometer. Results are reported for each individual metal in ug/m^3.

Lo-volume Sampler (Lo-vol) - The low-volume sampler is a 30-day continuous sampler. It is enclosed in a shelter similar to a hi-vol, uses the same glass fiber filter paper, but operates at an air sampling flow rate approximately one-tenth that used by a standard hi-vol (i.e., 4 cfm as opposed to 40-60 cfm). The air flow through the lo-vol is measured by a temperature compensating dry gas meter. The lo-vol measurement is essentially an arithmetic average for the 30-day sampling interval. The filters are chemically analyzed in the same manner as those from the hi-vol sampler.

Discussion of Data

Monitoring Network - In 1982 both hi-vol and lo-vol particulate samplers were operated in Connecticut (see Figure 4). Because the Federal EPA does not recognize the lo-vol instrument as an equivalent to the reference (hi-vol) method of sampling for TSP, only hi-vol data are analyzed for compliance with the National Ambient Air Quality Standards (NAAQS).

Precision and Accuracy - Precision checks of 39 hi-vol samplers yielded 95% probability limits ranging from -8% to +9%. Accuracy is based on air flow through the monitor. The 95% probability limits for accuracy, based on 148 audits conducted on the monitoring system, ranged from -8% to +3%.

Annual Averages - The Federal EPA has established minimum sampling criteria (see Table 4) for use in determining compliance with either the primary or secondary annual NAAQS for TSP. Using the EPA criteria, one finds that neither the primary annual standard nor the secondary annual standard was exceeded. Of the 37 sites that had valid annual geometric means in both 1981 and 1982, only seven sites had lower annual geometric means when compared to 1981. Of the thirty sites whose annual geometric means increased, only five increased more than 5 ug/m^3 (see Table 5).

Historical Data - The DEP's historical file of annual average TSP data for 1980-1982 is presented in Table 5. (For data going back to 1957, see the 1980 Air Quality Summary.) This table also includes an indication of whether the aforementioned EPA minimum sampling criteria were met at each site for each year. If the sampling was insufficient to meet the EPA criteria, an asterisk appears next to the number of samples.

Statistical Projections - The statistical projections presented in Table 5 are prepared by a DEP computer program which analyzes data from all sites operated by DEP. Input to the program includes site location and year, the number of samples (usually a maximum of 61), the annual geometric mean concentration and the geometric standard deviation. The program lists the input and calculates the 95% confidence limits about the mean and the statistical projections of the number of days in each year the primary and secondary 24-hour NAAQS would have been exceeded if sampling had been conducted every day. This analysis, like the ambient standards, is based on the assumption that the particulate data are log-normally distributed.

Because manpower and economic limitations dictate that hi-vol sampling for particulate matter cannot be conducted every day, a degree of uncertainty is introduced as to whether the air quality at a site has either met or exceeded the national standards. This uncertainty for the annual standard can be quantified by determining 95% confidence limits about each of the annual geometric means. For example (see Table 5), in Danbury at site 002 in 1982, 58 samples were analyzed and a geometric mean of 48.7 ug/m^3 was then calculated. The columns labeled "95-PCT-LIMITS" show the lower and upper limits for a 95% confidence interval of 43 and 55 ug/m^3, respectively. This means that if a larger (i.e., greater than 58 samples) sample set were collected in 1982 at this site there is a 95% chance that the geometric mean would fall between these limits. If the upper limit happened to be greater than 60 ug/m^3, the national ambient secondary standard for particulates, then one could not be 95% confident that the secondary standard was met.

In Table 6, one can examine the 1982 monitoring sites for compliance with air quality standards, using the State's hi-vol confidence limit criteria. The table shows that no sites exceeded the primary annual standard with 95% confidence. The table also shows that the DEP is 95% confident that the secondary standard was not exceeded at any sites during 1982.

24-Hour Averages - Table 7 presents the 1st and 2nd high 24-hour concentrations recorded at each site. There were no violations of the primary 24-hour standard recorded in Connecticut during 1982. Measured violations of the secondary 24-hour standard were recorded at no sites in 1982, six less than in 1981. The 2nd high 24-hour average increased at ten of the 37 paired sites which met the minimum EPA sampling criteria in both 1981 and 1982. Only one of these increases at Stamford 001 exceeded 25 ug/m^3. The 2nd high 24-hour average decreased at 26 of the sites, and eleven of these decreases exceeded 25 ug/m^3. The 2nd high decreased 69 ug/m^3 at Waterbury 007 while an even larger decrease of 126 ug/m^3 was recorded at Wallingford 001. At one site, New Britain 007, the 2nd high remained the same.

Table 8 summarizes the statistical predictions from Table 5 regarding the number of days exceeding the 24-hour standards. This table shows that, if sampling had been conducted every day in 1982, there would have been no sites with violations of the primary 24-hour standard and eleven (11) sites with violations of the secondary 24-hour standard. In 1981, no sites were predicted to have exceeded the primary 24-hour standard and fourteen (14) sites were predicted to have exceeded the secondary 24-hour standard.

Hi-vol Averages - Quarterly and annual averages of fourteen components or characteristics of the particulate matter collected at each hi-vol sampling location have been computed for the year 1982 and are presented in Table 9. The abbreviations used in the table are defined below. All the quarterly averages shown are arithmetic means.

Ammonium - Ammonium ion
Be - Beryllium
Cd - Cadmium
Count - Number of samples
Cr - Chromium
Cu - Copper
Fe - Iron
Mn - Manganese
Ni - Nickel
Nitrate - Total nitrates
Pb - Lead
pH - Acidity
Sulfate - Total sulfates
TSP - Total suspended particulates
V - Vanadium
Z - Zinc

Lo-vol Averages - For a number of years, the DEP has been experimenting and gathering data with the lo-vol particulate monitor. Lo-vols, which operate continuously for 30-day periods, have three advantages and one disadvantage in relation to hi-vols. First, the lo-vol's continuous operation can provide annual averages which include every day of the year, rather than only the fractional portion of the year sampled by hi-vols every sixth day or every third day. Second, the lo-vol needs less frequent servicing (12 times/year) than the hi-vol (61 times/year for every-sixth-day sampling); so it is more cost-effective to operate. Third, the lo-vol has a higher collection efficiency than the hi-vol, especially for small, respirable particles. A disadvantage of the lo-vol is that it does not provide daily samples for direct comparison to the 24-hour TSP standards (although 24-hour averages can be obtained by statistical interpolation).

The two lo-vol sites are located at rural locations. One site is in Mansfield and the other is in Putnam. The use of the lo-vols made it possible to continue to obtain data on annual average particulate levels at these rural sites.

Monthly and annual averages of the chemical components from the lo-vol TSP monitors have been computed for 1982 and are presented in Table 10. The abbreviations used in Table 10 are identical to those used in Table 9.

10 High Days with Wind Data - Table 11 lists the 10 highest 24-hour average TSP readings with the dates of occurrence for each TSP hi-vol site in Connecticut during 1982. This table also shows the average wind conditions which occurred on each of these dates. The resultant wind direction (DIR, in compass degrees from north) and velocity (VEL, in mph), the average wind speed (SPD, in mph), and the ratio between the velocity and the speed are presented for each of four National Weather Service stations located in or near Connecticut. (The resultant wind direction and velocity are vector quantities and are computed from the individual wind direction and speed readings in each day.) The closer the wind speed ratio is to 1.000, the more persistent the wind. Note that the Connecticut stations have local influences which change the speed and shift the direction of the near-surface air flow (e.g., the Bradley Field air flow is channeled north-south by the Connecticut River Valley and the Bridgeport air flow is subject to frequent sea breezes).

On a statewide basis, this table shows that by far most high TSP days occur with southwesterly winds and most of those days have persistent winds. This relationship between southwest winds and high TSP levels is more predominant in southwestern Connecticut. However, many of the maximum levels at some urban sites do not occur with southwest winds, indicating that these sites are more influenced by local sources than by the transport of TSP with southwest winds. As noted above, a large scale southwesterly air flow is often diverted into a southerly flow up the Connecticut River Valley. At many sites in the Connecticut River Valley most of the highest TSP days occur when the winds at Bradley Airport are from the south.

An examination of Table 11 reveals that March 30 and July 16 show up as either the first or second high for more sites than any other date. The winds on March 30 were persistently from the south-southwest, while on July 16 the winds were from the west-southwest. In both cases there was no precipitation for the previous three days. These weather conditions are typical of high level TSP days in Connecticut.

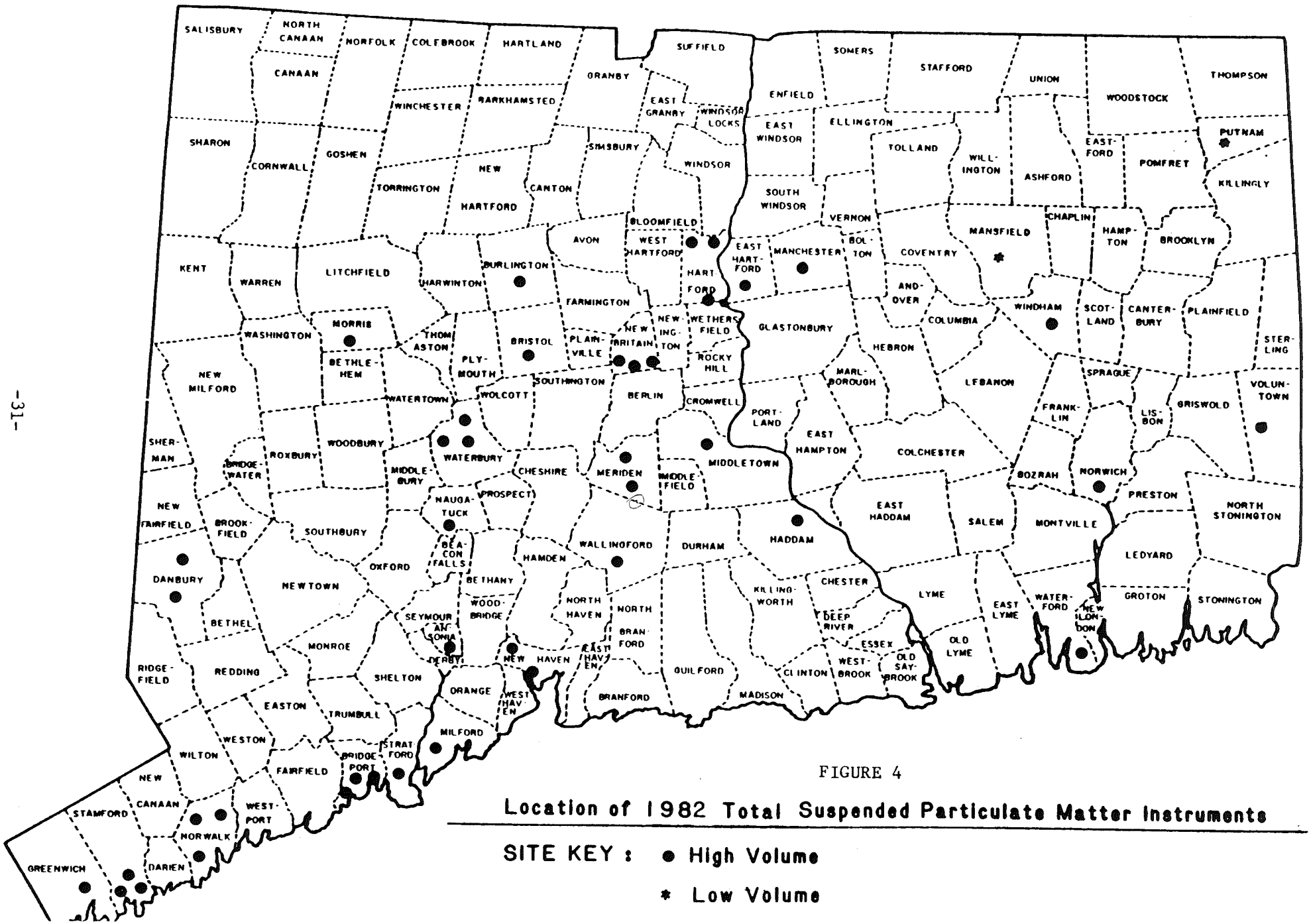


FIGURE 4

Location of 1982 Total Suspended Particulate Matter Instruments

SITE KEY : ● High Volume

* Low Volume

TABLE 5

1980-1982 TSP ANNUAL AVERAGES AND STATISTICAL PROJECTIONS

TOWN NAME	SITE	YEAR	SAMPLES	GEOM MEAN	95-PCT-LIMITS LOWER	95-PCT-LIMITS UPPER	STD GEOM DEV	DISTRIBUTION--LOGNORMAL PREDICTED DAYS OVER 150 UG/M3	DISTRIBUTION--LOGNORMAL PREDICTED DAYS OVER 260 UG/M3
ANSONIA	03	1980	105	51.5	48	56	1.614	5	
ANSONIA	03	1981	119	43.6	40	47	1.701	4	
ANSONIA	03	1982	116	43.4	40	47	1.651	2	
BERLIN	01	1980	56	30.3	27	34	1.601		
BRIDGEPORT	01	1980	58	47.6	43	53	1.521	1	
BRIDGEPORT	01	1981	61	39.6	36	44	1.556		
BRIDGEPORT	01	1982	60	42.4	38	47	1.507		
BRIDGEPORT	09	1981	58	38.6	35	43	1.507		
BRIDGEPORT	09	1982	61	39.8	36	44	1.551		
BRIDGEPORT	123	1980	120	63.8	60	68	1.564	10	
BRIDGEPORT	123	1981	120	52.0	49	56	1.587	4	
BRIDGEPORT	123	1982	115	56.3	53	60	1.530	4	
BRISTOL	01	1980	57	41.5	37	46	1.522		
BRISTOL	01	1981	58	34.6	30	39	1.703	1	
BRISTOL	01	1982	59	36.3	32	41	1.684	1	
BURLINGTON	01	1980	117	25.3	23	27	1.665		
BURLINGTON	01	1981	119	21.6	20	23	1.697		
BURLINGTON	01	1982	117	19.9	19	21	1.615		
DANBURY	02	1981	57	42.3	37	48	1.664	2	
DANBURY	02	1982	58	48.7	43	55	1.666	5	
DANBURY	123	1980	58	48.9	44	55	1.596	3	
DANBURY	123	1981	56	39.9	35	46	1.741	3	
DANBURY	123	1982	58	43.2	38	49	1.674	3	
EAST HARTFORD	04	1982	19*	32.9	26	42	1.677	1	

TABLE 5, CONTINUED

1980-1982 TSP ANNUAL AVERAGES AND STATISTICAL PROJECTIONS

								DISTRIBUTION--LOGNORMAL	
TOWN NAME	SITE	YEAR	SAMPLES	GEOM MEAN	95-PCT-LIMITS LOWER	UPPER	STD GEOM DEV	PREDICTED DAYS OVER 150 UG/M3	PREDICTED DAYS OVER 260 UG/M3
ENFIELD	123	1980	59	37.3	34	41	1.514		
GREENWICH	04	1980	60	35.7	32	40	1.647	1	
GREENWICH	04	1981	59	29.7	26	34	1.670		
GREENWICH	08	1980	58	51.5	46	57	1.580	4	
GREENWICH	08	1981	60	40.2	36	45	1.613	1	
GREENWICH	08	1982	59	43.4	39	48	1.513		
HADDAM	02	1980	60	31.4	28	35	1.609		
HADDAM	02	1981	58	27.0	24	30	1.614		
HADDAM	02	1982	57	26.9	24	30	1.516		
HARTFORD	03	1980	121	53.7	51	57	1.506	2	
HARTFORD	03	1981	118	46.7	44	50	1.536	1	
HARTFORD	03	1982	91*	47.6	44	51	1.558	2	
HARTFORD	13	1981	61	36.7	33	41	1.591		
HARTFORD	13	1982	59	40.9	37	45	1.511		
HARTFORD	14	1981	60	38.9	34	44	1.691	2	
HARTFORD	14	1982	60	39.6	36	43	1.481		
HARTFORD	123	1980	57	55.2	50	61	1.485	2	
MANCHESTER	01	1980	60	38.1	34	42	1.536		
MANCHESTER	01	1981	59	32.4	29	37	1.683	1	
MANCHESTER	01	1982	60	35.4	32	40	1.607		
MERIDEN	02	1980	59	51.9	47	57	1.496	2	
MERIDEN	02	1981	60	40.5	35	47	1.827	5	
MERIDEN	02	1982	57	44.7	41	49	1.444		
MERIDEN	05	1980	57	55.6	49	63	1.652	8	

TABLE 5, CONTINUED

1980-1982 TSP ANNUAL AVERAGES AND STATISTICAL PROJECTIONS

								DISTRIBUTION--LOGNORMAL	
					95-PCT-LIMITS			PREDICTED	PREDICTED
TOWN NAME	SITE	YEAR	SAMPLES	GEOM MEAN	LOWER	UPPER	STD GEOM DEV	DAYS OVER 150 UG/M3	DAYS OVER 260 UG/M3
MERIDEN	08	1981	35*	36.0	30	43	1.677	1	
MERIDEN	08	1982	57	38.8	35	43	1.516		
MIDDLETOWN	03	1980	59	46.8	43	51	1.468		
MIDDLETOWN	03	1981	59	38.4	34	43	1.666	1	
MIDDLETOWN	03	1982	56	38.9	35	43	1.524		
MILFORD	02	1980	59	45.2	41	49	1.454		
MILFORD	02	1981	60	40.4	36	45	1.589	1	
MILFORD	02	1982	61	39.7	36	44	1.497		
MORRIS	01	1980	111	29.6	28	32	1.557		
MORRIS	01	1981	114	24.1	22	26	1.707		
MORRIS	01	1982	102	25.5	24	27	1.517		
NAUGATUCK	01	1980	55	44.4	40	50	1.577	1	
NAUGATUCK	01	1981	60	40.2	35	46	1.718	3	
NAUGATUCK	01	1982	59	46.8	41	53	1.718	5	
NEW BRITAIN	07	1981	115	36.4	34	39	1.562		
NEW BRITAIN	07	1982	120	36.9	34	40	1.607		
NEW BRITAIN	08	1981	59	35.2	31	40	1.674	1	
NEW BRITAIN	08	1982	60	38.2	34	43	1.598	1	
NEW BRITAIN	09	1981	59	35.0	31	39	1.634		
NEW BRITAIN	09	1982	58	40.1	37	44	1.468		
NEW BRITAIN	123	1980	111	42.6	40	45	1.473		
NEW HAVEN	02	1980	52	54.8	49	61	1.535	3	
NEW HAVEN	02	1981	54	46.1	41	52	1.645	3	
NEW HAVEN	02	1982	49	48.2	43	54	1.519	1	
NEW HAVEN	13	1982	111	42.9	40	46	1.491		

TABLE 5, CONTINUED

1980-1982 TSP ANNUAL AVERAGES AND STATISTICAL PROJECTIONS

								DISTRIBUTION--LOGNORMAL	
					95-PCT-LIMITS			PREDICTED	PREDICTED
TOWN NAME	SITE	YEAR	SAMPLES	GEOM MEAN	LOWER	UPPER	STD GEOM DEV	DAYS OVER 150 UG/M3	DAYS OVER 260 UG/M3
NEW HAVEN	123	1980	116	61.7	58	66	1.506	5	
NEW HAVEN	123	1981	112	50.2	47	54	1.602	4	
NORWALK	01	1981	57	41.0	36	46	1.624	1	
NORWALK	01	1982	57	42.9	39	48	1.539	1	
NORWALK	05	1980	117	53.7	50	57	1.567	4	
NORWALK	05	1981	118	48.3	45	52	1.625	4	
NORWALK	05	1982	113	48.2	45	52	1.609	3	
NORWALK	12	1981	60	39.1	35	44	1.586	1	
NORWALK	12	1982	60	43.3	39	48	1.571	1	
NORWICH	01	1980	60	44.6	41	49	1.464		
NORWICH	01	1981	61	36.0	32	41	1.671	1	
NORWICH	01	1982	58	41.4	38	45	1.461		
STAMFORD	01	1981	58	43.8	39	49	1.577	1	
STAMFORD	01	1982	58	51.6	46	58	1.642	5	
STAMFORD	07	1980	59	52.6	47	58	1.533	2	
STAMFORD	07	1981	60	41.4	38	46	1.495		
STAMFORD	07	1982	60	43.9	40	48	1.473		
STAMFORD	21	1981	60	40.9	37	45	1.481		
STAMFORD	21	1982	57	44.4	41	48	1.418		
STAMFORD	123	1980	58	50.7	46	56	1.556	2	
STRATFORD	05	1980	58	50.4	46	55	1.489	1	
STRATFORD	05	1981	56	45.6	40	52	1.643	3	
STRATFORD	05	1982	59	46.4	42	52	1.560	2	
VOLUNTOWN	01	1980	119	26.0	24	28	1.613		
VOLUNTOWN	01	1981	115	20.8	19	22	1.652		
VOLUNTOWN	01	1982	117	21.1	20	23	1.558		

TABLE 5, CONTINUED

1980-1982 TSP ANNUAL AVERAGES AND STATISTICAL PROJECTIONS

								DISTRIBUTION--LOGNORMAL	
TOWN NAME	SITE	YEAR	SAMPLES	GEOM MEAN	95-PCT-LIMITS LOWER	UPPER	STD GEOM DEV	PREDICTED DAYS OVER 150 UG/M3	PREDICTED DAYS OVER 260 UG/M3
WALLINGFORD	01	1980	55	47.1	43	52	1.513	1	
WALLINGFORD	01	1981	61	39.6	34	46	1.967	8	1
WALLINGFORD	01	1982	58	43.6	40	48	1.500		
WATERBURY	02	1980	59	48.8	44	55	1.603	3	
WATERBURY	05	1981	50	40.3	36	46	1.608	1	
WATERBURY	05	1982	61	43.5	38	49	1.703	4	
WATERBURY	06	1981	60	39.1	34	45	1.764	3	
WATERBURY	06	1982	60	39.9	35	45	1.727	3	
WATERBURY	07	1981	111	47.9	44	52	1.721	7	
WATERBURY	07	1982	117	49.3	46	53	1.639	4	
WATERFORD	01	1980	57	34.1	31	38	1.563		
WATERFORD	01	1981	58	30.1	26	35	1.784	1	
WATERFORD	01	1982	56	27.3	24	31	1.602		
WILLIMANTIC	02	1980	60	42.2	38	47	1.550	1	
WILLIMANTIC	02	1981	58	38.9	35	44	1.641	1	
WILLIMANTIC	02	1982	60	37.7	34	42	1.551		

* SAMPLING NOT RANDOM OR OF INSUFFICIENT SIZE FOR REPRESENTATIVE ANNUAL STATISTICS.

TABLE 6

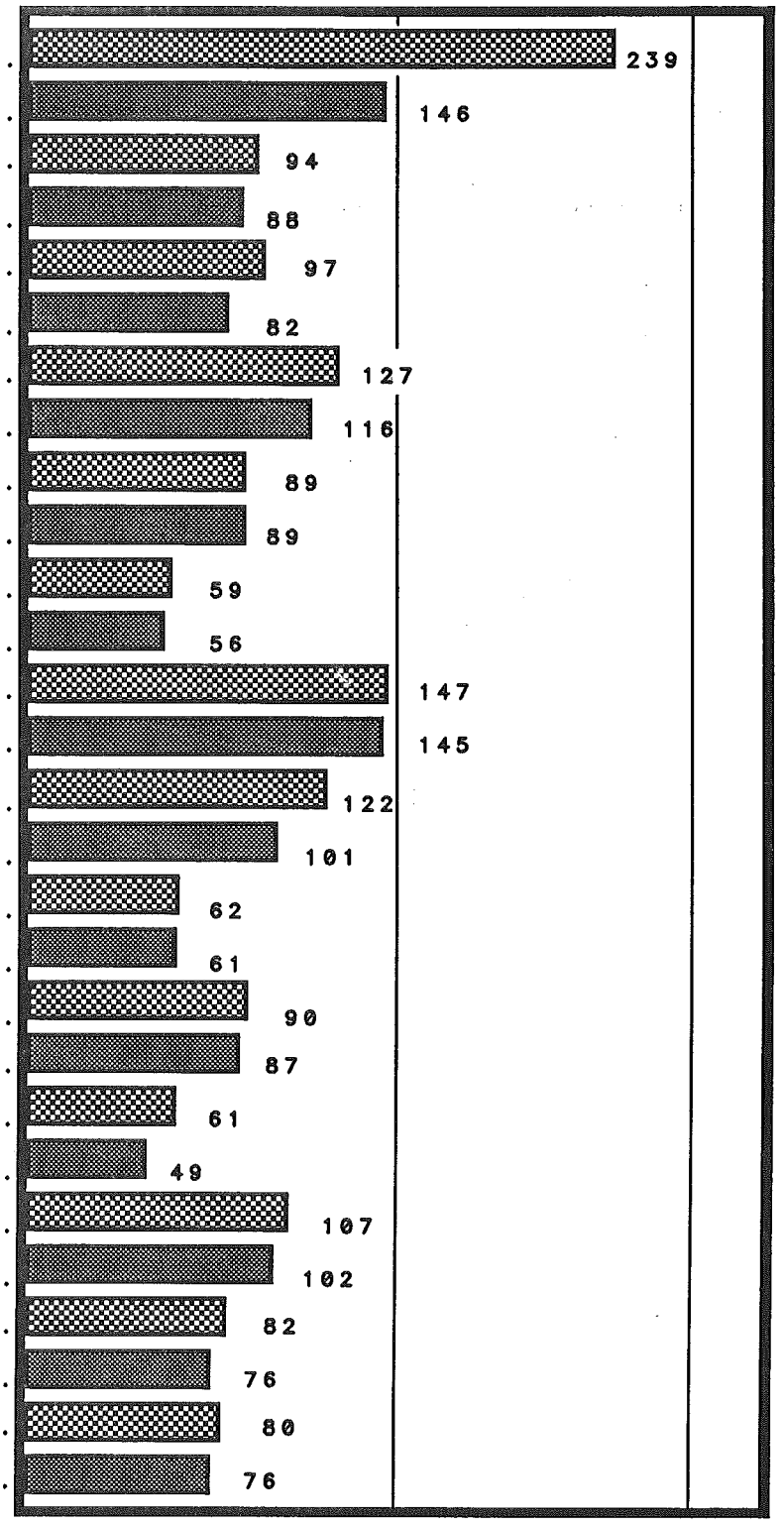
CONFIDENCE OF COMPLIANCE WITH ANNUAL TSP STANDARDS DURING 1982

PRIMARY STANDARD		SECONDARY STANDARD	
95% Confident Standard Has Been Exceeded (>75)	Uncertain Whether Standard Has Been Achieved Or Exceeded	95% Confident Standard Has Been Exceeded (>60)	Uncertain Whether Standard Has Been Achieved Or Exceeded
NO SITES	NO SITES	NO SITES	Bridgeport 123

TABLE 7

1982 MAXIMUM 24-HOUR TSP CONCENTRATIONS

SITE	1ST HIGH	2ND HIGH
Ansonia-003	2/25	239
	2/22	146
Bridgeport-001	11/1	94
	12/25	88
Bridgeport-009	11/1	97
	3/30	82
Bridgeport-123	4/8	127
	7/19	116
Bristol-001	3/30	89
	12/13	89
Burlington-001	6/28	59
	6/16	56
Danbury-002	2/22	147
	3/24	145
Danbury-123	12/13	122
	3/30	101
E. Htfd-004	12/13	62
	10/8	61
Greenwich-008	5/17	90
	11/1	87
Haddam-002	7/16	61
	2/16	49
Hartford-003	2/25	107
	3/30	102
Hartford-013	7/16	82
	3/30	76
Hartford-014	12/13	80
	7/16	76

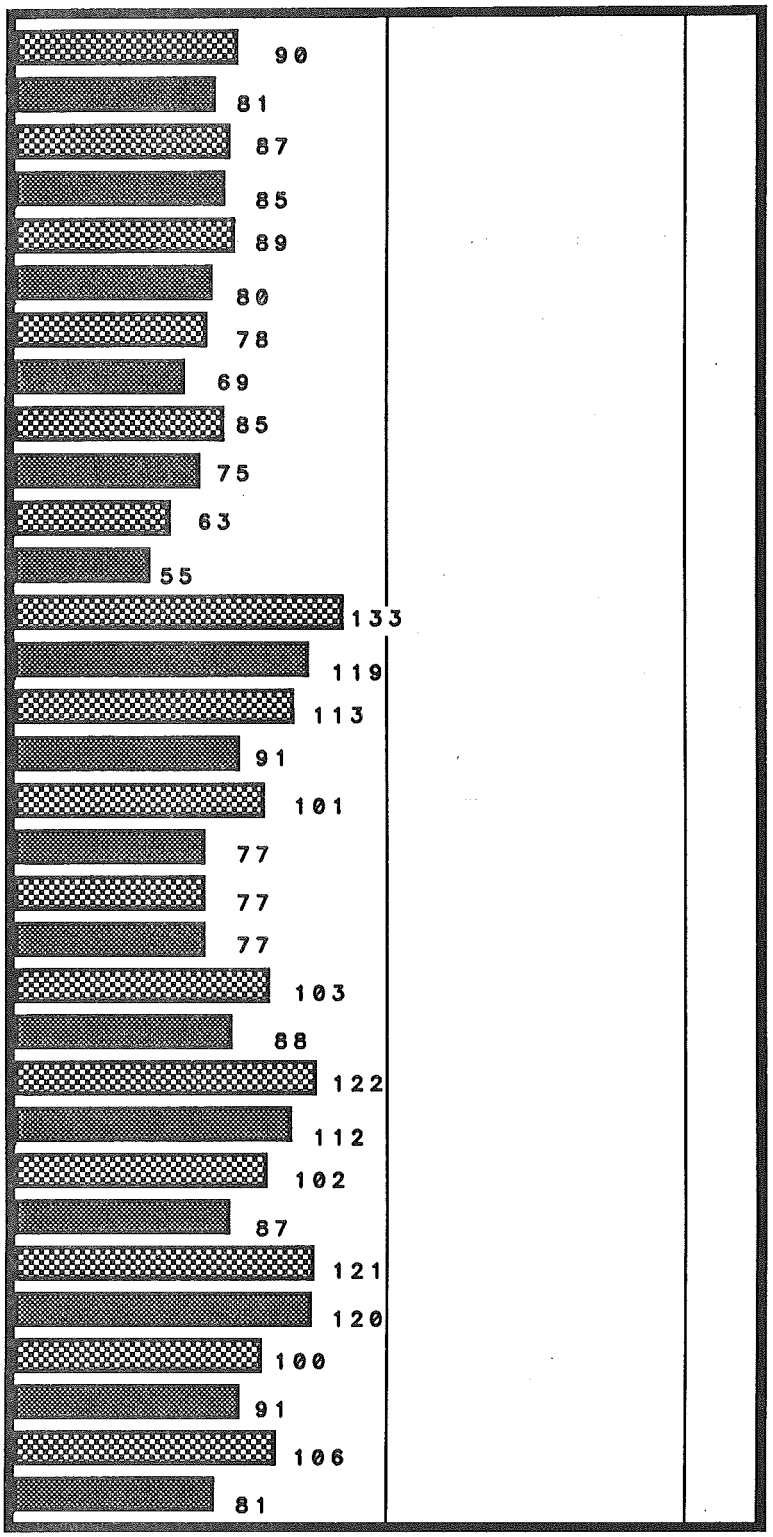


1ST HIGH , ug/m^3

2ND HIGH , ug/m^3

TABLE 7, CONTINUED

SITE	1ST HIGH	2ND HIGH
Manchester-001	3/24	90
	3/30	81
Meriden-002	1/5	87
	5/17	85
Meriden-008	6/22	89
	7/16	80
Middletown-003	3/30	78
	5/17	69
Milford-002	11/1	85
	7/16	75
Morris-001	3/30	63
	4/20	55
Naugatuck-001	2/16	133
	3/24	119
N. Britain-007	2/25	113
	2/16	91
N. Britain-008	3/30	101
	4/17	77
N. Britain-009	3/24	77
	7/16	77
New Haven-002	2/16	103
	1/29	88
New Haven-013	10/5	122
	2/25	112
Norwalk-001	3/30	102
	3/24	87
Norwalk-005	1/29	121
	2/10	120
Norwalk-012	11/1	100
	3/12	91
Norwich-001	2/16	106
	1/11	81



1ST HIGH , ug/m^3
2ND HIGH , ug/m^3

TABLE 7, CONTINUED

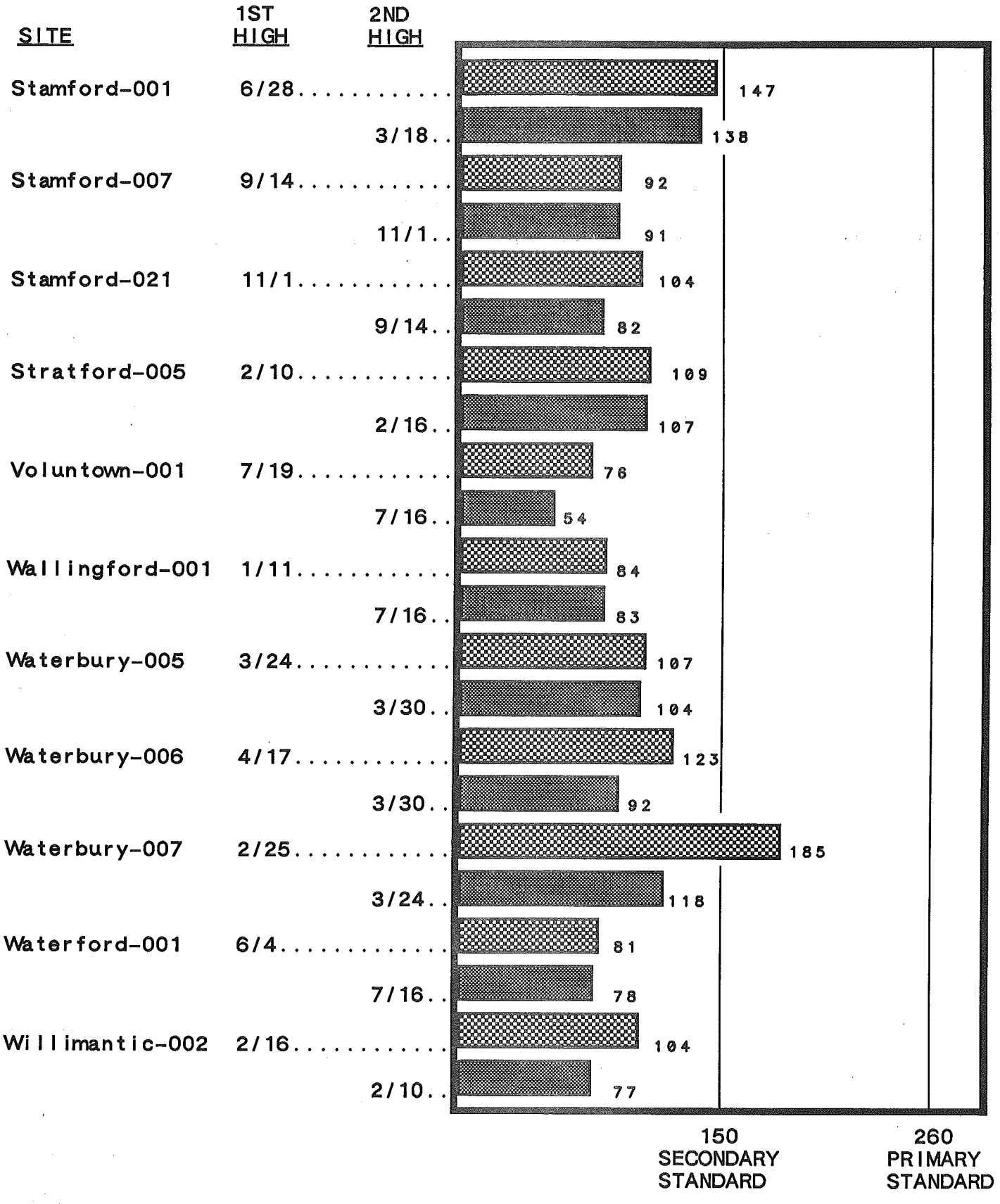


TABLE 8

Summary of the Statistically Predicted Number of Sites Exceeding the 24-Hour TSP Standards

YEAR	TOTAL OF HI-VOL SITES	SITES WITH > 2 DAYS EXCEEDING THE SECONDARY STANDARD (150 ug/m3)		SITES WITH > 2 DAYS EXCEEDING THE PRIMARY STANDARD (260 ug/m3)	
		Number of Sites	% of Total Sites	Number of Sites	% of Total Sites
1971	44	37	84%	19	43%
1972	46	43	93%	13	28%
1973	44	31	70%	11	25%
1974	62	49	79%	5	8%
1975	51	38	75%	2	4%
1976	38	33	87%	1	3%
1977	37	25	68%	0	0%
1978	34	20	59%	5	15%
1979	33	20	61%	2	6%
1980	33	14	42%	0	0%
1981	40	14	35%	0	0%
1982	39	11	28%	0	0%

TABLE 9

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	ANSONIA	0008	003	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0675	0.004	0.16	1.48	0.45	0.022	0.014	0.04	0.72
SECOND		BDL	0.1024	0.003	0.17	0.50	0.26	0.013	0.007	0.02	0.44
THIRD		BDL	0.0338	0.002	0.15	0.42	0.36	0.011	0.007	0.02	0.29
FOURTH		BDL	0.0139	0.007	0.12	0.53	0.58	0.007	0.011	0.04	0.44
YEAR AVG		0.000	0.0544	0.004	0.15	0.72	0.41	0.013	0.010	0.03	0.47
COUNT		58	58	58	58	58	58	58	58	58	58

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.47	7.82	0.13		7.00		78	14
SECOND	3.97	9.60	0.13		3.70		50	15
THIRD	1.74	8.63	0.16		8.00		38	14
FOURTH	1.94	9.68	0.16		7.60		40	15
YEAR AVG	2.79	8.96	0.14		7.84		51	
COUNT	58	58	58		58		58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	BRIDGEPORT	0060	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0034	0.003	0.11	0.77	0.35	0.015	0.017	0.05	0.09
SECOND		BDL	0.0018	0.003	0.13	0.53	0.32	0.015	0.008	0.03	0.09
THIRD		BDL	0.0012	0.002	0.10	0.48	0.41	0.010	0.009	0.02	0.04
FOURTH		BDL	0.0022	0.003	0.07	0.48	0.58	0.011	0.011	0.04	0.08
YEAR AVG		0.000	0.0022	0.003	0.10	0.56	0.42	0.013	0.011	0.04	0.08
COUNT		60	60	60	60	60	60	60	60	60	60

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	4.17	9.36	0.15		7.20
SECOND	2.63	9.42	0.13		7.90
THIRD	2.22	9.45	0.18		7.50
FOURTH	1.92	11.91	0.16		7.40
YEAR AVG	2.72	10.08	0.16		7.49
COUNT	60	60	60		60

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
53	15
46	14
44	15
43	16
46	
60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	BRIDGEPORT	0060	009	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0043	0.002	0.08	0.56	0.24	0.012	0.016	0.04	0.07
SECOND		BDL	0.0021	0.003	0.08	0.53	0.24	0.012	0.009	0.03	0.07
THIRD		BDL	0.0024	0.002	0.09	0.35	0.29	0.008	0.009	0.02	0.03
FOURTH		BDL	0.0038	0.003	0.09	0.40	0.42	0.008	0.010	0.03	0.07
YEAR AVG		0.000	0.0032	0.003	0.09	0.46	0.30	0.010	0.011	0.03	0.06
COUNT		61	61	61	61	61	61	61	61	61	61

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	4.05	7.96	0.15		7.40
SECOND	2.56	11.60	0.14		7.20
THIRD	1.62	9.25	0.15		7.40
FOURTH	3.50	11.32	0.16		7.30
YEAR AVG	2.94	10.05	0.15		7.32
COUNT	61	61	61		61

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
47	15
47	15
41	15
40	16
44	
61	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	BRIDGEPORT	0060	123	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0034	0.004	0.06	1.12	0.43	0.026	0.022	0.05	0.08
SECOND		BDL	0.0031	0.009	0.07	1.39	0.40	0.032	0.015	0.03	0.12
THIRD		BDL	0.0015	0.005	0.10	0.98	0.52	0.020	0.014	0.03	0.09
FOURTH		BDL	0.0029	0.004	0.04	0.60	0.57	0.013	0.013	0.04	0.09
YEAR AVG		0.000	0.0027	0.006	0.07	1.02	0.48	0.023	0.016	0.04	0.10
COUNT		58	58	58	58	58	58	58	58	58	58

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	5.23	9.52	0.14		7.20		64	14
SECOND	3.72	11.65	0.14		7.40		70	15
THIRD	1.55	9.86	0.15		7.30		62	15
FOURTH	2.16	10.31	0.17		7.30		39	14
YEAR AVG	3.17	10.34	0.15		7.30		59	
COUNT	58	58	58		58		58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	BRISTOL	0070	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0012	0.002	0.09	0.72	0.25	0.016	0.012	0.03	0.08
SECOND		BDL	0.0005	0.002	0.16	0.43	0.21	0.011	0.003	0.01	0.06
THIRD		BDL	0.0007	0.001	0.07	0.27	0.20	0.007	0.001	0.01	0.02
FOURTH		BDL	0.0013	0.003	0.06	0.35	0.34	0.007	0.007	0.03	0.05
YEAR AVG		0.000	0.0009	0.002	0.10	0.44	0.25	0.010	0.006	0.02	0.05
COUNT		59	59	59	59	59	59	59	59	59	59

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	4.08	9.14	0.15		7.40
SECOND	3.08	8.37	0.15		7.30
THIRD	1.34	8.20	0.11		7.20
FOURTH	1.39	9.80	0.08		7.30
YEAR AVG	2.49	8.92	0.12		7.30
COUNT	59	59	59		59

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
55	15
42	15
33	13
34	16
41	
59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	BURLINGTON	0085	001	F	03

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0006	BDL	0.04	0.28	0.09	0.006	0.004	0.01	0.03
SECOND		BDL	0.0007	0.001	0.09	0.15	0.09	0.006	0.002	0.01	0.05
THIRD		BDL	0.0003	BDL	0.10	0.18	0.09	0.004	0.002	0.01	0.01
FOURTH		BDL	0.0010	BDL	0.09	0 16	0.10	0.002	0.003	0.02	0.03
YEAR AVG		0.000	0.0007	0.001	0.08	0.19	0.09	0.004	0.003	0.01	0.03
COUNT		59	59	59	59	59	59	59	59	59	59

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.21	7.99	0.09		7.90		27	14
SECOND	2.06	8.56	0.07		7.60		30	14
THIRD	0.62	9.01	0.05		7.50		24	15
FOURTH	1.51	7.96	0.06		7.40		19	16
YEAR AVG	1.58	8.38	0.07		7.59		25	
COUNT	59	59	59		59		59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	DANBURY	0175	002	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0006	0.002	0.06	1.47	0.31	0.025	0.009	0.03	0.04
SECOND		BDL	0.0012	0.002	0.12	0.83	0.31	0.017	0.006	0.02	0.06
THIRD		BDL	0.0003	0.001	0.12	1.05	0.29	0.012	0.003	0.01	0.02
FOURTH		BDL	0.0009	0.003	0.09	0.68	0.47	0.010	0.007	0.02	0.06
YEAR AVG		0.000	0.0008	0.002	0.10	1.01	0.35	0.016	0.006	0.02	0.05
COUNT		58	58	58	58	58	58	58	58	58	58

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	4.36	10.00	0.15		7.60
SECOND	3.56	9.32	0.13		7.20
THIRD	1.71	8.82	0.17		7.50
FOURTH	3.14	8.71	0.16		7.00
YEAR AVG	3.14	9.17	0.15		7.31
COUNT	58	58	58		58

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
78	13
56	14
45	15
45	16
55	
58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	DANBURY	0175	123	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0008	0.002	0.10	1.00	0.31	0.021	0.008	0.02	0.04
SECOND		BDL	0.0010	0.003	0.12	0.82	0.31	0.018	0.006	0.02	0.07
THIRD		BDL	0.0005	0.006	0.09	0.57	0.35	0.010	0.004	0.01	0.04
FOURTH		BDL	0.0007	0.002	0.06	0.60	0.50	0.010	0.006	0.02	0.06
YEAR AVG		0.000	0.0008	0.003	0.09	0.73	0.37	0.015	0.006	0.02	0.05
COUNT		58	58	58	58	58	58	58	58	58	58

QUARTER	WATER SOLUBLES: NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	BENZ SOLUBLES: TOTAL 11103/91 UG/M3	TSP: ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.95	8.51	0.14		7.60		64	12
SECOND	2.06	8.56	0.16		7.20		53	15
THIRD	0.95	9.16	0.14		7.50		40	15
FOURTH	2.68	7.44	0.16		7.30		42	16
YEAR AVG	2.13	8.40	0.15		7.39		49	
COUNT	58	58	58		58		58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	EAST HARTFORD	0220	004	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST											
SECOND											
THIRD		BDL	0.0015	0.005	0.43	0.34	0.48	0.010	0.008	0.02	0.10
FOURTH		BDL	0.0019	0.005	0.32	0.41	0.59	0.007	0.008	0.03	0.07
YEAR AVG		0.000	0.0017	0.005	0.37	0.38	0.54	0.008	0.008	0.02	0.09
COUNT		31	31	31	31	31	31	31	31	31	31

QUARTER	WATER SOLUBLES: NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	BENZ SOLUBLES: TOTAL 11103/91 UG/M3	TSP: ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST								
SECOND								
THIRD	1.21	11.63	0.22		8.00		42	15
FOURTH	2.67	9.06	0.13		6.90		36	16
YEAR AVG	1.96	10.30	0.17		7.43		39	
COUNT	31	31	31		31		31	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	GREENWICH	0330	008	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0009	0.001	0.06	0.86	0.24	0.017	0.007	0.02	0.05
SECOND		BDL	0.0004	0.003	0.08	0.94	0.27	0.015	0.005	0.02	0.06
THIRD		BDL	0.0003	0.001	0.08	0.43	0.30	0.009	0.004	0.01	0.03
FOURTH		BDL	0.0009	0.003	0.08	0.65	0.49	0.010	0.007	0.02	0.07
YEAR AVG		0.000	0.0006	0.002	0.08	0.71	0.33	0.013	0.006	0.02	0.05
COUNT		59	59	59	59	59	59	59	59	59	59

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	3.34	9.73	0.13		7.70
SECOND	2.57	6.49	0.06		7.20
THIRD	1.56	9.41	0.08		7.40
FOURTH	3.20	9.70	0.11		7.10
YEAR AVG	2.67	8.87	0.10		7.34
COUNT	59	59	59		59

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
55	14
53	14
40	15
42	16
47	
59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	HADDAM	0380	002	F	02

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0007	0.001	0.08	0.37	0.12	0.010	0.006	0.01	0.03
SECOND		BDL	0.0009	0.002	0.08	0.25	0.12	0.008	0.004	0.01	0.05
THIRD		BDL	0.0003	BDL	0.12	0.13	0.15	0.005	0.002	0.01	0.02
FOURTH		BDL	0.0005	0.001	0.09	0.18	0.16	0.004	0.005	0.02	0.04
YEAR AVG		0.000	0.0006	0.001	0.09	0.23	0.14	0.007	0.004	0.01	0.04
COUNT		57	57	57	57	57	57	57	57	57	57

QUARTER	WATER SOLUBLES: NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	BENZ SOLUBLES: TOTAL 11103/91 UG/M3	TSP: ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	1.73	7.52	0.11		7.60		32	15
SECOND	2.01	10.22	0.06		7.20		31	12
THIRD	1.03	6.95	0.07		7.50		29	15
FOURTH	1.90	7.97	0.05		7.10		25	15
YEAR AVG	1.66	8.06	0.07		7.36		29	
COUNT	57	57	57		57		57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	HARTFORD	0420	003	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0013	0.004	0.20	1.15	0.39	0.020	0.017	0.06	0.07
SECOND		BDL	0.0009	0.004	0.14	0.89	0.33	0.019	0.006	0.02	0.07
THIRD											
FOURTH		BDL	0.0008	0.004	0.10	0.62	0.55	0.010	0.010	0.04	0.07
YEAR AVG		0.000	0.0010	0.004	0.15	0.89	0.42	0.016	0.011	0.04	0.07
COUNT		41	41	41	41	41	41	41	41	41	41

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.79	9.11	0.16		7.50		69	15
SECOND	3.58	11.82	0.04		7.10		58	14
THIRD								
FOURTH	1.90	9.06	0.11		7.00		49	12
YEAR AVG	3.09	10.00	0.10		7.20		59	
COUNT	41	41	41		41		41	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	HARTFORD	0420	013	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0023	0.005	0.07	0.70	0.39	0.015	0.014	0.04	0.07
SECOND		BDL	0.0007	0.006	0.07	0.53	0.25	0.012	0.004	0.01	0.04
THIRD		BDL	0.0014	0.002	0.11	0.59	0.36	0.011	0.005	0.01	0.05
FOURTH		BDL	0.0013	0.007	0.04	0.47	0.47	0.009	0.009	0.03	0.07
YEAR AVG		0.000	0.0014	0.005	0.07	0.57	0.37	0.012	0.008	0.02	0.06
COUNT		58	58	58	58	58	58	58	58	58	58

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	3.98	9.67	0.16		7.70
SECOND	3.84	9.38	0.12		7.40
THIRD	1.49	7.92	0.09		7.40
FOURTH	1.50	8.28	0.13		7.50
YEAR AVG	2.74	8.84	0.13		7.50
COUNT	58	58	58		58

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
50	15
43	15
43	13
42	15
45	
58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	HARTFORD	0420	014	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0010	0.002	0.05	0.71	0.38	0.014	0.013	0.04	0.06
SECOND		BDL	0.0012	0.002	0.09	0.61	0.28	0.013	0.004	0.01	0.05
THIRD		BDL	0.0010	0.001	0.13	0.42	0.39	0.010	0.005	0.01	0.05
FOURTH		BDL	0.0009	0.004	0.13	0.49	0.49	0.008	0.008	0.03	0.05
YEAR AVG		0.000	0.0010	0.002	0.10	0.56	0.38	0.011	0.007	0.02	0.05
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.20	7.35	0.16		7.40		48	15
SECOND	2.70	11.55	0.12		7.10		45	15
THIRD	1.42	8.20	0.13		7.20		38	15
FOURTH	2.53	6.30	0.15		7.40		40	15
YEAR AVG	2.46	8.35	0.14		7.27		43	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	LITCHFIELD (MORRIS DAM)	0478	001	F	03

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0007	0.001	0.10	0.42	0.11	0.010	0.004	0.02	0.03
SECOND		BDL	0.0005	0.001	0.10	0.22	0.09	0.007	0.001	0.01	0.02
THIRD		BDL	0.0002	0.001	0.16	0.06	0.11	0.004	BDL	0.01	0.01
FOURTH		BDL	0.0006	0.002	0.13	0.21	0.15	0.004	0.005	0.01	0.02
YEAR AVG		0.000	0.0005	0.001	0.12	0.22	0.11	0.006	0.002	0.01	0.02
COUNT		48	48	48	48	48	48	48	48	48	48

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.93	5.98	0.09		8.30		30	12
SECOND	2.21	7.15	0.05		7.90		29	13
THIRD	1.15	7.03	0.05		7.10		26	15
FOURTH	0.96	7.50	0.06		7.60		28	8
YEAR AVG	1.85	6.88	0.06		7.70		28	
COUNT	48	48	48		48		48	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MANCHESTER	0510	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0008	0.002	0.07	0.66	0.23	0.014	0.009	0.03	0.04
SECOND		BDL	0.0012	0.001	0.05	0.40	0.17	0.010	0.003	0.01	0.05
THIRD		BDL	0.0004	0.001	0.08	0.31	0.26	0.009	0.003	0.01	0.03
FOURTH		BDL	0.0006	0.002	0.05	0.30	0.34	0.006	0.007	0.02	0.03
YEAR AVG		0.000	0.0008	0.001	0.06	0.41	0.25	0.010	0.005	0.02	0.04
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.82	9.23	0.10		7.80		49	14
SECOND	3.65	10.07	0.12		7.60		44	15
THIRD	1.56	8.10	0.13		7.00		34	15
FOURTH	1.44	8.12	0.14		8.30		31	16
YEAR AVG	2.58	8.86	0.12		7.68		39	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MERIDEN	0540	002	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0016	0.003	0.11	1.27	0.45	0.021	0.016	0.04	0.40
SECOND		BDL	0.0007	0.002	0.14	0.65	0.27	0.015	0.007	0.02	0.65
THIRD		BDL	0.0009	0.002	0.10	0.48	0.40	0.010	0.006	0.01	0.32
FOURTH		BDL	0.0014	0.004	0.06	0.41	0.65	0.008	0.014	0.04	0.21
YEAR AVG		0.000	0.0012	0.003	0.10	0.68	0.44	0.013	0.011	0.03	0.40
COUNT		58	58	58	58	58	58	58	58	58	58

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.13	11.84	0.15		7.60		54	13
SECOND	2.42	10.85	0.12		7.50		52	15
THIRD	1.53	7.37	0.11		7.00		44	15
FOURTH	2.43	5.16	0.11		7.90		40	15
YEAR AVG	2.35	8.70	0.12		7.50		47	
COUNT	58	58	58		58		58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MERIDEN	0540	008	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0011	0.002	0.09	0.60	0.30	0.013	0.012	0.03	0.12
SECOND		BDL	0.0010	0.002	0.13	0.54	0.27	0.014	0.006	0.02	0.08
THIRD		BDL	0.0007	0.001	0.15	0.41	0.40	0.011	0.005	0.01	0.08
FOURTH		BDL	0.0009	0.003	0.14	0.35	0.46	0.006	0.011	0.03	0.11
YEAR AVG		0.000	0.0009	0.002	0.13	0.48	0.36	0.011	0.008	0.02	0.10
COUNT		57	57	57	57	57	57	57	57	57	57

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	2.44	10.19	0.10		7.80
SECOND	2.42	10.26	0.12		7.50
THIRD	1.40	6.00	0.13		7.00
FOURTH	2.75	8.04	0.14		8.10
YEAR AVG	2.23	8.61	0.12		7.58
COUNT	57	57	57		57

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
45	15
45	14
39	15
34	13
41	
57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MIDDLETOWN	0570	003	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0019	0.003	0.07	0.78	0.37	0.020	0.009	0.03	0.06
SECOND		BDL	0.0005	0.001	0.05	0.48	0.24	0.014	0.003	0.01	0.04
THIRD		BDL	0.0007	0.001	0.17	0.38	0.36	0.012	0.005	0.01	0.04
FOURTH		BDL	0.0010	0.003	0.11	0.38	0.43	0.010	0.008	0.02	0.05
YEAR AVG		0.000	0.0010	0.002	0.10	0.51	0.35	0.014	0.006	0.02	0.05
COUNT		56	56	56	56	56	56	56	56	56	56

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.21	9.48	0.11		7.80		52	15
SECOND	2.19	9.65	0.11		7.60		46	13
THIRD	1.85	6.60	0.12		7.10		36	13
FOURTH	2.21	7.75	0.15		8.50		34	15
YEAR AVG	2.12	8.39	0.12		7.78		42	
COUNT	56	56	56		56		56	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MILFORD	0590	002	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0057	0.011	0.05	0.79	0.32	0.016	0.027	0.06	0.07
SECOND		BDL	0.0014	0.001	0.06	0.43	0.25	0.010	0.010	0.03	0.05
THIRD		BDL	0.0021	0.002	0.08	0.35	0.34	0.008	0.009	0.02	0.04
FOURTH		BDL	0.0029	0.003	0.05	0.37	0.40	0.007	0.014	0.04	0.06
YEAR AVG		0.000	0.0030	0.004	0.06	0.48	0.33	0.010	0.015	0.04	0.06
COUNT		61	61	61	61	61	61	61	61	61	61

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.50	9.60	0.13		7.60		49	15
SECOND	2.40	12.49	0.13		7.60		45	15
THIRD	1.47	8.61	0.14		7.20		40	15
FOURTH	2.14	6.71	0.14		8.60		38	16
YEAR AVG	2.13	9.31	0.14		7.76		43	
COUNT	61	61	61		61		61	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NAUGATUCK	0660	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0036	0.010	0.36	1.89	0.72	0.036	0.015	0.05	0.15
SECOND		BDL	0.0030	0.002	0.42	0.89	0.41	0.021	0.007	0.03	0.09
THIRD		BDL	0.0010	0.002	0.17	0.47	0.41	0.016	0.007	0.02	0.06
FOURTH		BDL	0.0028	0.004	0.10	0.44	0.45	0.010	0.009	0.03	0.12
YEAR AVG		0.000	0.0026	0.004	0.26	0.91	0.49	0.020	0.009	0.03	0.11
COUNT		59	59	59	59	59	59	59	59	59	59

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	3.63	12.37	0.15		7.40
SECOND	3.14	11.69	0.14		7.60
THIRD	1.21	5.37	0.14		7.20
FOURTH	2.69	10.64	0.14		8.80
YEAR AVG	2.68	10.07	0.14		7.78
COUNT	59	59	59		59

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
85	14
52	15
39	14
39	16
53	
59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NEW BRITAIN	0680	007	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0015	0.002	0.09	0.84	0.32	0.016	0.011	0.03	0.06
SECOND		BDL	0.0006	0.001	0.10	0.49	0.22	0.012	0.006	0.02	0.05
THIRD		BDL	0.0007	0.001	0.11	0.39	0.32	0.009	0.004	0.02	0.04
FOURTH		BDL	0.0007	0.002	0.08	0.32	0.34	0.007	0.007	0.03	0.03
YEAR AVG		0.000	0.0009	0.001	0.10	0.51	0.30	0.011	0.007	0.02	0.05
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.49	10.89	0.11		8.60		55	15
SECOND	3.39	9.40	0.13		8.20		44	15
THIRD	1.64	8.68	0.14		7.20		38	15
FOURTH	2.21	9.73	0.14		8.80		32	15
YEAR AVG	2.43	9.67	0.13		8.20		42	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NEW BRITAIN	0680	008	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0012	0.002	0.25	0.72	0.33	0.014	0.011	0.03	0.06
SECOND		BDL	0.0009	0.001	0.12	0.53	0.22	0.012	0.003	0.01	0.04
THIRD		BDL	0.0013	0.002	0.12	0.72	0.34	0.012	0.005	0.01	0.05
FOURTH		BDL	0.0006	0.003	0.10	0.32	0.40	0.006	0.006	0.02	0.03
YEAR AVG		0.000	0.0010	0.002	0.14	0.57	0.32	0.011	0.006	0.02	0.05
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.80	11.65	0.11		8.60		50	14
SECOND	3.76	8.91	0.12		8.20		44	15
THIRD	2.10	7.81	0.14		7.50		40	15
FOURTH	2.61	9.22	0.15		9.00		35	16
YEAR AVG	3.05	9.36	0.13		8.33		42	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NEW BRITAIN	0680	009	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0013	0.003	0.14	0.61	0.29	0.012	0.009	0.02	0.06
SECOND		BDL	0.0006	0.002	0.24	0.47	0.20	0.012	0.003	0.01	0.05
THIRD		BDL	0.0007	0.002	0.36	0.44	0.31	0.010	0.005	0.01	0.05
FOURTH		BDL	0.0006	0.003	0.13	0.28	0.30	0.006	0.006	0.02	0.04
YEAR AVG		0.000	0.0008	0.003	0.22	0.45	0.28	0.010	0.006	0.02	0.05
COUNT		57	57	57	57	57	57	57	57	57	57

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.51	10.92	0.11		8.60		51	15
SECOND	2.39	10.94	0.13		8.10		45	14
THIRD	1.34	7.79	0.13		6.00		37	14
FOURTH	2.18	9.70	0.14		9.10		38	14
YEAR AVG	2.11	9.86	0.13		7.96		43	
COUNT	57	57	57		57		57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NEW HAVEN	0700	002	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0016	0.004	0.08	1.10	0.53	0.020	0.020	0.04	0.09
SECOND		BDL	0.0011	0.002	0.09	0.79	0.40	0.016	0.017	0.02	0.06
THIRD		BDL	0.0011	0.002	0.29	0.79	0.58	0.013	0.008	0.02	0.06
FOURTH		BDL	0.0007	0.005	0.09	0.70	0.61	0.011	0.013	0.04	0.06
YEAR AVG		0.000	0.0010	0.003	0.14	0.86	0.53	0.015	0.015	0.03	0.07
COUNT		50	50	50	50	50	50	50	50	50	50

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.69	9.78	0.13		7.60		59	15
SECOND	1.80	11.49	0.14		7.60		48	12
THIRD	1.90	7.70	0.13		7.50		48	12
FOURTH	3.23	6.92	0.12		8.50		52	11
YEAR AVG	2.41	8.97	0.13		7.77		52	
COUNT	50	50	50		50		50	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NEW HAVEN	0700	013	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0016	0.003	0.06	0.81	0.40	0.015	0.024	0.07	0.08
SECOND		BDL	0.0009	0.002	0.06	0.65	0.28	0.014	0.008	0.03	0.05
THIRD		BDL	0.0009	0.001	0.15	0.57	0.46	0.011	0.007	0.02	0.05
FOURTH		BDL	0.0005	0.003	0.10	0.42	0.40	0.007	0.010	0.03	0.04
YEAR AVG		0.000	0.0010	0.002	0.09	0.60	0.38	0.012	0.012	0.04	0.06
COUNT		56	56	56	56	56	56	56	56	56	56

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.02	9.37	0.10		7.50		58	13
SECOND	2.63	9.15	0.14		7.60		46	14
THIRD	2.04	9.27	0.16		7.30		40	13
FOURTH	2.94	9.75	0.17		8.80		42	16
YEAR AVG	2.67	9.40	0.14		7.85		46	
COUNT	56	56	56		56		56	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NORWALK	0820	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0013	0.002	0.08	0.73	0.27	0.016	0.018	0.05	0.11
SECOND		BDL	0.0012	0.002	0.12	0.65	0.25	0.015	0.008	0.03	0.06
THIRD		BDL	0.0009	0.001	0.20	0.48	0.37	0.009	0.006	0.01	0.09
FOURTH		BDL	0.0007	0.003	0.16	0.36	0.36	0.007	0.014	0.04	0.07
YEAR AVG		0.000	0.0010	0.002	0.14	0.56	0.31	0.012	0.011	0.03	0.08
COUNT		57	57	57	57	57	57	57	57	57	57

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.31	10.66	0.15		8.40		56	15
SECOND	2.22	10.36	0.11		8.00		50	14
THIRD	1.55	9.49	0.13		8.20		38	15
FOURTH	2.23	9.18	0.12		8.80		44	13
YEAR AVG	2.07	9.94	0.13		8.34		47	
COUNT	57	57	57		57		57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NORWALK	0820	005	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0016	0.003	0.08	1.10	0.38	0.022	0.015	0.04	0.09
SECOND		BDL	0.0008	0.001	0.13	0.74	0.31	0.016	0.005	0.02	0.07
THIRD		BDL	0.0007	0.001	0.23	0.51	0.48	0.010	0.006	0.02	0.06
FOURTH		BDL	0.0007	0.003	0.11	0.55	0.42	0.010	0.011	0.04	0.06
YEAR AVG		0.000	0.0010	0.002	0.13	0.73	0.40	0.015	0.010	0.03	0.07
COUNT		55	55	55	55	55	55	55	55	55	55

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.92	9.33	0.15		7.46		74	15
SECOND	2.78	9.79	0.13		7.90		51	12
THIRD	2.02	9.99	0.13		8.20		43	12
FOURTH	2.93	9.27	0.14		8.70		43	16
YEAR AVG	2.70	9.56	0.14		8.08		53	
COUNT	55	55	55		55		55	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NORWALK	0820	012	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0016	0.003	0.07	0.94	0.36	0.019	0.016	0.04	0.07
SECOND		BDL	0.0009	0.001	0.06	0.68	0.30	0.016	0.005	0.02	0.05
THIRD		BDL	0.0006	0.001	0.06	0.52	0.39	0.009	0.005	0.01	0.05
FOURTH		BDL	0.0008	0.003	0.05	0.49	0.43	0.008	0.006	0.02	0.05
YEAR AVG		0.000	0.0010	0.002	0.06	0.66	0.37	0.013	0.008	0.02	0.05
COUNT		60	60	60	60	60	60	60	60	60	60

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	2.34	9.55	0.15		7.60
SECOND	2.49	12.57	0.13		8.00
THIRD	2.13	9.57	0.12		8.60
FOURTH	2.30	6.95	0.13		8.70
YEAR AVG	2.32	9.62	0.13		8.23
COUNT	60	60	60		60

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
60	15
47	15
41	14
42	16
48	
60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	NORWICH	0840	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0008	0.002	0.03	0.63	0.25	0.012	0.010	0.03	0.04
SECOND		BDL	0.0006	0.001	0.05	0.50	0.21	0.010	0.007	0.02	0.04
THIRD		BDL	0.0004	0.001	0.08	0.46	0.25	0.007	0.007	0.02	0.03
FOURTH		BDL	0.0005	0.003	0.08	0.29	0.31	0.005	0.008	0.03	0.03
YEAR AVG		0.000	0.0006	0.002	0.06	0.48	0.25	0.009	0.008	0.02	0.03
COUNT		57	57	57	57	57	57	57	57	57	57

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.14	11.38	0.09		8.60		57	15
SECOND	2.34	10.19	0.12		8.10		45	14
THIRD	1.99	9.20	0.13		8.30		37	15
FOURTH	2.40	8.95	0.13		8.80		39	13
YEAR AVG	2.47	9.96	0.12		8.44		45	
COUNT	57	57	57		57		57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	STAMFORD	1080	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0014	0.003	0.16	0.94	0.28	0.020	0.015	0.05	0.06
SECOND		BDL	0.0010	0.003	0.25	1.26	0.36	0.025	0.008	0.02	0.07
THIRD		BDL	0.0007	0.002	0.22	0.66	0.41	0.012	0.007	0.02	0.06
FOURTH		BDL	0.0011	0.004	0.08	0.50	0.43	0.010	0.010	0.03	0.07
YEAR AVG		0.000	0.0011	0.003	0.18	0.85	0.37	0.017	0.010	0.03	0.06
COUNT		58	58	58	58	58	58	58	58	58	58

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	3.13	11.58	0.13		8.80
SECOND	2.86	12.41	0.12		8.80
THIRD	2.98	9.69	0.15		8.40
FOURTH	3.40	9.75	0.10		8.80
YEAR AVG	3.10	10.82	0.12		8.70
COUNT	58	58	58		58

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
74	14
67	14
47	14
52	16
60	
58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	STAMFORD	1080	007	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0017	0.002	0.13	0.58	0.23	0.013	0.013	0.04	0.08
SECOND		BDL	0.0017	0.001	0.13	0.72	0.23	0.015	0.008	0.02	0.09
THIRD		BDL	0.0015	0.002	0.17	0.53	0.32	0.012	0.008	0.02	0.10
FOURTH		BDL	0.0017	0.003	0.11	0.47	0.35	0.009	0.009	0.03	0.09
YEAR AVG		0.000	0.0017	0.002	0.13	0.57	0.28	0.012	0.009	0.03	0.09
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.30	10.39	0.12		8.80		49	14
SECOND	2.75	11.40	0.13		8.20		50	15
THIRD	1.82	8.02	0.11		8.30		46	15
FOURTH	2.35	11.05	0.14		8.80		44	16
YEAR AVG	2.54	10.23	0.13		8.52		47	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	STAMFORD	1080	021	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0015	0.002	0.16	0.63	0.29	0.013	0.012	0.03	0.06
SECOND		BDL	0.0013	0.002	0.22	0.61	0.27	0.014	0.007	0.02	0.11
THIRD		BDL	0.0010	0.002	0.18	0.50	0.35	0.010	0.007	0.02	0.09
FOURTH		BDL	0.0012	0.005	0.07	0.48	0.42	0.008	0.009	0.03	0.06
YEAR AVG		0.000	0.0013	0.003	0.16	0.55	0.34	0.011	0.009	0.02	0.08
COUNT		57	57	57	57	57	57	57	57	57	57

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.87	10.58	0.12		8.70		51	13
SECOND	3.93	10.61	0.11		8.70		50	14
THIRD	2.69	10.00	0.11		8.40		46	15
FOURTH	3.12	9.69	0.11		8.80		42	15
YEAR AVG	3.15	10.20	0.11		8.65		47	
COUNT	57	57	57		57		57	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	STRATFORD	1110	005	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0047	0.003	0.08	0.98	0.37	0.019	0.016	0.04	0.08
SECOND		BDL	0.0040	0.005	0.12	0.42	0.35	0.020	0.009	0.02	0.08
THIRD		BDL	0.0011	0.002	0.12	0.47	0.47	0.010	0.009	0.02	0.06
FOURTH		BDL	0.0027	0.003	0.08	0.36	0.49	0.007	0.010	0.03	0.05
YEAR AVG		0.000	0.0031	0.003	0.10	0.55	0.42	0.014	0.011	0.03	0.07
COUNT		59	59	59	59	59	59	59	59	59	59

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.12	11.14	0.13		8.80		70	14
SECOND	2.28	11.12	0.13		8.40		53	14
THIRD	1.13	9.92	0.14		8.40		37	15
FOURTH	2.94	9.89	0.11		8.70		40	16
YEAR AVG	2.37	10.49	0.13		8.58		49	
COUNT	59	59	59		59		59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	TORRINGTON	1160	123	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0009	0.002	0.07	1.32	0.38	0.022	0.008	0.02	0.05
SECOND		BDL	0.0006	0.002	0.09	0.80	0.28	0.016	0.003	0.01	0.05
THIRD		BDL	0.0005	0.001	0.28	0.51	0.36	0.011	0.003	0.01	0.05
FOURTH		BDL	0.0006	0.003	0.21	0.54	0.51	0.010	0.004	0.01	0.04
YEAR AVG		0.000	0.0007	0.002	0.16	0.79	0.38	0.015	0.005	0.01	0.05
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.27	10.91	0.09		8.60		87	15
SECOND	1.89	12.03	0.12		8.60		58	15
THIRD	1.12	8.37	0.13		8.60		40	14
FOURTH	1.33	8.48	0.11		8.80		46	16
YEAR AVG	1.66	9.95	0.11		8.65		58	
COUNT	60	60	60		60		60	

[NOT A VALID TSP SITE]

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	VOLUNTOWN	1205	001	F	03

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0007	0.002	0.07	0.17	0.07	0.010	0.007	0.01	0.03
SECOND		BDL	0.0005	BDL	0.11	0.12	0.06	0.005	0.002	0.01	0.03
THIRD		BDL	0.0004	BDL	0.14	0.14	0.09	0.004	0.003	0.01	0.02
FOURTH		BDL	0.0004	0.003	0.06	0.02	0.08	0.010	0.003	0.01	0.01
YEAR AVG		0.000	0.0005	0.002	0.10	0.11	0.08	0.007	0.004	0.01	0.02
COUNT		59	59	59	59	59	59	59	59	59	59

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.16	9.13	0.09		8.80		22	15
SECOND	1.95	5.07	0.04		8.50		29	13
THIRD	1.17	4.33	0.05		8.50		27	15
FOURTH	1.77	9.45	0.03		9.10		20	16
YEAR AVG	1.76	7.10	0.05		8.74		24	
COUNT	59	59	59		59		59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WALLINGFORD	1210	001	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0009	0.002	0.05	0.97	0.33	0.020	0.011	0.03	0.07
SECOND		BDL	0.0011	0.002	0.05	0.67	0.29	0.015	0.007	0.02	0.07
THIRD		BDL	0.0007	0.001	0.08	0.42	0.43	0.009	0.007	0.02	0.06
FOURTH		BDL	0.0007	0.004	0.12	0.39	0.48	0.007	0.005	0.03	0.05
YEAR AVG		0.000	0.0009	0.002	0.07	0.62	0.38	0.013	0.008	0.02	0.06
COUNT		59	59	59	59	59	59	59	59	59	59

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.03	11.24	0.11		8.80		68	15
SECOND	2.58	8.60	0.10		7.50		49	15
THIRD	1.45	7.23	0.13		3.50		39	14
FOURTH	1.53	6.46	0.13		8.90		37	15
YEAR AVG	1.91	8.40	0.12		8.42		48	
COUNT	59	59	59		59		59	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WATERBURY	1240	005	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0019	0.011	0.13	1.09	0.38	0.019	0.012	0.03	0.30
SECOND		BDL	0.0021	0.008	0.14	0.63	0.29	0.014	0.006	0.02	0.13
THIRD		BDL	0.0017	0.005	0.15	0.47	0.49	0.010	0.006	0.02	0.10
FOURTH		BDL	0.0023	0.004	0.09	0.45	0.58	0.008	0.009	0.03	0.11
YEAR AVG		0.000	0.0020	0.007	0.13	0.66	0.44	0.013	0.008	0.02	0.16
COUNT		61	61	61	61	61	61	61	61	61	61

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	4.06	10.24	0.15		7.00		67	15
SECOND	3.22	9.07	0.13		8.10		48	15
THIRD	1.16	6.50	0.17		8.40		39	15
FOURTH	1.96	9.79	0.14		8.60		43	16
YEAR AVG	2.59	8.91	0.15		8.03		49	
COUNT	61	61	61		61		61	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WATERBURY	1240	006	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0013	0.005	0.07	0.66	0.21	0.014	0.007	0.02	0.18
SECOND		BDL	0.0007	0.003	0.10	0.53	0.24	0.013	0.005	0.01	0.12
THIRD		BDL	0.0011	0.003	0.09	0.47	0.41	0.010	0.003	0.01	0.09
FOURTH		BDL	0.0019	0.005	0.11	0.23	0.34	0.005	0.006	0.02	0.07
YEAR AVG		0.000	0.0013	0.004	0.09	0.47	0.30	0.011	0.005	0.02	0.12
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	4.76	11.56	0.16		7.20		54	15
SECOND	2.32	8.97	0.15		8.00		50	15
THIRD	2.35	9.35	0.16		8.50		43	14
FOURTH	3.44	11.27	0.15		8.40		38	16
YEAR AVG	3.24	10.32	0.15		8.02		46	
COUNT	60	60	60		60		60	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WATERBURY	1240	007	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0027	0.007	0.38	1.20	0.52	0.022	0.011	0.03	0.24
SECOND		BDL	0.0009	0.007	0.38	0.93	0.39	0.020	0.007	0.02	0.20
THIRD		BDL	0.0037	0.007	0.30	0.68	0.63	0.013	0.008	0.02	0.24
FOURTH		BDL	0.0012	0.009	0.08	0.53	0.74	0.010	0.009	0.03	0.20
YEAR AVG		0.000	0.0021	0.007	0.29	0.83	0.57	0.016	0.009	0.02	0.22
COUNT		58	58	58	58	58	58	58	58	58	58

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	3.85	12.13	0.15		7.20		79	14
SECOND	2.95	8.49	0.14		7.60		64	15
THIRD	1.54	9.00	0.14		8.60		48	13
FOURTH	1.75	10.24	0.15		7.80		46	16
YEAR AVG	2.52	9.97	0.15		7.78		59	
COUNT	58	58	58		58		58	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WATERBURY	1240	123	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0032	0.017	0.05	1.76	0.71	0.034	0.014	0.03	0.33
SECOND		BDL	0.0054	0.009	0.06	0.87	0.47	0.018	0.007	0.02	0.17
THIRD		BDL	0.0045	0.006	0.08	0.71	0.73	0.013	0.007	0.02	0.14
FOURTH		BDL	0.0015	0.009	0.07	0.68	0.89	0.012	0.009	0.03	0.22
YEAR AVG		0.000	0.0037	0.010	0.07	0.99	0.70	0.019	0.009	0.02	0.22
COUNT		58	58	58	58	58	58	58	58	58	58

WATER SOLUBLES

QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
FIRST	2.75	12.15	0.14		8.60
SECOND	2.14	8.18	0.12		7.60
THIRD	2.27	10.83	0.13		8.50
FOURTH	1.52	9.44	0.14		7.60
YEAR AVG	2.16	10.15	0.13		8.07
COUNT	58	58	58		58

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
102	14
53	14
46	15
54	15
63	
58	

[NOT A VALID TSP SITE]

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WATERFORD	1260	001	F	02

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0005	BDL	0.02	0.20	0.08	0.005	0.004	0.01	0.02
SECOND		BDL	0.0007	0.001	0.05	0.26	0.10	0.008	0.004	0.01	0.03
THIRD		BDL	0.0015	0.002	0.07	0.40	0.15	0.007	0.005	0.02	0.02
FOURTH		BDL	0.0007	0.002	0.03	0.06	0.09	0.002	0.007	0.02	0.01
YEAR AVG		0.000	0.0009	0.001	0.04	0.23	0.11	0.005	0.005	0.01	0.02
COUNT		56	56	56	56	56	56	56	56	56	56

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	1.59	8.88	0.08		7.30		25	14
SECOND	2.07	6.62	0.07		8.00		38	13
THIRD	1.68	4.81	0.07		8.00		38	13
FOURTH	1.26	8.84	0.08		8.80		24	16
YEAR AVG	1.63	7.40	0.08		8.05		31	
COUNT	56	56	56		56		56	

TABLE 9, CONTINUED

QUARTERLY CHEMICAL CHARACTERIZATION OF HI-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	WILLIMANTIC	1410	002	F	01

METALS

QUARTER	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
FIRST		BDL	0.0009	0.002	0.04	0.80	0.29	0.015	0.021	0.08	0.04
SECOND		BDL	0.0005	0.001	0.06	0.41	0.20	0.010	0.009	0.02	0.04
THIRD		BDL	0.0004	0.001	0.07	0.22	0.27	0.005	0.009	0.01	0.03
FOURTH		BDL	0.0006	0.003	0.05	0.20	0.30	0.004	0.013	0.03	0.04
YEAR AVG		0.000	0.0006	0.002	0.06	0.40	0.27	0.008	0.013	0.04	0.04
COUNT		60	60	60	60	60	60	60	60	60	60

	WATER SOLUBLES					BENZ SOLUBLES	TSP	
QUARTER	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	TOTAL 11103/91 UG/M3	ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
FIRST	2.06	11.60	0.11		7.40		55	14
SECOND	1.64	12.50	0.08		8.30		45	15
THIRD	1.47	11.19	0.09		7.70		32	15
FOURTH	0.92	7.91	0.09		9.00		35	16
YEAR AVG	1.50	10.74	0.09		8.13		41	
COUNT	60	60	60		60		60	

TABLE 10

MONTHLY CHEMICAL CHARACTERIZATION OF LO-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	MANSFIELD	0520	001	F	01

METALS

MONTH	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
JANUARY		BDL	0.0010	0.001	0.01	0.26	0.12	0.008	0.012	0.05	0.05
FEBRUARY		BDL	0.0004	0.001	0.01	0.58	0.10	0.009	0.007	0.02	0.02
MARCH		BDL	0.0004	0.002	0.01	0.41	0.13	0.008	0.005	0.02	0.02
APRIL		BDL	0.0003	0.001	BDL	0.33	0.06	0.006	0.002	0.01	0.01
MAY		BDL	0.0003	0.001	0.01	0.28	0.06	0.006	0.002	0.01	0.02
JUNE		BDL	0.0003	0.001	0.01	0.25	0.10	0.007	0.004	0.01	0.02
JULY		BDL	0.0007	0.001	0.01	0.39	0.12	0.008	0.009	0.02	0.02
AUGUST		BDL	0.0005	0.001	0.01	0.18	0.15	0.006	0.008	0.02	0.02
SEPTEMBER		BDL	0.0002	0.001	0.01	0.30	0.16	0.005	0.007	0.02	0.02
OCTOBER		BDL	0.0006	0.001	BDL	0.17	0.13	0.003	0.004	0.01	0.02
NOVEMBER		BDL	0.0005	0.001	BDL	0.15	0.14	0.003	0.005	0.02	0.02
DECEMBER		BDL	0.0004	0.002	BDL	0.26	0.13	0.004	0.007	0.02	0.03
YEAR AVG		0.000	0.0005	0.001	0.01	0.30	0.12	0.006	0.006	0.02	0.02
COUNT		12	12	12	12	12	12	12	12	12	12

MONTH	WATER SOLUBLES: NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS	BENZ SOLUBLES: TOTAL 11103/91 UG/M3	TSP: ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
JANUARY	2.53	8.69	0.09		7.20		36	1
FEBRUARY	3.28	7.19	0.06		7.20		51	1
MARCH	3.22	6.33	0.07		7.40		41	1
APRIL	1.13	3.15	0.04		6.80		25	1
MAY	1.50	3.18	0.05		6.80		27	1
JUNE	1.86	8.28	0.10		6.80		37	1
JULY	0.78	5.74	0.06		5.80		36	1
AUGUST	0.88	5.57	0.10		5.80		32	1
SEPTEMBER	0.43	7.01	0.11		6.00		30	1
OCTOBER	0.97	5.05	0.06		7.80		24	1
NOVEMBER	2.02	4.84	0.12		8.40		31	1
DECEMBER	1.54	5.28	0.14		8.40		31	1
YEAR AVG	1.68	5.86	0.08		7.03		33	
COUNT	12	12	12		12		12	

TABLE 10, CONTINUED

MONTHLY CHEMICAL CHARACTERIZATION OF LO-VOL TSP, 1982

YEAR	TOWN NAME	AREA	SITE	AGENCY	PROJECT
1982	PUTNAM	0900	002	F	01

METALS

MONTH	AL 12101/92 UG/M3	BE 12105/92 UG/M3	CD 12110/92 UG/M3	CR 12112/92 UG/M3	CU 12114/92 UG/M3	FE 12126/92 UG/M3	PB 12128/92 UG/M3	MN 12132/92 UG/M3	NI 12136/92 UG/M3	V 12164/92 UG/M3	ZN 12167/92 UG/M3
JANUARY		BDL	0.0003	0.001	0.01	0.50	0.10	0.008	0.004	0.02	0.03
FEBRUARY		BDL	0.0005	0.002	0.01	0.87	0.15	0.014	0.005	0.02	0.03
MARCH		BDL	0.0004	0.002	0.01	0.92	0.13	0.013	0.005	0.02	0.03
APRIL		BDL	0.0005	0.002	0.01	0.14	0.10	0.012	0.004	0.01	0.05
MAY		BDL	0.0006	0.003	0.01	0.34	0.13	0.010	0.006	0.02	0.04
JUNE		BDL	0.0003	0.001	BDL	0.13	0.10	0.004	0.003	0.01	0.02
JULY		BDL	0.0002	0.002	0.01	0.32	0.14	0.007	0.003	0.01	0.02
AUGUST		BDL	0.0002	0.001	BDL	0.24	0.15	0.005	0.004	0.01	0.02
SEPTEMBER		BDL	0.0002	0.001	BDL	0.17	0.18	0.004	0.004	0.02	0.02
OCTOBER		BDL	0.0005	0.002	0.01	0.11	0.15	0.003	0.004	0.01	0.02
NOVEMBER											
DECEMBER		BDL	0.0007	0.002	BDL	0.38	0.16	0.005	0.005	0.02	0.02
YEAR AVG		0.000	0.0004	0.002	0.01	0.43	0.14	0.007	0.004	0.02	0.03
COUNT		11	11	11	11	11	11	11	11	11	11

WATER SOLUBLES

MONTH	NITRATE 12306/92 UG/M3	SULFATE 12403/92 UG/M3	AMMONIUM 12301/91 UG/M3	SODIUM 12184/92 UG/M3	PH 12602/91 PH-UNITS
JANUARY	3.15	6.31	0.06		7.40
FEBRUARY	1.91	7.31	0.05		7.00
MARCH	2.43	6.70	0.07		7.00
APRIL	0.98	4.84	0.07		6.40
MAY	1.15	6.40	0.04		6.60
JUNE	0.77	5.57	0.06		6.80
JULY	0.33	5.72	0.07		6.40
AUGUST	0.45	5.04	0.12		6.60
SEPTEMBER	0.32	6.50	0.13		6.80
OCTOBER	0.75	4.52	0.07		8.60
NOVEMBER					
DECEMBER	1.53	6.37	0.09		0.09
YEAR AVG	1.25	5.93	0.08		6.34
COUNT	11	11	11		11

BENZ SOLUBLES

TOTAL 11103/91 UG/M3

TSP

ARITH AV 11101/91 UG/M3	APPROX SAMPLE COUNT
52	1
74	1
64	1
47	1
40	1
28	1
29	1
29	1
29	1
24	1
40	1
41	
11	

TABLE 11

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
			NW		NW	NW	NW	NW	NW	✓	✓	NW
ANSONIA 003		116	239	146	144	137	97	92	87	87	84	81
		DATE	2/25/82	2/22/82	2/16/82	2/13/82	1/29/82	2/10/82	2/ 4/82	3/30/82	4/17/82	3/27/82
METEOROLOGICAL SITE	DIR (DEG)		330	350	330	360	280	300	320	190	200	300
NEWARK	VEL (MPH)		18.5	14.4	5.9	9.2	9.6	14.2	9.9	7.0	16.7	20.2
	SPD (MPH)		19.3	14.8	10.5	12.5	11.5	15.4	13.9	8.1	17.1	21.7
	RATIO		0.960	0.970	0.565	0.739	0.831	0.923	0.711	0.871	0.974	0.932
METEOROLOGICAL SITE	DIR (DEG)		330	360	340	350	290	330	330	200	200	300
BRADLEY	VEL (MPH)		13.8	9.0	5.3	7.4	9.0	10.4	5.2	5.3	14.0	16.6
	SPD (MPH)		14.1	9.5	7.6	8.5	10.2	11.1	9.2	6.2	14.4	16.8
	RATIO		0.980	0.949	0.700	0.874	0.885	0.942	0.567	0.850	0.975	0.985
METEOROLOGICAL SITE	DIR (DEG)		330	340	310	350	280	300	310	190	190	280
BRIDGEPORT	VEL (MPH)		11.5	11.7	6.5	9.5	10.0	12.0	7.6	4.2	10.4	11.9
	SPD (MPH)		11.9	11.8	10.8	10.4	11.2	12.5	10.8	5.0	10.5	12.4
	RATIO		0.962	0.989	0.602	0.921	0.893	0.957	0.705	0.833	0.988	0.960
METEOROLOGICAL SITE	DIR (DEG)		320	20	310	350	280	290	290	240	220	280
WORCESTER	VEL (MPH)		18.2	7.3	8.1	6.8	14.5	12.3	8.3	5.8	12.4	21.4
	SPD (MPH)		18.7	7.6	9.9	7.9	14.8	12.9	10.5	7.0	12.8	21.7
	RATIO		0.973	0.956	0.816	0.861	0.976	0.952	0.787	0.822	0.966	0.988
				✓	NW	SE		✓				NW
BRIDGEPORT 001		60	94	88	86	81	80	75	74	71	68	64
		DATE	11/ 1/82	12/25/82	2/16/82	9/14/82	7/16/82	3/30/82	5/17/82	6/28/82	10/ 8/82	2/10/82
METEOROLOGICAL SITE	DIR (DEG)		220	210	330	160	220	190	70	120	210	300
NEWARK	VEL (MPH)		7.4	4.7	5.9	3.3	7.6	7.0	1.7	4.4	9.9	14.2
	SPD (MPH)		8.1	7.3	10.5	5.0	9.2	8.1	7.3	5.8	10.5	15.4
	RATIO		0.925	0.645	0.565	0.651	0.822	0.871	0.229	0.765	0.941	0.923
METEOROLOGICAL SITE	DIR (DEG)		150	180	340	170	280	200	360	200	10	330
BRADLEY	VEL (MPH)		1.8	4.0	5.3	2.8	0.3	5.3	3.0	3.5	3.9	10.4
	SPD (MPH)		2.6	4.0	7.6	3.4	3.2	6.2	5.8	5.0	4.0	11.1
	RATIO		0.697	0.989	0.700	0.815	0.109	0.850	0.514	0.688	0.963	0.942
METEOROLOGICAL SITE	DIR (DEG)		230	230	310	100	220	190	210	100	200	300
BRIDGEPORT	VEL (MPH)		6.3	4.4	6.5	3.6	5.8	4.2	1.9	3.7	5.5	12.0
	SPD (MPH)		6.3	4.5	10.8	4.6	6.5	5.0	6.3	4.2	5.9	12.5
	RATIO		0.994	0.980	0.602	0.779	0.895	0.833	0.301	0.890	0.934	0.957
METEOROLOGICAL SITE	DIR (DEG)		280	250	310	210	290	240	350	230	60	290
WORCESTER	VEL (MPH)		5.7	11.0	8.1	4.9	6.9	5.8	8.1	5.5	5.1	12.3
	SPD (MPH)		7.2	11.1	9.9	5.5	7.3	7.0	8.6	6.2	5.6	12.9
	RATIO		0.799	0.990	0.816	0.899	0.945	0.822	0.937	0.896	0.912	0.952
				✓			SE	✓		NW	SE	
BRIDGEPORT 009		61	97	82	82	81	78	75	73	70	69	69
		DATE	11/ 1/82	3/30/82	5/17/82	7/16/82	9/14/82	6/16/82	6/28/82	2/16/82	3/24/82	10/ 8/82
METEOROLOGICAL SITE	DIR (DEG)		220	190	70	220	160	230	120	330	160	210
NEWARK	VEL (MPH)		7.4	7.0	1.7	7.6	3.3	12.5	4.4	5.9	5.5	9.9
	SPD (MPH)		8.1	8.1	7.3	9.2	5.0	14.1	5.8	10.5	7.9	10.5
	RATIO		0.925	0.871	0.229	0.822	0.651	0.886	0.765	0.565	0.690	0.941
METEOROLOGICAL SITE	DIR (DEG)		150	200	360	280	170	220	200	340	170	10
BRADLEY	VEL (MPH)		1.8	5.3	3.0	0.3	2.8	5.3	3.5	5.3	4.8	3.9
	SPD (MPH)		2.6	6.2	5.8	3.2	3.4	9.2	5.0	7.6	5.5	4.0
	RATIO		0.697	0.850	0.514	0.109	0.815	0.580	0.688	0.700	0.883	0.963

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	230	190	210	220	100	200	100	310	90	200
BRIDGEPORT	VEL (MPH)	6.3	4.2	1.9	5.8	3.6	9.7	3.7	6.5	3.9	5.5
	SPD (MPH)	6.3	5.0	6.3	6.5	4.6	10.1	4.2	10.8	5.3	5.9
	RATIO	0.994	0.833	0.301	0.895	0.779	0.963	0.890	0.602	0.726	0.934
METEOROLOGICAL SITE	DIR (DEG)	280	240	350	290	210	260	230	310	180	60
WORCESTER	VEL (MPH)	5.7	5.8	8.1	6.9	4.9	9.8	5.5	8.1	4.8	5.1
	SPD (MPH)	7.2	7.0	8.6	7.3	5.5	11.5	6.2	9.9	5.8	5.6
	RATIO	0.799	0.822	0.937	0.945	0.899	0.848	0.896	0.816	0.838	0.912
		NW	✓	✓		✓	✓	✓	SE		NW
BRIDGEPORT 123	115	127	116	110	110	109	107	105	102	101	98
	DATE	4/ 8/82	7/19/82	4/17/82	7/16/82	5/20/82	3/30/82	2/ 7/82	9/14/82	4/20/82	2/25/82
METEOROLOGICAL SITE	DIR (DEG)	300	250	200	220	240	190	250	160	170	330
NEWARK	VEL (MPH)	16.2	9.1	16.7	7.6	14.0	7.0	13.5	3.3	9.5	18.5
	SPD (MPH)	16.7	10.1	17.1	9.2	14.7	8.1	14.1	5.0	10.5	19.3
	RATIO	0.971	0.900	0.974	0.822	0.957	0.871	0.960	0.651	0.907	0.960
METEOROLOGICAL SITE	DIR (DEG)	310	210	200	280	210	200	250	170	190	330
BRADLEY	VEL (MPH)	17.9	4.9	14.0	0.3	7.1	5.3	8.8	2.8	11.8	13.8
	SPD (MPH)	18.4	6.2	14.4	3.2	7.6	6.2	9.9	3.4	12.1	14.1
	RATIO	0.973	0.786	0.975	0.109	0.931	0.850	0.886	0.815	0.973	0.980
METEOROLOGICAL SITE	DIR (DEG)	290	230	190	220	230	190	250	100	160	330
BRIDGEPORT	VEL (MPH)	12.5	7.4	10.4	5.8	6.6	4.2	12.9	3.6	4.1	11.5
	SPD (MPH)	12.9	7.5	10.5	6.5	7.0	5.0	13.7	4.6	5.5	11.9
	RATIO	0.970	0.993	0.988	0.895	0.938	0.833	0.946	0.779	0.758	0.962
METEOROLOGICAL SITE	DIR (DEG)	300	270	220	290	260	240	260	210	220	320
WORCESTER	VEL (MPH)	20.5	6.7	12.4	6.9	8.3	5.8	9.5	4.9	10.8	18.2
	SPD (MPH)	21.0	7.9	12.8	7.3	8.8	7.0	9.8	5.5	11.6	18.7
	RATIO	0.979	0.843	0.966	0.945	0.951	0.822	0.974	0.899	0.924	0.973
		✓	NW	SE	NW			NW	✓	SE	✓
BRISTOL 001	59	89	89	78	77	71	70	69	67	63	62
	DATE	3/30/82	12/13/82	3/24/82	1/ 5/82	6/28/82	7/16/82	2/16/82	1/11/82	9/14/82	4/17/82
METEOROLOGICAL SITE	DIR (DEG)	190	330	160	280	120	220	330	260	160	200
NEWARK	VEL (MPH)	7.0	10.3	5.5	13.7	4.4	7.6	5.9	18.8	3.3	16.7
	SPD (MPH)	8.1	11.6	7.9	15.1	5.8	9.2	10.5	18.8	5.0	17.1
	RATIO	0.871	0.887	0.690	0.905	0.765	0.822	0.565	0.996	0.651	0.974
METEOROLOGICAL SITE	DIR (DEG)	200	350	170	290	200	280	340	260	170	200
BRADLEY	VEL (MPH)	5.3	5.5	4.8	15.5	3.5	0.3	5.3	14.6	2.8	14.0
	SPD (MPH)	6.2	6.3	5.5	17.7	5.0	3.2	7.6	15.1	3.4	14.4
	RATIO	0.850	0.869	0.883	0.878	0.688	0.109	0.700	0.968	0.815	0.975
METEOROLOGICAL SITE	DIR (DEG)	190	340	90	280	100	220	310	260	100	190
BRIDGEPORT	VEL (MPH)	4.2	8.1	3.9	22.0	3.7	5.8	6.5	26.3	3.6	10.4
	SPD (MPH)	5.0	8.3	5.3	23.0	4.2	6.5	10.8	26.6	4.6	10.5
	RATIO	0.833	0.969	0.726	0.955	0.890	0.895	0.602	0.991	0.779	0.988
METEOROLOGICAL SITE	DIR (DEG)	240	330	180	280	230	290	310	250	210	220
WORCESTER	VEL (MPH)	5.8	7.1	4.8	21.9	5.5	6.9	8.1	12.4	4.9	12.4
	SPD (MPH)	7.0	8.2	5.8	22.1	6.2	7.3	9.9	13.1	5.5	12.8
	RATIO	0.822	0.864	0.838	0.988	0.896	0.945	0.816	0.950	0.899	0.966

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
BURLINGTON 001		117	59	56	53	51	45	44	41	38	38	38
		DATE	6/28/82	6/16/82	7/16/82	9/14/82	6/ 4/82	3/30/82	7/ 7/82	9/ 2/82	2/ 4/82	4/17/82
METEOROLOGICAL SITE	DIR (DEG)		120	230	220	160	80	190	210	210	320	200
NEWARK	VEL (MPH)		4.4	12.5	7.6	3.3	10.7	7.0	10.5	10.9	9.9	16.7
	SPD (MPH)		5.8	14.1	9.2	5.0	11.9	8.1	11.4	11.2	13.9	17.1
	RATIO		0.765	0.886	0.822	0.651	0.899	0.871	0.924	0.974	0.711	0.974
METEOROLOGICAL SITE	DIR (DEG)		200	220	280	170	70	200	200	180	330	200
BRADLEY	VEL (MPH)		3.5	5.3	0.3	2.8	5.8	5.3	9.2	6.4	5.2	14.0
	SPD (MPH)		5.0	9.2	3.2	3.4	9.1	6.2	9.5	7.5	9.2	14.4
	RATIO		0.688	0.580	0.109	0.815	0.636	0.850	0.975	0.863	0.567	0.975
METEOROLOGICAL SITE	DIR (DEG)		100	200	220	100	70	190	230	200	310	190
BRIDGEPORT	VEL (MPH)		3.7	9.7	5.8	3.6	10.8	4.2	7.1	6.9	7.6	10.4
	SPD (MPH)		4.2	10.1	6.5	4.6	11.4	5.0	7.5	7.2	10.8	10.5
	RATIO		0.890	0.963	0.895	0.779	0.955	0.833	0.948	0.961	0.705	0.988
METEOROLOGICAL SITE	DIR (DEG)		230	260	290	210	80	240	240	220	290	220
WORCESTER	VEL (MPH)		5.5	9.8	6.9	4.9	7.6	5.8	9.1	9.4	8.3	12.4
	SPD (MPH)		6.2	11.5	7.3	5.5	8.3	7.0	9.6	9.6	10.5	12.8
	RATIO		0.896	0.848	0.945	0.899	0.911	0.822	0.950	0.978	0.787	0.966
DANBURY 002		58	147	145	123	114	93	91	86	81	81	79
		DATE	2/22/82	3/24/82	2/16/82	12/13/82	3/30/82	1/ 5/82	9/14/82	4/17/82	3/12/82	7/16/82
METEOROLOGICAL SITE	DIR (DEG)		350	160	330	330	190	280	160	200	330	220
NEWARK	VEL (MPH)		14.4	5.5	5.9	10.3	7.0	13.7	3.3	16.7	9.1	7.6
	SPD (MPH)		14.8	7.9	10.5	11.6	8.1	15.1	5.0	17.1	10.8	9.2
	RATIO		0.970	0.690	0.565	0.887	0.871	0.905	0.651	0.974	0.845	0.822
METEOROLOGICAL SITE	DIR (DEG)		360	170	340	350	200	290	170	200	10	280
BRADLEY	VEL (MPH)		9.0	4.8	5.3	5.5	5.3	15.5	2.8	14.0	2.0	0.3
	SPD (MPH)		9.5	5.5	7.6	6.3	6.2	17.7	3.4	14.4	4.9	3.2
	RATIO		0.949	0.883	0.700	0.869	0.850	0.878	0.815	0.975	0.404	0.109
METEOROLOGICAL SITE	DIR (DEG)		340	90	310	340	190	280	100	190	360	220
BRIDGEPORT	VEL (MPH)		11.7	3.9	6.5	8.1	4.2	22.0	3.6	10.4	3.8	5.8
	SPD (MPH)		11.8	5.3	10.8	8.3	5.0	23.0	4.6	10.5	5.3	6.5
	RATIO		0.989	0.726	0.602	0.969	0.833	0.955	0.779	0.988	0.706	0.895
METEOROLOGICAL SITE	DIR (DEG)		20	180	310	330	240	280	210	220	10	290
WORCESTER	VEL (MPH)		7.3	4.8	8.1	7.1	5.8	21.9	4.9	12.4	2.8	6.9
	SPD (MPH)		7.6	5.8	9.9	8.2	7.0	22.1	5.5	12.8	5.5	7.3
	RATIO		0.956	0.838	0.816	0.864	0.822	0.988	0.899	0.966	0.518	0.945
DANBURY 123		58	122	101	99	90	84	79	78	76	72	72
		DATE	12/13/82	3/30/82	3/24/82	9/14/82	1/ 5/82	7/16/82	6/28/82	3/12/82	5/17/82	10/ 8/82
METEOROLOGICAL SITE	DIR (DEG)		330	190	160	160	280	220	120	330	70	210
NEWARK	VEL (MPH)		10.3	7.0	5.5	3.3	13.7	7.6	4.4	9.1	1.7	9.9
	SPD (MPH)		11.6	8.1	7.9	5.0	15.1	9.2	5.8	10.8	7.3	10.5
	RATIO		0.887	0.871	0.690	0.651	0.905	0.822	0.765	0.845	0.229	0.941
METEOROLOGICAL SITE	DIR (DEG)		350	200	170	170	290	280	200	10	360	10
BRADLEY	VEL (MPH)		5.5	5.3	4.8	2.8	15.5	0.3	3.5	2.0	3.0	3.9
	SPD (MPH)		6.3	6.2	5.5	3.4	17.7	3.2	5.0	4.9	5.8	4.0
	RATIO		0.869	0.850	0.883	0.815	0.878	0.109	0.688	0.404	0.514	0.963

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	340	190	90	100	280	220	100	360	210	200
BRIDGEPORT	VEL (MPH)	8.1	4.2	3.9	3.6	22.0	5.8	3.7	3.8	1.9	5.5
	SPD (MPH)	8.3	5.0	5.3	4.6	23.0	6.5	4.2	5.3	6.3	5.9
	RATIO	0.969	0.833	0.726	0.779	0.955	0.895	0.890	0.706	0.301	0.934
METEOROLOGICAL SITE	DIR (DEG)	330	240	180	210	280	290	230	10	350	60
WORCESTER	VEL (MPH)	7.1	5.8	4.8	4.9	21.9	6.9	5.5	2.8	8.1	5.1
	SPD (MPH)	8.2	7.0	5.8	5.5	22.1	7.3	6.2	5.5	8.6	5.6
	RATIO	0.864	0.822	0.838	0.899	0.988	0.945	0.896	0.518	0.937	0.912
EAST HARTFORD 004		19	62	61	61	60	55	44	39	35	35	34
	DATE		12/13/82	10/ 8/82	11/ 1/82	9/14/82	12/ 1/82	12/31/82	12/25/82	9/20/82	11/19/82	11/ 7/82
METEOROLOGICAL SITE	DIR (DEG)	330	210	220	160	80	10	210	40	50	260
NEWARK	VEL (MPH)	10.3	9.9	7.4	3.3	2.5	8.1	4.7	6.9	10.8	9.4
	SPD (MPH)	11.6	10.5	8.1	5.0	4.3	9.1	7.3	9.3	11.8	10.5
	RATIO	0.887	0.941	0.925	0.651	0.585	0.899	0.645	0.740	0.918	0.893
METEOROLOGICAL SITE	DIR (DEG)	350	10	150	170	200	350	180	20	40	280
BRADLEY	VEL (MPH)	5.5	3.9	1.8	2.8	2.7	1.9	4.0	3.2	7.0	5.5
	SPD (MPH)	6.3	4.0	2.6	3.4	2.9	3.7	4.0	3.6	7.5	7.2
	RATIO	0.869	0.963	0.697	0.815	0.945	0.520	0.989	0.890	0.941	0.768
METEOROLOGICAL SITE	DIR (DEG)	340	200	230	100	220	20	230	50	60	280
BRIDGEPORT	VEL (MPH)	8.1	5.5	6.3	3.6	2.3	5.2	4.4	7.7	8.1	6.3
	SPD (MPH)	8.3	5.9	6.3	4.6	5.2	6.3	4.5	8.2	8.5	6.5
	RATIO	0.969	0.934	0.994	0.779	0.438	0.816	0.980	0.941	0.960	0.978
METEOROLOGICAL SITE	DIR (DEG)	330	60	280	210	220	270	250	80	60	280
WORCESTER	VEL (MPH)	7.1	5.1	5.7	4.9	4.6	2.4	11.0	4.9	8.0	7.7
	SPD (MPH)	8.2	5.6	7.2	5.5	4.9	4.7	11.1	5.6	8.1	8.3
	RATIO	0.864	0.912	0.799	0.899	0.946	0.503	0.990	0.880	0.993	0.928
GREENWICH 008		59	90	87	83	79	79	75	73	72	72	71
	DATE		5/17/82	11/ 1/82	9/14/82	7/16/82	3/30/82	2/16/82	2/10/82	6/16/82	1/11/82	4/11/82
METEOROLOGICAL SITE	DIR (DEG)	70	220	160	220	190	330	300	230	260	270
NEWARK	VEL (MPH)	1.7	7.4	3.3	7.6	7.0	5.9	14.2	12.5	18.8	7.4
	SPD (MPH)	7.3	8.1	5.0	9.2	8.1	10.5	15.4	14.1	18.8	10.4
	RATIO	0.229	0.925	0.651	0.822	0.871	0.565	0.923	0.886	0.996	0.713
METEOROLOGICAL SITE	DIR (DEG)	360	150	170	280	200	340	330	220	260	220
BRADLEY	VEL (MPH)	3.0	1.8	2.8	0.3	5.3	5.3	10.4	5.3	14.6	4.3
	SPD (MPH)	5.8	2.6	3.4	3.2	6.2	7.6	11.1	9.2	15.1	6.3
	RATIO	0.514	0.697	0.815	0.109	0.850	0.700	0.942	0.580	0.968	0.685
METEOROLOGICAL SITE	DIR (DEG)	210	230	100	220	190	310	300	200	260	190
BRIDGEPORT	VEL (MPH)	1.9	6.3	3.6	5.8	4.2	6.5	12.0	9.7	26.3	5.1
	SPD (MPH)	6.3	6.3	4.6	6.5	5.0	10.8	12.5	10.1	26.6	5.3
	RATIO	0.301	0.994	0.779	0.895	0.833	0.602	0.957	0.963	0.991	0.956
METEOROLOGICAL SITE	DIR (DEG)	350	280	210	290	240	310	290	260	250	230
WORCESTER	VEL (MPH)	8.1	5.7	4.9	6.9	5.8	8.1	12.3	9.8	12.4	7.0
	SPD (MPH)	8.6	7.2	5.5	7.3	7.0	9.9	12.9	11.5	13.1	8.6
	RATIO	0.937	0.799	0.899	0.945	0.822	0.816	0.952	0.848	0.950	0.811

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
HADDAM 002		57	61	49	47	44	44	43	43	42	42	41
		DATE	7/16/82	2/16/82	8/ 3/82	12/31/82	10/ 8/82	11/ 1/82	9/14/82	6/28/82	3/30/82	3/24/82
METEOROLOGICAL SITE	DIR (DEG)		220	330	20	10	210	220	160	120	190	160
NEWARK	VEL (MPH)		7.6	5.9	7.0	8.1	9.9	7.4	3.3	4.4	7.0	5.5
	SPD (MPH)		9.2	10.5	9.6	9.1	10.5	8.1	5.0	5.8	8.1	7.9
	RATIO		0.822	0.565	0.729	0.899	0.941	0.925	0.651	0.765	0.871	0.690
METEOROLOGICAL SITE	DIR (DEG)		280	340	20	350	10	150	170	200	200	170
BRADLEY	VEL (MPH)		0.3	5.3	2.6	1.9	3.9	1.8	2.8	3.5	5.3	4.8
	SPD (MPH)		3.2	7.6	4.9	3.7	4.0	2.6	3.4	5.0	6.2	5.5
	RATIO		0.109	0.700	0.542	0.520	0.963	0.697	0.815	0.688	0.850	0.883
METEOROLOGICAL SITE	DIR (DEG)		220	310	130	20	200	230	100	100	190	90
BRIDGEPORT	VEL (MPH)		5.8	6.5	3.9	5.2	5.5	6.3	3.6	3.7	4.2	3.9
	SPD (MPH)		6.5	10.8	5.3	6.3	5.9	6.3	4.6	4.2	5.0	5.3
	RATIO		0.895	0.602	0.724	0.816	0.934	0.994	0.779	0.890	0.833	0.726
METEOROLOGICAL SITE	DIR (DEG)		290	310	50	270	60	280	210	230	240	180
WORCESTER	VEL (MPH)		6.9	8.1	3.0	2.4	5.1	5.7	4.9	5.5	5.8	4.8
	SPD (MPH)		7.3	9.9	4.6	4.7	5.6	7.2	5.5	6.2	7.0	5.8
	RATIO		0.945	0.816	0.645	0.503	0.912	0.799	0.899	0.896	0.822	0.838
HARTFORD 003		91	107	102	101	100	93	91	83	80	79	78
		DATE	2/25/82	3/30/82	2/16/82	3/18/82	12/13/82	3/24/82	10/29/82	6/16/82	1/ 5/82	5/17/82
METEOROLOGICAL SITE	DIR (DEG)		330	190	330	100	330	160	200	230	280	70
NEWARK	VEL (MPH)		18.5	7.0	5.9	3.3	10.3	5.5	7.1	12.5	13.7	1.7
	SPD (MPH)		19.3	8.1	10.5	8.6	11.6	7.9	7.5	14.1	15.1	7.3
	RATIO		0.960	0.871	0.565	0.378	0.887	0.690	0.952	0.886	0.905	0.229
METEOROLOGICAL SITE	DIR (DEG)		330	200	340	180	350	170	170	220	290	360
BRADLEY	VEL (MPH)		13.8	5.3	5.3	1.9	5.5	4.8	2.6	5.3	15.5	3.0
	SPD (MPH)		14.1	6.2	7.6	3.9	6.3	5.5	4.6	9.2	17.7	5.8
	RATIO		0.980	0.850	0.700	0.494	0.869	0.883	0.562	0.580	0.878	0.514
METEOROLOGICAL SITE	DIR (DEG)		330	190	310	130	340	90	220	200	280	210
BRIDGEPORT	VEL (MPH)		11.5	4.2	6.5	2.1	8.1	3.9	4.0	9.7	22.0	1.9
	SPD (MPH)		11.9	5.0	10.8	5.6	8.3	5.3	5.3	10.1	23.0	6.3
	RATIO		0.962	0.833	0.602	0.368	0.969	0.726	0.748	0.963	0.955	0.301
METEOROLOGICAL SITE	DIR (DEG)		320	240	310	310	330	180	260	260	280	350
WORCESTER	VEL (MPH)		18.2	5.8	8.1	2.9	7.1	4.8	5.5	9.8	21.9	8.1
	SPD (MPH)		18.7	7.0	9.9	7.2	8.2	5.8	6.2	11.5	22.1	8.6
	RATIO		0.973	0.822	0.816	0.410	0.864	0.838	0.891	0.848	0.988	0.937
HARTFORD 013		59	82	76	74	69	69	69	67	63	63	62
		DATE	7/16/82	3/30/82	3/24/82	2/16/82	11/ 1/82	5/17/82	6/16/82	8/27/82	12/13/82	6/28/82
METEOROLOGICAL SITE	DIR (DEG)		220	190	160	330	220	70	230	220	330	120
NEWARK	VEL (MPH)		7.6	7.0	5.5	5.9	7.4	1.7	12.5	10.6	10.3	4.4
	SPD (MPH)		9.2	8.1	7.9	10.5	8.1	7.3	14.1	10.8	11.6	5.8
	RATIO		0.822	0.871	0.690	0.565	0.925	0.229	0.886	0.987	0.887	0.765
METEOROLOGICAL SITE	DIR (DEG)		280	200	170	340	150	360	220	210	350	200
BRADLEY	VEL (MPH)		0.3	5.3	4.8	5.3	1.8	3.0	5.3	7.5	5.5	3.5
	SPD (MPH)		3.2	6.2	5.5	7.6	2.6	5.8	9.2	8.2	6.3	5.0
	RATIO		0.109	0.850	0.883	0.700	0.697	0.514	0.580	0.917	0.869	0.688

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	220	190	90	310	230	210	200	220	340	100
BRIDGEPORT	VEL (MPH)	5.8	4.2	3.9	6.5	6.3	1.9	9.7	7.6	8.1	3.7
	SPD (MPH)	6.5	5.0	5.3	10.8	6.3	6.3	10.1	7.8	8.3	4.2
	RATIO	0.895	0.833	0.726	0.602	0.994	0.301	0.963	0.985	0.969	0.890
METEOROLOGICAL SITE	DIR (DEG)	290	240	180	310	280	350	260	240	330	230
WORCESTER	VEL (MPH)	6.9	5.8	4.8	8.1	5.7	8.1	9.8	9.7	7.1	5.5
	SPD (MPH)	7.3	7.0	5.8	9.9	7.2	8.6	11.5	9.9	8.2	6.2
	RATIO	0.945	0.822	0.838	0.816	0.799	0.937	0.848	0.981	0.864	0.896
HARTFORD 014	60	80	76	74	71	70	67	64	62	61	59
	DATE	12/13/82	7/16/82	2/16/82	3/30/82	10/ 8/82	5/17/82	6/16/82	6/28/82	3/24/82	2/22/82
METEOROLOGICAL SITE	DIR (DEG)	330	220	330	190	210	70	230	120	160	350
NEWARK	VEL (MPH)	10.3	7.6	5.9	7.0	9.9	1.7	12.5	4.4	5.5	14.4
	SPD (MPH)	11.6	9.2	10.5	8.1	10.5	7.3	14.1	5.8	7.9	14.8
	RATIO	0.887	0.822	0.565	0.871	0.941	0.229	0.886	0.765	0.690	0.970
METEOROLOGICAL SITE	DIR (DEG)	350	280	340	200	10	360	220	200	170	360
BRADLEY	VEL (MPH)	5.5	0.3	5.3	5.3	3.9	3.0	5.3	3.5	4.8	9.0
	SPD (MPH)	6.3	3.2	7.6	6.2	4.0	5.8	9.2	5.0	5.5	9.5
	RATIO	0.869	0.109	0.700	0.850	0.963	0.514	0.580	0.688	0.883	0.949
METEOROLOGICAL SITE	DIR (DEG)	340	220	310	190	200	210	200	100	90	340
BRIDGEPORT	VEL (MPH)	8.1	5.8	6.5	4.2	5.5	1.9	9.7	3.7	3.9	11.7
	SPD (MPH)	8.3	6.5	10.8	5.0	5.9	6.3	10.1	4.2	5.3	11.8
	RATIO	0.969	0.895	0.602	0.833	0.934	0.301	0.963	0.890	0.726	0.989
METEOROLOGICAL SITE	DIR (DEG)	330	290	310	240	60	350	260	230	180	20
WORCESTER	VEL (MPH)	7.1	6.9	8.1	5.8	5.1	8.1	9.8	5.5	4.8	7.3
	SPD (MPH)	8.2	7.3	9.9	7.0	5.6	8.6	11.5	6.2	5.8	7.6
	RATIO	0.864	0.945	0.816	0.822	0.912	0.937	0.848	0.896	0.838	0.956
MANCHESTER 001	60	90	81	73	70	66	60	57	57	57	56
	DATE	3/24/82	3/30/82	7/16/82	5/17/82	6/16/82	6/ 4/82	3/18/82	11/ 1/82	2/22/82	12/13/82
METEOROLOGICAL SITE	DIR (DEG)	160	190	220	70	230	80	100	220	350	330
NEWARK	VEL (MPH)	5.5	7.0	7.6	1.7	12.5	10.7	3.3	7.4	14.4	10.3
	SPD (MPH)	7.9	8.1	9.2	7.3	14.1	11.9	8.6	8.1	14.8	11.6
	RATIO	0.690	0.871	0.822	0.229	0.886	0.899	0.378	0.925	0.970	0.887
METEOROLOGICAL SITE	DIR (DEG)	170	200	280	360	220	70	180	150	360	350
BRADLEY	VEL (MPH)	4.8	5.3	0.3	3.0	5.3	5.8	1.9	1.8	9.0	5.5
	SPD (MPH)	5.5	6.2	3.2	5.8	9.2	9.1	3.9	2.6	9.5	6.3
	RATIO	0.883	0.850	0.109	0.514	0.580	0.636	0.494	0.697	0.949	0.869
METEOROLOGICAL SITE	DIR (DEG)	90	190	220	210	200	70	130	230	340	340
BRIDGEPORT	VEL (MPH)	3.9	4.2	5.8	1.9	9.7	10.8	2.1	6.3	11.7	8.1
	SPD (MPH)	5.3	5.0	6.5	6.3	10.1	11.4	5.6	6.3	11.8	8.3
	RATIO	0.726	0.833	0.895	0.301	0.963	0.955	0.368	0.994	0.989	0.969
METEOROLOGICAL SITE	DIR (DEG)	180	240	290	350	260	80	310	280	20	330
WORCESTER	VEL (MPH)	4.8	5.8	6.9	8.1	9.8	7.6	2.9	5.7	7.3	7.1
	SPD (MPH)	5.8	7.0	7.3	8.6	11.5	8.3	7.2	7.2	7.6	8.2
	RATIO	0.838	0.822	0.945	0.937	0.848	0.911	0.410	0.799	0.956	0.864

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
MERIDEN 002		57	87	85	81	81	77	69	68	65	64	64
		DATE	1/ 5/82	5/17/82	2/22/82	7/16/82	3/30/82	6/16/82	11/ 1/82	8/ 3/82	10/ 8/82	4/17/82
METEOROLOGICAL SITE	DIR (DEG)		280	70	350	220	190	230	220	20	210	200
NEWARK	VEL (MPH)		13.7	1.7	14.4	7.6	7.0	12.5	7.4	7.0	9.9	16.7
	SPD (MPH)		15.1	7.3	14.8	9.2	8.1	14.1	8.1	9.6	10.5	17.1
	RATIO		0.905	0.229	0.970	0.822	0.871	0.886	0.925	0.729	0.941	0.974
METEOROLOGICAL SITE	DIR (DEG)		290	360	360	280	200	220	150	20	10	200
BRADLEY	VEL (MPH)		15.5	3.0	9.0	0.3	5.3	5.3	1.8	2.6	3.9	14.0
	SPD (MPH)		17.7	5.8	9.5	3.2	6.2	9.2	2.6	4.9	4.0	14.4
	RATIO		0.878	0.514	0.949	0.109	0.850	0.580	0.697	0.542	0.963	0.975
METEOROLOGICAL SITE	DIR (DEG)		280	210	340	220	190	200	230	130	200	190
BRIDGEPORT	VEL (MPH)		22.0	1.9	11.7	5.8	4.2	9.7	6.3	3.9	5.5	10.4
	SPD (MPH)		23.0	6.3	11.8	6.5	5.0	10.1	6.3	5.3	5.9	10.5
	RATIO		0.955	0.301	0.989	0.895	0.833	0.963	0.994	0.724	0.934	0.988
METEOROLOGICAL SITE	DIR (DEG)		280	350	20	290	240	260	280	50	60	220
WORCESTER	VEL (MPH)		21.9	8.1	7.3	6.9	5.8	9.8	5.7	3.0	5.1	12.4
	SPD (MPH)		22.1	8.6	7.6	7.3	7.0	11.5	7.2	4.6	5.6	12.8
	RATIO		0.988	0.937	0.956	0.945	0.822	0.848	0.799	0.645	0.912	0.966
MERIDEN 008		57	89	80	72	67	63	60	60	59	56	55
		DATE	6/22/82	7/16/82	3/30/82	6/16/82	5/17/82	3/24/82	2/16/82	11/ 1/82	8/ 3/82	4/17/82
METEOROLOGICAL SITE	DIR (DEG)		150	220	190	230	70	160	330	220	20	200
NEWARK	VEL (MPH)		3.1	7.6	7.0	12.5	1.7	5.5	5.9	7.4	7.0	16.7
	SPD (MPH)		7.8	9.2	8.1	14.1	7.3	7.9	10.5	8.1	9.6	17.1
	RATIO		0.395	0.822	0.871	0.886	0.229	0.690	0.565	0.925	0.729	0.974
METEOROLOGICAL SITE	DIR (DEG)		200	280	200	220	360	170	340	150	20	200
BRADLEY	VEL (MPH)		2.1	0.3	5.3	5.3	3.0	4.8	5.3	1.8	2.6	14.0
	SPD (MPH)		3.7	3.2	6.2	9.2	5.8	5.5	7.6	2.6	4.9	14.4
	RATIO		0.571	0.109	0.850	0.580	0.514	0.883	0.700	0.697	0.542	0.975
METEOROLOGICAL SITE	DIR (DEG)		100	220	190	200	210	90	310	230	130	190
BRIDGEPORT	VEL (MPH)		3.9	5.8	4.2	9.7	1.9	3.9	6.5	6.3	3.9	10.4
	SPD (MPH)		4.6	6.5	5.0	10.1	6.3	5.3	10.8	6.3	5.3	10.5
	RATIO		0.839	0.895	0.833	0.963	0.301	0.726	0.602	0.994	0.724	0.988
METEOROLOGICAL SITE	DIR (DEG)		240	290	240	260	350	180	310	280	50	220
WORCESTER	VEL (MPH)		4.6	6.9	5.8	9.8	8.1	4.8	8.1	5.7	3.0	12.4
	SPD (MPH)		5.6	7.3	7.0	11.5	8.6	5.8	9.9	7.2	4.6	12.8
	RATIO		0.812	0.945	0.822	0.848	0.937	0.838	0.816	0.799	0.645	0.966
MIDDLETOWN 003		56	78	69	65	65	64	63	61	59	59	59
		DATE	3/30/82	5/17/82	6/28/82	2/10/82	1/11/82	3/24/82	3/18/82	4/17/82	11/ 1/82	1/29/82
METEOROLOGICAL SITE	DIR (DEG)		190	70	120	300	260	160	100	200	220	280
NEWARK	VEL (MPH)		7.0	1.7	4.4	14.2	18.8	5.5	3.3	16.7	7.4	9.6
	SPD (MPH)		8.1	7.3	5.8	15.4	18.8	7.9	8.6	17.1	8.1	11.5
	RATIO		0.871	0.229	0.765	0.923	0.996	0.690	0.378	0.974	0.925	0.831
METEOROLOGICAL SITE	DIR (DEG)		200	360	200	330	260	170	180	200	150	290
BRADLEY	VEL (MPH)		5.3	3.0	3.5	10.4	14.6	4.8	1.9	14.0	1.8	9.0
	SPD (MPH)		6.2	5.8	5.0	11.1	15.1	5.5	3.9	14.4	2.6	10.2
	RATIO		0.850	0.514	0.688	0.942	0.968	0.883	0.494	0.975	0.697	0.885

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE BRIDGEPORT	DIR (DEG)	190	210	100	300	260	90	130	190	230	280
	VEL (MPH)	4.2	1.9	3.7	12.0	26.3	3.9	2.1	10.4	6.3	10.0
	SPD (MPH)	5.0	6.3	4.2	12.5	26.6	5.3	5.6	10.5	6.3	11.2
	RATIO	0.833	0.301	0.890	0.957	0.991	0.726	0.368	0.988	0.994	0.893
METEOROLOGICAL SITE WORCESTER	DIR (DEG)	240	350	230	290	250	180	310	220	280	280
	VEL (MPH)	5.8	8.1	5.5	12.3	12.4	4.8	2.9	12.4	5.7	14.5
	SPD (MPH)	7.0	8.6	6.2	12.9	13.1	5.8	7.2	12.8	7.2	14.8
	RATIO	0.822	0.937	0.896	0.952	0.950	0.838	0.410	0.966	0.799	0.976
MILFORD 002		61	85	75	75	74	72	72	70	67	67	66
	DATE		11/ 1/82	7/16/82	9/14/82	3/30/82	1/11/82	3/24/82	6/28/82	4/11/82	1/29/82	2/16/82
METEOROLOGICAL SITE NEWARK	DIR (DEG)		220	220	160	190	260	160	120	270	280	330
	VEL (MPH)		7.4	7.6	3.3	7.0	18.8	5.5	4.4	7.4	9.6	5.9
	SPD (MPH)		8.1	9.2	5.0	8.1	18.8	7.9	5.8	10.4	11.5	10.5
	RATIO		0.925	0.822	0.651	0.871	0.996	0.690	0.765	0.713	0.831	0.565
METEOROLOGICAL SITE BRADLEY	DIR (DEG)		150	280	170	200	260	170	200	220	290	340
	VEL (MPH)		1.8	0.3	2.8	5.3	14.6	4.8	3.5	4.3	9.0	5.3
	SPD (MPH)		2.6	3.2	3.4	6.2	15.1	5.5	5.0	6.3	10.2	7.6
	RATIO		0.697	0.109	0.815	0.850	0.968	0.883	0.688	0.685	0.885	0.700
METEOROLOGICAL SITE BRIDGEPORT	DIR (DEG)		230	220	100	190	260	90	100	190	280	310
	VEL (MPH)		6.3	5.8	3.6	4.2	26.3	3.9	3.7	5.1	10.0	6.5
	SPD (MPH)		6.3	6.5	4.6	5.0	26.6	5.3	4.2	5.3	11.2	10.8
	RATIO		0.994	0.895	0.779	0.833	0.991	0.726	0.890	0.956	0.893	0.602
METEOROLOGICAL SITE WORCESTER	DIR (DEG)		280	290	210	240	250	180	230	230	280	310
	VEL (MPH)		5.7	6.9	4.9	5.8	12.4	4.8	5.5	7.0	14.5	8.1
	SPD (MPH)		7.2	7.3	5.5	7.0	13.1	5.8	6.2	8.6	14.8	9.9
	RATIO		0.799	0.945	0.899	0.822	0.950	0.838	0.896	0.811	0.976	0.816
MORRIS 001		102	63	55	55	55	51	51	47	45	45	45
	DATE		3/30/82	4/20/82	9/14/82	7/19/82	6/16/82	6/28/82	11/19/82	9/11/82	4/ 2/82	7/ 1/82
METEOROLOGICAL SITE NEWARK	DIR (DEG)		190	170	160	250	230	120	50	280	320	320
	VEL (MPH)		7.0	9.5	3.3	9.1	12.5	4.4	10.8	5.1	12.7	13.1
	SPD (MPH)		8.1	10.5	5.0	10.1	14.1	5.8	11.8	6.0	13.5	13.9
	RATIO		0.871	0.907	0.651	0.900	0.886	0.765	0.918	0.837	0.940	0.940
METEOROLOGICAL SITE BRADLEY	DIR (DEG)		200	190	170	210	220	200	40	340	320	340
	VEL (MPH)		5.3	11.8	2.8	4.9	5.3	3.5	7.0	1.3	11.4	8.0
	SPD (MPH)		6.2	12.1	3.4	6.2	9.2	5.0	7.5	2.7	11.6	8.8
	RATIO		0.850	0.973	0.815	0.786	0.580	0.688	0.941	0.473	0.980	0.908
METEOROLOGICAL SITE BRIDGEPORT	DIR (DEG)		190	160	100	230	200	100	60	250	330	330
	VEL (MPH)		4.2	4.1	3.6	7.4	9.7	3.7	8.1	2.6	8.5	8.7
	SPD (MPH)		5.0	5.5	4.6	7.5	10.1	4.2	8.5	5.2	9.5	8.8
	RATIO		0.833	0.758	0.779	0.993	0.963	0.890	0.960	0.501	0.899	0.997
METEOROLOGICAL SITE WORCESTER	DIR (DEG)		240	220	210	270	260	230	60	330	310	300
	VEL (MPH)		5.8	10.8	4.9	6.7	9.8	5.5	8.0	2.8	14.0	9.4
	SPD (MPH)		7.0	11.6	5.5	7.9	11.5	6.2	8.1	5.9	14.4	9.9
	RATIO		0.822	0.924	0.899	0.843	0.848	0.896	0.993	0.471	0.971	0.950

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
			NW	SE	NW	NE	✓	NW	✓	✓	NE	
NAUGATUCK 001		59	133	119	109	105	99	92	90	86	83	83
		DATE	2/16/82	3/24/82	1/29/82	3/12/82	3/30/82	2/10/82	4/17/82	4/11/82	3/ 6/82	2/22/82
METEOROLOGICAL SITE	DIR (DEG)		330	160	280	330	190	300	200	270	30	350
NEWARK	VEL (MPH)		5.9	5.5	9.6	9.1	7.0	14.2	16.7	7.4	9.6	14.4
	SPD (MPH)		10.5	7.9	11.5	10.8	8.1	15.4	17.1	10.4	10.9	14.8
	RATIO		0.565	0.690	0.831	0.845	0.871	0.923	0.974	0.713	0.878	0.970
METEOROLOGICAL SITE	DIR (DEG)		340	170	290	10	200	330	200	220	10	360
BRADLEY	VEL (MPH)		5.3	4.8	9.0	2.0	5.3	10.4	14.0	4.3	5.7	9.0
	SPD (MPH)		7.6	5.5	10.2	4.9	6.2	11.1	14.4	6.3	6.2	9.5
	RATIO		0.700	0.883	0.885	0.404	0.850	0.942	0.975	0.685	0.919	0.949
METEOROLOGICAL SITE	DIR (DEG)		310	90	280	360	190	300	190	190	60	340
BRIDGEPORT	VEL (MPH)		6.5	3.9	10.0	3.8	4.2	12.0	10.4	5.1	6.6	11.7
	SPD (MPH)		10.8	5.3	11.2	5.3	5.0	12.5	10.5	5.3	7.9	11.8
	RATIO		0.602	0.726	0.893	0.706	0.833	0.957	0.988	0.956	0.837	0.989
METEOROLOGICAL SITE	DIR (DEG)		310	180	280	10	240	290	220	230	50	20
WORCESTER	VEL (MPH)		8.1	4.8	14.5	2.8	5.8	12.3	12.4	7.0	5.2	7.3
	SPD (MPH)		9.9	5.8	14.8	5.5	7.0	12.9	12.8	8.6	7.9	7.6
	RATIO		0.816	0.838	0.976	0.518	0.822	0.952	0.966	0.811	0.653	0.956
			NW	NW	✓	NW	SE	✓		✓	✓	
NEW BRITAIN 007		120	113	91	87	82	81	78	73	72	71	70
		DATE	2/25/82	2/16/82	3/30/82	2/13/82	3/24/82	7/19/82	7/16/82	8/27/82	5/26/82	5/17/82
METEOROLOGICAL SITE	DIR (DEG)		330	330	190	360	160	250	220	220	180	70
NEWARK	VEL (MPH)		18.5	5.9	7.0	9.2	5.5	9.1	7.6	10.6	3.8	1.7
	SPD (MPH)		19.3	10.5	8.1	12.5	7.9	10.1	9.2	10.8	7.5	7.3
	RATIO		0.960	0.565	0.871	0.739	0.690	0.900	0.822	0.987	0.503	0.229
METEOROLOGICAL SITE	DIR (DEG)		330	340	200	350	170	210	280	210	220	360
BRADLEY	VEL (MPH)		13.8	5.3	5.3	7.4	4.8	4.9	0.3	7.5	0.9	3.0
	SPD (MPH)		14.1	7.6	6.2	8.5	5.5	6.2	3.2	8.2	2.9	5.8
	RATIO		0.980	0.700	0.850	0.874	0.883	0.786	0.109	0.917	0.307	0.514
METEOROLOGICAL SITE	DIR (DEG)		330	310	190	350	90	230	220	220	200	210
BRIDGEPORT	VEL (MPH)		11.5	6.5	4.2	9.5	3.9	7.4	5.8	7.6	4.5	1.9
	SPD (MPH)		11.9	10.8	5.0	10.4	5.3	7.5	6.5	7.8	5.3	6.3
	RATIO		0.962	0.602	0.833	0.921	0.726	0.993	0.895	0.985	0.853	0.301
METEOROLOGICAL SITE	DIR (DEG)		320	310	240	350	180	270	290	240	320	350
WORCESTER	VEL (MPH)		18.2	8.1	5.8	6.8	4.8	6.7	6.9	9.7	6.3	8.1
	SPD (MPH)		18.7	9.9	7.0	7.9	5.8	7.9	7.3	9.9	7.2	8.6
	RATIO		0.973	0.816	0.822	0.861	0.838	0.843	0.945	0.981	0.871	0.937
			✓		✓	✓	NW	✓		NE	NW	
NEW BRITAIN 008		60	101	77	77	71	71	68	66	64	61	58
		DATE	3/30/82	7/16/82	4/17/82	4/11/82	12/13/82	6/16/82	3/18/82	3/ 6/82	2/16/82	6/28/82
METEOROLOGICAL SITE	DIR (DEG)		190	220	200	270	330	230	100	30	330	120
NEWARK	VEL (MPH)		7.0	7.6	16.7	7.4	10.3	12.5	3.3	9.6	5.9	4.4
	SPD (MPH)		8.1	9.2	17.1	10.4	11.6	14.1	8.6	10.9	10.5	5.8
	RATIO		0.871	0.822	0.974	0.713	0.887	0.886	0.378	0.878	0.565	0.765
METEOROLOGICAL SITE	DIR (DEG)		200	280	200	220	350	220	180	10	340	200
BRADLEY	VEL (MPH)		5.3	0.3	14.0	4.3	5.5	5.3	1.9	5.7	5.3	3.5
	SPD (MPH)		6.2	3.2	14.4	6.3	6.3	9.2	3.9	6.2	7.6	5.0
	RATIO		0.850	0.109	0.975	0.685	0.869	0.580	0.494	0.919	0.700	0.688

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	190	220	190	190	340	200	130	60	310	100
BRIDGEPORT	VEL (MPH)	4.2	5.8	10.4	5.1	8.1	9.7	2.1	6.6	6.5	3.7
	SPD (MPH)	5.0	6.5	10.5	5.3	8.3	10.1	5.6	7.9	10.8	4.2
	RATIO	0.833	0.895	0.988	0.956	0.969	0.963	0.368	0.837	0.602	0.890
METEOROLOGICAL SITE	DIR (DEG)	240	290	220	230	330	260	310	50	310	230
WORCESTER	VEL (MPH)	5.8	6.9	12.4	7.0	7.1	9.8	2.9	5.2	8.1	5.5
	SPD (MPH)	7.0	7.3	12.8	8.6	8.2	11.5	7.2	7.9	9.9	6.2
	RATIO	0.822	0.945	0.966	0.811	0.864	0.848	0.410	0.653	0.816	0.896
NEW BRITAIN 009	58	77	77	75	72	63	63	62	60	60	60
	DATE	7/16/82	3/24/82	3/30/82	1/11/82	6/16/82	12/13/82	6/28/82	4/17/82	5/17/82	10/ 8/82
METEOROLOGICAL SITE	DIR (DEG)	220	160	190	260	230	330	120	200	70	210
NEWARK	VEL (MPH)	7.6	5.5	7.0	18.8	12.5	10.3	4.4	16.7	1.7	9.9
	SPD (MPH)	9.2	7.9	8.1	18.8	14.1	11.6	5.8	17.1	7.3	10.5
	RATIO	0.822	0.690	0.871	0.996	0.886	0.887	0.765	0.974	0.229	0.941
METEOROLOGICAL SITE	DIR (DEG)	280	170	200	260	220	350	200	200	360	10
BRADLEY	VEL (MPH)	0.3	4.8	5.3	14.6	5.3	5.5	3.5	14.0	3.0	3.9
	SPD (MPH)	3.2	5.5	6.2	15.1	9.2	6.3	5.0	14.4	5.8	4.0
	RATIO	0.109	0.883	0.850	0.968	0.580	0.869	0.688	0.975	0.514	0.963
METEOROLOGICAL SITE	DIR (DEG)	220	90	190	260	200	340	100	190	210	200
BRIDGEPORT	VEL (MPH)	5.8	3.9	4.2	26.3	9.7	8.1	3.7	10.4	1.9	5.5
	SPD (MPH)	6.5	5.3	5.0	26.6	10.1	8.3	4.2	10.5	6.3	5.9
	RATIO	0.895	0.726	0.833	0.991	0.963	0.969	0.890	0.988	0.301	0.934
METEOROLOGICAL SITE	DIR (DEG)	290	180	240	250	260	330	230	220	350	60
WORCESTER	VEL (MPH)	6.9	4.8	5.8	12.4	9.8	7.1	5.5	12.4	8.1	5.1
	SPD (MPH)	7.3	5.8	7.0	13.1	11.5	8.2	6.2	12.8	8.6	5.6
	RATIO	0.945	0.838	0.822	0.950	0.848	0.864	0.896	0.966	0.937	0.912
NEW HAVEN 002	49	103	88	79	79	77	74	74	71	71	69
	DATE	2/16/82	1/29/82	7/16/82	12/13/82	11/ 1/82	5/17/82	3/24/82	3/12/82	3/30/82	12/ 1/82
METEOROLOGICAL SITE	DIR (DEG)	330	280	220	330	220	70	160	330	190	80
NEWARK	VEL (MPH)	5.9	9.6	7.6	10.3	7.4	1.7	5.5	9.1	7.0	2.5
	SPD (MPH)	10.5	11.5	9.2	11.6	8.1	7.3	7.9	10.8	8.1	4.3
	RATIO	0.565	0.831	0.822	0.887	0.925	0.229	0.690	0.845	0.871	0.585
METEOROLOGICAL SITE	DIR (DEG)	340	290	280	350	150	360	170	10	200	200
BRADLEY	VEL (MPH)	5.3	9.0	0.3	5.5	1.8	3.0	4.8	2.0	5.3	2.7
	SPD (MPH)	7.6	10.2	3.2	6.3	2.6	5.8	5.5	4.9	6.2	2.9
	RATIO	0.700	0.885	0.109	0.869	0.697	0.514	0.883	0.404	0.850	0.945
METEOROLOGICAL SITE	DIR (DEG)	310	280	220	340	230	210	90	360	190	220
BRIDGEPORT	VEL (MPH)	6.5	10.0	5.8	8.1	6.3	1.9	3.9	3.8	4.2	2.3
	SPD (MPH)	10.8	11.2	6.5	8.3	6.3	6.3	5.3	5.3	5.0	5.2
	RATIO	0.602	0.893	0.895	0.969	0.994	0.301	0.726	0.706	0.833	0.438
METEOROLOGICAL SITE	DIR (DEG)	310	280	290	330	280	350	180	10	240	220
WORCESTER	VEL (MPH)	8.1	14.5	6.9	7.1	5.7	8.1	4.8	2.8	5.8	4.6
	SPD (MPH)	9.9	14.8	7.3	8.2	7.2	8.6	5.8	5.5	7.0	4.9
	RATIO	0.816	0.976	0.945	0.864	0.799	0.937	0.838	0.518	0.822	0.946

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
				NW	NW	✓	NW	✓			SE	NW
NEW HAVEN 013		111	122	112	89	85	85	85	83	79	75	73
		DATE	10/ 5/82	2/25/82	2/13/82	10/29/82	2/16/82	3/30/82	11/ 1/82	7/16/82	3/24/82	9/11/82
METEOROLOGICAL SITE	DIR (DEG)		80	330	360	200	330	190	220	220	160	280
NEWARK	VEL (MPH)		2.2	18.5	9.2	7.1	5.9	7.0	7.4	7.6	5.5	5.1
	SPD (MPH)		6.9	19.3	12.5	7.5	10.5	8.1	8.1	9.2	7.9	6.0
	RATIO		0.312	0.960	0.739	0.952	0.565	0.871	0.925	0.822	0.690	0.837
METEOROLOGICAL SITE	DIR (DEG)		280	330	350	170	340	200	150	280	170	340
BRADLEY	VEL (MPH)		1.2	13.8	7.4	2.6	5.3	5.3	1.8	0.3	4.8	1.3
	SPD (MPH)		4.6	14.1	8.5	4.6	7.6	6.2	2.6	3.2	5.5	2.7
	RATIO		0.258	0.980	0.874	0.562	0.700	0.850	0.697	0.109	0.883	0.473
METEOROLOGICAL SITE	DIR (DEG)		100	330	350	220	310	190	230	220	90	250
BRIDGEPORT	VEL (MPH)		3.7	11.5	9.5	4.0	6.5	4.2	6.3	5.8	3.9	2.6
	SPD (MPH)		6.0	11.9	10.4	5.3	10.8	5.0	6.3	6.5	5.3	5.2
	RATIO		0.612	0.962	0.921	0.748	0.602	0.833	0.994	0.895	0.726	0.501
METEOROLOGICAL SITE	DIR (DEG)		270	320	350	260	310	240	280	290	180	330
WORCESTER	VEL (MPH)		2.6	18.2	6.8	5.5	8.1	5.8	5.7	6.9	4.8	2.8
	SPD (MPH)		8.1	18.7	7.9	6.2	9.9	7.0	7.2	7.3	5.8	5.9
	RATIO		0.324	0.973	0.861	0.891	0.816	0.822	0.799	0.945	0.838	0.471
			✓	SE	NW		SE				✓	✓
NORWALK 001		57	102	87	77	76	73	73	73	73	70	69
		DATE	3/30/82	3/24/82	2/16/82	5/17/82	9/14/82	11/ 1/82	6/28/82	7/16/82	4/11/82	6/16/82
METEOROLOGICAL SITE	DIR (DEG)		190	160	330	70	160	220	120	220	270	230
NEWARK	VEL (MPH)		7.0	5.5	5.9	1.7	3.3	7.4	4.4	7.6	7.4	12.5
	SPD (MPH)		8.1	7.9	10.5	7.3	5.0	8.1	5.8	9.2	10.4	14.1
	RATIO		0.871	0.690	0.565	0.229	0.651	0.925	0.765	0.822	0.713	0.886
METEOROLOGICAL SITE	DIR (DEG)		200	170	340	360	170	150	200	280	220	220
BRADLEY	VEL (MPH)		5.3	4.8	5.3	3.0	2.8	1.8	3.5	0.3	4.3	5.3
	SPD (MPH)		6.2	5.5	7.6	5.8	3.4	2.6	5.0	3.2	6.3	9.2
	RATIO		0.850	0.883	0.700	0.514	0.815	0.697	0.688	0.109	0.685	0.580
METEOROLOGICAL SITE	DIR (DEG)		190	90	310	210	100	230	100	220	190	200
BRIDGEPORT	VEL (MPH)		4.2	3.9	6.5	1.9	3.6	6.3	3.7	5.8	5.1	9.7
	SPD (MPH)		5.0	5.3	10.8	6.3	4.6	6.3	4.2	6.5	5.3	10.1
	RATIO		0.833	0.726	0.602	0.301	0.779	0.994	0.890	0.895	0.956	0.963
METEOROLOGICAL SITE	DIR (DEG)		240	180	310	350	210	280	230	290	230	260
WORCESTER	VEL (MPH)		5.8	4.8	8.1	8.1	4.9	5.7	5.5	6.9	7.0	9.8
	SPD (MPH)		7.0	5.8	9.9	8.6	5.5	7.2	6.2	7.3	8.6	11.5
	RATIO		0.822	0.838	0.816	0.937	0.899	0.799	0.896	0.945	0.811	0.848
			NW	NW	NW	NW	NW	NW	NW		✓	✓
NORWALK 005		113	121	120	120	105	105	100	100	98	96	90
		DATE	1/29/82	2/25/82	2/10/82	2/16/82	3/15/82	1/26/82	2/13/82	4/20/82	1/11/82	5/20/82
METEOROLOGICAL SITE	DIR (DEG)		280	330	300	330	320	320	360	170	260	240
NEWARK	VEL (MPH)		9.6	18.5	14.2	5.9	6.8	13.4	9.2	9.5	18.8	14.0
	SPD (MPH)		11.5	19.3	15.4	10.5	8.9	13.5	12.5	10.5	18.8	14.7
	RATIO		0.831	0.960	0.923	0.565	0.761	0.988	0.739	0.907	0.996	0.957
METEOROLOGICAL SITE	DIR (DEG)		290	330	330	340	320	310	350	190	260	210
BRADLEY	VEL (MPH)		9.0	13.8	10.4	5.3	7.8	7.4	7.4	11.8	14.6	7.1
	SPD (MPH)		10.2	14.1	11.1	7.6	9.2	7.9	8.5	12.1	15.1	7.6
	RATIO		0.885	0.980	0.942	0.700	0.846	0.941	0.874	0.973	0.968	0.931

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	280	330	300	310	300	330	350	160	260	230
BRIDGEPORT	VEL (MPH)	10.0	11.5	12.0	6.5	5.9	8.0	9.5	4.1	26.3	6.6
	SPD (MPH)	11.2	11.9	12.5	10.8	7.3	8.3	10.4	5.5	26.6	7.0
	RATIO	0.893	0.962	0.957	0.602	0.807	0.964	0.921	0.758	0.991	0.938
METEOROLOGICAL SITE	DIR (DEG)	280	320	290	310	300	300	350	220	250	260
WORCESTER	VEL (MPH)	14.5	18.2	12.3	8.1	9.1	7.2	6.8	10.8	12.4	8.3
	SPD (MPH)	14.8	18.7	12.9	9.9	9.3	7.8	7.9	11.6	13.1	8.8
	RATIO	0.976	0.973	0.952	0.816	0.972	0.931	0.861	0.924	0.950	0.951
NORWALK 012		60	100	91	84	82	79	76	74	74	72	70
	DATE		11/ 1/82	3/12/82	2/16/82	3/30/82	9/14/82	7/16/82	5/17/82	1/29/82	6/28/82	3/24/82
METEOROLOGICAL SITE	DIR (DEG)		220	330	330	190	160	220	70	280	120	160
NEWARK	VEL (MPH)		7.4	9.1	5.9	7.0	3.3	7.6	1.7	9.6	4.4	5.5
	SPD (MPH)		8.1	10.8	10.5	8.1	5.0	9.2	7.3	11.5	5.8	7.9
	RATIO		0.925	0.845	0.565	0.871	0.651	0.822	0.229	0.831	0.765	0.690
METEOROLOGICAL SITE	DIR (DEG)		150	10	340	200	170	280	360	290	200	170
BRADLEY	VEL (MPH)		1.8	2.0	5.3	5.3	2.8	0.3	3.0	9.0	3.5	4.8
	SPD (MPH)		2.6	4.9	7.6	6.2	3.4	3.2	5.8	10.2	5.0	5.5
	RATIO		0.697	0.404	0.700	0.850	0.815	0.109	0.514	0.885	0.688	0.883
METEOROLOGICAL SITE	DIR (DEG)		230	360	310	190	100	220	210	280	100	90
BRIDGEPORT	VEL (MPH)		6.3	3.8	6.5	4.2	3.6	5.8	1.9	10.0	3.7	3.9
	SPD (MPH)		6.3	5.3	10.8	5.0	4.6	6.5	6.3	11.2	4.2	5.3
	RATIO		0.994	0.706	0.602	0.833	0.779	0.895	0.301	0.893	0.890	0.726
METEOROLOGICAL SITE	DIR (DEG)		280	10	310	240	210	290	350	280	230	180
WORCESTER	VEL (MPH)		5.7	2.8	8.1	5.8	4.9	6.9	8.1	14.5	5.5	4.8
	SPD (MPH)		7.2	5.5	9.9	7.0	5.5	7.3	8.6	14.8	6.2	5.8
	RATIO		0.799	0.518	0.816	0.822	0.899	0.945	0.937	0.976	0.896	0.838
NORWICH 001		58	106	81	81	71	68	67	62	62	61	61
	DATE		2/16/82	2/10/82	1/11/82	1/29/82	4/23/82	9/14/82	2/ 4/82	7/16/82	3/24/82	6/16/82
METEOROLOGICAL SITE	DIR (DEG)		330	300	260	280	280	160	320	220	160	230
NEWARK	VEL (MPH)		5.9	14.2	18.8	9.6	11.2	3.3	9.9	7.6	5.5	12.5
	SPD (MPH)		10.5	15.4	18.8	11.5	12.4	5.0	13.9	9.2	7.9	14.1
	RATIO		0.565	0.923	0.996	0.831	0.903	0.651	0.711	0.822	0.690	0.886
METEOROLOGICAL SITE	DIR (DEG)		340	330	260	290	300	170	330	280	170	220
BRADLEY	VEL (MPH)		5.3	10.4	14.6	9.0	6.6	2.8	5.2	0.3	4.8	5.3
	SPD (MPH)		7.6	11.1	15.1	10.2	7.2	3.4	9.2	3.2	5.5	9.2
	RATIO		0.700	0.942	0.968	0.885	0.922	0.815	0.567	0.109	0.883	0.580
METEOROLOGICAL SITE	DIR (DEG)		310	300	260	280	280	100	310	220	90	200
BRIDGEPORT	VEL (MPH)		6.5	12.0	26.3	10.0	7.2	3.6	7.6	5.8	3.9	9.7
	SPD (MPH)		10.8	12.5	26.6	11.2	9.1	4.6	10.8	6.5	5.3	10.1
	RATIO		0.602	0.957	0.991	0.893	0.794	0.779	0.705	0.895	0.726	0.963
METEOROLOGICAL SITE	DIR (DEG)		310	290	250	280	280	210	290	290	180	260
WORCESTER	VEL (MPH)		8.1	12.3	12.4	14.5	10.8	4.9	8.3	6.9	4.8	9.8
	SPD (MPH)		9.9	12.9	13.1	14.8	11.1	5.5	10.5	7.3	5.8	11.5
	RATIO		0.816	0.952	0.950	0.976	0.978	0.899	0.787	0.945	0.838	0.848

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
STAMFORD 001		58	147	138	129	128	121	113	105	90	89	89
		DATE	6/28/82	3/18/82	1/11/82	1/29/82	3/24/82	11/ 1/82	6/ 4/82	6/22/82	3/30/82	5/17/82
METEOROLOGICAL SITE	DIR (DEG)		120	100	260	280	160	220	80	150	190	70
NEWARK	VEL (MPH)		4.4	3.3	18.8	9.6	5.5	7.4	10.7	3.1	7.0	1.7
	SPD (MPH)		5.8	8.6	18.8	11.5	7.9	8.1	11.9	7.8	8.1	7.3
	RATIO		0.765	0.378	0.996	0.831	0.690	0.925	0.899	0.395	0.871	0.229
METEOROLOGICAL SITE	DIR (DEG)		200	180	260	290	170	150	70	200	200	360
BRADLEY	VEL (MPH)		3.5	1.9	14.6	9.0	4.8	1.8	5.8	2.1	5.3	3.0
	SPD (MPH)		5.0	3.9	15.1	10.2	5.5	2.6	9.1	3.7	6.2	5.8
	RATIO		0.688	0.494	0.968	0.885	0.883	0.697	0.636	0.571	0.850	0.514
METEOROLOGICAL SITE	DIR (DEG)		100	130	260	280	90	230	70	100	190	210
BRIDGEPORT	VEL (MPH)		3.7	2.1	26.3	10.0	3.9	6.3	10.8	3.9	4.2	1.9
	SPD (MPH)		4.2	5.6	26.6	11.2	5.3	6.3	11.4	4.6	5.0	6.3
	RATIO		0.890	0.368	0.991	0.893	0.726	0.994	0.955	0.839	0.833	0.301
METEOROLOGICAL SITE	DIR (DEG)		230	310	250	280	180	280	80	240	240	350
WORCESTER	VEL (MPH)		5.5	2.9	12.4	14.5	4.8	5.7	7.6	4.6	5.8	8.1
	SPD (MPH)		6.2	7.2	13.1	14.8	5.8	7.2	8.3	5.6	7.0	8.6
	RATIO		0.896	0.410	0.950	0.976	0.838	0.799	0.911	0.812	0.822	0.937
STAMFORD 007		60	92	91	82	80	76	71	70	68	65	63
		DATE	9/14/82	11/ 1/82	7/16/82	3/30/82	5/17/82	2/16/82	6/28/82	10/ 8/82	6/16/82	1/11/82
METEOROLOGICAL SITE	DIR (DEG)		160	220	220	190	70	330	120	210	230	260
NEWARK	VEL (MPH)		3.3	7.4	7.6	7.0	1.7	5.9	4.4	9.9	12.5	18.8
	SPD (MPH)		5.0	8.1	9.2	8.1	7.3	10.5	5.8	10.5	14.1	18.8
	RATIO		0.651	0.925	0.822	0.871	0.229	0.565	0.765	0.941	0.886	0.996
METEOROLOGICAL SITE	DIR (DEG)		170	150	280	200	360	340	200	10	220	260
BRADLEY	VEL (MPH)		2.8	1.8	0.3	5.3	3.0	5.3	3.5	3.9	5.3	14.6
	SPD (MPH)		3.4	2.6	3.2	6.2	5.8	7.6	5.0	4.0	9.2	15.1
	RATIO		0.815	0.697	0.109	0.850	0.514	0.700	0.688	0.963	0.580	0.968
METEOROLOGICAL SITE	DIR (DEG)		100	230	220	190	210	310	100	200	200	260
BRIDGEPORT	VEL (MPH)		3.6	6.3	5.8	4.2	1.9	6.5	3.7	5.5	9.7	26.3
	SPD (MPH)		4.6	6.3	6.5	5.0	6.3	10.8	4.2	5.9	10.1	26.6
	RATIO		0.779	0.994	0.895	0.833	0.301	0.602	0.890	0.934	0.963	0.991
METEOROLOGICAL SITE	DIR (DEG)		210	280	290	240	350	310	230	60	260	250
WORCESTER	VEL (MPH)		4.9	5.7	6.9	5.8	8.1	8.1	5.5	5.1	9.8	12.4
	SPD (MPH)		5.5	7.2	7.3	7.0	8.6	9.9	6.2	5.6	11.5	13.1
	RATIO		0.899	0.799	0.945	0.822	0.937	0.816	0.896	0.912	0.848	0.950
STAMFORD 021		57	104	82	80	74	72	71	68	68	65	63
		DATE	11/ 1/82	9/14/82	7/16/82	2/16/82	10/ 8/82	6/16/82	6/28/82	6/ 4/82	1/11/82	3/12/82
METEOROLOGICAL SITE	DIR (DEG)		220	160	220	330	210	230	120	80	260	330
NEWARK	VEL (MPH)		7.4	3.3	7.6	5.9	9.9	12.5	4.4	10.7	18.8	9.1
	SPD (MPH)		8.1	5.0	9.2	10.5	10.5	14.1	5.8	11.9	18.8	10.8
	RATIO		0.925	0.651	0.822	0.565	0.941	0.886	0.765	0.899	0.996	0.845
METEOROLOGICAL SITE	DIR (DEG)		150	170	280	340	10	220	200	70	260	10
BRADLEY	VEL (MPH)		1.8	2.8	0.3	5.3	3.9	5.3	3.5	5.8	14.6	2.0
	SPD (MPH)		2.6	3.4	3.2	7.6	4.0	9.2	5.0	9.1	15.1	4.9
	RATIO		0.697	0.815	0.109	0.700	0.963	0.580	0.688	0.636	0.968	0.404

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)		230	100	220	310	200	200	100	70	260	360
BRIDGEPORT	VEL (MPH)		6.3	3.6	5.8	6.5	5.5	9.7	3.7	10.8	26.3	3.8
	SPD (MPH)		6.3	4.6	6.5	10.8	5.9	10.1	4.2	11.4	26.6	5.3
	RATIO		0.994	0.779	0.895	0.602	0.934	0.963	0.890	0.955	0.991	0.706
METEOROLOGICAL SITE	DIR (DEG)		280	210	290	310	60	260	230	80	250	10
WORCESTER	VEL (MPH)		5.7	4.9	6.9	8.1	5.1	9.8	5.5	7.6	12.4	2.8
	SPD (MPH)		7.2	5.5	7.3	9.9	5.6	11.5	6.2	8.3	13.1	5.5
	RATIO		0.799	0.899	0.945	0.816	0.912	0.848	0.896	0.911	0.950	0.518
			NW	NW	✓		✓		NE	NW	SE	SE
STRATFORD 005		59	109	107	97	90	88	81	79	76	73	73
		DATE	2/10/82	2/16/82	1/11/82	11/ 1/82	3/30/82	7/16/82	3/12/82	2/ 4/82	3/24/82	9/14/82
METEOROLOGICAL SITE	DIR (DEG)		300	330	260	220	190	220	330	320	160	160
NEWARK	VEL (MPH)		14.2	5.9	18.8	7.4	7.0	7.6	9.1	9.9	5.5	3.3
	SPD (MPH)		15.4	10.5	18.8	8.1	8.1	9.2	10.8	13.9	7.9	5.0
	RATIO		0.923	0.565	0.996	0.925	0.871	0.822	0.845	0.711	0.690	0.651
METEOROLOGICAL SITE	DIR (DEG)		330	340	260	150	200	280	10	330	170	170
BRADLEY	VEL (MPH)		10.4	5.3	14.6	1.8	5.3	0.3	2.0	5.2	4.8	2.8
	SPD (MPH)		11.1	7.6	15.1	2.6	6.2	3.2	4.9	9.2	5.5	3.4
	RATIO		0.942	0.700	0.968	0.697	0.850	0.109	0.404	0.567	0.883	0.815
METEOROLOGICAL SITE	DIR (DEG)		300	310	260	230	190	220	360	310	90	100
BRIDGEPORT	VEL (MPH)		12.0	6.5	26.3	6.3	4.2	5.8	3.8	7.6	3.9	3.6
	SPD (MPH)		12.5	10.8	26.6	6.3	5.0	6.5	5.3	10.8	5.3	4.6
	RATIO		0.957	0.602	0.991	0.994	0.833	0.895	0.706	0.705	0.726	0.779
METEOROLOGICAL SITE	DIR (DEG)		290	310	250	280	240	290	10	290	180	210
WORCESTER	VEL (MPH)		12.3	8.1	12.4	5.7	5.8	6.9	2.8	8.3	4.8	4.9
	SPD (MPH)		12.9	9.9	13.1	7.2	7.0	7.3	5.5	10.5	5.8	5.5
	RATIO		0.952	0.816	0.950	0.799	0.822	0.945	0.518	0.787	0.838	0.899
			✓			NE	✓		SE	NE	NW	
VOLUNTOWN 001		117	76	54	53	45	44	44	43	42	41	40
		DATE	7/19/82	7/16/82	6/10/82	6/ 4/82	5/26/82	5/17/82	9/14/82	5/14/82	9/11/82	6/28/82
METEOROLOGICAL SITE	DIR (DEG)		250	220	260	80	180	70	160	30	280	120
NEWARK	VEL (MPH)		9.1	7.6	4.1	10.7	3.8	1.7	3.3	8.8	5.1	4.4
	SPD (MPH)		10.1	9.2	7.3	11.9	7.5	7.3	5.0	10.5	6.0	5.8
	RATIO		0.900	0.822	0.566	0.899	0.503	0.229	0.651	0.841	0.837	0.765
METEOROLOGICAL SITE	DIR (DEG)		210	280	120	70	220	360	170	20	340	200
BRADLEY	VEL (MPH)		4.9	0.3	1.2	5.8	0.9	3.0	2.8	6.7	1.3	3.5
	SPD (MPH)		6.2	3.2	5.0	9.1	2.9	5.8	3.4	7.2	2.7	5.0
	RATIO		0.786	0.109	0.244	0.636	0.307	0.514	0.815	0.934	0.473	0.688
METEOROLOGICAL SITE	DIR (DEG)		230	220	90	70	200	210	100	220	250	100
BRIDGEPORT	VEL (MPH)		7.4	5.8	0.6	10.8	4.5	1.9	3.6	0.3	2.6	3.7
	SPD (MPH)		7.5	6.5	6.6	11.4	5.3	6.3	4.6	7.0	5.2	4.2
	RATIO		0.993	0.895	0.086	0.955	0.853	0.301	0.779	0.038	0.501	0.890
METEOROLOGICAL SITE	DIR (DEG)		270	290	20	80	320	350	210	360	330	230
WORCESTER	VEL (MPH)		6.7	6.9	4.2	7.6	6.3	8.1	4.9	7.0	2.8	5.5
	SPD (MPH)		7.9	7.3	7.2	8.3	7.2	8.6	5.5	8.6	5.9	6.2
	RATIO		0.843	0.945	0.581	0.911	0.871	0.937	0.899	0.811	0.471	0.896

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
WALLINGFORD 001		58	84	83	83	79	77	75	70	70	66	64
		DATE	1/11/82	7/16/82	2/16/82	4/11/82	3/24/82	3/30/82	6/16/82	1/ 5/82	4/17/82	8/ 3/82
METEOROLOGICAL SITE	DIR (DEG)		260	220	330	270	160	190	230	280	200	20
NEWARK	VEL (MPH)		18.8	7.6	5.9	7.4	5.5	7.0	12.5	13.7	16.7	7.0
	SPD (MPH)		18.8	9.2	10.5	10.4	7.9	8.1	14.1	15.1	17.1	9.6
	RATIO		0.996	0.822	0.565	0.713	0.690	0.871	0.886	0.905	0.974	0.729
METEOROLOGICAL SITE	DIR (DEG)		260	280	340	220	170	200	220	290	200	20
BRADLEY	VEL (MPH)		14.6	0.3	5.3	4.3	4.8	5.3	5.3	15.5	14.0	2.6
	SPD (MPH)		15.1	3.2	7.6	6.3	5.5	6.2	9.2	17.7	14.4	4.9
	RATIO		0.968	0.109	0.700	0.685	0.883	0.850	0.580	0.878	0.975	0.542
METEOROLOGICAL SITE	DIR (DEG)		260	220	310	190	90	190	200	280	190	130
BRIDGEPORT	VEL (MPH)		26.3	5.8	6.5	5.1	3.9	4.2	9.7	22.0	10.4	3.9
	SPD (MPH)		26.6	6.5	10.8	5.3	5.3	5.0	10.1	23.0	10.5	5.3
	RATIO		0.991	0.895	0.602	0.956	0.726	0.833	0.963	0.955	0.988	0.724
METEOROLOGICAL SITE	DIR (DEG)		250	290	310	230	180	240	260	280	220	50
WORCESTER	VEL (MPH)		12.4	6.9	8.1	7.0	4.8	5.8	9.8	21.9	12.4	3.0
	SPD (MPH)		13.1	7.3	9.9	8.6	5.8	7.0	11.5	22.1	12.8	4.6
	RATIO		0.950	0.945	0.816	0.811	0.838	0.822	0.848	0.988	0.966	0.645
WATERBURY 005		61	107	104	97	91	86	81	81	79	77	75
		DATE	3/24/82	3/30/82	12/13/82	1/29/82	2/16/82	4/17/82	3/18/82	7/16/82	6/28/82	4/11/82
METEOROLOGICAL SITE	DIR (DEG)		160	190	330	280	330	200	100	220	120	270
NEWARK	VEL (MPH)		5.5	7.0	10.3	9.6	5.9	16.7	3.3	7.6	4.4	7.4
	SPD (MPH)		7.9	8.1	11.6	11.5	10.5	17.1	8.6	9.2	5.8	10.4
	RATIO		0.690	0.871	0.887	0.831	0.565	0.974	0.378	0.822	0.765	0.713
METEOROLOGICAL SITE	DIR (DEG)		170	200	350	290	340	200	180	280	200	220
BRADLEY	VEL (MPH)		4.8	5.3	5.5	9.0	5.3	14.0	1.9	0.3	3.5	4.3
	SPD (MPH)		5.5	6.2	6.3	10.2	7.6	14.4	3.9	3.2	5.0	6.3
	RATIO		0.883	0.850	0.869	0.885	0.700	0.975	0.494	0.109	0.688	0.685
METEOROLOGICAL SITE	DIR (DEG)		90	190	340	280	310	190	130	220	100	190
BRIDGEPORT	VEL (MPH)		3.9	4.2	8.1	10.0	6.5	10.4	2.1	5.8	3.7	5.1
	SPD (MPH)		5.3	5.0	8.3	11.2	10.8	10.5	5.6	6.5	4.2	5.3
	RATIO		0.726	0.833	0.969	0.893	0.602	0.988	0.368	0.895	0.890	0.956
METEOROLOGICAL SITE	DIR (DEG)		180	240	330	280	310	220	310	290	230	230
WORCESTER	VEL (MPH)		4.8	5.8	7.1	14.5	8.1	12.4	2.9	6.9	5.5	7.0
	SPD (MPH)		5.8	7.0	8.2	14.8	9.9	12.8	7.2	7.3	6.2	8.6
	RATIO		0.838	0.822	0.864	0.976	0.816	0.966	0.410	0.945	0.896	0.811
WATERBURY 006		60	123	92	86	85	85	85	79	77	75	68
		DATE	4/17/82	3/30/82	6/22/82	3/24/82	7/16/82	9/14/82	4/11/82	3/ 6/82	10/ 8/82	2/16/82
METEOROLOGICAL SITE	DIR (DEG)		200	190	150	160	220	160	270	30	210	330
NEWARK	VEL (MPH)		16.7	7.0	3.1	5.5	7.6	3.3	7.4	9.6	9.9	5.9
	SPD (MPH)		17.1	8.1	7.8	7.9	9.2	5.0	10.4	10.9	10.5	10.5
	RATIO		0.974	0.871	0.395	0.690	0.822	0.651	0.713	0.878	0.941	0.565
METEOROLOGICAL SITE	DIR (DEG)		200	200	200	170	280	170	220	10	10	340
BRADLEY	VEL (MPH)		14.0	5.3	2.1	4.8	0.3	2.8	4.3	5.7	3.9	5.3
	SPD (MPH)		14.4	6.2	3.7	5.5	3.2	3.4	6.3	6.2	4.0	7.6
	RATIO		0.975	0.850	0.571	0.883	0.109	0.815	0.685	0.919	0.963	0.700

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE	DIR (DEG)	190	190	100	90	220	100	190	60	200	310
BRIDGEPORT	VEL (MPH)	10.4	4.2	3.9	3.9	5.8	3.6	5.1	6.6	5.5	6.5
	SPD (MPH)	10.5	5.0	4.6	5.3	6.5	4.6	5.3	7.9	5.9	10.8
	RATIO	0.988	0.833	0.839	0.726	0.895	0.779	0.956	0.837	0.934	0.602
METEOROLOGICAL SITE	DIR (DEG)	220	240	240	180	290	210	230	50	60	310
WORCESTER	VEL (MPH)	12.4	5.8	4.6	4.8	6.9	4.9	7.0	5.2	5.1	8.1
	SPD (MPH)	12.8	7.0	5.6	5.8	7.3	5.5	8.6	7.9	5.6	9.9
	RATIO	0.966	0.822	0.812	0.838	0.945	0.899	0.811	0.653	0.912	0.816
		NW	SE	✓	NW		✓	✓	NW	NW	
WATERBURY 007	117	185	118	117	116	115	114	113	113	103	91
	DATE	2/25/82	3/24/82	3/30/82	2/13/82	3/18/82	4/11/82	4/17/82	1/29/82	2/16/82	7/16/82
METEOROLOGICAL SITE	DIR (DEG)	330	160	190	360	100	270	200	280	330	220
NEWARK	VEL (MPH)	18.5	5.5	7.0	9.2	3.3	7.4	16.7	9.6	5.9	7.6
	SPD (MPH)	19.3	7.9	8.1	12.5	8.6	10.4	17.1	11.5	10.5	9.2
	RATIO	0.960	0.690	0.871	0.739	0.378	0.713	0.974	0.831	0.565	0.822
METEOROLOGICAL SITE	DIR (DEG)	330	170	200	350	180	220	200	290	340	280
BRADLEY	VEL (MPH)	13.8	4.8	5.3	7.4	1.9	4.3	14.0	9.0	5.3	0.3
	SPD (MPH)	14.1	5.5	6.2	8.5	3.9	6.3	14.4	10.2	7.6	3.2
	RATIO	0.980	0.883	0.850	0.874	0.494	0.685	0.975	0.885	0.700	0.109
METEOROLOGICAL SITE	DIR (DEG)	330	90	190	350	130	190	190	280	310	220
BRIDGEPORT	VEL (MPH)	11.5	3.9	4.2	9.5	2.1	5.1	10.4	10.0	6.5	5.8
	SPD (MPH)	11.9	5.3	5.0	10.4	5.6	5.3	10.5	11.2	10.8	6.5
	RATIO	0.962	0.726	0.833	0.921	0.368	0.956	0.988	0.893	0.602	0.895
METEOROLOGICAL SITE	DIR (DEG)	320	180	240	350	310	230	220	280	310	290
WORCESTER	VEL (MPH)	18.2	4.8	5.8	6.8	2.9	7.0	12.4	14.5	8.1	6.9
	SPD (MPH)	18.7	5.8	7.0	7.9	7.2	8.6	12.8	14.8	9.9	7.3
	RATIO	0.973	0.838	0.822	0.861	0.410	0.811	0.966	0.976	0.816	0.945
		NE		NE		SE	✓				
WATERFORD 001	56	81	78	59	58	56	55	53	47	47	46
	DATE	6/ 4/82	7/16/82	8/ 3/82	11/ 1/82	9/14/82	6/16/82	10/ 8/82	7/10/82	5/17/82	6/28/82
METEOROLOGICAL SITE	DIR (DEG)	80	220	20	220	160	230	210	170	70	120
NEWARK	VEL (MPH)	10.7	7.6	7.0	7.4	3.3	12.5	9.9	2.9	1.7	4.4
	SPD (MPH)	11.9	9.2	9.6	8.1	5.0	14.1	10.5	8.8	7.3	5.8
	RATIO	0.899	0.822	0.729	0.925	0.651	0.886	0.941	0.333	0.229	0.765
METEOROLOGICAL SITE	DIR (DEG)	70	280	20	150	170	220	10	10	360	200
BRADLEY	VEL (MPH)	5.8	0.3	2.6	1.8	2.8	5.3	3.9	0.9	3.0	3.5
	SPD (MPH)	9.1	3.2	4.9	2.6	3.4	9.2	4.0	2.6	5.8	5.0
	RATIO	0.636	0.109	0.542	0.697	0.815	0.580	0.963	0.341	0.514	0.688
METEOROLOGICAL SITE	DIR (DEG)	70	220	130	230	100	200	200	210	210	100
BRIDGEPORT	VEL (MPH)	10.8	5.8	3.9	6.3	3.6	9.7	5.5	5.2	1.9	3.7
	SPD (MPH)	11.4	6.5	5.3	6.3	4.6	10.1	5.9	6.2	6.3	4.2
	RATIO	0.955	0.895	0.724	0.994	0.779	0.963	0.934	0.833	0.301	0.890
METEOROLOGICAL SITE	DIR (DEG)	80	290	50	280	210	260	60	290	350	230
WORCESTER	VEL (MPH)	7.6	6.9	3.0	5.7	4.9	9.8	5.1	3.9	8.1	5.5
	SPD (MPH)	8.3	7.3	4.6	7.2	5.5	11.5	5.6	5.9	8.6	6.2
	RATIO	0.911	0.945	0.645	0.799	0.899	0.848	0.912	0.670	0.937	0.896

TABLE 11, CONTINUED

1982 TEN HIGHEST 24 HOUR AVERAGE TSP DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METERS

TOWN/SITE		SAMPLES	1	2	3	4	5	6	7	8	9	10
			NW	NW		NW	SE	✓		✓	✓	NW
WILLIMANTIC 002		60	104	77	72	68	66	64	63	62	60	60
		DATE	2/16/82	2/10/82	5/17/82	2/ 4/82	9/14/82	6/16/82	7/16/82	4/17/82	4/11/82	4/ 5/82
METEOROLOGICAL SITE	DIR (DEG)		330	300	70	320	160	230	220	200	270	300
NEWARK	VEL (MPH)		5.9	14.2	1.7	9.9	3.3	12.5	7.6	16.7	7.4	15.8
	SPD (MPH)		10.5	15.4	7.3	13.9	5.0	14.1	9.2	17.1	10.4	17.7
	RATIO		0.565	0.923	0.229	0.711	0.651	0.886	0.822	0.974	0.713	0.895
METEOROLOGICAL SITE	DIR (DEG)		340	330	360	330	170	220	280	200	220	320
BRADLEY	VEL (MPH)		5.3	10.4	3.0	5.2	2.8	5.3	0.3	14.0	4.3	13.9
	SPD (MPH)		7.6	11.1	5.8	9.2	3.4	9.2	3.2	14.4	6.3	14.4
	RATIO		0.700	0.942	0.514	0.567	0.815	0.580	0.109	0.975	0.685	0.970
METEOROLOGICAL SITE	DIR (DEG)		310	300	210	310	100	200	220	190	190	290
BRIDGEPORT	VEL (MPH)		6.5	12.0	1.9	7.6	3.6	9.7	5.8	10.4	5.1	8.5
	SPD (MPH)		10.8	12.5	6.3	10.8	4.6	10.1	6.5	10.5	5.3	8.8
	RATIO		0.602	0.957	0.301	0.705	0.779	0.963	0.895	0.988	0.956	0.974
METEOROLOGICAL SITE	DIR (DEG)		310	290	350	290	210	260	290	220	230	290
WORCESTER	VEL (MPH)		8.1	12.3	8.1	8.3	4.9	9.8	6.9	12.4	7.0	18.8
	SPD (MPH)		9.9	12.9	8.6	10.5	5.5	11.5	7.3	12.8	8.6	19.1
	RATIO		0.816	0.952	0.937	0.787	0.899	0.848	0.945	0.966	0.811	0.985

3

SW = 107/410 = 26% (26.1%)

NW = 96/410 = 23.4%

NE = 25/410 = 6.1%

SE = 48/410 = 11.7%

III. SULFUR DIOXIDE

Health Effects

Sulfur oxides are gases that come from the burning of sulfur-containing fuel, mainly coal and oil, and also from the smelting of metals and from certain industrial processes. They have a distinctive odor. Sulfur dioxide (SO_2) comprises about 95 percent of these gases, so scientists use a test for SO_2 alone as a measure of all sulfur oxides.

As the level of sulfur oxides in air increases, there is an obstruction of breathing, a choking effect that doctors call "pulmonary flow resistance." The amount of breathing obstruction has a direct relation to the amount of sulfur compounds in the air. The effect of sulfur pollution is enhanced by the presence of other pollutants, especially particulates and oxidants. That is, the harm from two or more pollutants is more than additive. Each augments the other, and the combined effect is greater than the sum of the parts would be.

Many types of respiratory disease are associated with sulfur oxides: coughs and colds, asthma, bronchitis, and emphysema. Some researchers believe that the harm is mainly due not to the sulfur oxide gases but to other sulfur compounds that accompany the oxides: sulfur acids and sulfate salts.

Conclusions

Sulfur dioxide concentrations in 1982, for the most part, did not approach any federal primary or secondary standards. With the exception of one day at Milford, measured concentrations were substantially below the 365 ug/m^3 primary 24-hour standard. All sulfur dioxide monitoring sites were well below the 80 ug/m^3 primary annual standard and the 1300 ug/m^3 secondary 3-hour standard.

According to the statistical analysis which made use of sulfation rate data, there was a small but statistically significant decrease in SO_2 levels from 1981 to 1982 (see Table 3). However, the analysis based upon continuous SO_2 measurements indicated no change in ambient SO_2 concentrations (see Table 3A). An increase in SO_2 levels was anticipated since fuel-burning sources were allowed to burn 1.0% sulfur oil in 1982 (as compared to the previous 0.5% requirement). Part of this

expected increase in SO_2 emissions may have been offset by lower heating requirements in 1982, as compared to 1981. For instance, meteorological measurements taken at Bridgeport Airport show a 3.85% decrease in the number of degree days from 1981 to 1982. Increased industrial productivity and the more efficient use of fuel may also have decreased emissions. In next year's Air Quality Summary an attempt will be made to address the specific level of SO_2 emissions from year-to-year in order to assess their effect on ambient SO_2 levels.

The continued attainment of SO_2 standards is primarily attributable to Connecticut's sulfur-in-fuel regulation.

Method of Measurement

The DEP Air Monitoring Unit used the pulsed fluorescence method (Teco instruments) to continuously measure sulfur dioxide levels at all 9 sites in 1982.

Discussion of Data

Monitoring Network - Nine continuous SO_2 monitors were used to record data in eight towns during 1982 were (see Figure 5):

Bridgeport 001
Bridgeport 123
Danbury 123
Greenwich 017
Hartford 123
Milford 002
New Haven 123
Stamford 123
Waterbury 123

All of these sites telemetered the data to the central computer in Hartford on a real-time basis.

Precision and Accuracy - 151 precision checks were made on SO_2 monitors in 1982, yielding 95% probability limits ranging from -10% to +5%. Accuracy is determined by introducing a known amount of SO_2 into each of the monitors. Three different concentration levels are tested: low, medium, and high. The resulting 95% probability limits were: low, -8% to +4%; medium, -8% to +3%; and high, -8% to +6%.

Annual Averages - SO_2 levels were below the primary annual standard of 80 ug/m^3 at all sites in 1982 (see Table 12). The annual average SO_2 levels decreased at five of the nine monitoring sites from 1981 to 1982. Danbury 123 and Waterbury 123 showed decreases of more than 5 ug/m^3. Four monitoring sites showed increased annual averages. Only Greenwich 017 increased by more than 5 ug/m^3, but Greenwich 017 only operated for the last half of 1981.

Statistical Projections - A statistical analysis of the sulfur dioxide data is presented in Table 13. This analysis provides information to compensate for any loss of data caused by instrumentation problems. The format of Table 13 is the same as that used to present the total suspended particulate annual averages (see Table 6). However, Table 13 gives the annual arithmetic mean of the valid 24-hour SO_2 averages to allow direct comparison to the annual SO_2 standards. The 95% limits and standard deviations are also arithmetic calculations. Since the distribution of the SO_2 data tends to be lognormal, the geometric means and standard deviations were used to predict the number of days the 24-hour standard of 365 ug/m^3 would be exceeded at each site if sampling had been conducted every day.

It is important to note that these statistical tests require random data to be valid. This means that an equal number of samples must be collected in each season of the year and on each day of the week. The distribution and quantity of SO_2 data were better in 1982 than in 1981. The data indicate with reasonable assurance that there were no violations of the primary SO_2 standard in Connecticut. For example, a statistical prediction of one day exceeding the primary 24-hour standard (365 ug/m^3) at Hartford site 123 would indicate that an increase in SO_2 emissions there might jeopardize the attainment of this standard. Two days over the standard are required for the standard to be violated.

24-Hour Averages - Table 14 presents the 1st and 2nd high 24-hour concentrations recorded at each monitoring site. In 1982 no sites recorded SO_2 levels in excess of the 24-hour primary standard of 365 ug/m^3. Second high running 24-hour average concentrations decreased at seven of the nine SO_2 monitoring sites during 1982. The decrease was greater than 50 ug/m^3 at three sites: Bridgeport 001 (53 ug/m^3), Hartford 123 (53 ug/m^3), and Milford 002 (93 ug/m^3). Only two sites had higher second high running 24-hour average concentrations in 1982 when compared to 1981. One of these sites was Waterbury 123 which increased only 4 ug/m^3, and the other was Greenwich 017 which increased by 54 ug/m^3. The increase at Greenwich 017 is not truly representative since the site operated for only the last half of 1981.

Current EPA policy bases compliance with the primary 24-hour SO_2 standard on non-overlapping running averages. Running averages are averages computed for the 24-hour periods ending at every hour. Assessment of compliance is based on the value of the 2nd highest of the two highest non-overlapping 24-hour periods in the year. Thus, the basis for compliance is the magnitude of the exposure encountered within any two distinct 24-hour periods, not

calendar days. However, there is some contention that compliance assessment for 24-hour SO_2 standards should be based on calendar day averages only. Table 15 contains the maximum 24-hour SO_2 readings from both the running averages and the calendar day averages for comparison. The maximum calendar day readings are roughly 10% lower than the maximum readings from the running averages.

3-Hour Averages - Table 16 presents the 1st and 2nd high 3-hour concentrations recorded at each monitoring site. Measured SO_2 concentrations were far below the federal secondary 3-hour standard of 1300 ug/m^3 at all DEP monitoring sites in 1982. When compared to 1981, the second high running 3-hour average concentrations decreased at six sites and increased at 3 sites in 1982.

10-High Days with Wind Data - Table 17 lists the ten highest 24-hour calendar day SO_2 averages and the dates of occurrence for each SO_2 site in Connecticut during 1982. The table also shows the average wind conditions that occurred on each of these dates. (The origin and use of these wind data are described in the discussion of Table 11 in the TSP section of this Air Quality Summary.)

Once again, as with TSP, most of the highest SO_2 days occur during periods of persistent southwesterly winds. This relationship is caused, at least in part, by SO_2 transport; but, any transport is limited by the chemical instability of SO_2. In the atmosphere, SO_2 reacts with other gases to produce, among other things, sulfate particulates; so SO_2 is not likely to be transported very long distances. Previous studies conducted by the DEP have shown that during periods of southwest winds, levels of SO_2 in Connecticut decrease with distance from the New York City metropolitan area. This relationship tends to support the transport hypothesis. On the other hand, these studies also revealed that certain meteorological parameters, most notably mixing height and wind speed, are more conducive to high SO_2 levels on days when there are southwesterly winds than on other days.

The data in Table 17 was used to make a tally, by date, of the frequency of occurrence of high SO_2 levels. If a given date recurred at 5 or more sites in this tally, the SO_2 levels and meteorological conditions were investigated further (there were 7 such days). A close look at these 7 days revealed three important points. First, all 7 days occurred during the winter months. This can be attributed to more fuel being burned during the cold weather. Second, 4 of the 7 days had persistent southwest winds for that calendar day. Third, the other 3 days had either persistent southwest winds for the previous 24 hours or the wind was calm on the day the high SO_2 reading was recorded.

Most of the sites recorded their highest SO_2 levels during the month of January. The month of January was extremely cold, creating an increase in fuel consumption for heating. The increase in fuel consumption alone could account for the higher SO_2 levels, but the frequent occurrence of southwesterly winds on these days indicates that transport adds to the problem.

In summary, high levels of SO_2 in Connecticut seem to be caused by a number of related factors. First, Connecticut experiences its highest SO_2 levels during the winter months, when there is an increased amount of fuel combustion. Second, the New York City metropolitan area, a large emission source, is located to the southwest of Connecticut and, in this region, southwest winds occur relatively often in comparison to other wind directions. Also, adverse meteorological conditions are often associated with southwest winds. The net effect is that during the winter months when a persistent southwesterly wind occurs, an air mass picks up increased amounts of SO_2 over the New York City metropolitan area and transports this SO_2 into Connecticut. Here, the SO_2 levels remain high because the relatively low mixing heights associated with the southwest wind will not allow much vertical mixing. The levels of transported SO_2 eventually decline with increasing distance from New York City, as the SO_2 is dispersed and as it slowly reacts to produce sulfate particulates. These sulfate particulates may fall to the ground in either a dry state (dry deposition) or in a wet state after combination with water droplets (wet deposition or "acid rain").

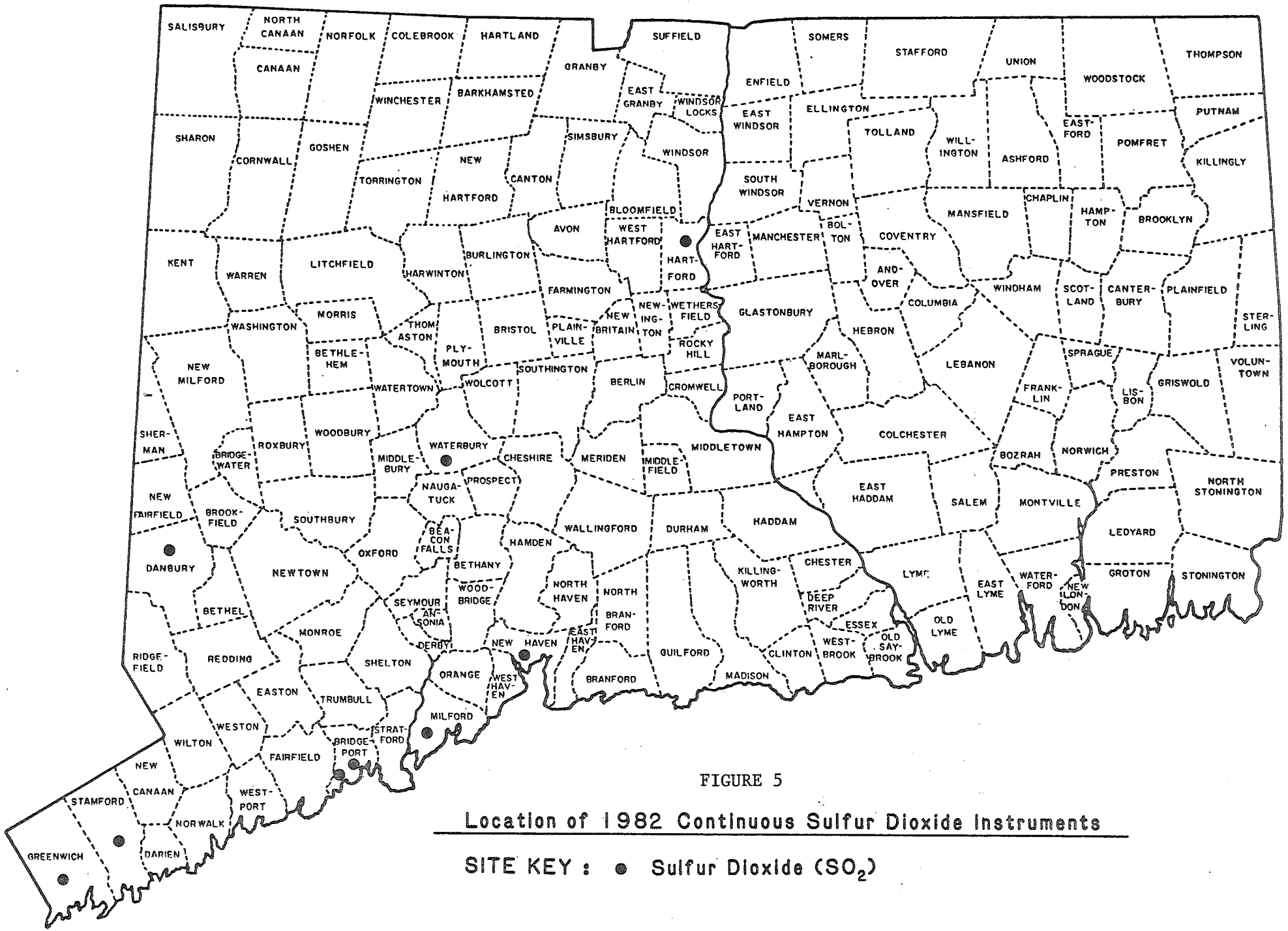


FIGURE 5

Location of 1982 Continuous Sulfur Dioxide Instruments

SITE KEY : ● Sulfur Dioxide (SO_2)

TABLE 12

1982 ANNUAL ARITHMETIC AVERAGES* OF SULFUR DIOXIDE

AT SITES WITH CONTINUOUS MONITORS

(PRIMARY NAAQS: 80 ug/m3)

TOWN	SITE NAME	1982 ANNUAL AVERAGE
Bridgeport-001	City Hall	~~29~~ 31
Bridgeport-123	Hallett Street	37
Danbury-123	Western CT State College	~~18~~ 20
Greenwich-017	Greenwich Point Park	~~18~~ 21
Hartford-123	State Office Building	~~34~~ 34
Milford-002	Devon Community Center	37
New Haven-123	State Street	~~31~~ 32
Stamford-123	Health Department	~~29~~ 31
Waterbury-123	Bank Street	~~18~~ 21

* The annual averages are expressed in terms of the arithmetic mean because the primary ambient air quality standard for SO2 is defined as the annual arithmetic mean concentration. This differs from the trend analysis presented earlier which made use of the annual geometric mean.

TABLE 13

1982 Sulfur Dioxide Annual Averages and Statistical Projections

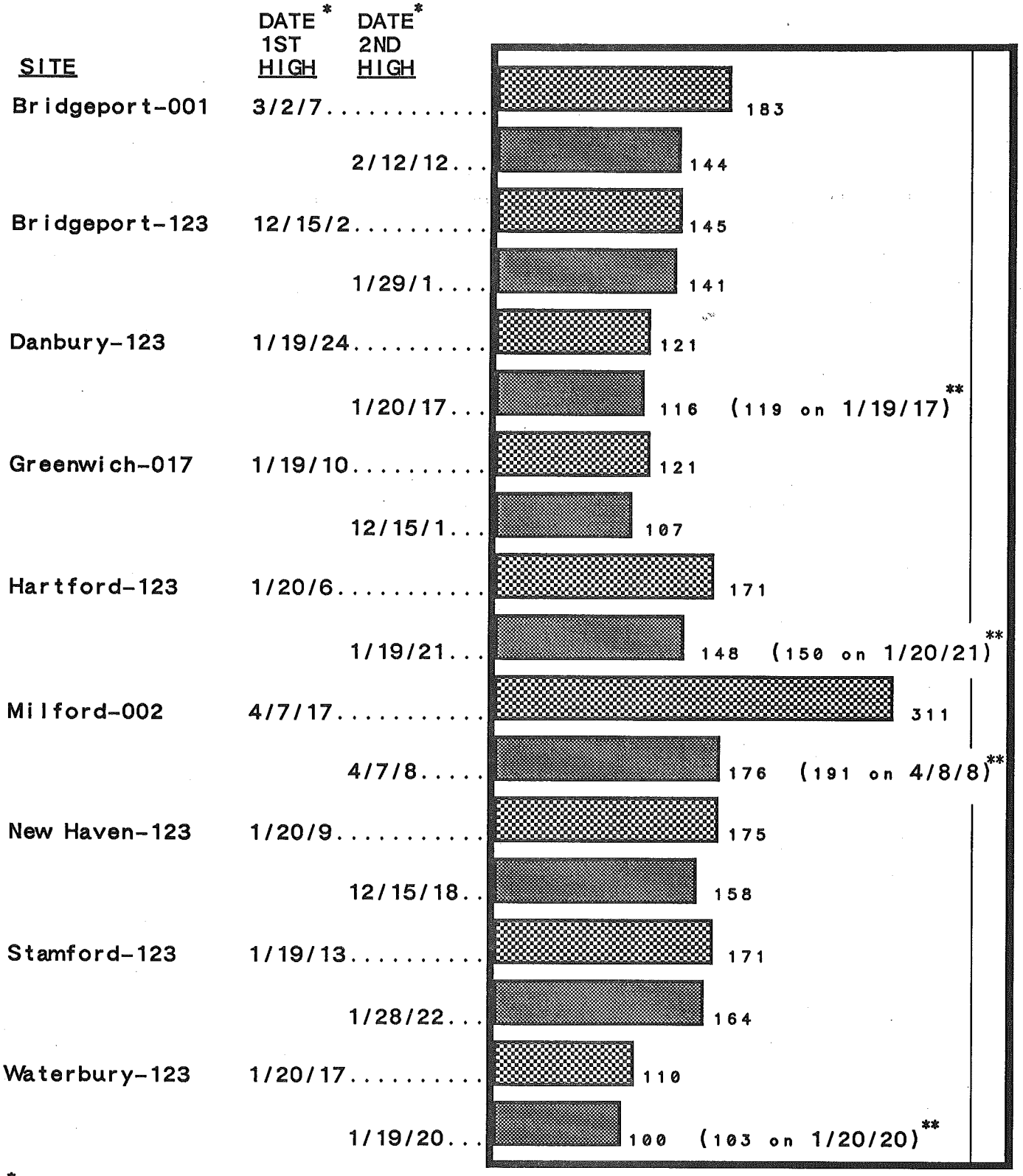
Town Name	Site	Year	Samples	Arithmetic Mean	95-PCT-Limits Lower	95-PCT-Limits Upper	Standard Deviation	Predicted Days Over 365 ug/m3
Bridgeport	001	1982	361	30.6	30	31	23.788	
Bridgeport	123	1982	361	37.0	37	37	26.000	
Danbury	123	1982	361	19.8	20	20	16.074	
Greenwich	017	1982	360	20.5	20	21	16.017	
Hartford	123	1982	352	35.1	35	36	26.747	
Milford	002	1982	358	36.9	36	37	29.540	
New Haven	123	1982	359	33.4	33	34	26.665	
Stamford	123	1982	358	31.0	31	31	26.872	
Waterbury	123	1982	362	20.5	20	21	14.999	

* Sampling not random or of insufficient size for representative annual statistics

The annual averages in Table 13 vary slightly from those in Table 12 because of the manner in which they were derived. Table 12 contains the annual averages of all the available hourly readings. Table 13 contains the annual averages of all the valid 24-hour averages. (At least 18 hours of valid data are required to produce a valid 24-hour average.)

TABLE 14

1982 MAXIMUM 24-HOUR RUNNING AVERAGE SULFUR DIOXIDE CONCENTRATIONS



* Date is month/day/ending hour of occurrence

** Non-overlapping maximum

1ST HIGH, ug/m^3

2ND HIGH, ug/m^3

TABLE 15

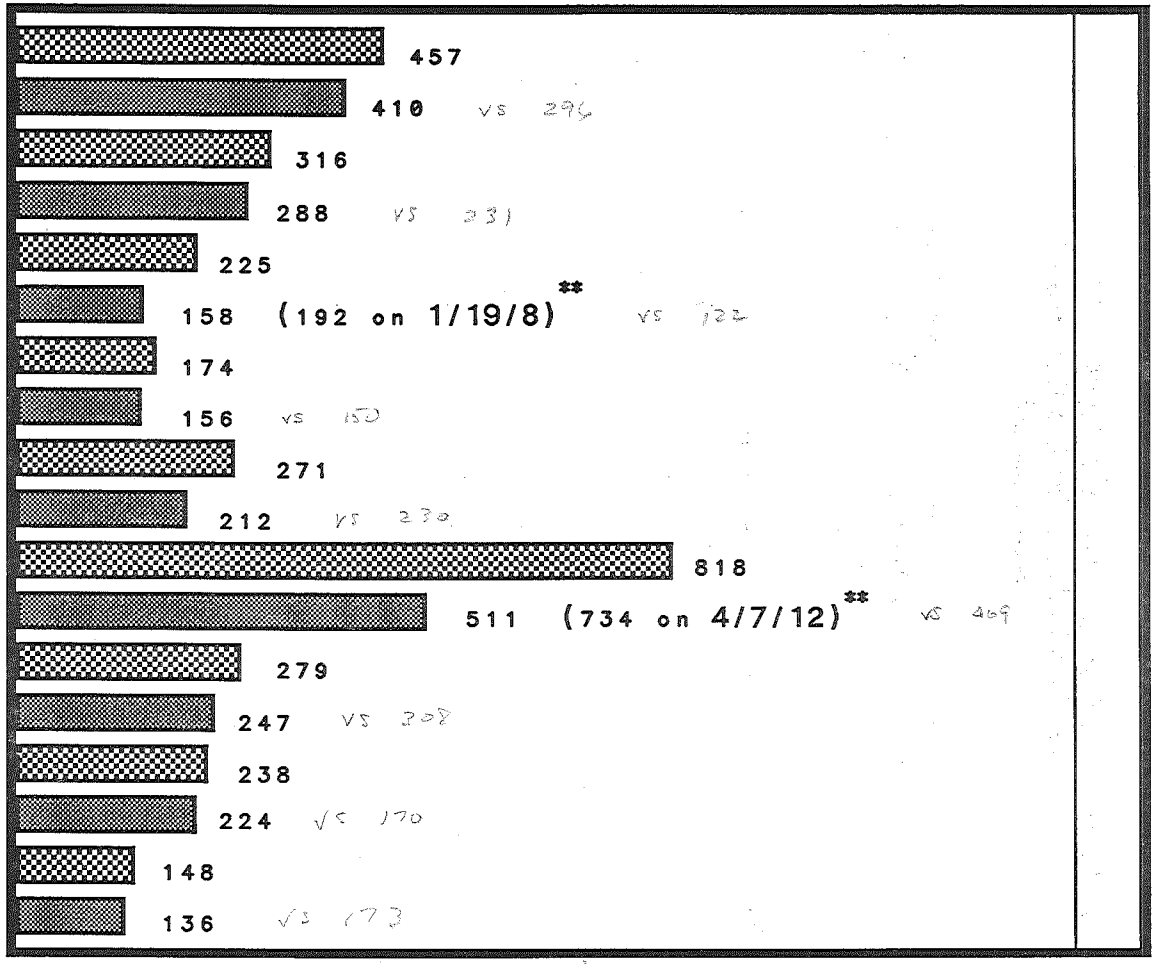
COMPARISONS OF 1982 FIRST AND SECOND HIGH RUNNING AND CALENDAR DAY 24-HOUR SO2 AVERAGES
units = ug/m3

Site	1st High Running Avg.	1st High Calendar Day	2nd High Running Avg.	2nd High Calendar Day
Bridgeport-001	183	182	144	137
Bridgeport-123	145	141	141	140
Danbury-123	121	121	116	101
Greenwich-017	121	106	107	102
Hartford-123	171	156	148	139
Milford-002	311	228	176	156
New Haven-123	175	143	158	141
Stamford-123	171	159	164	152
Waterbury-123	110	108	100	92

TABLE 16

1982 MAXIMUM RUNNING 3-HOUR SULFUR DIOXIDE CONCENTRATIONS

SITE	DATE * 1ST HIGH	DATE * 2ND HIGH
Bridgeport-001	3/1/21	3/1/18
Bridgeport-123	10/3/13	11/11/20
Danbury-123	1/19/9	1/19/11
Greenwich-017	1/19/6	1/13/16
Hartford-123	1/19/11	1/20/5
Milford-002	4/7/11	4/7/9
New Haven-123	12/15/12	1/30/9
Stamford-123	1/16/10	1/28/6
Waterbury-123	1/20/11	1/19/23



* Date is month/day/ending hour of occurrence

** Non-overlapping maximum

1ST HIGH , ug/m^3

2ND HIGH , ug/m^3

TABLE 17

1982 TEN HIGHEST 24-HOUR AVERAGE SO2 DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METER

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
BRIDGEPORT	1	360		182	137	121	118	109	107	106	103	101	99
			DATE	3/ 1/82	12/14/82	12/15/82	1/28/82	2/12/82	1/19/82	3/ 9/82	2/11/82	2/15/82	1/20/82
METEOROLOGICAL SITE			DIR (DEG)	100	220	210	220	260	10	150	280	220	330
NEWARK			VEL (MPH)	6.0	9.1	4.8	9.7	2.4	3.7	1.2	8.5	6.3	9.2
			SPD (MPH)	10.1	9.2	6.3	10.2	7.9	6.6	8.5	10.6	8.5	11.1
			RATIO	0.598	0.993	0.765	0.951	0.305	0.566	0.143	0.795	0.740	0.833
METEOROLOGICAL SITE			DIR (DEG)	200	190	190	200	270	100	180	280	230	320
BRADLEY			VEL (MPH)	0.2	6.8	4.9	6.3	1.7	0.8	1.3	1.9	6.9	5.6
			SPD (MPH)	8.3	7.0	5.2	6.8	3.7	1.1	3.4	4.9	7.5	6.9
			RATIO	0.026	0.961	0.943	0.939	0.447	0.693	0.363	0.379	0.927	0.809
METEOROLOGICAL SITE			DIR (DEG)	90	240	230	230	320	290	110	260	200	290
BRIDGEPORT			VEL (MPH)	5.8	12.3	5.0	12.2	3.6	2.0	3.9	6.5	3.6	5.7
			SPD (MPH)	7.5	12.8	5.8	12.4	7.8	4.2	6.3	8.6	7.0	6.9
			RATIO	0.778	0.959	0.870	0.983	0.458	0.478	0.611	0.748	0.509	0.822
METEOROLOGICAL SITE			DIR (DEG)	160	250	250	230	290	300	90	260	230	290
WORCESTER			VEL (MPH)	3.6	8.2	8.2	10.7	6.8	6.5	0.5	6.6	8.9	8.0
			SPD (MPH)	7.8	8.3	8.3	11.1	7.2	7.2	5.9	6.9	10.2	9.5
			RATIO	0.468	0.983	0.984	0.968	0.947	0.903	0.078	0.953	0.877	0.848
BRIDGEPORT	123	359		141	140	135	124	123	115	114	114	107	105
			DATE	12/14/82	1/28/82	11/17/82	1/30/82	11/11/82	1/19/82	12/15/82	1/16/82	2/ 8/82	1/20/82
METEOROLOGICAL SITE			DIR (DEG)	220	220	220	220	190	10	210	240	250	330
NEWARK			VEL (MPH)	9.1	9.7	3.2	6.1	5.0	3.7	4.8	8.0	10.2	9.2
			SPD (MPH)	9.2	10.2	4.3	6.5	6.3	6.6	6.3	9.1	11.4	11.1
			RATIO	0.993	0.951	0.742	0.938	0.787	0.566	0.765	0.878	0.899	0.833
METEOROLOGICAL SITE			DIR (DEG)	190	200	190	200	210	100	190	210	250	320
BRADLEY			VEL (MPH)	6.8	6.3	3.7	5.8	5.3	0.8	4.9	3.1	8.2	5.6
			SPD (MPH)	7.0	6.8	4.0	6.0	5.9	1.1	5.2	5.6	8.8	6.9
			RATIO	0.961	0.939	0.907	0.958	0.892	0.693	0.943	0.545	0.935	0.809
METEOROLOGICAL SITE			DIR (DEG)	240	230	250	220	200	290	230	230	260	290
BRIDGEPORT			VEL (MPH)	12.3	12.2	3.0	1.9	7.6	2.0	5.0	9.6	12.6	5.7
			SPD (MPH)	12.8	12.4	3.0	3.3	9.8	4.2	5.8	12.5	13.1	6.9
			RATIO	0.959	0.983	0.996	0.565	0.780	0.478	0.870	0.769	0.966	0.822
METEOROLOGICAL SITE			DIR (DEG)	250	230	260	230	220	300	250	250	270	290
WORCESTER			VEL (MPH)	8.2	10.7	7.8	9.3	7.7	6.5	8.2	8.6	10.2	8.0
			SPD (MPH)	8.3	11.1	7.9	9.8	8.3	7.2	8.3	9.9	10.6	9.5
			RATIO	0.983	0.968	0.984	0.947	0.919	0.903	0.984	0.870	0.958	0.848
DANBURY	123	360		121	101	95	89	83	81	79	76	63	62
			DATE	1/19/82	1/20/82	1/28/82	12/14/82	1/16/82	2/12/82	12/15/82	2/ 9/82	1/30/82	1/26/82
METEOROLOGICAL SITE			DIR (DEG)	10	330	220	220	240	260	210	180	220	320
NEWARK			VEL (MPH)	3.7	9.2	9.7	9.1	8.0	2.4	4.8	1.4	6.1	13.4
			SPD (MPH)	6.6	11.1	10.2	9.2	9.1	7.9	6.3	6.3	6.5	13.5
			RATIO	0.566	0.833	0.951	0.993	0.878	0.305	0.765	0.216	0.938	0.988
METEOROLOGICAL SITE			DIR (DEG)	100	320	200	190	210	270	190	150	200	310
BRADLEY			VEL (MPH)	0.8	5.6	6.3	6.8	3.1	1.7	4.9	0.6	5.8	7.4
			SPD (MPH)	1.1	6.9	6.8	7.0	5.6	3.7	5.2	3.2	6.0	7.9
			RATIO	0.693	0.809	0.939	0.961	0.545	0.447	0.943	0.205	0.958	0.941

TABLE 17, continued

1982 TEN HIGHEST 24-HOUR AVERAGE SO2 DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METER

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	290	290	230	240	230	320	230	70	220	330
BRIDGEPORT			VEL (MPH)	2.0	5.7	12.2	12.3	9.6	3.6	5.0	3.6	1.9	8.0
			SPD (MPH)	4.2	6.9	12.4	12.8	12.5	7.8	5.8	4.6	3.3	8.3
			RATIO	0.478	0.822	0.983	0.959	0.769	0.458	0.870	0.780	0.565	0.964
METEOROLOGICAL SITE			DIR (DEG)	300	290	230	250	250	290	250	170	230	300
WORCESTER			VEL (MPH)	6.5	8.0	10.7	8.2	8.6	6.8	8.2	3.1	9.3	7.2
			SPD (MPH)	7.2	9.5	11.1	8.3	9.9	7.2	8.3	4.0	9.8	7.8
			RATIO	0.903	0.848	0.968	0.983	0.870	0.947	0.984	0.773	0.947	0.931
GREENWICH	17	360		106	102	90	78	75	74	73	70	69	66
			DATE	12/14/82	1/19/82	1/18/82	1/13/82	1/28/82	2/12/82	1/20/82	12/15/82	1/16/82	2/11/82
METEOROLOGICAL SITE			DIR (DEG)	220	10	250	20	220	260	330	210	240	280
NEWARK			VEL (MPH)	9.1	3.7	9.6	8.1	9.7	2.4	9.2	4.8	8.0	8.5
			SPD (MPH)	9.2	6.6	9.8	8.9	10.2	7.9	11.1	6.3	9.1	10.6
			RATIO	0.993	0.566	0.984	0.907	0.951	0.305	0.833	0.765	0.878	0.795
METEOROLOGICAL SITE			DIR (DEG)	190	100	230	360	200	270	320	190	210	280
BRADLEY			VEL (MPH)	6.8	0.8	4.7	4.3	6.3	1.7	5.6	4.9	3.1	1.9
			SPD (MPH)	7.0	1.1	5.8	4.3	6.8	3.7	6.9	5.2	5.6	4.9
			RATIO	0.961	0.693	0.813	0.996	0.939	0.447	0.809	0.943	0.545	0.379
METEOROLOGICAL SITE			DIR (DEG)	240	290	270	20	230	320	290	230	230	260
BRIDGEPORT			VEL (MPH)	12.3	2.0	10.6	8.0	12.2	3.6	5.7	5.0	9.6	6.5
			SPD (MPH)	12.8	4.2	10.9	10.2	12.4	7.8	6.9	5.8	12.5	8.6
			RATIO	0.959	0.478	0.966	0.788	0.983	0.458	0.822	0.870	0.769	0.748
METEOROLOGICAL SITE			DIR (DEG)	250	300	260	340	230	290	290	250	250	260
WORCESTER			VEL (MPH)	8.2	6.5	9.1	3.7	10.7	6.8	8.0	8.2	8.6	6.6
			SPD (MPH)	8.3	7.2	9.5	7.0	11.1	7.2	9.5	8.3	9.9	6.9
			RATIO	0.983	0.903	0.964	0.527	0.968	0.947	0.848	0.984	0.870	0.953
HARTFORD	123	352		156	139	127	125	121	121	113	110	106	104
			DATE	1/19/82	1/20/82	12/15/82	12/14/82	2/15/82	1/28/82	1/16/82	2/12/82	1/13/82	1/23/82
METEOROLOGICAL SITE			DIR (DEG)	10	330	210	220	220	220	240	260	20	120
NEWARK			VEL (MPH)	3.7	9.2	4.8	9.1	6.3	9.7	8.0	2.4	8.1	3.9
			SPD (MPH)	6.6	11.1	6.3	9.2	8.5	10.2	9.1	7.9	8.9	12.1
			RATIO	0.566	0.833	0.765	0.993	0.740	0.951	0.878	0.305	0.907	0.324
METEOROLOGICAL SITE			DIR (DEG)	100	320	190	190	230	200	210	270	360	10
BRADLEY			VEL (MPH)	0.8	5.6	4.9	6.8	6.9	6.3	3.1	1.7	4.3	6.6
			SPD (MPH)	1.1	6.9	5.2	7.0	7.5	6.8	5.6	3.7	4.3	6.8
			RATIO	0.693	0.809	0.943	0.961	0.927	0.939	0.545	0.447	0.996	0.980
METEOROLOGICAL SITE			DIR (DEG)	290	290	230	240	200	230	230	320	20	70
BRIDGEPORT			VEL (MPH)	2.0	5.7	5.0	12.3	3.6	12.2	9.6	3.6	8.0	4.6
			SPD (MPH)	4.2	6.9	5.8	12.8	7.0	12.4	12.5	7.8	10.2	10.8
			RATIO	0.478	0.822	0.870	0.959	0.509	0.983	0.769	0.458	0.788	0.426
METEOROLOGICAL SITE			DIR (DEG)	300	290	250	250	230	230	250	290	340	50
WORCESTER			VEL (MPH)	6.5	8.0	8.2	8.2	8.9	10.7	8.6	6.8	3.7	4.8
			SPD (MPH)	7.2	9.5	8.3	8.3	10.2	11.1	9.9	7.2	7.0	6.3
			RATIO	0.903	0.848	0.984	0.983	0.877	0.968	0.870	0.947	0.527	0.751

TABLE 17, continued

1982 TEN HIGHEST 24-HOUR AVERAGE SO2 DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METER

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
MILFORD	2	357		234	156	149	142	136	135	132	128	125	120
			DATE	4/ 7/82	1/19/82	1/12/82	1/20/82	1/18/82	4/ 6/82	2/25/82	1/16/82	4/ 2/82	3/ 3/82
METEOROLOGICAL SITE			DIR (DEG)	310	10	310	330	250	10	330	240	320	350
NEWARK			VEL (MPH)	29.0	3.7	13.0	9.2	9.6	13.5	18.5	8.0	12.7	15.8
			SPD (MPH)	29.3	6.6	15.1	11.1	9.8	19.7	19.3	9.1	13.5	16.2
			RATIO	0.989	0.566	0.864	0.833	0.984	0.685	0.960	0.878	0.940	0.975
METEOROLOGICAL SITE			DIR (DEG)	320	100	340	320	230	10	330	210	320	330
BRADLEY			VEL (MPH)	21.8	0.8	8.1	5.6	4.7	12.7	13.8	3.1	11.4	9.2
			SPD (MPH)	21.8	1.1	8.6	6.9	5.8	14.8	14.1	5.6	11.6	9.5
			RATIO	0.996	0.693	0.940	0.809	0.813	0.857	0.980	0.545	0.980	0.974
METEOROLOGICAL SITE			DIR (DEG)	310	290	310	290	270	20	330	230	330	330
BRIDGEPORT			VEL (MPH)	16.3	2.0	14.4	5.7	10.6	13.1	11.5	9.6	8.5	9.8
			SPD (MPH)	16.7	4.2	15.5	6.9	10.9	17.5	11.9	12.5	9.5	9.9
			RATIO	0.977	0.478	0.929	0.822	0.966	0.748	0.962	0.769	0.899	0.992
METEOROLOGICAL SITE			DIR (DEG)	310	300	300	290	260	10	320	250	310	320
WORCESTER			VEL (MPH)	25.1	6.5	13.4	8.0	9.1	12.9	18.2	8.6	14.0	9.9
			SPD (MPH)	25.2	7.2	13.8	9.5	9.5	18.3	18.7	9.9	14.4	10.2
			RATIO	0.996	0.903	0.971	0.848	0.964	0.705	0.973	0.870	0.971	0.973
NEW HAVEN	123	359		143	142	134	134	131	119	102	101	100	95
			DATE	1/28/82	1/20/82	12/15/82	12/14/82	11/17/82	1/30/82	2/12/82	2/11/82	2/ 8/82	2/ 6/82
METEOROLOGICAL SITE			DIR (DEG)	220	330	210	220	220	220	260	280	250	310
NEWARK			VEL (MPH)	9.7	9.2	4.8	9.1	3.2	6.1	2.4	8.5	10.2	10.2
			SPD (MPH)	10.2	11.1	6.3	9.2	4.3	6.5	7.9	10.6	11.4	12.2
			RATIO	0.951	0.833	0.765	0.993	0.742	0.938	0.305	0.795	0.899	0.837
METEOROLOGICAL SITE			DIR (DEG)	200	320	190	190	190	200	270	280	250	320
BRADLEY			VEL (MPH)	6.3	5.6	4.9	6.8	3.7	5.8	1.7	1.9	8.2	6.0
			SPD (MPH)	6.8	6.9	5.2	7.0	4.0	6.0	3.7	4.9	8.8	8.6
			RATIO	0.939	0.809	0.943	0.961	0.907	0.958	0.447	0.379	0.935	0.694
METEOROLOGICAL SITE			DIR (DEG)	230	290	230	240	250	220	320	260	260	290
BRIDGEPORT			VEL (MPH)	12.2	5.7	5.0	12.3	3.0	1.9	3.6	6.5	12.6	8.9
			SPD (MPH)	12.4	6.9	5.8	12.8	3.0	3.3	7.8	8.6	13.1	10.8
			RATIO	0.983	0.822	0.870	0.959	0.996	0.565	0.458	0.748	0.966	0.824
METEOROLOGICAL SITE			DIR (DEG)	230	290	250	250	260	230	290	260	270	280
WORCESTER			VEL (MPH)	10.7	8.0	8.2	8.2	7.8	9.3	6.8	6.6	10.2	11.5
			SPD (MPH)	11.1	9.5	8.3	8.3	7.9	9.8	7.2	6.9	10.6	12.5
			RATIO	0.968	0.848	0.984	0.983	0.984	0.947	0.947	0.953	0.958	0.920
STAMFORD	123	357		159	152	140	138	135	127	118	114	112	107
			DATE	1/28/82	1/19/82	1/16/82	12/14/82	12/15/82	1/18/82	1/ 6/82	1/30/82	2/15/82	11/17/82
METEOROLOGICAL SITE			DIR (DEG)	220	10	240	220	210	250	220	220	220	220
NEWARK			VEL (MPH)	9.7	3.7	8.0	9.1	4.8	9.6	5.7	6.1	6.3	3.2
			SPD (MPH)	10.2	6.6	9.1	9.2	6.3	9.8	6.8	6.5	8.5	4.3
			RATIO	0.951	0.566	0.878	0.993	0.765	0.984	0.847	0.938	0.740	0.742
METEOROLOGICAL SITE			DIR (DEG)	200	100	210	190	190	230	210	200	230	190
BRADLEY			VEL (MPH)	6.3	0.8	3.1	6.8	4.9	4.7	5.0	5.8	6.9	3.7
			SPD (MPH)	6.8	1.1	5.6	7.0	5.2	5.8	5.6	6.0	7.5	4.0
			RATIO	0.939	0.693	0.545	0.961	0.943	0.813	0.898	0.958	0.927	0.907

TABLE 17, continued

1982 TEN HIGHEST 24-HOUR AVERAGE SO2 DAYS WITH WIND DATA

UNITS : MICROGRAMS PER CUBIC METER

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	230	290	230	240	230	270	210	220	200	250
BRIDGEPORT			VEL (MPH)	12.2	2.0	9.6	12.3	5.0	10.6	6.8	1.9	3.6	3.0
			SPD (MPH)	12.4	4.2	12.5	12.8	5.8	10.9	8.3	3.3	7.0	3.0
			RATIO	0.983	0.478	0.769	0.959	0.870	0.966	0.810	0.565	0.509	0.996
METEOROLOGICAL SITE			DIR (DEG)	230	300	250	250	250	260	230	230	230	260
WORCESTER			VEL (MPH)	10.7	6.5	8.6	8.2	8.2	9.1	6.0	9.3	8.9	7.8
			SPD (MPH)	11.1	7.2	9.9	8.3	8.3	9.5	6.5	9.8	10.2	7.9
			RATIO	0.968	0.903	0.870	0.983	0.984	0.964	0.921	0.947	0.877	0.984
WATERBURY	123	360		108	92	87	86	73	73	67	62	59	57
			DATE	1/19/82	12/15/82	1/20/82	12/14/82	1/28/82	1/16/82	2/12/82	3/11/82	1/13/82	1/23/82
METEOROLOGICAL SITE			DIR (DEG)	10	210	330	220	220	240	260	50	20	120
NEWARK			VEL (MPH)	3.7	4.8	9.2	9.1	9.7	8.0	2.4	3.7	8.1	3.9
			SPD (MPH)	6.6	6.3	11.1	9.2	10.2	9.1	7.9	6.2	8.9	12.1
			RATIO	0.566	0.765	0.833	0.993	0.951	0.878	0.305	0.593	0.907	0.324
METEOROLOGICAL SITE			DIR (DEG)	100	190	320	190	200	210	270	200	360	10
BRADLEY			VEL (MPH)	0.8	4.9	5.6	6.8	6.3	3.1	1.7	3.9	4.3	6.6
			SPD (MPH)	1.1	5.2	6.9	7.0	6.8	5.6	3.7	4.2	4.3	6.8
			RATIO	0.693	0.943	0.809	0.961	0.939	0.545	0.447	0.933	0.996	0.980
METEOROLOGICAL SITE			DIR (DEG)	290	230	290	240	230	230	320	120	20	70
BRIDGEPORT			VEL (MPH)	2.0	5.0	5.7	12.3	12.2	9.6	3.6	1.0	8.0	4.6
			SPD (MPH)	4.2	5.8	6.9	12.8	12.4	12.5	7.8	4.2	10.2	10.8
			RATIO	0.478	0.870	0.822	0.959	0.983	0.769	0.458	0.243	0.788	0.426
METEOROLOGICAL SITE			DIR (DEG)	300	250	290	250	230	250	290	200	340	50
WORCESTER			VEL (MPH)	6.5	8.2	8.0	8.2	10.7	8.6	6.8	8.4	3.7	4.8
			SPD (MPH)	7.2	8.3	9.5	8.3	11.1	9.9	7.2	8.8	7.0	6.3
			RATIO	0.903	0.984	0.848	0.983	0.968	0.870	0.947	0.955	0.527	0.751

4

48/90 = 53%

IV. OZONE

Health Effects

Ozone is a poisonous form of pure oxygen and the principal component of modern smog. Until recently EPA called this type of pollution "photochemical oxidants." The name has been changed to ozone because ozone is the only oxidant actually measured and it is by far the most plentiful.

Ozone and other oxidants -- including peroxyacetal nitrates (PAN), formaldehydes, and peroxides -- are not emitted into the air directly. They are formed by chemical reactions in the air from two other pollutants: hydrocarbons and nitrogen oxides. Energy from sunlight is needed for these chemical reactions, hence the term photochemical smog and the daily variation in ozone levels, increasing during the day and decreasing at night.

Ozone is a pungent-smelling, faintly bluish gas. It irritates the mucous membranes of the respiratory system, causing coughing, choking and impaired lung function. It aggravates chronic respiratory diseases like asthma and bronchitis and is believed capable of hastening the death, by pneumonia, of persons in already weakened health. PAN and the other oxidants that accompany ozone are powerful eye irritants.

Conclusions

As in past years, Connecticut experienced very high concentrations of ozone in the summer months of 1982. Levels in excess of the one-hour NAAQS of 0.12 ppm were frequently recorded at each of the eleven monitored sites. But sites experiencing levels greater than 0.20 ppm were down to four (4) in 1982, as opposed to six sites in 1981. The second highest one-hour concentration decreased at seven sites and increased at four sites.

The incidence of ozone levels in excess of the 1-hour 0.12 ppm standard increased from 1981 to 1982 (see Table 19). There was a total of 357 exceedances in 1981 and 463 in 1982 at those monitored sites that operated in both years. This represents a rise in the frequency of such exceedances from 8.3 per 1000 sampling hours in 1981 to 10.2 per 1000 sampling hours in 1982: a 23% increase. If one eliminates the duplication that results when two or more sites experience an exceedance in the same hour, then the number of exceedances increased from 173 to 186. On this basis the state saw only a 2.5% increase in the frequency of hourly exceedances of the standard.

The number of days on which the same ozone monitors experienced ozone levels in excess of the 1-hour standard increased only slightly from 135 days in 1981 to 139 days in 1982 (see Table 18). However, this represents a drop in the frequency of such occurrences from 7.48 per 100 sampling days in 1981 to 7.34 per 100 sampling days in 1982: a 1.9% decrease. And if one eliminates the duplication that results when two or more sites experience an exceedance on the same day, then the number of exceedances increased from 33 to 37. On this basis the state saw a 6.6% rise in the frequency of daily exceedances of the standard.

The yearly changes in ozone concentrations can be attributed to year-to-year variations in regional weather conditions, especially wind direction, temperature, and amount of sunlight. The larger portion of the peak ozone concentrations in Connecticut is caused by the transport of ozone and/or precursors (i.e., hydrocarbons and nitrogen oxides) from the New York City area and other points to the west and southwest. The percentage of southwest winds during the "ozone season" remained about the same from 1981 to 1982, as is shown by the wind roses from Newark (Figures 9 and 10). The wind roses from Bradley (Figures 7 and 8) are not as representative, since the airport is located in the Connecticut River Valley and the wind gets channeled up or down the valley. The magnitude of the high ozone levels can be associated with yearly variations in temperature. Ozone production is greatest at high temperatures and in strong sunlight. The summer season's daily high temperatures were about the same in 1982 and 1981. This is shown by the number of days exceeding 90°F which increased from four in 1981 to five in 1982 at Sikorsky Airport in Bridgeport. At Bradley International Airport, the number of days exceeding 90°F decreased from 13 in 1981 to 11 in 1982. The percentage of possible sunshine, at Bradley, reached 80% for the month of July in 1982. The average for the summer months at Bradley is about 60%. This large percentage of possible sunshine stands out as the one meteorological parameter which increased dramatically in 1982 over 1981.

Method of Measurement

The DEP Air Monitoring Unit uses chemiluminescent instruments to measure and record instantaneous concentrations of ozone continuously by means of a fluorescent technique. Properly calibrated, these instruments are shown to be remarkably reliable and stable.

Discussion of Data

Monitoring Network - In order to gather information which will further the understanding of ozone production and transport, and to provide real-time data for the daily Pollutant Standards Index, DEP operated a state-wide ozone monitoring network consisting of four types of sites in 1982 (see Figure 6):

Urban	-	Bridgeport, East Hartford, Middletown, New Britain, New Haven
Advection from Southwest	-	Danbury, Greenwich
Suburban	-	Groton, Madison, Stratford
Rural	-	Stafford

Precision and Accuracy - The ozone monitors had a total of 105 precision checks during 1982. The resulting 95% probability limits were -8% to +8%. Accuracy is determined by introducing a known amount of ozone into each of the monitors. Three different concentration levels are tested: low, medium, and high. The 95% probability limits were: low, -5% to +5%; medium, -5% to +2%; and high, -7% to +5%.

NAAQS - On February 8, 1979 the EPA established an ambient air quality standard for ozone of 0.12 ppm for a one-hour average. Compliance with this standard is determined by summing the number of days at each monitoring site over a consecutive three-year period when the 1-hour standard is exceeded and then computing the average number of exceedances over this interval. If the resulting average value is less than or equal to 1.0 (that is, if the fourth highest daily value in a consecutive three-year period is less than or equal to 0.12 ppm) the ozone standard is considered attained at the site. This standard replaces the old photochemical oxidant standard of 0.08 ppm. The definition of the pollutant was changed along with the numerical value of the standard, partly because the instruments used to measure photochemical oxidants in the air really measure only ozone. Ozone is only one of a group of chemicals which are formed photochemically in the air and called photochemical oxidants. In the past, the two terms have often been used interchangeably. This 1982 Air Quality Summary uses the term "ozone" in conjunction with the NAAQS to reflect the changes in both the numerical value of the NAAQS and the definition of the pollutant.

When the EPA changed the one-hour ozone standard from 0.08 ppm to 0.12 ppm, the DEP assumed that a one-hour average of 0.121 ppm would be considered an exceedance. However, the EPA only defines the standard out to two decimal places; so the standard is considered exceeded when a level of 0.13 pm is reached. Since the DEP still measures ozone levels out to three decimal places, any one-hour average ozone reading which equals or is greater than

0.125 ppm will be considered an exceedance of the 0.12 ppm standard. Because of this difference in the interpretation of the ozone standard, ozone data from previous summaries will differ somewhat from this 1982 Air Quality Summary.

1-Hour Average - The 1-hour ozone standard was exceeded at all eleven DEP monitoring sites in 1982. The highest 1-hour average ozone concentrations were lower in 1982 than in 1981 at six of the sites. Danbury 123 had the largest decrease of 0.07 ppm. The 1st highest hourly average increased at five sites from 1981 to 1982, with Greenwich 017 having the largest increase of 0.062 ppm.

The number of days on which the 1-hour standard was exceeded at each site during the summertime "ozone season" is presented in Table 18. The monthly high ozone concentrations and a tally of the number of times the ozone standard was exceeded are presented in Table 19 for each site. Table 20 shows the year's high and second high concentrations at each site.

10 High Days with Wind Data - Table 21 lists the ten highest 1-hour ozone averages and their dates of occurrence for each ozone site in 1982. The wind data associated with these high readings are also presented. (See the discussion of Table 11 in the TSP section for a description of the origin and use of these wind data.)

Nearly all of the high ozone levels occurred on days with southwesterly winds. This fact comes as no surprise due to a couple of characteristics of a southwest wind blowing over Connecticut. One characteristic of a southwest wind is that, during the summer, it usually accompanies high temperatures and bright sunshine, which are the prime producers of ozone. The other characteristic of a southwest wind is that it will transport a lot of precursor emissions from New York City and other urban areas to the southwest of Connecticut. It is the combination of these factors that often produces unhealthful ozone levels in Connecticut.

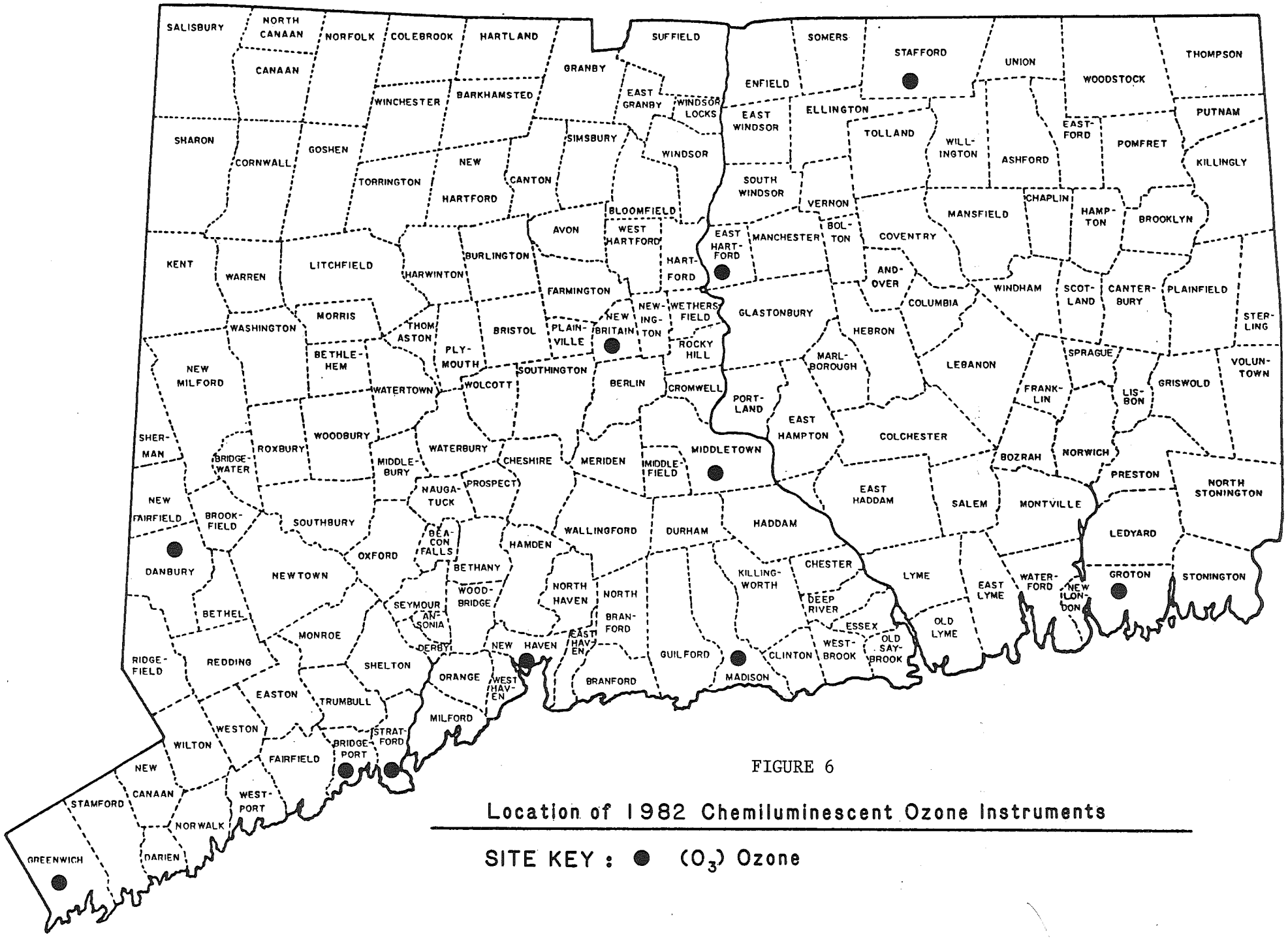


FIGURE 6

Location of 1982 Chemiluminescent Ozone Instruments

SITE KEY : ● (O_3) Ozone

TABLE 18

NUMBER OF DAYS ON WHICH THE 1-HOUR OZONE STANDARD WAS EXCEEDED

(>0.12 PPM)

1982

SITE	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	TOTAL	TOTAL LAST YEAR
Bridgeport-123	0	0	1	6	1	1	9	9
Danbury-123	0*	1	2	4	1	1	9	11
East Hartford-003	0	0	2	3	0	1	6	6
Greenwich-017	0*	3	2	7	1	2	15	18
Groton-005	0*	2	1	9	3	3	18	13
Madison-002	X	1*	2	7	0*	1	11	12
Middletown-007	0	2	4	10	2	1	19	17
New Britain-010	1*	1	2	5	1	1	11	11
New Haven-123	0	1	1	7	0	0	9	6
Stafford-001	X	1	1	8	0	0	10	8
Stratford-007	0	2	3	11	2	4	22	24
					TOTAL SITE DAYS		139	135
				TOTAL INDIVIDUAL DAYS			37	33

X No Data Available
* Less than 75% of Data Available

TABLE 19

1982 HIGHEST 1-HOUR OZONE VALUES BY MONTH (PPM)

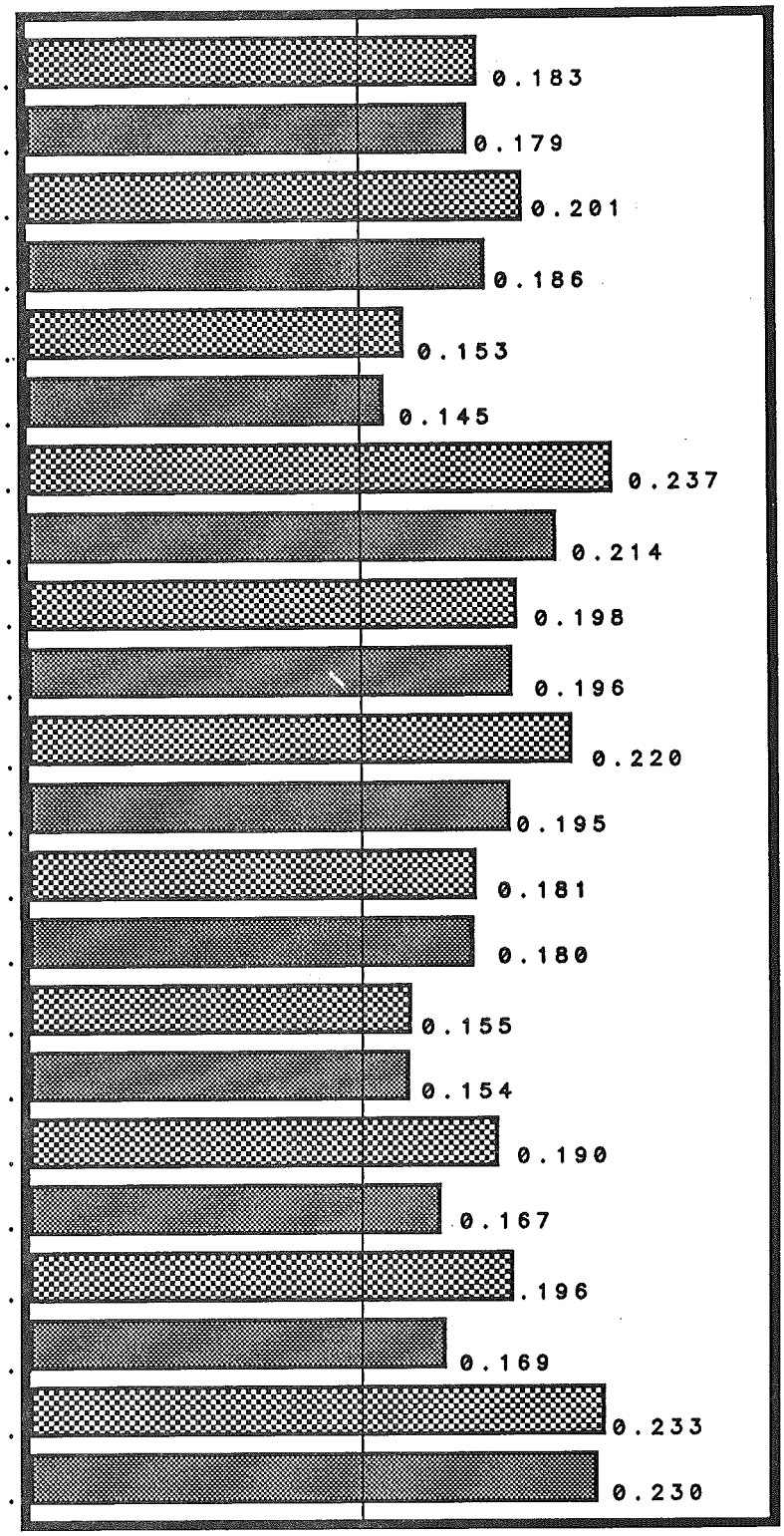
SITE	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	# OF HOURS STANDARD EXCEEDED	# OF HOURS STANDARD EXCEEDED LAST YEAR
Bridgeport-123	.073	.098	.144	.183	.159	.155	30	14
Danbury-123	.063*	.154	.147	.201	.145	.150	~~25~~ 24	28
East Hartford - 003	.108	.102	.138	.153	.124	.145	14	10
Greenwich-017	.101*	.197	.168	.237	.162	.130	52	63
Groton-005	.070*	.196	.141	.198	.164	.140	~~64~~ 62	40
Madison-002	X	.162*	.170	.220	.124*	.133	41	28
Middletown-007	.120	.132	.150	.181	.130	.129	47	41
New Britain-010	.126*	.142	.146	.155	.136	.130	26	22
New Haven-123	.100	.132	.155	.190	.150	.110	35	11
Stafford-001	X	.126	.141	.196	.120	.117	37	20
Stratford-007	.102	.159	.185	.233	.195	.175	95	80
						TOTAL SITE HOURS	463	357
						TOTAL INDIVIDUAL HOURS	186	173

X - No data available
* <75% of the data available

TABLE 20

1982 MAXIMUM 1-HOUR OZONE CONCENTRATIONS

SITE	DATE* 1ST HIGH	1ST HIGH, ppm	DATE* 2ND HIGH	2ND HIGH, ppm
Bridgeport-123	7/16/16	0.183	7/18/15	0.179
Danbury-123	7/17/16	0.201	7/17/15	0.186
E. Hartford-003	7/17/16	0.153	9/15/15	0.145
Greenwich-017	7/8/14	0.237	7/8/13	0.214
Groton-005	7/18/14	0.198	5/27/15	0.196
Madison-002	7/19/14	0.220	7/19/15	0.195
Middletown-007	7/16/19	0.181	7/19/16	0.180
N. Britain-010	7/16/19	0.155	7/7/16	0.154
New Haven-123	7/17/15	0.190	7/8/17	0.167
Stafford-001	7/17/17	.196	7/17/16	0.169
Stratford-007	7/16/15	0.233	7/19/13	0.230



* Date is month/day/ending hour of occurrence

1ST HIGH , ppm

2ND HIGH , ppm

TABLE 21

1982 TEN HIGHEST 1-HOUR AVERAGE OZONE DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
BRIDGEPORT	123	201		0.183	0.179	0.176	0.159	0.156	0.155	0.144	0.138	0.137	0.123
			DATE	7/16/82	7/18/82	7/17/82	8/ 5/82	7/ 8/82	9/15/82	6/26/82	7/19/82	7/25/82	7/ 5/82
METEOROLOGICAL SITE			DIR (DEG)	220	240	200	240	260	180	250	250	250	200
NEWARK			VEL (MPH)	7.6	10.6	8.6	4.6	10.4	5.2	7.6	9.1	11.4	9.1
			SPD (MPH)	9.2	10.6	9.8	8.5	11.6	6.3	10.4	10.1	11.8	10.5
			RATIO	0.822	0.992	0.876	0.548	0.897	0.827	0.739	0.900	0.968	0.865
METEOROLOGICAL SITE			DIR (DEG)	280	220	200	230	250	250	290	210	250	210
BRADLEY			VEL (MPH)	0.3	5.7	8.0	1.4	2.8	0.6	0.6	4.9	4.8	3.2
			SPD (MPH)	3.2	6.8	8.3	7.0	6.0	4.6	3.3	6.2	5.6	5.0
			RATIO	0.109	0.836	0.964	0.196	0.457	0.130	0.167	0.786	0.864	0.634
METEOROLOGICAL SITE			DIR (DEG)	220	220	210	220	230	160	210	230	220	190
BRIDGEPORT			VEL (MPH)	5.8	5.7	5.9	5.6	5.9	2.9	5.0	7.4	7.5	5.0
			SPD (MPH)	6.5	6.2	6.2	5.6	6.2	4.3	5.6	7.5	7.6	6.6
			RATIO	0.895	0.920	0.958	0.996	0.949	0.674	0.897	0.993	0.978	0.749
METEOROLOGICAL SITE			DIR (DEG)	290	260	240	280	280	150	290	270	260	250
WORCESTER			VEL (MPH)	6.9	8.5	6.2	4.4	7.6	0.8	5.3	6.7	8.6	5.4
			SPD (MPH)	7.3	8.6	7.3	8.3	8.2	5.8	6.8	7.9	8.9	5.9
			RATIO	0.945	0.987	0.844	0.527	0.922	0.132	0.785	0.843	0.968	0.910
DANBURY	123	156		0.201	0.178	0.154	0.150	0.149	0.147	0.145	0.143	0.132	0.124
			DATE	7/17/82	7/16/82	5/27/82	9/15/82	7/ 7/82	6/15/82	8/ 4/82	7/15/82	6/28/82	7/ 6/82
METEOROLOGICAL SITE			DIR (DEG)	200	220	200	180	210	220	160	140	120	190
NEWARK			VEL (MPH)	8.6	7.6	7.5	5.2	10.5	9.0	6.5	5.4	4.4	6.6
			SPD (MPH)	9.8	9.2	8.8	6.3	11.4	9.5	7.6	6.3	5.8	9.1
			RATIO	0.876	0.822	0.859	0.827	0.924	0.954	0.850	0.855	0.765	0.725
METEOROLOGICAL SITE			DIR (DEG)	200	280	150	250	200	210	200	200	200	200
BRADLEY			VEL (MPH)	8.0	0.3	0.7	0.6	9.2	5.5	4.6	4.6	3.5	9.3
			SPD (MPH)	8.3	3.2	2.6	4.6	9.5	6.3	5.2	4.9	5.0	9.6
			RATIO	0.964	0.109	0.255	0.130	0.975	0.867	0.890	0.948	0.688	0.968
METEOROLOGICAL SITE			DIR (DEG)	210	220	200	160	230	190	140	120	100	210
BRIDGEPORT			VEL (MPH)	5.9	5.8	3.1	2.9	7.1	4.6	4.4	3.5	3.7	7.4
			SPD (MPH)	6.2	6.5	3.9	4.3	7.5	5.0	4.7	4.0	4.2	7.9
			RATIO	0.958	0.895	0.798	0.674	0.948	0.911	0.919	0.858	0.890	0.937
METEOROLOGICAL SITE			DIR (DEG)	240	290	90	150	240	270	200	250	230	240
WORCESTER			VEL (MPH)	6.2	6.9	0.7	0.8	9.1	6.6	4.3	5.8	5.5	9.8
			SPD (MPH)	7.3	7.3	7.8	5.8	9.6	7.5	5.5	6.2	6.2	10.2
			RATIO	0.844	0.945	0.087	0.132	0.950	0.882	0.784	0.934	0.896	0.955
EAST HARTFORD	3	293		0.153	0.145	0.138	0.130	0.127	0.127	0.124	0.119	0.119	0.117
			DATE	7/17/82	9/15/82	6/26/82	6/15/82	7/ 7/82	7/18/82	8/25/82	7/16/82	7/15/82	7/25/82
METEOROLOGICAL SITE			DIR (DEG)	200	180	250	220	210	240	280	220	140	250
NEWARK			VEL (MPH)	8.6	5.2	7.6	9.0	10.5	10.6	8.4	7.6	5.4	11.4
			SPD (MPH)	9.8	6.3	10.4	9.5	11.4	10.6	15.1	9.2	6.3	11.8
			RATIO	0.876	0.827	0.739	0.954	0.924	0.992	0.558	0.822	0.855	0.968
METEOROLOGICAL SITE			DIR (DEG)	200	250	290	210	200	220	280	280	200	250
BRADLEY			VEL (MPH)	8.0	0.6	0.6	5.5	9.2	5.7	4.1	0.3	4.6	4.8
			SPD (MPH)	8.3	4.6	3.3	6.3	9.5	6.8	7.8	3.2	4.9	5.6
			RATIO	0.964	0.130	0.167	0.867	0.975	0.836	0.532	0.109	0.948	0.864

TABLE 21, continued

1982 TEN HIGHEST 1-HOUR AVERAGE OZONE DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	210	160	210	190	230	220	250	220	120	220
BRIDGEPORT			VEL (MPH)	5.9	2.9	5.0	4.6	7.1	5.7	1.8	5.8	3.5	7.5
			SPD (MPH)	6.2	4.3	5.6	5.0	7.5	6.2	7.2	6.5	4.0	7.6
			RATIO	0.958	0.674	0.897	0.911	0.948	0.920	0.247	0.895	0.858	0.978
METEOROLOGICAL SITE			DIR (DEG)	240	150	290	270	240	260	260	290	250	260
WORCESTER			VEL (MPH)	6.2	0.8	5.3	6.6	9.1	8.5	6.7	6.9	5.8	8.6
			SPD (MPH)	7.3	5.8	6.8	7.5	9.6	8.6	11.2	7.3	6.2	8.9
			RATIO	0.844	0.132	0.785	0.882	0.950	0.987	0.599	0.945	0.934	0.968
GREENWICH	17	176		0.237	0.197	0.189	0.182	0.178	0.177	0.168	0.162	0.156	0.145
			DATE	7/ 8/82	5/27/82	7/16/82	7/19/82	7/18/82	7/17/82	6/26/82	8/ 5/82	5/26/82	5/16/82
METEOROLOGICAL SITE			DIR (DEG)	260	200	220	250	240	200	250	240	180	130
NEWARK			VEL (MPH)	10.4	7.5	7.6	9.1	10.6	8.6	7.6	4.6	3.8	3.5
			SPD (MPH)	11.6	8.8	9.2	10.1	10.6	9.8	10.4	8.5	7.5	6.6
			RATIO	0.897	0.859	0.822	0.900	0.992	0.876	0.739	0.548	0.503	0.525
METEOROLOGICAL SITE			DIR (DEG)	250	150	280	210	220	200	290	230	220	330
BRADLEY			VEL (MPH)	2.8	0.7	0.3	4.9	5.7	8.0	0.6	1.4	0.9	0.4
			SPD (MPH)	6.0	2.6	3.2	6.2	6.8	8.3	3.3	7.0	2.9	3.0
			RATIO	0.457	0.255	0.109	0.786	0.836	0.964	0.167	0.196	0.307	0.136
METEOROLOGICAL SITE			DIR (DEG)	230	200	220	230	220	210	210	220	200	160
BRIDGEPORT			VEL (MPH)	5.9	3.1	5.8	7.4	5.7	5.9	5.0	5.6	4.5	3.0
			SPD (MPH)	6.2	3.9	6.5	7.5	6.2	6.2	5.6	5.6	5.3	4.6
			RATIO	0.949	0.798	0.895	0.993	0.920	0.958	0.897	0.996	0.853	0.651
METEOROLOGICAL SITE			DIR (DEG)	280	90	290	270	260	240	290	280	320	290
WORCESTER			VEL (MPH)	7.6	0.7	6.9	6.7	8.5	6.2	5.3	4.4	6.3	6.8
			SPD (MPH)	8.2	7.8	7.3	7.9	8.6	7.3	6.8	8.3	7.2	7.5
			RATIO	0.922	0.087	0.945	0.843	0.987	0.844	0.785	0.527	0.871	0.905
GROTON	5	146		0.198	0.196	0.170	0.164	0.159	0.155	0.150	0.146	0.143	0.142
			DATE	7/18/82	5/27/82	7/19/82	8/ 5/82	7/ 9/82	7/16/82	7/26/82	7/ 8/82	7/25/82	7/10/82
METEOROLOGICAL SITE			DIR (DEG)	240	200	250	240	310	220	270	260	250	170
NEWARK			VEL (MPH)	10.6	7.5	9.1	4.6	5.8	7.6	10.3	10.4	11.4	2.9
			SPD (MPH)	10.6	8.8	10.1	8.5	8.6	9.2	11.2	11.6	11.8	8.8
			RATIO	0.992	0.859	0.900	0.548	0.676	0.822	0.923	0.897	0.968	0.333
METEOROLOGICAL SITE			DIR (DEG)	220	150	210	230	310	280	300	250	250	10
BRADLEY			VEL (MPH)	5.7	0.7	4.9	1.4	4.0	0.3	5.0	2.8	4.8	0.9
			SPD (MPH)	6.8	2.6	6.2	7.0	4.7	3.2	5.9	6.0	5.6	2.6
			RATIO	0.836	0.255	0.786	0.196	0.841	0.109	0.842	0.457	0.864	0.341
METEOROLOGICAL SITE			DIR (DEG)	220	200	230	220	200	220	230	230	220	210
BRIDGEPORT			VEL (MPH)	5.7	3.1	7.4	5.6	4.2	5.8	5.9	5.9	7.5	5.2
			SPD (MPH)	6.2	3.9	7.5	5.6	4.3	6.5	6.0	6.2	7.6	6.2
			RATIO	0.920	0.798	0.993	0.996	0.968	0.895	0.981	0.949	0.978	0.833
METEOROLOGICAL SITE			DIR (DEG)	260	90	270	280	290	290	290	280	260	290
WORCESTER			VEL (MPH)	8.5	0.7	6.7	4.4	7.2	6.9	8.2	7.6	8.6	3.9
			SPD (MPH)	8.6	7.8	7.9	8.3	7.3	7.3	9.1	8.2	8.9	5.9
			RATIO	0.987	0.087	0.843	0.527	0.984	0.945	0.904	0.922	0.968	0.670

TABLE 21, continued

1982 TEN HIGHEST 1-HOUR AVERAGE OZONE DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
MADISON	2	128		0.220	0.188	0.170	0.163	0.162	0.153	0.152	0.151	0.144	0.133
			DATE	7/19/82	7/16/82	6/26/82	7/ 8/82	5/27/82	7/18/82	7/25/82	7/ 9/82	7/17/82	9/15/82
METEOROLOGICAL SITE			DIR (DEG)	250	220	250	260	200	240	250	310	200	180
NEWARK			VEL (MPH)	9.1	7.6	7.6	10.4	7.5	10.6	11.4	5.8	8.6	5.2
			SPD (MPH)	10.1	9.2	10.4	11.6	8.8	10.6	11.8	8.6	9.8	6.3
			RATIO	0.900	0.822	0.739	0.897	0.859	0.992	0.968	0.676	0.876	0.827
METEOROLOGICAL SITE			DIR (DEG)	210	280	290	250	150	220	250	310	200	250
BRADLEY			VEL (MPH)	4.9	0.3	0.6	2.8	0.7	5.7	4.8	4.0	8.0	0.6
			SPD (MPH)	6.2	3.2	3.3	6.0	2.6	6.8	5.6	4.7	8.3	4.6
			RATIO	0.786	0.109	0.167	0.457	0.255	0.836	0.864	0.841	0.964	0.130
METEOROLOGICAL SITE			DIR (DEG)	230	220	210	230	200	220	220	200	210	160
BRIDGEPORT			VEL (MPH)	7.4	5.8	5.0	5.9	3.1	5.7	7.5	4.2	5.9	2.9
			SPD (MPH)	7.5	6.5	5.6	6.2	3.9	6.2	7.6	4.3	6.2	4.3
			RATIO	0.993	0.895	0.897	0.949	0.798	0.920	0.978	0.968	0.958	0.674
METEOROLOGICAL SITE			DIR (DEG)	270	290	290	280	90	260	260	290	240	150
WORCESTER			VEL (MPH)	6.7	6.9	5.3	7.6	0.7	8.5	8.6	7.2	6.2	0.8
			SPD (MPH)	7.9	7.3	6.8	8.2	7.8	8.6	8.9	7.3	7.3	5.8
			RATIO	0.843	0.945	0.785	0.922	0.087	0.987	0.968	0.984	0.844	0.132
MIDDLETOWN	7	280		0.181	0.180	0.171	0.151	0.150	0.146	0.145	0.140	0.140	0.137
			DATE	7/16/82	7/19/82	7/ 8/82	7/25/82	6/15/82	7/ 5/82	7/18/82	7/ 7/82	6/26/82	6/16/82
METEOROLOGICAL SITE			DIR (DEG)	220	250	260	250	220	200	240	210	250	230
NEWARK			VEL (MPH)	7.6	9.1	10.4	11.4	9.0	9.1	10.6	10.5	7.6	12.5
			SPD (MPH)	9.2	10.1	11.6	11.8	9.5	10.5	10.6	11.4	10.4	14.1
			RATIO	0.822	0.900	0.897	0.968	0.954	0.865	0.992	0.924	0.739	0.886
METEOROLOGICAL SITE			DIR (DEG)	280	210	250	250	210	210	220	200	290	220
BRADLEY			VEL (MPH)	0.3	4.9	2.8	4.8	5.5	3.2	5.7	9.2	0.6	5.3
			SPD (MPH)	3.2	6.2	6.0	5.6	6.3	5.0	6.8	9.5	3.3	9.2
			RATIO	0.109	0.786	0.457	0.864	0.867	0.634	0.836	0.975	0.167	0.580
METEOROLOGICAL SITE			DIR (DEG)	220	230	230	220	190	190	220	230	210	200
BRIDGEPORT			VEL (MPH)	5.8	7.4	5.9	7.5	4.6	5.0	5.7	7.1	5.0	9.7
			SPD (MPH)	6.5	7.5	6.2	7.6	5.0	6.6	6.2	7.5	5.6	10.1
			RATIO	0.895	0.993	0.949	0.978	0.911	0.749	0.920	0.948	0.897	0.963
METEOROLOGICAL SITE			DIR (DEG)	290	270	280	260	270	250	260	240	290	260
WORCESTER			VEL (MPH)	6.9	6.7	7.6	8.6	6.6	5.4	8.5	9.1	5.3	9.8
			SPD (MPH)	7.3	7.9	8.2	8.9	7.5	5.9	8.6	9.6	6.8	11.5
			RATIO	0.945	0.843	0.922	0.968	0.882	0.910	0.987	0.950	0.785	0.848
NEW BRITAIN	10	159		0.155	0.154	0.146	0.142	0.142	0.138	0.136	0.130	0.126	0.126
			DATE	7/16/82	7/ 7/82	6/15/82	7/15/82	5/26/82	7/25/82	8/ 7/82	9/15/82	4/25/82	7/ 5/82
METEOROLOGICAL SITE			DIR (DEG)	220	210	220	140	180	250	160	180	190	200
NEWARK			VEL (MPH)	7.6	10.5	9.0	5.4	3.8	11.4	7.6	5.2	10.1	9.1
			SPD (MPH)	9.2	11.4	9.5	6.3	7.5	11.8	8.3	6.3	11.1	10.5
			RATIO	0.822	0.924	0.954	0.855	0.503	0.968	0.910	0.827	0.910	0.865
METEOROLOGICAL SITE			DIR (DEG)	280	200	210	200	220	250	210	250	210	210
BRADLEY			VEL (MPH)	0.3	9.2	5.5	4.6	0.9	4.8	6.9	0.6	5.5	3.2
			SPD (MPH)	3.2	9.5	6.3	4.9	2.9	5.6	7.5	4.6	6.5	5.0
			RATIO	0.109	0.975	0.867	0.948	0.307	0.864	0.930	0.130	0.845	0.634

TABLE 21, continued

1982 TEN HIGHEST 1-HOUR AVERAGE OZONE DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	220	230	190	120	200	220	210	160	190	190
BRIDGEPORT			VEL (MPH)	5.8	7.1	4.6	3.5	4.5	7.5	4.8	2.9	6.5	5.0
			SPD (MPH)	6.5	7.5	5.0	4.0	5.3	7.6	5.8	4.3	7.6	6.6
			RATIO	0.895	0.948	0.911	0.858	0.853	0.978	0.836	0.674	0.853	0.749
METEOROLOGICAL SITE			DIR (DEG)	290	240	270	250	320	260	240	150	250	250
WORCESTER			VEL (MPH)	6.9	9.1	6.6	5.8	6.3	8.6	7.3	0.8	8.8	5.4
			SPD (MPH)	7.3	9.6	7.5	6.2	7.2	8.9	7.6	5.8	9.5	5.9
			RATIO	0.945	0.950	0.882	0.934	0.871	0.968	0.963	0.132	0.924	0.910
NEW HAVEN	123	187		0.190	0.167	0.165	0.163	0.155	0.153	0.141	0.140	0.132	0.120
		DATE		7/17/82	7/ 8/82	7/16/82	7/18/82	6/26/82	7/19/82	7/ 5/82	7/25/82	5/27/82	6/15/82
METEOROLOGICAL SITE			DIR (DEG)	200	260	220	240	250	250	200	250	200	220
NEWARK			VEL (MPH)	8.6	10.4	7.6	10.6	7.6	9.1	9.1	11.4	7.5	9.0
			SPD (MPH)	9.8	11.6	9.2	10.6	10.4	10.1	10.5	11.8	8.8	9.5
			RATIO	0.876	0.897	0.822	0.992	0.739	0.900	0.865	0.968	0.859	0.954
METEOROLOGICAL SITE			DIR (DEG)	200	250	280	220	290	210	210	250	150	210
BRADLEY			VEL (MPH)	8.0	2.8	0.3	5.7	0.6	4.9	3.2	4.8	0.7	5.5
			SPD (MPH)	8.3	6.0	3.2	6.8	3.3	6.2	5.0	5.6	2.6	6.3
			RATIO	0.964	0.457	0.109	0.836	0.167	0.786	0.634	0.864	0.255	0.867
METEOROLOGICAL SITE			DIR (DEG)	210	230	220	220	210	230	190	220	200	190
BRIDGEPORT			VEL (MPH)	5.9	5.9	5.8	5.7	5.0	7.4	5.0	7.5	3.1	4.6
			SPD (MPH)	6.2	6.2	6.5	6.2	5.6	7.5	6.6	7.6	3.9	5.0
			RATIO	0.958	0.949	0.895	0.920	0.897	0.993	0.749	0.978	0.798	0.911
METEOROLOGICAL SITE			DIR (DEG)	240	280	290	260	290	270	250	260	90	270
WORCESTER			VEL (MPH)	6.2	7.6	6.9	8.5	5.3	6.7	5.4	8.6	0.7	6.6
			SPD (MPH)	7.3	8.2	7.3	8.6	6.8	7.9	5.9	8.9	7.8	7.5
			RATIO	0.844	0.922	0.945	0.987	0.785	0.843	0.910	0.968	0.087	0.882
STAFFORD	1	166		0.196	0.165	0.162	0.161	0.150	0.142	0.141	0.139	0.130	0.126
		DATE		7/17/82	7/ 7/82	7/15/82	7/18/82	7/16/82	7/ 6/82	6/15/82	7/ 5/82	7/25/82	5/27/82
METEOROLOGICAL SITE			DIR (DEG)	200	210	140	240	220	190	220	200	250	200
NEWARK			VEL (MPH)	8.6	10.5	5.4	10.6	7.6	6.6	9.0	9.1	11.4	7.5
			SPD (MPH)	9.8	11.4	6.3	10.6	9.2	9.1	9.5	10.5	11.8	8.8
			RATIO	0.876	0.924	0.855	0.992	0.822	0.725	0.954	0.865	0.968	0.859
METEOROLOGICAL SITE			DIR (DEG)	200	200	200	220	280	200	210	210	250	150
BRADLEY			VEL (MPH)	8.0	9.2	4.6	5.7	0.3	9.3	5.5	3.2	4.8	0.7
			SPD (MPH)	8.3	9.5	4.9	6.8	3.2	9.6	6.3	5.0	5.6	2.6
			RATIO	0.964	0.975	0.948	0.836	0.109	0.968	0.867	0.634	0.864	0.255
METEOROLOGICAL SITE			DIR (DEG)	210	230	120	220	220	210	190	190	220	200
BRIDGEPORT			VEL (MPH)	5.9	7.1	3.5	5.7	5.8	7.4	4.6	5.0	7.5	3.1
			SPD (MPH)	6.2	7.5	4.0	6.2	6.5	7.9	5.0	6.6	7.6	3.9
			RATIO	0.958	0.948	0.858	0.920	0.895	0.937	0.911	0.749	0.978	0.798
METEOROLOGICAL SITE			DIR (DEG)	240	240	250	260	290	240	270	250	260	90
WORCESTER			VEL (MPH)	6.2	9.1	5.8	8.5	6.9	9.8	6.6	5.4	8.6	0.7
			SPD (MPH)	7.3	9.6	6.2	8.6	7.3	10.2	7.5	5.9	8.9	7.8
			RATIO	0.844	0.950	0.934	0.987	0.945	0.955	0.882	0.910	0.968	0.087

TABLE 21, continued

1982 TEN HIGHEST 1-HOUR AVERAGE OZONE DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
STRATFORD	7	203	0.233	0.230	0.228	0.222	0.213	0.195	0.191	0.185	0.175	0.160
		DATE	7/16/82	7/19/82	7/ 8/82	7/17/82	7/18/82	8/ 5/82	7/25/82	6/26/82	9/15/82	6/15/82
METEOROLOGICAL SITE		DIR (DEG)	220	250	260	200	240	240	250	250	180	220
NEWARK		VEL (MPH)	7.6	9.1	10.4	8.6	10.6	4.6	11.4	7.6	5.2	9.0
		SPD (MPH)	9.2	10.1	11.6	9.8	10.6	8.5	11.8	10.4	6.3	9.5
		RATIO	0.822	0.900	0.897	0.876	0.992	0.548	0.968	0.739	0.827	0.954
METEOROLOGICAL SITE		DIR (DEG)	280	210	250	200	220	230	250	290	250	210
BRADLEY		VEL (MPH)	0.3	4.9	2.8	8.0	5.7	1.4	4.8	0.6	0.6	5.5
		SPD (MPH)	3.2	6.2	6.0	8.3	6.8	7.0	5.6	3.3	4.6	6.3
		RATIO	0.109	0.786	0.457	0.964	0.836	0.196	0.864	0.167	0.130	0.867
METEOROLOGICAL SITE		DIR (DEG)	220	230	230	210	220	220	220	210	160	190
BRIDGEPORT		VEL (MPH)	5.8	7.4	5.9	5.9	5.7	5.6	7.5	5.0	2.9	4.6
		SPD (MPH)	6.5	7.5	6.2	6.2	6.2	5.6	7.6	5.6	4.3	5.0
		RATIO	0.895	0.993	0.949	0.958	0.920	0.996	0.978	0.897	0.674	0.911
METEOROLOGICAL SITE		DIR (DEG)	290	270	280	240	260	280	260	290	150	270
WORCESTER		VEL (MPH)	6.9	6.7	7.6	6.2	8.5	4.4	8.6	5.3	0.8	6.6
		SPD (MPH)	7.3	7.9	8.2	7.3	8.6	8.3	8.9	6.8	5.8	7.5
		RATIO	0.945	0.843	0.922	0.844	0.987	0.527	0.968	0.785	0.132	0.882

FIGURE 7

WIND ROSE FOR APRIL - SEPTEMBER 1981

BRADLEY INTERNATIONAL AIRPORT

WINDSOR LOCKS, CONNECTICUT

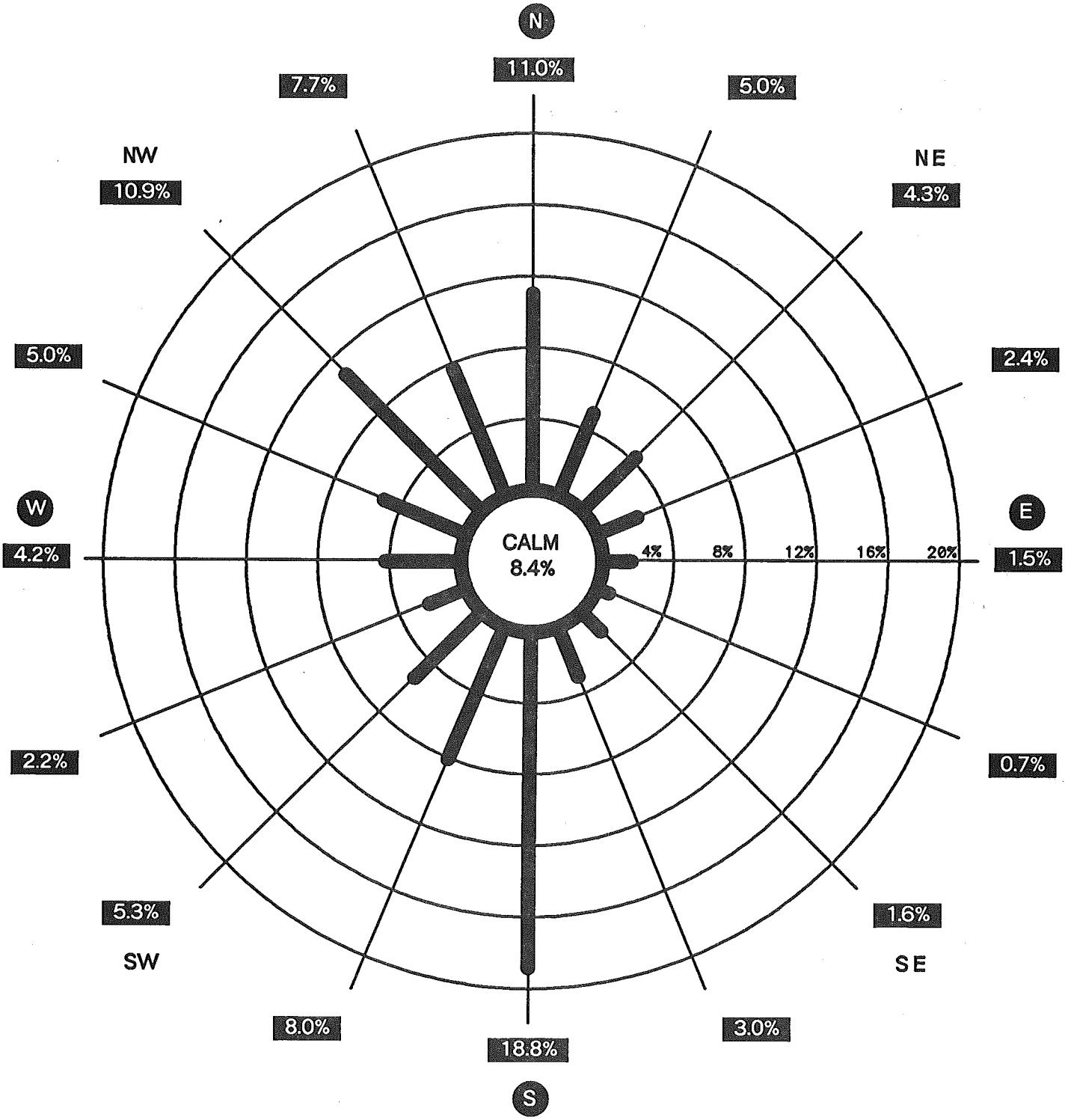


FIGURE 8

WIND ROSE FOR APRIL - SEPTEMBER 1982

BRADLEY INTERNATIONAL AIRPORT

WINDSOR LOCKS, CONNECTICUT

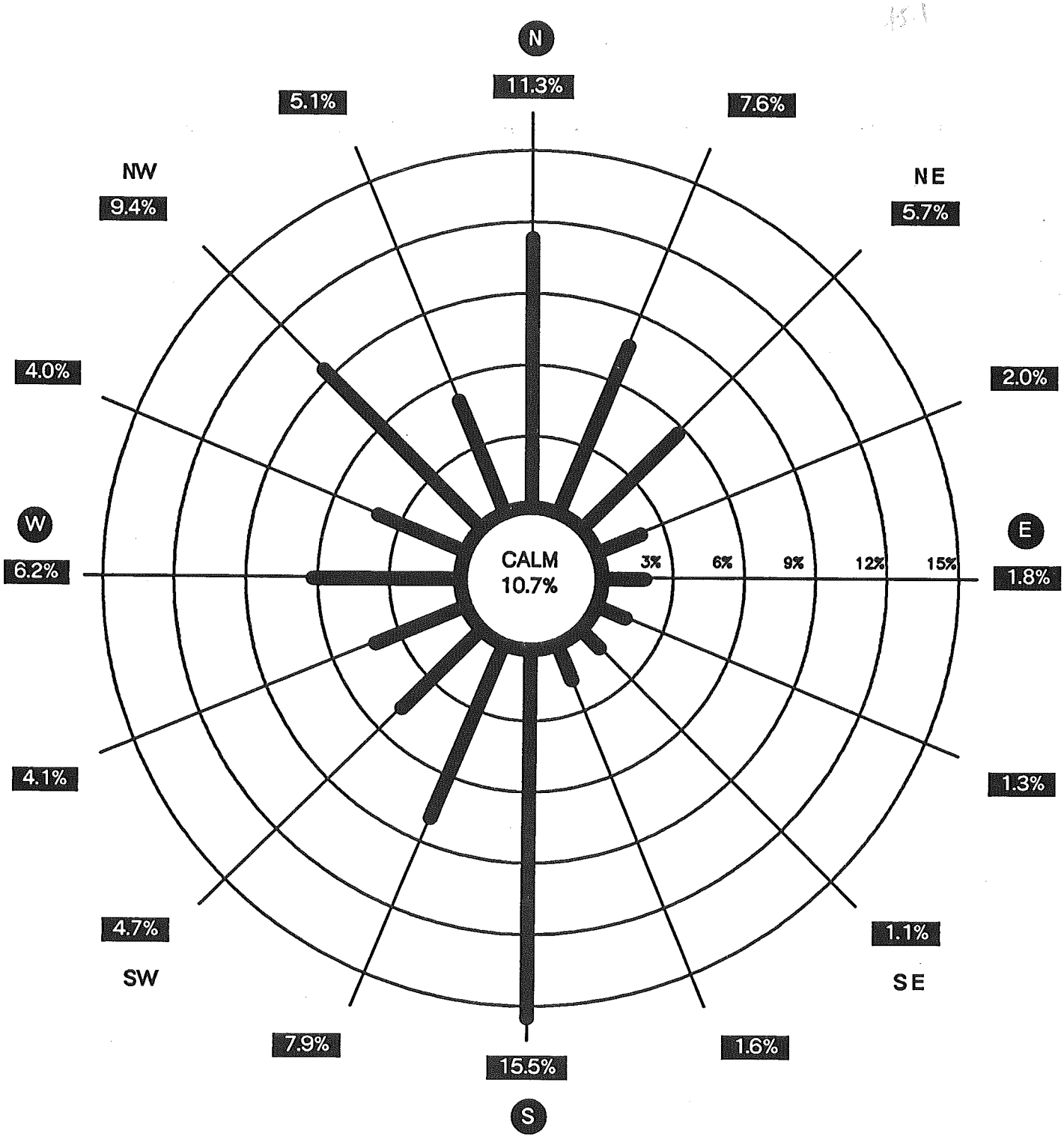


FIGURE 9

WIND ROSE FOR APRIL - SEPTEMBER 1981

NEWARK INTERNATIONAL AIRPORT

NEWARK, NEW JERSEY

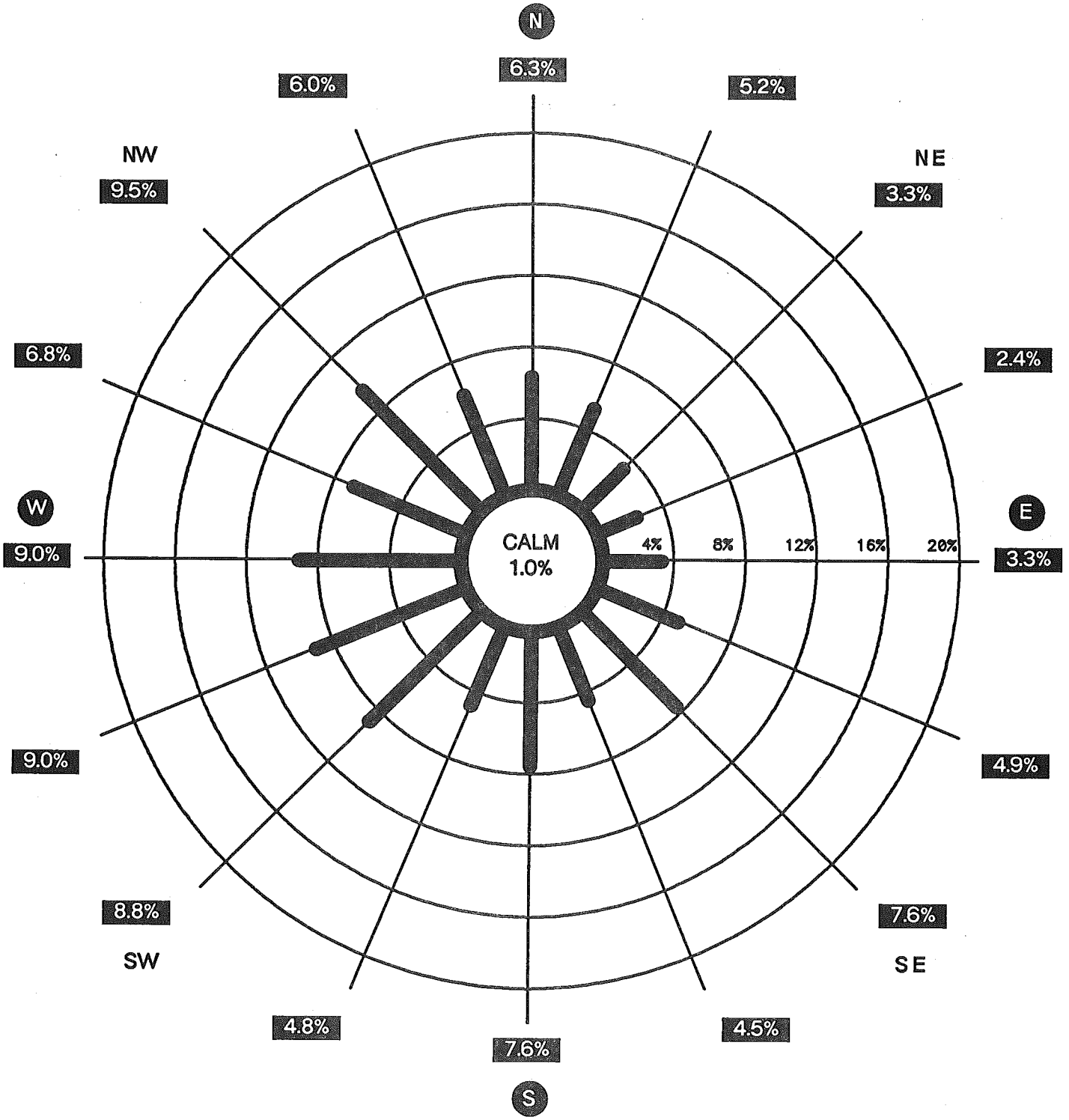
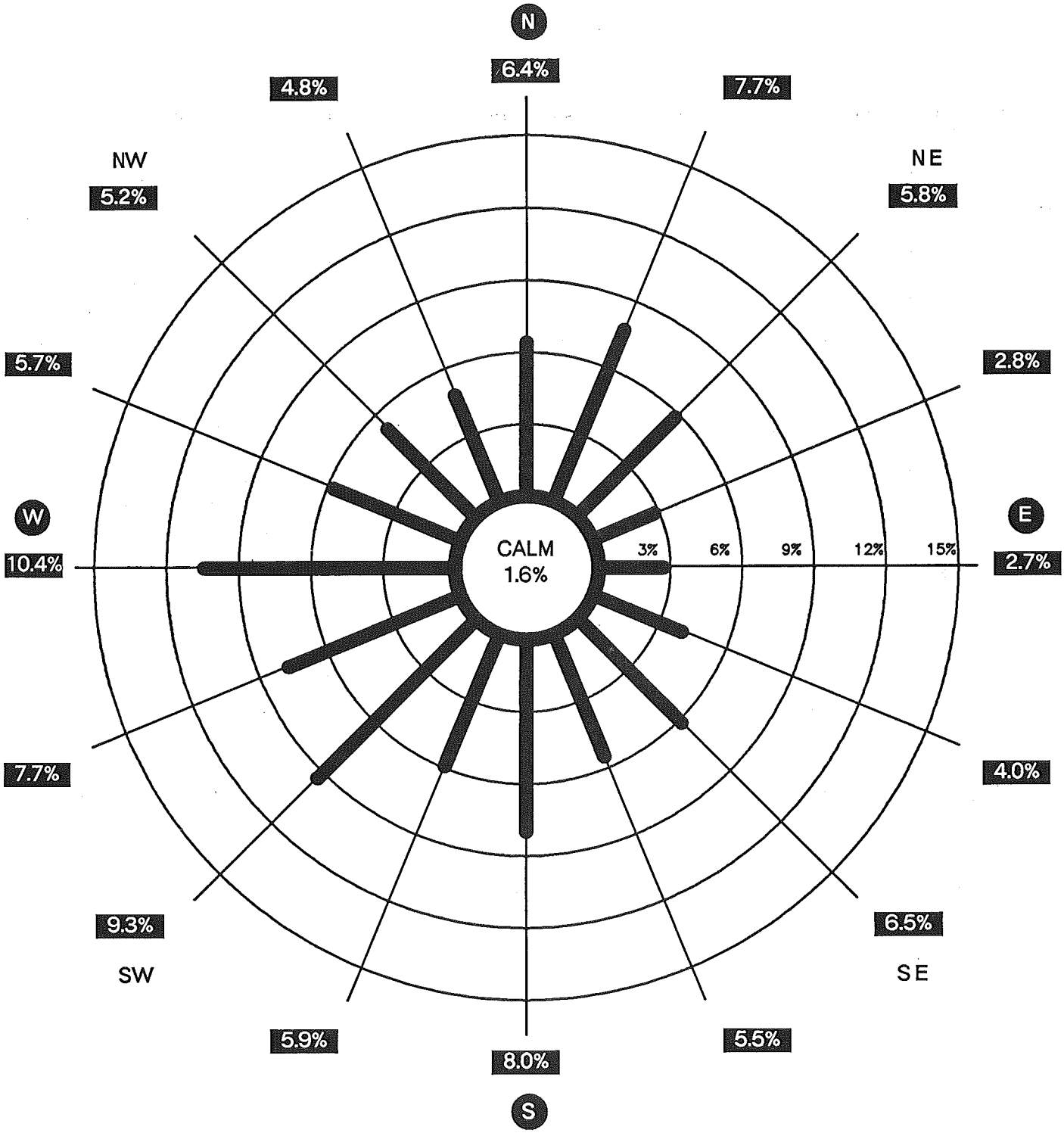


FIGURE 10

WIND ROSE FOR APRIL - SEPTEMBER 1982

NEWARK INTERNATIONAL AIRPORT

NEWARK, NEW JERSEY



V. NITROGEN DIOXIDE

Conclusions

Nitrogen dioxide (NO_2) concentrations at all monitoring sites were well below the NAAQS for NO_2 in 1982. This was the first full year the DEP used continuous electronic analyzers to measure NO_2 levels. NO_2 trend analysis or comparisons will not be made until two full years of data are available.

Sample Collection and Analysis

The DEP Air Monitoring Unit used continuous electronic analyzers employing the chemiluminescent reference method to continuously measure NO_2 levels.

Discussion of Data

Monitoring Network - There were six nitrogen dioxide monitoring sites in 1982 (see Figure 11). The sites were distributed in a network covering three urban areas and three background areas to obtain data alongside ozone measurements. The urban sites (Bridgeport 123, East Hartford 003 and New Haven 123) are permanent year-round sites, whereas the background sites (Greenwich 017, Madison 002 and Stratford 007) are operated only during the summertime "ozone season."

Precision and Accuracy - Twenty-eight precision checks were made on the NO_2 monitors in 1982, yielding 95% probability limits ranging from -12% to +10%. Accuracy is determined by introducing a known amount of NO_2 into each of the monitors. Three different concentration levels are tested on the monitor: low, medium, and high. The 95% probability limits for the low level test ranged from -10% to +14%; those for the medium level ranged from -6% to +4%; and those for the high level test ranged from -4% to -1%.

Historical Data - The DEP's historical file of annual average nitrogen dioxide data from gas bubblers for 1973-1980 is available in the 1980 Air Quality Summary.

Annual Averages - The annual average NO_2 standard was not exceeded in 1982 at any site in Connecticut. In 1982 three sites had sufficient data to compute valid arithmetic means. Since data from 1981 is incomplete, no comparisons can be made.

Statistical Projections - The format of Table 22 is the same as that used to present the TSP and sulfur dioxide data. However, Table 22 gives the annual arithmetic mean of the valid 24-hour NO_2 averages to allow direct comparison to the annual NO_2 standard. The 95% limits and standard deviations were used to predict the number of days the levels of 100 ug/m^3 and 282 ug/m^3 would be exceeded at each site if sampling had been conducted every day. (See the TSP section of this Air Quality Summary for further information on this type of analysis.)

Although there is no 24-hour NAAQS for NO_2, the 282 ug/m^3 level was selected for this presentation because at this level a 1st stage air pollution alert is to be declared according to the State of Connecticut's Administrative Regulations for Abatement of Air Pollution.

10-High Days with Wind Data - Table 23 contains the ten highest daily NO_2 readings for each site in 1982 along with the associated wind conditions. (See the discussion of Table 11 in the TSP section for a description of the origin and use of the wind data.)

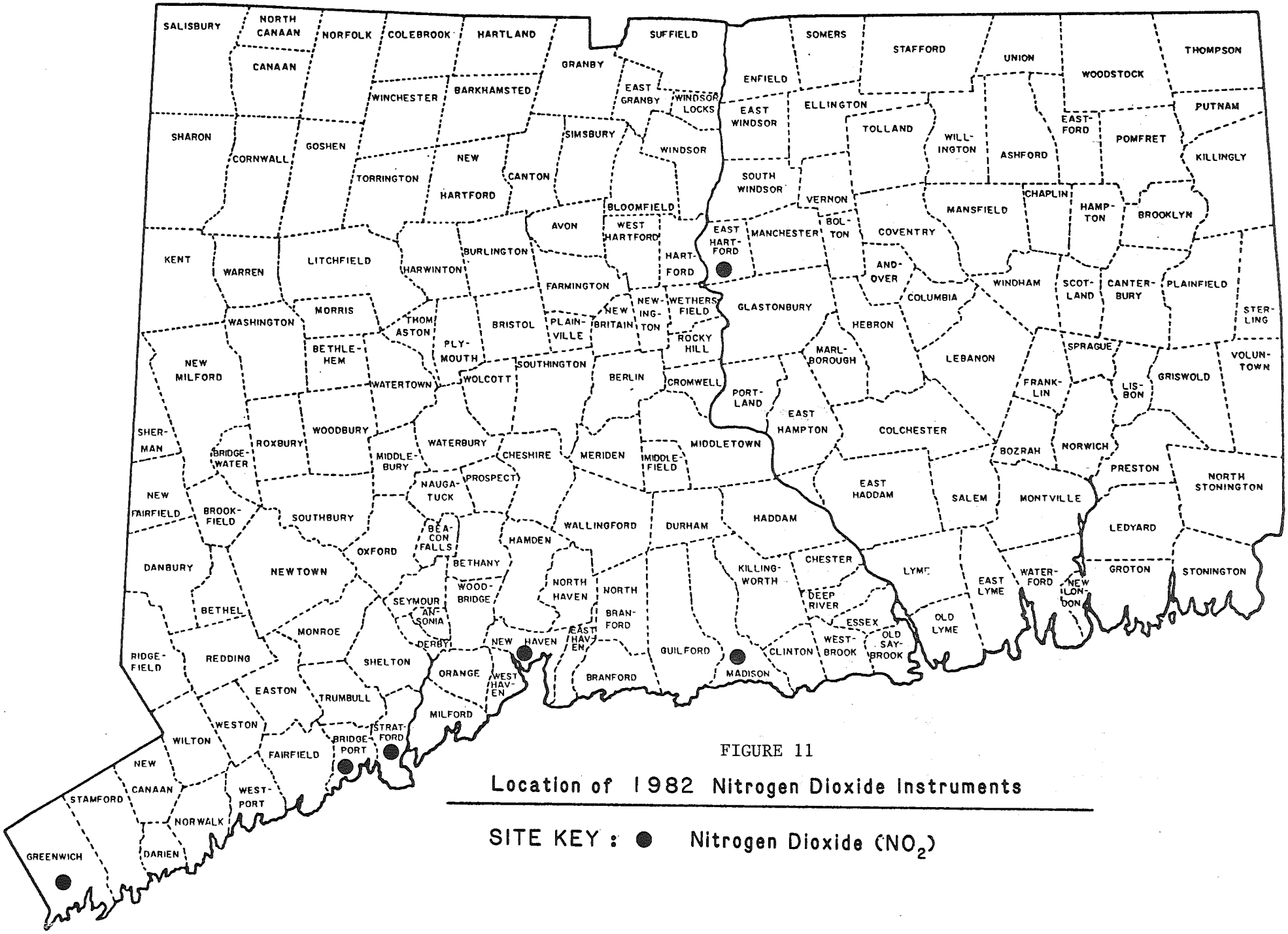


FIGURE 11

Location of 1982 Nitrogen Dioxide Instruments

SITE KEY : ● Nitrogen Dioxide (NO_2)

Should how much. # of hourly readings (not the number of days)

In future, get the Mean of hourly readings not the daily readings

In future, get the S.D. of hourly readings not daily readings

TABLE 22

1982 NO2 Annual Averages and Statistical Projections

Town Name	Site	Year	Samples	Arithmetic Mean	95-PCT-Limits Lower	95-PCT-Limits Upper	Standard Deviation	Predicted Days Over 100 ug/m3	Predicted Days Over 282 ug/m3
Bridgeport	123	1982	353	54.8	54	55	25.594		
East Hartford	003	1982	363	40.3	40	40	17.954		
Greenwich	017	1982	100*	37.2	34	40	18.145		
Madison	002	1982	73*	18.1	17	20	7.640		
New Haven	123	1982	360	68.2	68	69	45.267		
Stratford	007	1982	166*	28.5	27	30	14.898		

* Sampling not random or of insufficient size for representative annual statistics

this is an annual standard — prediction is for 24-hour standard only!

not a standard

all had < 75% of total possible hourly readings for the year. — see footnotes

N.B. See Table 22 in the 1983 Air Quality Summary.

TABLE 23

1982 TEN HIGHEST 24-HOUR AVERAGE NO2 DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
BRIDGEPORT	123	270		0.080	0.073	0.067	0.065	0.060	0.057	0.057	0.054	0.054	0.054
			DATE	11/ 1/82	10/31/82	10/29/82	10/30/82	11/17/82	12/15/82	4/25/82	10/ 6/82	5/27/82	11/ 2/82
METEOROLOGICAL SITE			DIR (DEG)	220	220	200	210	220	210	190	240	200	200
NEWARK			VEL (MPH)	7.4	5.3	7.1	9.0	3.2	4.8	10.1	5.3	7.5	8.6
			SPD (MPH)	8.1	6.0	7.5	9.3	4.3	6.3	11.1	6.2	8.8	8.9
			RATIO	0.925	0.883	0.952	0.959	0.742	0.765	0.910	0.853	0.859	0.961
METEOROLOGICAL SITE			DIR (DEG)	150	200	170	190	190	190	210	270	150	190
BRADLEY			VEL (MPH)	1.8	3.0	2.6	5.8	3.7	4.9	5.5	1.6	0.7	6.3
			SPD (MPH)	2.6	3.4	4.6	6.0	4.0	5.2	6.5	3.9	2.6	7.5
			RATIO	0.697	0.867	0.562	0.954	0.907	0.943	0.845	0.408	0.255	0.845
METEOROLOGICAL SITE			DIR (DEG)	230	230	220	230	250	230	190	220	200	220
BRIDGEPORT			VEL (MPH)	6.3	4.3	4.0	6.2	3.0	5.0	6.5	4.6	3.1	4.5
			SPD (MPH)	6.3	4.3	5.3	6.3	3.0	5.8	7.6	5.6	3.9	4.9
			RATIO	0.994	0.989	0.748	0.974	0.996	0.870	0.853	0.816	0.798	0.928
METEOROLOGICAL SITE			DIR (DEG)	280	250	260	250	260	250	250	270	90	200
WORCESTER			VEL (MPH)	5.7	6.8	5.5	8.1	7.8	8.2	8.8	7.5	0.7	2.6
			SPD (MPH)	7.2	7.0	6.2	8.3	7.9	8.3	9.5	8.1	7.8	4.9
			RATIO	0.799	0.962	0.891	0.968	0.984	0.984	0.924	0.929	0.087	0.527
EAST HARTFORD	3	273		0.053	0.047	0.046	0.046	0.042	0.041	0.038	0.038	0.037	0.037
			DATE	10/31/82	10/30/82	12/15/82	11/ 1/82	8/27/82	12/14/82	9/10/82	10/ 6/82	10/19/82	10/28/82
METEOROLOGICAL SITE			DIR (DEG)	220	210	210	220	220	220	250	240	210	260
NEWARK			VEL (MPH)	5.3	9.0	4.8	7.4	10.6	9.1	7.3	5.3	5.8	1.6
			SPD (MPH)	6.0	9.3	6.3	8.1	10.8	9.2	8.5	6.2	7.9	4.0
			RATIO	0.883	0.959	0.765	0.925	0.987	0.993	0.857	0.853	0.736	0.391
METEOROLOGICAL SITE			DIR (DEG)	200	190	190	150	210	190	220	270	200	180
BRADLEY			VEL (MPH)	3.0	5.8	4.9	1.8	7.5	6.8	3.1	1.6	5.6	0.4
			SPD (MPH)	3.4	6.0	5.2	2.6	8.2	7.0	4.5	3.9	5.8	1.6
			RATIO	0.867	0.954	0.943	0.697	0.917	0.961	0.697	0.408	0.968	0.221
METEOROLOGICAL SITE			DIR (DEG)	230	230	230	230	220	240	220	220	230	230
BRIDGEPORT			VEL (MPH)	4.3	6.2	5.0	6.3	7.6	12.3	5.6	4.6	5.4	4.4
			SPD (MPH)	4.3	6.3	5.8	6.3	7.8	12.8	5.6	5.6	6.5	4.5
			RATIO	0.989	0.974	0.870	0.994	0.985	0.959	0.997	0.816	0.832	0.989
METEOROLOGICAL SITE			DIR (DEG)	250	250	250	280	240	250	280	270	240	290
WORCESTER			VEL (MPH)	6.8	8.1	8.2	5.7	9.7	8.2	10.5	7.5	9.0	8.3
			SPD (MPH)	7.0	8.3	8.3	7.2	9.9	8.3	10.9	8.1	9.2	8.6
			RATIO	0.962	0.968	0.984	0.799	0.981	0.983	0.963	0.929	0.981	0.968
GREENWICH	17	100		0.046	0.043	0.042	0.042	0.040	0.040	0.038	0.035	0.034	0.034
			DATE	5/ 6/82	5/25/82	9/10/82	6/15/82	5/27/82	8/27/82	9/11/82	5/26/82	5/17/82	8/17/82
METEOROLOGICAL SITE			DIR (DEG)	240	150	250	220	200	220	280	180	70	260
NEWARK			VEL (MPH)	7.9	1.6	7.3	9.0	7.5	10.6	5.1	3.8	1.7	7.5
			SPD (MPH)	9.1	6.0	8.5	9.5	8.8	10.8	6.0	7.5	7.3	10.9
			RATIO	0.868	0.263	0.857	0.954	0.859	0.987	0.837	0.503	0.229	0.685
METEOROLOGICAL SITE			DIR (DEG)	110	340	220	210	150	210	340	220	360	200
BRADLEY			VEL (MPH)	2.3	2.7	3.1	5.5	0.7	7.5	1.3	0.9	3.0	5.0
			SPD (MPH)	4.2	4.3	4.5	6.3	2.6	8.2	2.7	2.9	5.8	6.5
			RATIO	0.544	0.620	0.697	0.867	0.255	0.917	0.473	0.307	0.514	0.780

TABLE 23, continued

1982 TEN HIGHEST 24-HOUR AVERAGE NO2 DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	260	240	220	190	200	220	250	200	210	230
BRIDGEPORT			VEL (MPH)	4.1	3.4	5.6	4.6	3.1	7.6	2.6	4.5	1.9	5.1
			SPD (MPH)	6.0	3.6	5.6	5.0	3.9	7.8	5.2	5.3	6.3	5.9
			RATIO	0.683	0.957	0.997	0.911	0.798	0.985	0.501	0.853	0.301	0.862
METEOROLOGICAL SITE			DIR (DEG)	220	300	280	270	90	240	330	320	350	260
WORCESTER			VEL (MPH)	2.0	7.3	10.5	6.6	0.7	9.7	2.8	6.3	8.1	9.2
			SPD (MPH)	6.9	7.6	10.9	7.5	7.8	9.9	5.9	7.2	8.6	10.1
			RATIO	0.292	0.956	0.963	0.882	0.087	0.981	0.471	0.871	0.937	0.910
MADISON	2	73		0.024	0.019	0.019	0.018	0.016	0.016	0.015	0.015	0.015	0.014
			DATE	7/ 3/82	8/20/82	7/23/82	7/19/82	7/25/82	7/13/82	7/ 9/82	8/17/82	7/26/82	8/15/82
METEOROLOGICAL SITE			DIR (DEG)	260	260	280	250	250	290	310	260	270	290
NEWARK			VEL (MPH)	2.7	11.7	5.7	9.1	11.4	5.2	5.8	7.5	10.3	5.3
			SPD (MPH)	7.0	12.7	8.8	10.1	11.8	7.6	8.6	10.9	11.2	7.6
			RATIO	0.387	0.922	0.655	0.900	0.968	0.676	0.676	0.685	0.923	0.699
METEOROLOGICAL SITE			DIR (DEG)	240	230	350	210	250	330	310	200	300	310
BRADLEY			VEL (MPH)	4.3	7.1	2.9	4.9	4.8	2.8	4.0	5.0	5.0	3.9
			SPD (MPH)	4.7	8.3	4.0	6.2	5.6	3.0	4.7	6.5	5.9	5.3
			RATIO	0.896	0.846	0.719	0.786	0.864	0.943	0.841	0.780	0.842	0.725
METEOROLOGICAL SITE			DIR (DEG)	240	250	240	230	220	210	200	230	230	320
BRIDGEPORT			VEL (MPH)	5.2	7.9	6.0	7.4	7.5	4.8	4.2	5.1	5.9	5.8
			SPD (MPH)	5.5	8.2	6.0	7.5	7.6	4.9	4.3	5.9	6.0	6.8
			RATIO	0.946	0.969	0.993	0.993	0.978	0.982	0.968	0.862	0.981	0.851
METEOROLOGICAL SITE			DIR (DEG)	270	260	300	270	260	300	290	260	290	290
WORCESTER			VEL (MPH)	8.4	10.5	9.6	6.7	8.6	7.5	7.2	9.2	8.2	8.8
			SPD (MPH)	8.6	10.8	10.4	7.9	8.9	8.1	7.3	10.1	9.1	9.2
			RATIO	0.972	0.974	0.924	0.843	0.968	0.927	0.984	0.910	0.904	0.954
NEW HAVEN	123	271		0.068	0.063	0.062	0.060	0.057	0.057	0.056	0.056	0.053	0.053
			DATE	11/ 1/82	5/27/82	10/29/82	10/30/82	9/11/82	9/10/82	10/31/82	5/ 6/82	10/ 6/82	9/15/82
METEOROLOGICAL SITE			DIR (DEG)	220	200	200	210	280	250	220	240	240	180
NEWARK			VEL (MPH)	7.4	7.5	7.1	9.0	5.1	7.3	5.3	7.9	5.3	5.2
			SPD (MPH)	8.1	8.8	7.5	9.3	6.0	8.5	6.0	9.1	6.2	6.3
			RATIO	0.925	0.859	0.952	0.959	0.837	0.857	0.883	0.868	0.853	0.827
METEOROLOGICAL SITE			DIR (DEG)	150	150	170	190	340	220	200	110	270	250
BRADLEY			VEL (MPH)	1.8	0.7	2.6	5.8	1.3	3.1	3.0	2.3	1.6	0.6
			SPD (MPH)	2.6	2.6	4.6	6.0	2.7	4.5	3.4	4.2	3.9	4.6
			RATIO	0.697	0.255	0.562	0.954	0.473	0.697	0.867	0.544	0.408	0.130
METEOROLOGICAL SITE			DIR (DEG)	230	200	220	230	250	220	230	260	220	160
BRIDGEPORT			VEL (MPH)	6.3	3.1	4.0	6.2	2.6	5.6	4.3	4.1	4.6	2.9
			SPD (MPH)	6.3	3.9	5.3	6.3	5.2	5.6	4.3	6.0	5.6	4.3
			RATIO	0.994	0.798	0.748	0.974	0.501	0.997	0.989	0.683	0.816	0.674
METEOROLOGICAL SITE			DIR (DEG)	280	90	260	250	330	280	250	220	270	150
WORCESTER			VEL (MPH)	5.7	0.7	5.5	8.1	2.8	10.5	6.8	2.0	7.5	0.8
			SPD (MPH)	7.2	7.8	6.2	8.3	5.9	10.9	7.0	6.9	8.1	5.8
			RATIO	0.799	0.087	0.891	0.968	0.471	0.963	0.962	0.292	0.929	0.132

TABLE 23, continued

1982 TEN HIGHEST 24-HOUR AVERAGE NO2 DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES	1	2	3	4	5	6	7	8	9	10
STRATFORD	7	166	0.040	0.039	0.039	0.037	0.032	0.032	0.031	0.031	0.030	0.028
		DATE	5/ 6/82	7/19/82	4/25/82	7/ 3/82	9/11/82	9/10/82	9/15/82	4/ 3/82	5/27/82	8/20/82
METEOROLOGICAL SITE		DIR (DEG)	240	250	190	260	280	250	180	150	200	260
NEWARK		VEL (MPH)	7.9	9.1	10.1	2.7	5.1	7.3	5.2	8.0	7.5	11.7
		SPD (MPH)	9.1	10.1	11.1	7.0	6.0	8.5	6.3	9.6	8.8	12.7
		RATIO	0.868	0.900	0.910	0.387	0.837	0.857	0.827	0.834	0.859	0.922
METEOROLOGICAL SITE		DIR (DEG)	110	210	210	240	340	220	250	170	150	230
BRADLEY		VEL (MPH)	2.3	4.9	5.5	4.3	1.3	3.1	0.6	7.3	0.7	7.1
		SPD (MPH)	4.2	6.2	6.5	4.7	2.7	4.5	4.6	9.3	2.6	8.3
		RATIO	0.544	0.786	0.845	0.896	0.473	0.697	0.130	0.786	0.255	0.846
METEOROLOGICAL SITE		DIR (DEG)	260	230	190	240	250	220	160	150	200	250
BRIDGEPORT		VEL (MPH)	4.1	7.4	6.5	5.2	2.6	5.6	2.9	3.8	3.1	7.9
		SPD (MPH)	6.0	7.5	7.6	5.5	5.2	5.6	4.3	10.1	3.9	8.2
		RATIO	0.683	0.993	0.853	0.946	0.501	0.997	0.674	0.375	0.798	0.969
METEOROLOGICAL SITE		DIR (DEG)	220	270	250	270	330	280	150	140	90	260
WORCESTER		VEL (MPH)	2.0	6.7	8.8	8.4	2.8	10.5	0.8	8.6	0.7	10.5
		SPD (MPH)	6.9	7.9	9.5	8.6	5.9	10.9	5.8	9.5	7.8	10.8
		RATIO	0.292	0.843	0.924	0.972	0.471	0.963	0.132	0.909	0.087	0.974

VI. CARBON MONOXIDE

Health Effects

Carbon monoxide (CO) is a colorless, odorless, poison gas formed when carbon-containing fuel is not burned completely. It is by far the most plentiful air pollutant. EPA estimates that more than 102 million metric tons of CO are spewed into the air each year in the United States. (A metric ton is 1,000 kilograms, or about 2,200 pounds.)

Fortunately, this deadly gas does not persist in the atmosphere. It is apparently converted by natural processes to harmless carbon dioxide, in ways not yet understood, fast enough to prevent any general buildup. But it can reach dangerous levels in local areas, as in city-street canyons with heavy auto traffic and little wind.

Clinical experience with accidental CO poisoning has shown clearly how it affects the body. When the gas is breathed, CO replaces oxygen in the red blood cells, reducing the amount of oxygen that can reach the body cells and maintain life. Lack of oxygen affects the brain, and the first symptoms are impaired perception and thinking. Reflexes are slowed, judgement weakened, and a person becomes drowsy. An auto driver breathing high levels of CO is more likely to have an accident; an athlete's performance and skill drop suddenly. Lack of oxygen then affects the heart. Death can come from heart failure or general asphyxiation, if a person is exposed to very high levels of CO.

Conclusions

The eight-hour National Ambient Air Quality Standard of 9 parts per million (ppm) was exceeded at ~~three~~ two of the five carbon monoxide monitoring sites in Connecticut during 1982. These sites were: ~~Hartford 012~~, New Britain 002, and Stamford 020. The 8-hour standard was exceeded twice at ~~Hartford 012, and~~ Stamford 020, and ~~three times at~~ New Britain 002. No site exceeded the one-hour standard of 35 ppm.

A definite decrease in carbon monoxide levels took place between 1981 and 1982.

In order to put the monitoring data into proper perspective, it must be realized that carbon monoxide concentrations vary greatly from place-to-place. More than 95% of the CO emissions in Connecticut come from motor vehicles; so concentrations are greatest in areas of traffic congestion. The magnitude and frequency of high concentrations observed at any monitoring site

are not necessarily indicative of widespread CO levels. Thus, most locations in New Britain and Stamford are probably not experiencing CO levels as high as those observed at the monitoring sites in those towns. On the other hand, there are probably locations in Bridgeport, Hartford, and New Haven where CO levels are higher than those observed in the monitoring sites in those towns.

The CO standards are likely to be exceeded in any city in the state where there are areas of traffic congestion. However, as federally-mandated controls reduce emissions from new motor vehicles, and as Connecticut's SIP control strategies are implemented, there should continue to be a decrease in the number of such areas; the remaining areas should shrink in size and have CO levels which are nearer the standards.

Unlike SO_2, TSP and O_3, elevated CO levels are often associated with non-southwesterly winds, indicating that this pollutant is more of a local-scale (not regional-scale) problem.

Method of Measurement

The DEP Air Monitoring Unit uses instruments employing a non-dispersive infrared technique to continuously measure carbon monoxide levels. The instantaneous concentrations are recorded on strip charts from which hourly averages are extracted. The instruments are fairly insensitive to sampling line length, but concentrations vary dramatically with inlet exposure and proximity to traffic lanes.

Discussion of Data

Monitoring Network - The network in 1982 consisted of five carbon monoxide monitors: Bridgeport 004, Hartford 012, New Britain 002, New Haven 007, and Stamford 020. They are all located in urban areas. All sites are located west of the Connecticut River, with three of them in coastal towns (see Figure 12).

Precision and Accuracy - The carbon monoxide monitors had a total of 142 precision checks during 1982. The resulting 95% probability limits were -5% to 12%. There was no accuracy data available for CO in 1982.

8-Hour and 1-Hour Averages - Carbon monoxide levels recorded during 1982 were lower than during 1981. However, ~~Hartford 012,~~ New Britain 002, and Stamford 020 ~~all~~ had second highs exceeding the 8-hour standard of 9 ppm which means that the standard was violated at these sites. Only Stamford 020 violated the 8-hour standard in 1981. But the standard was exceeded ~~113~~ 100 times in 1981

at Stamford, compared to only 2 exceedances in 1982. This dramatic decrease can be attributed to a change in the traffic flow near the Stamford site. The road next to the monitor was made a one-way street at the end of 1981.

As for 1-hour averages, no site in the state recorded a value exceeding the primary 1-hour standard of 35 ppm. Both New Britain 002 and New Haven 007 recorded a highest 1-hour value greater than the year before. Second high 1-hour values were higher in 1982 at three sites, and lower at the other two, when compared to 1981.

The maximum and second high CO concentrations at each site are presented in Table 24. Table 25 presents monthly first highs and a tally of the number of times the standards were exceeded at each site. Seasonal variations in CO levels can be observed using this table.

10-High Days with Wind Data - Table 26 lists the maximum 1-hour CO averages with dates of occurrence for the 10-highest days at each CO site in Connecticut for 1982. The wind data associated with these high readings are also presented. (See the discussion of Table 11 in the TSP section for a description of the origin and use of these wind data.)

At all five CO sites the high CO levels tended to occur during the colder months when the region was under the influence of high pressure with southwesterly winds. Low atmospheric mixing heights and other meteorological conditions are part of the reason CO levels are high on southwest wind days, but in this case another explanation also appears credible. A noteworthy feature of the high CO days is that the winds tend to be more persistent from all directions than on the high days for the other pollutants. Since 95% of the CO emissions in Connecticut come from motor vehicles, it is likely that the high CO levels are caused when persistent winds are blowing CO emissions from the direction of nearby roads toward the monitors. This appears to be the case especially with the Stamford 020 site, where the most heavily traveled roads are to the southwest of the monitors.

Another feature of the high CO days is that rarely does more than one site record a high level on the same day. There was only one day in 1982 on which more than one site recorded one of its two highest values. (On 2/3/82 Bridgeport 004 recorded its second highest value, while on that day New Haven 007 recorded its high for the year.) This is opposite of the behavior exhibited by all the other pollutants and it demonstrates that high levels of CO are much more dependent on local effects than are the other pollutants.

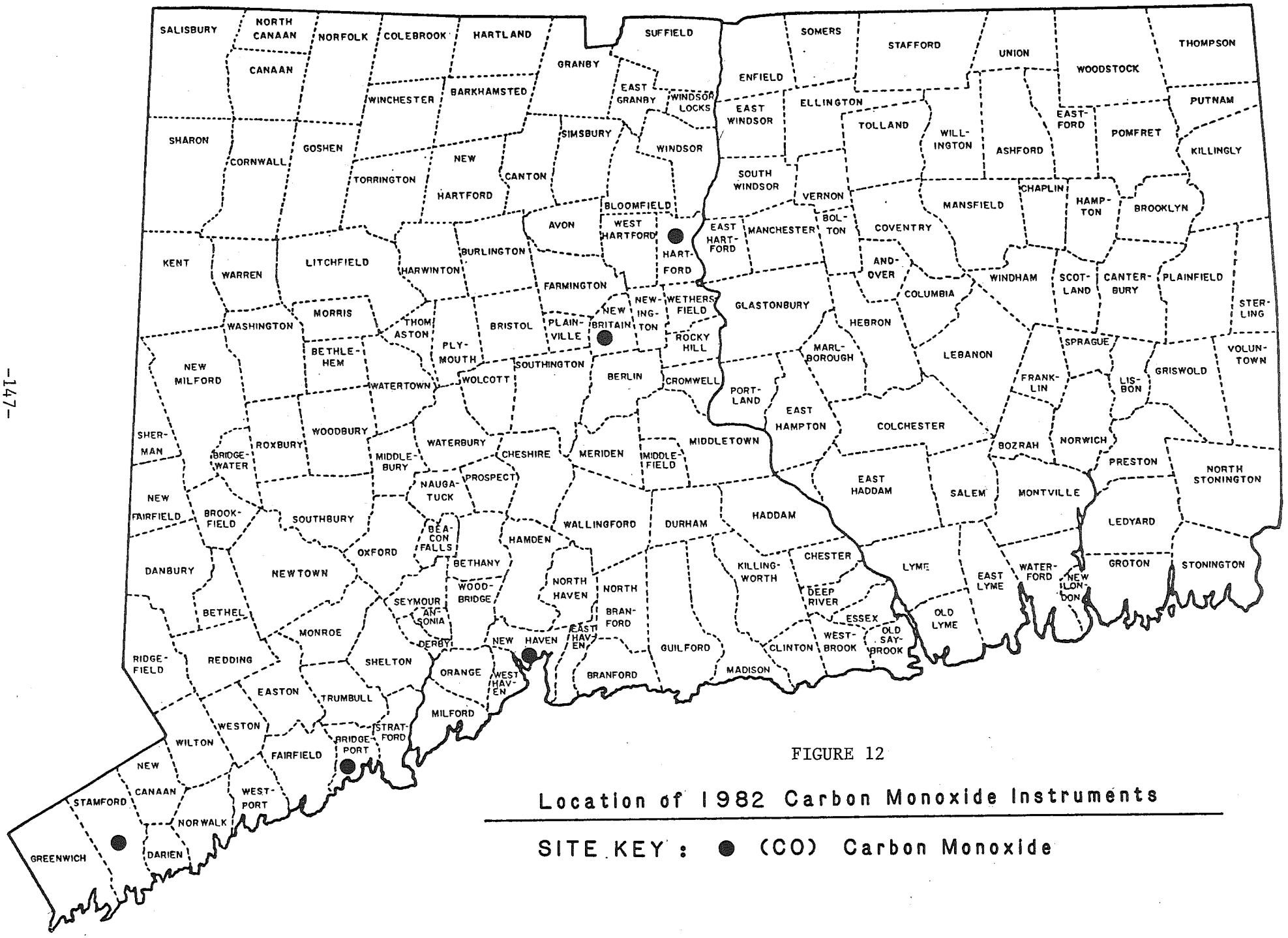


FIGURE 12

Location of 1982 Carbon Monoxide Instruments

SITE KEY : ● (CO) Carbon Monoxide

TABLE 24

1982 CARBON MONOXIDE STANDARDS ASSESSMENT SUMMARY
(UNITS = PPM)

TOWN-SITE	MAXIMUM 8-HOUR RUNNING AVERAGE	TIME OF MAXIMUM 8-HOUR RUNNING AVERAGE[1]	2ND HIGH 8-HOUR RUNNING AVERAGE	TIME OF 2ND HIGH 8-HOUR RUNNING AVERAGE[1]	MAXIMUM 1-HOUR AVERAGE	TIME OF MAXIMUM 1-HOUR AVERAGE[2]	2ND HIGH 1-HOUR AVERAGE	TIME OF 2ND HIGH 1-HOUR AVERAGE[2]
Bridgeport-004	7.7	2/03/17	7.4	12/01/01	11.5	1/6/09	11.2	2/3/16
Hartford-012	9.4	12/02/24	9.1	10/28/24	15.0	11/30/23	14.7	12/14/16
New Britain-002	9.9	10/28/13	9.3 7	2/16/14	20.0	2/16/08	19.9	10/28/08
New Haven-007	8.1	3/13/04	8.0	11/17/24	14.5	2/3/17	13.9 14.5	3/12/24
Stamford-020	~~9.7~~ 10.0	~~11/01/23~~ 12/15/24	9.5 7	~~12/15/24~~ 11/01/23	16.3	12/15/22	~~15.8~~	11/17/19

1 Time of 8-hour averages is reported as follows: month/day/hour (EST), specifying the end of the 8-hour average period
2 Time of 1-hour averages is reported as follows: month/day/hour (EST), specifying the end of the 1-hour average period

TABLE 25

1982 CARBON MONOXIDE SEASONAL FEATURES, UNITS = PPM

TOWN-SITE		JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	NUMBER OF TIMES STANDARD EXCEEDED	NUMBER OF DAYS STANDARD EXCEEDED
Bridgeport-004	Max-1 Hr.	11.5	11.2	8.6	6.5	7.1	6.8	5.9	4.6	6.4	10.9	9.5	9.4	0	0
	Max-Running 8-Hr.	5.2	7.7	5.2	4.0	4.4	5.8	4.2	3.2	4.2	6.6	7.2	7.4	0	0
	# Days 8-Hr Exceeded	0	0	0	0	0	0	0	0	0	0	0	0		
Hartford-012	Max-1 Hr.	13.1	10.5	11.2	10.9	7.8	8.4	11.1	9.5	8.5	14.0	15.0	14.7	0	0
	Max-Running 8-Hr.	8.0	6.6	7.9	5.8	5.2	5.7	5.3	5.7	5.5	9.1	7.6	9.4	2	2
	# Days 8-Hr Exceeded	0	0	0	0	0	0	0	0	0	1 0	0	1 0		
New Britain-002	Max-1 Hr.	14.3	20.0	11.4	11.4	8.2	8.7	10.0	6.8	11.9	19.9	12.8	13.1	0	0
	Max-Running 8-Hr.	7.5	9.37	8.8	5.0	5.3	4.6	7.2	5.1	6.9	9.9	9.3	8.4	3	3
	# Days 8-Hr Exceeded	0	1	0	0	0	0	0	0	0	1	1 0	0		
New Haven-007	Max-1 Hr.	8.5	14.5	13.9	6.3	6.5	6.8	5.8	7.4	7.4	13.6	13.0	9.8	0	0
	Max-Running 8-Hr.	5.6	6.1	8.1	4.1	4.5	3.3	3.3	3.3	4.9	6.3	8.0	6.9	0	0
	# Days 8-Hr Exceeded	0	0	0	0	0	0	0	0	0	0	0	0		
Stamford-020	Max-1 Hr.	13.5*	14.5	9.5	6.5*	6.0*	2 5.6*	6.5 0	6.8 7.4	8.3 9.0	13.6 14.8	14.5 15.8	16.3*	0	0
	Max-Running 8-Hr.	7.9*	8.1	6.4	4.6*	4.8*	4.2*	5.3	4.1	5.1	7.7	9.7	10.0 9.5	2	2
	# Days 8-Hr Exceeded	0	0	0	0	0	0	0	0	0	0	1	1		

* <75% of data available

TABLE 26

1982 TEN HIGHEST 1-HOUR AVERAGE CO DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
BRIDGEPORT	4	359		11.5	11.2	10.9	9.5	9.5	9.4	8.9	8.8	8.6	8.4
			DATE	1/ 6/82	2/ 3/82	10/29/82	10/20/82	11/30/82	12/ 1/82	1/22/82	11/ 2/82	3/ 9/82	11/17/82
METEOROLOGICAL SITE			DIR (DEG)	220	40	200	150	250	80	20	200	150	220
NEWARK			VEL (MPH)	5.7	4.9	7.1	5.4	7.0	2.5	12.0	8.6	1.2	3.2
			SPD (MPH)	6.8	8.9	7.5	8.2	8.3	4.3	12.4	8.9	8.5	4.3
			RATIO	0.847	0.546	0.952	0.661	0.839	0.585	0.973	0.961	0.143	0.742
METEOROLOGICAL SITE			DIR (DEG)	210	20	170	200	320	200	20	190	180	190
BRADLEY			VEL (MPH)	5.0	2.3	2.6	5.8	5.1	2.7	7.6	6.3	1.3	3.7
			SPD (MPH)	5.6	4.9	4.6	5.9	5.2	2.9	7.9	7.5	3.4	4.0
			RATIO	0.898	0.465	0.562	0.978	0.995	0.945	0.967	0.845	0.363	0.907
METEOROLOGICAL SITE			DIR (DEG)	210	60	220	180	290	220	350	220	110	250
BRIDGEPORT			VEL (MPH)	6.8	6.4	4.0	6.1	3.0	2.3	8.6	4.5	3.9	3.0
			SPD (MPH)	8.3	8.8	5.3	6.2	4.2	5.2	9.2	4.9	6.3	3.0
			RATIO	0.810	0.727	0.748	0.980	0.710	0.438	0.932	0.928	0.611	0.996
METEOROLOGICAL SITE			DIR (DEG)	230	60	260	210	290	220	330	200	90	260
WORCESTER			VEL (MPH)	6.0	0.9	5.5	7.2	8.8	4.6	11.1	2.6	0.5	7.8
			SPD (MPH)	6.5	7.6	6.2	7.9	9.2	4.9	11.4	4.9	5.9	7.9
			RATIO	0.921	0.120	0.891	0.908	0.957	0.946	0.974	0.527	0.078	0.984
HARTFORD	12	362		15.0	14.7	14.0	13.7	13.1	12.6	12.1	11.3	11.2	11.1
			DATE	11/30/82	12/14/82	10/27/82	12/ 2/82	1/19/82	10/28/82	12/ 1/82	10/13/82	3/12/82	7/25/82
METEOROLOGICAL SITE			DIR (DEG)	250	220	40	290	10	260	80	180	330	250
NEWARK			VEL (MPH)	7.0	9.1	3.1	2.9	3.7	1.6	2.5	3.7	9.1	11.4
			SPD (MPH)	8.3	9.2	7.0	5.8	6.6	4.0	4.3	5.5	10.8	11.8
			RATIO	0.839	0.993	0.445	0.499	0.566	0.391	0.585	0.677	0.845	0.968
METEOROLOGICAL SITE			DIR (DEG)	320	190	360	190	100	180	200	170	10	250
BRADLEY			VEL (MPH)	5.1	6.8	2.2	0.4	0.8	0.4	2.7	3.1	2.0	4.8
			SPD (MPH)	5.2	7.0	3.6	3.4	1.1	1.6	2.9	3.4	4.9	5.6
			RATIO	0.995	0.961	0.617	0.114	0.693	0.221	0.945	0.894	0.404	0.864
METEOROLOGICAL SITE			DIR (DEG)	290	240	80	250	290	230	220	170	360	220
BRIDGEPORT			VEL (MPH)	3.0	12.3	1.1	4.3	2.0	4.4	2.3	1.9	3.8	7.5
			SPD (MPH)	4.2	12.8	4.0	5.5	4.2	4.5	5.2	4.0	5.3	7.6
			RATIO	0.710	0.959	0.278	0.792	0.478	0.989	0.438	0.476	0.706	0.978
METEOROLOGICAL SITE			DIR (DEG)	290	250	10	300	300	290	220	230	10	260
WORCESTER			VEL (MPH)	8.8	8.2	3.6	2.8	6.5	8.3	4.6	4.2	2.8	8.6
			SPD (MPH)	9.2	8.3	6.0	5.6	7.2	8.6	4.9	5.3	5.5	8.9
			RATIO	0.957	0.983	0.599	0.494	0.903	0.968	0.946	0.787	0.518	0.968
NEW BRITAIN	2	361		20.0	19.9	14.3	13.4	13.1	12.8	12.7	12.0	11.9	11.9
			DATE	2/16/82	10/28/82	1/19/82	10/29/82	12/ 2/82	11/17/82	2/19/82	10/19/82	9/ 1/82	10/12/82
METEOROLOGICAL SITE			DIR (DEG)	330	260	10	200	290	220	30	210	190	240
NEWARK			VEL (MPH)	5.9	1.6	3.7	7.1	2.9	3.2	6.8	5.8	8.1	5.7
			SPD (MPH)	10.5	4.0	6.6	7.5	5.8	4.3	9.1	7.9	9.1	6.2
			RATIO	0.565	0.391	0.566	0.952	0.499	0.742	0.754	0.736	0.896	0.925
METEOROLOGICAL SITE			DIR (DEG)	340	180	100	170	190	190	20	200	10	180
BRADLEY			VEL (MPH)	5.3	0.4	0.8	2.6	0.4	3.7	3.3	5.6	5.0	2.0
			SPD (MPH)	7.6	1.6	1.1	4.6	3.4	4.0	3.6	5.8	6.0	2.9
			RATIO	0.700	0.221	0.693	0.562	0.114	0.907	0.911	0.968	0.826	0.703

TABLE 26, continued

1982 TEN HIGHEST 1-HOUR AVERAGE CO DAYS WITH WIND DATA

UNITS : PARTS PER MILLION

TOWN NAME	SITE	SAMPLES		1	2	3	4	5	6	7	8	9	10
METEOROLOGICAL SITE			DIR (DEG)	310	230	290	220	250	250	50	230	200	80
BRIDGEPORT			VEL (MPH)	6.5	4.4	2.0	4.0	4.3	3.0	8.7	5.4	5.8	2.4
			SPD (MPH)	10.8	4.5	4.2	5.3	5.5	3.0	10.9	6.5	6.3	3.9
			RATIO	0.602	0.989	0.478	0.748	0.792	0.996	0.794	0.832	0.921	0.606
METEOROLOGICAL SITE			DIR (DEG)	310	290	300	260	300	260	120	240	50	240
WORCESTER			VEL (MPH)	8.1	8.3	6.5	5.5	2.8	7.8	1.8	9.0	6.6	2.9
			SPD (MPH)	9.9	8.6	7.2	6.2	5.6	7.9	3.6	9.2	6.9	4.3
			RATIO	0.816	0.968	0.903	0.891	0.494	0.984	0.505	0.981	0.950	0.664
NEW HAVEN	7	362		14.5	13.9	13.6	13.0	12.5	12.0	11.4	10.4	9.8	9.4
			DATE	2/ 3/82	3/12/82	10/28/82	11/17/82	10/12/82	2/16/82	11/30/82	10/29/82	12/ 1/82	10/ 6/82
METEOROLOGICAL SITE			DIR (DEG)	40	330	260	220	240	330	250	200	80	240
NEWARK			VEL (MPH)	4.9	9.1	1.6	3.2	5.7	5.9	7.0	7.1	2.5	5.3
			SPD (MPH)	8.9	10.8	4.0	4.3	6.2	10.5	8.3	7.5	4.3	6.2
			RATIO	0.546	0.845	0.391	0.742	0.925	0.565	0.839	0.952	0.585	0.853
METEOROLOGICAL SITE			DIR (DEG)	20	10	180	190	180	340	320	170	200	270
BRADLEY			VEL (MPH)	2.3	2.0	0.4	3.7	2.0	5.3	5.1	2.6	2.7	1.6
			SPD (MPH)	4.9	4.9	1.6	4.0	2.9	7.6	5.2	4.6	2.9	3.9
			RATIO	0.465	0.404	0.221	0.907	0.703	0.700	0.995	0.562	0.945	0.408
METEOROLOGICAL SITE			DIR (DEG)	60	360	230	250	80	310	290	220	220	220
BRIDGEPORT			VEL (MPH)	6.4	3.8	4.4	3.0	2.4	6.5	3.0	4.0	2.3	4.6
			SPD (MPH)	8.8	5.3	4.5	3.0	3.9	10.8	4.2	5.3	5.2	5.6
			RATIO	0.727	0.706	0.989	0.996	0.606	0.602	0.710	0.748	0.438	0.816
METEOROLOGICAL SITE			DIR (DEG)	60	10	290	260	240	310	290	260	220	270
WORCESTER			VEL (MPH)	0.9	2.8	8.3	7.8	2.9	8.1	8.8	5.5	4.6	7.5
			SPD (MPH)	7.6	5.5	8.6	7.9	4.3	9.9	9.2	6.2	4.9	8.1
			RATIO	0.120	0.518	0.968	0.984	0.664	0.816	0.957	0.891	0.946	0.929
STAMFORD	20	314		25.8	15.0	14.5	14.5	13.6	13.5	12.7	12.7	12.0	11.3
			DATE	2/ 4/82	12/15/82	11/17/82	2/ 3/82	10/28/82	1/23/82	12/ 1/82	11/ 1/82	1/18/82	12/13/82
METEOROLOGICAL SITE			DIR (DEG)	320	210	220	40	260	120	80	220	250	330
NEWARK			VEL (MPH)	9.9	4.8	3.2	4.9	1.6	3.9	2.5	7.4	9.6	10.3
			SPD (MPH)	13.9	6.3	4.3	8.9	4.0	12.1	4.3	8.1	9.8	11.6
			RATIO	0.711	0.765	0.742	0.546	0.391	0.324	0.585	0.925	0.984	0.887
METEOROLOGICAL SITE			DIR (DEG)	330	190	190	20	180	10	200	150	230	350
BRADLEY			VEL (MPH)	5.2	4.9	3.7	2.3	0.4	6.6	2.7	1.8	4.7	5.5
			SPD (MPH)	9.2	5.2	4.0	4.9	1.6	6.8	2.9	2.6	5.8	6.3
			RATIO	0.567	0.943	0.907	0.465	0.221	0.980	0.945	0.697	0.813	0.869
METEOROLOGICAL SITE			DIR (DEG)	310	230	250	60	230	70	220	230	270	340
BRIDGEPORT			VEL (MPH)	7.6	5.0	3.0	6.4	4.4	4.6	2.3	6.3	10.6	8.1
			SPD (MPH)	10.8	5.8	3.0	8.8	4.5	10.8	5.2	6.3	10.9	8.3
			RATIO	0.705	0.870	0.996	0.727	0.989	0.426	0.438	0.994	0.966	0.969
METEOROLOGICAL SITE			DIR (DEG)	290	250	260	60	290	50	220	280	260	330
WORCESTER			VEL (MPH)	8.3	8.2	7.8	0.9	8.3	4.8	4.6	5.7	9.1	7.1
			SPD (MPH)	10.5	8.3	7.9	7.6	8.6	6.3	4.9	7.2	9.5	8.2
			RATIO	0.787	0.984	0.984	0.120	0.968	0.751	0.946	0.799	0.964	0.864

VII. LEAD

Conclusions

The Connecticut primary and secondary ambient air quality standard for lead and its compounds, measured as elemental lead, is: 1.5 ug/m^3, maximum arithmetic mean averaged over three consecutive calendar months. As in 1981, the lead standard was not exceeded at any site in Connecticut during 1982.

A downward trend in measured concentrations of lead has been observed since 1978.

The monitoring sites where the lead levels were greatest were generally in urban locations with moderate to heavy traffic. In Connecticut, the primary source of lead concentrations in the atmosphere is from the combustion of leaded gasoline in motor vehicles. Atmospheric concentrations of lead are continuing to decline as use of unleaded gasoline continues.

Sample Collection and Analysis

The Air Monitoring Unit uses hi-vol and lo-vol samplers to obtain ambient concentrations of lead. These samplers are used to collect particulate matter onto fiberglass filters. The particulate matter collected on the filters is subsequently analyzed for its chemical composition. Wet chemistry techniques are used to separate the particulate matter into various components. The lead content of the TSP is determined using an atomic absorption spectrophotometer. (The use of these sampling devices and the chemical analysis techniques were fully described in the TSP section.)

Discussion of Data

Monitoring Network - In 1982, both hi-vol and lo-vol samplers were operated in Connecticut to monitor lead levels (see Figure A). There were 16 hi-vol sites operated throughout the State (see Table 32) as part of the State and Local Air Monitoring Stations (SLAMS) network. The DEP also set up five new lo-vol monitors in 1982 in cities with populations greater than 200,000. They are Hartford 015 and 016, New London 003, Stamford 022, and Bridgeport 010. These "micro-scale lead sites" are situated near some of the busiest city streets in order to monitor "worst-case" lead concentrations. EPA approval for these lo-vol sites is being sought by the Department.

Precision and Accuracy - There were no precision data available for lead in 1982. Accuracy is determined by putting a known air flow through the monitor. There were 148 audits done in 1982, resulting in 95% probability limits ranging from -8% to +3%.

NAAQS - Connecticut's ambient air quality standard for lead and its compounds, measured as elemental lead, is: 1.5 micrograms per cubic meter (ug/m^3), maximum arithmetic mean averaged over three consecutive calendar months. This standard was enacted on November 2, 1981. Previously, Connecticut's lead standard was substantially identical to the NAAQS of 1.5 ug/m^3 for a calendar quarter-year average. This change to a 3-month running average means that a more stringent standard now applies, since there are three times as many data blocks within a calendar year which must be below the limiting concentration of 1.5 ug/m^3.

3-Month Running Averages - Three-month running average values are given in Table 27 for the year 1982. These values are also presented in graphical form in Figure 13 for the period 1980-82.

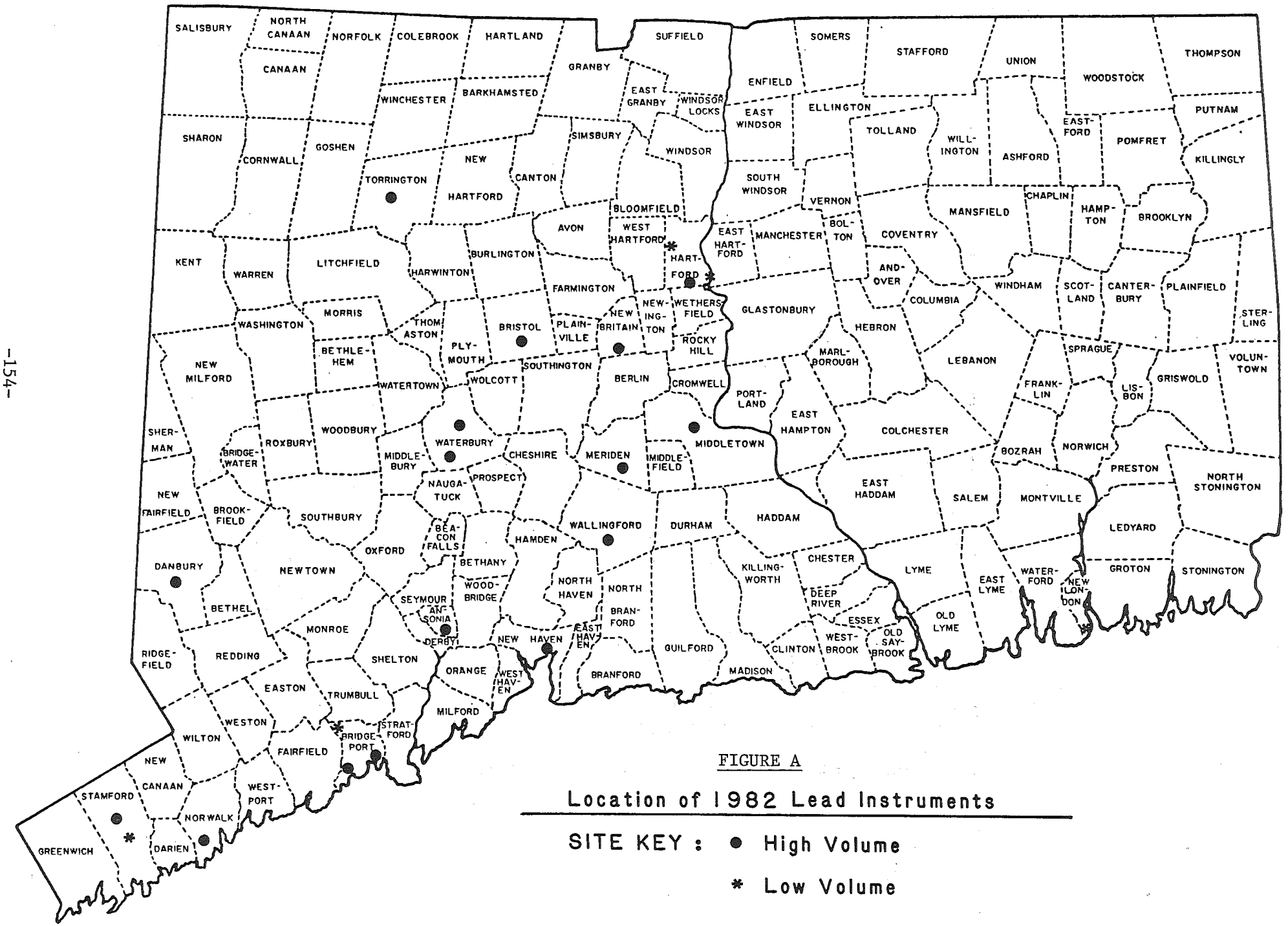


FIGURE A

Location of 1982 Lead Instruments

SITE KEY : ● High Volume

* Low Volume

TABLE 27

1982 3-Month Running Average Lead Concentrations (ug/m3)

SITE	Jan.*	Feb.*	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Ansonia-003	0.51	0.46	0.45	0.39	0.37	0.32	0.32	0.38	0.42	0.48	0.51	0.63
Bridgeport-009	0.25	0.24	0.29	0.30	0.32	0.28	0.29	0.33	0.37	0.38	0.42	0.45
Bridgeport-010	----	----	----	----	----	----	0.52	0.55	0.74	0.79	0.92	0.86
Bridgeport-123	0.42	0.40	0.43	0.45	----	----	0.49	0.53	0.62	0.66	0.64	0.65
Bristol-001	0.24	0.22	0.28	0.26	0.25	0.22	0.24	0.24	0.24	0.28	0.30	0.30
Danbury-002	0.33	0.31	0.36	0.38	0.39	0.31	0.34	0.33	0.37	0.44	0.49	0.49
Hartford-014	0.35	0.33	0.24	0.25	0.22	0.30	0.34	0.40	0.44	0.51	0.54	0.57
Hartford-015	----	----	----	----	----	----	----	----	----	----	0.67	0.70
Hartford-016	----	----	----	----	----	----	----	----	----	----	1.09	1.08
Meriden-002	0.38	0.38	0.40	0.36	0.33	0.28	0.33	0.40	0.43	0.49	0.56	0.56
Middletown-003	0.38	0.39	0.43	0.39	0.34	0.27	0.33	0.39	0.42	0.47	0.44	0.44
New Britain-007	0.31	0.28	0.31	0.29	0.28	0.24	0.27	0.31	0.36	0.39	0.39	0.39
New Haven-123	----	----	----	----	----	----	----	----	----	----	0.76	0.71
New London-003	----	----	----	----	----	----	----	----	0.27	0.28	0.29	0.28
Norwalk-012	0.37	0.37	0.39	0.42	0.43	0.33	0.33	0.37	0.41	0.44	0.53	0.56
Stamford-001	0.30	0.28	0.33	0.35	0.40	0.38	0.38	0.41	0.43	0.43	0.50	0.50
Stamford-022	----	----	----	----	----	----	0.63	0.69	0.77	0.75	0.74	0.69
Torrington-123	0.41	0.36	0.38	0.35	0.34	0.27	0.28	0.30	0.37	0.47	0.52	0.53
Wallingford-001	0.43	0.38	0.39	0.35	0.32	0.27	0.32	0.40	0.45	0.48	0.52	0.55
Waterbury-007	0.61	0.55	0.54	0.46	0.46	0.43	0.46	0.53	0.60	0.71	0.75	0.76
Waterbury-123	0.52	0.49	0.63	0.75	0.79	0.58	0.61	0.62	0.70	0.80	0.88	0.91

* 3-month running average includes data from the last 2 months of 1981

FIGURE 13

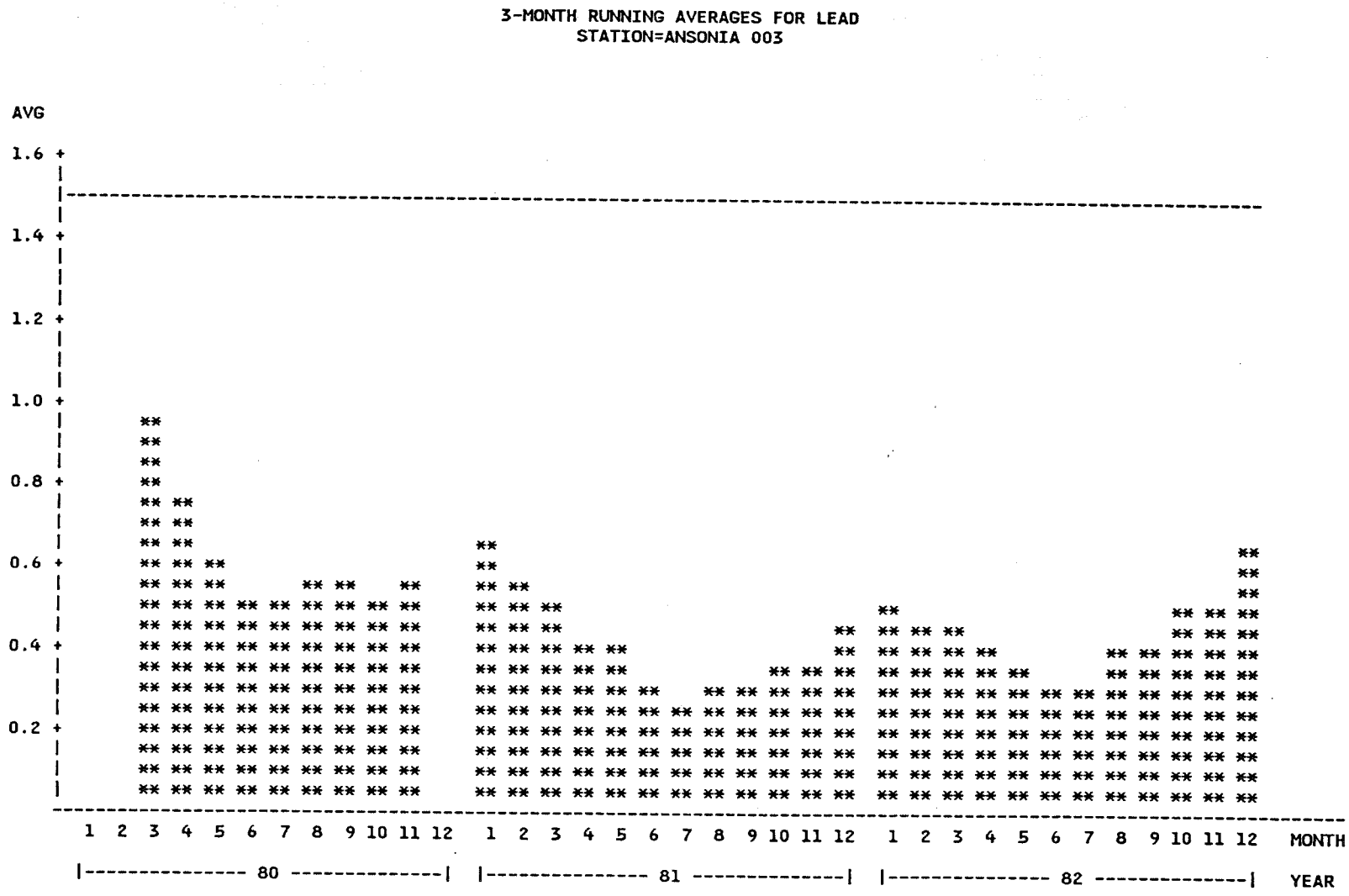

3-MONTH RUNNING AVERAGES FOR LEAD
STATION=ANSONIA 003
AVG
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 MONTH
80
81
82
YEAR

FIGURE 13, continued

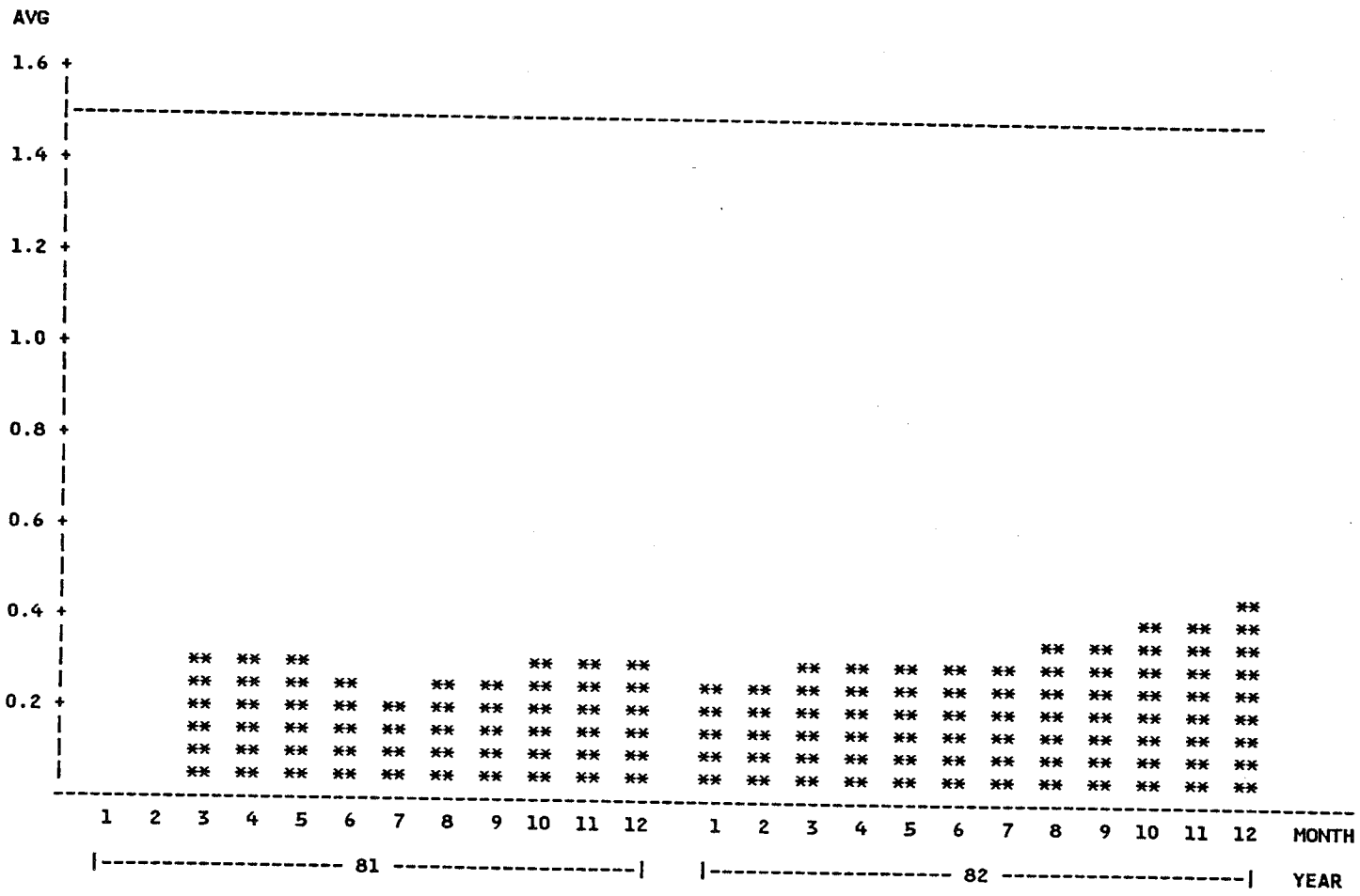


FIGURE 13, continued

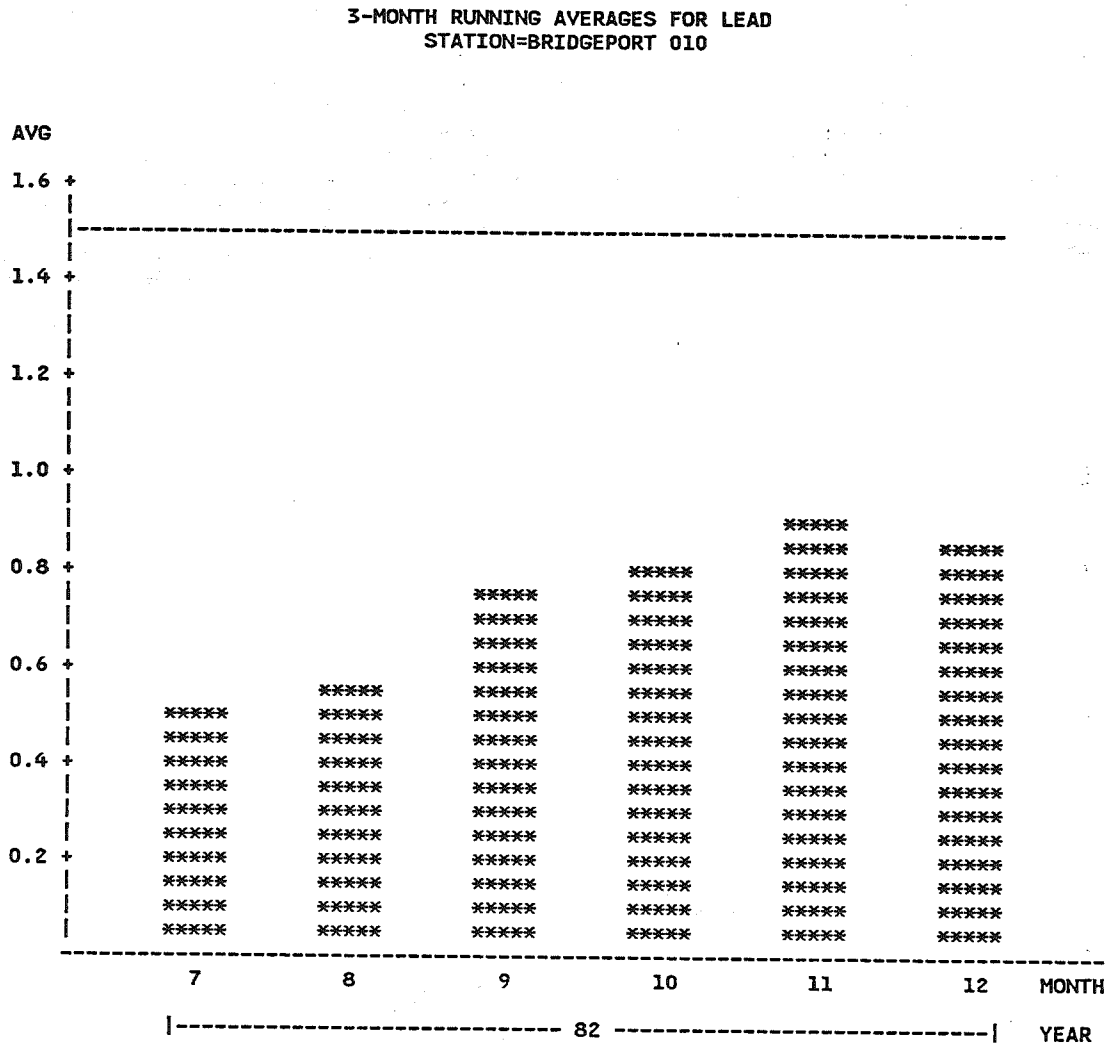


FIGURE 13, continued

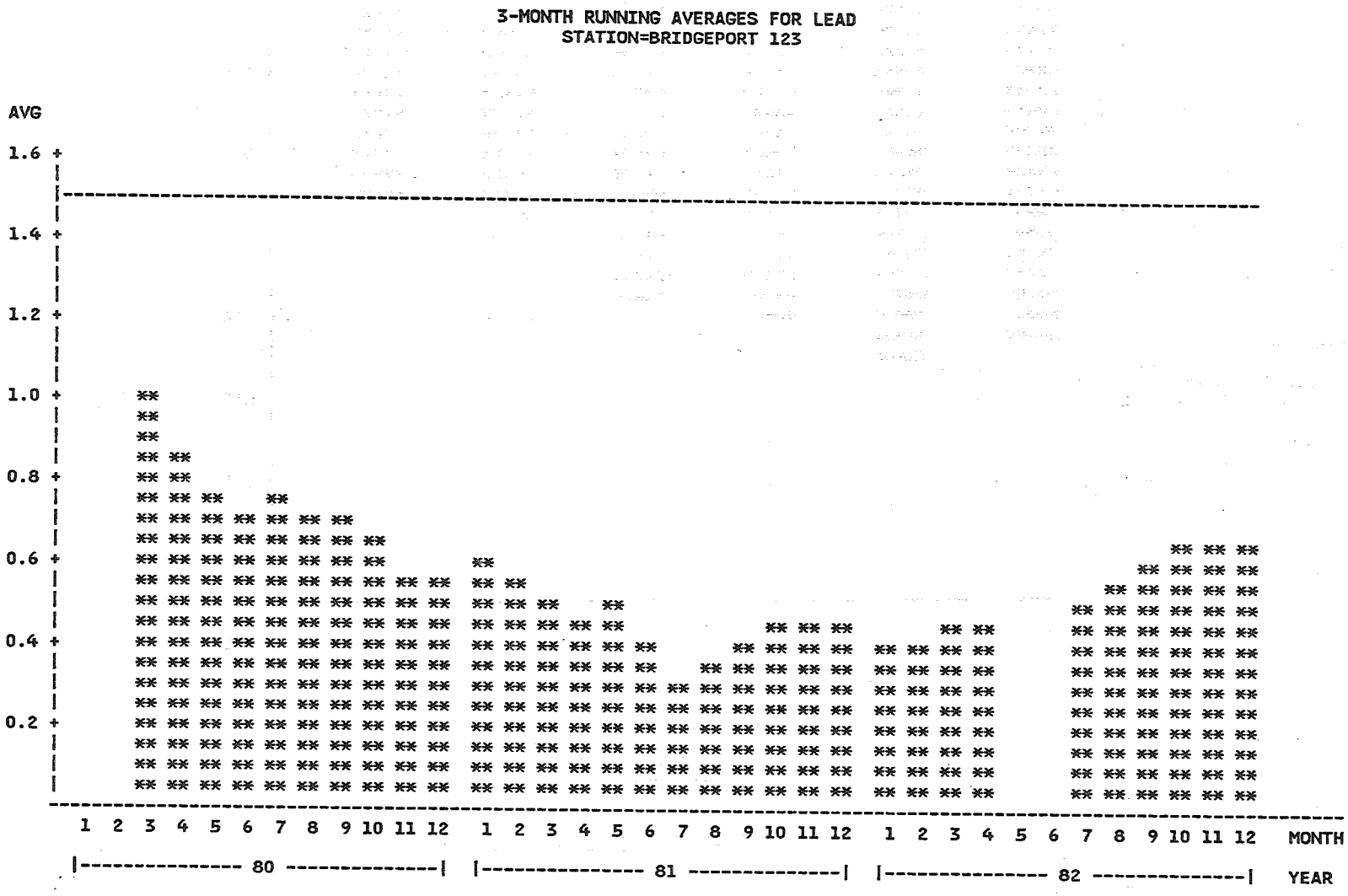


FIGURE 13, continued

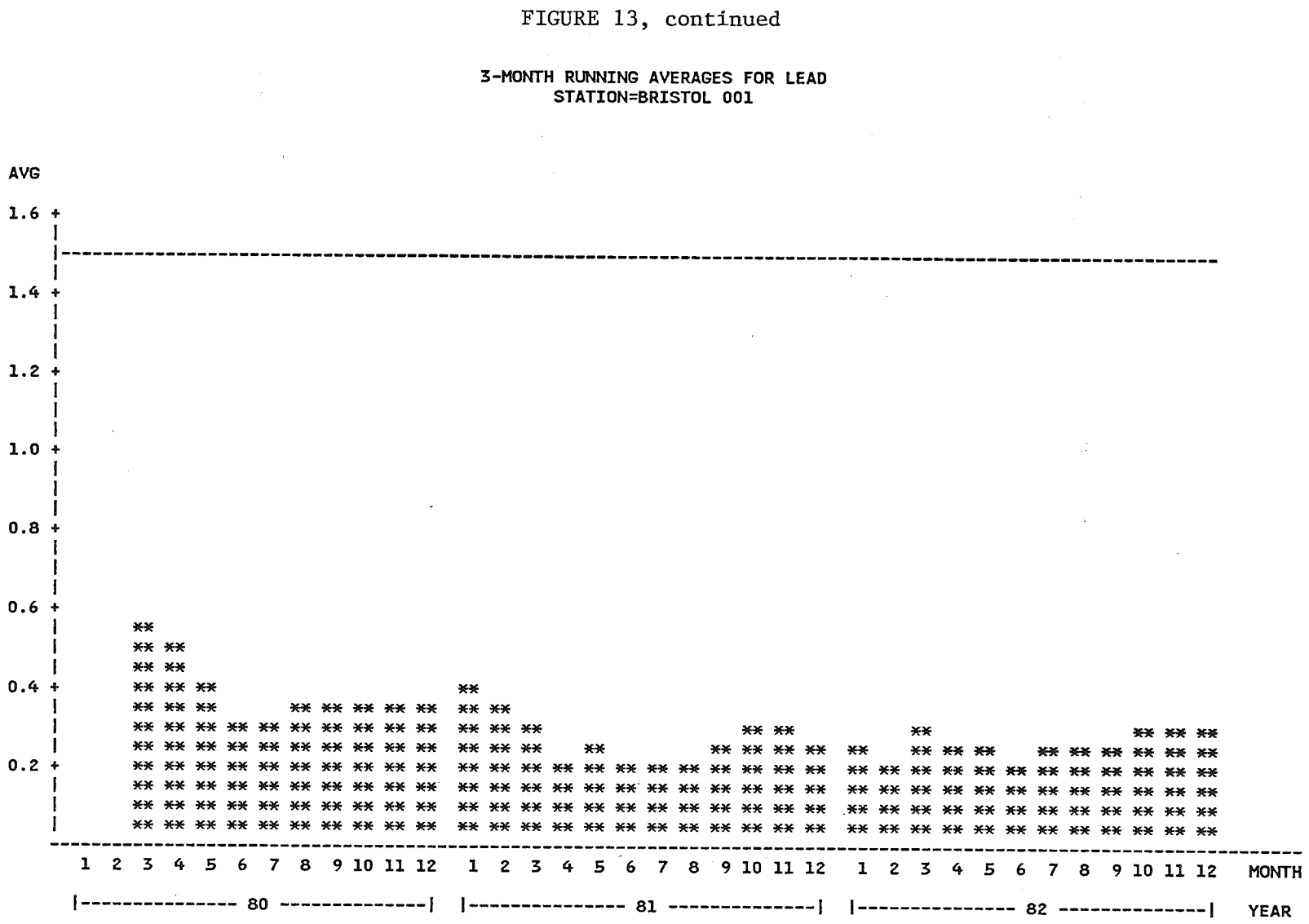


FIGURE 13, continued

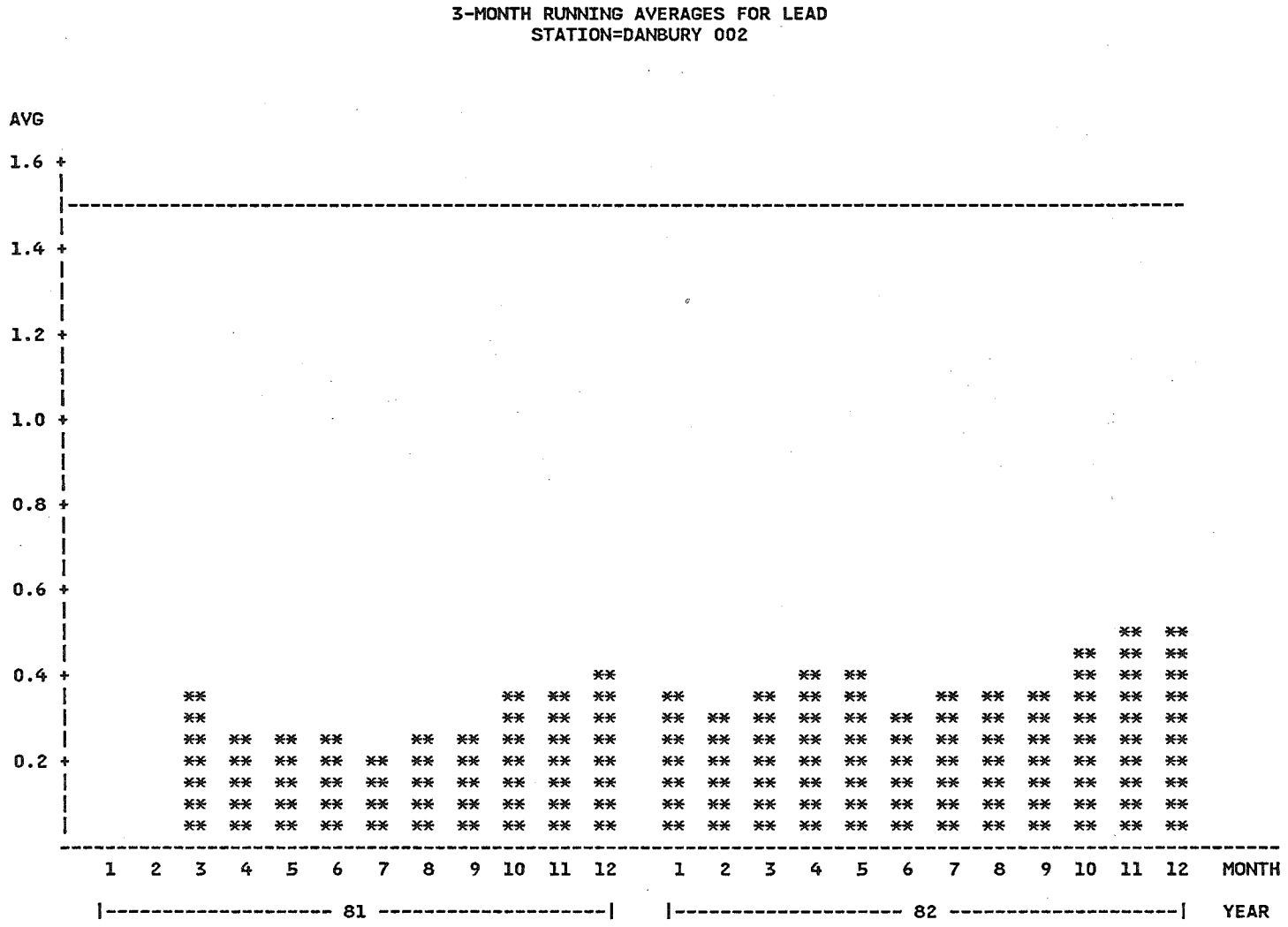


FIGURE 13, continued

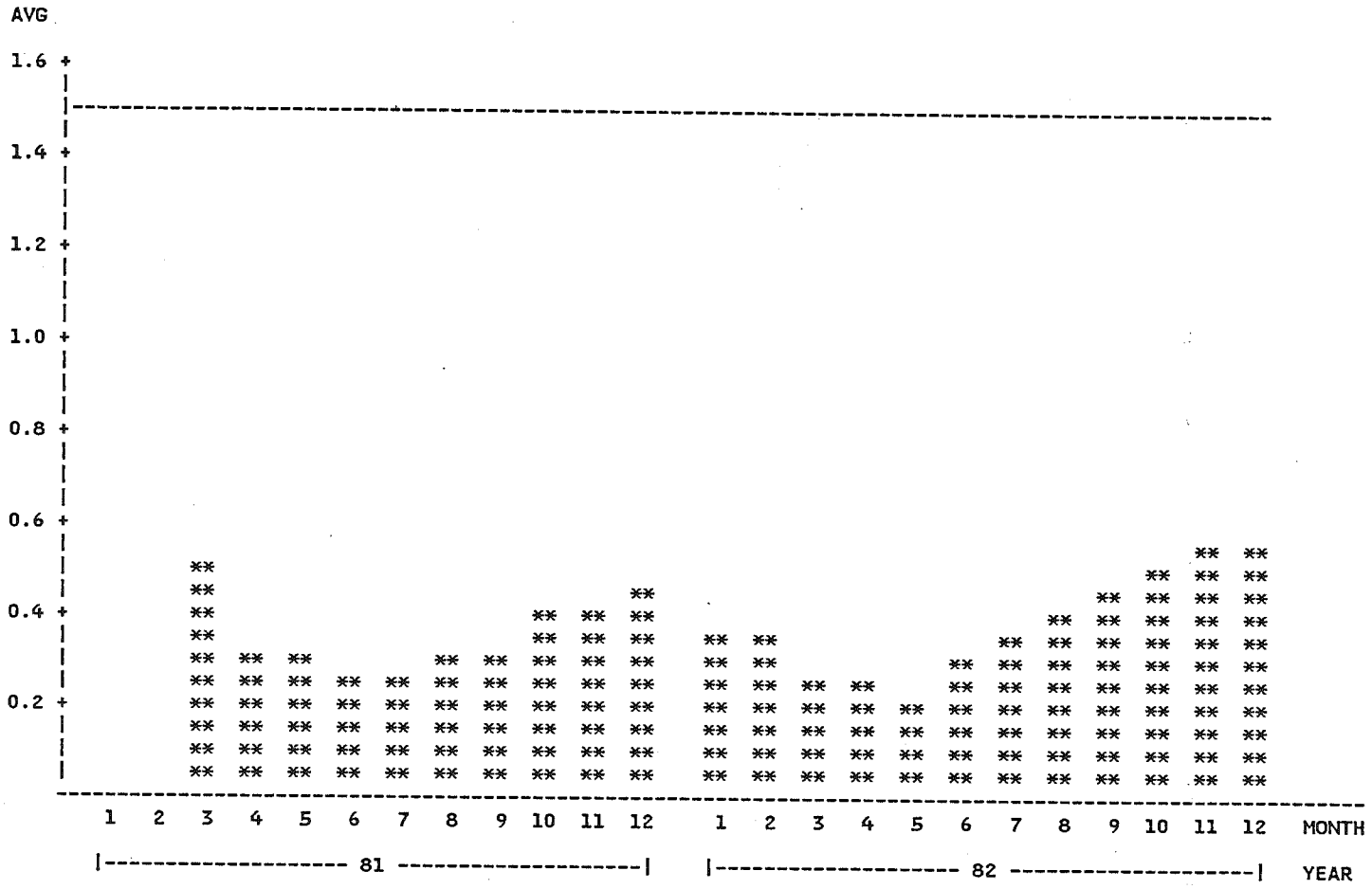


FIGURE 13, continued

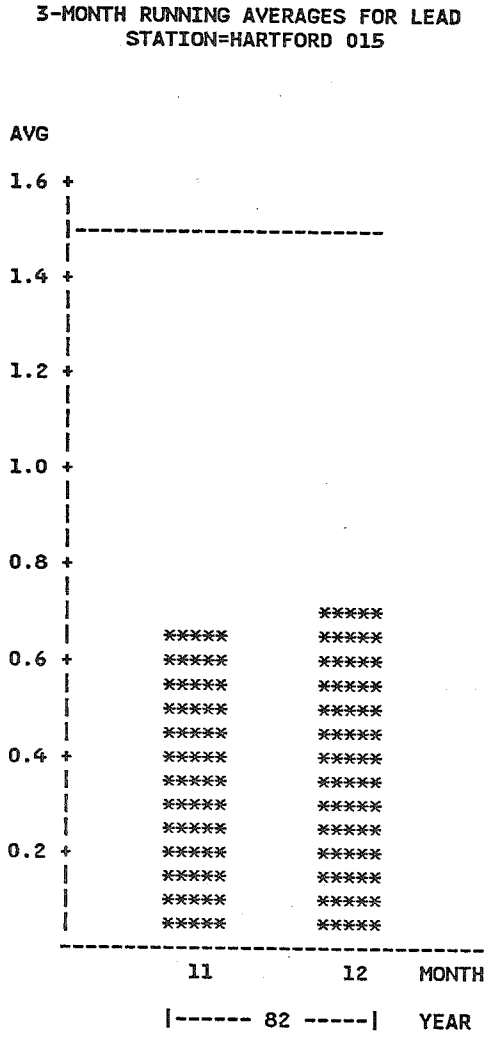


FIGURE 13, continued

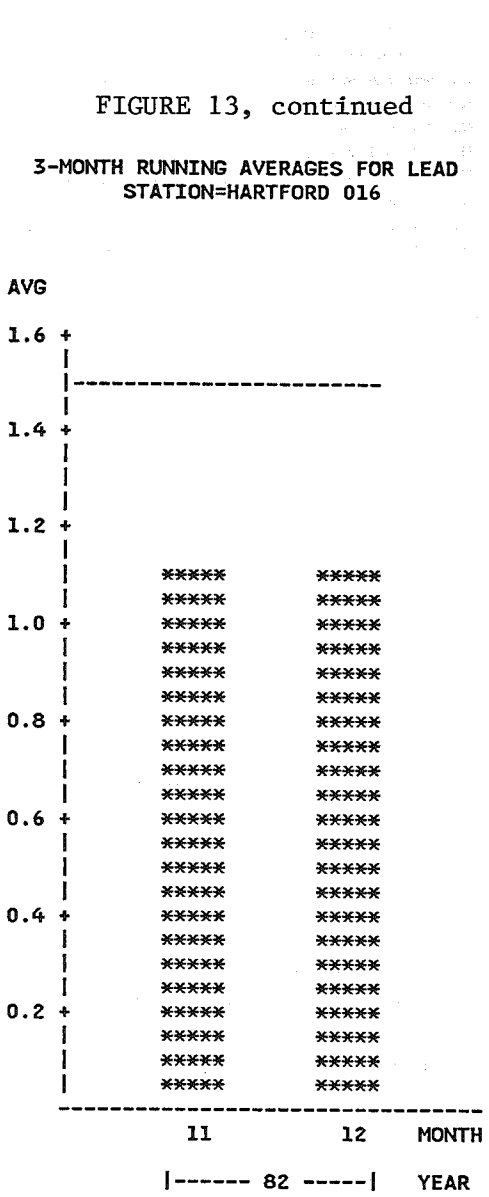


FIGURE 13, continued

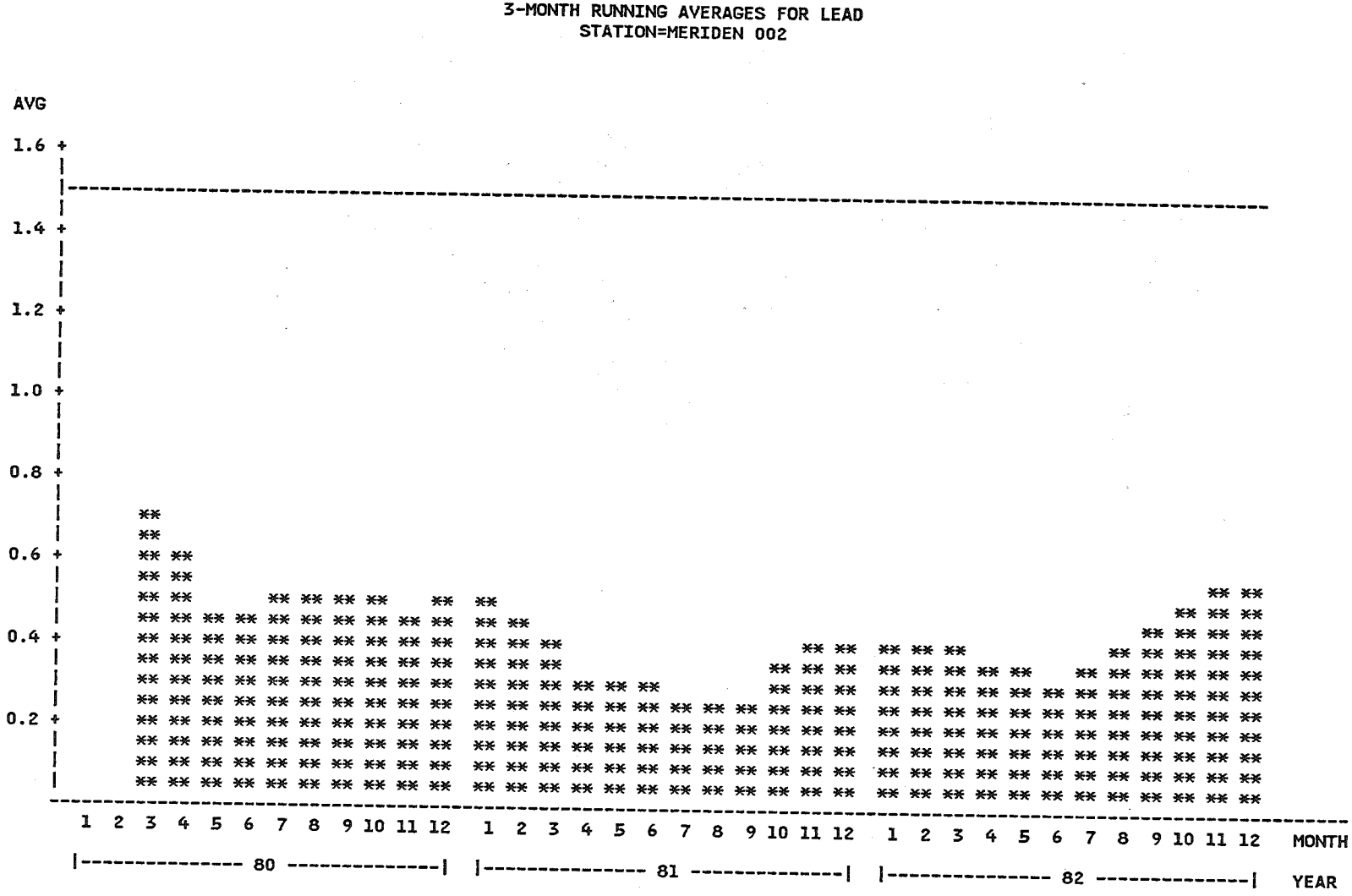


FIGURE 13, continued

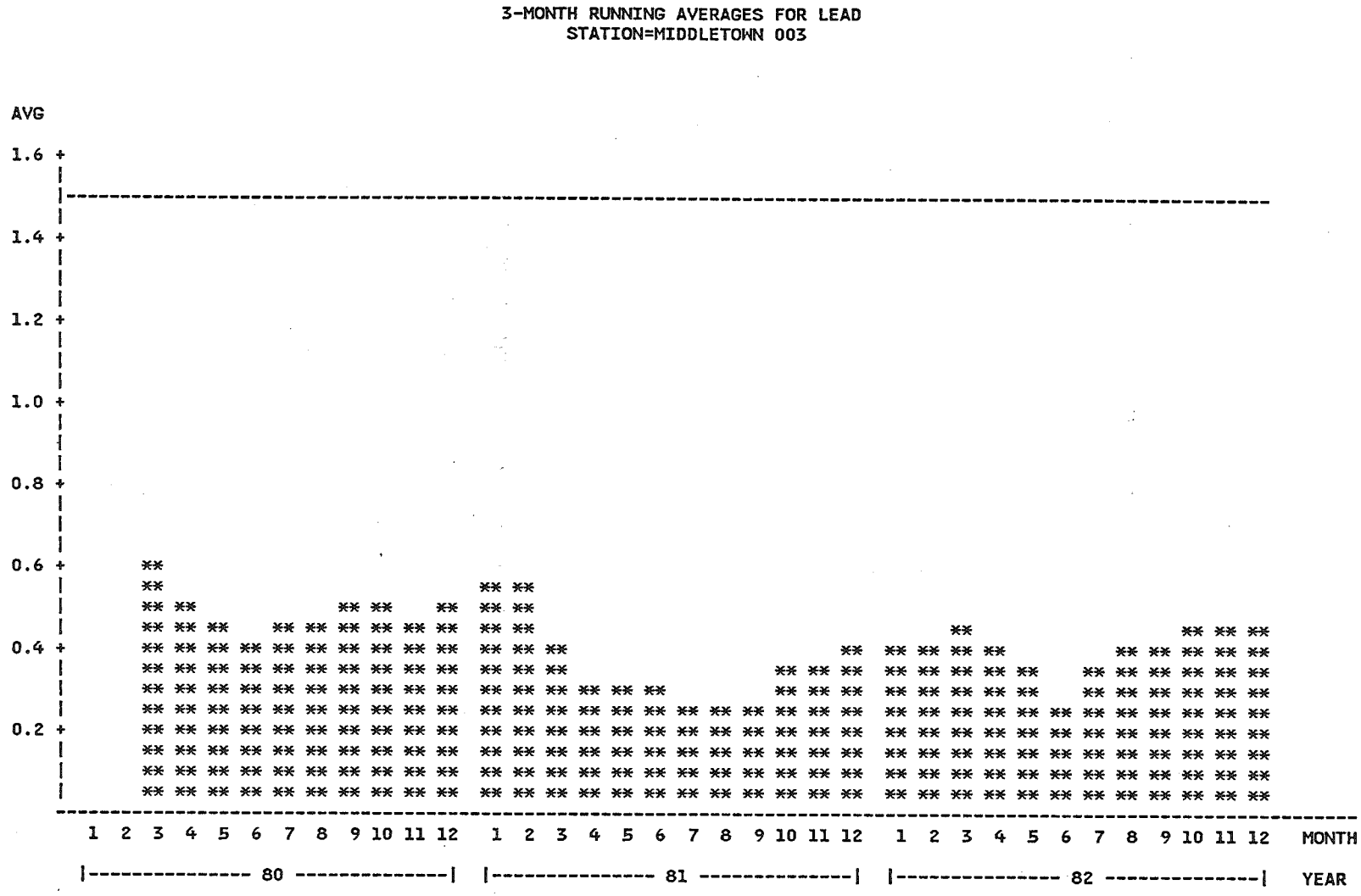


FIGURE 13, continued

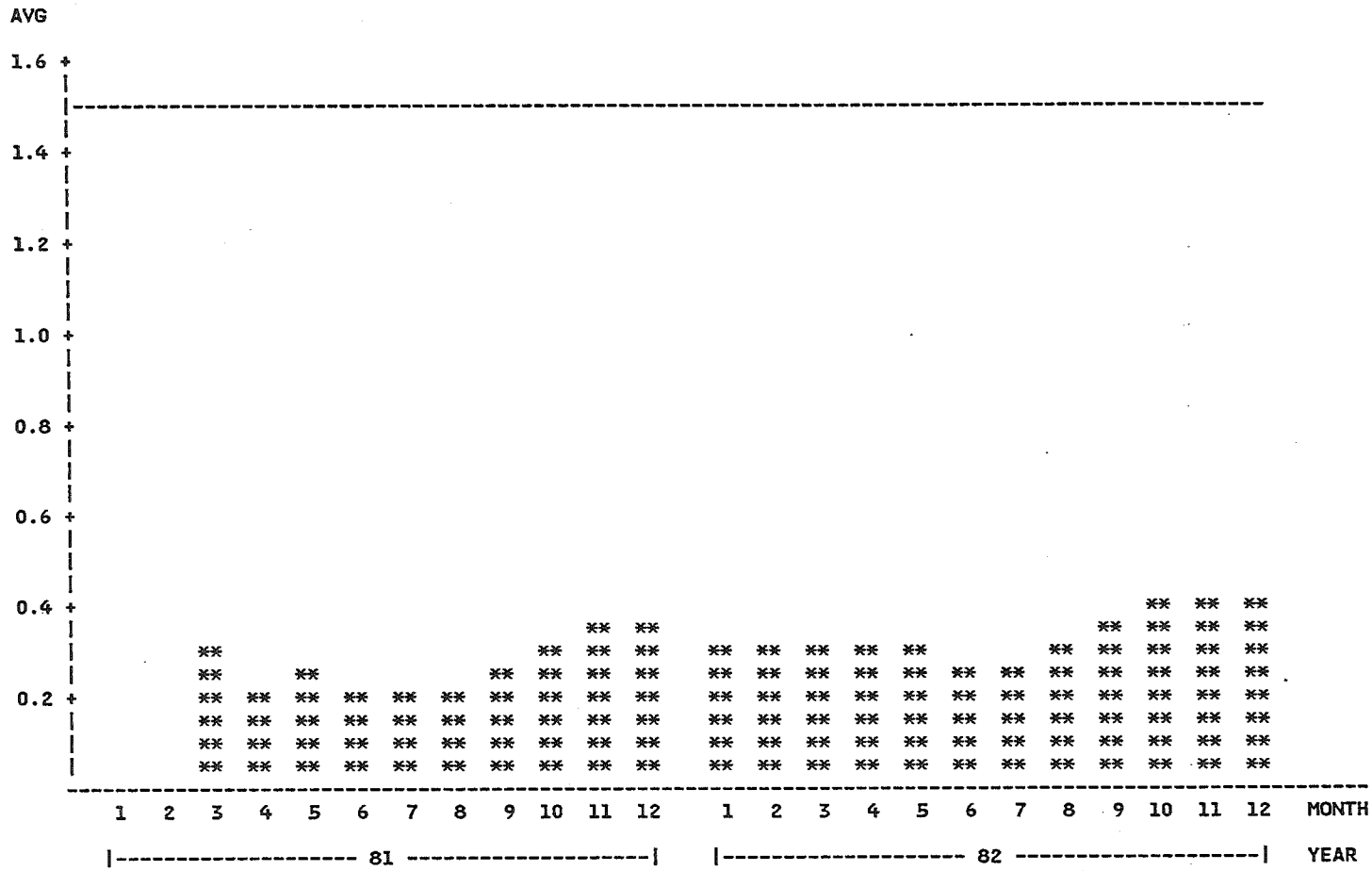


FIGURE 13, continued

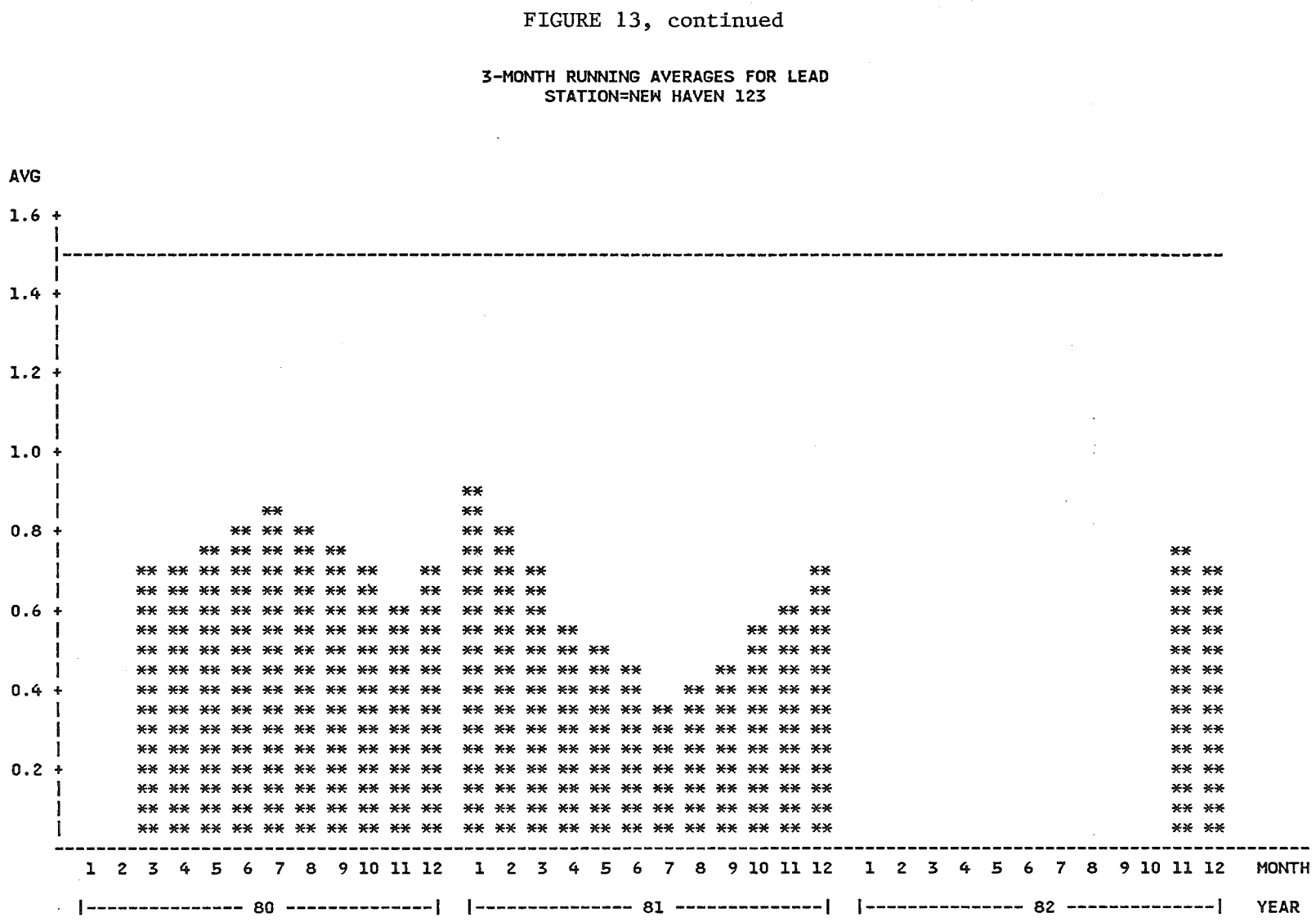


FIGURE 13, continued

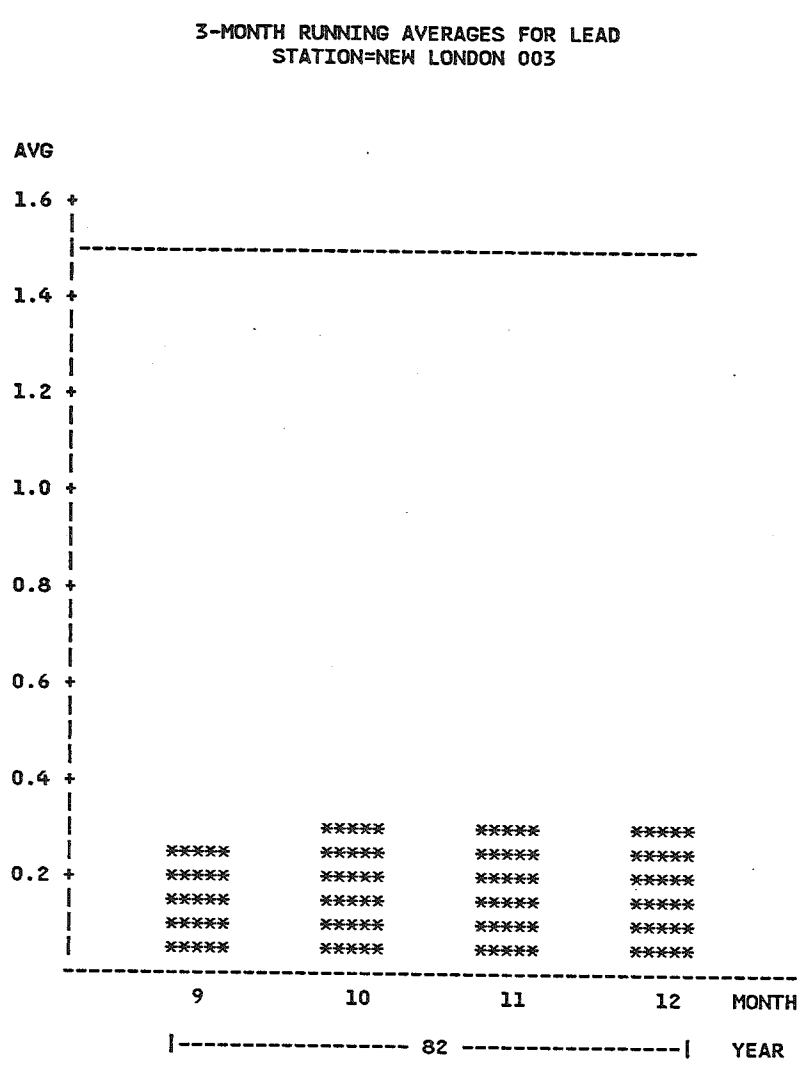


FIGURE 13, continued

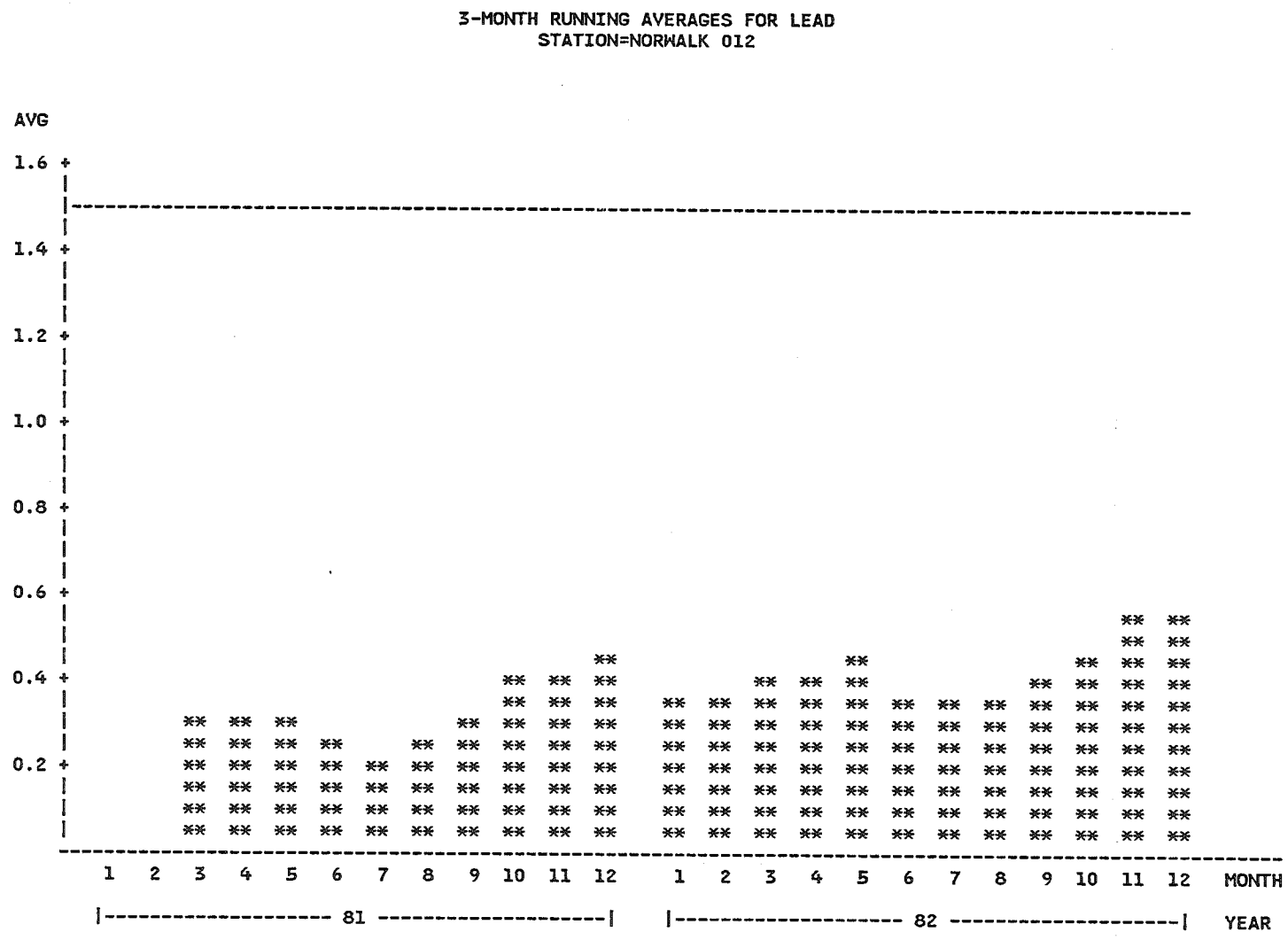


FIGURE 13, continued

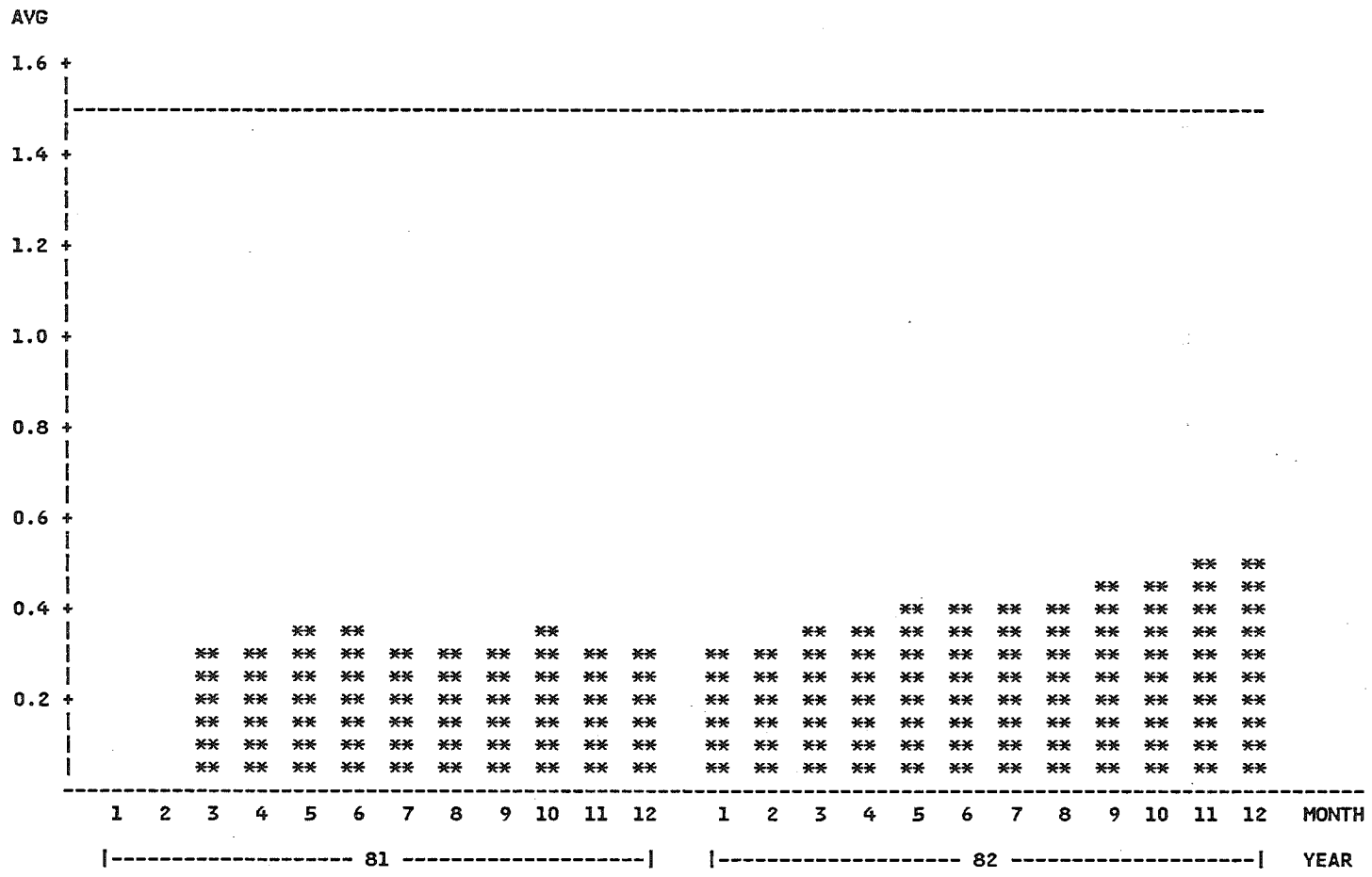


FIGURE 13, continued

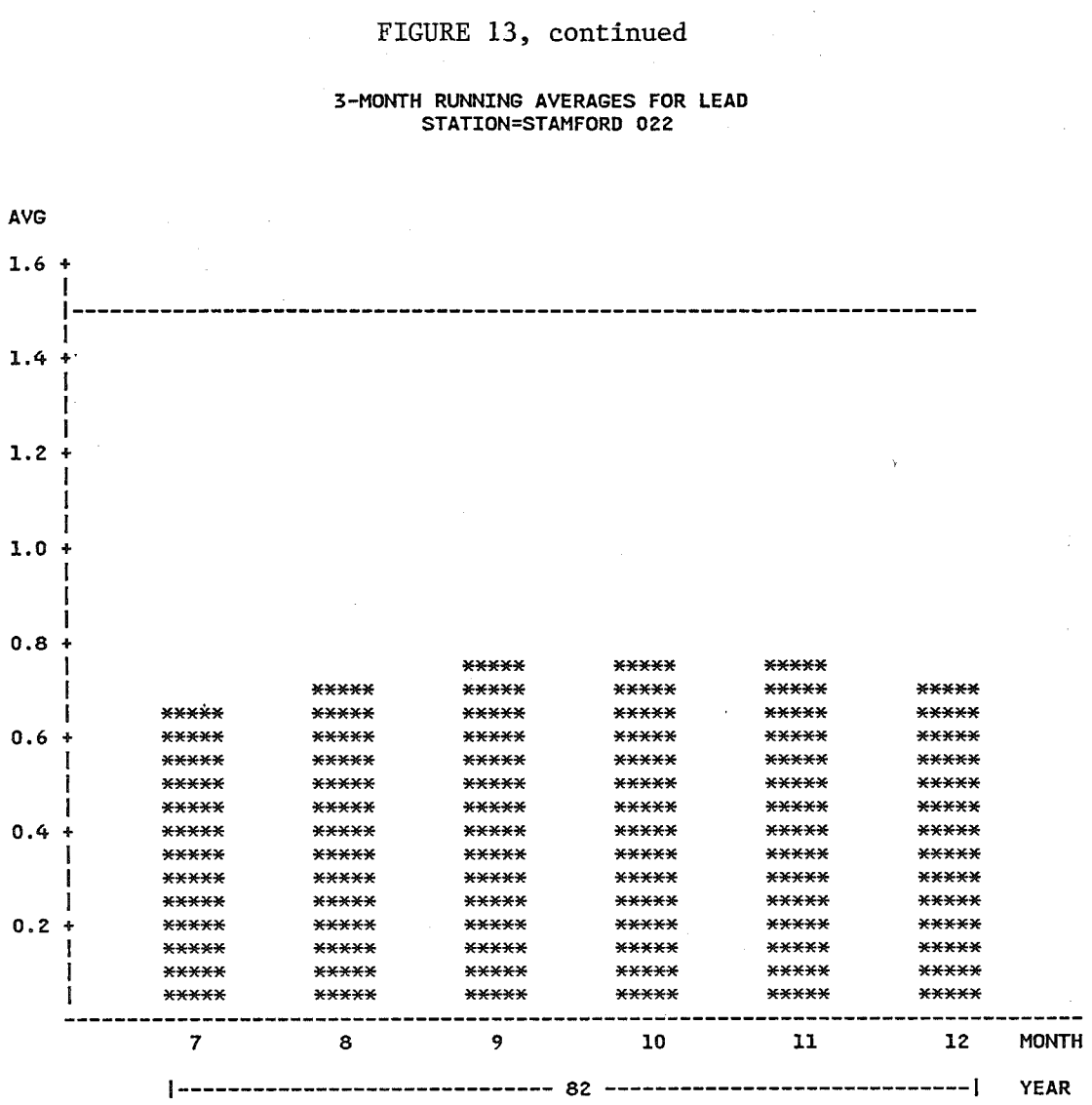


FIGURE 13, continued

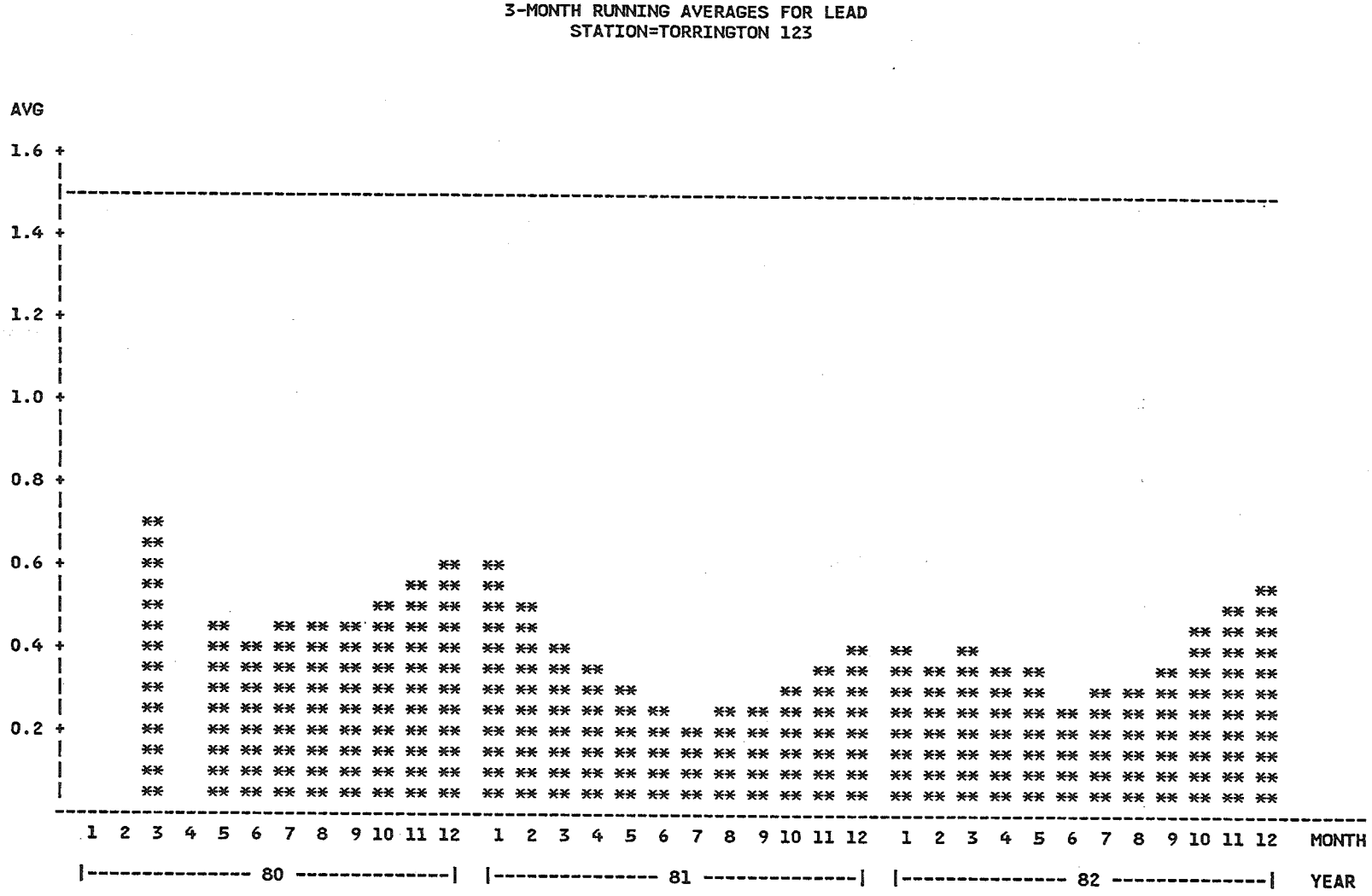


FIGURE 13, continued

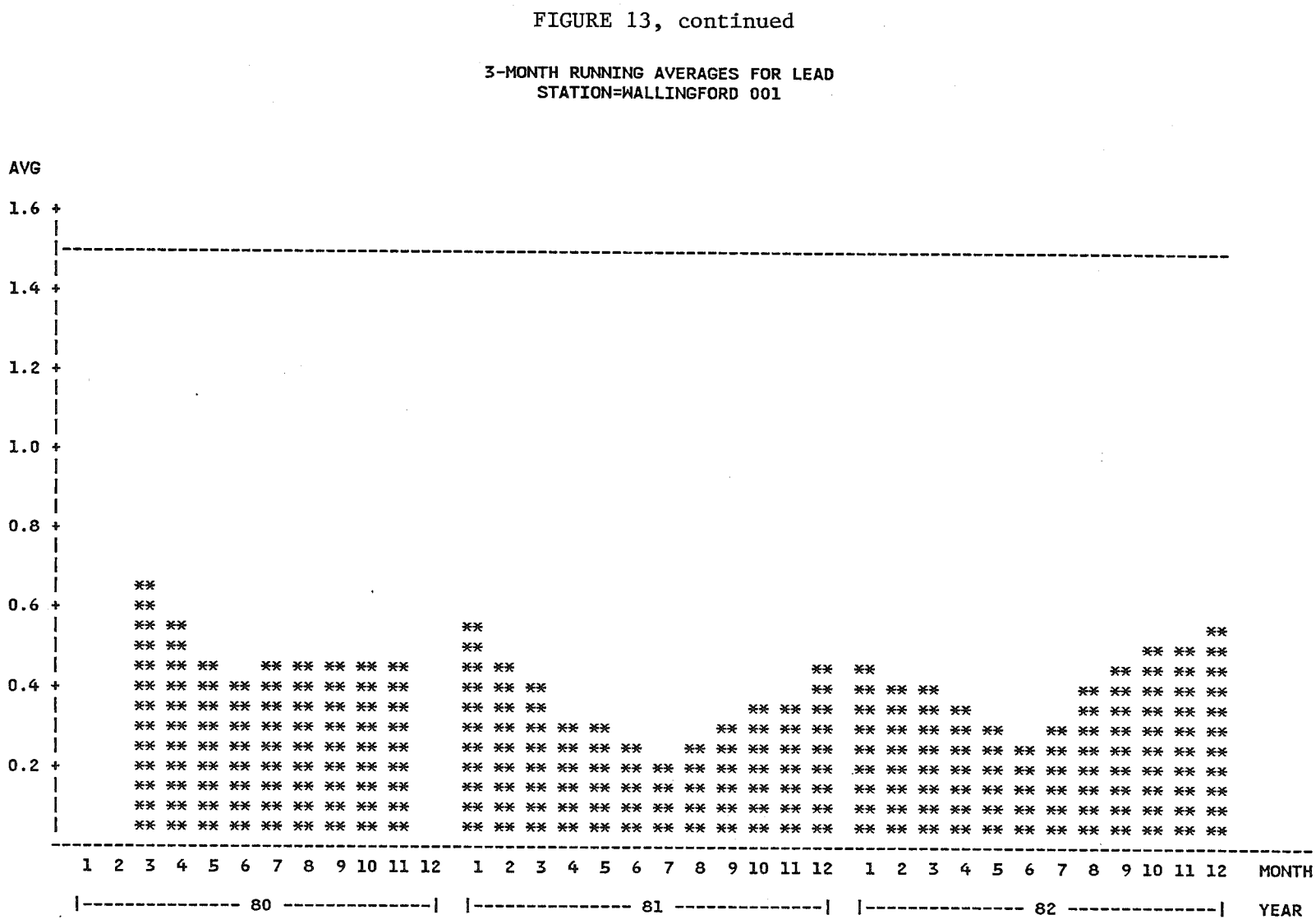


FIGURE 13, continued

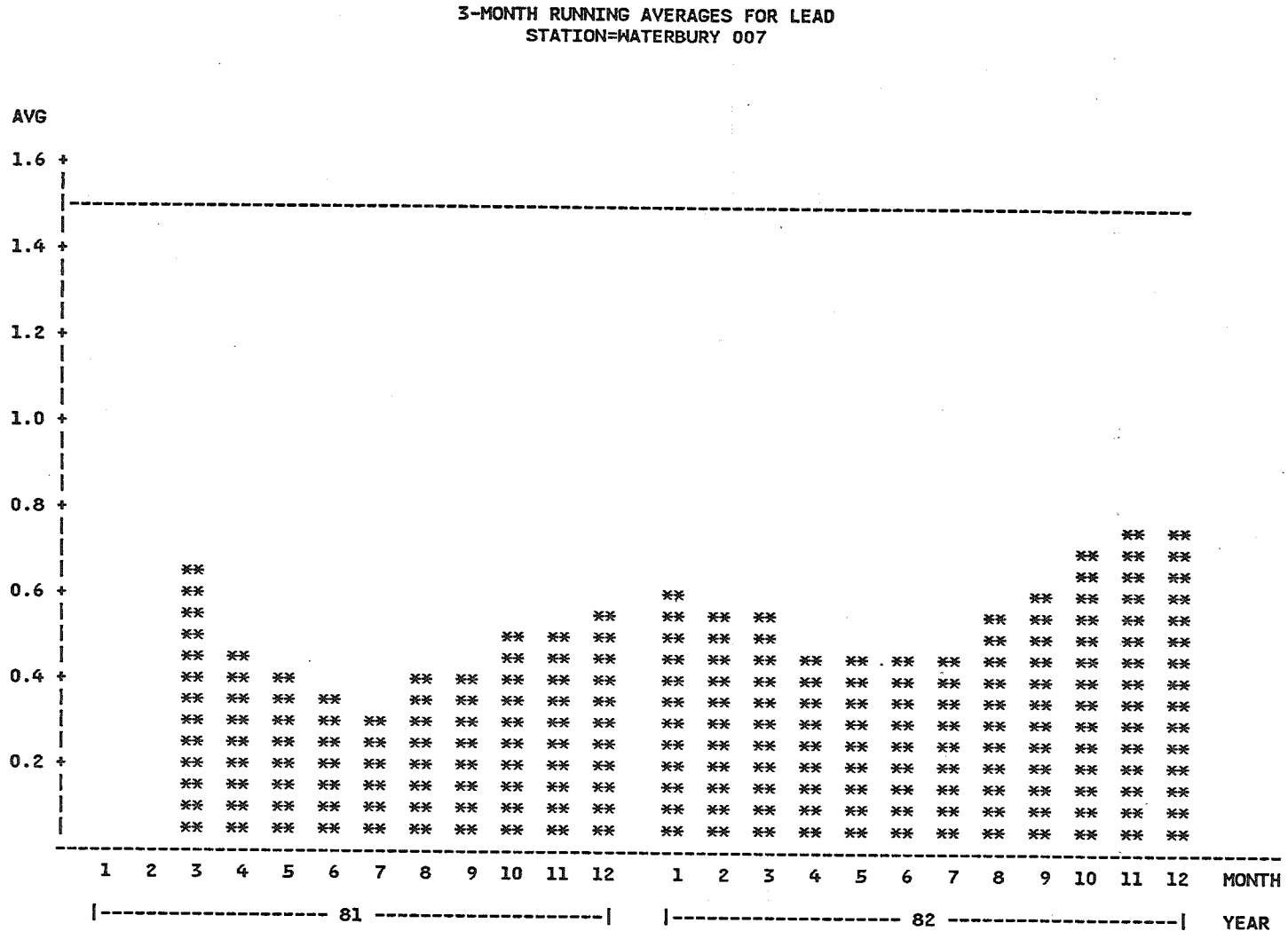
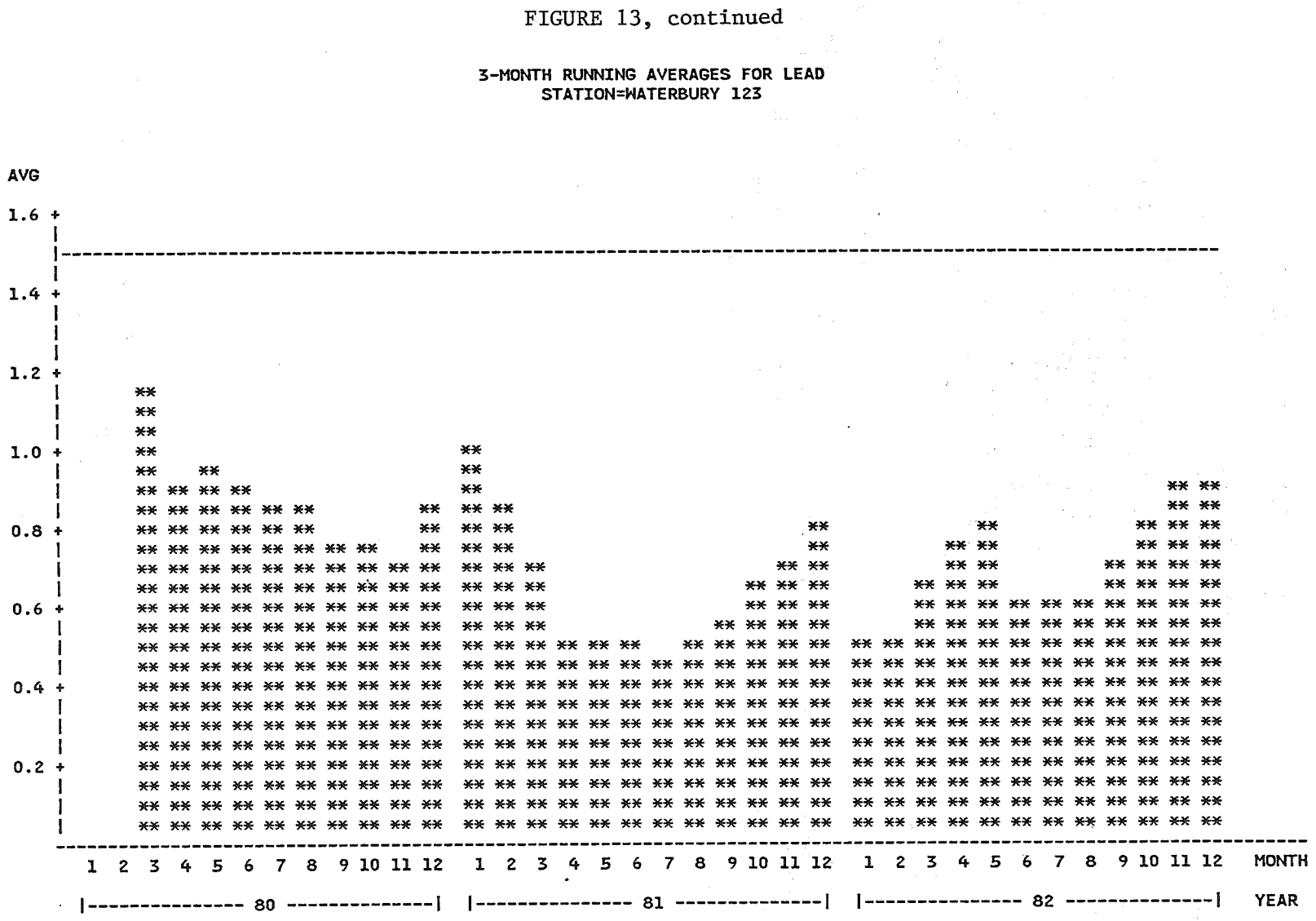


FIGURE 13, continued



VIII. CLIMATOLOGICAL DATA

Weather is often the most significant factor influencing short-term changes in air quality and it also has an affect on long-term trends. Shown in Table 28 is climatological information from the National Weather Service Station at Bradley International Airport in Windsor Locks for the years 1981 and 1982. Table 29 contains information from the Weather Service site located at Sikorsky Memorial Airport near Bridgeport. All data are compared to "mean" or "normal" values. Wind speeds and temperatures are shown as monthly and yearly averages. Precipitation data includes the number of days with more than 0.01 inches of precipitation as well as total water equivalent. Also shown are degree days* (heating requirement) and the number of days with temperatures exceeding 90°F.

Wind roses for Bradley Airport, and Newark Airport have been developed from 1982 National Weather Service surface observations and are shown in Figures 15 and 17. Wind roses from these stations for 1981 are shown in Figures 14 and 16. ~~The differences between 1981 and 1982 wind roses were discussed earlier in the trend analysis section of the introduction to this Air Quality Summary.~~

* The degree day value for each day is arrived at by subtracting the average temperature of the day from 65°F. This number (65) is used as a base value because it is assumed that there is no heating requirement when the outside temperature is 65°F.

TABLE 28

1981 AND 1982 CLIMATOLOGICAL DATA
BRADLEY INTERNATIONAL AIRPORT
WINDSOR LOCKS

	AVERAGE TEMPERATURES °F			NUMBER OF DAYS ON WHICH MAX. TEMP. EXCEEDED 90°F			DEGREE DAYS			PRECIPITATION IN INCHES WATER EQUIVALENT			NUMBER OF DAYS WITH MORE THAN .01 INCHES OF PRECIPITATION			AVERAGE WIND SPEED (MPH)			
	1981	1982	Mean[a]	1981	1982	Mean[b]	1981	1982	Normal[d]	1981	1982	Mean[d,e]	1981	1982	Mean[b,c]	1981	1982	Mean[b,c]	
January	17.8	18.8	26.6	0	0	0	1456	1427	1246	0.38	4.76	3.55	6	11	11	7.0	8.5	9.2	Jan.
February	35.3	29.2	27.7	0	0	0	824	996	1070	7.27	2.83	3.24	16	7	10	8.8	7.5	9.6	Feb.
March	38.1	36.7	37.1	0	0	0	828	871	911	0.27	2.23	3.72	4	13	11	8.4	7.5	10.0	March
April	52.0	45.8	48.1	0	0	*	380	569	519	2.92	4.12	3.72	10	11	11	9.7	10.9	10.3	April
May	61.6	61.4	59.2	1	0	1	149	128	226	2.17	3.30	3.52	7	10	11	7.4	6.2	9.0	May
June	69.6	65.0	68.0	1	0	4	10	64	24	1.37	13.60	3.57	11	15	11	7.3	7.0	8.2	June
July	74.8	74.4	73.2	9	10	8	0	1	0	4.21	2.60	3.53	10	4	10	6.4	6.0	7.6	July
August	70.6	69.5	71.0	2	1	5	9	30	12	0.54	4.41	3.83	9	5	10	5.1	6.2	7.3	Aug.
September	62.5	63.0	63.6	0	0	1	115	96	106	4.49	2.41	3.66	10	9	10	6.7	5.4	7.4	Sept.
October	49.3	51.5	53.1	0	0	*	481	416	384	5.19	3.31	3.15	12	7	8	6.4	6.2	7.8	Oct.
November	43.7	45.8	42.1	0	0	0	635	575	711	2.34	3.12	3.73	10	12	11	7.8	7.2	8.5	Nov.
December	31.0	36.0	30.3	0	0	0	1048	894	1141	4.00	1.32	3.76	14	13	12	7.2	6.8	8.7	Dec.
YEAR	50.6	49.8	50.0	13	11	19	5935	6067	6350	35.15	48.01	42.98	119	117	126	7.4	7.1	8.6	YEAR

* Less than 1/2

a 1905-1982
b ~~1960~~1959-1982
c ~~1955~~1954-1982
d 1941-1970

Extracted From: Local Climatological Data Charts
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Data Service

TABLE 29

1981 AND 1982 CLIMATOLOGICAL DATA
SIKORSKY INTERNATIONAL AIRPORT
STRATFORD

	AVERAGE TEMPERATURES °F			NUMBER OF DAYS ON WHICH MAX. TEMP. EXCEEDED 90°F			DEGREE DAYS			PRECIPITATION IN INCHES WATER EQUIVALENT			NUMBER OF DAYS WITH MORE THAN .01 INCHES OF PRECIPITATION			AVERAGE WIND SPEED (MPH)			
	1981	1982	Mean[a]	1981	1982	Mean[b]	1981	1982	Normal[c]	1981	1982	Mean[d]	1981	1982	Mean[e]	1981	1982	Mean[f]	
January	22.2	22.9	28.3	0	0	0	1320	1297	1079	0.54	5.50	3.64	5	10	11	11.4	---	13.2	Jan.
February	33.9	32.8	30.4	0	0	0	865	897	955	4.66	2.47	3.31	14	7	10	14.0	---	13.6	Feb.
March	38.1	37.9	37.9	0	0	0	831	832	840	0.69	2.76	3.92	7	13	11	13.0	---	13.5	Mar.
April	49.3	46.3	47.9	0	0	0	465	556	498	3.19	3.83	3.84	12	10	11	13.5	---	13.0	Apr.
May	58.6	59.6	58.4	0	0	*	214	164	225	1.92	3.02	3.66	9	11	11	11.3	---	11.6	May
June	68.0	63.9	67.7	0	0	1	18	72	24	2.10	11.53	3.36	11	15	9	---	---	10.5	June
July	74.0	72.9	73.3	4	5	3	0	1	0	4.45	3.31	3.66	9	4	8	---	---	10.0	July
August	71.4	69.3	71.9	0	0	1	1	19	0	0.72	3.14	4.02	4	7	9	---	---	10.1	Aug.
September	62.8	64.1	65.1	0	0	*	102	66	42	4.50	1.30	3.55	10	6	9	---	---	11.2	Sept.
October	50.5	52.9	54.7	0	0	0	445	371	261	4.32	1.52	3.36	10	7	7	---	---	11.9	Oct.
November	44.1	47.0	44.1	0	0	0	619	530	570	1.93	3.13	3.75	8	9	10	---	---	12.7	Nov.
December	33.8	38.7	33.2	0	0	0	959	809	967	3.65	1.10	3.71	12	11	11	---	---	13.0	Dec.
YEAR	50.6	50.7	51.1	4	5	6	5839	5614	5461	32.67	42.61	43.78	111	110	117	---	---	12.0	YEAR

* Less than 1/2

a 1903-1982
b 1966-1982
c 1941-1970
d 1894-1982
e 1949-1982
f 1958-~~1981~~ 1982

Extracted From: Local Climatological Data Charts
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Data Service

FIGURE 14

ANNUAL WIND ROSE 1981

BRADLEY INTERNATIONAL AIRPORT

WINDSOR LOCKS, CONNECTICUT

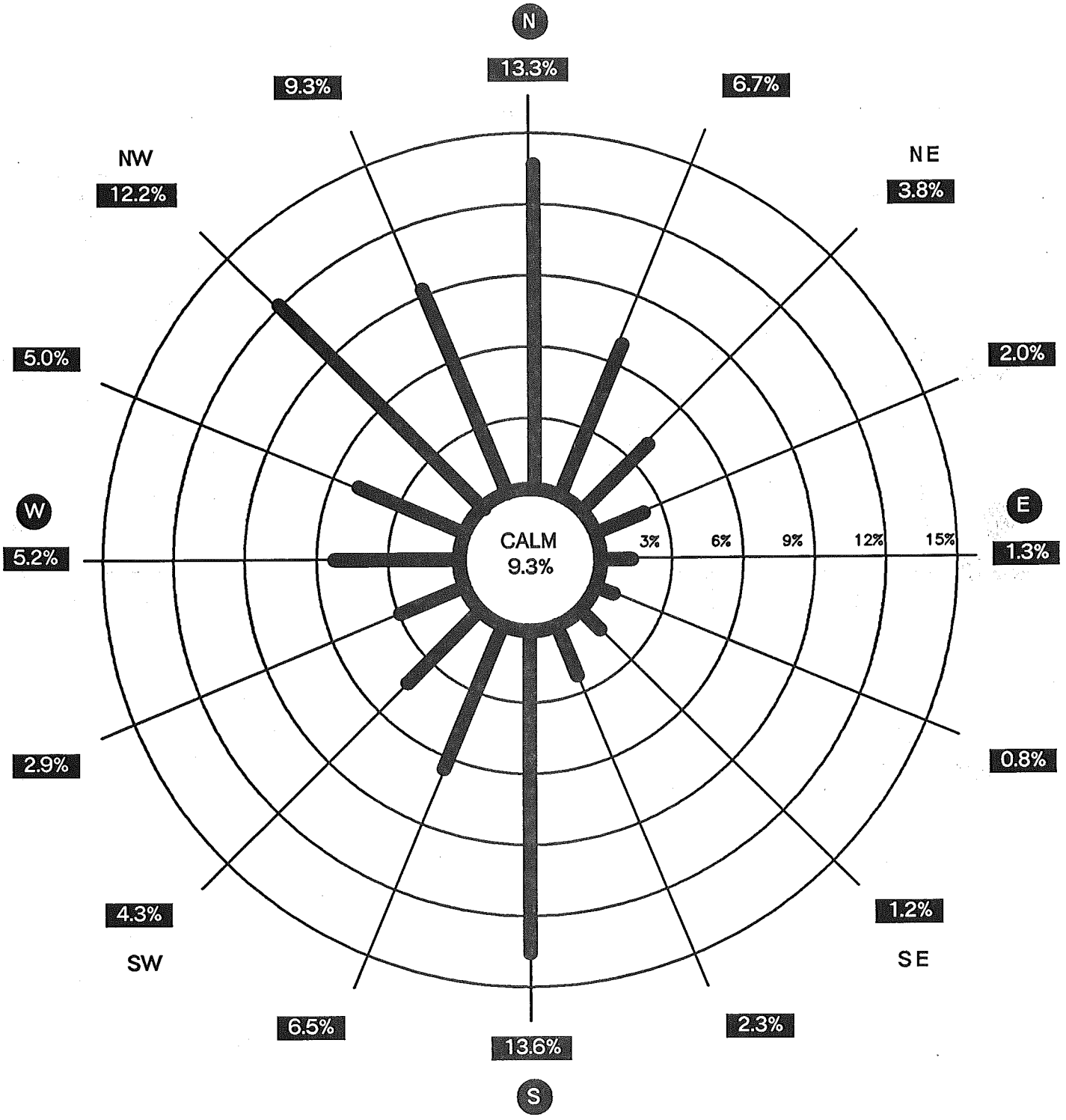


FIGURE 15

ANNUAL WIND ROSE 1982

BRADLEY INTERNATIONAL AIRPORT

WINDSOR LOCKS, CONNECTICUT

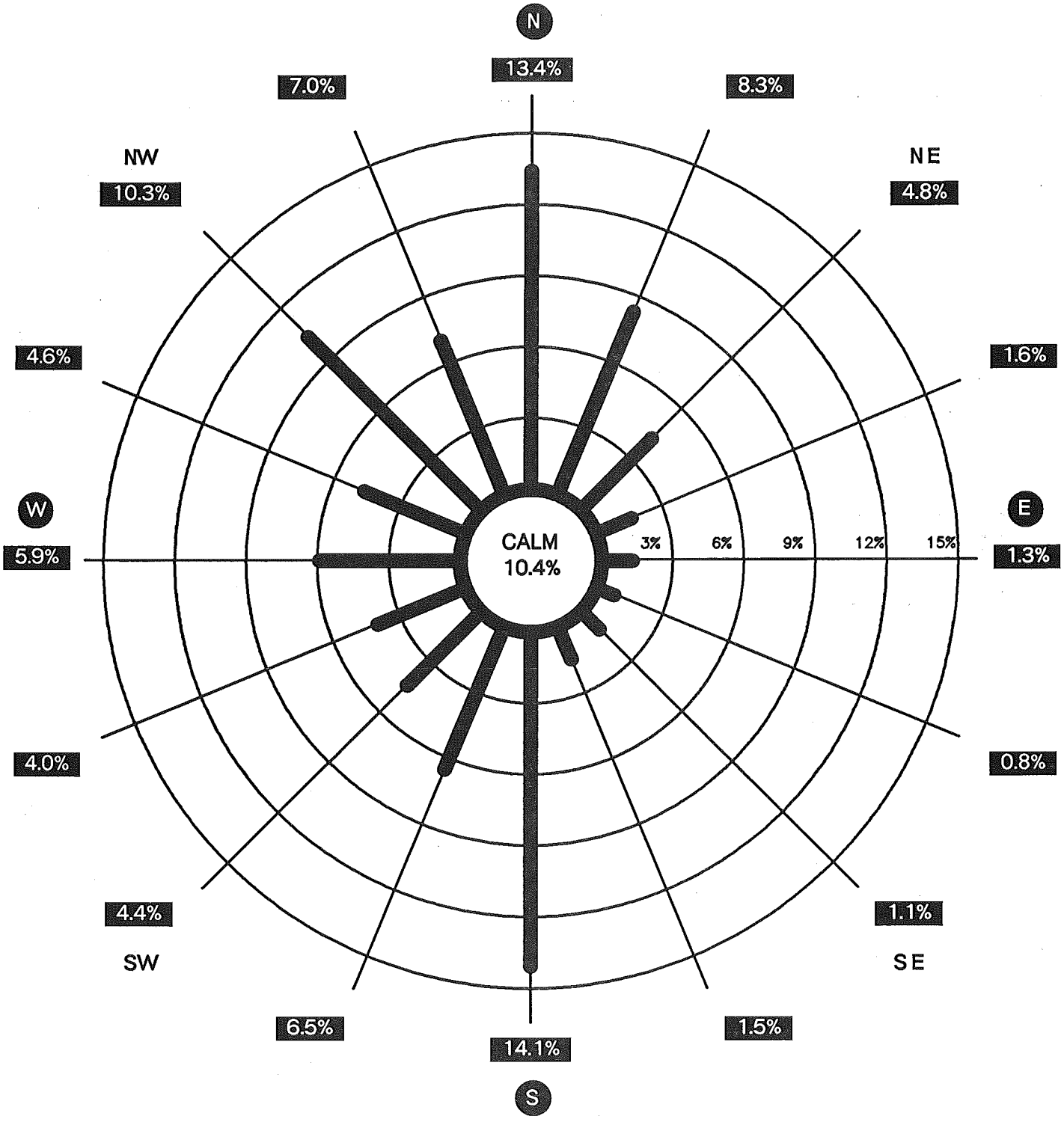


FIGURE 16

ANNUAL WIND ROSE 1981

NEWARK INTERNATIONAL AIRPORT

NEWARK, NEW JERSEY

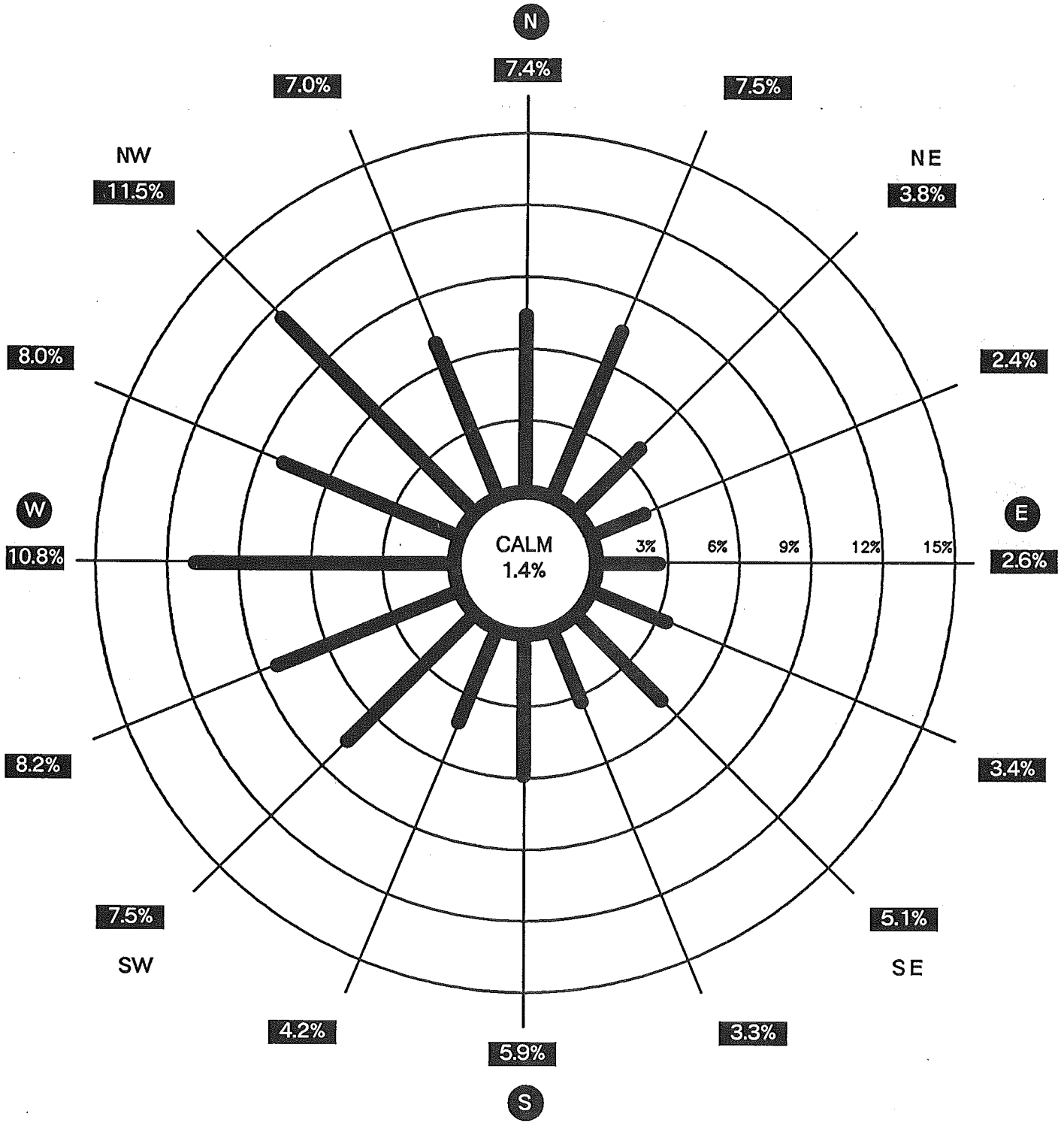
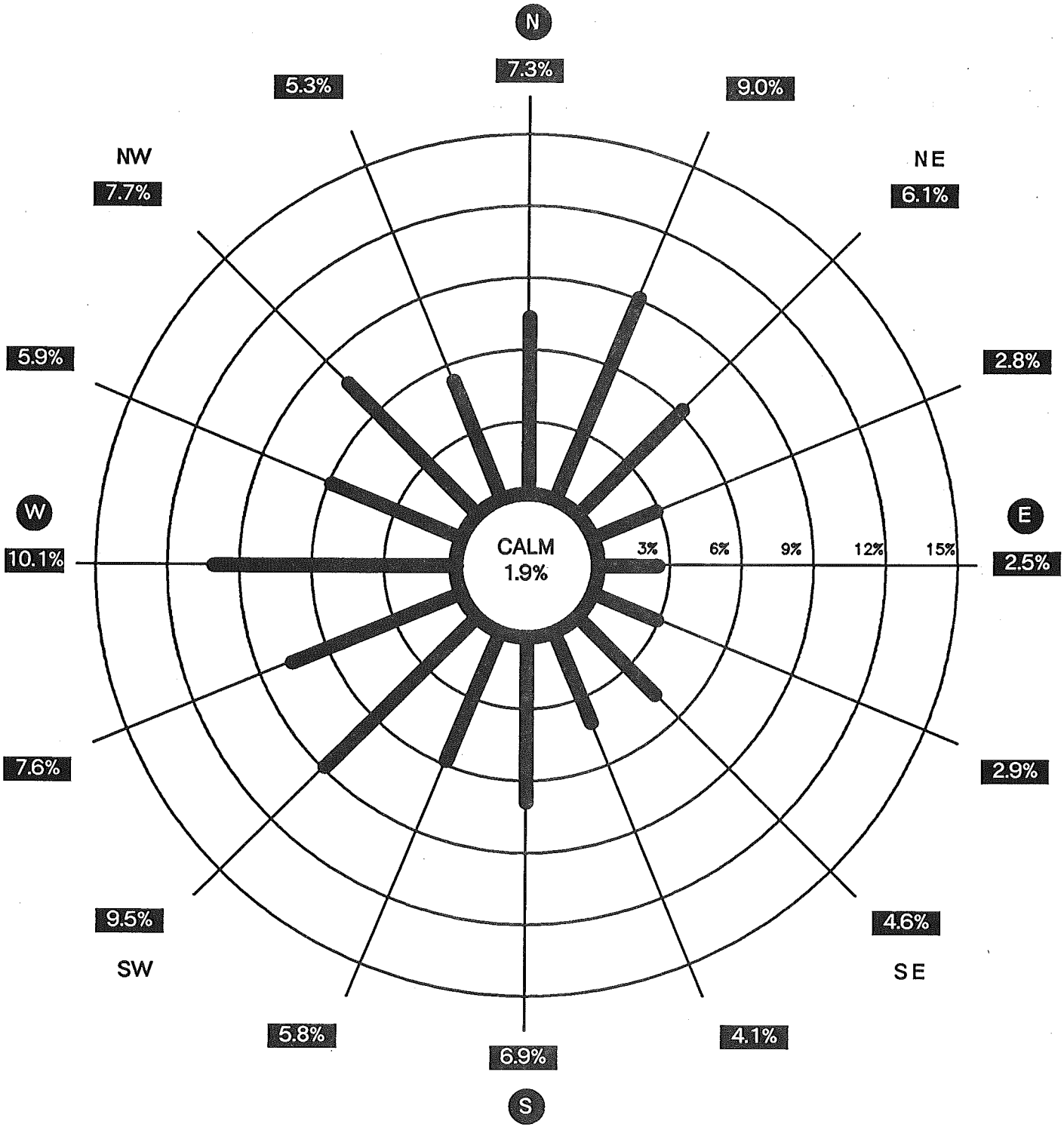


FIGURE 17

ANNUAL WIND ROSE 1982

NEWARK INTERNATIONAL AIRPORT

NEWARK, NEW JERSEY



IX. ATTAINMENT AND NON-ATTAINMENT OF NAAQS IN CONNECTICUT'S AQCR'S

The attainment statuses of Connecticut's four Air Quality Control Regions (AQCR's, see Figure 18) with regard to the National Ambient Air Quality Standards (NAAQS) have been determined for 1982 for the following pollutants: total suspended particulates (TSP); sulfur dioxide (SO_2); ozone (O_3); nitrogen dioxide (NO_2); carbon monoxide (CO); and lead (Pb). Table 30 shows the attainment status of each AQCR for each pollutant. The regions are classified as attainment, non-attainment or unclassifiable. A region is classified non-attainment for a particular pollutant if the region, or any portion thereof, was in violation of any NAAQS for the pollutant at any time during 1980, 1981, or 1982. (The only exception is made for the pollutant lead, for which only two years are examined.) Unclassifiable regions are ones in which there were no monitors with which to determine attainment or non-attainment.

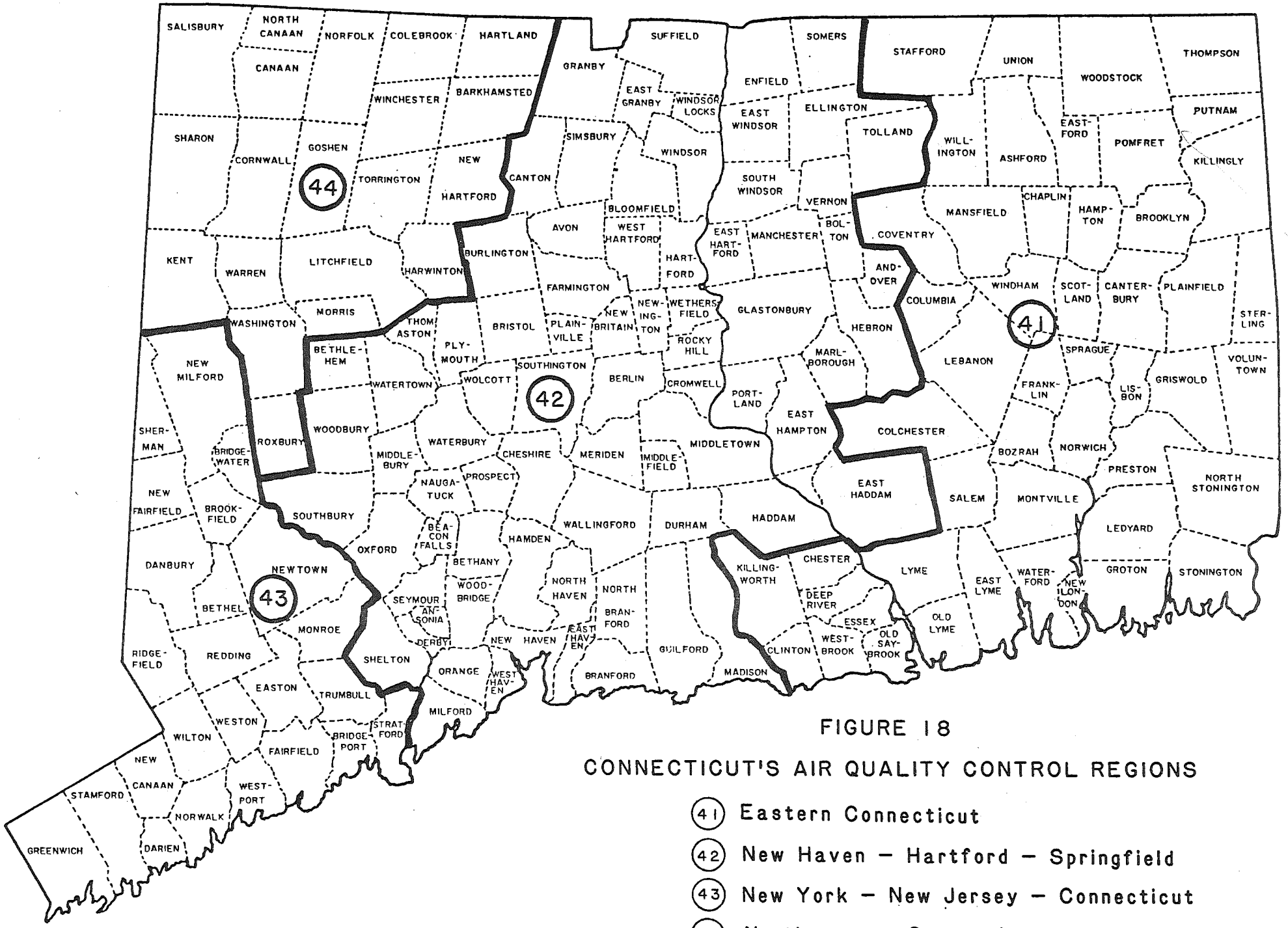


FIGURE 18

CONNECTICUT'S AIR QUALITY CONTROL REGIONS

(41) Eastern Connecticut

(42) New Haven – Hartford – Springfield

(43) New York – New Jersey – Connecticut

(44) Northwestern Connecticut

TABLE 30

CONNECTICUT'S COMPLIANCE WITH THE NAAQS (BY AQCR) FOR 1982

Pollutant	Primary or Secondary	NAAQS	AQCR 41	AQCR 42	AQCR 43	AQCR 44
TSP	Primary	Annual	A	A	A	A
		24-Hour	A	A	A	A
	Secondary	Annual	X	X	X	X
		24-Hour	X	X	X	X
SO_2	Primary	Annual	A	A	A	A
		24-Hour	A	A	A	A
	Secondary	3-Hour	A	A	A	A
Ozone	Both	1-Hour	X	X	X	X
NO_2	Both	Annual	A	A	A	A
CO	Both	1-Hour	U	A	X	U
		8-Hour	U	X	X	U
Lead	Both	3-Month	A	A	A	A

X = Non-Attainment
U = Unclassifiable
A = Attainment

X. CONNECTICUT SLAMS AND NAMS NETWORK

On May 10, 1979, the U.S. Environmental Protection Agency made public its final rulemaking for ambient air monitoring and data reporting requirements in the "Federal Register" (Vol. 44, No. 92). These regulations are meant to ensure the acceptability of air measurement data, the comparability of data from all monitoring stations, the cost-effectiveness of monitoring networks, and timely data submission for assessment purposes. The regulations address a number of key areas including quality assurance, monitoring methodologies, network design and probe siting. Detailed requirements and specific criteria are provided which form the framework for ambient air quality monitoring. These regulations apply to all parties conducting ambient air quality monitoring for the purpose of supporting or complying with environmental regulations. In particular, state/local control agencies and industrial/private concerns involved in air monitoring are directly influenced by specific requirements, compliance dates and recommended guidelines.

Quality Assurance

The regulations specify the minimum quality assurance requirements for State and Local Air Monitoring Stations (SLAMS) networks, National Air Monitoring Stations (NAMS) networks, and Prevention of Significant Deterioration (PSD) air monitoring. Two distinct and equally important functions make up the quality assurance program: assessment of the quality of monitoring data by estimating their precision and accuracy, and control of the quality of the data by implementation of quality control policies, procedures, and corrective actions. (See Part F of Section I, Quality Assurance).

The data assessment requirements entail the determination of precision and accuracy for both continuous and manual methods. A one-point precision check must be carried out at least once every other week on each automated analyzer used to measure SO_2, NO_2, CO and O_3. Standards from which the precision check test data are derived must meet specifications detailed in the regulations. For manual methods, precision checks are to be accomplished by operating co-located duplicate samplers. In 1982, Connecticut maintained three co-located TSP monitors. They were: Bridgeport 009, Hartford 003, and Waterbury 005.

Accuracy determinations are accomplished by performing analyzer audits via special audit gases for automated analyzers, and via reference flow devices for hi-vols. For SLAMS analyzers, accuracy audits must be performed on each analyzer at least once per calendar year. Each PSD analyzer must be audited at least once each calendar quarter. All precision and accuracy data are

derived through calculation methods specified by the regulations, with the results reported quarterly on Data Assessment Report Forms. The NAMS network is actually part of the SLAMS network; so the SLAMS accuracy determination also apply to to the NAMS network. The distinguishing characteristics of NAMS are: 1) only continuous instruments are used to monitor gaseous pollutants; 2) the regulations specify a minimum number and locations for them; and 3) the data, in addition to being included in the annual report, are reported quarterly to EPA.

In order to control the quality of data, the monitoring program must have operational procedures for each of the following activities:

1. Installation of equipment,
2. Selection of methods, analyzers, or samplers,
3. Zero/span checks and analyzer adjustments,
4. Calibration,
5. Control limits for zero/span and other control checks, and respective corrective actions when such limits are exceeded,
6. Control checks and their frequency,
7. Preventive and remedial maintenance,
8. Calibration and zero/span checks for multi-range analyzers,
9. Recording and validating data, and
10. Documentation of quality control information.

Monitoring Methodologies

Except as otherwise stated within the regulations, the monitoring method used must be "reference" or "equivalent," as designated by the EPA. Table 31 lists methods used in Connecticut's network in 1982 which were on the EPA-approved list as of 9/18/80. Additional updates to these approved methods are provided through the "Federal Register."

Network Design

The regulations also describe monitoring objectives and general criteria to be applied in establishing the SLAMS networks and for choosing general locations for new monitors. Criteria are also presented for determining the location and number of monitors. These criteria serve as the framework for all State Implementation Plan (SIP) monitoring networks that must be complete and in operation by January 1, 1983.

The SLAMS network must be designed to meet four basic monitoring objectives: (1) to determine the highest pollutant concentration in the area; (2) to determine representative concentrations in areas of high population density; (3) to determine the ambient impact of significant sources or source categories; and (4) to determine general background concentration

levels. Proper siting of a monitor requires precise specification of the monitoring objectives, which usually includes a desired spatial scale of representativeness. Within the regulations, spatial scales of representativeness are detailed on a pollutant and monitoring-objective basis. The 1982 SLAMS and NAMS networks in Connecticut are presented and described in Table 32.

Probe Siting

Location and exposure of monitoring probes has been an area of confusion for a number of years because of conflicting guidelines and a lack of guidance or recommended criteria. The probe siting criteria promulgated in the regulations are specific. They are also sufficiently inclusive to define the requirements for ensuring the uniform collection of compatible and comparable air quality data.

These criteria are detailed by pollutant and include vertical and horizontal probe placement, spacing from obstructions and trees, spacing from roadways, probe material and sample residence time, as well as various other considerations. A summary of the probe siting criteria is presented in Table 33. The siting criteria generally apply to all spatial scales except where noted. The most notable exceptions relate to spacing from roadways which is dependent on traffic volume.

For the reactive gases SO_2, NO_2, and O_3, the regulations specify borosilicate glass, FEP teflon or their equivalent as the only acceptable probe materials. Additionally, in order to minimize the effects of particulate deposition on probe walls, sampling probes for reactive gases must have residence times of less than 20 seconds by specifications.

TABLE 31

U.S. EPA APPROVED MONITORING METHODS USED IN CONNECTICUT IN 1982

	Manual Methods	Automated Methods	
Pollutant	Reference	Reference	Equivalent
TSP	High Volume Method		
SO_2			Thermo Electron 43 (0.5)
CO		Bendix 8501-5CA (50)	
O_3		Bendix 8002 (0.5)	
NO_2		Thermo Electron 14 B/E (0.5) Monitor Labs 8440E (0.5) Bendix 8101-C (0.5)	
Lead	High Volume Method		

( ) = approved range

TABLE 32

1982 SLAMS AND NAMS SITES

LEAD

Town	Urban Area	Site	SLAMS or NAMS	Samp. Meth.	Analytic Method	Operating Schedule	Monitoring Objective	Spatial Scale and Representativeness
Ansonia	Bridgeport	003	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Bridgeport	Bridgeport	009	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Bridgeport	Bridgeport	123	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Bristol	Bristol	001	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Danbury	Danbury	002	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Hartford	Hartford	014	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Meriden	Meriden	002	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Middletown	~~Meriden~~ Hartford	003	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
New Britain	New Britain	007	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
New Haven	New Haven	123	S	Hi-Vol	Atomic Abs.	6-day	High Conc.	Middle
Norwalk	Norwalk	012	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Stamford	Stamford	001	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Torrington	Torrington	123	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Wallingford	New Haven	001	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Waterbury	Waterbury	007	S	Hi-Vol	Atomic Abs.	6-day	Population	Neighborhood
Waterbury	Waterbury	123	S	Hi-Vol	Atomic Abs.	6-day	High Conc.	Middle

NITROGEN OXIDES

Bridgeport	Bridgeport	123	S	Chemiluminescent	Contin.	~~Population~~ Hi. Conc.	Neighborhood
E. Hartford	Hartford	003	S	Chemiluminescent	Contin.	~~Population~~ Hi. Conc.	Neighborhhod
New Haven	New Haven	123	S	Chemiluminescent	Contin.	~~Population~~ Hi. Conc.	Neighborhood

OZONE

Bridgeport	Bridgeport	123	N	Chemiluminescent	Contin.	Population	Neighborhood
Danbury	Danbury	123	S	Chemiluminescent	Contin.	Population	Urban
E. Hartford	Hartford	003	N	Chemiluminescent	Contin.	Population	Neighborhood
Greenwich Pt.	Stamford	017	S	Chemiluminescent	Contin.	Background	Regional
Groton	New London	005	S	Chemiluminescent	Contin.	High Conc.	Urban
Middletown	~~Meriden~~ Hartford	007	N	Chemiluminescent	Contin.	High Conc.	Urban
New Haven	New Haven	123	N	Chemiluminescent	Contin.	~~High Conc.~~ Pop.	Neighborhood
Stafford	~~Hartford~~ none	001	N	Chemiluminescent	Contin.	High Conc.	Urban
Stratford	Bridgeport (NYC Downwind)	007	N	Chemiluminescent	Contin.	~~Population~~ Hi. Conc.	Urban

CARBON MONOXIDE

Bridgeport	Bridgeport	004	S	NDIR	Contin.	High Conc.	Micro
Hartford	Hartford	012	S	NDIR	Contin.	High Conc.	Micro
New Britain	New Britain	002	S	NDIR	Contin.	High Conc.	Micro
New Haven	New Haven	007	S	NDIR	Contin.	High Conc.	Micro
Stamford	Stamford	020	S	NDIR	Contin.	High Conc.	Micro

TABLE 32, Continued

1982 SLAMS AND NAMS SITES

TOTAL SUSPENDED PARTICULATES

Town	Urban Area	Site	SLAMS or NAMS	Samp. Meth.	Analytic Method	Operating Schedule	Monitoring Objective	Spatial Scale and Representativeness
Ansonia	Bridgeport	003	S	Hi-Vol	Gravimetric	3-day	Population	Neighborhood
Bridgeport	Bridgeport	001	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Bridgeport	Bridgeport	009	N	Hi-Vol	Gravimetric	6-day	~~High Conc.~~ Pop.	Neighborhood
Bridgeport	Bridgeport	123	N	Hi-Vol	Gravimetric	3-day	High Conc.	Neighborhood
Bristol	Bristol	001	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Burlington	NONE	001	S	Hi-Vol	Gravimetric	3-day	Background	Regional
Danbury	Danbury	002	N	Hi-Vol	Gravimetric	6-day	~~Population~~ Hi.Conc	Neighborhood
Danbury	Danbury	123	N	Hi-Vol	Gravimetric	6-day	~~High Conc.~~ Pop.	Neighborhood
East Hartford	Hartford	004	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Greenwich	Stamford	008	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Hartford	Hartford	003	N	Hi-Vol	Gravimetric	3-day	High Conc.	Neighborhood
Hartford	Hartford	013	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Hartford	Hartford	014	N	Hi-Vol	Gravimetric	6-day	High Conc.	Neighborhood
Manchester	Hartford	001	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Morris	NONE	001	S	Hi-Vol	Gravimetric	3-day	Background	Regional
Meriden	Meriden	002	N	Hi-Vol	Gravimetric	6-day	High Conc.	Neighborhood
Meriden	Meriden	008	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Middletown	~~Meriden~~ Hartford	003	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Milford	~~New Haven~~ Bridge-	002	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Naugatuck	Waterbury port	001	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
New Britain	~~Hartford~~ New	007	N	Hi-Vol	Gravimetric	3-day	~~Population~~ Hi.Conc	Neighborhood
New Britain	~~Hartford~~ Britain	008	N	Hi-Vol	Gravimetric	6-day	~~High Conc.~~ Pop.	Neighborhood
New Britain	~~Hartford~~	009	N	Hi-Vol	Gravimetric	6-day	High Conc.	Neighborhood
New Haven	New Haven	002	N	Hi-Vol	Gravimetric	6-day	High Conc.	Neighborhood
New Haven	New Haven	013	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
New Haven	New Haven	123	N	Hi-Vol	Gravimetric	3-day	Population	Neighborhood
Norwalk	Norwalk	001	S	Hi-Vol	Gravimetric	6 3-day	High Conc.	Neighborhood
Norwalk	Norwalk	005	N	Hi-Vol	Gravimetric	3 6-day	High Conc.	Neighborhood
Norwalk	Norwalk	012	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Norwich	New London/ Norwich	001	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Stamford	Stamford	001	N	Hi-Vol	Gravimetric	6-day	High Conc.	Neighborhood
Stamford	Stamford	007	N	Hi-Vol	Gravimetric	6-day	~~Population~~ Hi.Conc	Neighborhood
Stamford	Stamford	021	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Stratford	Bridgeport	005	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Voluntown	NONE	001	S	Hi-Vol	Gravimetric	3-day	Background	Regional
Wallingford	New Haven	001	N	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Waterbury	Waterbury	005	N	Hi-Vol	Gravimetric	6-day	~~High Conc.~~ Pop.	Neighborhood
Waterbury	Waterbury	006	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood
Waterbury	Waterbury	007	N	Hi-Vol	Gravimetric	3-day	~~Population~~ Hi.Conc	Neighborhood
Willimantic	~~Waterbury~~ NONE	002	S	Hi-Vol	Gravimetric	6-day	Population	Neighborhood

TABLE 32, Continued

1982 SLAMS AND NAMS SITES

SULFUR DIOXIDE

Town	Urban Area	Site	SLAMS or NAMS	Sampling & Analytic Method	Operating Schedule	Monitoring Objective	Spatial Scale and Representativeness
Bridgeport	Bridgeport	S	001	Pulsed Fluorescence	Contin.	Population	Neighborhood
Bridgeport	Bridgeport	N	123	Pulsed Fluorescence	Contin.	~~Population~~ Hi Conc.	Neighborhood
Danbury	Danbury	S	123	Pulsed Fluorescence	Contin.	Population	Neighborhood
Greenwich	Stamford	S	017	Pulsed Fluorescence	Contin.	Background	Urban
Hartford	Hartford	S	123	Pulsed Fluorescence	Contin.	Population	Neighborhood
Milford	Bridgeport	S	002	Pulsed Fluorescence	Contin.	~~High Conc.~~ Source	~~Neighborhood~~ Middle
New Haven	New Haven	N	123	Pulsed Fluorescence	Contin.	~~Population~~ Hi Conc.	Neighborhood
Stamford	Stamford	S	123	Pulsed Fluorescence	Contin.	High Conc.	Neighborhood
Waterbury	Waterbury	S	123	Pulsed Fluorescence	Contin.	Population	Neighborhood

TABLE 33

SUMMARY OF PROBE SITING CRITERIA

Pollutant	Scale	Distance from Supporting Structure, Meters		Height Above Ground, Meters	Other Spacing Criteria
		Vertical	Horizontal[a]		
TSP	All		>2	2 - 15	1. Should be >20 meters from trees. 2. Distance from sampler to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the sampler.[b] 3. Must have unrestricted airflow 270 degrees around the sampler. 4. No furnace or incineration flues should be nearby.[c] 5. Must have minimum spacing from roads. This varies with height of monitor and spatial scale.
SO_2	All	3 - 15	>1	>1	1. Should be >20 meters from trees. 2. Distance from inlet probe to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the inlet probe.[b] 3. Must have unrestricted airflow 270 degrees around the inlet probe, or 180 degrees if probe is on the side of a building. 4. No furnace or incineration flues should be nearby.[c]
CO	Micro	3 $\pm$ 1/2	>1	>1	1. Must be >10 meters from intersection and should be at a midblock location. 2. Must be 2-10 meters from edge of nearest traffic lane. 3. Must have unrestricted airflow 180 degrees around the inlet probe.
	Middle Neighborhood	3 - 15	>1	>1	1. Must have unrestricted airflow 270 degrees around the inlet probe, or 180 degrees if probe is on the side of a building. 2. Spacing from roads varies with traffic.[d]

TABLE 33, continued

SUMMARY OF PROBE SITING CRITERIA

Pollutant	Scale	Distance from Supporting Structure, Meters		Height Above Ground, Meters	Other Spacing Criteria
		Vertical	Horizontal[a]		
O_3	All	>1	>1	3 - 15	1. Should be >20 meters from trees. 2. Distance from inlet probe to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the inlet probe. 3. Must have unrestricted airflow 270 degrees around the inlet probe, or 180 degrees if probe is on the side of a building. 4. Spacing from roads varies with traffic.[d]
NO_2	All	3 - 15	>1	>1	1. Should be >20 meters from trees. 2. Distance from inlet probe to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the inlet probe.[b] 3. Must have unrestricted airflow 270 degrees around the inlet probe, or 180 degrees if probe is on the side of a building. 4. Spacing from roads varies with traffic.[d]

[a] When probe is located on rooftop, this separation distance is in reference to walls, parapets, or penthouses located on the roof.
[b] Sites not meeting this criterion would be classified as middle scale.
[c] Distance is dependent on height of furnace or incineration flue, type of fuel or waste burned, and quality of fuel (sulfur and ash content). This is to avoid undue influences from minor pollutant sources.
[d] Distance is dependent upon traffic ADT, pollutant and spatial scale.

XI. EMISSIONS INVENTORY

Connecticut's computerized emissions inventory contains two separate components -- a point source file of 12,000 stationary sources and an area source file of small sources, such as home furnaces and transportation activities, which are too small to be treated individually. The Compilation of Air Pollutant Emission Factors, designated as AP-42, was used to compute estimated emissions for both point and area sources. Emission factors for motor vehicles were calculated at an annual average temperature of $50^{o}F$ using MOBILE3.

Table 34 summarizes the actual annual in-state emissions of each of the five (5) major air pollutants in Connecticut -- TSP, SO_2, CO, VOC, and NO_2 -- by county, for 1982. A quick scan of the table reveals two things. First, the most populous counties have the largest pollutant totals; second, excluding SO_2 which is largely generated by utilities, area sources (mobile sources in particular) account for the bulk of the total emissions.

County names and geographic locations are displayed in Figure 19, which also serves as a reference for the charts that follow.

Figures 20 through 34 give various visual displays of the level of emissions for each of the major air pollutants. Figures 20, 23, 26, 29, and 32 are pie charts that show the percent of each air pollutant for Connecticut's eight (8) counties. Figures 21, 24, 27, 30, 33 are pictorial displays of emissions by county, where the darker areas indicate higher emission levels. Figures 22, 25, 28, 31, 34 are three dimensional graphs of each county's contribution to statewide emissions.

TABLE 34
1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
EMISSIONS INVENTORY BY COUNTY *

		TONS PER YEAR				
		TSP	SO2	CO	VOC	NOX
Fairfield	Area	7,070.3	5,945.3	183,554.3	36,397.0	26,668.7
	Point	1,799.5	26,840.9	2,869.0	5,755.0	11,539.5
		8,869.8	32,786.2	186,423.3	42,152.0	38,208.2
Hartford	Area	9,467.4	6,667.3	228,007.7	42,762.1	33,153.9
	Point	1,274.3	4,160.5	1,597.0	4,409.0	3,401.4
		10,741.7	10,827.8	229,604.7	47,171.1	36,555.3
Litchfield	Area	2,436.4	1,565.2	44,436.4	9,629.0	6,303.1
	Point	313.5	774.2	43.4	653.9	311.6
		2,749.9	2,339.4	44,479.8	10,282.9	6,614.7
Middlesex	Area	2,102.7	1,217.6	39,624.2	8,521.4	6,564.4
	Point	609.6	5,266.2	446.4	994.1	4,337.1
		2,712.3	6,483.8	40,070.6	9,515.5	10,901.5
New Haven	Area	7,197.9	5,820.1	164,824.5	33,446.0	26,792.8
	Point	1,297.1	23,145.1	1,042.2	5,523.4	9,961.2
		8,495.0	28,965.2	165,866.7	38,969.4	36,754.0
New London	Area	4,779.7	2,138.5	82,473.6	17,670.2	11,415.8
	Point	1,025.9	12,694.4	412.4	1,649.0	4,760.3
		5,805.6	14,832.9	82,886.0	19,319.2	16,176.1
Tolland	Area	2,194.7	1,017.5	39,145.7	8,308.5	5,637.7
	Point	1,200.7	879.2	927.1	1,483.4	316.3
		3,395.4	1,896.7	40,072.8	9,791.9	5,954.0
Windham	Area	2,933.2	850.4	40,524.7	8,827.5	3,949.0
	Point	338.9	754.2	175.6	1,742.9	316.3
		3,272.1	1,604.6	40,700.3	10,570.4	4,265.3
TOTAL	AREA	38,182.3	25,221.9	822,591.1	165,561.7	120,485.4
	POINT	7,859.5	74,514.7	7,513.1	22,210.7	34,943.7
		46,041.8	99,736.6	830,104.2	187,772.4	155,429.1

* This inventory is based on actual operating data for 1982, such as actual fuel use and actual material throughputs. MOBILE3 is used to produce mobile source emission factors for an average annual temperature of 50 degrees F. NOX emissions are expressed as NO2.

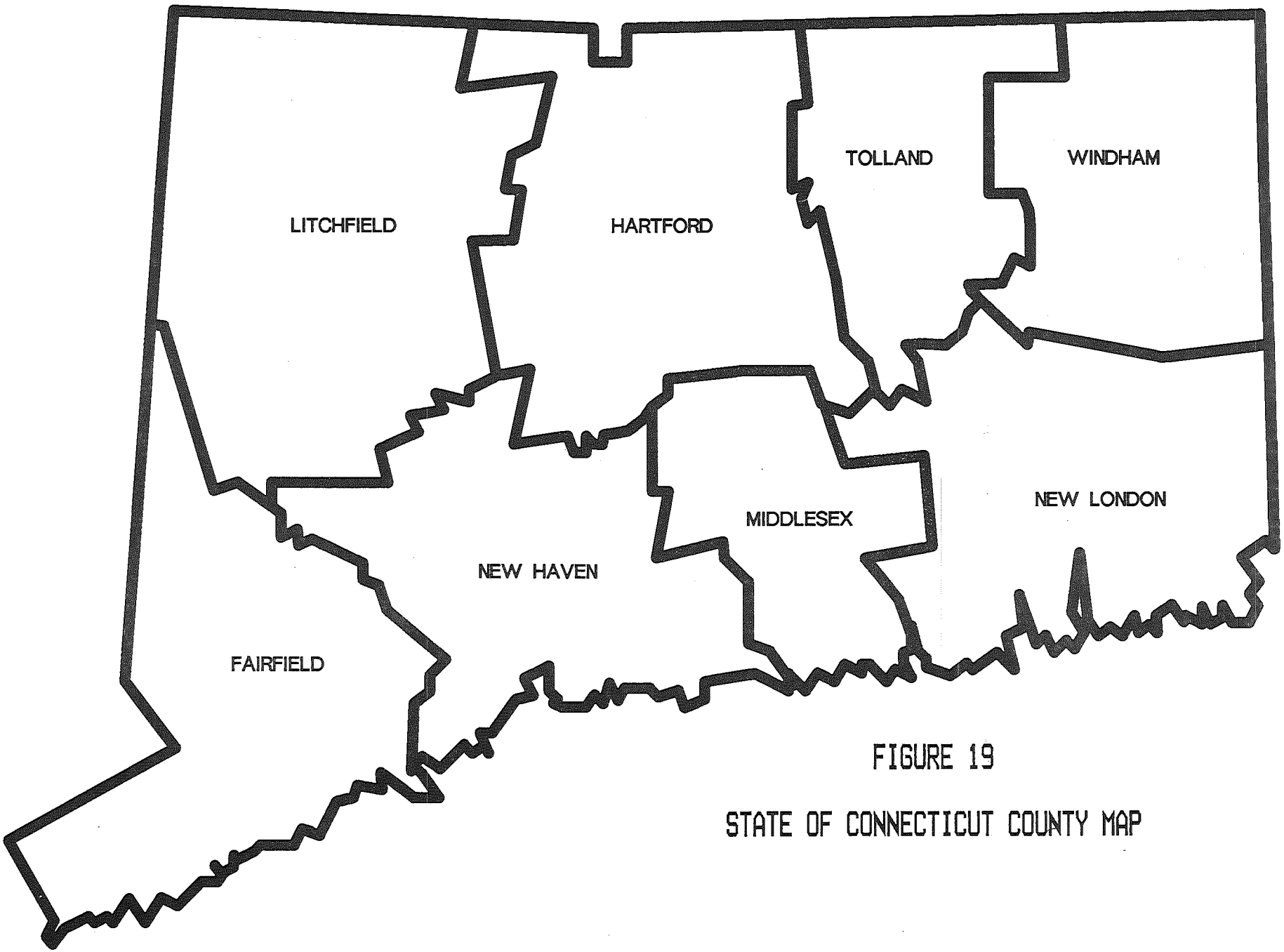


FIGURE 19

STATE OF CONNECTICUT COUNTY MAP

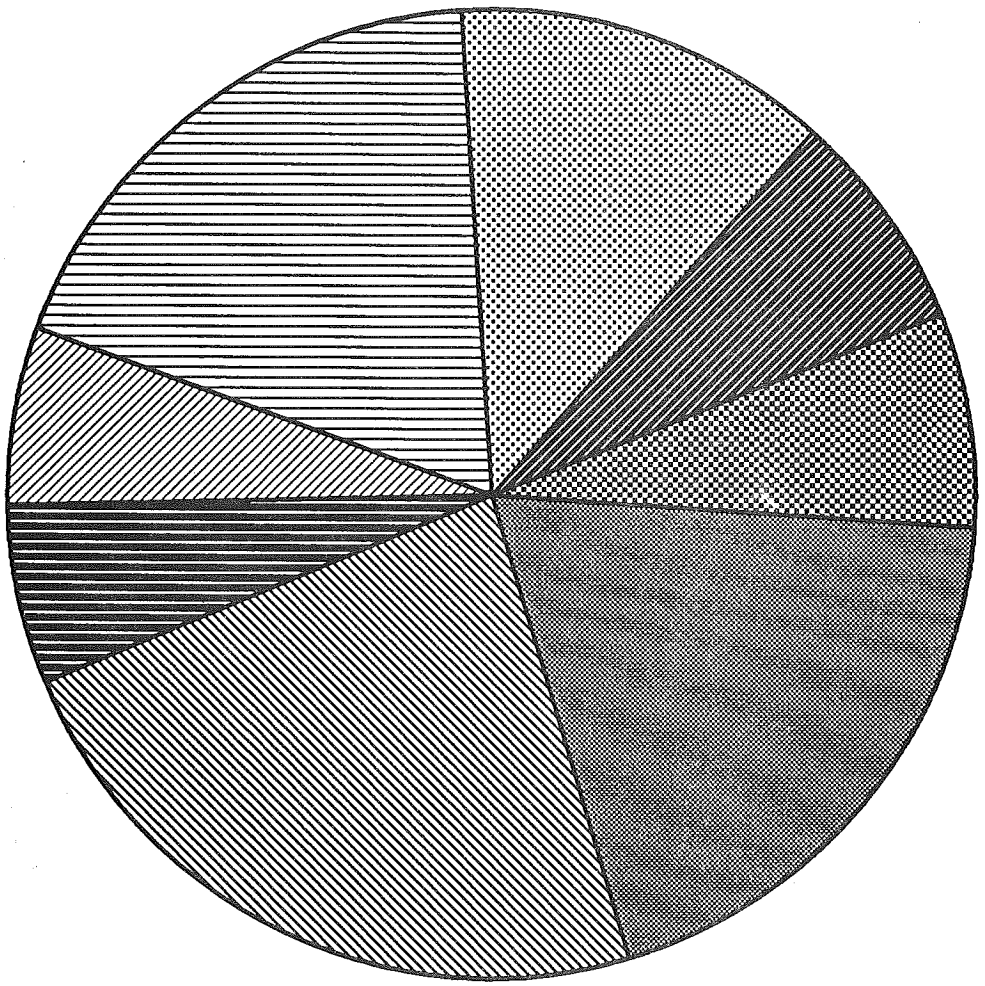
FIGURE 20

1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EMISSIONS INVENTORY BY COUNTY

TOTAL SUSPENDED PARTICULATES

TOTAL TONS PER YEAR - 46,042



FAIRFIELD - 19.3%
HARTFORD - 23.3%
LITCHFIELD - 6.0%
MIDDLESEX - 5.9%
NEW HAVEN - 18.4%
NEW LONDON - 12.6%
TOLLAND - 7.4%
WINDHAM - 7.1%

Figure 21

1982 TOTAL SUSPENDED PARTICULATES

Total Emissions by County

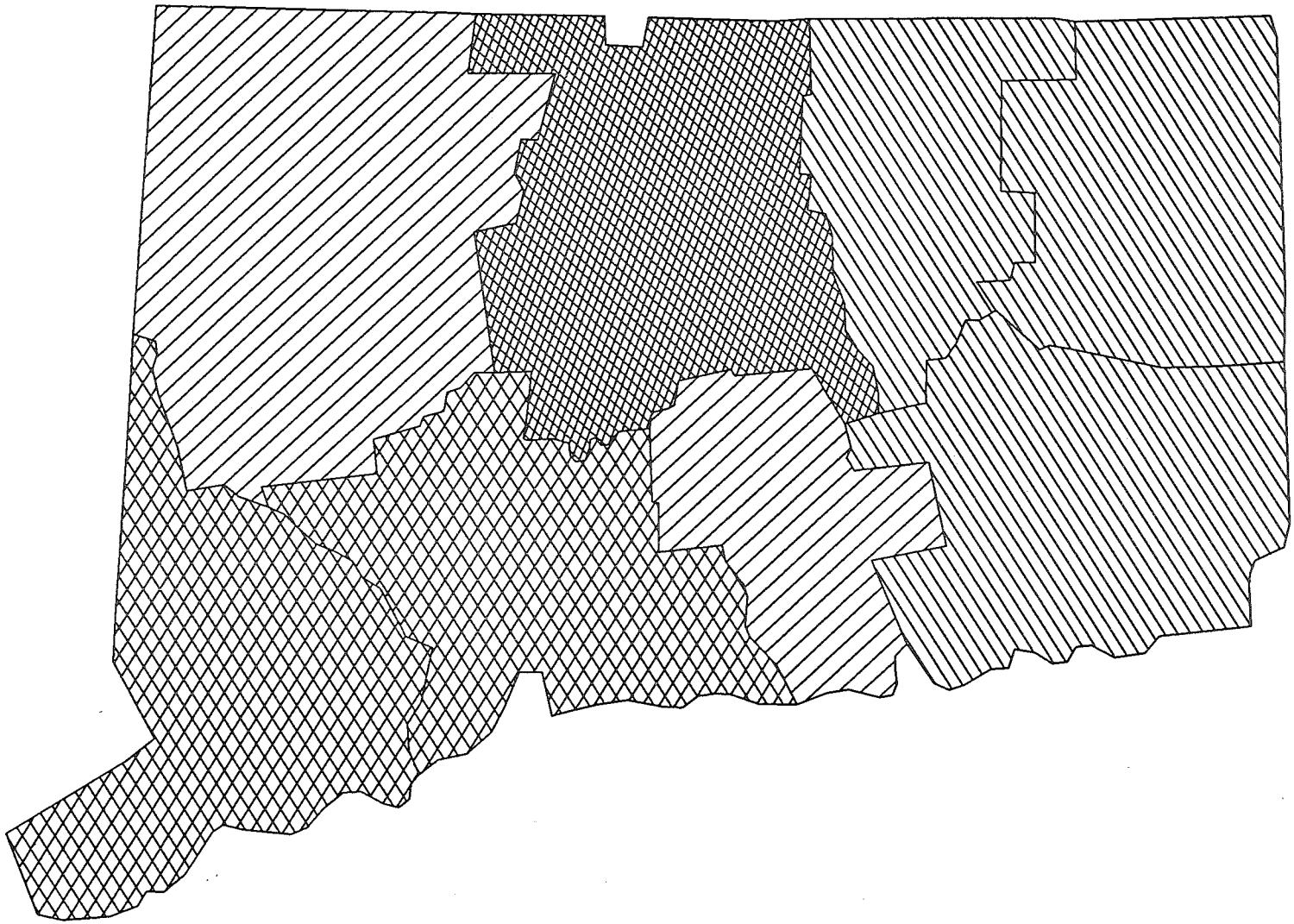
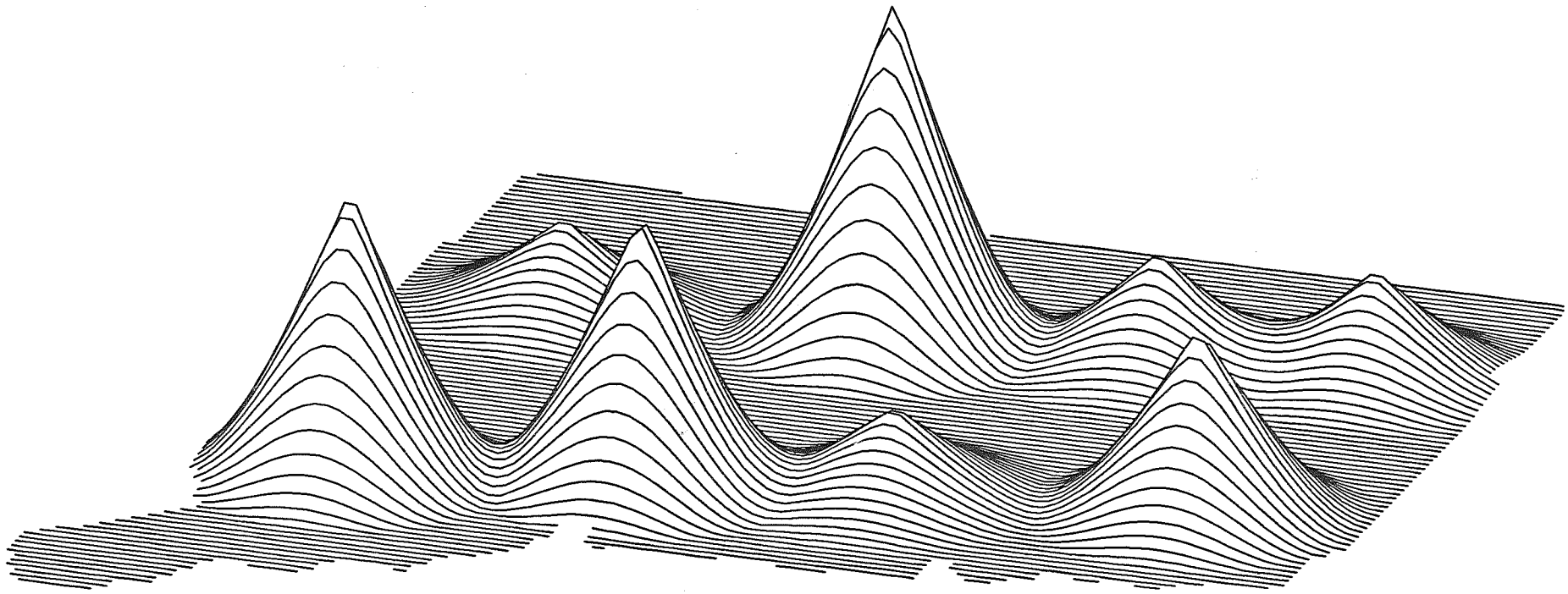


Figure 22

1982 TOTAL SUSPENDED PARTICULATES

Total Emissions by County



Three Dimensional View of TSP Emissions

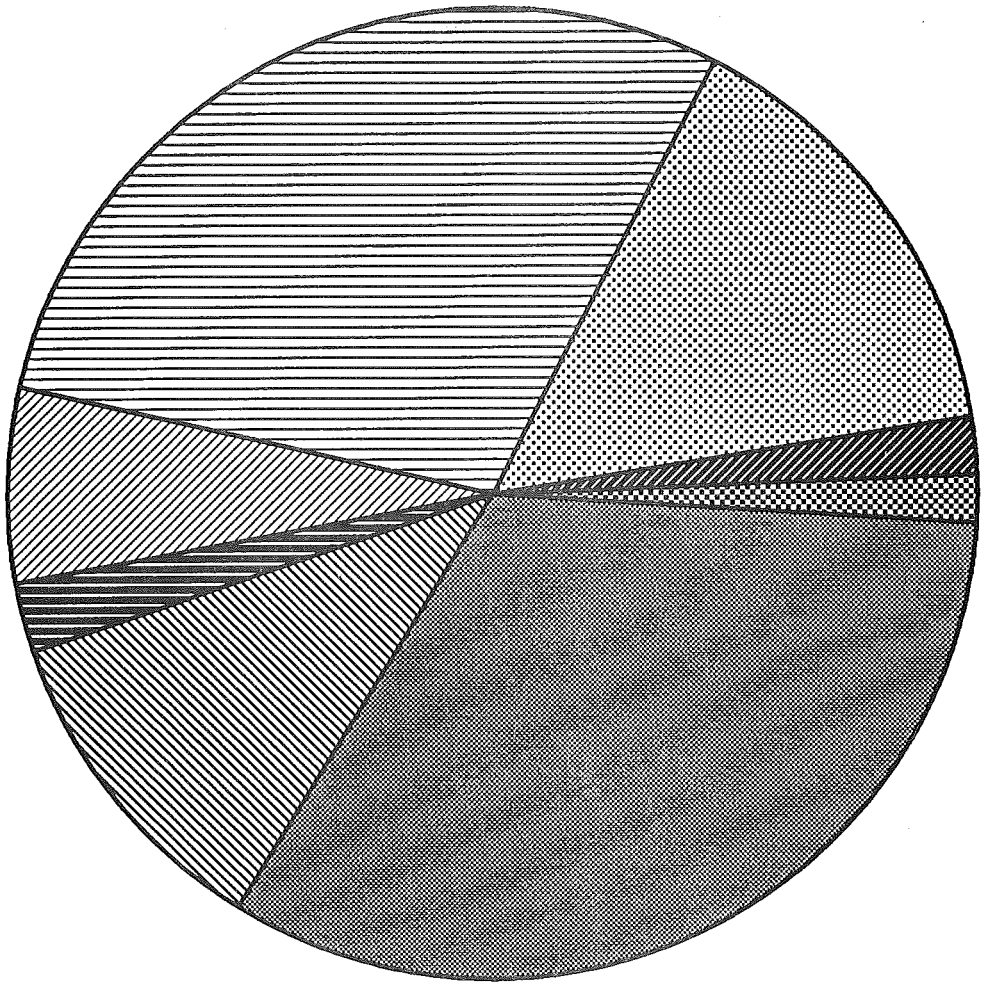
FIGURE 23

1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EMISSIONS INVENTORY BY COUNTY

SULFUR DIOXIDE

TOTAL TONS PER YEAR - 99,737

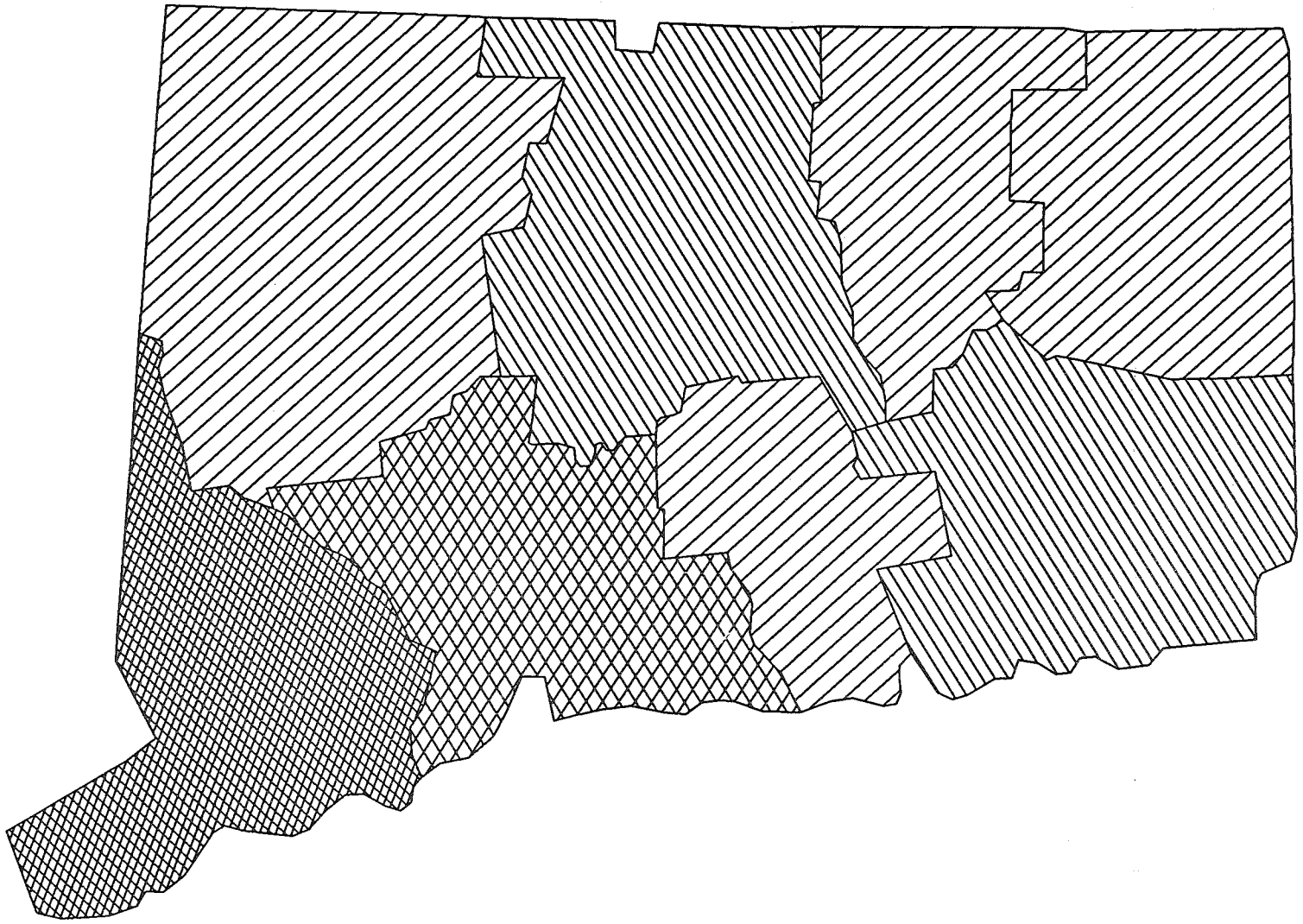


FAIRFIELD - 32.9%
HARTFORD - 10.9%
LITCHFIELD - 2.3%
MIDDLESEX - 6.5%
NEW HAVEN - 29.0%
NEW LONDON - 14.9%
TOLLAND - 1.9%
WINDHAM - 1.6%

Figure 24

1982 SULFUR DIOXIDE

Total Emissions by County



ACTUAL SO2 (TPY)

LESS THAN 10,000

10,001 TO 20,000

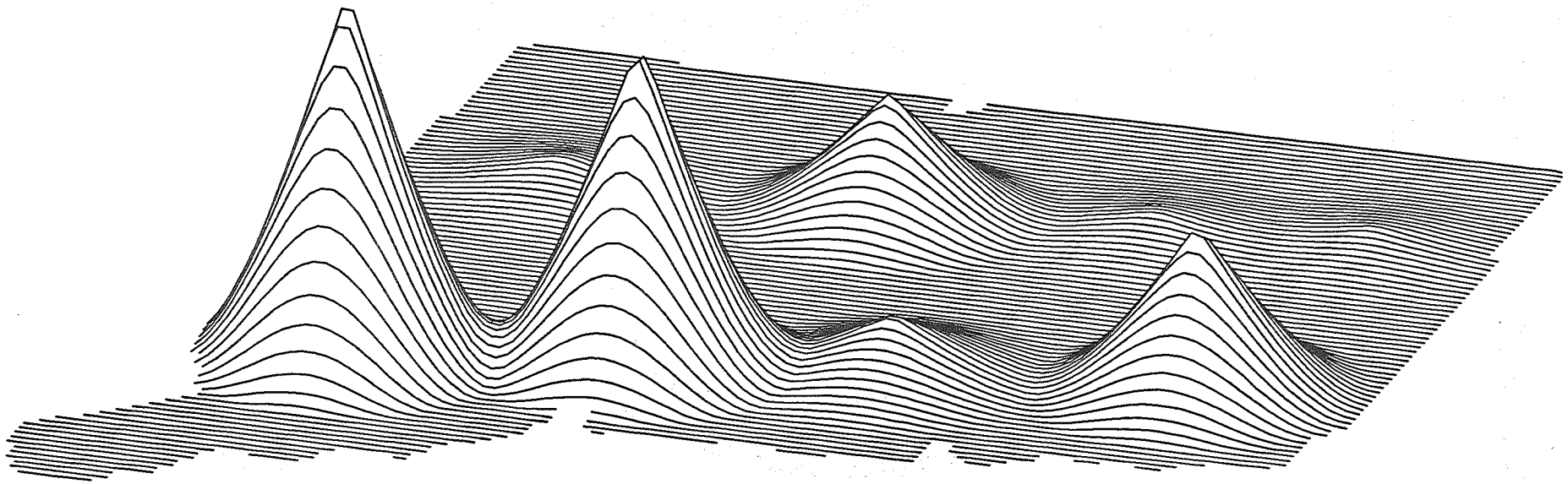
20,001 TO 30,000

OVER 30,000

Figure 25

1982 SULFUR DIOXIDE

Total Emissions by County



Three Dimensional View of SO2 Emissions

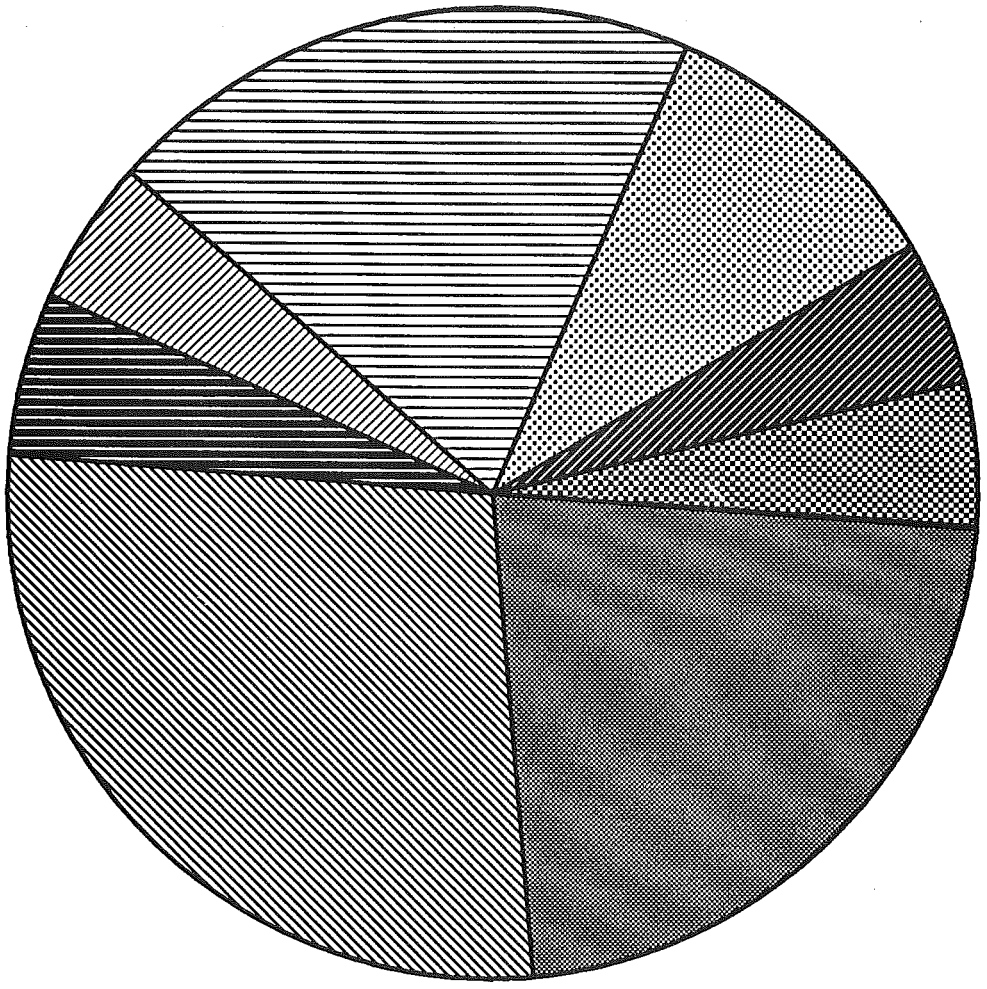
FIGURE 26

1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EMISSIONS INVENTORY BY COUNTY

CARBON MONOXIDE

TOTAL TONS PER YEAR - 830,104



FAIRFIELD - 22.5%
HARTFORD - 27.7%
LITCHFIELD - 5.4%
MIDDLESEX - 4.8%
NEW HAVEN - 20.0%
NEW LONDON - 10.0%
TOLLAND - 4.8%
WINDHAM - 4.9%

Figure 27

1982 CARBON MONOXIDE

Total Emissions by County

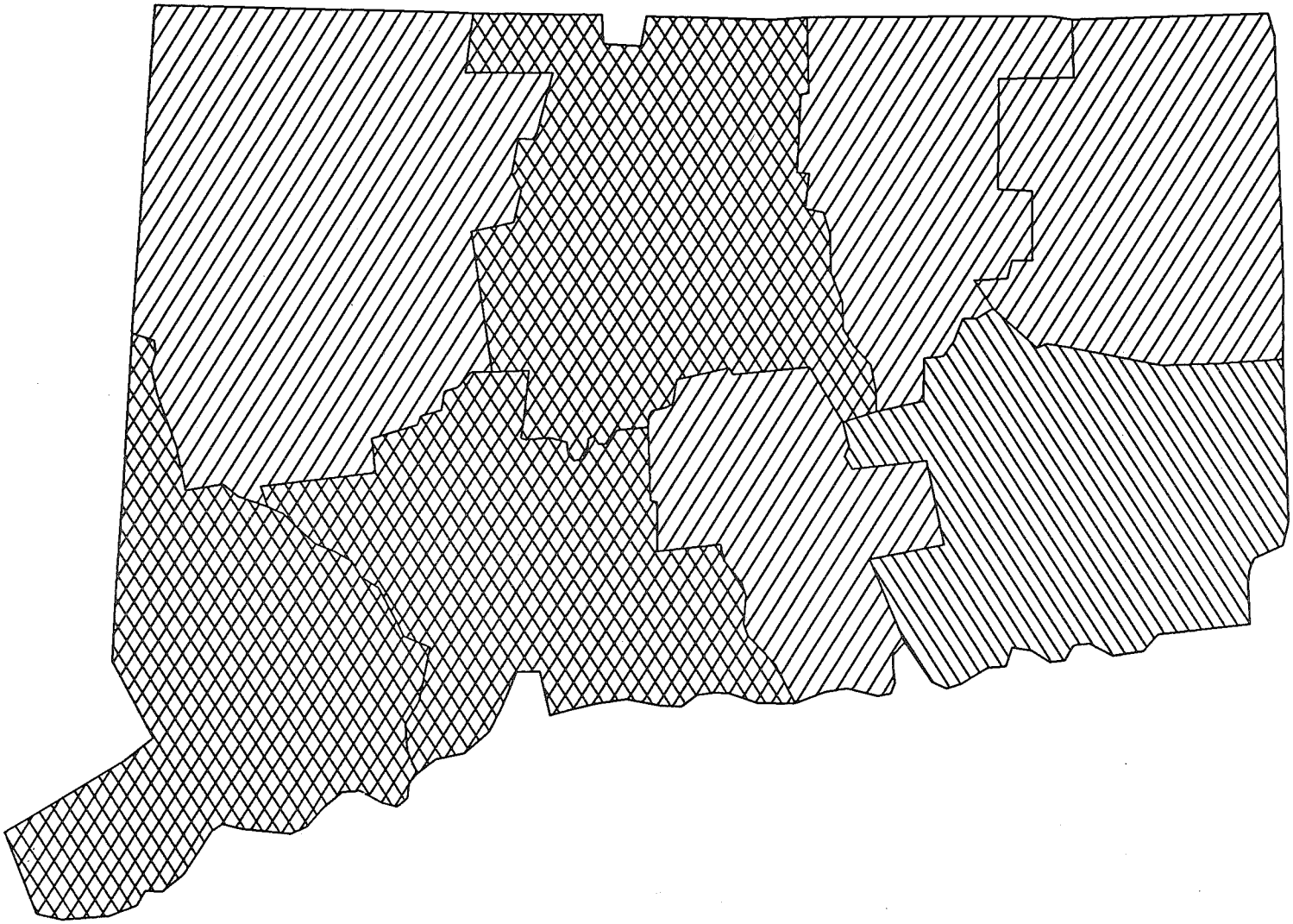
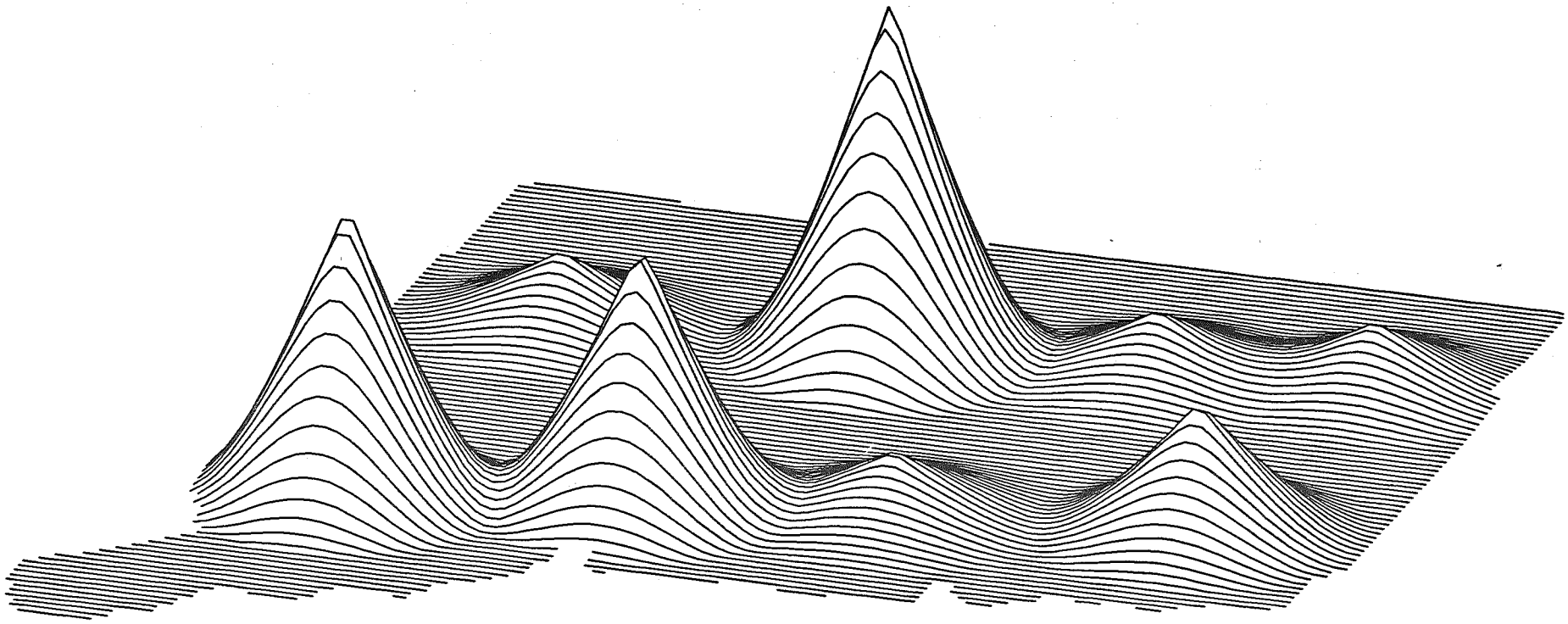


Figure 28

1982 CARBON MONOXIDE

Total Emissions by County



Three Dimensional View of CO Emissions

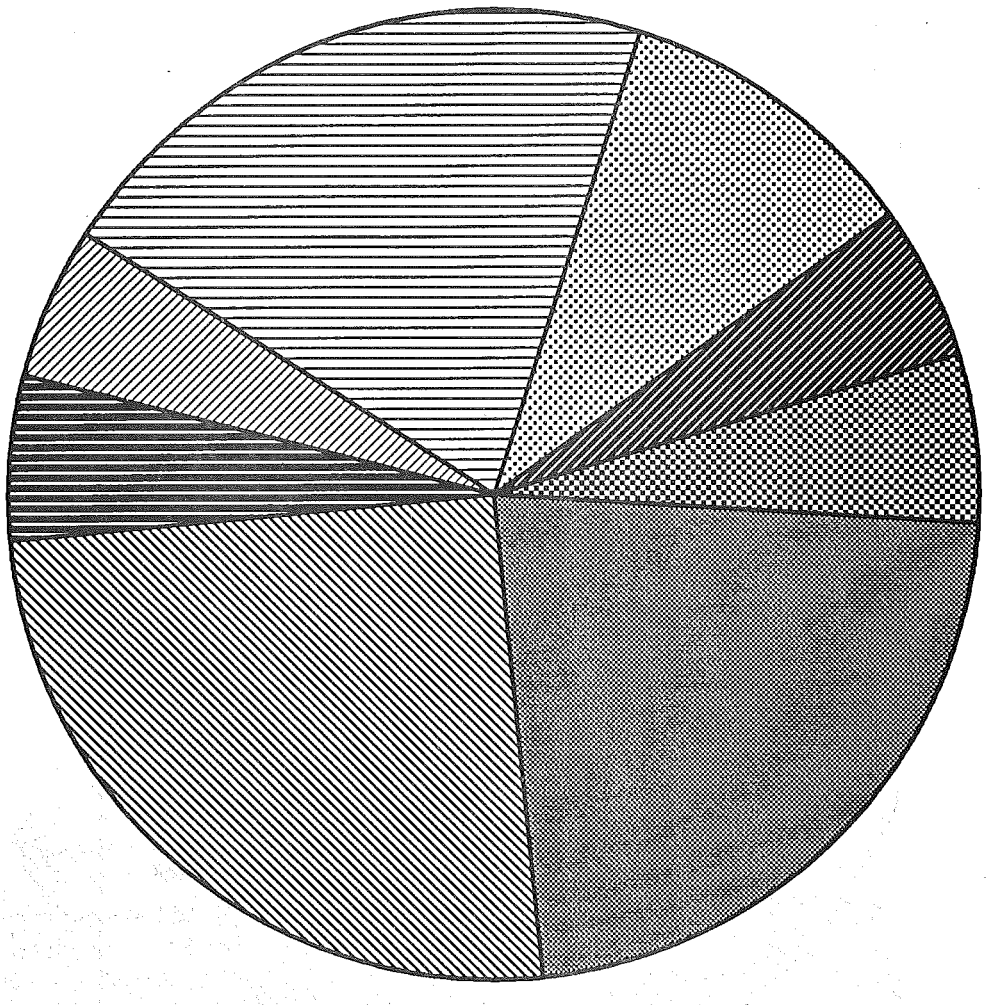
FIGURE 29

1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EMISSIONS INVENTORY BY COUNTY

VOLATILE ORGANIC COMPOUNDS

TOTAL TONS PER YEAR - 187,772

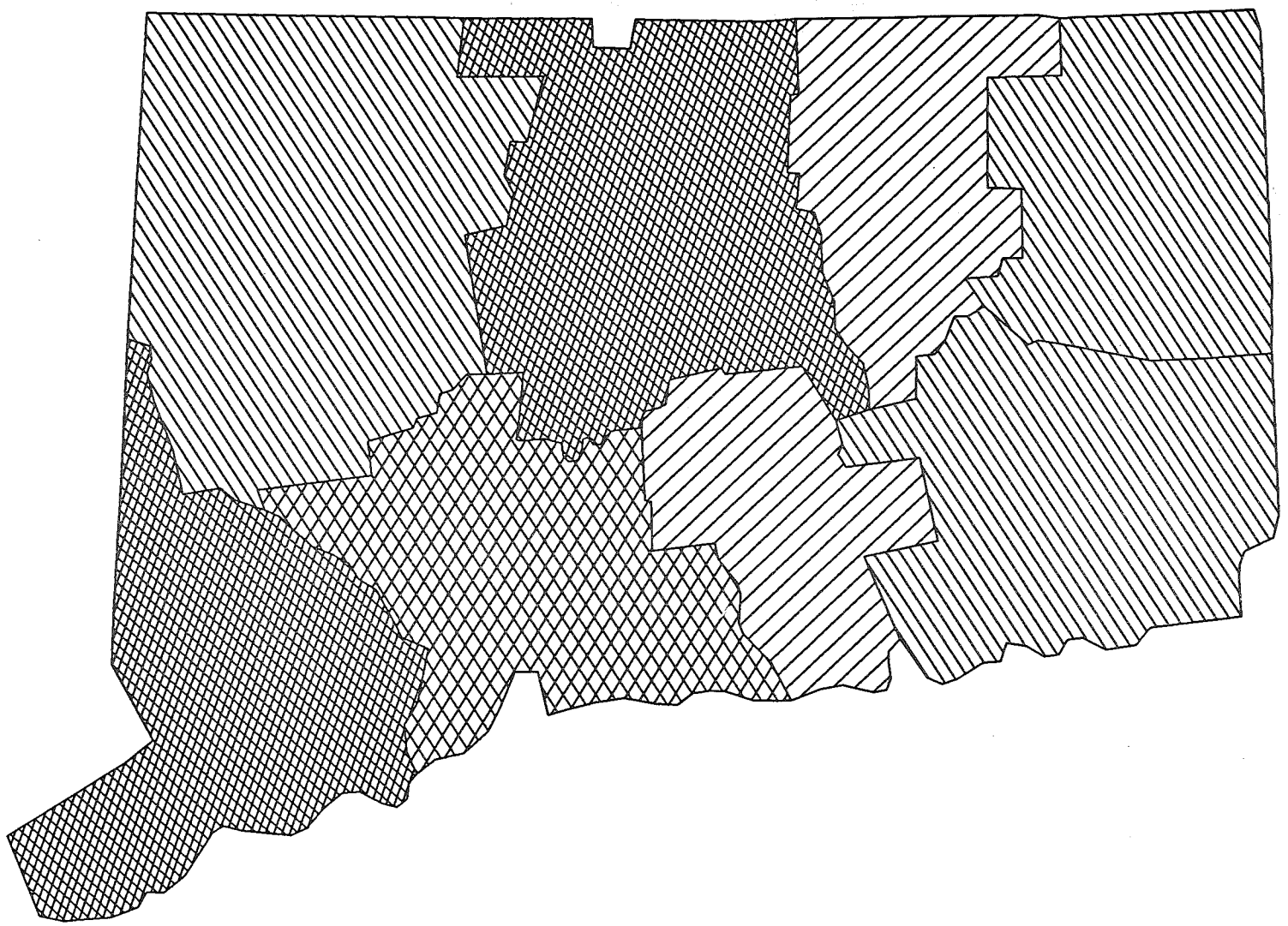


- FAIRFIELD - 22.4%
- HARTFORD - 25.1%
- LITCHFIELD - 5.5%
- MIDDLESEX - 5.1%
- NEW HAVEN - 20.8%
- NEW LONDON - 10.3%
- TOLLAND - 5.2%
- WINDHAM - 5.6%

Figure 30

1982 VOLATILE ORGANIC COMPOUNDS

Total Emissions by County



ACTUAL VOC (TPY)

LESS THAN 10,000

10,001 TO 20,000

30,001 TO 40,000

OVER 40,000

Figure 31

1982 VOLATILE ORGANIC COMPOUNDS

Total Emissions by County

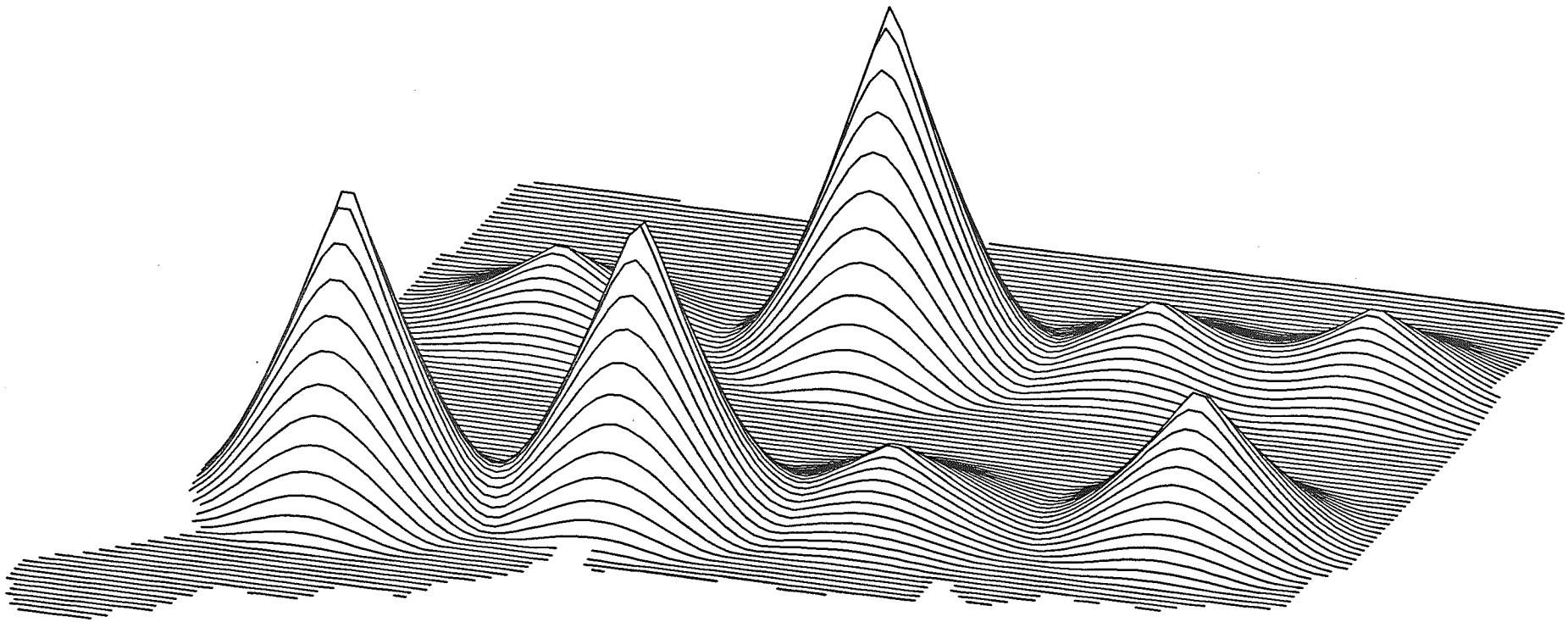


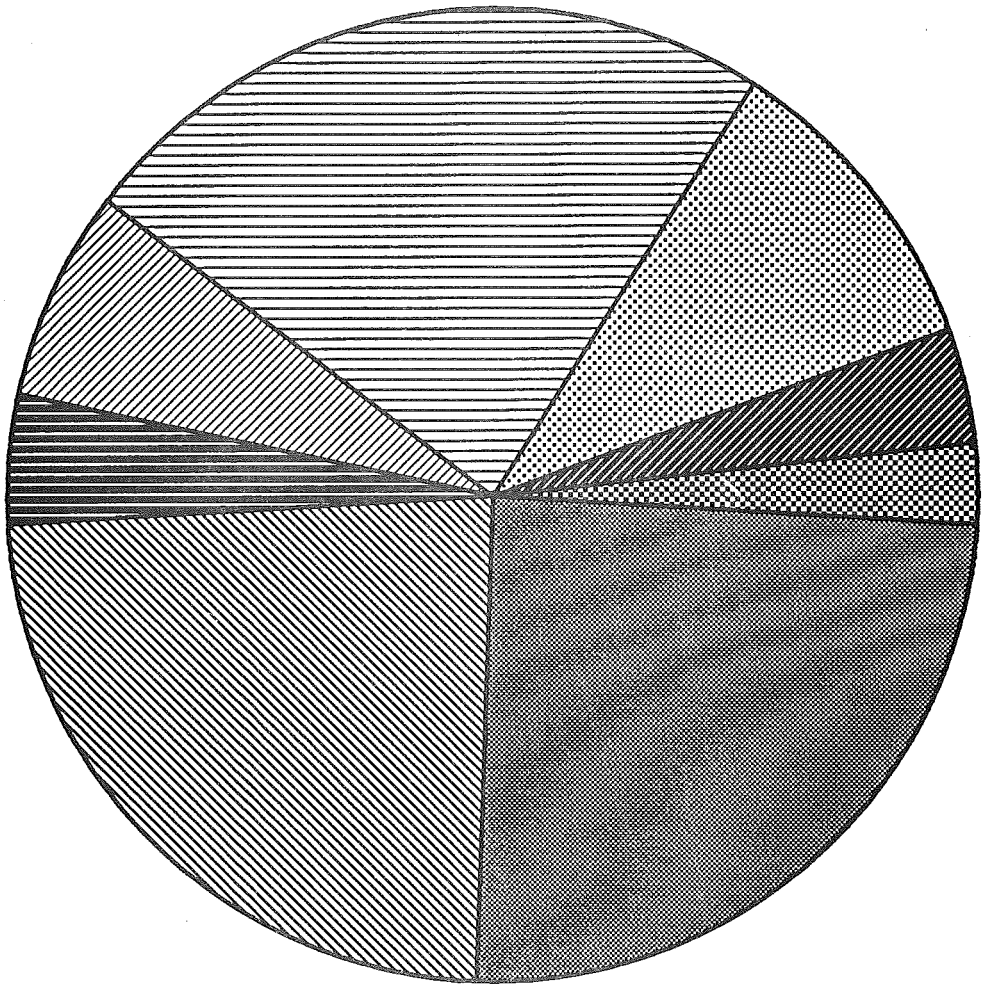
FIGURE 32

1982 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EMISSIONS INVENTORY BY COUNTY

NITROGEN OXIDES, EXPRESSED AS NO2

TOTAL TONS PER YEAR - 155,429



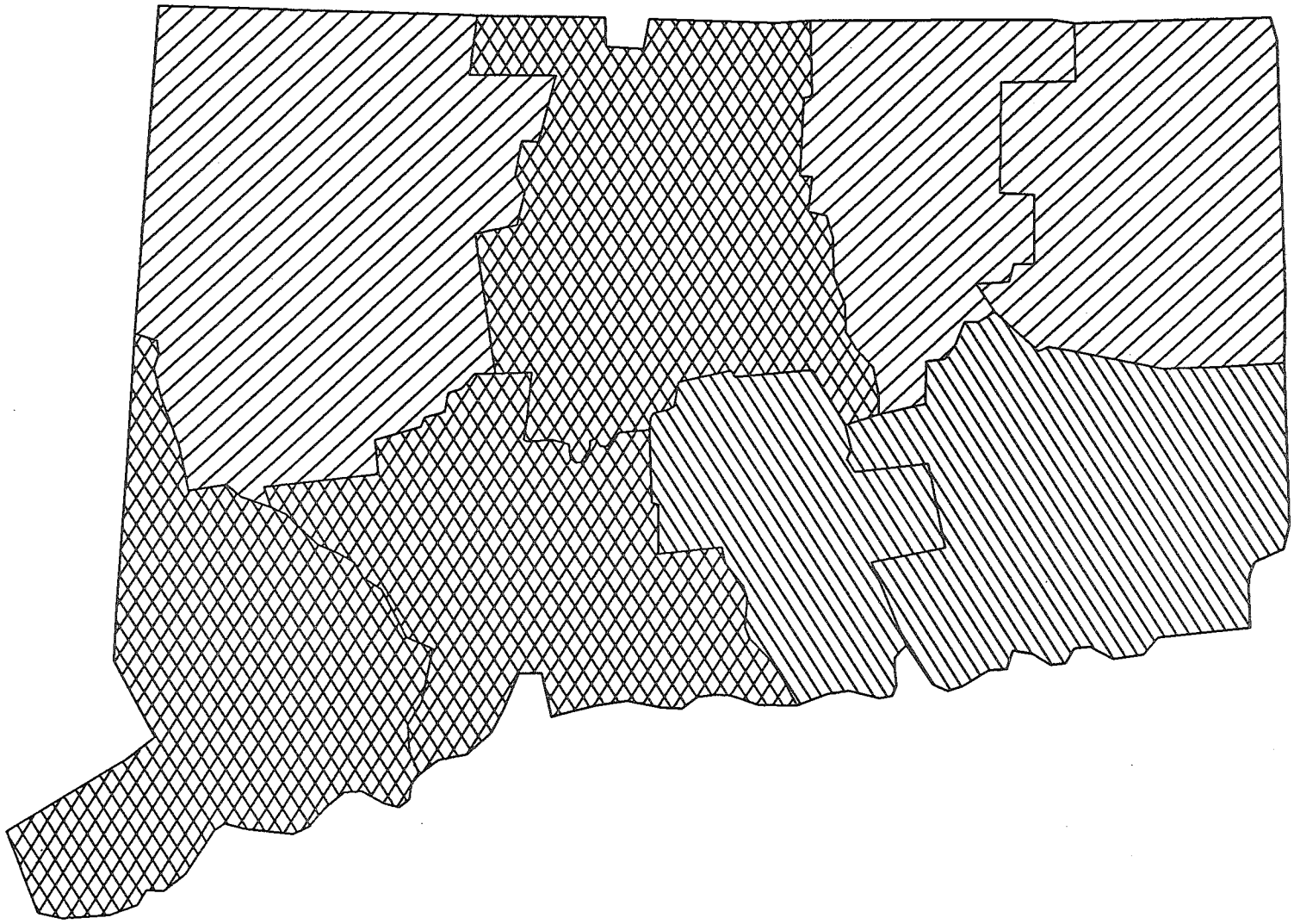
FAIRFIELD - 24.6%
HARTFORD - 23.5%
LITCHFIELD - 4.3%
MIDDLESEX - 7.0%
NEW HAVEN - 23.7%
NEW LONDON - 10.4%
TOLLAND - 3.8%
WINDHAM - 2.7%

Figure 33

1982 NITROGEN OXIDES

(Expressed as Nitrogen Dioxide)

Total Emissions by County



ACTUAL NO2 (TPY)

LESS THAN 10,000

10,001 TO 20,000

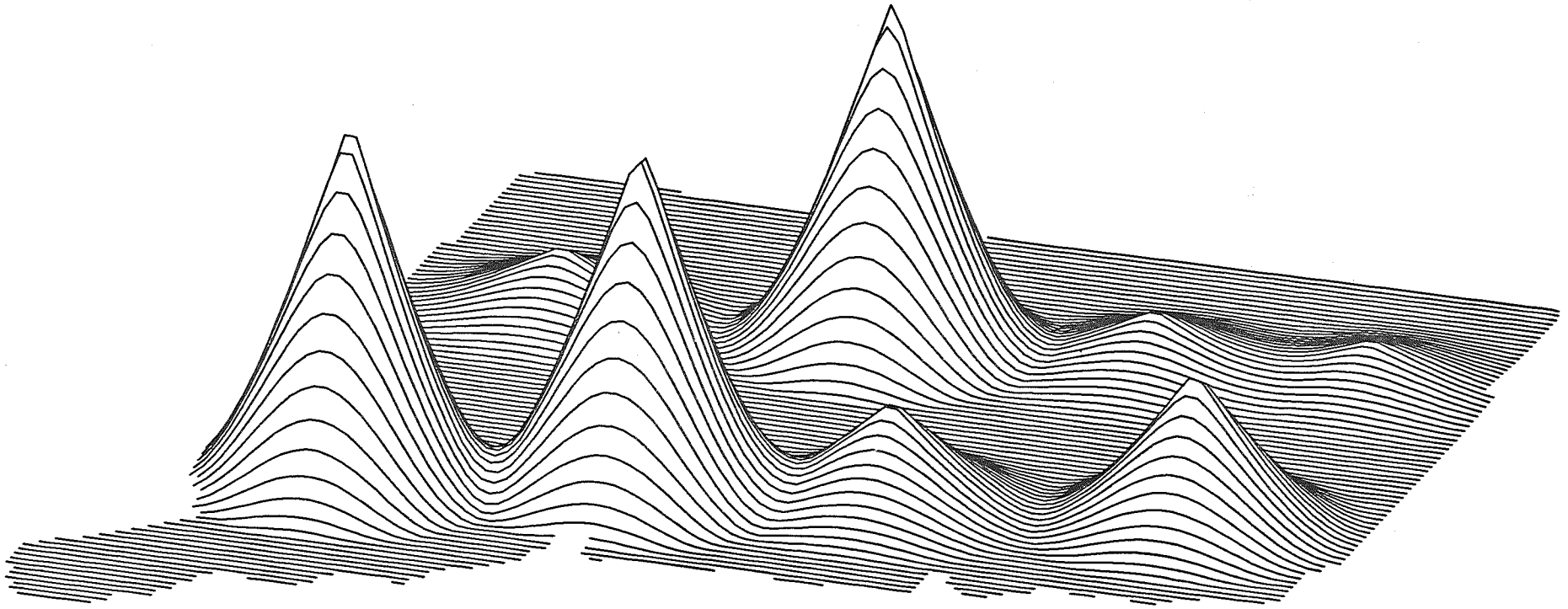
OVER 30,000

Figure 34

1982 NITROGEN OXIDES

(Expressed as Nitrogen Dioxide)

Total Emissions by County



Three Dimensional View of NO2 Emissions

XII. PUBLICATIONS

The following is a partial listing of technical papers and study reports dealing with various aspects of Connecticut air pollutant levels and air quality data.

1. Bruckman, L., Asbestos: An Evaluation of Its Environmental Impact in Connecticut, internal report issued by the Connecticut Department of Environmental Protection, Hartford, Connecticut, March 12, 1976.

2. Lepow, M. L., L. Bruckman, R.A. Rubino, S. Markowitz, M. Gillette and J. Kapish, "Role of Airborne Lead in Increased Body Burden of Lead in Hartford Children," Environ. Health Perspect., May, 1974, pp. 99-102.

3. Bruckman, L. and R.A. Rubino, "Rationale Behind a Proposed Asbestos Air Quality Standard," paper presented at the 67th Annual Meeting of the Air Pollution Control Association, Denver, Colorado, June 9-11, 1974, J. Air Pollut. Cntr. Assoc., 25: 1207-15 (1975).

4. Rubino, R.A., L. Bruckman and J. Magyar, "Ozone Transport," paper presented at the 68th Annual Meeting of the Air Pollution Control Association, Boston, Massachusetts, June 15-20, 1975, J. Air Pollut. Cntr. Assoc.: 26, 972-5 (1976).

5. Bruckman, L., R.A. Rubino and T. Helfgott, "Rationale Behind a Proposed Cadmium Air Quality Standard," paper presented at the 68th Annual Meeting of the Air Pollution Control Association, Boston, Massachusetts, June 15-20, 1975.

6. Rubino, R.A., L. Bruckman, A. Kramar, W. Keever and P. Sullivan, "Population Density and Its Relationship to Airborne Pollutant Concentrations and Lung Cancer Incidence in Connecticut," paper presented at the 68th Annual Meeting of the Air Pollution Control Association, Boston, Massachusetts, June 15-20, 1975.

7. Lepow, M.L., L. Bruckman, M. Gillette, R.A. Rubino and J.Kapish, "Investigations into Sources of Lead in the Environment of Urban Children," Environ. Res., 10: 415-26 (1975).

8. Bruckman, L., E. Hyne and P. Norton, "A Low Volume Particulate Ambient Air Sampler," paper presented at the APCA Specialty Conference entitled "Measurement Accuracy as it Relates to Regulation Compliance," New Orleans, Louisiana, October 26-28, 1975, APCA publication SP-16, Air Pollution Control Association, Pittsburgh, Pennsylvania, 1976.

9. Bruckman, L. and R.A. Rubino, "High Volume Sampling Errors Incurred During Passive Sample Exposure Periods," J. Air Pollut. Cntr. Assoc., 26: 881-3 (1976).

10. Bruckman, L., R.A. Rubino and B. Christine, "Asbestos and Mesothelioma Incidence in Connecticut," J. Air Pollut. Cntr. Assoc., 27: 121-6 (1977).

11. Bruckman, L., Suspended Particulate Transport in Connecticut: An Investigation Into the Relationship Between TSP Concentrations and Wind Direction in Connecticut, internal report issued by the Connecticut Department of Environmental Protection, Hartford, Connecticut, December 24, 1976.

12. Bruckman, L. and R.A. Rubino, "Monitored Asbestos Concentrations in Connecticut," paper presented at the 70th Annual Meeting of the Air Pollution Control Association, Toronto, Ontario, June 20-24, 1977.

13. Bruckman, L., "Suspended Particulate Transport," paper presented at the 70th Annual Meeting of the Air Pollution Control Association, Toronto, Ontario, June 20-24, 1977.

14. Bruckman, L., "A Study of Airborne Asbestos Fibers in Connecticut," paper presented at the "Workshop in Asbestos: Definitions and Measurement Methods" sponsored by the National Bureau of Standards/U.S. Department of Commerce, July 18-20, 1977.

15. Bruckman, L., "Monitored Asbestos Concentrations Indoors," paper presented at The Fourth Joint Conference of Sensing Environmental Pollutants, New Orleans, Louisiana, November 6-11, 1977.

16. Bruckman, L., "Suspended Particulate Transport: Investigation into the Causes of Elevated TSP Concentrations Prevalent Across Connecticut During Periods of SW Wind Flow," paper presented at the Joint Conference on Applications of Air Pollution Meteorology, Salt Lake City, Utah, November 28 - December 2, 1977.

17. Bruckman, L., E. Hyne, W. Keever, "A Comparison of Low Volume and High Volume Particulate Sampling," internal report issued by the Connecticut Department of Environmental Protection,Hartford, Connecticut, 1976.

18. "Data Validation and Monitoring Site Review," (part of the Air Quality Maintenance Planning Process), internal report issued by the Connecticut Department of Environmental Protection, Hartford, Connecticut, June 15, 1976.

19. "Air Quality Data Analysis," (part of the Air Quality Maintenance Planning Process), internal report issued by the Connecticut Department of Environmental Protection, Hartford, Connecticut, August 16, 1976.

20. Bruckman, L., "Investigation into the Causes of Elevated SO_2 Concentrations Prevalent Across Connecticut During Periods of SW Wind Flow," paper presented at the 71st Annual Meeting of the Air Pollution Control Association, Paper #78-16.4, Houston, Texas, June 25-29, 1978.

21. Anderson, M.K., "Power Plant Impact on Ambient Air: Coal vs. Oil Combustion," paper presented at the 68th Annual Meeting of the Air Pollution Control Association, Paper #75-33.5, Boston, MA, June 15-20, 1975.

22. Anderson, M.K., G. D. Wight, "New Source Review: An Ambient Assessment Technique," paper presented at the 71st Annual Meeting of the Air Pollution Control Association, Paper #78-2.4, Houston, TX, June 25-29, 1978.

23. Wolff, G.T., P.J. Lioy, G.D. Wight, R.E. Pasceri, "Aerial Investigation of the Ozone Plume Phenomenon," J. Air Pollut.8 Control Association, 27: 460-3 (1977).

24. Wolff, G.T., P.J. Lioy, R.E. Meyers, R.T. Cederalll, G.D. Wight, R.E. Pasceri, R.S. Taylor, "Anatomy of Two Ozone Transport Episodes in the Washington, D.C., to Boston, Mass., Corridor," Environ. Sci. Technol., 11-506-10 (1977).

25. Wolff, G.T., P.J. Lioy, G.D. Wight, R.E. Meyers, and R.T Cederwall, "Transport of Ozone Associated With an Air Mass," In: Proceed. 70 Annual Meeting APCA, Paper 377-20.3, Toronto, Canada, June, 1977.

26. Wight, G.D., G.T. Wolff, P.J. Lioy, R.E. Meyers, and R.T.Cederwall, "Formation and Transport of Ozone in the Northeast Quadrant of the U.S.," In: Proceed. ASTM Sym. Air Quality and Atmos. Ozone, Boulder, Colo., Aug. 1977.

27. Wolff, G.T., P.J. Lioy, and G.D. Wight, "An Overview of the Current Ozone Problem in the Northeastern and Midwestern U.S.," In: Proceed. Mid-Atlantic States APCA Conf. on Hydrocarbon Control Feasibility, p. 98, New York, N.Y., April, 1977.

28. Wolff, G.T., P.J. Lioy, G.D. Wight, R.E. Meyers, and R.T.Cederwall, "An Investigation of Long-Range Transport of Ozone Across the Midwestern and Eastern U.S.," Atmos. Environ. 11:797 (1977).

XIII. ERRATA

During the preparation of this document, a number of errors were discovered and corrected. In order to prevent any confusion in the mind of the reader over conflicting data presented in this and previous editions of this document, the errors and corrections are presented below:

Regarding 1975 TSP data, all references to the following monitoring sites should be ignored: Enfield 001, Enfield 123, Enfield 001/123, Danbury 001, Danbury 123, Danbury 001/123, Groton 001, Groton 123, Groton 001/123, Torrington 001, Torrington 123, Torrington 001/123. These sites either had insufficient data for a valid annual average concentration or they included data from two different sites.

Regarding 1976 TSP data, all references to the following monitoring sites should be ignored: Stamford 003, Stamford 123, Stamford 003/123. These sites either had insufficient data for a valid annual average concentration or they included data from two different sites.

Regarding 1980 TSP data, the following corrections have been made:

1. Bridgeport 001: The number of samples for the year has been changed from 57 to 58, and the annual geometric mean concentration has been changed from 47.8 to 47.6 ug/m^3.

2. Bridgeport 123: The annual geometric mean concentration has been changed from 64.2 to 63.8 ug/m^3.

3 Greenwich 016: All references to this site should be ignored. This site is considered to have been unsuitably located for acceptable particulate monitoring.

4. Morris 001: The standard deviation of the sampling data has been changed from 1.567 to 1.557.

Regarding 1981 TSP data, the following corrections have been made:

1. Bristol 001: The number of samples for the year has been changed from 55 to 58, and the annual geometric mean concentration has been changed from 34.1 to 34.6 ug/m^3.

Regarding TSP data for the years 1975 through 1981, all references to sites Torrington 123 and Waterbury 123 should be ignored. These sites are now considered to have been unsuitably located for acceptable particulate monitoring.

The above corrections, where relevant, are implicit in Table 2 and Table 8. Accordingly, versions of these tables found in post-1974 editions of this document contain erroneous information and should be ignored.

Regarding Table 2, some of the earlier editions of this docuemnt have contained versions of this table which appeared to present annual "arithmetic" mean data. This is incorrect. All versions of this table contain annual "geometric" mean data.