ANALYSIS OF HOUSTON SAMPLING...
DEER PARK PARTICULATE STUDY AR
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SHELL CHEMICAL COMPANY

A DIVISION OF SHELL OIL COMPANY

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DEER PARK PARTICULATE STUDY

An Analysis of City of Houston Sampling Site Data
1973-1975

BY: Joseph E. Lees
Engineer - Environmental Conservation
Regulatory Affairs
Shell Chemical Company
Deer Park Manufacturing Complex

Deer Park Manufacturing Complex
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SUMMARY

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DEER PARK PARTICULATE STUDY

A. INTRODUCTION

Objective

This study analyzes ambient particulate levels as measured by City of Houston sampling stations surrounding the Deer Park Complex. The data is first described - the arithmetic and geometric means and standard deviations for different time periods over the last few years. Trends are then noted and tested for statistical significance. Are the particulate values increasing or decreasing? Over what periods? If there are trends, possible mechanisms and underlying causes are suggested for the observed data. Particular attention is paid to Shell's possible contribution to these levels. Finally, recommendations are tendered for further study to clarify causal relationships suggested by this report.

Method

This analysis centers on ambient particulate data from City of Houston remote high-volume samplers taken over the years 1973, 1974, and 1975. This data consists of 24-hour, unattended, composite samples gathered every six days (when available). No descriptive comments or visual observations of the conditions around the sampling site are recorded; thus, obvious external, non-point source mechanisms of high particulate levels such as dust storms, construction activity, etc., are not noted. This, coupled with some highly peaked data and poorly situated sampling stations, leaves the credibility of the actual numerical values in doubt. Nevertheless, if some of the extreme outliers are rejected, and the data correlated with time and direction, some useful results are obtained. These results can only suggest relationships - data at hand cannot prove anything. It can provide some understanding, however.

The trends of the data are found in relation to both the major construction activities in the Deer Park vicinity, and Shell's contribution as a point source. Upwind/downwind measures of particulates and computer dispersion modeling of the Complex quantify the latter. This modeling also provides a predictive tool for the effects of future expansion activities on the ambient particulate levels.

SUMMARY OF RESULTS

1. A large source of intermittant particulate levels exists Northwest of H-18 and North by Northwest of H-21.

2. The data at the Deer Park station took a step increase in 1974. This is probably related to the repairing and extension of the street directly adjacent to the sampling site at the same time.

3. Deer Park station values in 1975 are decreasing from March, 1975 through the end of the year. Major Construction activity by the Coastal Industrial Water Authority along highway 225 (between H-22 and 1-DP stations) probably had some effect in 1975.

4. The sampling site within the Shell Refinery (H-22) took a step jump increase in 1974 and similiar decrease in the first part of 1975. This coincides with the construction of Sulfur Recovery Unit 5 near this location.

5. During 1975 the H-22 valves have been increasing. This is probably due to the increased construction and earth moving activities of Shell's Major Projects Expansion. This includes construction of a Phenol Plant just southwest of the site, and major land fill site construction north and west of the site.

6. For the average of all stations in our area, the largest particulate values occur with a westerly wind direction (along the Ship Channel from downtown Houston).

7. The average of all station's particulate values have increased most rapidly with an ESE wind over the last three years. Construction in the Bay area has increased dramatically in this area for this time. However, there is insufficient data to suggest a relationship.

8. On the basis of City of Houston data of five surrounding stations, the net downwind particulate ground level concentrations are inconclusive in discerning any Shell Deer Park Manufacturing Complex effects.

9. On the basis of computer modeling of maximum, worst case, net ground level particulate concentrations, Shell's present and proposed activities are well within the applicable TACB regulation limits.

Conclusions

The relationships above rest on a tenuous data base. They do, however, suggest that local construction activities can increase particulate concentrations. Of course, this makes sense. Dust stirred up by earth moving activities is bound to register on a monitor which only measures total weight of particulates. Construction activity is probably a good reason for the increased particulate levels at DP-1 and H-22. But no information available for that period of time can prove the actual cause one way or another.

More comprehensive and reliable data is needed to provide the kind of understanding necessary to effectively interpret what is happening to the air and what should be done about it. Simple improvements like recording visual observations during sampling time and quick rechecking of unusual data values would help tremendously. To truly understand the mechanisms and potential harmful effects of ambient particulate concentrations, further detail is needed. Chemical analysis and particle size distributions should be run for each sample. Tracer studies could be used for either identifying a specific source or measuring the disturbance of ground dust. For each sampling day, a wind rose attached to a printout map of the stations and their particulate values should be obtained. Action could then be taken on an immediate basis to trace the cause and take appropriate corrective action. If a particular source is suspected, shorter term sampling should be done to reduce meteorological variability. Also, samples could be taken both upwind and downwind of the source. This would give a clearer indication of the source's actual contribution to the particulate levels.

The Federal ambient air standards in themselves pose a problem. They call for only a total concentration in the air, taken on the basis of total weight of particulates. There is no basis for distinguishing the type or size of particle. And the atmospheric area itself is poorly defined. Is it considered a region, or the atmosphere in a ten foot radius of the sampling site? Thus the standard itself leaves no room for determining the relative potential of harm, either in size of particle, type of particle, or degree of public exposure. The standard sees the same harm in 150 ug/M^3 of dirt thrown up by a bulldozer in an industrial construction site as in 150 ug/M^3 of very fine, toxic chemical particulates permeating a residential area. Obviously there is a difference which control strategies should reflect but which the sampling method does not reflect. A second generation of standards is needed to more specifically address these problems realistically and effectively. The sampling data would then be correspondingly improved in measuring for compliance with these standards.

There is valuable information to be gained from sampling in construction areas. The effect of construction activity should be documented. But when a sampling station is adjacent to a construction site, it should be recognized as such and not treated as an indication of regional air quality. Stations are currently classified according to their use. These classifications should be updated to account for changing conditions. The Deer Park Station, for instance, should probably have been reclassified from a regional monitor to a special purpose site while the adjacent road construction was in progress. The Houston 22 site, inside the refinery, should be reclassified as a special service site until the heavy construction and earthmoving activities are ended. It should not be viewed as a regional site until then.

In summary, current data its collection process are woefully inadequate for good understanding of the atmospheric processes in this area. Indications are that construction activities can have a major effect on particulate levels at specific sampling sites. The more obvious sources can be identified. But more refinement of data collection and interpretation is needed, as well as a second generation of particulate standards, reflecting the realities of atmospheric processes, and based on the potential for harm.

DETAILED METHOD AND RESULTS

DETAILED METHOD AND RESULTS

B. DESCRIPTION OF DATA

Sampling Stations

Table 1 and 2 show the ambient particulate data of the six nearby City Sampling Monitors taken over the last three years. Table 1 is by half year - Table 2 by monthly geometric means. The stations chosen for study are shown on Figure 1. They surround the Complex in these directions.

Northwest	- H18
North by Northeast	- H20
East	- H23
South	- DP1
West by Northwest	- H21
Inside Plant	- H22

The data from these stations must be viewed in relation to the following Federal ambient air standards:

	PRIMARY $\mu g/M^3$	SECONDARY $\mu g/M^3$
24-hour average (not to be exceeded more than once per year)	260	150
Yearly Geometric Mean	75	60

Currently the region must meet the primary standard. On the basis of the data given in Table 1 H-22 and 1-DP stations failed to do so for 1974 and 1975.

Trend Analysis

Note that the 1-DP station had very low levels in 1973 and then took a step jump in 1974. Then, in the latter part of 1975 the values are falling again. H22 also took a step jump increase in 1974. However, in the last months of 1974, and the first months of 75, the values jumped back down, but have gradually been rising through 1975. To see if these 1975 trends are statistically significant for 1DP and H22, we calculate the Spearman Rank Correlation Coefficient (r_s).

Given observations X_1, X_2, ... X_n (taken over time) and their corresponding ranks $R(X_1)$, $R(X_2)$, ... $R(X_n)$, then:

$$r_s = 1 - \frac{6 \sum_{i=1}^{n} d_i^2}{N(N^2 - 1)} , \qquad -1 \leq r_s \leq 1$$

where d_i is the difference between the rank of X_i and its sequential index i in the series of N observations. By using the published tables (see Appendix C), the significance of the trend is found. In our case, for DP1, March through December of 1975, $r_s = -.59$, and H22, for January through December is +.56. These are outside the range of $\pm$ .5515 and $\pm$ .4965 respectively, and thus are significant trends at the 95% confidence level. Therefore, there is a significant trend downward for DP1 and upward for H22 in the 1975 times selected.

Method

In order to provide insight into these trends, further break down of the data is needed. The most obvious catagorization of the data would be with respect to wind direction. Since the particulate data is an average over a 24-hour period, and since the wind frequently changes direction within that time, some choice in data treatment must be made.

There are two choices in treating wind direction data. We can choose to simply ignore those days when there is not a persistent wind. Or we can weight each particulate value by the number of hours of wind from each given direction. The advantage of the first method is that the data can be treated individually -- each data point can stand alone for a particulate value from one wind direction. The disadvantage lies in discarding much of the data, since the wind direction is more often variable than not. If we use the second method and weight the values in proportion to the amount of time the wind is blowing from any given direction, we cannot rely as heavily on any one data point. But if we take a sufficiently large population, say one year's time, then the patterns are more accurate. If there is a source to the East, the more hours of wind from the East, the higher the particulate values will be. The advantage to this method is that almost all of the data can be used, and the long term patterns are more conclusive. Since we are interested in longer term patterns (peak values are discussed separately) the second method is used in this discussion. The wind data recorded every hour by the City of Houston is used in this study.

In order to weight this data by wind direction, the 24-hour value is taken as 24 equal hourly values and assigned to the corresponding wind direction. For example, if on a given day the wind is from the North for eight hours, the South four hours, and Southeast twelve hours, and has a 24-hour average value of 61 $\mu g/m^3$,

eight 60 $\mu g/m^3$ values are assigned to the North direction, four 60 $\mu g/m^3$ values to the south, and so on. The average and standard deviations for all the values in each of the sixteen wind directions is then calculated and a frequency distribution histogram constructed. This is done for each of sixteen wind directions, for each of six sampling stations, for each of three years. Appendix A is the table of means and deviations and Appendix G is the frequency histograms. It should be noted that the means calculated are arithmetic and not geometric and therefore should not be directly compared with the standard. Appendix B contains the geometric means for the same time period. They follow the same trends as the arithmetic means, but the absolute numerical values are lower.

C. OUTLIER REJECTION

Method

It is apparent that a small number of very large values can make such huge differences that the underlying pollution patterns are obscured. These outliers must be rejected for purposes of this study. Criteria were developed which were used to reject the outliers. Individual data points were judged for exclusion if they:

1). Significantly skewed the mean and inflated the standard deviation;

2). were inconsistent with the pattern established by the other data (e.g., if a peak was increased, the data point was kept; if a valley became a peak because of one day, the point would be rejected);

3). were illogical in the context of data obtained at nearby stations (the result of either a highly localized phenomena or sampling equipment malfunction); and

4). interferred with interpretation of data affecting Shell's impact (e.g., a significant point source nearby).

Standard deviations and frequency histograms were calculated both with and without each suspect point. Only one data point was dismissed outright. This was the April 5, 1974, value of 958 $\mu g/m^3$ at H18. Either sampling error or some highly localized phenomena totally inconsistent with other data are likely suspects. Compare the dotted line on Figure 3c which shows the 1974 average with that day, and the solid line which shows the same average without the point. This value is unacceptable for this study.

Table 3 lists the data points which are not used in this study. It includes much of the data acquired during H18's initial weeks of operation. They are inconsistent with data collected after this time and, unless rejected, render our base year meaningless. The other data points also meet the rejection criteria above. (See Appendix D for means, standard deviations, and frequency histograms before and after this data is deleted).

Significant Source

The data rejected for this study nevertheless presents strong circumstantial evidence of a major source. Figure 3d, the H21 yearly values, shows clearly that the excessive values all occured with a North by Northwest wind. For 1974 H18 outlier data points, the wind is from the Northwest. And although the magnitude cannot be taken too seriously, even the data taken in 1973 when H18 first began operations exhibit a convincing trend and pattern of higher levels with a Northwest wind. These outliers probably do not occur this consistently by chance. More likely a major particulate source exists North by Northwest of H21 and Northwest of H18 which erupts intermittantly, causing high ambient particulate concentrations. However, analysis of Shell's effect on the area requires that we control for this source to prevent its interferrence. Thus, the extremely high data points, as listed, are not used in the remaining discussion.

D. EVALUATION OF WIND DIRECTION DATA

The following is a discussion of the wind direction data given in Figures 3a-f. The 1975 values are based on the first three quarters of 1975. (The last quarter values will tend to lower overall the particulate averages)

I-DP - The most marked changes to occur in the particulate concentrations is when winds are blowing from the east/southeast. From a low of 52 in 1973 through an 86 in 1974 to a high of 109 in 1975. In general, 1974 was much higher than 1973 for the west and northern wind directions. In 1975 the northern values decreased and the W,WSW averages increased.

H18 - When H18 is evaluated without the outlier data points, the three years appear remarkably similiar. There is one notable exception, however, and that is when the wind is again from the ESE. There has been a steady increase from 73 through 74 to a marked peak in 1975.

H21 - This station has shown a pattern of decreasing average particulate concentrations (when those few, very large values are discounted above) No clear pattern emerges.

H22 - This station, located within the refinery, shows a pattern of increasing in 1974, but decreasing again in 1975. The peaks generally lie along the east/west axis (along the Ship Channel and toward downtown).

H23 - H23 shows a large peak in 1974 from a west wind (along the Ship Channel) and from an ESE direction. The 1975 values are generally lower than those in 1974.

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H20 - H20 shows a large drop from west to southwest winds from 1973 to 1974 and another drop from 1974 to 1975. Interestingly, the only place this trend is reversed is again out of the ESE.

E. SHELL'S DEER PARK MANUFACTURING COMPLEX EFFECTS

Shell Downwind

One way to judge the effects of Shell I-DP on these stations is to plot them with Shell centered downwind. Plotting them all together presents a random array of points with no clear pattern. (Figure 4a). If Shell indeed is a major source affecting ambient air, or even some other company located in approximately the same area, then the wind direction plots of all the stations should produce a clear peak when centered on us. The plot of the averages of all stations with Shell downwind does not present this clear picture. (See figures 4b-e). There does seem to be a peak in 1974 slightly off center of Shell and decreasing in 1975 (Figure 4e). Much of the higher 1974 average is reflective of high DP-1 data points (Figure 4c).

Upwind/Downwind Levels

Another way of judging Shell's effect is to take the wind values for a given station that would place it directly downwind, and use those same winds at another station that most nearly represents the upwind concentrations. The difference of these two values, averaged over all the stations, is given by year in Table 4. The overall downwind-minus-upwind-average for all stations surrounding Deer Park has decreased from 17 in the base year of 1973 to 0 in 1975. Shell has not ceased or significantly changed operations and, thus, cannot be credited with the decrease. Likewise, however, there is little to indicate that Shell's operations have had deleterious impact on the ambient particulate level.

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Computer Modeling of Net Ground Level Concentrations

The Texas Air Control Board has set standards for net ground level concentrations (downwind-minus-upwind) particulate concentrations from any given source:

RULE	TIME	STANDARD
105.21	averaged over 5 consecutive hours.	100 $\mu g/M^3$
105.22	averaged over 3 consecutive hours.	200 $\mu g/M^3$
105.23	averaged over any one hour period.	400 $\mu g/M^3$

Computer modeling was done using Shell's SMOG II air dispersion calculation program (Shell Technical Report BRC-Corporation 23-73-P) assuming worst case conditions. The program is based on a Gaussian plume dispersion model and uses the Pasquil-Gifford dispersion parameters and the Briggs plume rise formula. Inherent program sampling time is 10 minutes. To extrapolate to the time of the given standard the following relationship is used (from McGuire, T. and Noll, K. E., "Relationship Between Concentrations of Atmospheric Pollutants and Averaging Time", Atmos. Env., v. 5, 291-298 (1971).):

$$\frac{C_{max}(t)}{C_{max}(t_o)} = \left(\frac{t}{t_o}\right)^{-b} \quad (1)$$

where: t = sampling time of standard

t_o = ten minute (computer model sampling time)

$C_{max}(t)$ = Maximum concentration of pollutant over time t

$C_{max}(t_o)$ = Computer model maximum concentrations. Maximum concentration of pollutant over time t_o

b = constant = .2 (conservatively)

so $$C_{max}(t) = \left(\frac{t}{10}\right)^{-.2} C_{max}(t_o) \quad (2)$$

For t = 60 minutes:

$$C_{max}(t) = \left(\frac{60}{10}\right)^{-.2} C_{max}(t_o) \quad (3)$$

or $$C_{max}(t) = .699\ C_{max}(t_o) \quad (4)$$

For t = 180 minutes:

$$C_{max}(t) = .56\ C_{max}(t_o) \quad (5)$$

For t = 300 minutes:

$$C_{max}(t) = .506\ C_{max}(t_o) \quad (6)$$

So, on the basis of Class A stability and a North wind at 5.1 m.p.h., the maximum ground level particulate concentrations are as follows:

	1 hour 400 $\mu g/M^3$ Standard	3 hour 200 $\mu g/M^3$ Standard	5 hour 100 $\mu g/M^3$ Standard
Now Existing (depending on gas supply	22-40	20-32	16.2
Presently Approved	49	40	34
Above + Phase II Oil Burning	66	53	48

(also see Table 7a)

For the one hour sampling time, even assuming worst case meteorological conditions, currently approved particulate levels are about 12% of the standard, and the increase due to Phase II oil burning would only be about 4% of the standard. These percentages, of course, increase with the time averaging period and correspondingly lower standards.

We can use the same technique to extrapolate to a 24-hour average for worst case conditions. In this case we assume a constant north wind for 24 consecutive hours for a constant 5.1 m.p.h. wind and stability class A. This should be compared with the "not to be exceeded more than once a year" Federal primary standard of 260 $\mu g/M^3$ or secondary standard of 150 $\mu g/M^3$.

	Max Net GLC ($\mu g/M^3$)
Existing (Depending on Gas Supply)	12-21
Presently Approved	26
Above + Phase II Oil Burning	35

We now want to extrapolate the model to calculate the effect on the yearly geometric mean for the area. The DP-1 sampling site is of primary concern to this study, so it is used as the reference point. The effect of Shell's emissions on the Deer Park station will be dependent on both wind speed and direction, as well as other meteorological and operational variables. We will hold these other variables at a conservative value, and obtain a "best guess" estimate solely on the basis of the proportional time during the year that the wind is at a given speed or direction.

Long term wind data averages can be found in the U.S. Department of Commerce's Climatic Guide for Houston - Galveston, Texas Area (Washington, D.C., 1962). It lists the typical percentage of time during a year when the wind is blowing at any given direction or speed. Table 7b shows these percentages for a NNE, N, NNW, and NW winds. Only with these winds will Shell's emissions have impact on the Deer Park Sampling Site. For each operational case (existing, now approved, and post Phase II Oil Burning) we can obtain the calculated particulate concentration at the Deer Park Station for these wind speeds and directions. (See Tables 7c-7f). These values are weighted by the fraction of the year these conditions are encountered, and a yearly average is found. So the following is a conservative estimate of the increase in yearly ambient particulate concentrations at the Deer Park Sampling Station, compared to the Federal primary standard of 75 $\mu g/M^3$ or secondary standard of 60 $\mu g/M^3$.

	$\mu g/M^3$
Existing (depending on gas supply)	1.1 - 1.8
Presently Approved	2.7
Above + Phase II Oil Burning	3.2

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Thus, the increase due to the Phase II Oil Burning activities at the Deer Park Complex should increase the annual average at the Deer Park Sampling Station by only .5 $\mu g/M^3$ over presently approved levels.

So, on the basis of the short term net ground level concentration standards, or the yearly average standards, the Shell complex and proposed expansion have relatively minor impact.

F. PEAK VALUES

Peak Values at H22

Table 5 shows the peak values at H22 for the years 1973, 1974, and 1975. This station is located inside the Shell Refinery on the south side of the Lube Plant Office. The peak values are those greater than 150 $\mu g/M^3$. Obviously, 1974 was a bad year with many high values. The high values were absent the first half of 1975, but increased in frequency toward the end of the year.

One very plausible explanation for this data is the level of construction activity within the plant. Construction began on Sulfur Recovery Unit 5 in December of 1973 and was completed in January of 1975. The construction site lay within one hundred yards of the sampling station with no intervening structures. Due to the nature of construction activity, it was not confined as a point source (due to hauling of dirt, etc.). This dust associated with the construction activity was probably the cause for high values in 1974.

Due to the Major Projects expansion activity begun in the latter part of 1975, much earth moving and construction has begun and is increasing. It is not surprising, therefore, that particulate levels would be increasing because of it. A new phenol plant is being built just southwest of the sampling site, and major earthmoving activities in connection with solid waste handling are being done north and east of the location. Construction materials and equipment are dropped in the small field directly adjacent to the sampling site. Thus, the increasing particulate levels at H22 over the last part of 1975 are likely due to increasing construction activity and the resulting dust and sand.

Peak Values at DP-1

All particulate values greater than 150 $\mu g/M^3$ for DP-1 are shown in Table 6. The wind values for each of these days is also given. The wind data for peak values is characteristically different for 1974 than for 1973 and 1975. The winds were from the North and slightly west for 74 "highs", but ESE to south for the 75 "highs". This trend toward increasing values with an ESE to SSE wind follows the trends of the other station. The north to northwest wind high values for 74 appear anomalous.

The sampling station at DP-1 is located directly adjacent to the Deer Park Fire Station facing 13th street near the intersection with Center Street (the main street of Deer Park). All of 13th Street, from Center west to the East Loop was expanded and paved with construction beginning February 13, 1974, and cleanup ending March 27, 1975. The construction timetable obtained from the City Engineer's records, as well as the corresponding particulate data, are shown in Table 8. While this data cannot prove anything, it does suggest a relationship between construction activity and increased particulate levels.

Another construction activity worth noting is the Coastal Industrial Water Authority's (CIWA) project to provide surface water to industries along the channel. They lay very large water pipe all along Highway 225, moving generally eastward from April 1974 to present. The dust from these activities, stirred by the heavy traffic flow, could have affected either the Deer Park or H22 stations which flank the highway.

G. AREA TRENDS

Description

To find if some source outside the area bounded by these surrounding stations influences particulate levels, the average by wind direction of all the stations is calculated and plotted by year (Figures 5a-f). For each year the plot consists of the average of the four base stations; then the same plus H22; then an average of all six stations including DP-1. This illustrates any effect on the average from the questionable data obtained at these stations. Figure 5f shows the yearly trends. The dotted line shows the 1974 average without the suspect 1974 DP-1 data. Particulate levels with winds from the ESE changed most during the three years. West winds, from Downtown along the channel, generate the other peak. 1975 values show a significant drop along this direction, however.

Area Industrial Expansion

Rapid industrial expansion characterizes the area SSE of Deer Park, and, indeed, the entire region. Table 9 charts some of the announced construction and expansion activities for this region. It is not unlikely that these projects have some effect on the ambient particulate levels, and could be influencing these rising ESE levels. Considering the available data, one may only speculate as to relationships, let alone cause and effect. Although the data is too uncertain to be proof, suggesting relationships should provide a starting place for further study and measurement in this area.

H. RECOMMENDATIONS

Several recommendations for providing more conclusive results are given below:

1. Visual observation of sampling. Little is presently recorded about the more obvious environmental conditions at the time the sampling is done. After the fact attempts to reconstruct the conditions are highly unsastisfactory. A simple description of any unusual activity or meteorological data can prove immensely beneficial.

2. Detailed analysis of sample collected. Obviously, particle size distribution and chemical analysis of the particulates collected can provide information as to its source as well as its potential for harm.

3. Quality control of data. The City is already making strides in this area. If some very high or contextually illogical value is found, it should be rechecked both for analytical accuracy as well as external causes.

4. Tracer Studies - To see if a particular source is influencing particulate levels, some tracer material can be introduced. This could either be into a stack, or along the ground near the station to check for stirred up dust.

5. Stations SSE. Samplers should be placed around the rapidly developing industrial areas along Galveston Bay.

6. Wind Rose. For each day samples are taken, they should be immediately printed on a map along with a wind rose. This would provide an instantaneous picture of the day's pollution levels, and provide a basis for immediate investigation of unusual data.

7. Short Term Sampling. Some shorter term sampling should be done to eliminate some of the uncertainty introduced by wind variability and changing weather conditions. Upwind/downwind tests could be made of specific sources.

8. H22 Reclassification. The station H22 should not be used for determining compliance with regional ambient air standards in this area. It has become a very poor location, due to the commencement of major construction activity. It can not provide representative ambient air data and thus should not be used for that purpose. It can be used as a special service site to monitor effects of construction. It should be reclassified as such.

FIGURES AND TABLES

Figure 1

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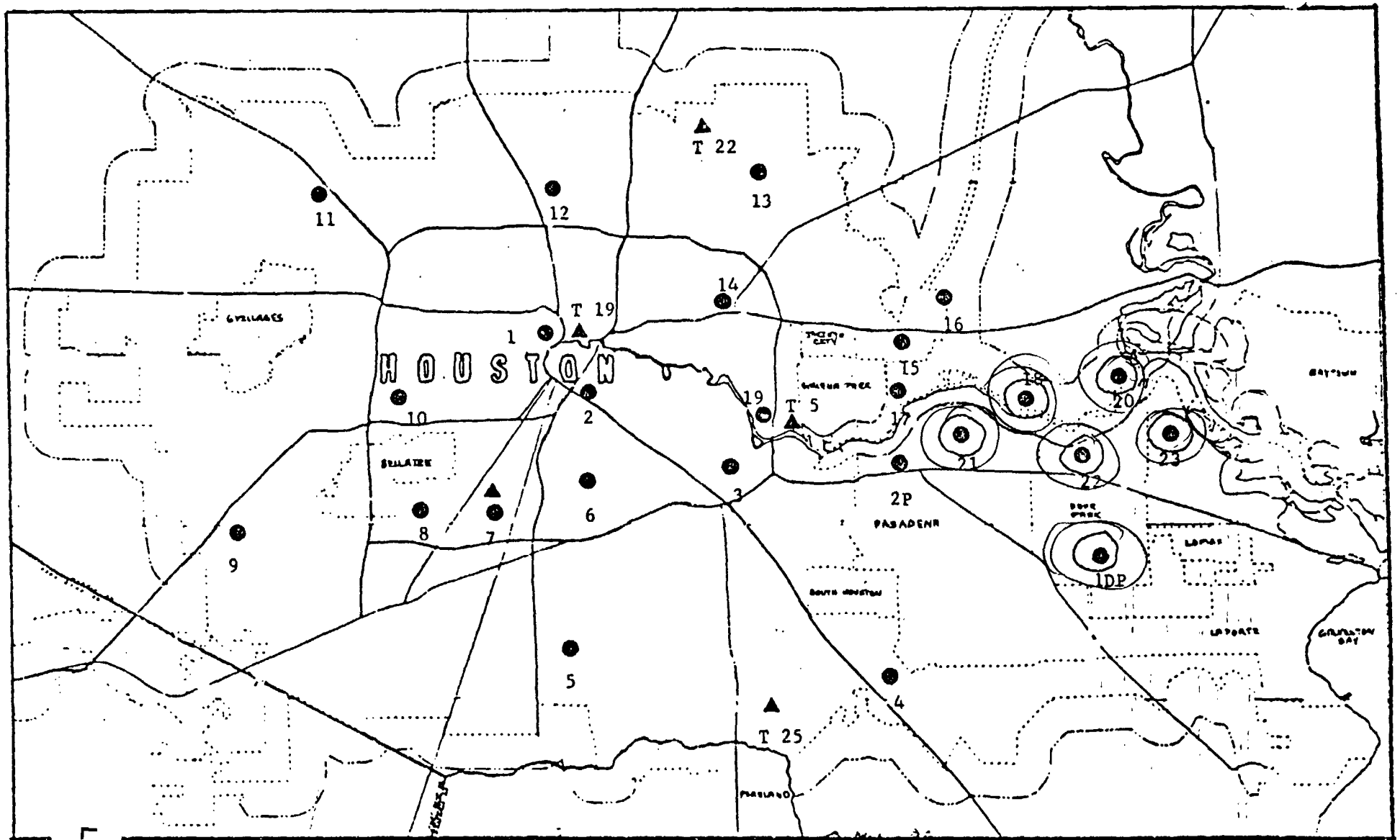

CHAMP SAMPLING SITES
(CITY OF HOUSTON AIR MONITORING PROGRAM)

● PERIODIC SAMPLING SITE
▲ CONTINUOUS MONITORING SIT

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Table 1

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Units

TABLE 1

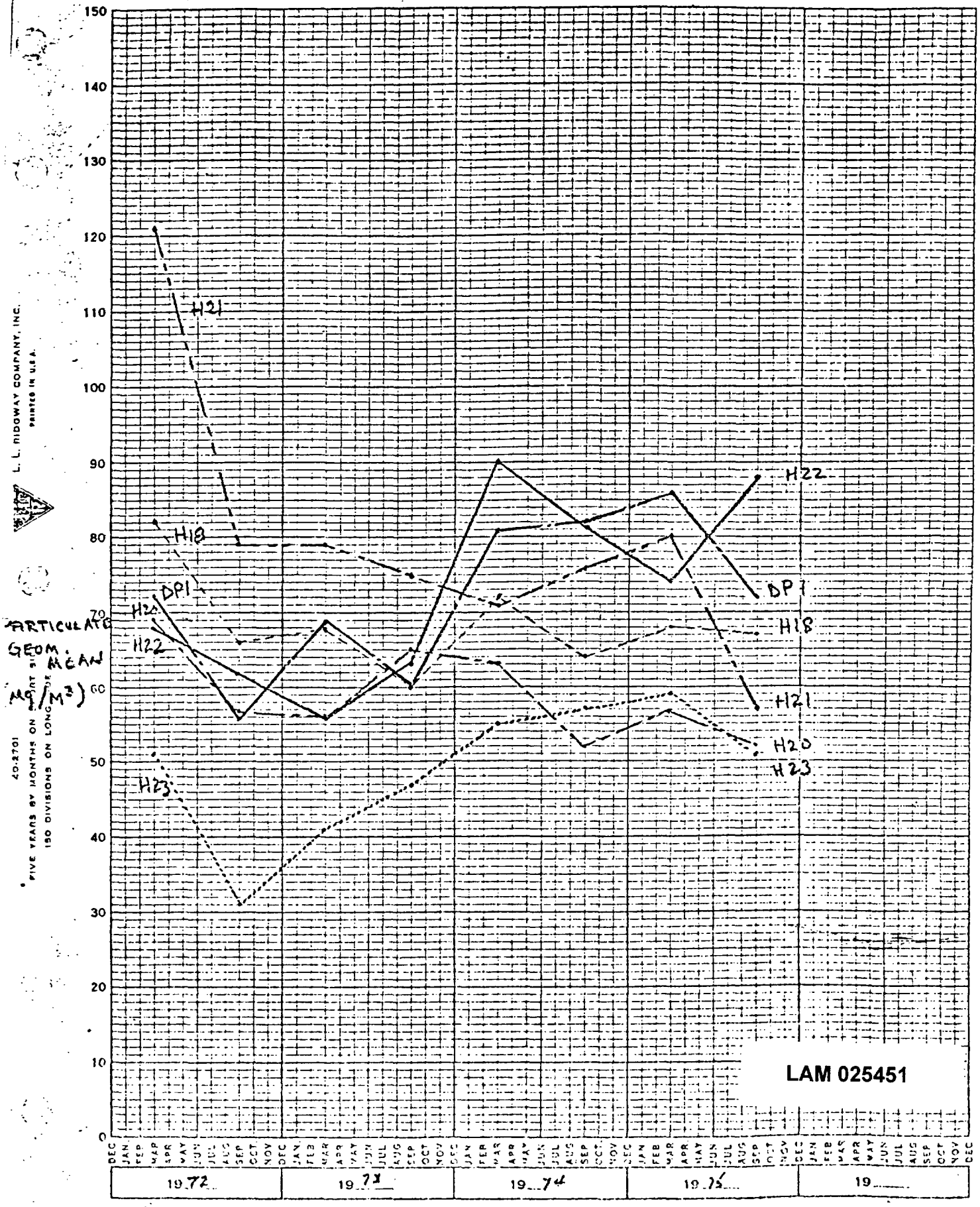
GEOMETRIC MEAN OF PARTICULATE LEVELS
(By Half Year)

		H18	H20	H21	H22	H23	DP-1
1972	1	-	69	121	68	51	72
	2	66	57	79	62	31	56
1973	1	186*	56	79	56	41	69
	2	60	65	75	63	47	60
1974	1	72	63	71	90	55	81
	2	64	52	76	81	57	82
1975	1	68	57	80	74	59	86
	2	67	52	57	88	51	72

*Highly Suspect.

Figure 2

CITY SAMPLING STATIONS
SEMI-ANNUAL GEOMETRIC MEANS



LAM 025451

ABS-035469

Table 2

TABLE 2

Geometric Mean, by Month (in $\mu g/M^3$)

Station	DP-1			H-18			H-20			H-21			H-22			H-23		
Year	73	74	75	73	74	75	73	74	75	73	74	75	73	74	75	73	74	75
Month																		
Jan	68	92	64	(875)*	50	-	82	48	58	67	49	71	67	89	51	39	35	67
Feb	89	83	70	(214)	93	70	42	66	34	88	117	106	58	95	62	34	58	46
Mar	65	60	106	57 (220)	47 (69)	90	52	74	66	81	73	80	76	-	86	49	52	70
Apr	54	87	87	70 (186)	60 (104)	64	42	84	66	62	83	73	39	98	79	33	66	61
May	84	90	94	76 (127)	54	51	81	49	50	190	53	65	53	78	71	51	57	49
June	58	94	105	40	84	58	60	70	80	61	59	95	48	91	100	53	75	63
July	55	119	111	78	87	-	59	92	61	82	95	63	66	125	89	52	113	49
Aug	70	62	66	58	50	47	-	56	49	76	55	56	60	77	80	48	59	43
Sept	64	79	108	49	67	56	54	46	57	50	93	72	40	66	103	38	46	67
Oct	46	113	65	57	79	54	56	79	59	91	104	54	75	120	94	49	132	68
Nov	67	54	56	56	53	62 (97)	75	42	42	75	42	43	76	72	60	47	34	36
Dec	62	97	63	67	78	63	79	38	48	-	89	58	64	51	114	51	148	49
Annual Geometric Mean	64	84	80	60	65	61	60	60	55	79	72	68	59	85	80	45	65	55
Geom. Std.Dev.	1.2	1.3	1.3	1.23	1.3	1.2	1.3	1.3	1.3	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.6	1.2

LAM 025453

* Parenthetical numbers include suspect data points. Other number is without suspect data points.

ABS-035470

Figure 3

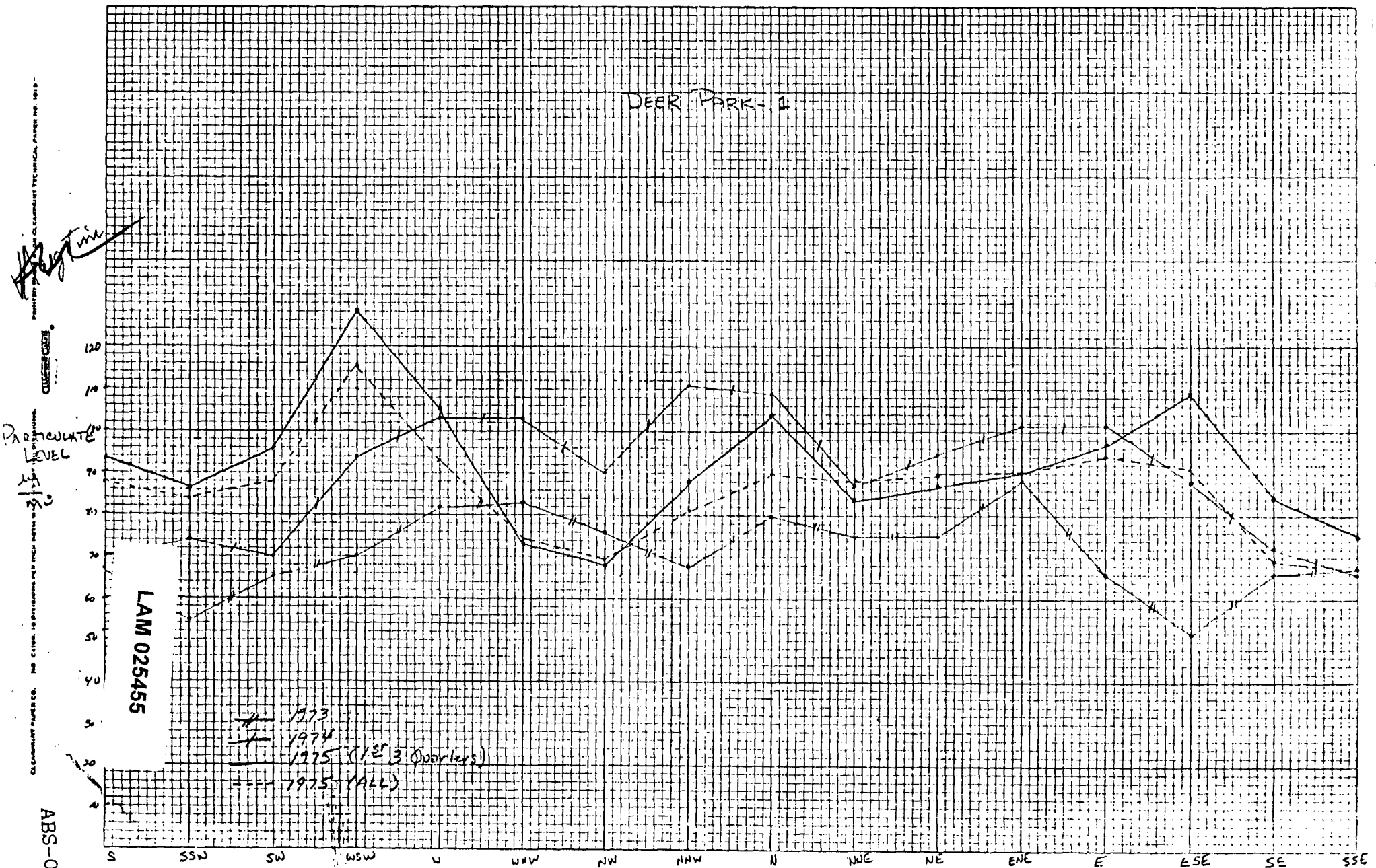
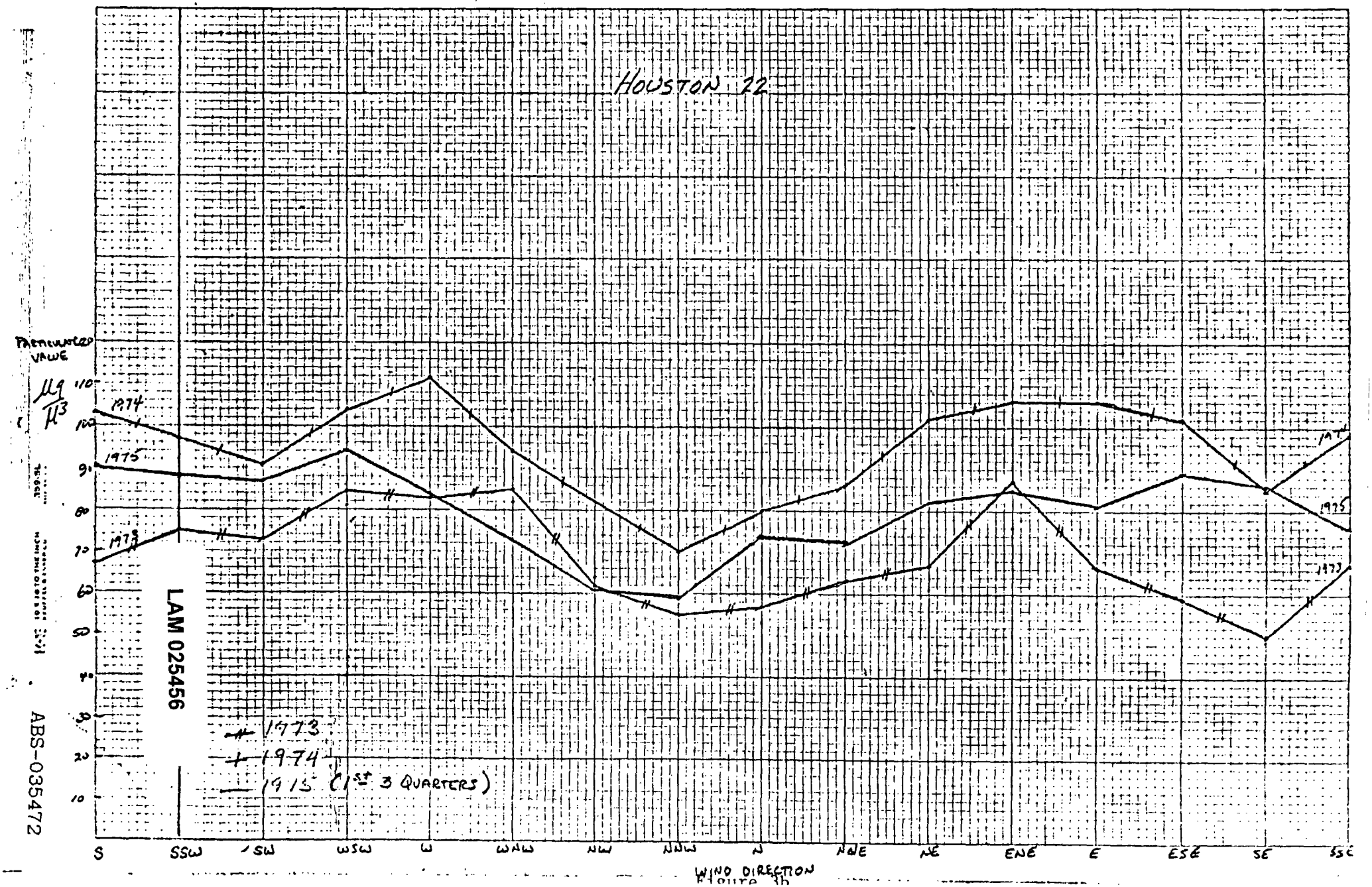


Figure 3a

LAM 025455

ABS-035471



LAM 025456

ABS-035472

FIGURE 3b

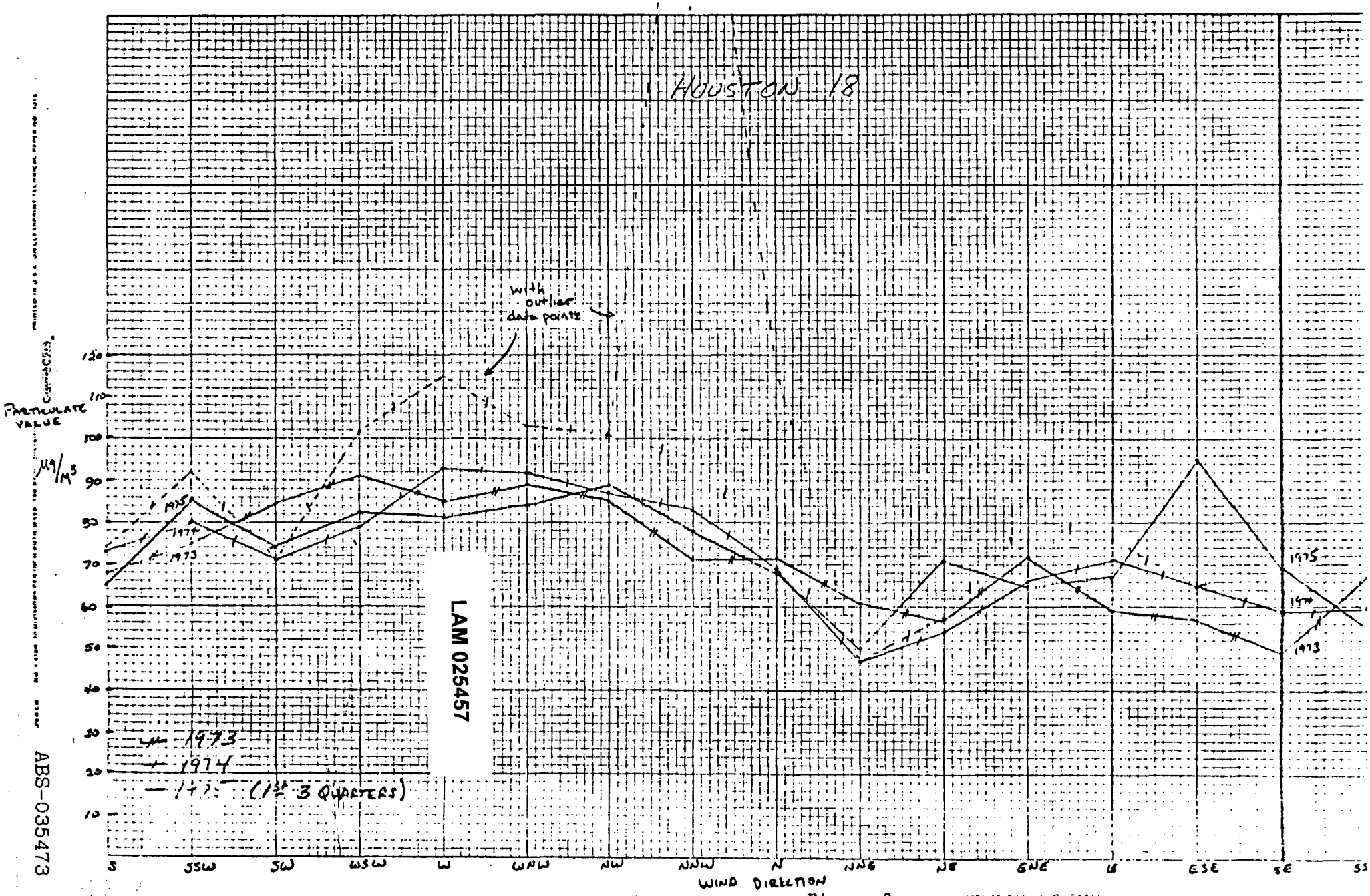

HOUSTON 18
With outlier data points
PARTICULATE VALUE
μg/M³
120
110
100
90
80
70
60
50
40
30
20
10
1975
1974
1973
1973
1974
1975 (1st 3 QUARTERS)
S
SSW
SW
WSW
W
WNW
NW
NNW
N
NNE
NE
ENE
E
ESE
SE
WIND DIRECTION
LAM 025457
ABS-035473

Figure 3c

LAM 025458

Figure 3d

ABS-035474

LAM 025459

Figure 36

ABS-035475

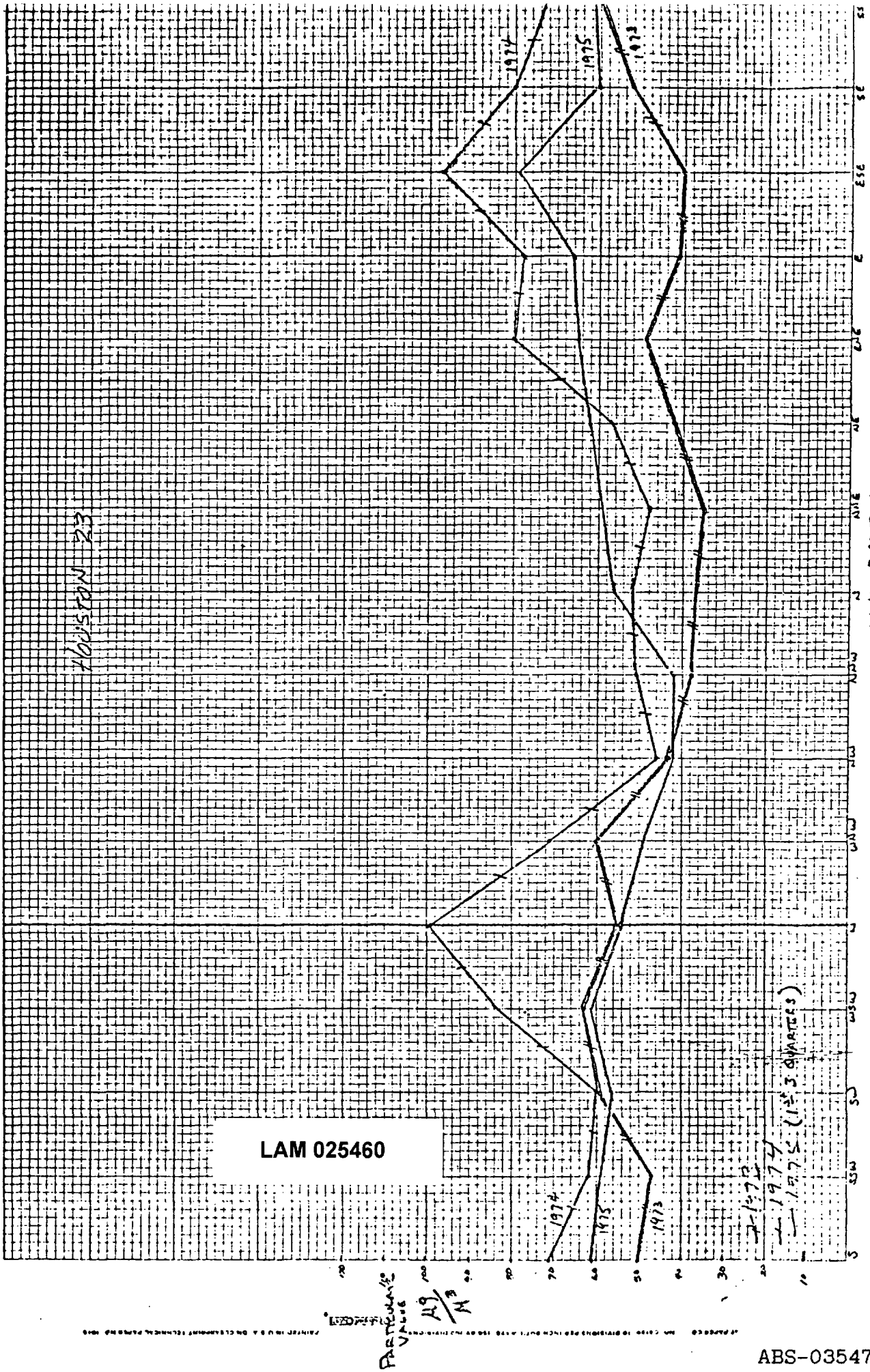


Figure 3f

ABS-035476

Table 3

TABLE 3

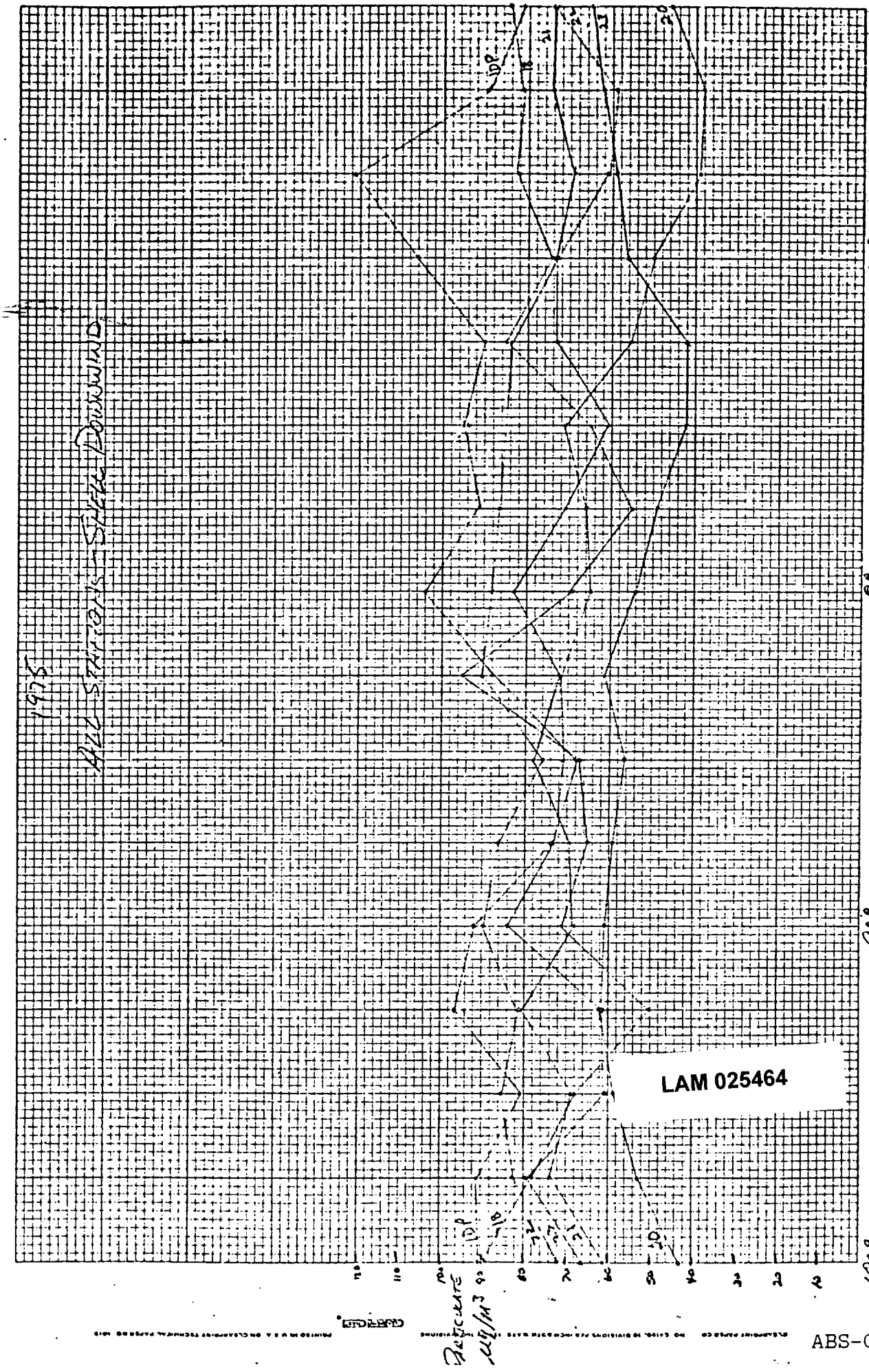
DATA NOT USED IN ANALYSIS

	Station	Year	Date	Values
1	H18	1973	1-22	1107
			1-28	692
			2-3	365
			2-9	558
			2-15	159
			2-21	148
			2-27	94
			3-5	431
			3-11	790
			3-17	468
			4-4	1447
			4-10	465
			5-4	590
2	H18	1974	3-12	325
			4-5	958
3	H21	1974	9-8	423
			12-1	296
4	H21	1975	1-12	216
			2-23	333

LAM 025462

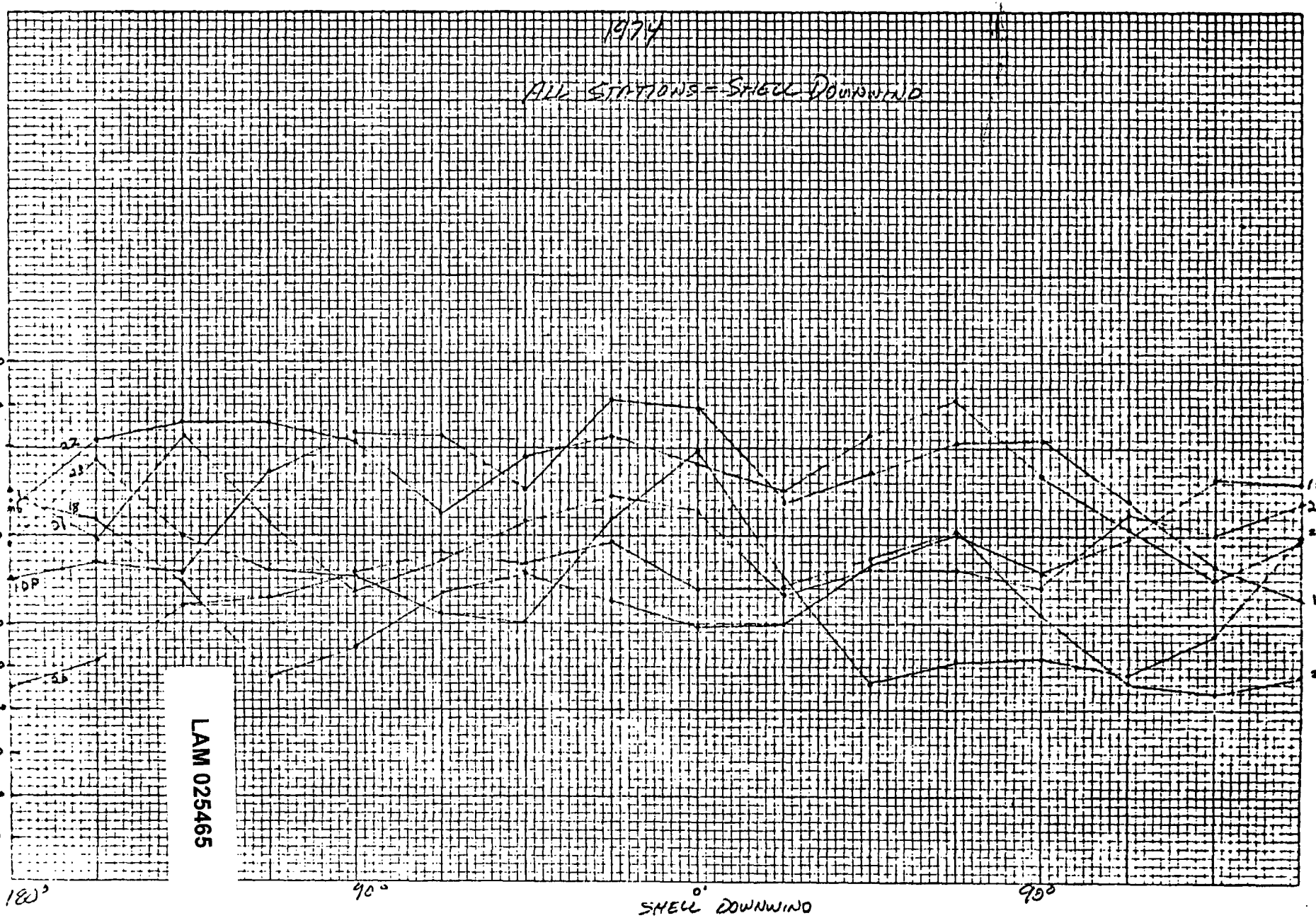
ABS-035477

Figure 4



LAM 025464

ABS-035478



LAM 025465

ABS-035479

Figure 4a-2

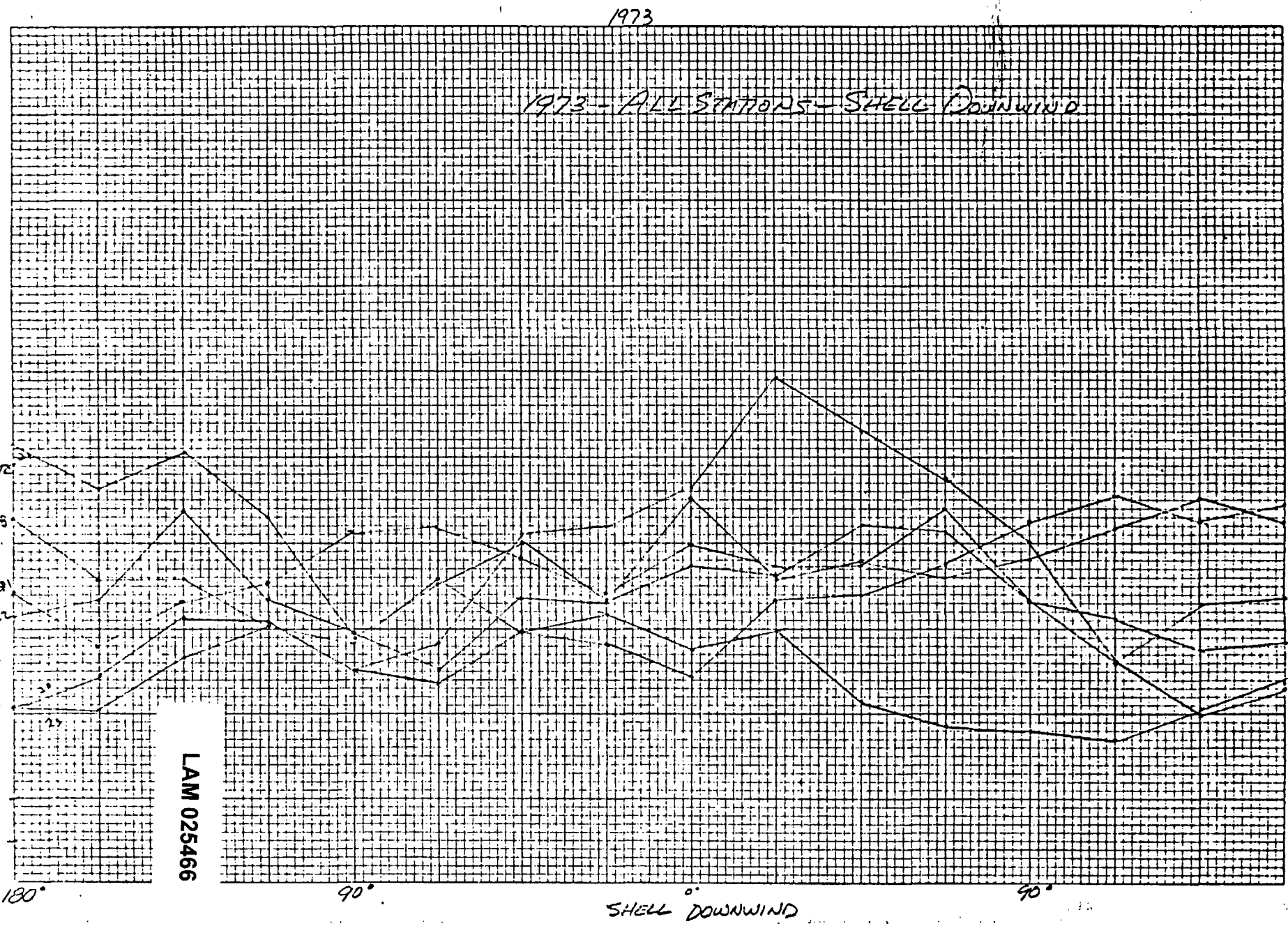
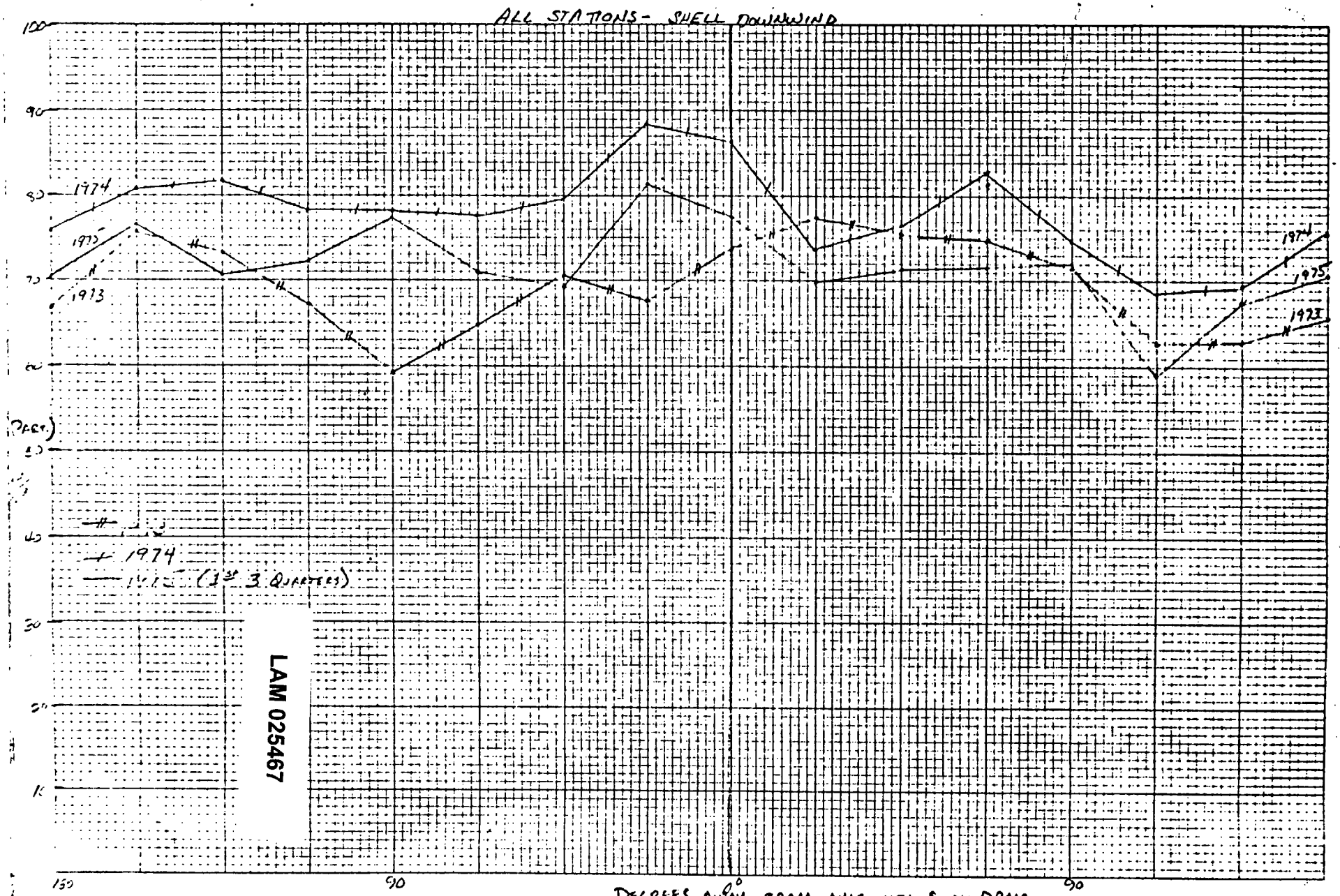


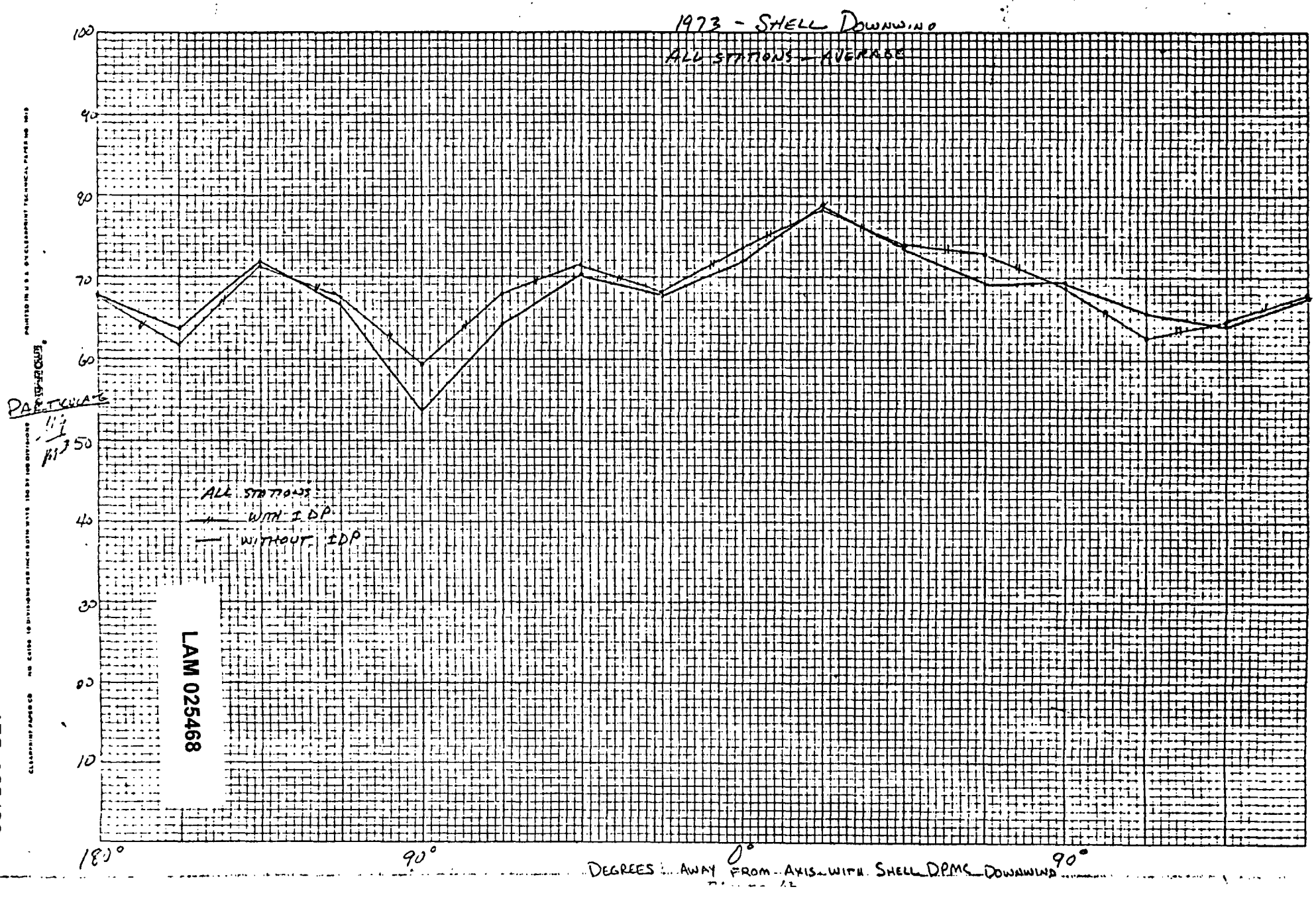
Figure 4a-3

ABS-035480



ABS-035481

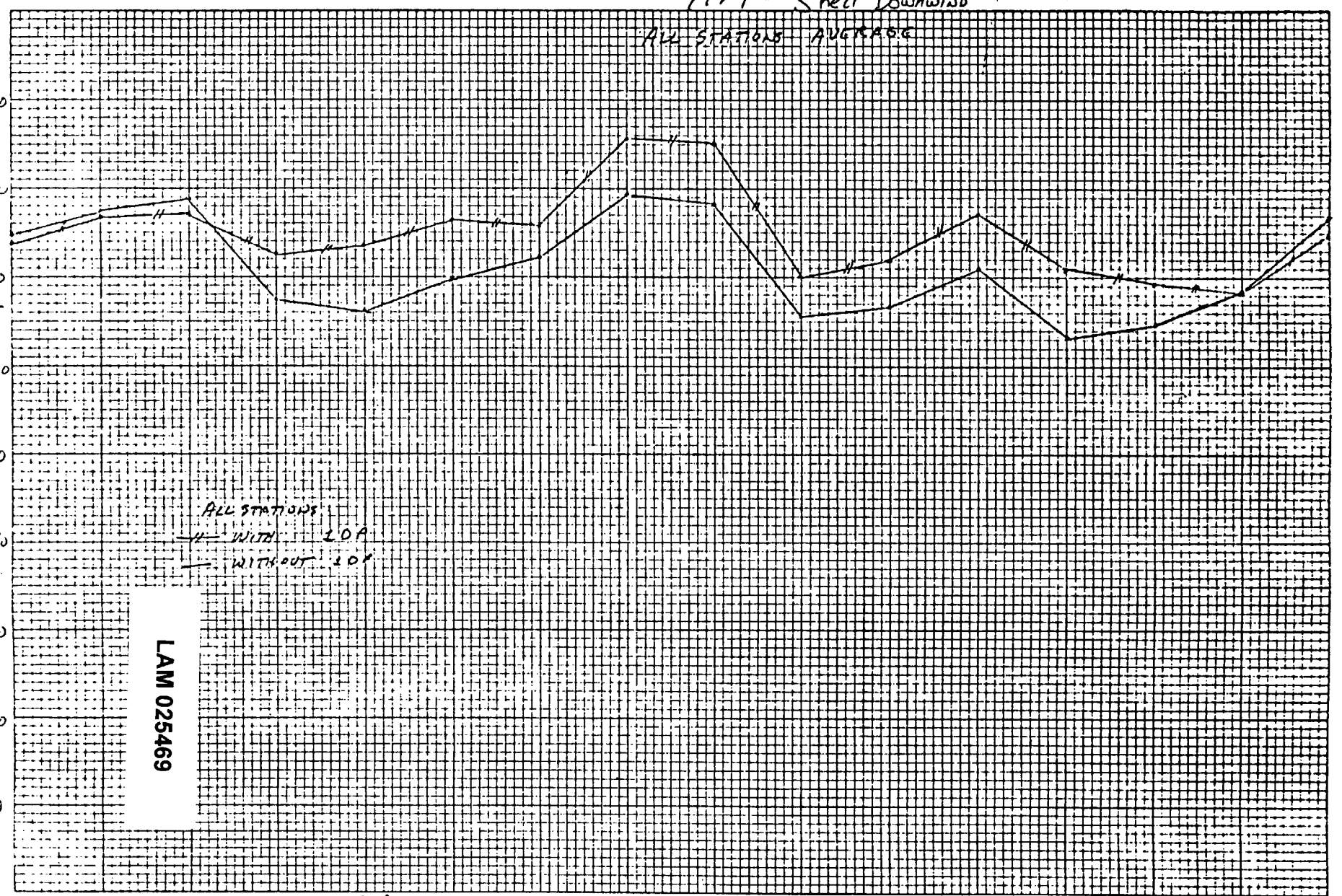
Figure 4a



LAM 025468

ABS-035482

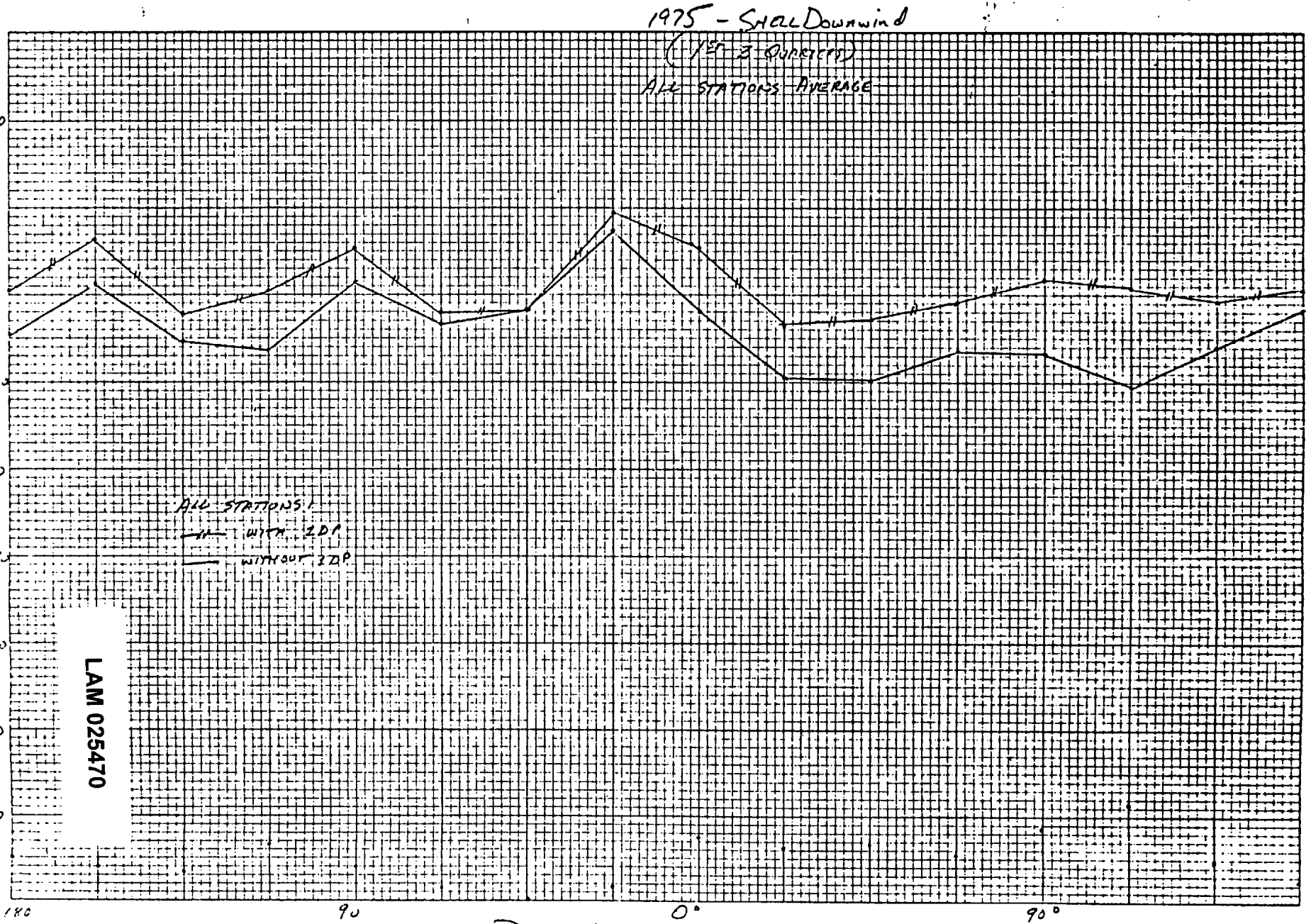
1974 - Shell Downwind



LAM 025469

ABS-035483

Figure 4c



LAM 025470

ABS-035484

Tables 4.8

TABLE 4

DPMC UPWIND/DOWNWIND LEVELS

Station		1973	1974	1975
DP-1	Up	43	46	44.1
	H22	58.6	78.3	67.1
	Down	74.2	135.9	90.3
	Difference	+31.2	+89.9	+46.2
H18	Up	56.1	79.5	80.9
	H22	58.6	94.7	83.7
	Down	57.8	61.0	73.0
	Difference	+1.7	-18.5	-7.9
H20	Up	62.3	71.4	84.0
	H22	71.8	97.3	88.3
	Down	98.5	71.6	70.4
	Difference	+36.3	+.2	-13.6
H21	Up	44.4	85.0	68.6
	H22	58.4	97.6	85.4
	Down	79.7	81.0	76.3
	Difference	+35.3	-4.0	+7.7
H23	Up	78.3	100.1	87.4
	H22	84.1	103.0	84.0
	Down	59.5	83.9	54.6
	Difference	-18.8	-16.2	-32.8
Avg. Difference		+17	+10	0

LAM 025472

ABS-035485

TABLE 5

HIGH VALUES AT H22

Year	1973	1974	1974	1974	1974	1974	1974	1975	1975	1975
Date	10-19	1-29	4-11	6-28	7-22	10-26	12-13	6-17	10-3	12-8
Value	222.	158.	152.	157.	179.	155.	157.	152.	168.2	276.8
Wind/mph	NE-2	N-4	SSE-13	SW-3	SW-4	ENE-4	E-4	S-7	NE-5	NE-3
	NE-2	NNE-4	SSE-11	WSW-3	WSW-5	ENE-4	ESE-4	S-7	ENE-5	NNE-2
	NE-2	NNE-2	SSE-7	WSW-3	W-6	NE-3	E-3	S-6	ENE-5	N-2
	NE-2	NNE-2	SSE-8	WSW-2	W-5	NE-2	E-3	S-7	NE-5	N-2
	NNE-2	NNE-3	SSE-13	NNW-2	W-5	NNE-3	E-3	S-7	NE-4	N-3
	N-3	NE-3	SSE-10	N-2	W-6	NNE-3	E-2	S-7	NE-5	N-3
	N-3	NE-3	SSE-10	NNE-2	W-6	NE-3	N-2	S-7	NE-4	NNE-4
	N-2	NE-3	SSE-11	ENE-1	W-7	NNE-3	N-5	S-9	ENE-4	NNE-3
	NNE-2	NE-3	SSE-11	N-1	WNW-8	NE-4	NNW-5	S-12	ENE-5	NE-3
	ENE-3	NE-3	S-13	W-3	WNW-9	NE-3	NNW-3	S-13	NE-5	N-3
	ENE-4	NE-3	S-12	S-5	WNW-6	ENE-5	NE-3	S-14	NE-5	NW-3
	ENE-5	NE-4	S-11	WSW-5	WNW-5	E-5	W-2	S-13	NNE-6	N-5
	NE-5	NE-3	S-9	SSE-5	W-5	E-5	WNW-4	S-12	NNE-7	NNW-4
	ENE-4	NE-4	S-10	SSE-5	W-4	ENE-4	WSW-4	S-12	NNE-7	N-5
	ENE-3	NE-4	S-10	S-5	W-4	ENE-4	WNW-3	S-13	N-7	N-4
	E-3	N-2	S-9	S-5	SSW-3	ENE-4	W-3	SSE-12	NNE-6	N-4
	E-3	NW-2	WNW-5	S-8	S-6	E-4	S-3	SSE-13	NNE-5	NE-4
	E-2	N-3	N-3	S-8	S-8	ESE-4	SE-7	SSE-13	N-5	NE-4
	SE-2	NW-3	NNE-2	S-10	SSW-8	ESE-4	ESE-5	SSE-12	N-5	NE-3
	SSE-1	S-4	NNE-1	S-8	S-7	ESE-3	SSE-4	SSE-11	N-4	NE-2
	S-1	S-2	SSE-4	S-7	S-4	SE-3	SE-5	SE-9	N-3	NNE-2
	S-1	S-3	S-9	S-5	S-4	ESE-1	SE-4	SE-8	N-2	NNE-2
	WSW-1	WSW-2	S-8	S-4	S-4	SE-1	SE-4	SE-10	NE-3	NNE-2
	WNW-1	W-4	S-6	S-3	S-4	SSW-0	ESE-3	SE-9	NE-3	Var-0

LAM 025473

ABS-035486

TABLE 6

HIGH VALUES AT DP-I

Year	1973	1974		1975	
Date	5-10	4-5	5-11	3-25	7-29
Value	152	158.	158.	163.	230.
Wind/mph	S-4	NNW-3	No wind	ENE-3	E-3
	S-4	NNW-4	No wind	NE-3	S-2
	S-4	N-5	No wind	ENE-3	ESE-2
	S-2	NNW-5	No wind	E-3	SSE-3
	SSE-2	NNW-6	WNW-1	E-2	SSW-3
	SSE-2	NNW-6	WNW-2	ESE-3	S-3
	SSE-2	NNW-6	WNW	ESE-3	N-4
	SSE-	NNW-6	N	ESE-3	E-4
	S-5	NNW-8	N	ESE-2	E-6
	S-8	N-10	WNW	SE-5	SSE-7
	S-10	N-10	NNW	SE-7	S-5
	S-10	N-9	NNW-5	ESE-8	S-3
	S-9	N-9	Var-4	ESE-8	S-5
	S-	NNW-10	Var 4	ESE-10	SSE-4
	S-12	NNW-11	Var-3	ESE-11	NNE-5
	S-12	NNW-9	N-4	ESE-13	NNW-6
	S-12	NNW-9	N-4	ESE-13	NE-7
	S-13	NNW-7	N-4	ESE-12	NE-4
	S-11	NNW-7	NNE-3	ESE-12	ENE-4
	S-8	N-2	ENE-3	ESE-9	E-4
	S-5	N-1	NE-2	ESE-7	E-4
	SSE-5	N-1	NNE-1	ESE-6	ESE-4
	S-6	ENE-1	N-1	ESE-6	ESE-3
	S-6	SE-1	NW-0	ESE-5	SE-5

TABLE 7 a

PREDICTED MAX G.L.C.
(STANDARD: 400 ug/M^3) 1 HOUR SAMPLE

WIND ANGLE NORTH

Stability Class		CCU OP-II ONLY	CCU OP-II & BOILERS	PHASE 1	PHASE 1 & CPS	PHASE 2	PHASE 2 & BOILERS
2.38		11	38	43	43	38	61
(A)	1	22	40	47	49	45	66
(B)	2	12	40	45	45	39	63
(C)	3	6*	33	37	37	35	56*
(D)	4	0*	10*	11*	11*	19*	20*
(E)	5	1*	24*	25*	25*	19*	29*

BASIS-24 HOUR SAMPLE - NORTH WIND
(Fed.Std.: 260 ug/M^3 primary
150 ug/M^3 secondary)

(A)	1	11.6	21.2	24.9	25.9	23.8	34.9

BASIS-YEARLY AVG-AT DP-1
(Fed.Std.: 75 ug/M^3 primary
60 ug/M^3 secondary)

(A)	1	1.1	1.8	2.2	2.7	2.6	3.2

*Off grid, so probably not accurate

LAM 025475

ABS-035488

TABLE 7b

PERCENTAGE FREQUENCY AND MEAN SPEED OF SURFACE WINDS*

Wind Speed (MPH)	Wind Direction NW	NNW	N	NNE
1-3	.2	.2	.2	.2
4-7	.7	.8	.8	.8
8-12	1.2	1.7	1.9	1.6
13-18	1.0	1.9	1.7	1.5
19-24	.4	.8	.6	.5
25-31	.2	.2	.1	.1
Total	3.8	5.6	5.4	4.7
Mean Speed	12.4	13.5	12.4	12.0

*From Climatic Guide for Houston-Galveston, Texas Area, U. S. Department of Commerce, Washington, D.C. (1962).

LAM 025476

ABS-035489

TABLE 7C

PREDICTED MAX G.L.C. AT 1-DP SAMPLING SITE

ug/M^3

WIND ANGLE NNE

WIND SPEED	CCU OP-II ONLY	CCU OP-II & BOILERS	PHASE 1	PHASE 1 & CPS	PHASE 2	PHASE 2 & BOILERS	% WIND
2	1.0	15.6	20.4	20.6	16.3	27.3	.2
5.5	.4	5.7	7.4	7.5	5.9	9.9	.8
10	.2	3.1	4.1	4.1	3.3	5.5	1.6
15.5	.1	2.0	2.6	2.7	2.1	3.5	1.5
21.5	.1	1.5	1.9	1.9	1.5	2.5	.5
28.0	.1	1.1	1.5	1.5	1.2	1.9	.1
ug/M^3 Contributed	.011	.165	.216	.218	.173	.289	

LAM 025477

ABS-035490

TABLE 7 d

PREDICTED MAX G.L.C. AT 1-DP SAMPLING SITE

ug/M^3

WIND ANGLE N

WIND SPEED	CCU OP-II ONLY	CCU OP-II & BOILERS	PHASE 1	PHASE 1 & CPS	PHASE 2	PHASE 2 & BOILERS	% WIND
2	36.2	81.8	105.6	129.5	117.3	162.9	.2
5.5	13.2	29.8	38.4	47.1	42.7	59.3	.8
10	7.2	16.4	21.1	25.9	23.5	32.6	1.9
15.5	4.7	10.6	13.6	16.7	15.1	21.0	1.7
21.5	3.4	7.6	9.8	12.1	10.9	15.2	.6
28.0	2.6	5.8	7.5	9.3	8.4	11.6	.1
ug/M^3 Contributed	.418	.945	1.217	1.494	1.353	1.879	

LAM 025478

ABS-035491

TABLE 7 e

PREDICTED MAX G.L.C. AT 1-DP SAMPLING SITE

ug/M^3

WIND ANGLE NNW

WIND SPEED	CCU OP-II ONLY	CCU OP-II & BOILERS	PHASE 1	PHASE 1 & CPS	PHASE 2	PHASE 2 & BOILERS	% WIND
2	54.3	60.9	66.3	84.4	93.3	85.2	.2
5.5	19.8	22.2	24.1	30.7	33.9	31.0	.8
10	10.9	12.2	13.3	16.9	18.7	17.0	1.7
15.5	7.0	7.9	8.6	10.9	12.0	11.0	1.9
21.5	5.1	5.7	6.2	7.8	8.7	7.9	.8
28.0	3.9	4.3	4.7	6.0	6.7	6.1	.2
ug/M^3 Contributed	.634	.711	.774	.984	1.086	.992	

LAM 025479

ABS-035492

TABLE 7 f

PREDICTED MAX G.L.C. AT 1-DP SAMPLING SITE

ug/M^3

WIND ANGLE NW

WIND SPEED	CCU OP-II ONLY	CCU OP-II & BOILERS	PHASE 1	PHASE 1 & CPS	PHASE 2	PHASE 2 & BOILERS	% WIND
2	.28	.28	.26	.38	3.9	3.3	.2
5.5	.1	.1	.1	.1	1.4	1.2	.7
10	.06	.06	.05	.08	.79	.67	1.2
15.5	.04	.04	.04	.05	.51	.43	1.0
21.5	.03	.03	.02	.04	.37	.31	.4
28.0	.02	.02	.02	.03	.28	.24	.2
ug/M^3 Contributed	.003	.003	.002	.004	.034	.029	

LAM 025480

ABS-035493

TABLE 8

CONSTRUCTION - DEER PARK - & PARTICULATE LEVELS

13th Street Paving - Center St. to East Loop

Year	Date	Particulate Concentration (/m^3)	Construction Activity
1974	1/5	88	
	1/11	67	
	1/29	130	
	2/4	92	
	2/10	65	
	2/13		Ditch Excavation
	2/14		"
	2/15		"
	2/16	116	
	2/20		"
	2/22	113	
	2/26		"
	2/27		"
	2/28	51	"
	3/1		"
	3/4		"
	3/5		"
	3/6	44	
	3/7		"
	3/8		"
	3/12	73	
	3/18	47	
	3/19		"
	3/20		"
	3/21		"
	3/22		"
	3/24	60	
	3/30	86	
	4/5	158	(Records unclear for April -
	4/11	64	(at least 6 working days
	4/29	64	(
	5/5	87	
	5/11	158	
	5/16		Concrete Poured
	5/17	65	
	5/23	93	
	5/29	71	
	6/4	67	"

LAM 025481

ABS-035494

Table 8
Construction - Deer Park &
Particulate Levels

Year	Date	Particulate Concentration (/m^3)	Construction Activity
1974	6/5		Sand unloaded
	6/6		Sand spread
	6/10	132	
	6/14		Concrete Poured
	6/20		"
	6/21		"
	6/25		"
	6/26		"
	6/27		"
	7/1		"
	7/2		"
	7/3		"
	7/4	126	
	7/5		"
	7/8		"
	7/9		"
	7/22	113	
	7/24		Shell placed in ditch at 13th & Elm
	7/25		"
	7/29		"
	7/30		"
	8/1		"
	8/10		Backfilling
	8/12		Laying pipe
	8/14		Stripping off grass; laying pipe
	8/15	62	"
	8/16		"
	8/20		Excavating street
	8/21	79	"
	8/22		"
	8/23		"
	8/27	48	
	9/2	65	
	9/8	123	
	9/11		A little excavation; then rained out
	9/14	61	Concrete Poured
	9/20	99	
	9/26	66	
	10/2		Excavating
	10/3		"
	10/4		"
	10/8	141	Preparing base for lime

LAM 025482

Table 8
Construction - Deer Park &
Particulate Levels

Year	Date	Particulate Concentration (/m^3)	Construction Activity
1974	10/9		Loading Lime
	10/10		"
	10/11		"
	10/14	84	Finished
	10/16		Form crews move in; subgrade being
	10/17		rolled and set up
	10/18		"
	10/20	95	
	10/21		Pouring concrete
	10/22		"
	10/23		"
	10/24		"
	10/25		"
	10/26	147	"
	10/30		"
	11/1	35	
	11/7	49	
	11/12		Pour curb
	11/13	46	"
	11/14		"
	11/15		"
	11/20		Pour concrete
	11/21		"
	11/22		"
	11/25	110	
	11/26		Make grades
	12/1	85	
	12/2		Cleaning up building inlets; paving curb
	12/3		"
	12/4		"
	12/5		"
	12/7	80	
	12/9		"
	12/12		"
	12/13	133	"
	12/16		"
	12/19		Dozer and scraper; backfilling curbs
	12/20		"
1975	1/18	49.3	Excavating
	1/24	112.1	"
	1/30	47.9	Cleanup
	1/31		Preparing base for [illegible]

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Table 8
Construction - Deer Park &
Particulate Levels

Year	Date	Particulate Concentration (/m^3)	Construction Activity
1975	2/5	126.7	Cleanup
	2/7		"
	2/11	53.9	
	2/12		"
	2/13		"
	2/14		"
	2/17	76.0	"
	2/18		"
	2/19		"
	2/20		"
	2/21		"
	2/23	46.8	
	2/24		"
	2/25		"
	2/26		"
	2/27		"
	2/28		"
	3/1	68.4	
	3/6		"
	3/7	140.9	"
	3/10		"
	3/11		"
	3/13	78.2	
	3/19	106.3	
	3/25	163.1	"
	3/26		"
	3/27		"

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FIG. 5A-D

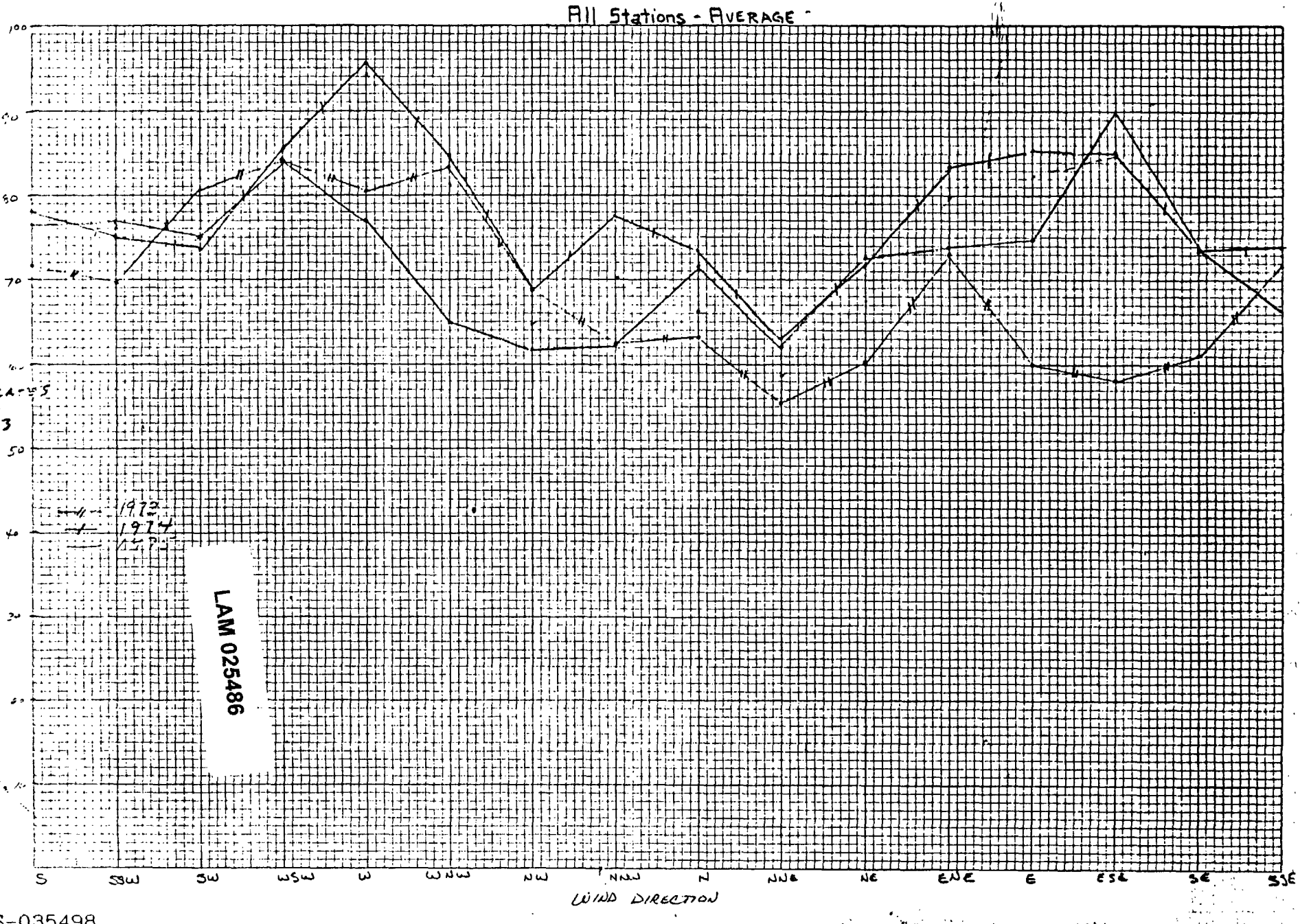

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Figure 5a

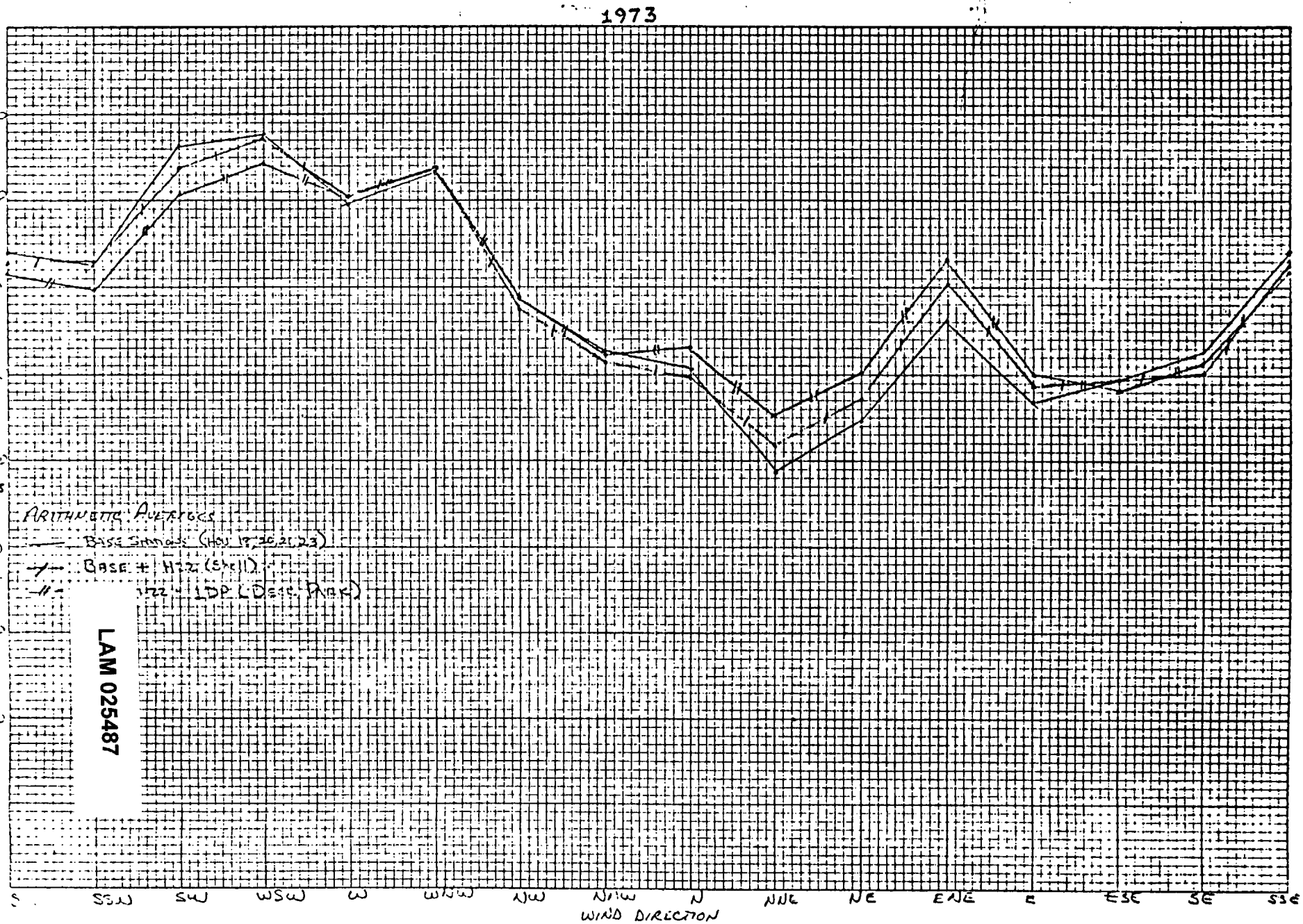

Figure 5b

ABS-035499

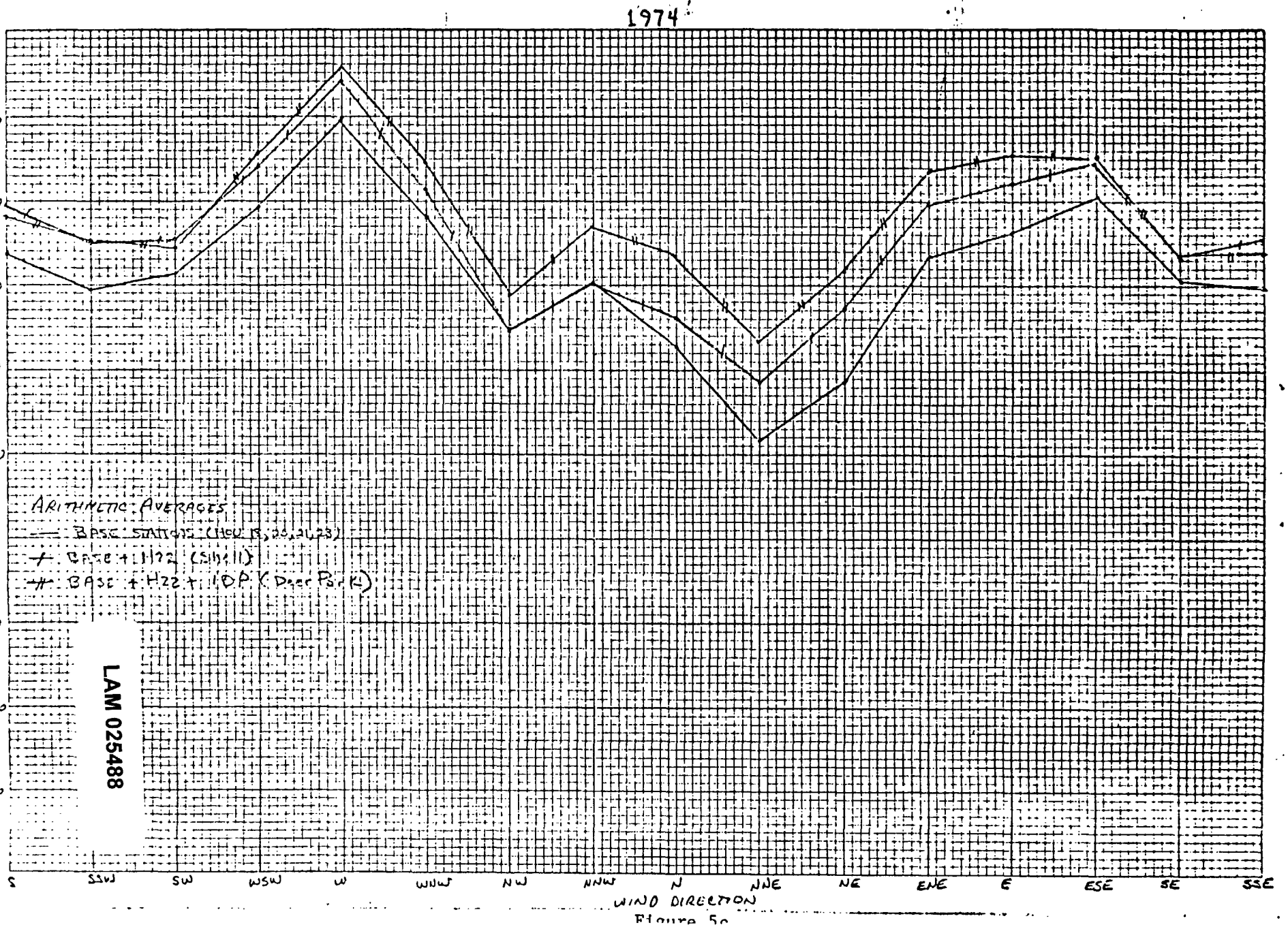

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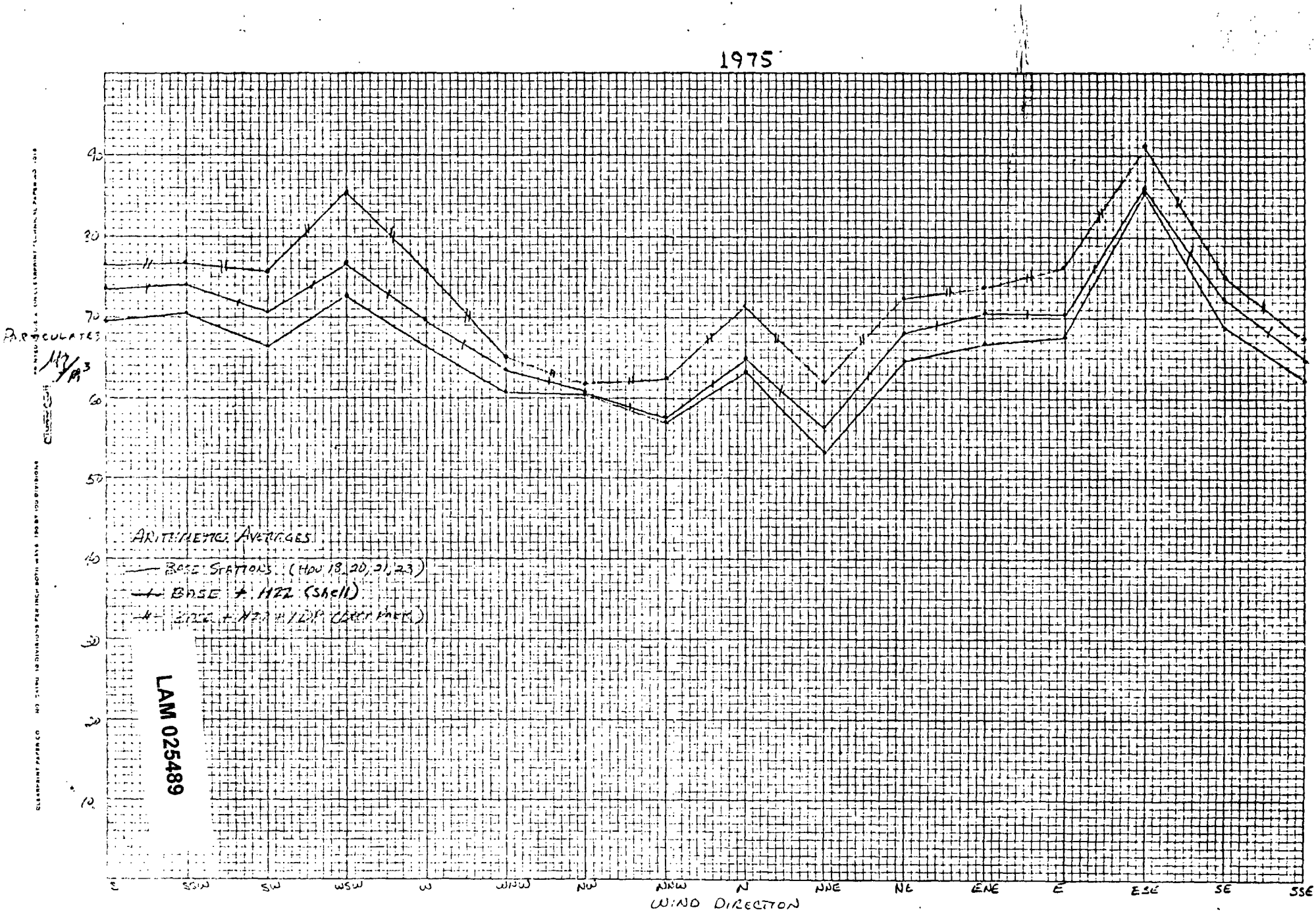
Figure 5c



LAM 025489

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Figure 5d

Table 9

TABLE 9

COMPANY	PROJECT	CAPACITY	FEB 73	JUN 73	FEB 74	JUNE 74	OCT 74	OCT 75
DEER PARK								
CELANESE PLASTICS	- POLYETHYLENE HD	TO 120 MMLB/Y	PLAN (73)	PLAN (73)	PLAN	COMPL.		
	ETHYLENE					ENG (75)	ENG (75)	
DIAMOND SHAMROCK CHEM'L	POLYVINYL CHLORIDE	200 MMLB/Y		ENG (74)	UNDER CONST (74)	UNDER CONST (74)	UNDER CONST (74)	
NATIONAL PETROCHEM'L	- POLYETHYLENE HD	EX 20 MMLB/Y	PLAN P	PLAN	PLAN	PLAN	PLAN	
ROHM & HAAS	- ACRYLATES	40 MM LB/Y				PLAN (76)	UNDER CONST (75)	
	CO BOILER							UNDER CONST
	METHYL METHACRYATE	BY 110 MMLB/Y						ENG (76)
SOLTEX POLYMER CORP	- ETHYLENE							UNDER CONST (75)

Intercontinental Terminals Co - Const started in 74 for an $ 15 MM Expansion of a Houston Ship Channel terminal & liquid tank farm at Deer Park. Plans are to complete the 1st phase next yr (75) & entire project in 6 yrs on a 164 acre site that includes 28 acres occupied by the present terminal on Battleground Rd between 225 & 8JM.

TEXAS ALKYLS	- EX - double cap to produce catalyst component used in mfg of polypropylene & ethylene propylene diene mono						COMPL.	

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PASADENA								
AIR PRODUCTS & CHEM'L INC	- TOLUENE DIAMINE	125 MM LB/Y	PLAN	PLAN	UNDER CONST	UNDER CONST	UNDER CONST	
	ANALINE							
ETHYL CORP	- ETHYLENE	750 MMLB/Y	PLAN 74 UNDER CONST	PLAN 74 UNDER CONST	PLAN 74 UNDER CONST	PLAN 74 UNDER CONST	UNDER CONST	UNDER CONST
	OLEFINS, ALPHA	EX						
O'BRIEN CHEM'L CO	- TREAT WATER EFF		ENG 73	ENG 73	COMP.			

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PHILLIPS PETROL CO.	POLYETHYLENE, LD	EX	UNDER CONS	COMPL.				
	POLYETHYLENE HD	160 MMLB/Y		ENG (74)	ENG (74)	UNDER CONST (74)	UNDER CONST (74)	

			FEB 73	JUN 73	FEB 74	JUN 74	OCT 74	OCT 75
PASADENA (Cont.)								
ARCO CHEML CO	XYLENE, PARA	GT 100 MM LB/Y			COMP			
	AROMATICS	TO 866 MM LB/Y				ENG (76)	PLAN (76)	
	XYLENE ISOMERIZATION	BY 10 MB/D				COMP (74)		
LA PORTE								
AIR PRODUCTS & CHEML INC	- CARBON MONOXIDE	EX	UNDER CONST	UNDER CONST				
	HYDROGEN	EX		UNDER CONST				
UPJOHN	PHOSGENE	100 MMLB/Y				ENG	UNDER CON	
DIAMOND SHAMROCK	POLYPROPYLENE	50 MMLB/Y						UNDER CON (75)
NATL PETROCHEML CORP	POLYETHYLENE, HD	EX 70 MT/Y						ENG (77)
CHANNELVIEW								
ARCO CHEML CO	AROMATICS	TO 866 MMLB/Y		ENG (76)			ENG (77)	U.C. (76)
	BUTADIENE	TO 138 MMLB/Y		ENG (76)		ENG (76)	ENG (77)	U.C. (77)
	ETHYLENE	TO 1,300. MM LB/Y		ENG (76)		ENG (76)	UNDER CON (77)	U.C. (76)
	PROPYLENE	TO 755. MMLB/Y		ENG (76)		ENG (74)	UNDER CON (77)	U.C. (76)
	XYLENE ISOM	BY 10 MB/D		UNDER CONST (74)				
	OFFSITES			ENG (75)		ENG 75	ENG (77)	U.C (76)
	TREAT WATER EFF	~~400 MMLB/H~~		ENG (75)		ENG (75)	ENG (76)	U.C. (76)
	~~XYLENE, PARA~~	~~EX 100 MM LB/Y~~	~~UNDER CONST (73)~~	~~UNDER CONST (73)~~		PLAN	PLAN	Plan
UXIRANE CHEML CO	ETHYLENE GLYCOL	800 MM LB/Y						U.C. 77
	STYRENE	1000 MM LB/Y						U.C. 76
	PROPYLENE OXIDE	400 MMLB/Y						U.C. 76

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			FEB 73	JUN 73	FEB 74	JUN 74	OCT 74	OCT 75
BAYTOWN								
MOBAY CHEML CO	TOLUENE DIISOCYANATES MDI — 22 MT/Y	22 MT/Y	UNDER CONSTRN	UNDER CONST (73)		UND CON (74)	U C 74	U.C.
						ENG (76)	ENG 76	U.C. (75)
	ISOCYANATES	5 MT/Y			ENG (76)	PLAN 76	PLAN (76)	U.C. (75)
	POLYETHERS	45 MT/Y			PLAN (76)	ENG (76)	ENG (76)	U.C. (75)
EXXON CHEML CO USA	POLYCARBONATE	36 MT/Y			ENG (76)	ENG (76)	ENG (76)	U.C. (75)
	TREAT WATER EFF			UNDER CONST (73)				
EXXON CO USA	DISTILLATION CRUDE	BY 250 MB/D			ENG (76)	ENG (76)		ENG (76)
	XYLENE, PARA	BY 200 MMLB/Y			PLAN (75)	UND CON (74)	UND CON (74)	
	ELECTRIC DESALTR	262 MB/D					ENG	U.C 75
GULF OIL CHEML CO	DIST DESULF/GASOIL HYD	30 MB/D						
	OLEFINS	BY 1 MM LB/YR		ENG 75	ENG (75	UND CON (75)	UND CON (74)	
	POLYETHYLENE LD	BY 200 MM LB/YR		ENG 75	UND CON (74)	UND CON (76)	UND CON (74)	U.C. 76
	POLY PROPYLENE	TO 185 MM LB/Y				UND CON 74		ENG 78
	ETHYLENE	BY 1,200 MM LB/Y						U.C. 76
CARTER OIL CO	COAL GASIF					ENG (76)	ENG (76)	
HUBER JM CORP	CARBON BLACK						ENG 75	U.C. 75
	UTILITIES							ENG 76
	UTILITIES							PLAN 76
US Steel	double steelmaking abilities							
BAYPORT								
ARMAK CHEML	HYDRODESULFURIZER							U.C (75)
DART INDUSTRIES INC	POLYPROPYLENE						ENG 76	U.C (76)
HERCULES INC	POLYPROPYLENE	200 MM LB/Y			UND CON (74)	UND CON (74)	UND C. (74)	U.C.
HUDSON REF CO	REFINERY							PLAN (78)

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SR 1869 (Rev. 5-52) Printed in U.S.A.

			FEB 73	JUN 73	FEB 74	JUN 74	OCT 74	OCT 75
(BAYPORT)								
OXIRANE CHEM	PROPYLENE OXIDE	340 MM LB/Y		PLAN (74)	PLAN (74)	PLAN (74)	UNDER CON (74)	
CLEAR LAKE								
CELANESE —	ACRYLATES		ENG (73)	ENG (73)	COMPL			
	ACETIC ACID	600 MM LB/Y						PLAN 78
SHELL								
	PETROCHEMICALS							
	ISOPRENE		UNDER CONST	UNDER CONST	COMP			
	OLEFINS		UNDER CONST	UNDER CONST				
	TREAT WATER INTAKE				COMP			
	SULFUR	300 T/D			ENG (74)	UNDER CONST (74)	UNDER CONST (74)	
	BUTANOL	EX				ENG (75)	PLAN (75) UNDER CONST (75)	
	SCOT TREATER							

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ABS-035505

NEW PLANTS AND EXPANSIONS IN MAJOR TEXAS METROPOLITAN AREAS 1964-1974

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	TOTALS
NEW PLANTS												
HOUSTON	71	99	68	97	56	75	62	59	29	61	83	760
Dallas	46	65	50	61	47	56	40	40	51	30	17	503
Ft. Worth	23	8	17	9	22	43	26	24	21	19	23	235
San Antonio	3	3	2	3	10	6	7	2	19	6	2	63
EXPANSIONS												
HOUSTON	95	110	138	98	126	157	94	54	54	124	87	1,137
Dallas	49	62	46	49	68	61	33	17	39	29	30	483
Ft. Worth	59	70	42	34	53	46	40	16	27	20	27	434
San Antonio	15	17	6	8	4	6	8	5	9	10	12	100

SOURCE: Texas Industrial Expansion, Bureau of Business Research, University of Texas

LAM 025495

ABS-035506

Economic Development Division
Houston Chamber of Commerce

ABS-035507

ANALYSIS OF INDUSTRIAL PLANT EXPANSIONS IN HOUSTON SMSA
1961 – 1974

SIC	INDUSTRY	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	TOTALS BY SIC
20	Food & Kindred Products	3	2	6	7	10	8	4	11	9	6	3	1	10	3	83
24	Lumber & Wood Products	0	1	1	1	2	1	0	3	0	1	1	1	0	0	12
25	Furniture & Fixtures	3	1	0	0	1	2	0	5	2	1	0	0	1	0	16
26	Paper & Allied Products	3	1	2	6	2	4	0	2	3	0	2	3	4	0	32
27	Printing & Publishing	0	1	2	3	3	3	2	2	10	4	2	5	9	3	49
28	Chemicals & Allied Prod.	26	6	9	29	26	38	29	33	39	29	11	10	19	9	313
29	Petroleum Refining	3	0	0	3	3	3	4	8	0	1	0	0	2	4	31
30	Plastic & Rubber Prod.	3	2	2	2	2	1	2	3	3	3	3	1	10	6	43
32	Stone, Clay & Glass	1	1	1	2	3	5	2	9	6	4	1	1	5	3	44
33	Primary Metals	7	5	4	6	4	8	4	5	12	2	2	1	4	5	69
34	Fabricated Metals	6	11	4	5	12	25	18	21	27	16	10	18	13	19	205
35	Machinery Except Electrical	13	8	8	7	8	23	7	12	24	12	10	6	27	22	187
36	Electrical Machinery	0	2	5	2	5	6	9	6	12	10	0	1	10	5	73
37	Transportation	0	0	0	1	1	6	3	1	1	1	3	1	1	1	20
38	Instruments	0	0	1	1	6	10	6	2	7	2	2	0	6	5	48
	All Others	0	3	2	6	7	3	3	3	2	2	4	2	3	2	42
	TOTALS BY YEAR	**68**	**44**	**47**	**81**	**95**	**146**	**93**	**126**	**157**	**94**	**54**	**51**	**124**	**87**	**1,267**

SOURCE: **Texas Industrial Expansion,** Bureau of Business Research, University of Texas

Economic Development Division
Houston Chamber of Commerce

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ABS-035508

ANALYSIS OF NEW INDUSTRIAL PLANTS IN HOUSTON SMSA
1961 – 1974

SIC	INDUSTRY	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	TOTALS BY SIC
20	Food & Kindred Products	8	0	5	4	2	2	1	4	7	1	4	1	1	1	41
24	Lumber & Wood Products	1	2	2	0	1	3	3	2	1	0	2	1	3	3	24
25	Furniture & Fixtures	3	2	2	1	3	2	2	2	0	0	1	1	3	1	23
26	Paper & Allied Products	3	5	1	2	3	2	1	0	0	2	0	1	1	0	21
27	Printing & Pubiishing	1	5	1	6	5	1	5	3	3	5	3	4	6	21	69
28	Chemicals & Allied Prod.	10	12	7	8	11	9	26	12	14	8	4	7	10	10	148
29	Petroleum Refining	0	1	0	0	2	0	3	1	0	1	0	1	1	3	13
30	Plastic & Rubber Prod.	2	6	2	6	5	3	2	0	7	3	3	1	4	1	45
32	Stone, Clay & Glass	7	2	0	4	6	7	4	1	4	9	4	0	1	0	49
33	Primary Metals	3	0	1	2	3	5	3	1	3	2	1	2	3	1	30
34	Fabricated Metals	11	11	11	15	20	14	13	13	16	11	12	8	9	14	178
35	Machinery Except Electrical	8	5	8	7	10	7	20	9	7	7	6	3	6	14	117
36	Electrical Machinery	2	6	2	7	3	1	8	2	5	7	9	0	6	6	64
37	Transportation Equipment	1	3	2	5	6	3	1	0	2	1	1	1	1	1	29
38	Instruments	2	2	1	1	3	3	2	1	4	4	1	1	2	1	28
	All Others	2	0	4	2	16	6	3	5	2	1	8	4	4	6	63
	TOTALS BY YEAR	**64**	**62**	**49**	**71**	**99**	**68**	**97**	**56**	**75**	**62**	**59**	**36**	**61**	**83**	**942**

SOURCE: **Texas Industrial Expansion**, Bureau of Business Research, University of Texas

Economic Development Division
Houston Chamber of Commerce

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APPENDICES

LAM 025498

ABS-035509

App. A & B

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1975 TO AUGUST 22, 1975

DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	57	104.5	30.9
NNE	21	94.4	18.1
NE	36	87.2	23.9
ENE	40	90.3	23.6
E	57	97.4	29.6
ESE	48	109.1	40.3
SE	33	84.4	21.9
SSE	55	94.7	29.4
S	143	93.5	45.4
SSW	22	96.0	35.1
SW	19	96.4	54.9
WSW	26	109.0	63.3
W	31	105.0	49.4
WNW	22	73.3	26.6
NW	39	68.3	25.8
NNW	42	87.9	33.3

CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 197 .0 DECEM. 31, 1973

not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	113	359.4	314.7
NNE	52	90.6	105.8
NE	108	91.1	106.4
ENE	57	85.7	71.9
E	53	80.8	90.4
ESE	80	177.1	192.6
SE	150	78.6	122.4
SSE	115	83.4	95.2
S	221	104.0	147.3
SSW	16	74.5	40.8
SW	31	207.9	297.5
WSW	32	209.7	292.4
W	54	328.5	364.4
WNW	51	552.4	462.5
NW	25	561.8	384.4
NNW	66	585.9	558.6

CITY SAMPLING STATION -- HOUSTON
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	103	46.4	23.6
NNE	43	41.5	21.3
NE	99	49.8	21.4
ENE	54	62.6	21.6
E	55	60.6	21.7
ESE	83	50.0	18.9
SE	153	67.2	22.0
SSE	99	82.1	24.9
S	196	84.1	31.3
SSW	13	93.5	47.2
SW	24	119.0	54.1
WSW	39	106.3	41.3
W	49	92.8	34.0
WNW	50	80.1	27.4
NW	26	52.4	23.1
NNW	66	40.4	20.3

CITY SAMPLING STATION -- HOUSTON 22 ✓
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	113	57.5	35.0
NNE	81	63.2	32.9
NE	126	67.1	40.5
ENE	65	86.8	43.8
E	60	66.5	46.4
ESE	70	58.6	17.2
SE	185	50.1	23.6
SSE	133	67.2	28.9
S	252	67.4	26.6
SSW	18	74.9	23.5
SW	34	73.1	23.5
WSW	45	84.5	30.1
W	62	83.1	27.6
WNW	56	84.8	31.9
NW	27	62.0	26.9
NNW	65	55.0	27.6

CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	110	53.0	22.3
NNE	79	59.2	21.4
NE	121	60.7	26.0
ENE	60	75.5	30.4
E	57	58.3	30.4
ESE	70	58.6	17.2
SE	184	49.2	20.0
SSE	132	66.1	25.7
S	250	66.2	22.8
SSW	18	74.9	23.5
SW	34	73.1	23.5
WSW	44	81.3	22.0
W	62	83.1	27.6
WNW	55	82.3	26.2
NW	27	62.0	26.9
NNW	65	55.0	27.6

CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	115	37.3	15.5
NNE	80	35.4	15.5
NE	121	41.7	18.7
ENE	66	49.1	10.9
E	61	41.2	12.7
ESE	86	40.0	9.6
SE	163	38.9	20.4
SSE	128	59.2	20.5
S	244	50.2	15.0
SSW	18	47.0	14.7
SW	34	59.3	16.6
WSW	45	63.3	19.1
W	62	55.2	10.6
WNW	60	60.6	20.7
NW	29	43.9	17.1
NNW	80	37.6	15.7

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	93	85.9	21.5
NNE	66	57.6	25.4
NE	106	69.9	27.9
ENE	60	80.3	21.1
E	60	66.5	27.9
ESE	80	90.8	29.0
SE	156	71.5	29.4
SSE	110	76.1	24.4
S	189	72.4	21.8
SSW	15	75.6	26.6
SW	27	83.3	27.1
WSW	37	89.6	28.5
W	45	84.9	29.8
WNW	60	103.5	27.1
NW	17	93.8	29.3
NNW	79	101.4	29.8

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CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	93	85.9	21.5
NNE	66	57.6	25.4
NE	106	69.9	27.9
ENE	60	80.3	21.1
E	60	66.5	27.9
ESE	80	90.8	29.0
SE	169	81.9	45.6
SSE	119	87.9	47.9
S	215	92.7	58.9
SSW	15	75.6	26.6
SW	27	83.3	27.1
WSW	37	89.6	28.5
W	45	84.9	29.8
WNW	60	103.5	27.1
NW	17	93.8	29.3
NNW	79	101.4	29.8

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CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	110	79.7	29.9
NNE	76	74.4	29.3
NE	117	75.1	33.3
ENE	59	87.5	31.9
E	48	66.3	30.4
ESE	66	58.2	13.5
SE	159	65.9	31.6
SSE	130	67.2	26.0
S	250	67.0	35.1
SSW	18	54.4	22.3
SW	34	65.4	25.4
WSW	44	70.0	25.0
W	62	82.0	29.2
WNW	55	82.9	27.5
NW	27	76.1	28.1
NNW	65	68.6	31.2

JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	147	69.2	35.8
NNE	77	47.2	23.8
NE	79	54.1	26.5
ENE	58	66.3	21.6
E	53	71.2	25.0
ESE	43	65.5	25.1
SE	91	58.9	23.0
SSE	84	58.7	24.9
S	256	72.7	32.2
SSW	59	79.6	27.5
SW	41	70.6	24.6
WSW	29	78.6	23.8
W	41	92.8	41.6
WNW	42	92.2	49.4
NW	70	88.6	47.0
NNW	54	83.1	32.7

AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.
JANUARY 1, 1974 TO DECEM. 31, 1974

not used

WIND DIRECTION	NO. HRS.	MEAN	STD. DEV.
N	157	117.7	199.8
NNE	77	47.2	23.8
NE	80	57.5	40.0
ENE	59	81.4	117.1
E	54	75.9	42.2
ESE	43	65.5	25.1
SE	92	68.7	96.0
SSE	84	58.7	24.9
S	257	73.7	35.7
SSW	62	91.5	59.1
SW	41	70.6	24.6
WSW	32	101.7	75.3
W	45	113.4	77.1
WNW	44	102.8	68.4
NW	74	101.4	70.3
NNW	71	265.9	347.6

AMBIENT LEVEL OF PARTICULATES (MIC.G.
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. D
N	161	47.9	23.9
NNE	94	45.2	22.7
NE	89	50.7	24.4
ENE	62	64.5	28.7
E	64	66.5	20.1
ESE	53	72.0	17.6
SE	121	76.9	20.9
SSE	84	73.9	23.2
S	246	78.8	24.7
SSW	65	67.9	20.7
SW	59	68.2	18.9
WSW	33	74.6	22.3
W	49	80.6	34.1
WNW	48	62.3	36.0
NW	74	46.1	28.9
NNW	66	44.4	24.4

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM 31, 1974

IND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	159	82.6	38.2
NNE	74	66.7	28.1
NE	92	73.5	33.9
ENE	62	83.1	33.0
E	61	89.2	37.8
ESE	51	86.6	37.2
SE	123	67.2	33.8
SSE	88	73.0	33.6
S	253	72.2	36.9
SSW	69	68.1	40.0
SW	60	65.5	62.8
WSW	35	80.2	39.1
W	51	86.9	42.3
WNW	45	87.9	46.7
NW	60	78.2	35.7
NNW	56	102.2	55.9

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.
JANUARY 1, 1974 TO DECEM 31, 1974

not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	166	97.0	78.0
NNE	74	66.7	28.1
NE	92	73.5	33.9
ENE	62	83.1	33.0
E	61	89.2	37.8
ESE	51	86.6	37.2
SE	123	67.2	33.8
SSE	88	73.0	33.6
S	258	72.2	36.9
SSW	69	68.1	40.0
SW	60	65.5	62.8
WSW	35	80.2	39.1
W	51	86.9	42.3
WNW	48	108.8	92.9
NW	75	128.5	108.6
NNW	79	174.7	127.1

CITY SAMPLING STATION -- HOUSTON 2
AMBIENT LEVEL OF PARTICULATES (MIC.G.
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DE
N	135	79.5	36.9
NNE	70	65.7	37.0
NE	80	101.9	35.0
ENE	64	105.7	24.5
E	64	106.3	28.4
ESE	52	101.8	31.3
SE	110	84.8	26.6
SSE	67	97.5	38.1
S	214	102.7	35.3
SSW	60	97.4	28.0
SW	56	91.7	28.5
WSW	31	104.0	34.6
W	48	111.5	40.7
WNW	42	93.7	46.1
NW	65	63.8	42.0
NNW	66	69.6	34.8

CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	159	51.9	39.5
NNE	88	48.1	34.7
NE	91	57.2	31.6
ENE	66	80.1	38.2
E	64	77.9	37.1
ESE	50	97.2	51.3
SE	121	79.8	33.0
SSE	77	73.2	41.8
S	225	71.5	36.2
SSW	61	62.1	29.1
SW	48	60.3	26.6
WSW	28	83.1	41.5
WNW	34	98.9	49.6
NW	38	69.7	49.0
NNW	69	46.3	35.1
	77	51.4	42.8

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1974 TO DECEMBER 31,1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	120	109.2	30.4
NNE	81	87.1	33.0
NE	66	93.5	36.2
ENE	49	101.3	28.3
E	52	101.9	27.7
ESE	41	87.7	28.5
SE	103	72.6	29.1
SSE	75	66.4	22.8
S	179	69.9	25.6
SSW	39	74.4	20.1
SW	36	69.9	16.5
WSW	14	93.6	27.6
W	27	103.4	27.0
WNW	38	103.3	29.8
NW	68	90.1	20.7
NNW	63	111.5	35.2

LAM 025501

ABS-035511

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	57	104.5	30.9
NNE	22	91.0	35.1
NE	38	94.7	39.4
ENE	40	90.3	33.6
E	61	106.1	43.6
ESE	51	116.2	48.4
SE	34	88.7	39.9
SSE	57	80.2	40.6
S	140	90.5	41.2
SSW	28	91.2	43.6
SW	17	80.7	31.7
WSW	20	97.3	33.6
W	28	91.6	27.0
WNW	22	73.3	26.6
NW	39	68.3	25.8
NNW	42	87.8	32.3

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 197" TO AUGUST 22, 1975
not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	56	102.2	26.2
NNE	21	84.4	18.1
NE	36	87.2	23.8
ENE	39	86.7	25.3
E	56	95.0	24.0
ESE	48	109.1	40.3
SE	33	84.4	31.9
SSE	54	71.9	20.5
S	135	85.4	31.8
SSW	27	86.0	35.1
SW	17	80.7	31.7
WSW	20	97.3	33.6
W	28	91.6	27.0
WNW	22	73.3	26.6
NW	39	68.3	25.8
NNW	41	84.4	23.6

CITY SAMPLING STATION -- HOUSTON 19
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	28	67.8	29.8
NNE	15	50.4	16.1
NE	30	72.9	31.7
ENE	25	64.6	33.4
E	45	67.1	30.9
ESE	47	94.9	46.2
SE	10	69.2	44.2
SSE	27	54.9	12.9
S	91	65.4	26.0
SSW	15	65.1	38.5
SW	10	74.3	26.7
WSW	15	82.5	28.7
W	8	81.2	28.5
WNW	9	84.5	23.7
NW	23	87.4	25.0
NNW	10	77.6	25.9

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975
not used

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	75	102.8	53.8
NNE	29	77.8	41.9
NE	44	71.9	31.4
ENE	46	78.2	23.1
E	69	74.4	20.5
ESE	72	83.1	26.5
SE	37	71.3	34.4
SSE	68	61.5	25.4
S	172	72.6	27.1
SSW	26	82.8	56.9
SW	18	69.2	28.1
WSW	27	75.7	22.0
W	36	81.8	46.2
WNW	24	94.8	91.5
NW	42	166.2	125.7
NNW	56	112.7	82.8

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	63	81.3	23.4
NNE	27	67.6	19.2
NE	43	68.6	22.7
ENE	46	78.2	23.1
E	68	74.4	20.5
ESE	72	83.1	26.5
SE	37	71.3	34.4
SSE	68	61.5	25.4
S	172	72.6	27.1
SSW	25	72.8	27.5
SW	18	69.2	28.1
WSW	27	75.7	22.0
W	35	74.7	18.3
WNW	21	60.7	16.7
NW	27	73.5	22.3
NNW	43	70.6	20.4

CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	78	47.9	23.0
NNE	30	46.7	19.0
NE	51	55.4	23.9
ENE	48	56.4	27.3
E	75	62.3	27.1
ESE	75	84.5	42.9
SE	37	74.4	37.5
SSE	73	71.4	25.6
S	183	73.4	29.4
SSW	29	65.5	25.2
SW	19	66.4	28.2
WSW	30	71.2	24.1
W	36	53.1	20.5
WNW	26	49.7	16.5
NW	42	38.7	14.9
NNW	56	37.9	21.6

CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	75	72.3	32.5
NNE	30	69.7	24.8
NE	59	81.9	26.4
ENE	50	85.5	26.1
E	73	81.3	19.1
ESE	76	88.7	21.4
SE	37	86.3	41.7
SSE	73	76.1	26.8
S	179	90.2	31.4
SSW	28	87.7	27.3
SW	18	87.0	26.4
WSW	29	93.9	24.6
W	37	84.2	24.0
WNW	26	73.1	16.7
NW	42	61.1	23.9
NNW	56	59.3	28.7

CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	66	55.8	18.9
NNE	29	47.7	15.9
NE	60	62.0	26.2
ENE	51	65.2	28.4
E	79	66.4	25.9
ESE	76	78.9	36.3
SE	32	60.4	26.0
SSE	69	60.8	22.9
S	168	61.1	23.6
SSW	30	59.0	25.5
SW	19	56.0	22.0
WSW	32	61.2	18.4
W	37	54.0	16.6
WNW	27	48.7	20.1
NW	42	42.3	15.5
NNW	47	42.0	15.3

LAM 025502
ABS-035512

CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	161	42.3	1.7
NNE	94	40.4	1.6
NE	89	44.6	1.7
ENE	62	60.2	1.5
E	64	63.1	1.4
ESE	53	69.5	1.3
SE	121	73.6	1.4
SSE	84	69.9	1.4
S	248	74.8	1.4
SSW	65	65.0	1.3
SW	59	65.6	1.3
WSW	33	71.4	1.3
W	49	74.3	1.5
WNW	48	52.6	1.8
NW	74	38.5	1.8
NNW	66	38.0	1.8

CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	149	61.6	1.8
NNE	77	41.7	1.6
NE	80	48.5	1.9
ENE	58	62.6	1.4
E	54	68.6	1.6
ESE	43	60.3	1.5
SE	91	54.8	1.5
SSE	84	53.3	1.6
S	257	66.2	1.6
SSW	62	80.7	1.6
SW	41	86.8	1.4
WSW	32	86.6	1.7
W	45	95.9	1.7
WNW	44	85.5	1.8
NW	74	84.1	1.8
NNW	57	82.8	1.7

CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	159	42.2	1.8
NNE	88	40.2	1.7
NE	91	50.2	1.7
ENE	66	71.9	1.6
E	64	70.3	1.6
ESE	50	84.3	1.7
SE	121	72.7	1.6
SSE	77	63.8	1.7
S	225	52.9	1.7
SSW	61	56.3	1.6
SW	48	55.5	1.5
WSW	28	74.4	1.6
W	34	36.5	1.7
WNW	38	53.7	2.1
NW	69	35.8	2.0
NNW	77	40.8	1.9

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.
JANUARY 1, 1974 TO DECEM 31, 1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	166	80.4	1.7
NNE	74	61.9	1.5
NE	92	67.1	1.5
ENE	62	77.3	1.5
E	61	91.5	1.5
ESE	51	78.4	1.6
SE	123	60.7	1.5
SSE	88	66.2	1.5
S	258	64.2	1.6
SSW	69	59.9	1.6
SW	60	69.0	1.9
WSW	35	72.5	1.6
W	51	77.8	1.6
WNW	48	96.1	1.9
NW	75	96.6	2.1
NNW	79	129.0	2.3

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1974 TO DECEMBER 31,1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	120	104.5	1.4
NNE	81	91.5	1.4
NE	66	96.2	1.5
ENE	49	97.4	1.3
E	52	97.3	1.3
ESE	41	82.6	1.4
SE	108	57.6	1.5
SSE	75	63.0	1.4
S	179	65.9	1.4
SSW	39	69.2	1.5
SW	36	68.1	1.3
WSW	14	89.8	1.3
W	27	99.6	1.3
WNW	38	99.1	1.3
NW	68	87.9	1.2
NNW	63	105.7	1.4

CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	135	70.8	1.6
NNE	70	78.0	1.6
NE	80	94.5	1.5
ENE	64	103.1	1.3
E	64	102.4	1.3
ESE	52	96.8	1.4
SE	110	81.1	1.3
SSE	67	90.0	1.5
S	214	96.5	1.4
SSW	60	93.7	1.3
SW	56	89.3	1.3
WSW	31	98.9	1.4
W	48	104.8	1.4
WNW	42	82.2	1.7
NW	65	53.1	1.8
NNW	66	58.6	1.8

LAM 025503

ABS-035513

CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	103	40.8	1.6
NNE	43	37.2	1.6
NE	99	45.2	1.6
ENE	54	58.2	1.5
E	55	56.4	1.5
ESE	83	47.0	1.4
SE	153	63.5	1.4
SSE	99	77.6	1.4
S	196	77.7	1.5
SSW	13	83.0	1.6
SW	24	105.7	1.7
WSW	39	98.3	1.5
W	49	99.7	1.3
WNW	50	70.2	1.7
NW	26	46.9	1.6
NNW	66	75.3	1.6

CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	25	68.6	1.4
NNE	44	57.5	1.4
NE	93	53.6	1.4
ENE	53	67.3	1.5
E	47	56.3	1.3
ESE	57	55.2	1.3
SE	141	47.2	1.3
SSE	111	62.5	1.4
S	204	61.6	1.6
SSW	16	64.1	1.8
SW	26	92.5	1.2
WSW	27	86.0	1.4
W	21	79.2	1.4
WNW	20	45.0	1.4
NW	4	84.6	1.1
NNW	23	65.8	1.5

CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	115	74.7	1.5
NNE	80	72.4	1.5
NE	121	39.6	1.4
ENE	66	47.9	1.3
E	61	39.4	1.4
ESE	86	39.1	1.2
SE	163	48.1	1.5
SSE	128	54.9	1.5
S	244	48.0	1.4
SSW	18	44.5	1.4
SW	34	56.2	1.4
WSW	45	61.3	1.3
W	62	52.2	1.4
WNW	60	56.1	1.5
NW	29	40.0	1.5
NNW	80	34.1	1.5

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	93	82.6	1.3
NNE	66	53.0	1.5
NE	106	64.1	1.5
ENE	60	77.2	1.3
E	60	61.0	1.5
ESE	80	84.8	1.5
SE	169	71.2	1.7
SSE	119	78.4	1.6
S	215	79.9	1.7
SSW	15	71.4	1.4
SW	27	78.7	1.4
WSW	37	84.7	1.4
W	45	79.5	1.5
WNW	60	99.4	1.4
NW	17	88.4	1.5
NNW	79	95.8	1.4

CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	110	74.0	1.5
NNE	76	68.3	1.5
NE	117	67.2	1.6
ENE	59	91.2	1.5
E	48	60.9	1.5
ESE	66	50.6	1.3
SE	159	60.0	1.5
SSE	130	62.9	1.4
S	250	59.5	1.6
SSW	18	50.7	1.5
SW	34	60.4	1.5
WSW	44	64.6	1.5
W	62	75.3	1.6
WNW	55	77.0	1.5
NW	27	71.5	1.4
NNW	65	61.6	1.6

CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	GEOM. MEAN	GEO ST DEV
N	113	50.8	1.6
NNE	81	58.0	1.5
NE	126	58.7	1.6
ENE	65	75.8	1.7
E	60	55.7	1.8
ESE	70	58.4	1.3
SE	185	46.4	1.4
SSE	133	61.8	1.5
S	252	62.8	1.5
SSW	18	70.6	1.5
SW	34	69.2	1.4
WSW	45	80.2	1.4
W	62	77.8	1.5
WNW	50	79.6	1.4
NW	27	57.0	1.5
NNW	65	49.9	1.6

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Appendix C

TABLE 2 QUANTILES OF THE SPEARMAN TEST STATISTIC[a]

n	$p = .900$	.950	.975	.990	.995	.999
4	.8000	.8000				
5	.7000	.8000	.9000	.9000		
6	.6000	.7714	.8286	.8857	.9429	
7	.5357	.6786	.7450	.8571	.8929	.9643
8	.5000	.6190	.7143	.8095	.8571	.9286
9	.4667	.5833	.6833	.7667	.8167	.9000
10	.4424	.5515	.6364	.7333	.7818	.8667
11	.4182	.5273	.6091	.7000	.7455	.8364
12	.3986	.4965	.5804	.6713	.7273	.8182
13	.3791	.4780	.5549	.6429	.6978	.7912
14	.3626	.4593	.5341	.6220	.6747	.7670
15	.3500	.4429	.5179	.6000	.6536	.7464
16	.3382	.4265	.5000	.5824	.6324	.7265
17	.3260	.4118	.4853	.5637	.6152	.7083
18	.3148	.3994	.4716	.5480	.5975	.6904
19	.3070	.3895	.4579	.5333	.5825	.6737
20	.2977	.3789	.4451	.5203	.5684	.6586
21	.2909	.3688	.4351	.5078	.5545	.6455
22	.2829	.3597	.4241	.4963	.5426	.6318
23	.2767	.3518	.4150	.4852	.5306	.6186
24	.2704	.3435	.4061	.4748	.5200	.6070
25	.2646	.3362	.3977	.4654	.5100	.5962
26	.2588	.3299	.3894	.4564	.5002	.5856
27	.2540	.3236	.3822	.4481	.4915	.5757
28	.2490	.3175	.3749	.4401	.4828	.5660
29	.2443	.3113	.3685	.4320	.4744	.5567
30	.2400	.3059	.3620	.4251	.4665	.5479

For n greater than 30 the approximate quantiles of ρ may be obtained from

$$w_p \cong \frac{x_p}{\sqrt{n-1}}$$

where x_p is the p quantile of a standard normal random variable obtained from Table 1.

SOURCE. Adapted from Glasser and Winter (1961), with corrections.

[a] The entries in this table are selected quantiles w_p of the Spearman rank correlation coefficient ρ when used as a test statistic. The lower quantiles may be obtained from the equation

$$w_p = -w_{1-p}$$

The critical region corresponds to values of ρ smaller than (or greater than) but not including the appropriate quantile. Note that the median of ρ is 0.

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Spearman Rank Correlation Coefficient

Calculation of Trends

DR1

i	X_i	$R(X_i)$	d_i	d_i^2
1	106	8	7	49
2	87	5	3	9
3	94	6	3	9
4	105	7	3	9
5	111	10	5	25
6	66	4	2	4
7	108	9	2	4
8	65	3	5	25
9	56	1	8	64
10	63	2	8	64

$$\sum_{i=1}^{n} d_i^2 = 262$$

$$r_s = 1 - \frac{6\sum_{i=1}^{n} d_i}{N(N^2-1)} = 1 - \frac{6(262)}{10(10^2-1)}$$

$$= -.5879$$

table value $-.5515$ @ 95%

∴ Significant decreasing trend

H-22

i	X_i	$R(X_i)$	d_i	d_i^2
1	51	1	0	0
2	62	3	1	1
3	86	7	4	16
4	79	5	1	1
5	71	4	1	1
6	100	10	4	16
7	89	8	1	1
8	80	6	2	4
9	103	11	2	4
10	94	9	1	1
11	60	2	9	81
12	114	12	0	0

126

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$$r_s = 1 - \frac{6(126)}{12(12^2-1)}$$

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$$= +.5594$$

table value = .4965 @ 95%

∴ Significant increasing trend

Appendix D

Appendix E

CATE	DF1	H18	H20	H21	H22	H23
01/09/73	84.0	0.0	90.0	93.0	136.0	45.0
01/10/73	49.0	0.0	0.0	38.0	60.0	21.0
01/16/73	55.0	0.0	98.0	42.0	35.0	30.0
01/22/73	120.0	0.0	142.0	131.0	111.0	94.0
01/23/73	56.0	0.0	36.0	0.0	42.0	35.0
02/03/73	102.0	0.0	90.0	0.0	98.0	46.0
02/09/73	41.0	0.0	18.0	95.0	24.0	16.0
02/15/73	104.0	0.0	41.0	100.0	56.0	34.0
02/21/73	90.0	0.0	28.0	65.0	53.0	30.0
02/27/73	133.0	0.0	68.0	97.0	91.0	54.0
03/05/73	43.0	0.0	38.0	92.0	0.0	43.0
03/11/73	28.0	0.0	78.0	84.0	84.0	65.0
03/17/73	92.0	0.0	102.0	93.0	119.0	77.0
03/23/73	50.0	66.0	36.0	118.0	61.0	37.0
03/29/73	0.0	49.0	35.0	42.0	56.0	34.0
04/04/73	0.0	0.0	46.0	114.0	0.0	35.0
04/10/73	73.0	0.0	33.0	77.0	34.0	26.0
04/16/73	40.0	69.0	35.0	37.0	31.0	27.0
04/22/73	47.0	46.0	53.0	48.0	43.0	42.0
/28/73	63.0	82.0	49.0	57.0	53.0	37.0
05/04/73	66.0	0.0	63.0	0.0	44.0	37.0
05/10/73	152.0	75.0	117.0	252.0	66.0	52.0
05/16/73	106.0	135.0	94.0	133.0	67.0	70.0
05/22/73	47.0	43.0	62.0	206.0	40.0	0.0
06/03/73	47.0	44.0	63.0	93.0	44.0	89.0
06/03/73	33.0	36.0	47.0	35.0	25.0	0.0
06/15/73	92.0	0.0	104.0	91.0	83.0	77.0
06/21/73	75.0	0.0	33.0	39.0	38.0	19.0
06/27/73	63.0	0.0	78.0	72.0	77.0	60.0
07/03/73	37.0	0.0	44.0	89.0	35.0	39.0
07/09/73	92.0	91.0	0.0	103.0	91.0	97.0
07/15/73	53.0	60.0	0.0	67.0	102.0	43.0
07/21/73	40.0	72.0	80.0	80.0	57.0	51.0
07/27/73	72.0	93.0	0.0	75.0	66.0	45.0
08/02/73	78.0	44.0	0.0	74.0	52.0	33.0
/09/73	42.0	40.0	0.0	51.0	46.0	41.0
08/14/73	75.0	90.0	0.0	98.0	56.0	56.0
08/20/73	124.0	85.0	0.0	112.0	115.0	77.0
08/26/73	54.0	49.0	0.0	62.0	48.0	43.0
09/01/73	43.0	43.0	74.0	33.0	28.0	27.0
09/07/73	75.0	52.0	59.0	63.0	50.0	53.0

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```
08/03/73        33.0      36.0      47.0      35.0      25.0       0.0
NE NE NE NE NE NE NE NE NE NNENE ENENNWSE S  SSESE SE SE SE SE SE SE SE
08/15/73        92.0       C.C     104.0      91.0      83.0      77.0
SSESE SE SE SE SE SSES  S  S  S  S  S  S  S  S  S  SSES  SSESSESSESSES
08/21/73        75.0       0.0      33.C      33.0      38.0      19.0
NW NW N  NE NE NE NNENNEN  NNENNENNENNENNENE NE NE NE NNENNENNENNENNW
08/27/73        63.0       0.C      78.0      72.0      77.0      60.C
S  SSWSW W  W  W  WSWWSWW  WSWWSWWSWWSWWSWSW SW W  W  WSWWSWW  WSWWSWWSW
07/03/73        37.0       0.0      44.C      89.0      35.0      39.0
ESEE  SE ENENE NE NE NE SE S  S  S  SE S  S  S  S  S  S  S  S  S  S  SSW
07/09/73        92.C      91.0       C.0     103.0      91.0      97.C
SSESSESSESSESSESSESSESE S  S  S  S  S  SSES  S  S  SSESSESSESSESSESSESE
07/15/73        53.0      60.0       C.0      67.C     102.0      43.C
S  S  SSES  SSESSESSESSES  SSWSSWS  SSWS  SSWSSWS  S  S  S  S  S  SSESSE
07/21/73        40.C      72.0      80.0      80.0      57.0      51.0
S  S  S  S  S  S  SSWS  SW W  WNWNW N  SSES  S  S  S  S  S  S  S  S  S
07/27/73        72.C      93.C       C.0      75.0      66.0      45.0
NNEENSESESW SW WNWWNWN  NE ENEE  N  NW NNWNNWN  S  S  S  S  S  SW S  SW
08/02/73        78.0      44.0       C.0      74.0      52.0      33.C
N  NNENNEN  NNWNNWNNWN  NNENNENE ENENE NE SSESE NNEENENE NNEN  W  NNWNNW
08/08/73        42.0      40.0       C.0      51.C      46.0      41.0
SSESSESSESE SE SE ESESE S  S  S  S  S  S  S  S  S  SSEN  ESESE SSESSESE
08/14/73        75.0      90.C       C.0      98.C      58.0      56.C
WSWSE SW WNWNW S  S  N  NNEWNWWNWN  SW SE SSESSESSES  SSES  S  WNWWNWN
08/20/73       124.0      85.C       C.0     112.C     115.C      77.C
W  WNWWNWNW NNWNNWNNWNNWNNWNNWNNENNENNENNENE NNENE NE NE ENEENESE SE S
08/26/73        54.C      49.C       C.0      62.0      48.0      43.C
E  SE E  NE NE NNENE NE NE ENEENEENEENEENEE  E  E  SE S  S  SE NE NE ENE
09/01/73        43.0      43.C      74.0      33.0      28.0      27.C
E  E  E  E  ENENE NE NE NE ENEE  E  E  ENEE  E  SE SE E  E  E  E  SE ESE
09/07/73        75.C      52.C      59.0      63.0      50.0      53.0
SE SE SE SW S  NE NE ESEENENE SE SE SE SE SE SE SE SE SE E  ESEE  E
09/13/73        33.0      62.0       C.0      46.0      43.0      33.0
WSWWSWW  W  W  W  WSWW  W  W  W  W  W  WSWSW SW W  NNENNEWNWSW S  SW NNE
09/19/73        69.0      59.C      37.0      77.0      57.0      52.0
NE NE E  ENEENEENENE NE ENEE  ESESE SE SE SE SE SE SE SE SE SE SE SE SE
09/25/73       141.0      33.C       C.0      36.C      29.0      32.0
SE SE SE SE SE SE SE SE S  S  S  S  S  S  SSESE SE SE SE SE SE SE SE SE
10/01/73        82.0      57.C      61.0      92.C      89.0      45.0
S  S  S  S  S  S  SSWNE NE NE ENEENEN  NE ESEESEENEE  S  ESEE  ENENE NE
10/07/73        53.0      57.0      76.0      31.0      59.0      50.0
SSESE SE S  SSES  S  SE SSES  S  S  S  S  S  S  S  SE SSESSESSES  S  S
10/13/73        22.0      46.0      25.0      37.0      62.0      41.0
WNNE  S  SSES  S  S  S  S  S  WSWNNWNNWN  NNWWNWNNENNENNENE NE NE NE NE
10/19/73         0.0      71.C      86.0     111.0     222.0      63.C
NE NE NE NE NNEN  N  N  NNEENEENEENENE ENEENEE  E  E  SE SSES  S  WSWWNW
10/25/73         0.0       0.0      98.0     118.C      59.0      72.0
SE SE SE ESESE E  E  ENEENEESEESESE SE SE SE SE SSESSESE SE SE SE SE SE
10/31/73        45.0       C.0      33.0     140.0      51.0      32.C
NNWNNWNNNWWNWWNWWNWWNWWNWWNWWNWWNWW NNWNNWNNWNNWNNWNNWNNWNW NNWNNWNNWNNW
11/06/73       123.0      97.0      56.0      70.0      87.0      56.0
NE NE NE NE NE ENEENENE ENEENEENEENEENEE  ENEENEENEENEE  E  ENENE ENEENE
11/12/73         0.0      49.C      71.0     114.0      69.0      41.0
NE NE NE NE NE NE NE ESEESEESESE SE SE SE ESEESEESEESEESESE ESEESESE SE
11/18/73        31.0      25.0      54.0      43.0      40.0      24.0
ESESESEESEESESE SE SE SE S  S  S  SSWSSWSSWS  S  SSES  S  S  S  S  S  S
11/24/73        64.0      65.0     106.0      71.0      93.0      53.C
SSESSESSESSESSESE SSES  S  S  S  S  S  S  S  S  S  S  S  SSWWNWN  NNE
11/30/73        82.0      73.C     107.0     100.0     115.0      82.0
WSWWSWSW WSWWSWWSW WNWESESSESSESW WSWSW S  SSESSESE SSESSESSES  SSESSE
12/06/73       124.0      43.0      22.0       C.C      46.0      42.0
NNENE NE NE NE NE NE NE NE ENEENENE ENENE NE ENENE NNENE NNENNENNENNENNE
12/12/73        40.C      83.0     194.0       C.C      78.0      67.0
S  S  S  S  S  SSWWSWWSWWSWW  WSWWSWSSWSW SW SW SW SW S  S  S  SW SW WSW
12/18/73        48.C      40.C      98.0       C.0      49.0      70.0
SSESSESSESSESSESSESE SE SSESSESSES  S  S  S  SSESSESSESE SE SE SE SE SE
12/24/73        90.0      49.0       C.0       C.C      81.0      46.C
S  S  S  S  S  S  WSWNNWNNNENE NE ENENE NNENNENNWNNENE NE NE NE NE N  NNE
12/30/73        44.0     175.0      95.0       0.0      77.0      37.C
NNENE NE ENESSES  S  S  S  S  S  SSWWSWS  S  S  S  S  S  S  S  S  SSENE
```

01/05/74 33.0 96.0 67.0 0.0 110.0 63.0
S W NNENE NE NNENE ENEENENE ENEE E ENEE ESEESEESEE ENEENEENEE E
01/11/74 67.0 43.0 41.0 0.0 59.0 29.0
NNWNNNNNENNENNENNENNENNENNENNENNENNEN N N N NNENNENNENNENNENNE
01/17/74 0.0 34.0 57.0 24.0 61.0 26.0
S S S S S S S S S S S S S S S S S S S S S S
01/23/74 0.0 25.0 27.0 57.0 0.0 22.0
NWN N N N N N N N N N N N N NNENNENNENNENNENNENNENNE
01/29/74 130.0 86.0 61.0 86.0 158.0 49.0
N NNENNENNENNENE NE NE NE NE NE NE NE NE NE N NW N NW S S S WSWW
02/04/74 92.0 51.0 68.0 106.0 113.0 59.0
N N N N N N N N N NNEE E ESEESESE SE SE ESESE SE SSES S S
02/10/74 65.0 0.0 69.0 210.0 92.0 51.0
NE S SSWW W WNWWNWWSWSW SSWS SW SW SW SW SW SW SW SW S S S SW SW
02/16/74 116.0 67.0 29.0 104.0 57.0 33.0
N N N N N NW N N NW N N N N N N N N NNWNNWN N NNENNENE
01/22/74 113.0 175.0 98.0 144.0 137.0 111.0
W WNWWNWWNWWNWNW WNWNW NW WNWNW NW NW NW NW NW N N N N NW N NW N
02/23/74 51.0 123.0 95.0 67.0 0.0 0.0
S S S S SSESSES S S S S S S S S S S S S S S S S S
03/05/74 44.0 47.0 102.0 76.0 0.0 60.0
SSESSESE SE SE SSESE SE SE SE S S S S S S S SE SE SE SE SE SSESSE
03/12/74 73.0 325.0 78.0 92.0 0.0 69.0
S SSWSSWWSWWSWSWW W W WNWNW NW NW NNWNNWN NW W SSWE NE N NNWWNW
03/18/74 47.0 64.0 90.0 54.0 0.0 41.0
S S S S S S S S S S S SSWSSWSW S S S S SSESSESSESSESSE
03/24/74 60.0 25.0 35.0 44.0 0.0 42.0
N N N N N N N N N NNENNENE NNENNENE NNEN NNENNENNENNENE NE NE
03/30/74 86.0 65.0 87.0 122.0 0.0 0.0
NW NNWNNENE NE NE SSES SSESE SSESSES S S S S S S SSES SSESSES
04/05/74 158.0 0.0 0.0 180.0 92.0 52.0
NNWNNWN NNWNNWNNWNNNNNWNNWN N N N NNWNNWNNWNNWNNWNNWN N N ENESE
04/11/74 64.0 70.0 101.0 85.0 152.0 75.0
SSESSESSESSESSESSESSESSES S S S S S WNWN NNENNESSES S S
04/17/74 0.0 70.0 90.0 69.0 92.0 64.0
W NW WNWNNWNNENE NE NE ENEENEENESSEE SE ESEE E E SE ESESE SE SE SE
04/23/74 0.0 42.0 48.0 56.0 84.0 53.0
NE NE NE NE NE NE NE NE NE NE NE ENENE ENENE NE NE ENEENEENEENSE E E
04/29/74 64.0 62.0 113.0 65.0 83.0 96.0
SE SE SE SE SE SE SE SE SSES S S S S S S S S S S S S S S
05/05/74 37.0 45.0 32.0 45.0 51.0 0.0
S SE ENEESEE NE NNENNEN WNWSW S WNWNW NW NNEWNWWNWWNWNW N N NNENNE
05/11/74 156.0 82.0 29.0 66.0 71.0 29.0
W SE WNWNNEWNWWNWNWN N WNWNNWNNWN N N N N N NNEENENE NNEN NW
05/17/74 65.0 52.0 87.0 52.0 77.0 127.0
SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SSESSEESEESESSESE SE ESE
05/23/74 93.0 57.0 41.0 46.0 85.0 41.0
ENEENENE NE NE ENEENEENEE E S S WSWESEENEENEE E S ESESE SSESSSSE
05/29/74 71.0 0.0 82.0 60.0 114.0 71.0
S S S S S S S S SSWSW SW SSWWSWSW SW SW SW SW SW SSWSSWS S S
06/04/74 67.0 0.0 70.0 38.0 66.0 78.0
SSESE SSESSESE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE SE
06/10/74 132.0 0.0 47.0 69.0 99.0 42.0
35,34,03,06,04,03,02,03,05,04,09,14,27,27,26,03,06,03,04,04,03,06,08,09
06/16/74 0.0 77.0 63.0 42.0 75.0 0.0
24,24,25,26,27,27,27,29,30,33,32,33,27,24,27,27,26,22,21,22,22,23,21,20
06/22/74 0.0 71.0 72.0 61.0 83.0 61.0
19,20,21,21,23,23,23,20,23,23,24,24,25,24,24,24,24,23,19,09,15,20,20,20
06/28/74 0.0 109.0 113.0 109.0 157.0 158.0
22,25,25,24,33,36,03,07,36,27,19,24,15,15,13,13,18,18,18,18,18,18,18,19
07/04/74 126.0 105.0 0.0 149.0 127.0 90.0
18,18,19,16,15,15,18,09,13,13,20,22,21,21,21,24,15,13,17,13,18,18,18,19
07/10/74 0.0 77.0 0.0 0.0 141.0 97.0
18,17,19,19,18,17,16,14,18,19,18,18,19,19,16,18,17,17,17,18,18,18,18,17
07/16/74 0.0 60.0 0.0 93.0 120.0 118.0
09,11,05,05,04,04,05,05,06,24,27,06,18,31,34,27,27,36,06,06,07,10,06,05
07/22/74 113.0 162.0 145.0 122.0 179.0 180.0
22,24,26,26,27,23,28,28,30,30,29,29,28,27,27,21,19,19,20,19,19,18,18,19
07/28/74 0.0 64.0 58.0 49.0 78.0 0.0
20,22,23,24,25,26,27,28,27,27,30,30,27,27,24,27,30,22,19,19,19,20,20,18
08/03/74 0.0 59.0 45.0 62.0 67.0 65.0
19,19,20,21,09,35,36,03,36,35,31,30,33,35,32,23,30,18,14,12,20,24,18,06
08/09/74 0.0 82.0 77.0 63.0 96.0 70.0
,,14,13,15,13,13,13,14,15,13,18,18,18,21,22,20,19,18,18,18,17,17,17,18
08/15/74 62.0 46.0 40.0 50.0 99.0 70.0
09,09,76,18,19,17,08,06,13,13,23,27,22,21,14,30,27,16,15,15,16,15,18,16
08/21/74 73.0 62.0 85.0 66.0 36.0 69.0
18,18,16,14,22,24,24,36,07,21,23,21,23,22,27,21,12,15,15,18,17,17,15,18
08/27/74 49.0 23.0 48.0 30.0 50.0 22.0
17,16,16,15,14,11,09,10,08,14,10,18,18,14,12,13,12,13,15,16,15,15,15,16
09/02/74 65.0 35.0 42.0 51.0 0.0 0.0
15,13,18,18,19,18,15,13,19,19,19,22,22,18,19,20,21,09,13,12,12,06,15,22
09/08/74 123.0 125.0 56.0 [illegible]

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08/21/74	73.0	62.0	85.0	66.0	96.0	69.0
13,18,16,14,22,24,24,3E,07,21,23,21,23,22,27,21,12,15,15,18,17,17,15,18						
08/27/74	48.0	23.0	48.0	3E.C	50.0	32.C
17,16,16,15,14,11,09,1C,C8,14,19,18,18,14,12,13,12,13,15,16,15,15,15,16						
09/02/74	65.0	35.0	42.0	51.C	C.0	0.0
15,13,18,18,19,16,15,18,13,19,19,22,22,18,19,20,21,09,13,12,12,06,15,22						
09/08/74	123.0	125.C	56.0	423.0	C.0	5C.0
35,34,34,35,35,35,34,34,34,35,35,35,34,34,33,32,33,33,32,31,31,30,30,30						
09/14/74	61.0	37.C	36.0	62.C	C.0	42.0
02,05,04,03,03,0E,06,05,06,06,04,03,36,04,04,03,34,09,20,21,25,31,02,04						
09/20/74	39.0	113.C	89.0	116.0	103.0	99.0
20,18,14,04,04,3E,01,01,06,08,09,15,22,12,08,09,09,12,13,13,12,13,13,12						
09/26/74	66.0	126.0	27.0	45.C	43.0	22.0
33,34,34,33,30,31,32,32,33,32,30,31,31,33,33,31,31,32,32,33,35,36,09,14						
10/02/74	0.0	72.0	73.0	124.0	138.0	2C1.0
28,30,34,34,34,35,35,36,06,07,08,10,11,11,12,12,12,12,12,13,16,16,16,16						
10/08/74	141.C	92.0	71.0	137.0	142.0	149.0
35,35,03,36,35,02,05,05,06,03,13,09,36,36,34,33,35,34,02,09,13,18,20,24						
10/14/74	64.0	0.0	77.0	63.0	92.0	117.0
14,13,14,12,12,12,12,12,18,15,14,16,18,18,17,18,18,31,02,36,02,2,2,2,36						
10/20/74	95.0	74.0	74.0	82.0	100.0	95.0
06,7,6,6,6,6,6,6,6,6,7,8,8,9,10,11,11,11,11,10,11,9,9,8						
10/26/74	147.0	C.C	102.0	139.0	155.0	120.0
6,6,5,5,3,3,4,3,5,5,6,8,8,6,6,6,9,10,11,12,14,11,14,21						
11/01/74	35.C	34.0	46.0	36.0	55.0	32.C
16,15,13,12,15,16,17,14,22,19,19,19,18,13,15,18,11,11,13,14,13,13,13,13						
11/07/74	49.0	20.0	20.0	41.C	84.0	29.C
36,36,2,3,2,4,4,2,3,4,6,5,4,4,4,4,2,2,3,4,4,4,4,4						
11/13/74	46.0	111.C	73.C	5C.0	121.0	55.C
19,19,19,20,20,20,19,19,19,20,20,20,21,23,22,21,20,20,20,19,19,18,17,18						
11/19/74	0.0	63.C	48.0	32.C	68.0	28.C
18,20,20,21,21,20,19,20,22,22,24,22,21,22,21,21,22,20,20,20,19,22,22,23						
11/25/74	110.C	86.C	42.0	57.C	51.0	31.0
36,35,36,35,01,36,36,01,01,03,04,36,02,01,35,01,01,35,01,36,35,35,35,02						
12/01/74	85.0	52.C	24.0	296.C	33.0	26.0
32,32,32,32,32,33,32,32,33,33,34,33,33,32,33,34,33,32,32,33,32,33,33,33						
12/07/74	80.0	53.C	22.0	58.C	31.0	17.0
29,31,31,31,30,31,31,31,31,31,31,30,31,31,30,31,32,30,31,31,32,32,34,35						
12/13/74	133.0	0.0	85.0	162.C	157.0	58.C
10,11,10,10,10,10,06,36,33,34,04,27,30,25,30,27,18,13,12,15,13,13,13,12						
12/19/74	0.0	78.0	86.0	92.C	74.0	C.C
,36,35,35,34,35,35,36,01,05,07,10,12,17,17,19,18,18,19,19,31,27,22,27						
12/25/74	0.0	0.0	15.0	35.C	22.0	17.0
34,33,34,34,34,34,35,35,36,36,36,34,36,36,36,36,36,2,3,3,5,5,5,4						
12/31/74	0.0	34.C	53.0	56.C	62.C	39.0
16,17,17,17,15,16,16,17,17,19,18,19,19,18,18,17,31,34,35,35,36,36,36,36						

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06/17/75 111.0 0.0 135.0 116.0 152.0 0.0
17,18,19,19,18,18,17,17,18,18,18,18,18,17,17,16,16,15,14,14,13,14,14,16
09/23/75 109.0 0.0 69.0 30.0 97.0 61.0
17,5,7,5,2,5,5,6,11,8,5,4,5,6,7,9,9,10,13,12,9,5,8,8
06/29/75 34.0 0.0 59.0 113.0 79.0 68.0
,6,2,33,6,36,36,1,36,32,31,36,36,5,36,9,36,27,22,6,15,33,34,32
07/05/75 60.3 0.0 43.6 49.4 76.3 38.2
23,26,29,29,30,32,35,33,30,30,29,30,30,23,23,23,21,21,20,19,19,19,21,22
07/11/75 97.9 0.0 58.3 76.9 81.2 64.0
27,21,27,27,27,27,29,28,29,32,35,35,34,26,27,28,29,27,03,03,09,18,24,21
07/17/75 0.0 0.0 60.4 56.5 94.7 47.1
12,12,10,08,36,02,04,05,06,08,11,12,11,12,13,15,15,16,17,17,17,16,16,17
07/23/75 0.0 0.0 53.1 56.7 77.5 34.9
09,13,12,15,20,13,36,03,09,15,18,17,18,15,03,33,04,05,07,10,10,12,12,13
07/29/75 220.2 0.0 107.1 83.9 122.0 66.9
19,13,24,24,24,24,26,25,25,23,33,36,07,09,15,17,22,17,19,13,17,18,23,25
08/04/75 0.0 0.0 49.1 58.3 78.3 40.5
18,18,18,18,24,25,26,27,27,28,28,29,29,25,16,17,34,29,03,05,06,25,33,35
08/10/75 53.4 0.0 34.1 39.1 37.9 29.4
11,10,06,02,35,04,05,05,05,05,05,04,02,36,07,11,14,14,15,16,18,18,18,18
08/15/75 52.1 47.0 43.3 39.1 56.4 27.3
19,20,23,22,21,21,29,29,22,25,24,27,24,15,15,15,17,18,17,17,16,17,19,17
08/22/75 83.5 0.0 77.9 107.7 149.4 71.8
19,28,34,34,36,07,05,05,06,36,36,36,03,14,13,20,27,32,07,14,13,06,24,36
08/28/75 79.4 0.0 0.0 59.5 129.6 60.3
09,08,06,06,05,06,06,00,07,07,08,09,09,11,11,12,13,13,14,14,14,14,14,14
09/03/75 0.0 0.0 0.0 0.0 149.0 76.0
25,26,27,29,29,30,31,32,33,35,35,36,05,05,06,09,13,09,36,36,6,5,4,5
09/09/75 0.0 0.0 0.0 48.0 92.0 38.0
13,10,10,05,04,05,06,06,09,09,09,12,13,15,17,18,12,12,14,13,15,17,13,13
09/15/75 136.0 0.0 0.0 104.0 0.0 99.0
09,09,06,06,07,04,04,05,09,10,11,12,17,17,15,17,18,12,13,13,13,13,13,12
09/21/75 108.0 46.0 49.0 64.0 79.0 63.0
07,07,06,06,06,05,05,00,05,06,08,07,08,05,00,02,36,36,36,01,01,01,01,36
09/27/75 88.0 67.0 67.0 85.0 104.0 74.0
08,15,18,05,04,05,06,06,07,09,12,11,16,16,15,12,15,14,13,13,13,12,13,13
10/03/75 0.0 87.4 51.9 75.7 166.2 87.9
06,07,07,06,05,06,06,07,07,05,05,02,02,02,02,39,02,02,01,01,01,01,03,05
10/09/75 55.0 52.6 68.0 44.4 83.6 84.4
16,13,10,11,11,12,13,13,13,14,17,18,22,23,21,14,12,12,13,15,17,18,17,13
10/15/75 83.7 44.6 39.4 54.2 95.5 60.7
12,12,11,11,11,09,04,05,06,07,07,06,08,07,09,02,02,04,06,05,04,04,05,04
10/21/75 57.5 41.3 82.6 43.3 63.9 57.2
15,16,14,15,17,14,14,13,14,14,15,17,17,15,16,15,16,17,15,14,13,13,13,13
10/27/75 66.7 53.7 63.4 55.9 91.3 57.5
05,06,05,05,04,05,07,10,11,11,11,12,12,11,13,14,14,15,17,17,17,16,17,17
11/02/75 35.5 24.2 40.3 23.0 35.4 28.3
12,12,13,14,14,15,14,13,14,14,18,19,18,12,13,15,16,16,14,14,16,17,16,16
11/08/75 41.4 32.3 43.7 24.2 41.8 32.7
12,11,07,12,22,14,09,09,11,12,19,19,17,14,12,15,17,14,13,12,13,12,14,13
11/14/75 112.3 106.6 0.0 86.9 118.5 80.3
35,36,05,02,04,02,04,06,09,10,12,18,24,15,17,13,14,13,15,15,17,18,17,15
11/20/75 43.6 579.2 25.1 40.2 51.8 23.5
35,36,36,36,36,36,35,30,35,35,35,34,35,35,35,35,35,33,33,33,33,33,35,36
11/26/75 79.3 178.4 59.8 74.8 82.3 0.0
18,15,15,14,15,24,31,33,33,33,34,34,35,34,34,34,35,36,36,35,36,01,36,01
12/02/75 72.2 71.5 49.4 63.4 109.1 55.2
05,06,13,08,09,04,08,09,10,12,15,18,18,21,15,15,13,11,13,12,11,12,14,13
12/08/75 0.0 51.9 65.2 59.2 276.9 34.1
05,02,01,36,36,36,01,02,02,06,36,33,34,36,34,01,36,01,05,06,04,04,03,30
12/14/75 47.8 39.5 29.6 42.3 54.3 48.9
14,13,13,14,14,14,15,17,17,16,17,17,17,16,16,15,14,14,15,15,17,18,18,18
12/20/75 58.0 106.9 56.7 64.8 89.8 58.2
25,26,26,26,27,23,25,25,25,26,26,28,28,28,29,30,31,31,32,31,33,33,35,35
12/26/75 80.8 0.0 46.6 61.1 131.5 55.2
28,28,28,35,35,29,23,26,30,31,28,32,31,30,32,31,31,31,24,24,22,22,22,22

DATE	OP1	H18	H20	H21	H22	H23
01/06/75	0.0	0.0	77.4	0.0	82.2	114.7
19,21,30,18,05,05,05,06,09,15,18,19,19,18,15,15,12,12,12,15,16,17,05,05						
01/12/75	0.0	0.0	16.9	0.0	21.9	0.0
36,36,01,01,36,05,02,01,02,1,36,35,35,35,36,34,33,34,33,34,34,34,34,34						
01/18/75	49.3	0.0	73.9	60.1	81.5	34.2
17,14,15,20,12,12,33,06,07,24,12,18,18,32,02,06,07,8,10,17,18,19,19,20						
01/24/75	112.1	0.0	97.8	0.0	0.0	73.6
09,08,09,10,09,09,35,35,36,03,06,04,30,05,24,19,18,22,18,19,20,21,24,25						
01/30/75	47.9	0.0	69.4	27.7	46.8	68.7
13,14,14,14,13,14,16,15,15,15,16,16,17,16,18,17,16,17,16,14,14,15,15,17						
02/05/75	126.7	0.0	26.4	82.3	60.0	37.9
18,36,13,27,24,28,28,27,33,29,32,34,33,34,33,34,35,35,35,35,35,36,36,36						
02/11/75	53.9	0.0	42.5	57.2	75.6	31.0
18,18,18,18,18,16,18,18,19,19,20,20,31,27,27,27,32,30,31,32,35,35,35,35						
02/17/75	76.0	50.3	46.6	79.8	79.8	104.2
5,6,6,6,6,7,6,5,7,6,9,9,11,10,11,10,10,9,10,10,9,11,9,9						
02/23/75	46.8	98.8	27.1	333.2	38.4	36.2
21,33,33,33,33,30,31,31,31,31,32,32,32,32,31,32,32,32,30,32,32,32,30,27						
03/01/75	68.4	62.7	53.4	58.8	75.3	58.9
15,17,18,18,18,19,23,25,22,20,21,22,24,24,26,27,31,33,32,36,2,5,6,4						
03/07/75	140.9	114.0	67.7	108.1	107.3	86.5
20,20,19,20,19,24,24,24,22,25,25,26,27,30,31,31,35,35,35,35,35,36,36,36						
03/13/75	78.2	0.0	30.6	55.4	52.1	31.9
34,32,34,33,32,33,33,34,33,33,33,33,32,33,32,33,33,33,33,34,34,33,32,32						
03/19/75	106.3	49.5	69.5	72.7	76.6	67.7
35,35,36,02,36,02,36,18,03,12,12,13,21,18,24,18,18,18,19,18,18,19,19,17						
03/25/75	163.1	157.2	158.6	128.1	117.3	137.1
06,05,07,09,09,11,10,12,11,13,13,12,11,12,12,12,12,12,12,11,12,12,12,11						
03/31/75	0.0	107.6	0.0	0.0	108.4	75.4
20,24,24,26,30,09,04,03,05,04,06,04,04,04,04,06,09,10,11,10,05,04,07,05						
04/06/75	0.0	72.0	59.1	73.2	65.1	58.8
10,10,10,11,11,10,09,10,10,10,11,11,12,12,11,12,11,11,11,11,10,11,12,12						
04/12/75	87.9	48.7	47.0	62.9	89.0	56.3
1,5,4,4,3,5,5,5,7,9,8,8,9,10,11,10,11,12,11,12,11,11,11,10						
04/13/75	141.2	112.6	121.5	120.8	140.5	97.8
8,18,18,18,18,19,19,19,19,19,19,19,19,19,19,19,21,21,22,20,23,33,09						
04/24/75	57.3	41.3	85.0	43.1	62.7	54.5
17,16,17,18,17,17,17,18,18,18,17,18,18,18,18,18,16,17,15,15,15,16,16,18						
04/30/75	80.1	0.0	42.6	89.1	58.9	49.1
12,03,09,13,15,17,16,14,16,17,16,18,11,32,33,09,09,15,2,3,4,6,7,7						
05/06/75	87.0	0.0	111.0	87.2	107.5	93.3
18,17,18,19,19,19,13,19,16,15,16,16,16,15,12,15,12,11,11,12,11,12,12,13						
05/12/75	105.4	49.0	40.7	46.2	58.9	50.3
35,1,4,4,1,36,36,2,6,7,7,9,5,9,8,7,9,10,13,16,15,13,15,19						
05/18/75	73.7	74.3	71.1	74.2	75.2	57.4
20,22,25,29,29,33,36,05,12,15,15,16,17,16,18,18,16,17,17,15,15,17,17,17						
05/24/75	77.7	42.5	31.6	49.4	54.9	32.0
13,8,3,2,3,3,7,33,3,9,13,13,16,15,17,19,26,32,36,4,8,8,12,4						
05/30/75	0.0	44.3	30.3	78.1	68.8	32.6
14,31,33,02,05,05,06,04,36,36,36,36,36,36,04,03,06,06,07,03,32,03,32,34						
06/05/75	0.0	58.0	73.0	70.0	85.0	61.0
16,16,15,14,16,17,19,18,19,19,19,18,19,19,18,18,13,18,18,18,18,17,17,17						
06/17/75	111.0	0.0	135.0	116.0	152.0	0.0
17,18,19,19,18,18,17,17,18,18,18,18,18,17,17,16,16,15,14,14,13,14,14,16						
06/23/75	108.0	0.0	69.0	90.0	97.0	61.0
17,5,7,5,2,5,5,6,11,8,9,4,5,6,7,9,9,10,13,12,9,5,8,8						
06/29/75	94.0	0.0	59.0	113.0	79.0	68.0
8,6,2,33,6,36,36,1,36,32,31,36,36,5,36,9,36,27,22,6,15,33,34,32						
07/05/75	60.3	0.0	43.6	49.4	76.3	38.2
23,26,29,29,30,32,35,33,30,30,29,30,30,23,23,23,21,21,20,19,19,19,21,22						
07/11/75	97.9	0.0	58.3	76.9	81.2	64.0
27,21,27,27,27,27,29,28,29,32,35,35,34,26,27,28,29,27,03,03,09,18,24,21						
07/17/75	0.0	0.0	60.4	56.5	94.7	47.1
12,12,10,08,36,02,04,05,06,08,11,12,11,12,13,15,15,16,17,17,17,16,16,17						
07/23/75	0.0	0.0	53.1	56.7	77.5	34.9
,18,12,15,29,18,36,08,09,15,18,17,18,15,03,33,04,05,07,10,10,12,12,13						
/29/75	230.2	0.0	107.1	83.9	122.0	66.9
18,18,24,24,24,24,26,25,25,28,33,36,07,09,15,17,22,17,19,18,17,18,23,25						
08/04/75	0.0	0.0	49.1	58.3	78.3	40.5
18,18,18,18,24,25,26,27,27,28,28,29,29,25,16,17,34,29,03,05,06,25,33,35						
08/10/75	53.4	0.0	34.1	39.1	37.3	29.4
11,10,06,02,35,04,05,05,05,05,05,04,02,36,07,11,14,14,15,16,18,18,18,18						
08/16/75	52.1	47.0	43.3	39.1	56.4	27.3
19,20,23,22,21,21,29,29,22,25,24,27,24,15,15,15,17,13,17,17,16,17,19,17						
08/22/75	83.5	0.0	77.0			

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Appendix F

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      DIMENSION IFILO(3),IFILT(3),STAT(4)                               JELC0010
      DIMENSION WINDR(16),WIND(24),NWIND(24),XWIND(24),SUM(16),AVE(16)  JELC0020
      DIMENSION SDSUM(16),STDD(16),XXX(16,300),NN(300)                  JELC0030
      DIMENSION DATE1(4),DATE2(4)                                       JELC0040
      DATA WINDR /'N   ','NNE','NE  ','ENE','E   ','ESE','SE  ','SSE','S   ',JELC0050
     *'SSW','SW  ','WSW','W   ','WNW','NW  ','NNW'/                     JELC0060
      DATA XO /'L'/                                                     JELC0070
      DATA NN / 300*0 /                                                 JELC0080
      CALL OPEN (3,'JELCGEN DATA',12,'OUTPUT',80,IRTF)                  JELC0090
   30 DO 20 I=1,300                                                     JELC0100
      NN(I) = 0                                                         JELC0110
      DO 21 J=1,16                                                      JELC0120
      XXX(J,I) =0.0                                                     JELC0130
   21 CONTINUE                                                          JELC0140
   20 CONTINUE                                                          JELC0150
      WRITE (6,200)                                                     JELC0160
  200 FORMAT (1X,'PARTIC. FILE')                                        JELC0170
      CALL RDOPEN(8,IFILO,12,'INPUT',80,IRTN)                           JELC0180
      WRITE (6,201)                                                     JELC0190
  201 FORMAT (1X,'WIND FILE')                                           JELC0200
      CALL RDOPEN(9,IFILT,12,'INPUT',80,IRTT)                           JELC0210
      READ (8,108) (STAT(I),I=1,4)                                      JELC0220
      READ (8,109) (DATE1(I),I=1,4)                                     JELC0230
  109 FORMAT (4A4)                                                      JELC0240
    1 READ (9,101) PART                                                 JELC0250
  101 FORMAT (F10.0)                                                    JELC0260
      DO 16 J=1,16                                                      JELC0270
      SUM(J) = 0.0                                                      JELC0280
      AVE(J) = 0.0                                                      JELC0290
      SDSUM(J) = 0.0                                                    JELC0300
   15 STDD(J) = 0.0                                                     JELC0310
      IF (PART .LT. 0.0) GO TO 7                                        JELC0320
      READ (9,116) XID                                                  JELC0330
  116 FORMAT (A1)                                                       JELC0340
      IF (XID .EQ. XO) GO TO 3                                          JELC0350
      IN = 0                                                            JELC0360
    2 READ (9,103) (NWIND(N),N=1,24)                                    JELC0370
  103 FORMAT (24I3)                                                     JELC0380
      IF (PART .EQ. 0.0) GO TO 1                                        JELC0390
      DO 15 N=1,24                                                      JELC0400
      XWIND(N) = FLOAT(NWIND(N))                                        JELC0410
      IF (XWIND(N) .LT. 0.0) GO TO 1                                    JELC0420
      J = IFIX(1.5 + ((XWIND(N)/360.)*160.))                            JELC0430
      IF (J .GT. 16) J=1                                                JELC0440
   15 WIND(N) =WINDR(J)                                                 JELC0450
      GO TO 4                                                           JELC0460
    3 IN = 1                                                            JELC0470
      READ (9,104) (WIND(N),N=1,24)                                     JELC0480
  104 FORMAT (24A3)                                                     JELC0490
      IF (PART .EQ. 0.0) GO TO 1                                        JELC0500
    4 DO 5 N=1,24                                                       JELC0510
      DO 9 J=1,16                                                       JELC0520
      IF (WIND(N) .EQ. WINDR(J))  GO TO 6                               JELC0530
    9 CONTINUE                                                          JELC0540
      GO TO 1                                                           JELC0550
    6 IF (PART .EQ. 0.) GO TO 5                                         JELC0560
      NN(J) = NN(J) + 1                                                 JELC0570
      XXX(J,NN(J))=ALOG(PART)                                           JELC0580
    5 CONTINUE                                                          JELC0590
      GO TO 1                                                           JELC0600
    7 DO 11 J=1,16                                                      JELC0610
      NIN = NN(J)                                                       JELC0620
      IF (NIN .EQ. 0) GO TO 11                                          JELC0630
      DO 10 JJ=1,NIN                                                    JELC0640
   10 SUM(J) = SUM(J) + XXX(J,JJ)                                       JELC0650
      AVE(J) = SUM(J)/FLOAT(NN(J))                                      JELC0660
   11 CONTINUE                                                          JELC0670
      DO 13 J=1,16                                                      JELC0680
      NIN = NN(J)                                                       JELC0690
      IF (NIN .EQ. 0) GO TO 13                                          JELC0700
      DO 12 JJ=1,NIN                                                    JELC0710
   12 SDSUM(J) = SDSUM(J) + (ABS(XXX(J,JJ)-AVE(J)))**2.0                JELC0720
      STDD(J) = EXP((SDSUM(J)/(FLOAT(NN(J))-1.0))**.5)                  JELC0730
      AVE(J) = EXP(AVE(J))                                              JELC0740
   13 CONTINUE                                                          JELC0750
      READ (8,108) (DATE2(I),I=1,4)                                     JELC0760
      WRITE (3,110) (STAT(I),I=1,4),(DATE1(I),I=1,4),(DATE2(I),I=1,4)   JELC0770
  110 FORMAT (1H(/),15X,'     CITY SAMPLING STATION -- ',4A4/,16X,'AMBIENJELC0780
     *NT LEVEL OF PARTICULATES (MIC.G./CU.M.)'/,18X,4A4,' TO ',4A4,///5XJELC0790
     *,'WIND DIRECTION',4X,'NO. OF HRS.',2X,'GEOM. MEAN',2X,'GEO ST DEV'JELC0800
     */)                                                                JELC0810
      DO 14 I=1,16                                                      JELC0820
   14 WRITE (3,111) WINDR(I),NN(I),AVE(I),STDD(I)                       JELC0830
  111 FORMAT (10X,A3,12X,I3,9X,F6.1,4X,F5.1)                            JELC0840
      WRITE (6,112)                                                     JELC0850
      FORMAT ('? DO YOU WISH TO CONTINUE IN SAME FILE?')                JELC0860
      CALL YESNO ('YES',&1)                                             JELC0870
      WRITE (3,213)                                                     JELC0880
  213 FORMAT (18(/))                                                    JELC0890
      WRITE (6,113)                                                     JELC0900
  113 FORMAT ('? DO YOU WISH TO CONTINUE IN NEW FILE?')                 JELC0910
      CALL YESNO ('YES',&30)                                            JELC0920
      STOP                                                              JELC0930
      END                                                               JELC0940
```

LAM 025520

ABS-035526

```
      DIMENSION IFILO(3),IFILT(3),STAT(4)                                JEL00010
      DIMENSION IARRAY(30),IPCNTA(15),IPCNT(15),FARRAY(30,15),IXAXIS(15)JEL00020
      DIMENSION FREQ(30),AFREQ(7)                                        JEL00030
      DIMENSION WINDR(16),WIND(24),NWIND(24),XWIND(24),SUM(16),AVE(16)   JEL00040
      DIMENSION SDSUM(16),STDD(16),XXX(16,300),NN(300)                   JEL00050
      DIMENSION DATE1(4),DATE2(4)                                        JEL00060
      DATA WINDR /'N   ','NNE','NE  ','ENE','E   ','ESE','SE  ','SSE','S   ',JEL00070
     *'SSW','SW  ','WSW','W   ','WNW','NW  ','NNW'/                      JEL00080
      DATA FREQ / 30*'     '/                                            JEL00090
      DATA EXES,BLANK / 'XXX','    '/                                    JEL00100
      DATA AFREQ /'60% ','50% ','40% ','30% ','20% ','10% ',' 0% '/     JEL00110
      DATA XD /'L'/                                                      JEL00120
      DATA NN / 300*0 /                                                  JEL00130
      CALL OPEN (3,'JELFILE DATA',12,'OUTPUT',80,IRTF)                   JEL00140
   30 DO 20 I=1,300                                                      JEL00150
      NN(I) = 0                                                          JEL00160
      DO 21 J=1,15                                                       JEL00170
      XXX(J,I) =0.0                                                      JEL00180
   21 CONTINUE                                                           JEL00190
   20 CONTINUE                                                           JEL00200
      WRITE (6,200)                                                      JEL00210
  200 FORMAT (1X,'PARTIC. FILE')                                         JEL00220
      CALL ROOPEN(8,IFILO,12,'INPUT',80,IRTN)                            JEL00230
      WRITE (6,201)                                                      JEL00240
  201 FORMAT (1X,'WIND FILE')                                            JEL00250
      CALL ROOPEN(9,IFILT,12,'INPUT',80,IRTT)                            JEL00260
      READ (8,108) (STAT(I),I=1,4)                                       JEL00270
      READ (8,108) (DATE1(I),I=1,4)                                      JEL00280
  108 FORMAT (4A4)                                                       JEL00290
    1 READ (3,101) PART                                                  JEL00300
  101 FORMAT (F10.0)                                                     JEL00310
      DO 16 J=1,16                                                       JEL00320
      SUM(J) = 0.0                                                       JEL00330
      AVE(J) = 0.0                                                       JEL00340
      SDSUM(J) = 0.0                                                     JEL00350
   16 STDD(J) = 0.0                                                      JEL00360
      IF (PART .LT. 0.0) GO TO 7                                         JEL00370
      READ (9,118) XID                                                   JEL00380
  118 FORMAT (A1)                                                        JEL00390
      IF (XID .EQ. XD) GO TO 3                                           JEL00400
      IN = 0                                                             JEL00410
    2 READ (9,103) (NWIND(N),N=1,24)                                     JEL00420
  103 FORMAT (24I3)                                                      JEL00430
      IF (PART .EQ. 0.0) GO TO 1                                         JEL00440
      DO 15 N=1,24                                                       JEL00450
      XWIND(N) = FLOAT(NWIND(N))                                         JEL00460
      IF (XWIND(N) .LT. 0.0) GO TO 1                                     JEL00470
      J = IFIX(1.5 + ((XWIND(N)/360.)*160.))                             JEL00480
      IF (J .GT. 16) J=1                                                 JEL00490
   15 WIND(N) =WINDR(J)                                                  JEL00500
      GO TO 4                                                            JEL00510
    3 IN = 1                                                             JEL00520
      READ (9,104) (WIND(N),N=1,24)                                      JEL00530
  104 FORMAT (24A3)                                                      JEL00540
      IF (PART .EQ. 0.0) GO TO 1                                         JEL00550
```

LAM 025521

ABS-035527

```
      DO 9 J=1,16                                                       JEL00570
      IF (WIND(N) .EQ. WINDR(J))  GO TO 6                               JEL00580
      CONTINUE                                                          JEL00590
      GO TO 1                                                           JEL00600
    6 NN(J) = NN(J) + 1                                                 JEL00610
      XXX(J,NN(J))=PART                                                 JEL00620
    5 CONTINUE                                                          JEL00630
      GO TO 1                                                           JEL00640
    7 DO 11 J=1,16                                                      JEL00650
      NIN = NN(J)                                                       JEL00660
      IF (NIN .EQ. 0) GO TO 11                                          JEL00670
      DO 10 JJ=1,NIN                                                    JEL00680
   10 SUM(J) = SUM(J) + XXX(J,JJ)                                       JEL00690
      AVE(J) = SUM(J)/FLOAT(NN(J))                                      JEL00700
   11 CONTINUE                                                          JEL00710
      DO 13 J=1,16                                                      JEL00720
      NIN = NN(J)                                                       JEL00730
      IF (NIN .EQ. 0) GO TO 13                                          JEL00740
      DO 12 JJ=1,NIN                                                    JEL00750
   12 SDSUM(J) = SDSUM(J) + (ABS(XXX(J,JJ)-AVE(J)))**2.0                JEL00760
      STDD(J) = (SDSUM(J)/FLOAT(NN(J)))**.5                             JEL00770
   13 CONTINUE                                                          JEL00780
      READ (3,108) (DATE2(I),I=1,4)                                     JEL00790
      WRITE (3,110) (STAT(I),I=1,4),(DATE1(I),I=1,4),(DATE2(I),I=1,4)   JEL00800
  110 FORMAT (26(/),15X,'     CITY SAMPLING STATION -- ',4A4/,16X,'AMBIE JEL00810
     *NT LEVEL OF PARTICULATES (MIC.G./CU.M.)'/,18X,4A4,' TO ',4A4,///5XJEL00820
     *,'WIND DIRECTION',4X,'NO. OF HRS.',5X,'MEAN',5X,'STD. DEV.'/)     JEL00830
      DO 14 I=1,16                                                      JEL00840
   14 WRITE (3,111) WINDR(I),NN(I),AVE(I),STDD(I)                       JEL00850
  111 FORMAT (10X,A3,12X,I3,9X,F6.1,4X,F5.1)                            JEL00860
      IXAXIS(1) = 0                                                     JEL00870
      DO 29 I=2,15                                                      JEL00880
   29 IXAXIS(I) = IXAXIS(I-1) + 20                                      JEL00890
      DO 50 LL=1,16                                                     JEL00900
      NIN = NN(LL)                                                      JEL00910
      DO 32 I=1,30                                                      JEL00920
      IARRAY(I) = 0                                                     JEL00930
      DO 31 J=1,15                                                      JEL00940
   31 FARRAY(I,J)= BLANK                                                JEL00950
   32 CONTINUE                                                          JEL00960
      L = 0                                                             JEL00970
      DO 33 I=1,30,5                                                    JEL00980
      L=L+1                                                             JEL00990
   33 FREQ(I)=AFREQ(L)                                                  JEL01000
      ITOTAL = 0                                                        JEL01010
      DO 40 KL=1,NIN                                                    JEL01020
      X = XXX(LL,KL)                                                    JEL01030
      IF (X .EQ. 0.0) GO TO 40                                          JEL01040
      INN = IFIX((X/20.)+1.0)                                           JEL01050
      IF (INN .EQ. 0) INN=1                                             JEL01060
      IF (INN .GT. 15) INN = 15                                         JEL01070
      IARRAY(INN) = IARRAY(INN) + 1                                     JEL01080
   40 CONTINUE                                                          JEL01090
      DO 41 J=1,15                                                      JEL01100
   41 ITOTAL = IARRAY(J) + ITOTAL                                       JEL01110
      DO 42 JJ=1,15                                                     JEL01120
```

LAM 025522

ABS-035528

```
      XX = FLOAT(IARRAY(JJ))                                                    JELC1140
      YY = FLOAT(ITOTAL)                                                        JELC1150
      IF (YY .EQ. 0.) YY = 1.                                                   JELC1160
      PCN = ((XX/YY)*100.)/2.0                                                  JELC1170
      IPCNTA(JJ) = IFIX(PCN)                                                    JELC1180
      IF (IPCNTA(JJ) .EQ. 0 .AND. PCN .NE. 0.) IPCNTA(JJ) =1                    JELC1190
      IPCNT(JJ) = 30 - IPCNTA(JJ)                                               JELC1200
      IJ = 30                                                                   JELC1210
   43 IF (IJ .EQ. IPCNT(JJ)) GO TO 44                                           JELC1220
      FARRAY(IJ,JJ) = EXES                                                      JELC1230
      IJ = IJ - 1                                                               JELC1240
      IF (IJ .EQ. 0) GO TO 44                                                   JELC1250
      GO TO 43                                                                  JELC1260
   44 CONTINUE                                                                  JELC1270
   42 CONTINUE                                                                  JELC1280
      WRITE (3,119) (STAT(I),I=1,4),(DATE1(I),I=1,4),(DATE2(I),I=1,4)           JELC1290
  119 FORMAT (18(/),14X,'    CITY SAMPLING STATION -- ',4A4/,18X,4A4, 'TJELC1300
     *O ',4A4)                                                                  JELC1310
      WRITE (3,115) WINDR(LL)                                                   JELC1320
  115 FORMAT (25X,'WIND DIRECTION -- ',A4/,18X,'FREQUENCY DISTRIBUTION OJELC1330
     *F PART. CONC. '///)                                                       JELC1340
      DO 45 IJ = 1,30                                                           JELC1350
   45 WRITE (3,116) FREQ(IJ),(FARRAY(IJ,JJ),JJ=1,15)                            JELC1360
  116 FORMAT (1X,A4,'+',14(A3,1H'),A3,'+')                                      JELC1370
      WRITE (3,117) (IXAXIS(I),I=1,15)                                          JELC1380
  117 FORMAT (2X,15I4,1X,'>280'/,20X,'CONCENTRATION-(MIC.G./CU.M.)')            JELC1390
   50 CONTINUE                                                                  JELC1400
      WRITE (3,332)                                                             JELC1410
  332 FORMAT (9(/))                                                             JELC1420
      WRITE (6,113)                                                             JELC1430
  113 FORMAT ('? DO YOU WISH TO CONTINUE IN NEW FILE?')                         JELC1440
      CALL YESNO ('YES',&30)                                                    JELC1450
      STOP                                                                      JELC1460
      END                                                                       JELC1470
```

LAM 025523

ABS-035529

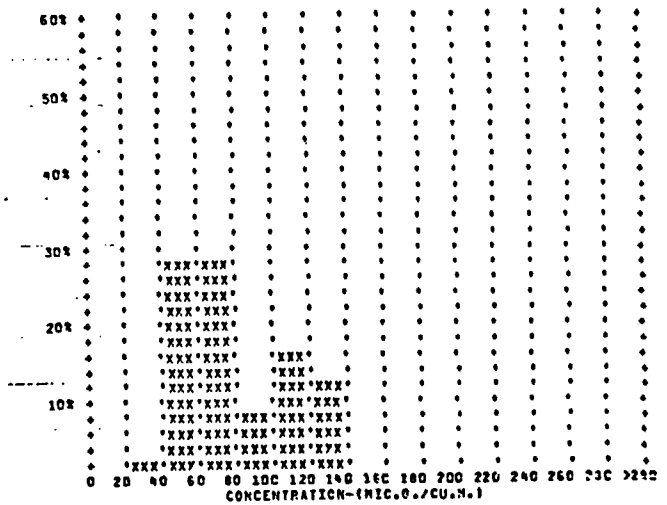
LAM 025524

Appendix G

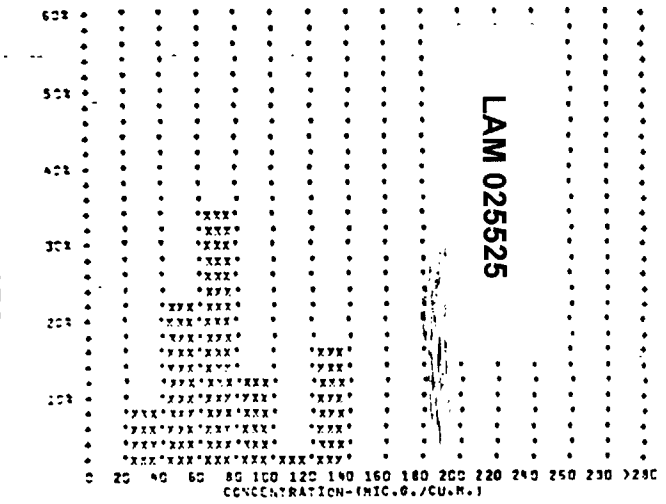
CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEMB. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	110	79.7	29.9
NNE	76	74.9	29.3
NE	117	75.1	33.3
ENE	59	87.5	31.9
E	48	66.2	28.4
ESE	66	52.2	13.5
SE	159	65.9	31.6
SSE	130	67.2	26.0
S	250	67.0	35.1
SSW	18	54.4	22.3
SW	34	65.4	25.4
WSW	44	70.0	26.0
W	62	92.0	29.2
WNW	55	92.9	27.5
NW	27	76.1	28.1
NNW	65	68.0	31.2

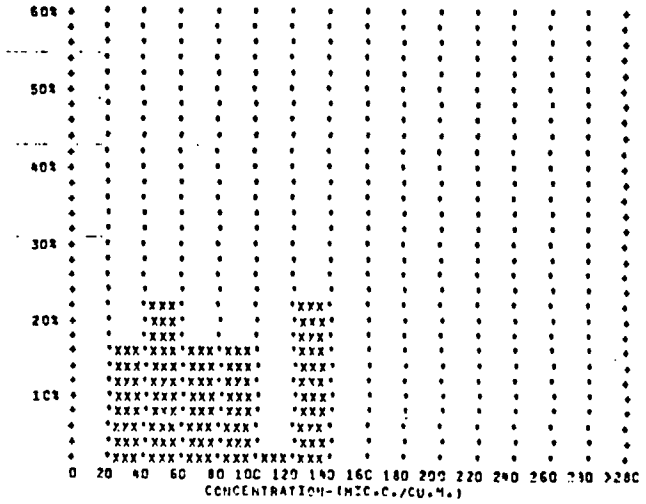
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



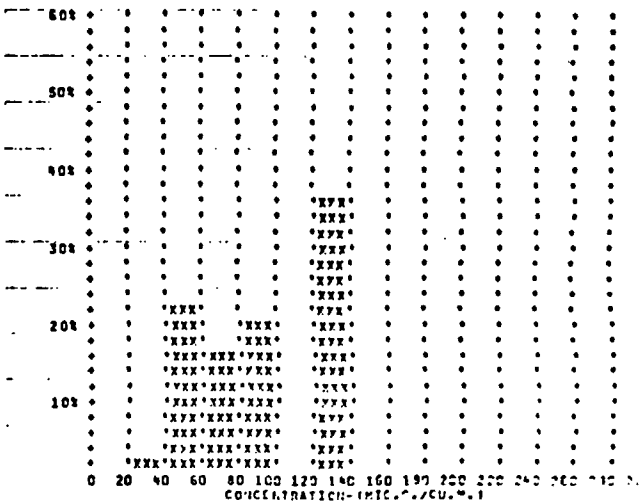
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



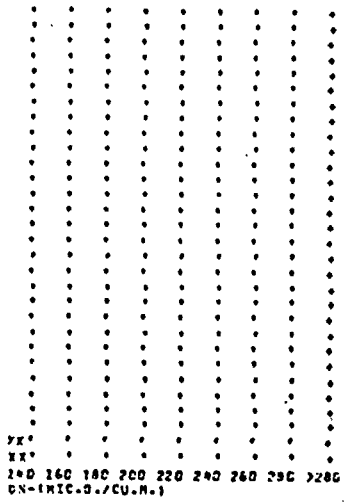
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



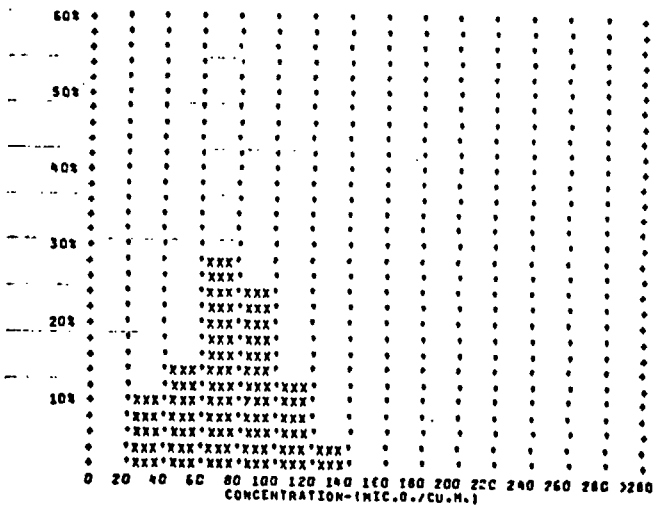
LAM 025525

ABS-035530

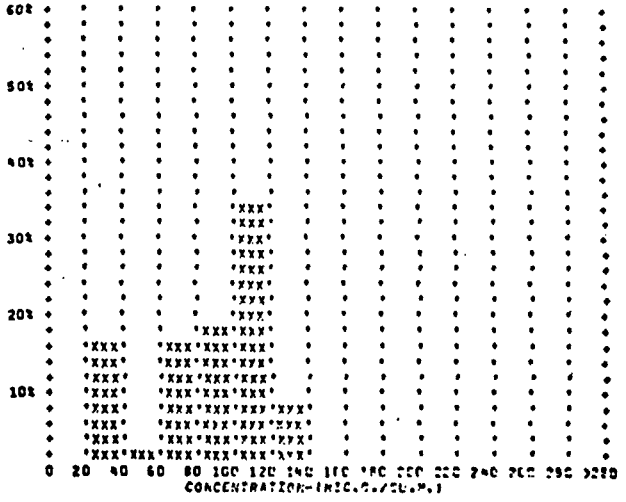
STATION -- DEER PARK 1
73 TO DECEMB. 31, 1973
IRECTION -- SW
TRIBUTION OF PART. CONC.



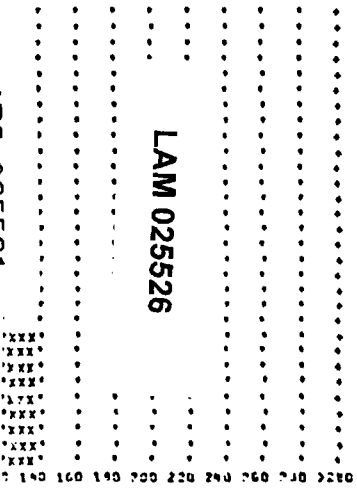
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



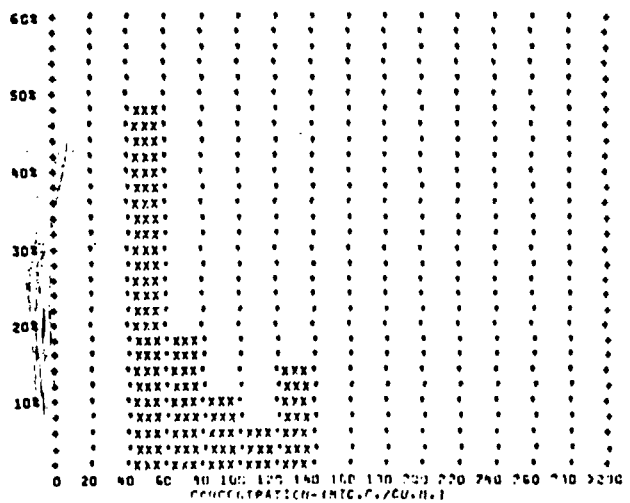
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



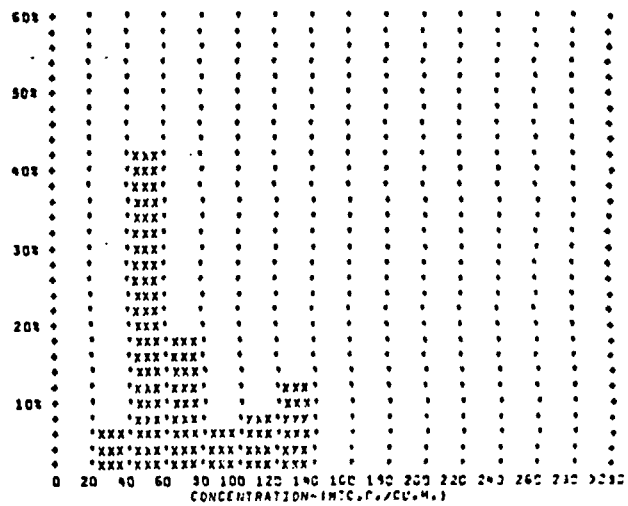
STATION -- DEER PARK 1
73 TO DECEMB. 31, 1973
IRECTION -- WNW
TRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1973 TO DECEMB. 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



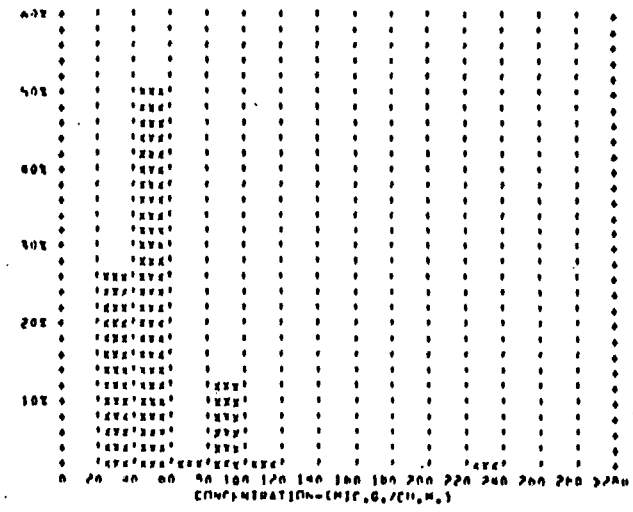
ABS-035531
LAM 025526

Used in analysis

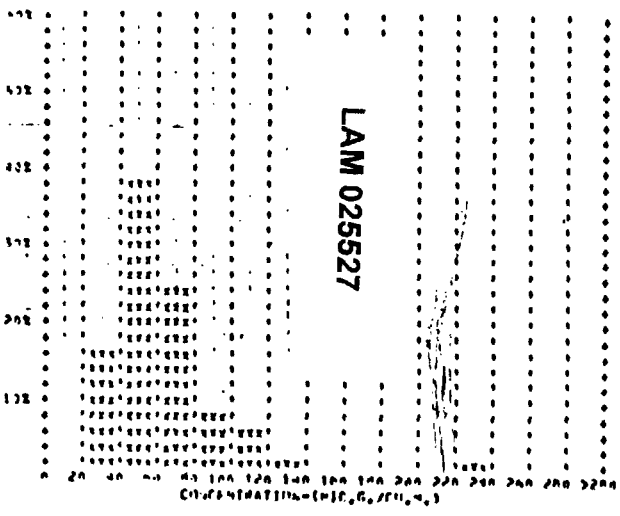
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	113	57.5	35.0
NNE	81	63.2	32.9
NE	126	67.1	40.5
ENE	65	86.8	88.8
E	60	66.5	46.8
ESE	70	58.6	17.2
SE	105	51.1	23.6
SSE	133	67.2	28.9
S	252	67.8	26.6
SSW	14	74.9	23.5
SW	30	73.1	23.5
WSW	45	84.5	30.1
W	62	83.1	27.6
WNW	54	83.8	31.9
NW	27	62.0	26.9
NNW	65	55.0	27.6

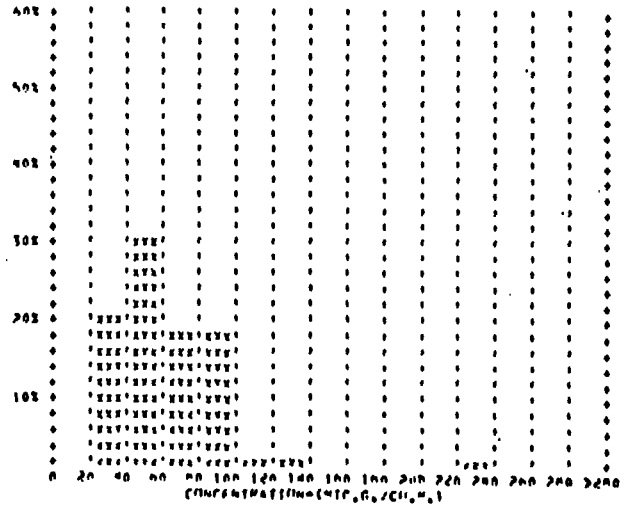
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



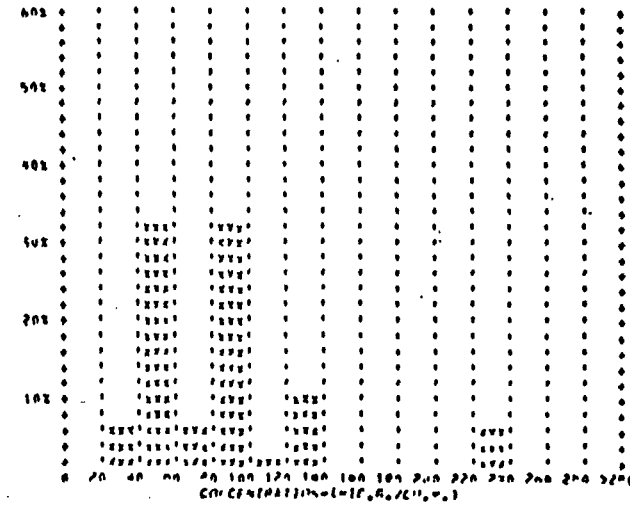
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



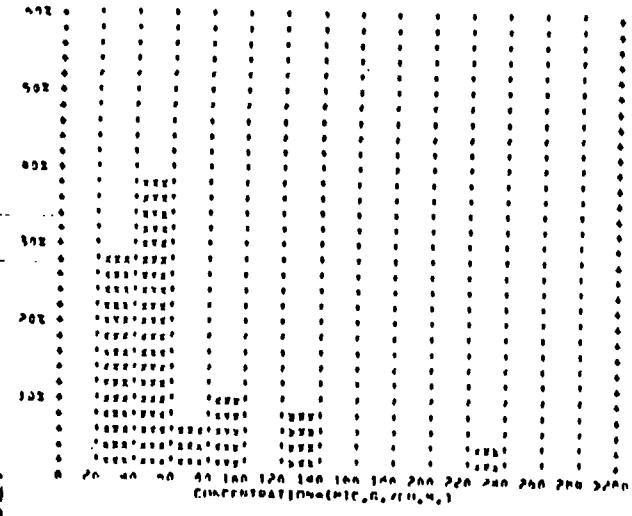
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



LAM 025527

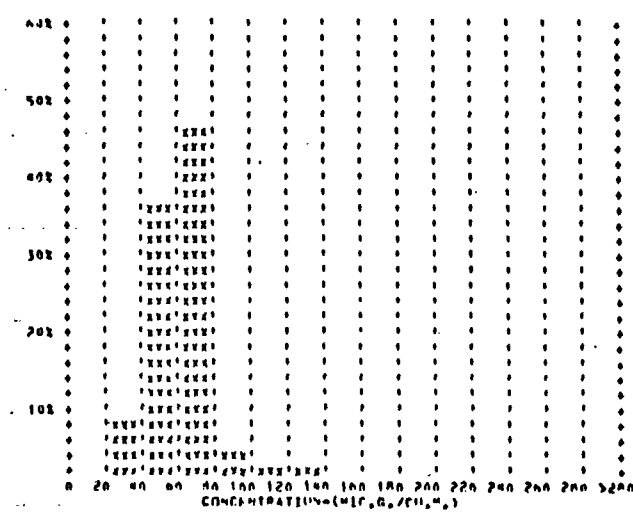
ABS-035532

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



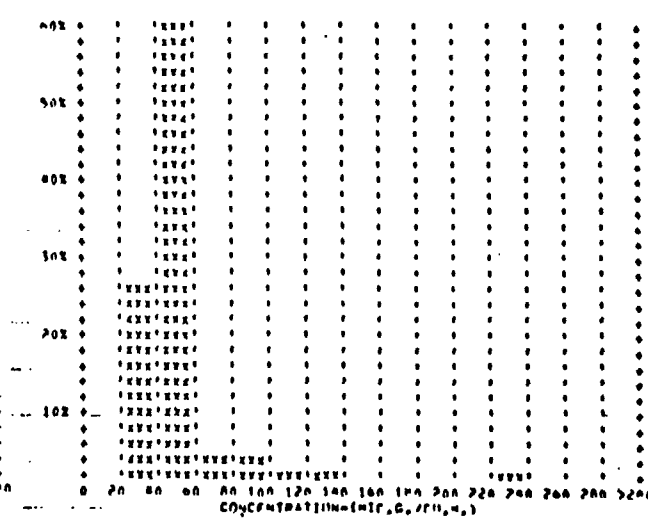
CONCENTRATION=(MIC.G./CU.M.)

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



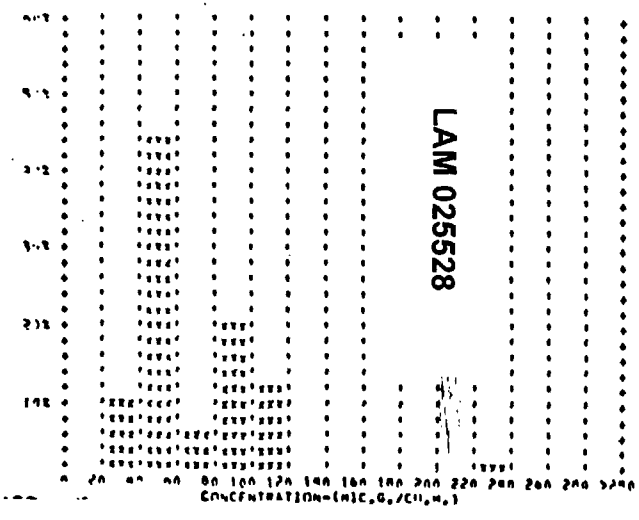
CONCENTRATION=(MIC.G./CU.M.)

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



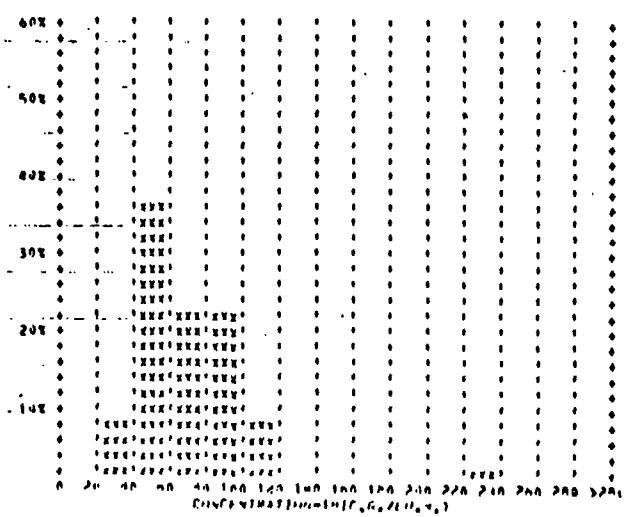
CONCENTRATION=(MIC.G./CU.M.)

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



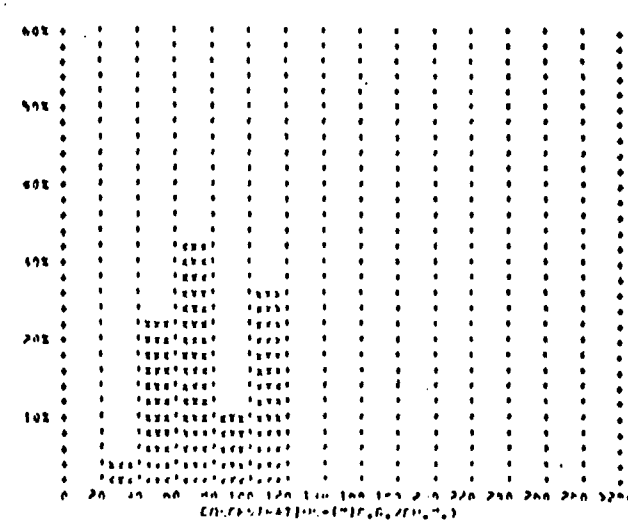
CONCENTRATION=(MIC.G./CU.M.)

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



CONCENTRATION=(MIC.G./CU.M.)

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1975 TO DECEM, 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CONCENTRATION=(MIC.G./CU.M.)

ABS-035533

LAM 025528

LAM 025529

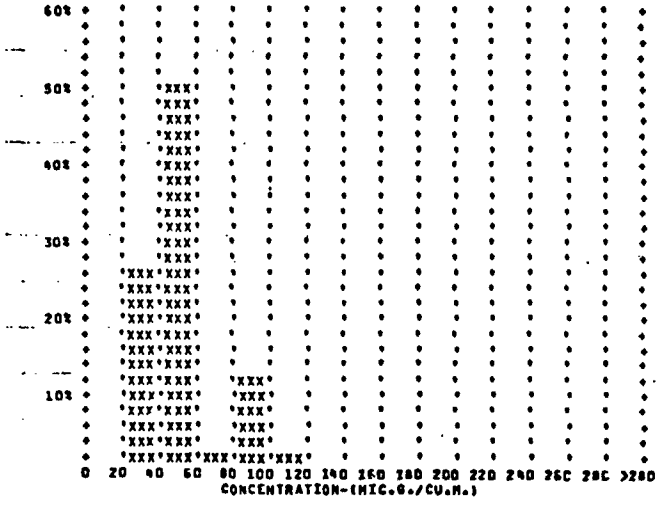
ABS-035534

without suspect data point
not used for analysis

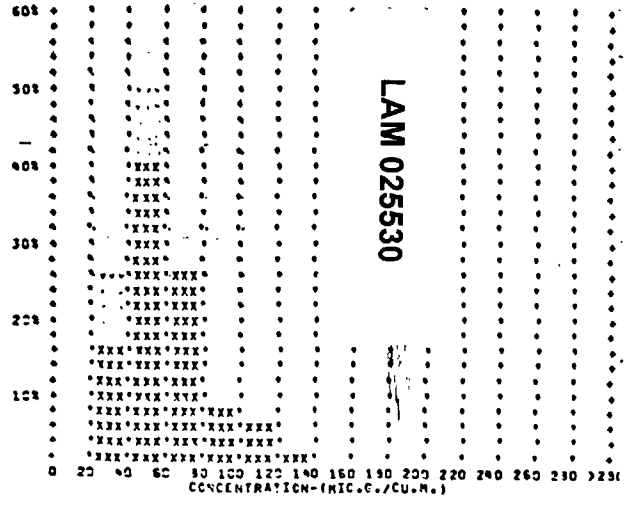
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	110	53.0	22.3
NNE	79	59.2	21.4
NE	121	60.7	26.0
ENE	60	75.5	30.4
E	57	58.3	30.9
ESE	70	58.6	17.2
SE	184	49.2	20.0
SSE	132	66.1	25.7
S	250	66.2	22.8
SSW	18	74.9	23.5
SW	34	73.1	23.5
WSW	44	91.3	22.0
W	62	93.1	27.6
WNW	55	82.3	26.2
NW	27	62.0	26.9
NNW	65	55.0	27.6

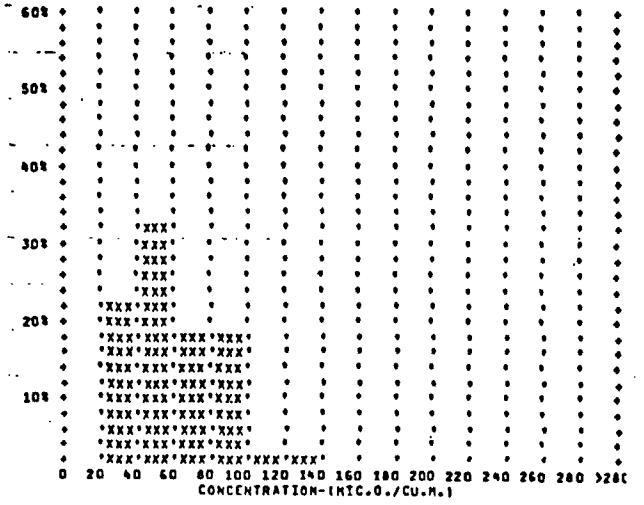
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



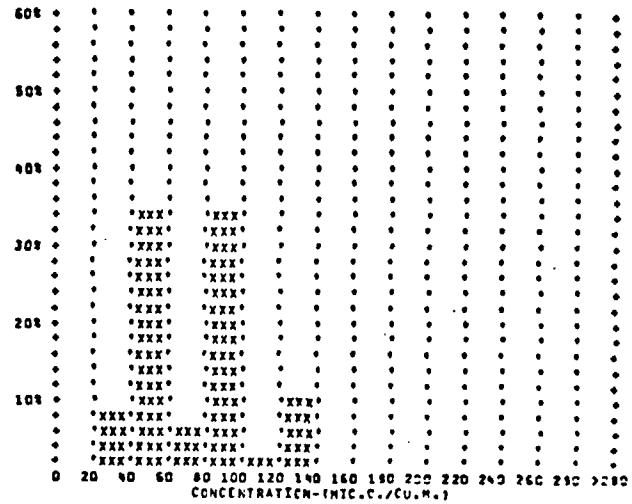
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

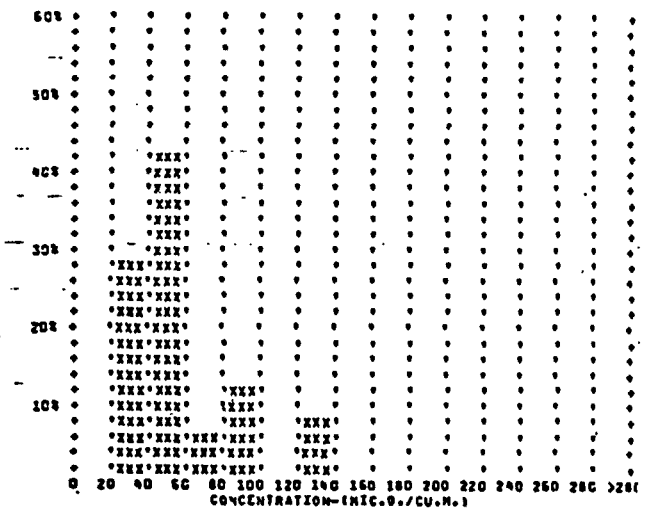


LAM 025530

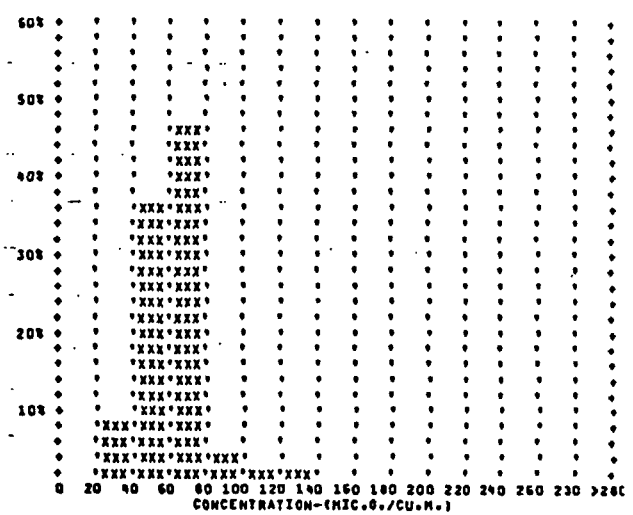
ABS-035535

ABS-035536

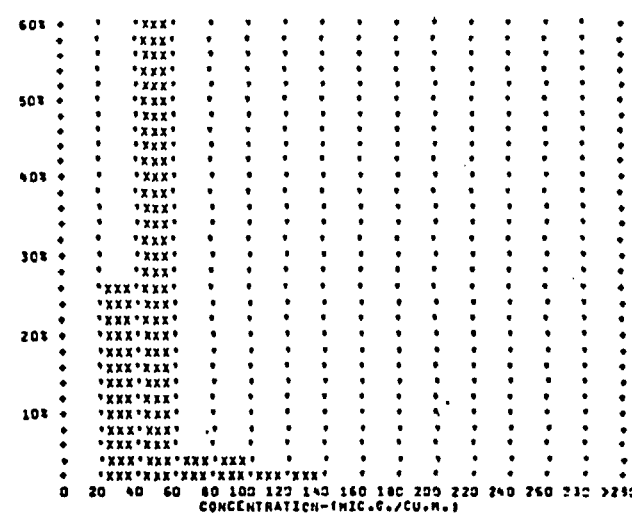
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



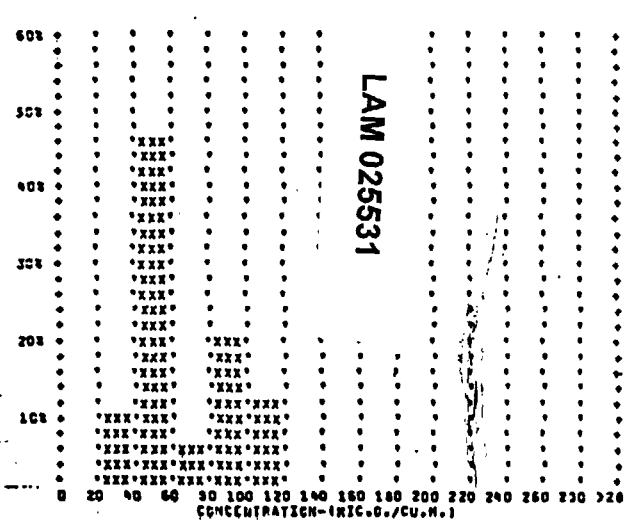
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

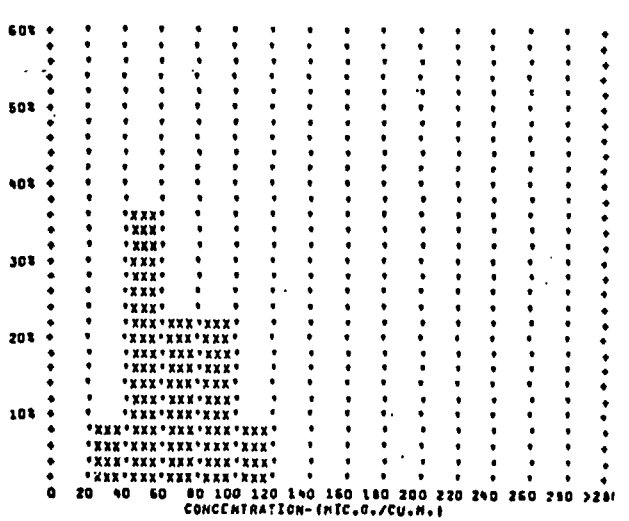


CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

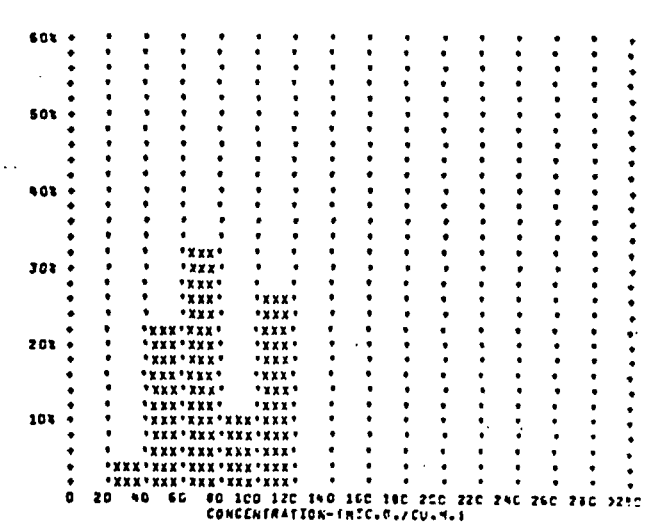


LAM 025531

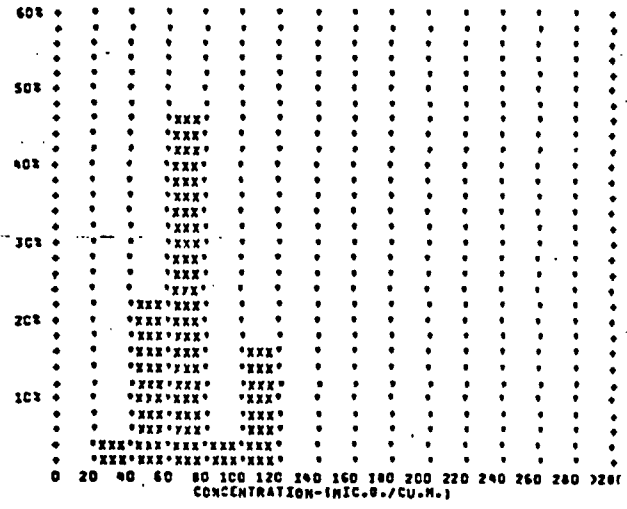
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



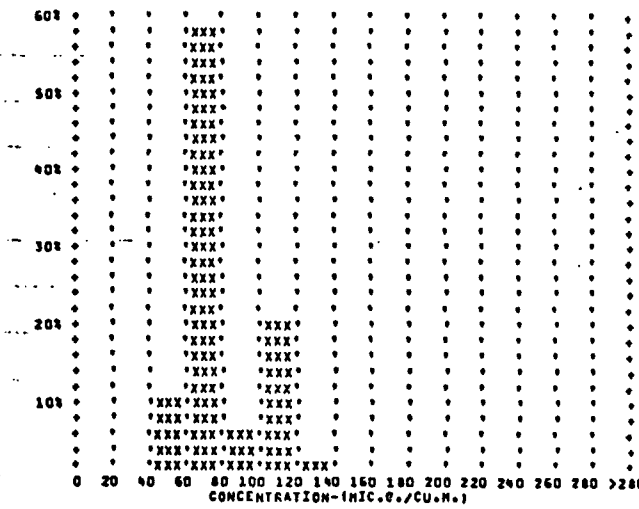
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



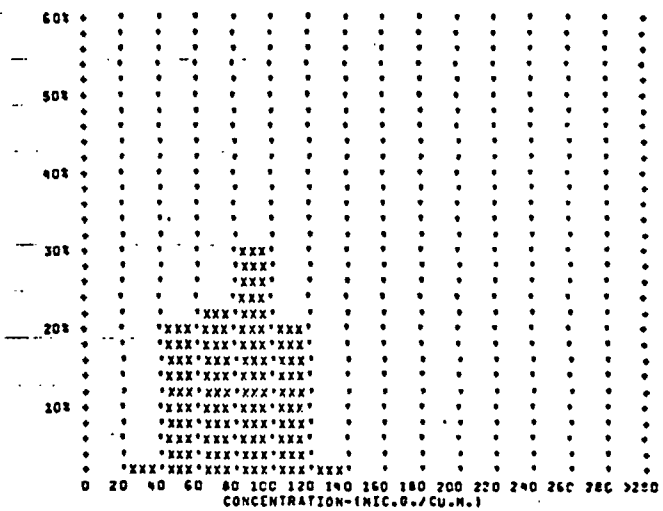
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



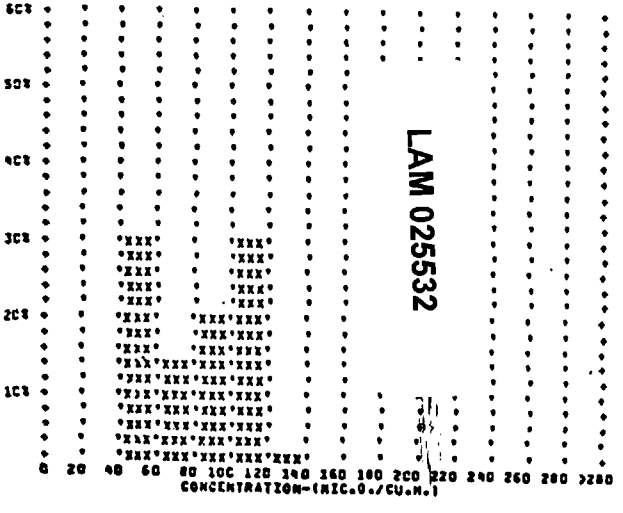
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



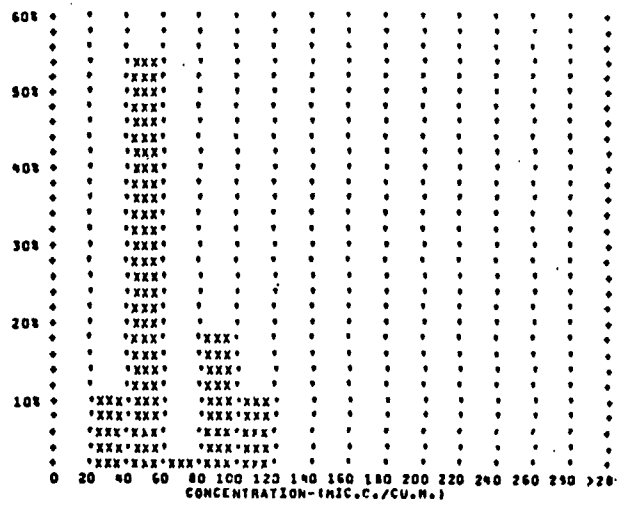
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



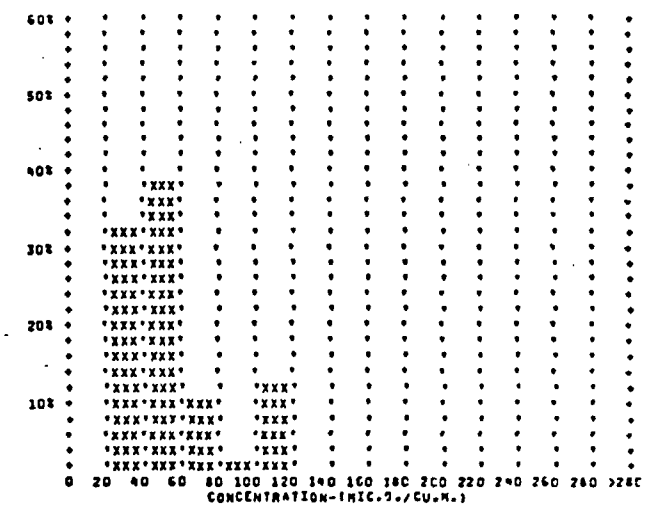
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



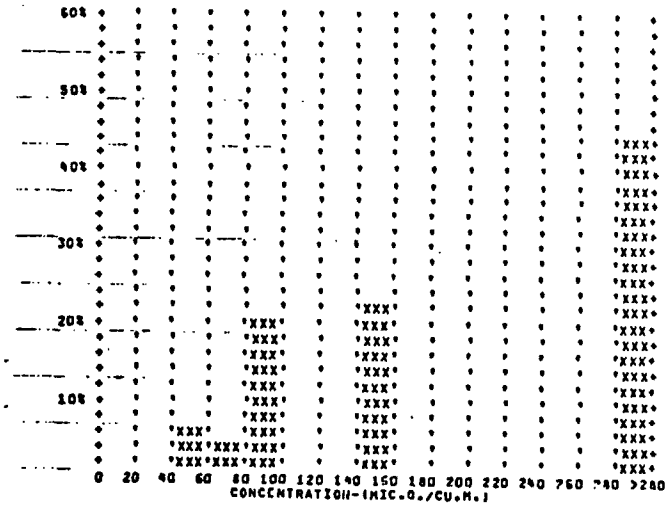
LAM 025532

With suspect data points (not used in analysis)

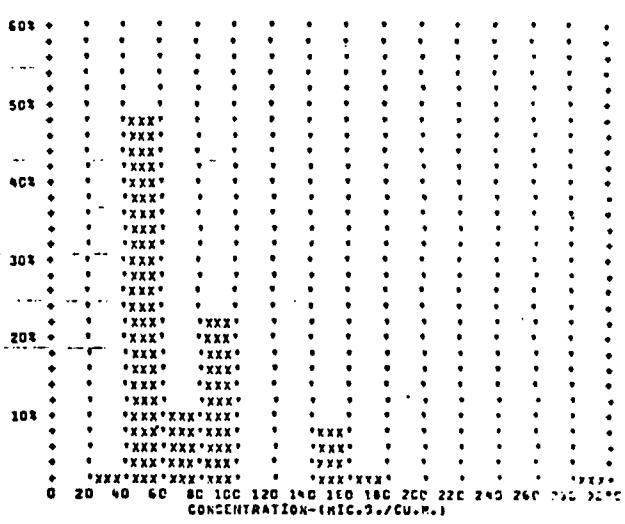
CITY SAMPLING STATION — HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	113	358.4	314.7
NNE	52	90.6	105.8
NE	108	91.1	100.4
ENE	57	95.7	71.9
E	53	90.8	90.4
ESE	80	177.1	192.0
SE	150	78.6	122.8
SSE	115	93.4	95.2
S	221	104.0	147.3
SSW	16	74.5	40.8
SW	31	207.9	297.5
WSW	32	209.7	232.4
W	54	378.5	264.4
WNW	51	552.4	462.5
NW	25	561.8	384.4
NNW	66	595.9	552.6

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION — N
FREQUENCY DISTRIBUTION OF PART. CONC.

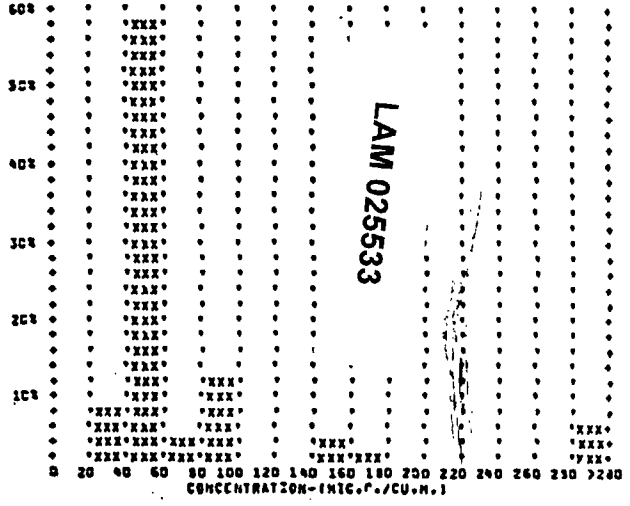


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



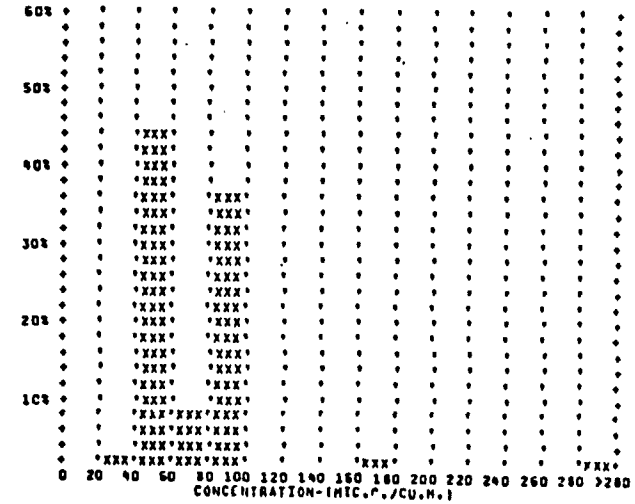
ABS-035538

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.

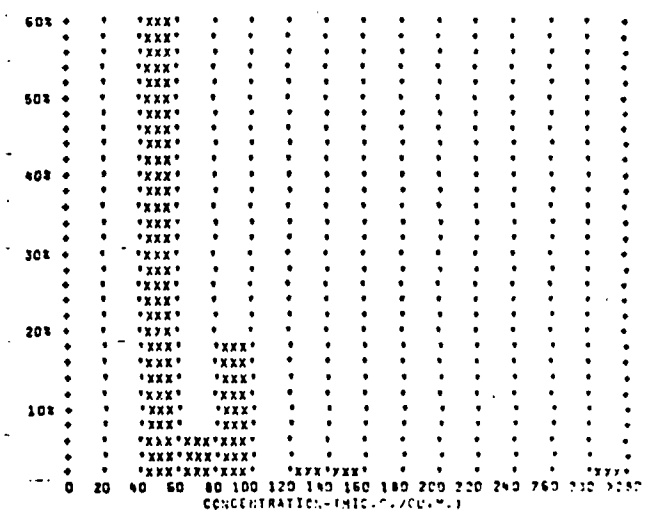


LAM 025533

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

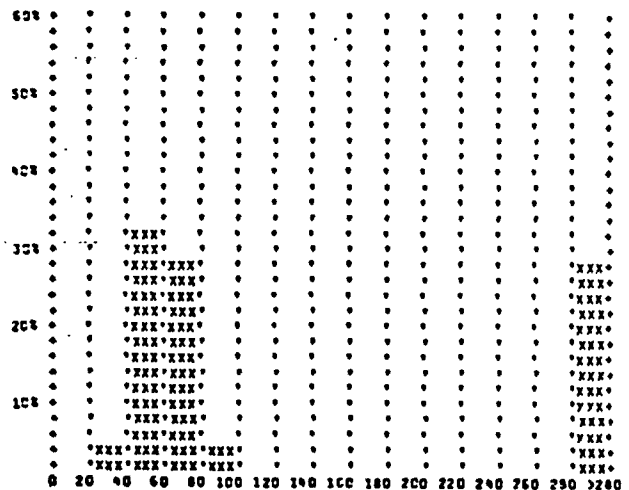


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.

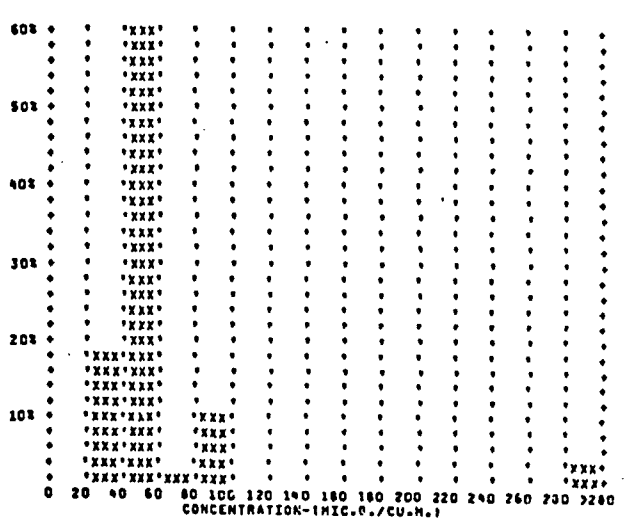


ABS-035539

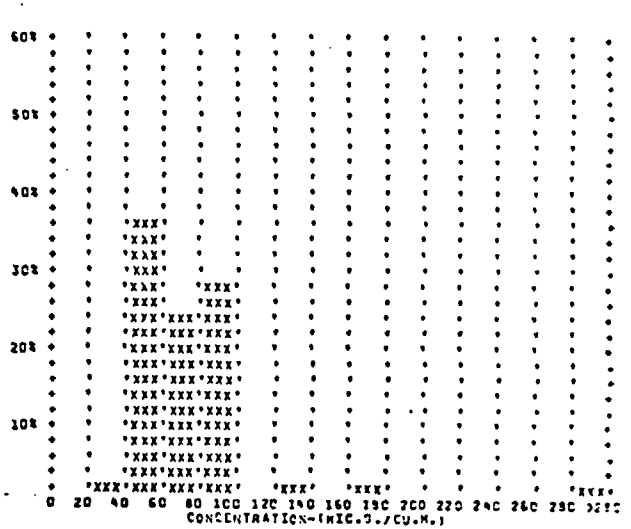
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



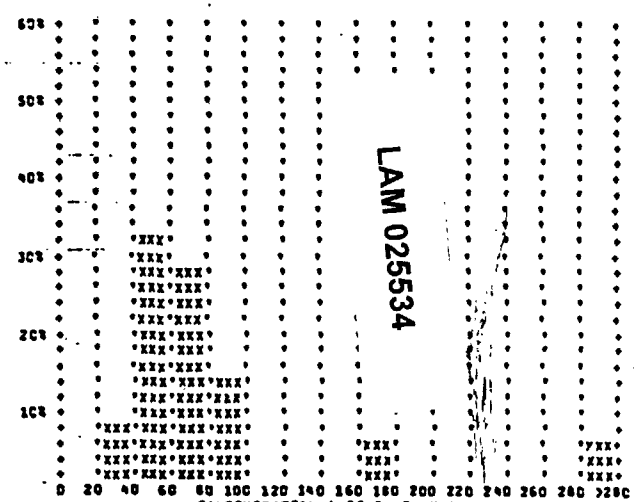
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

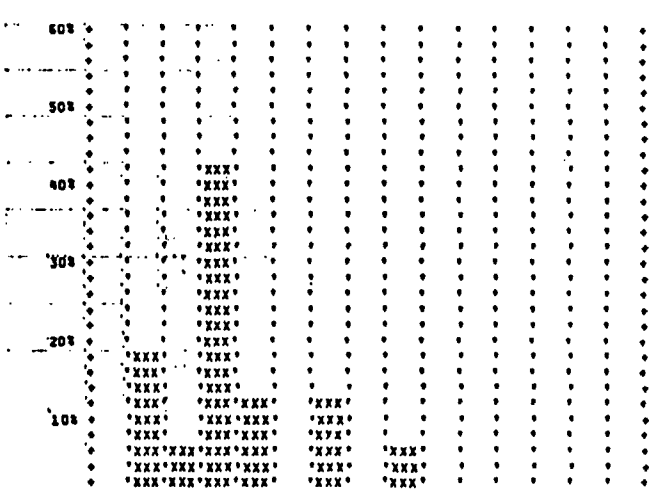


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

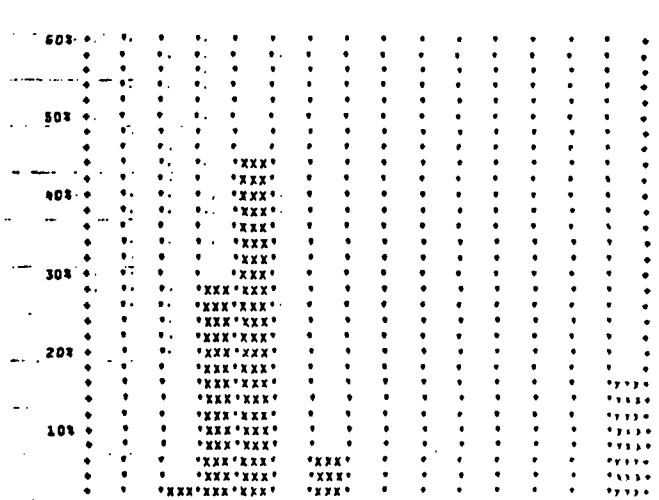


LAM 025534

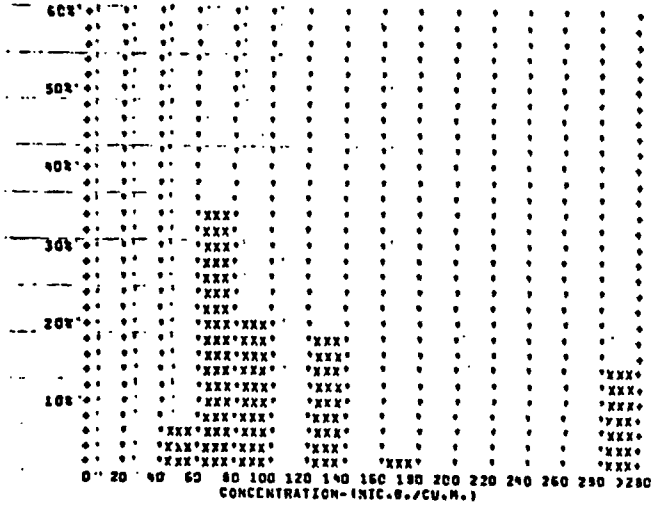
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



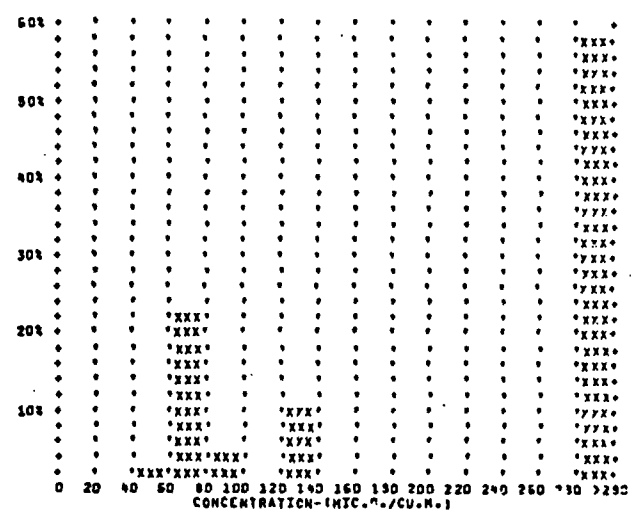
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.

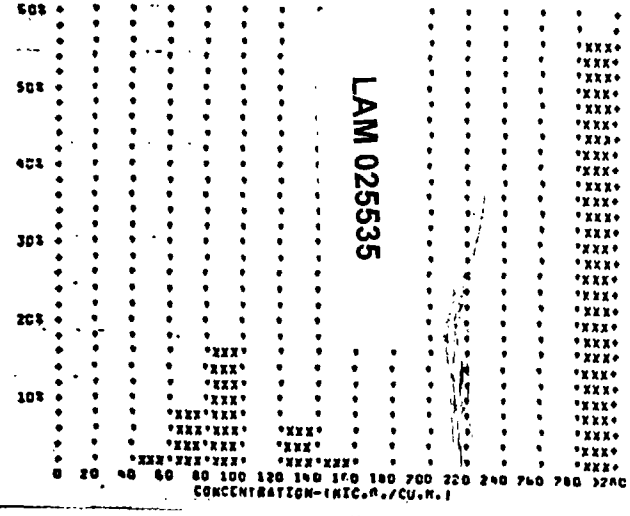


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



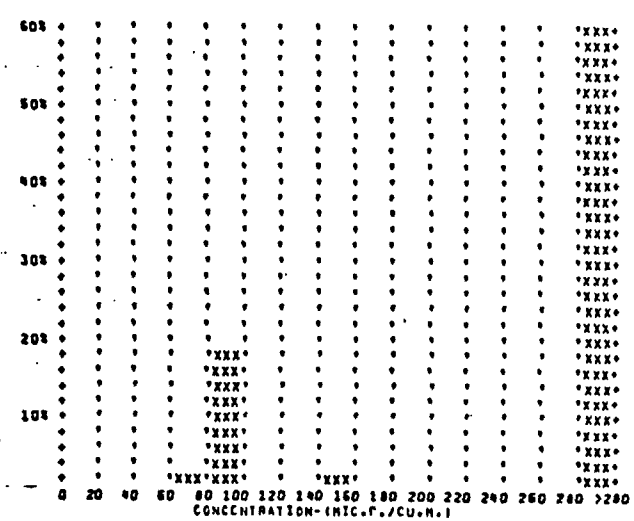
ABS-035540

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

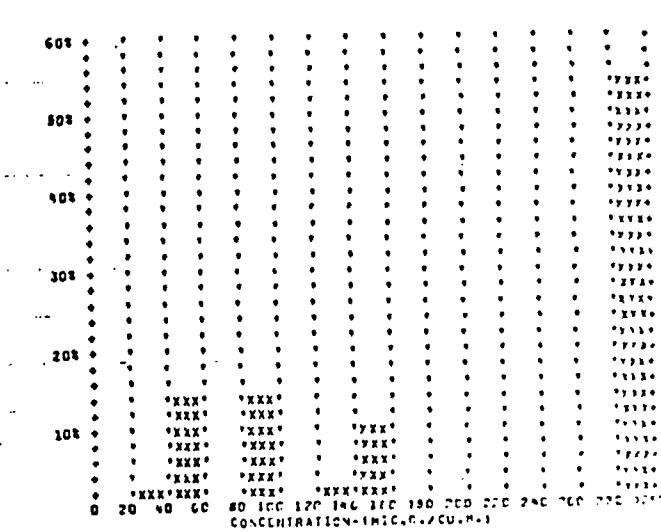


LAM 025535

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

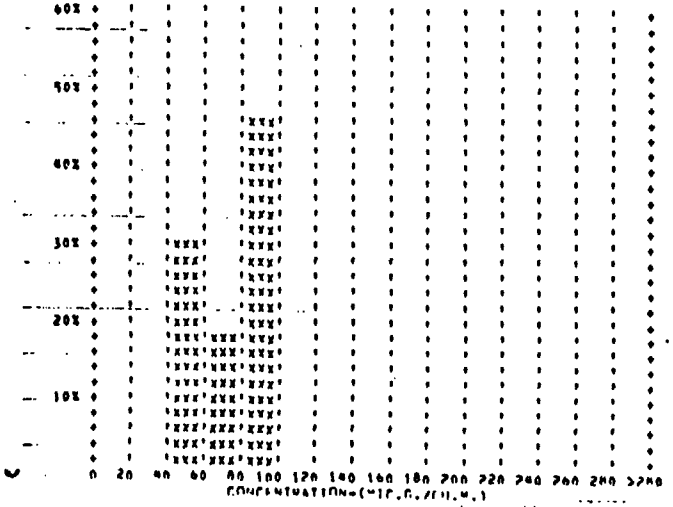


Without suspect data points
(used in analysis)

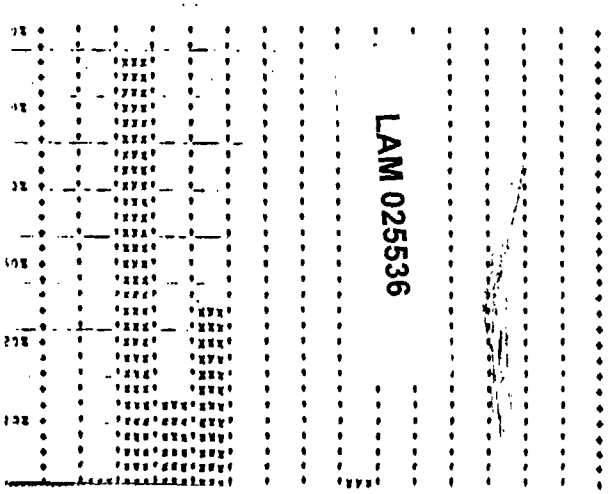
CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	25	71.5	19.3
NNE	44	61.0	24.5
NE	93	57.1	24.6
ENE	53	72.3	29.5
E	47	59.1	20.6
ESE	57	57.3	14.5
SE	141	49.4	16.0
SSE	111	66.7	25.2
S	204	68.4	35.1
SSW	16	74.5	40.8
SW	26	84.5	19.4
WSW	27	91.1	32.3
W	21	84.9	32.9
WNW	20	89.0	26.8
NW	9	85.0	8.0

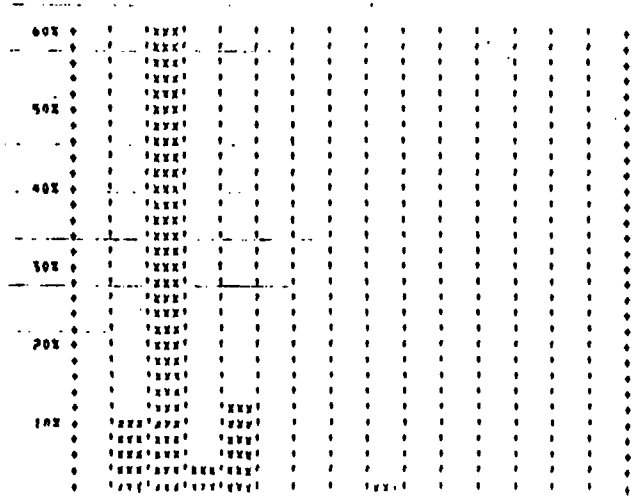
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



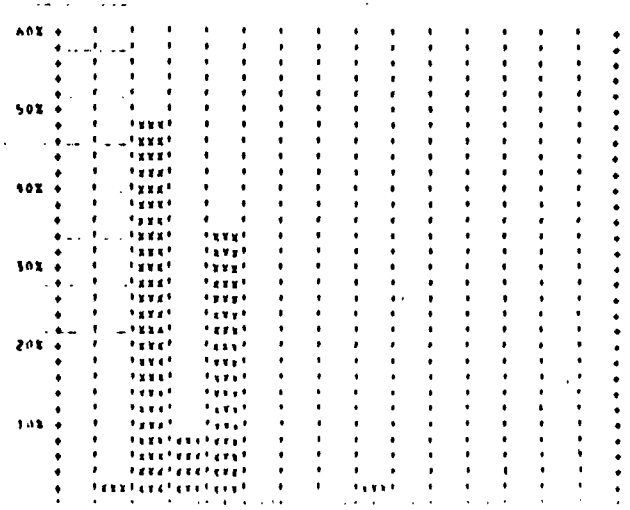
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

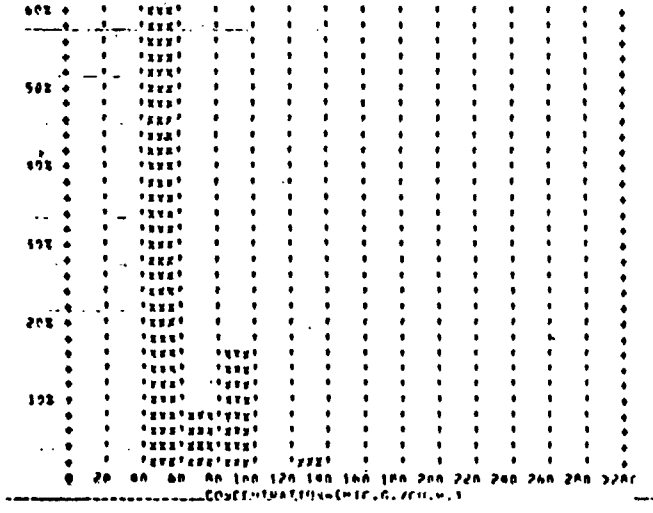


ABS-035541

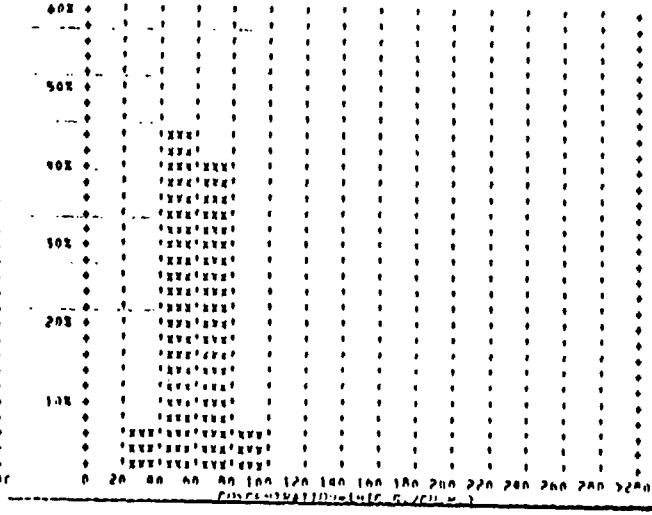
LAM 025536

ABS-035542

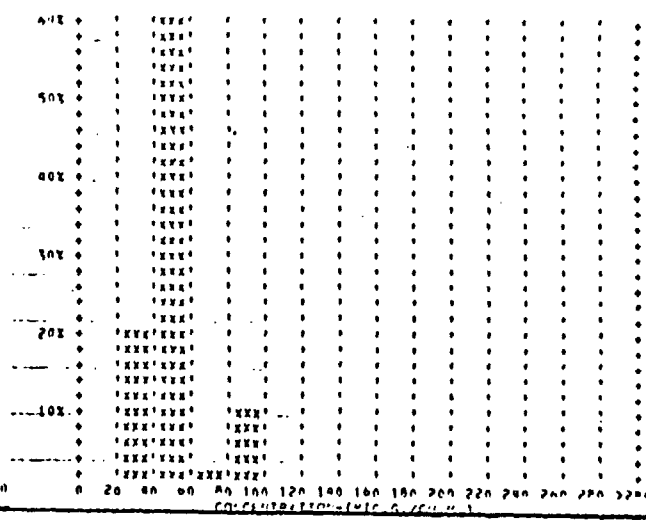
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



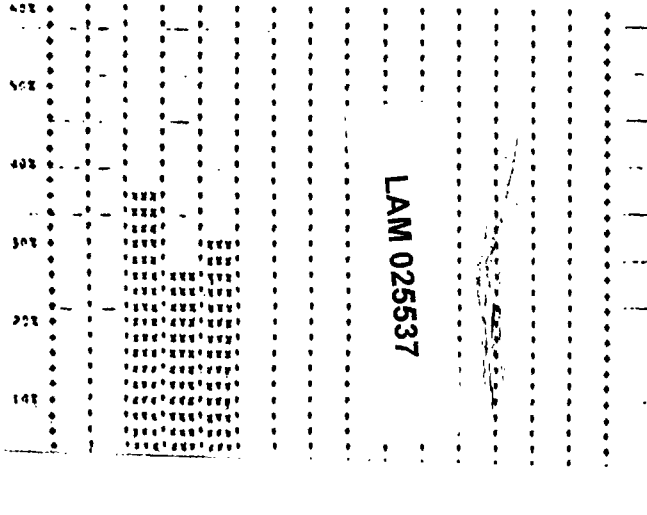
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



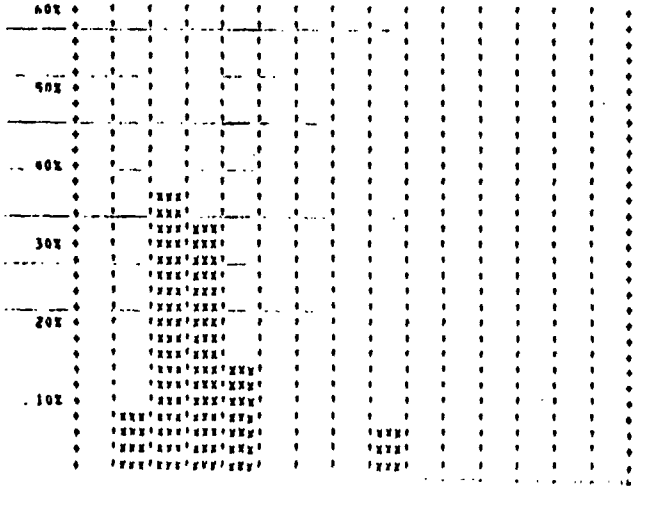
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



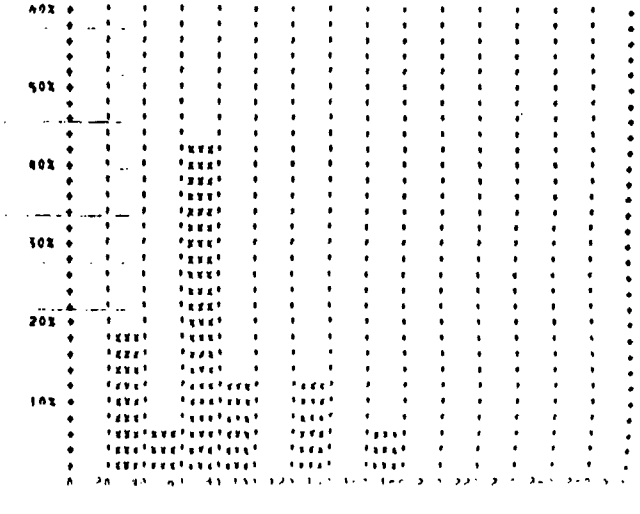
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



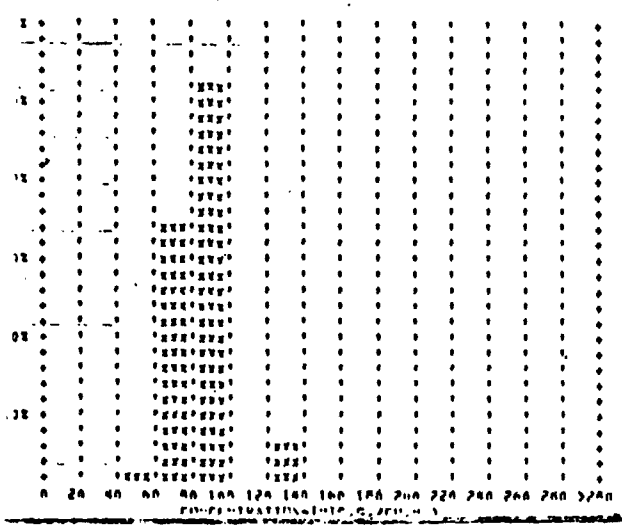
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



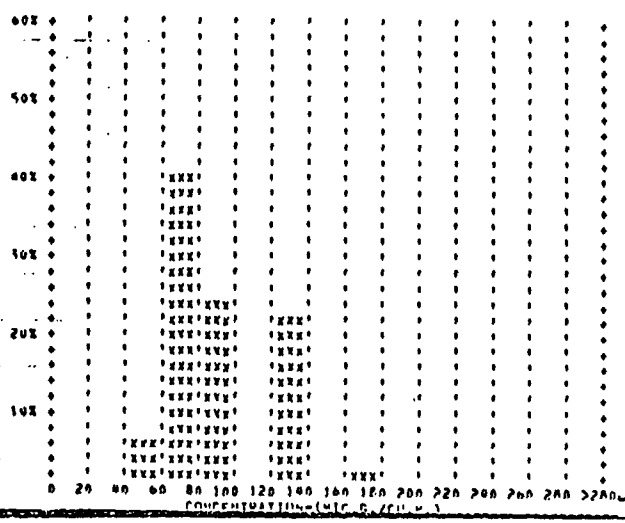
LAM 025537

ABS-035543

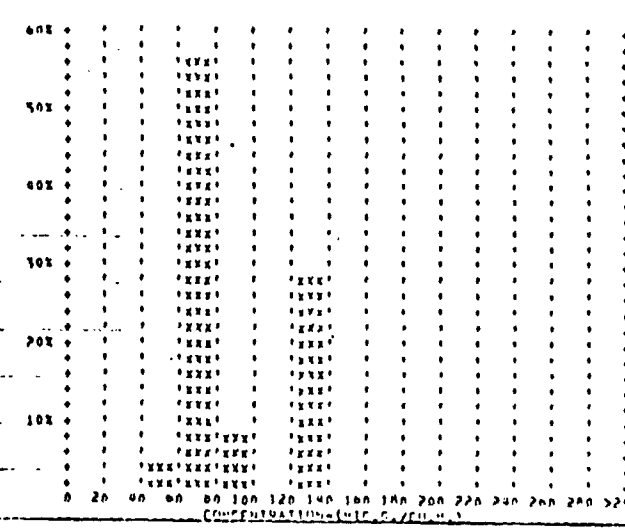
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART, CONC,



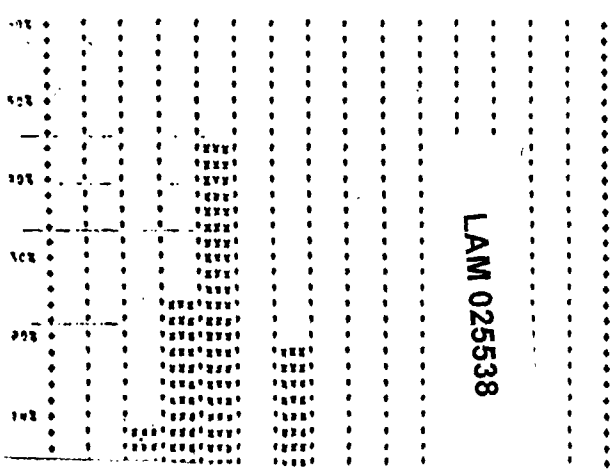
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART, CONC,



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART, CONC,

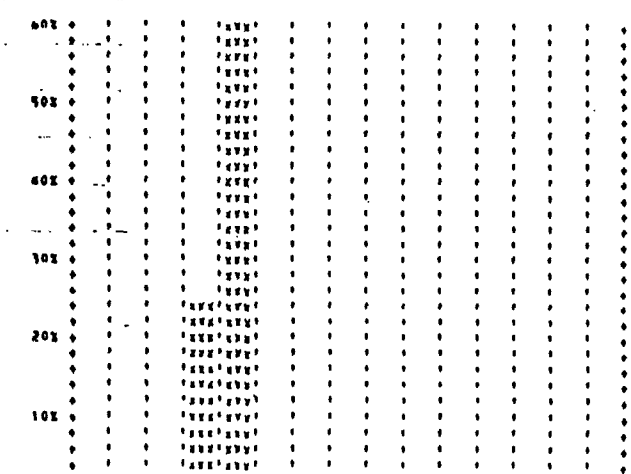


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART, CONC,

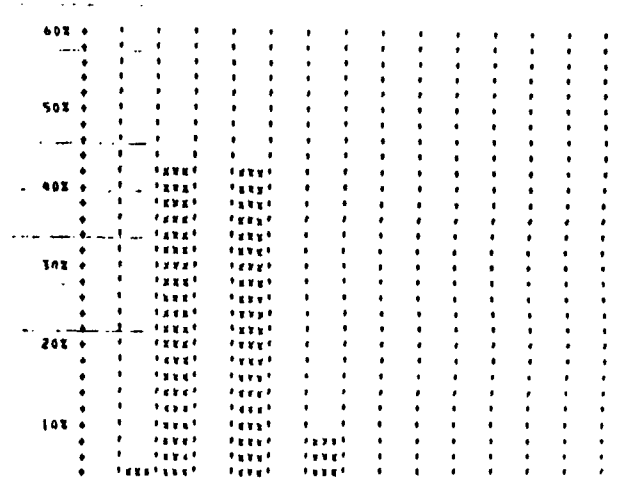


LAM 02538

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART, CONC,



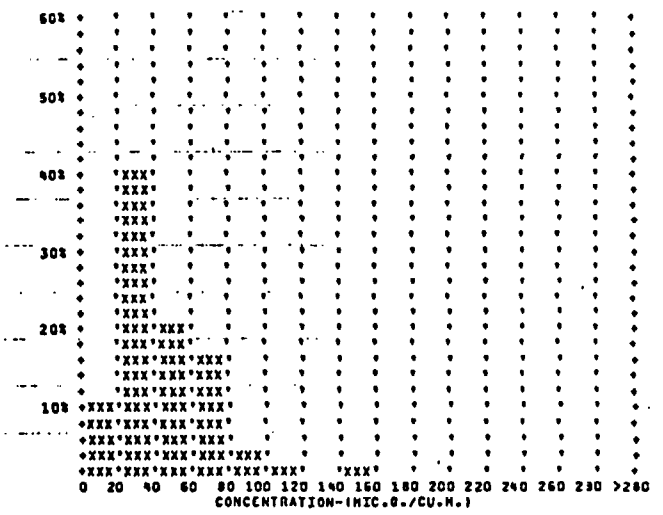
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1973 TO DECEM, 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART, CONC,



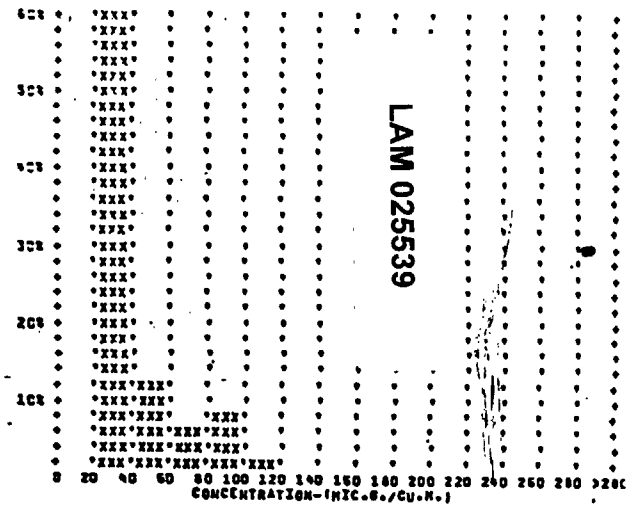
CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	103	96.4	26.6
NNE	43	91.5	21.8
NE	99	89.8	21.4
ENE	94	82.6	21.8
E	59	80.6	21.7
ESE	83	90.0	13.9
SE	153	87.2	22.0
SSE	99	92.1	24.9
S	196	94.1	33.8
SSW	13	92.5	47.2
SW	24	119.0	54.1
WSW	39	106.3	41.8
W	49	92.9	24.0
WNW	50	90.1	37.4
NW	26	82.4	28.1
NNW	66	90.4	26.3

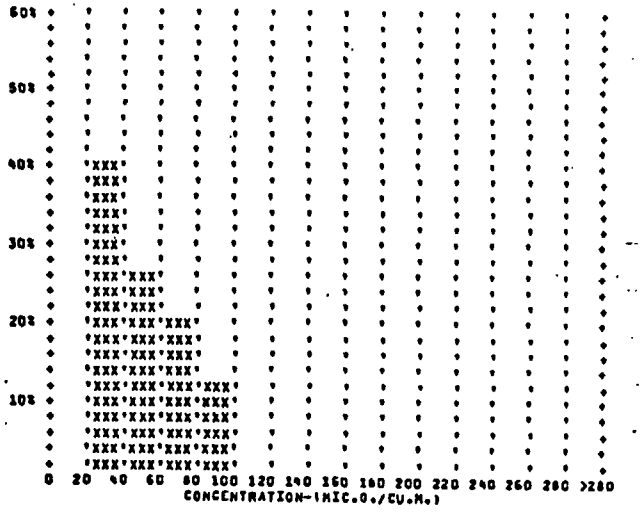
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



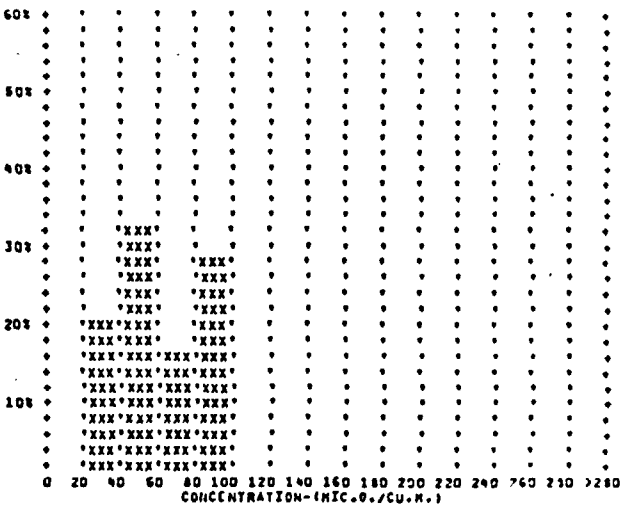
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.

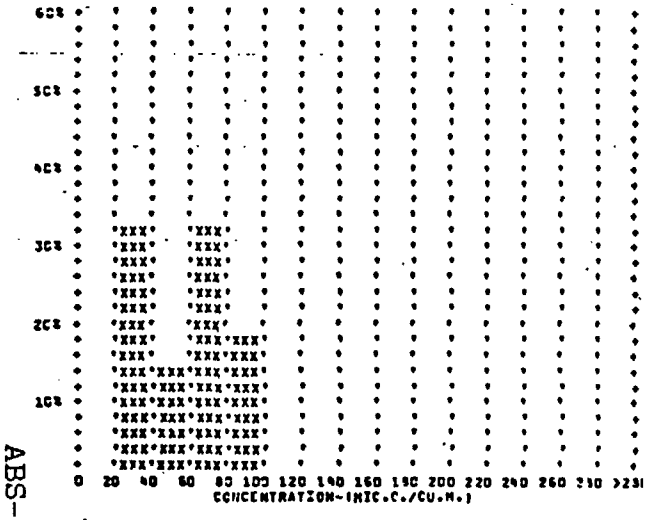


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

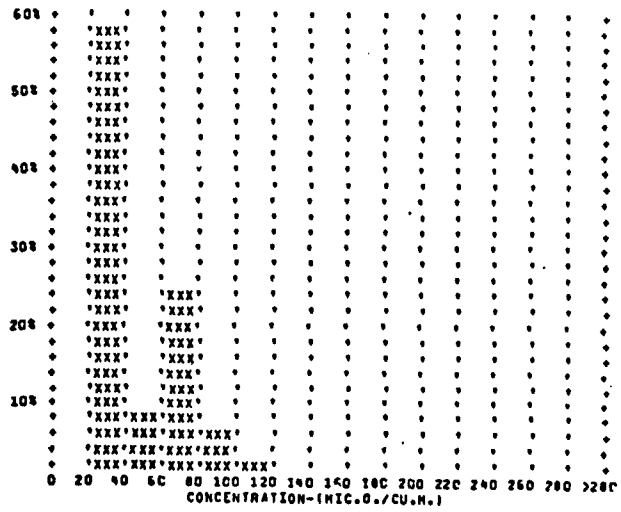


ABS-035544
LAM 025539

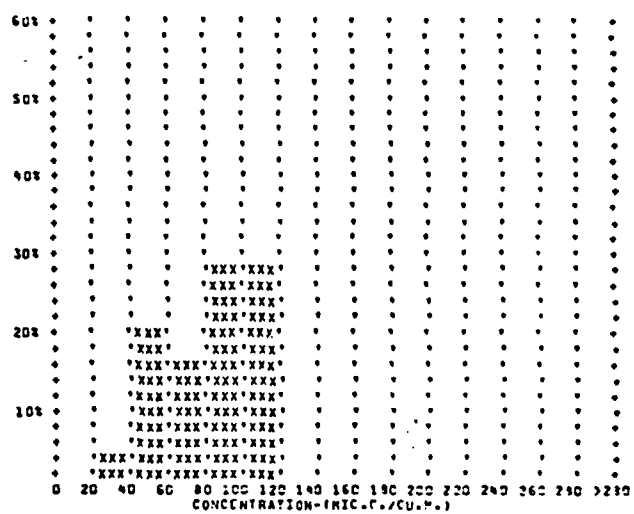
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



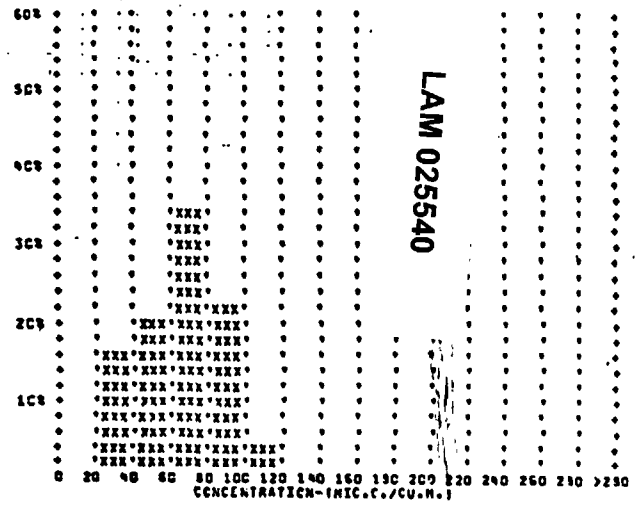
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



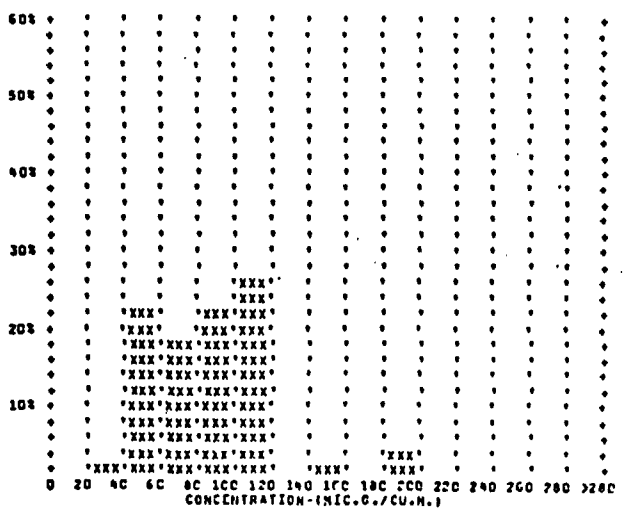
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



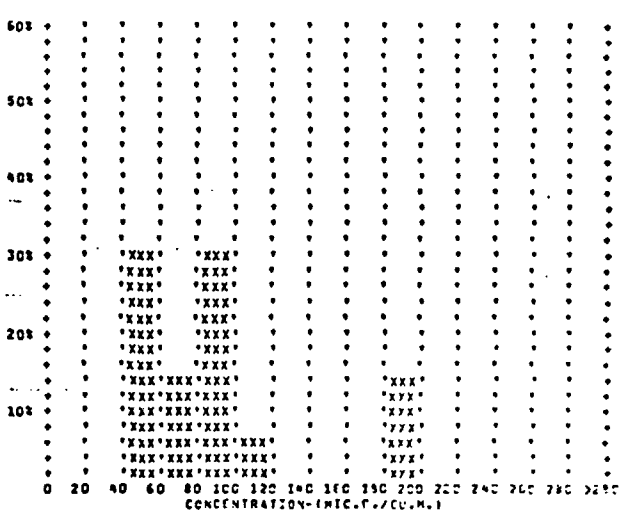
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

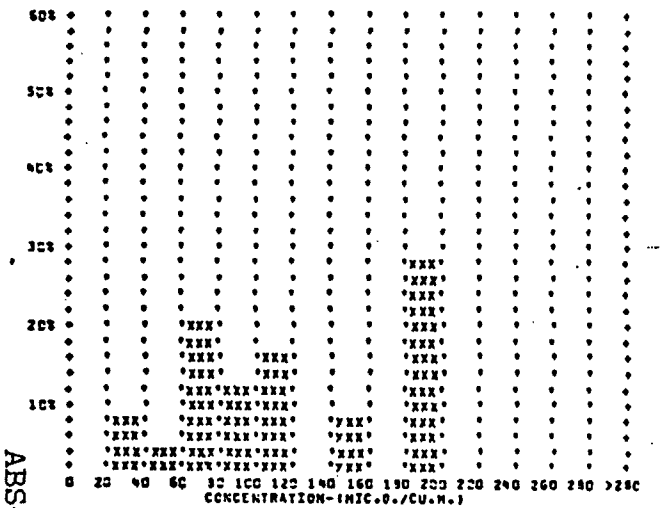


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

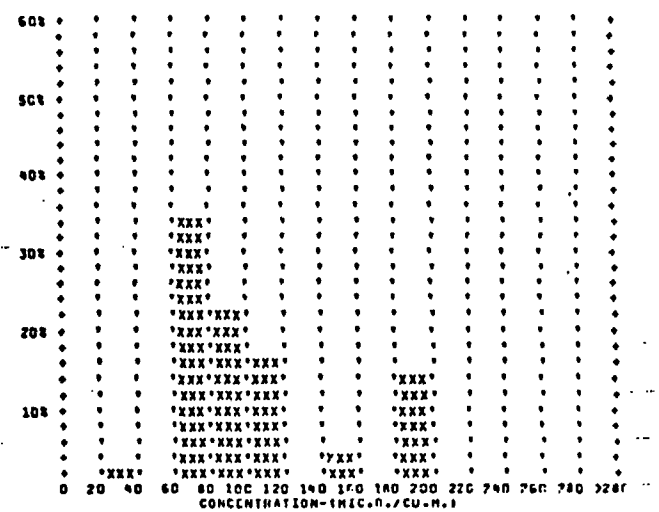


ABS-035545
LAM 025540

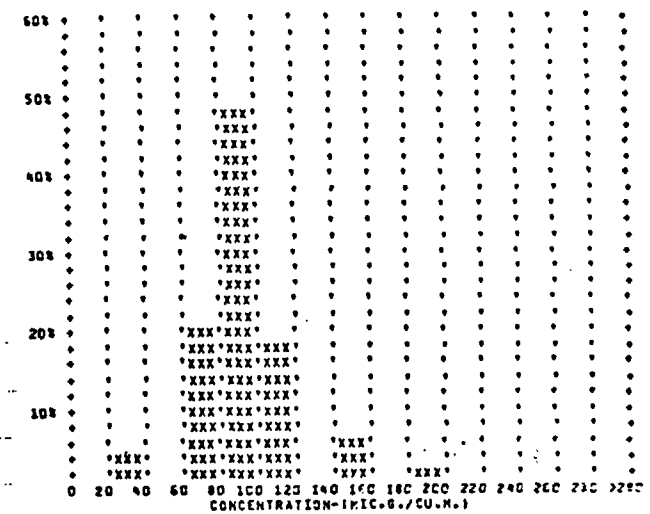
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.

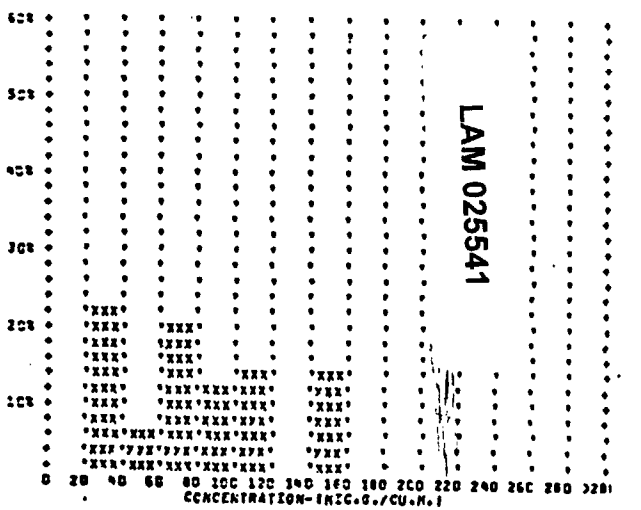


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



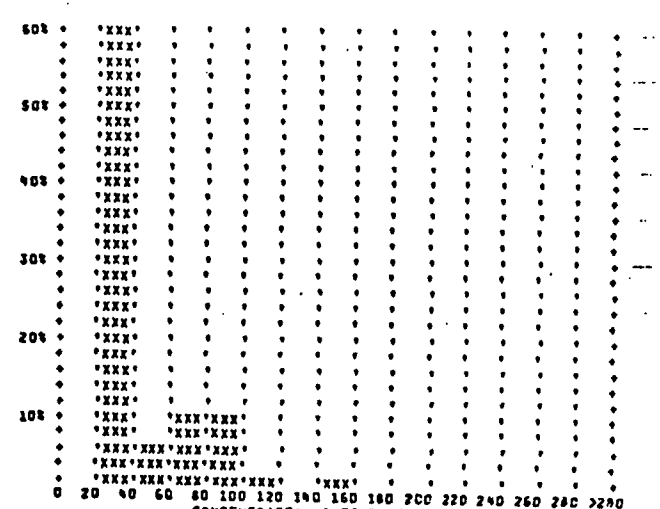
ABS-035546

CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

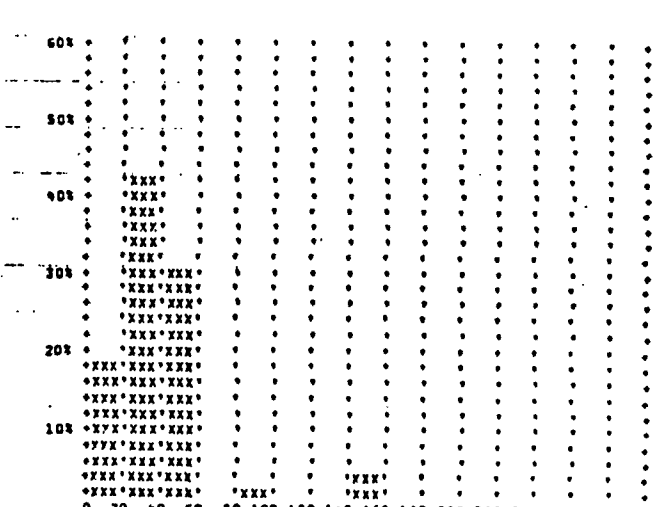


LAM 025541

CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



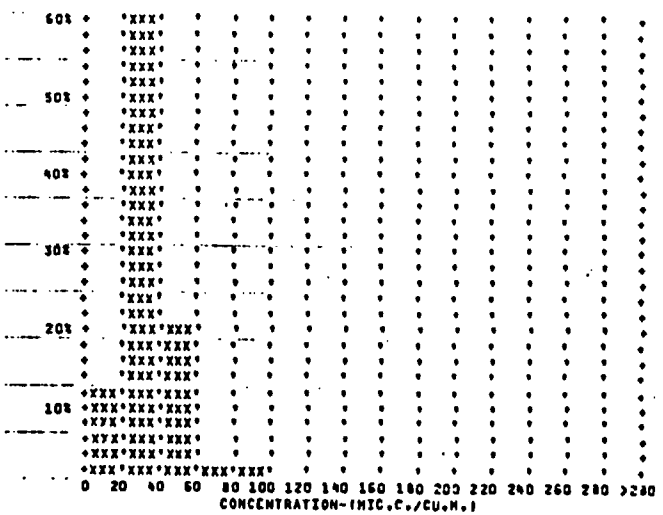
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



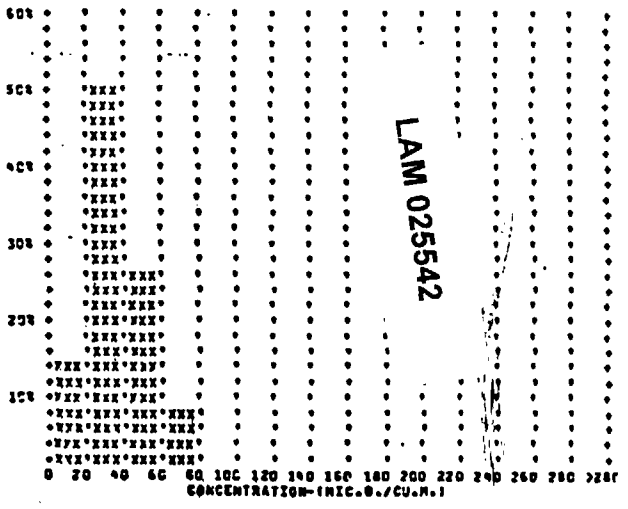
CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1973 TO DECEM. 31, 1973

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	115	37.3	15.5
NNE	80	35.4	15.5
NE	121	41.7	12.7
ENE	66	49.1	10.9
E	61	41.2	12.7
ESE	86	40.0	9.6
SE	163	52.0	20.4
SSE	128	49.2	22.5
S	249	50.2	15.8
SSW	18	47.6	14.7
SW	34	59.3	18.0
WSW	45	63.3	16.1
W	62	55.2	18.0
WNW	66	60.0	20.7
NW	29	42.9	17.1
NNW	80	37.8	18.7

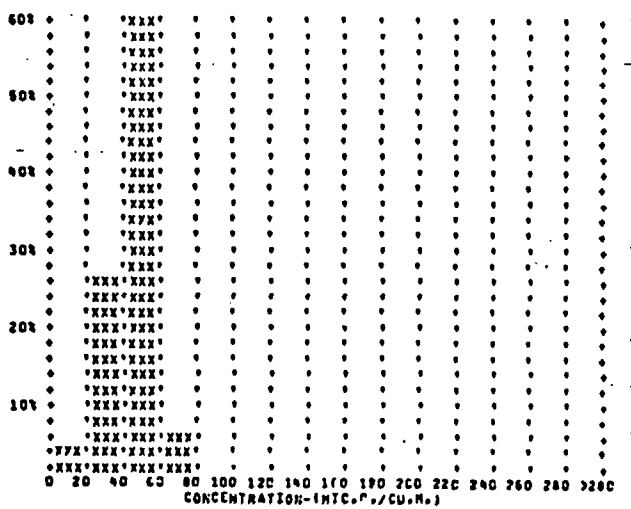
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



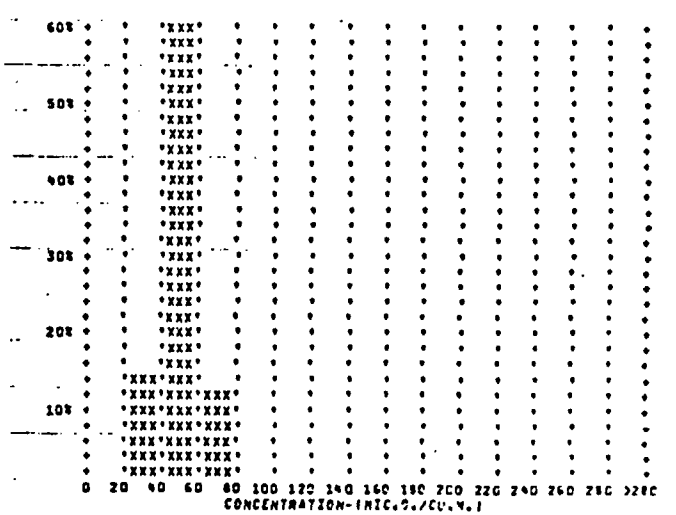
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



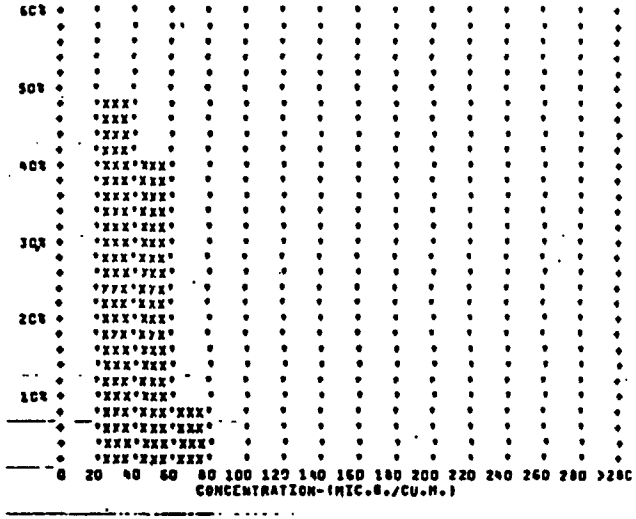
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



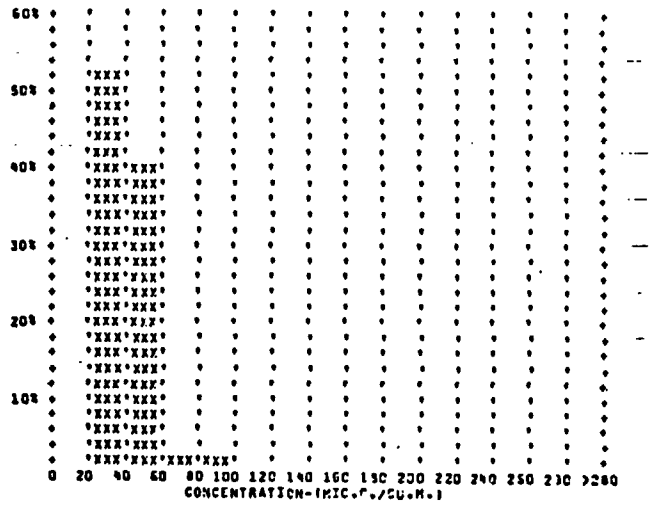
ABS-035547
LAM 025542

ABS-035548

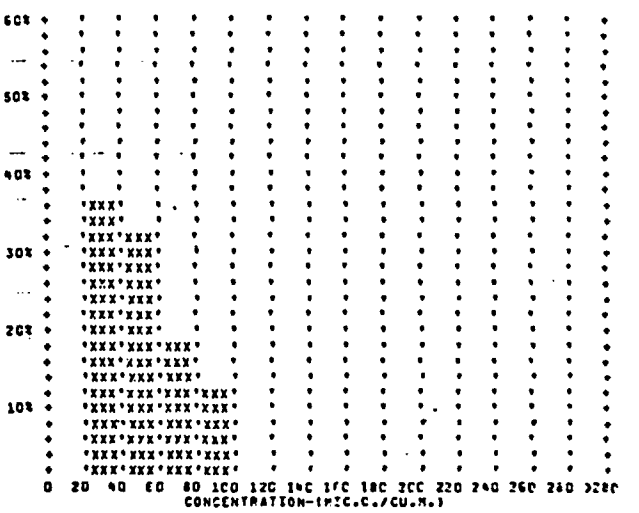
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



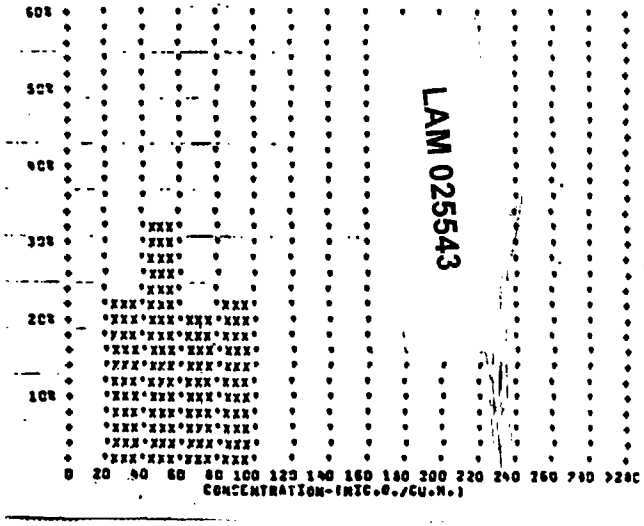
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

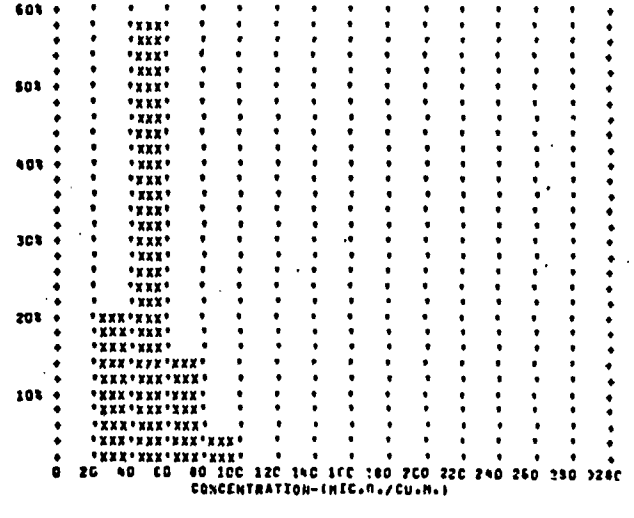


CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

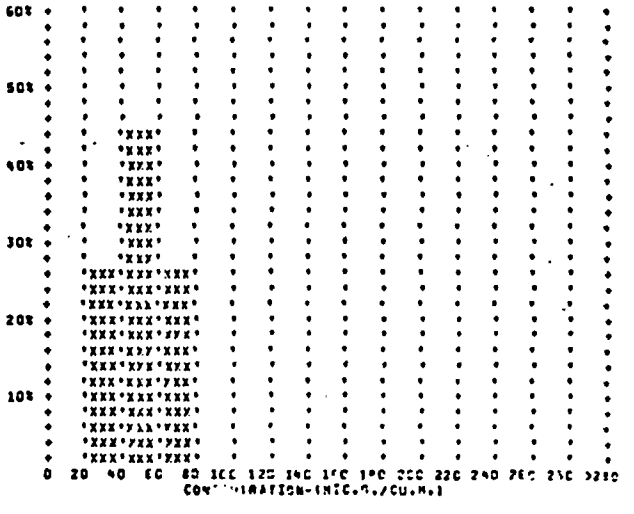


LAM 025543

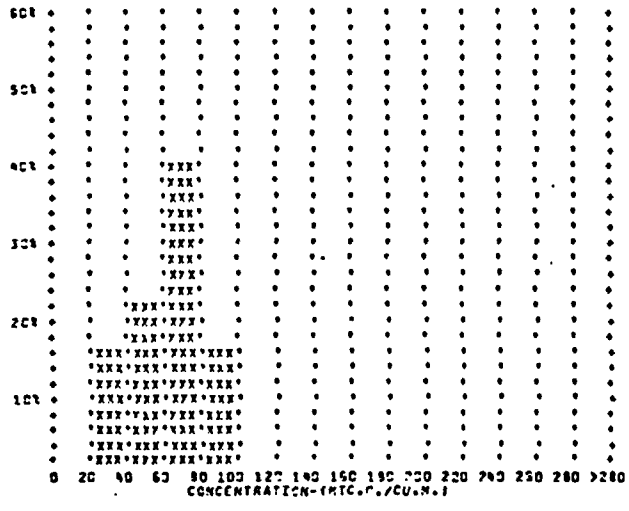
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



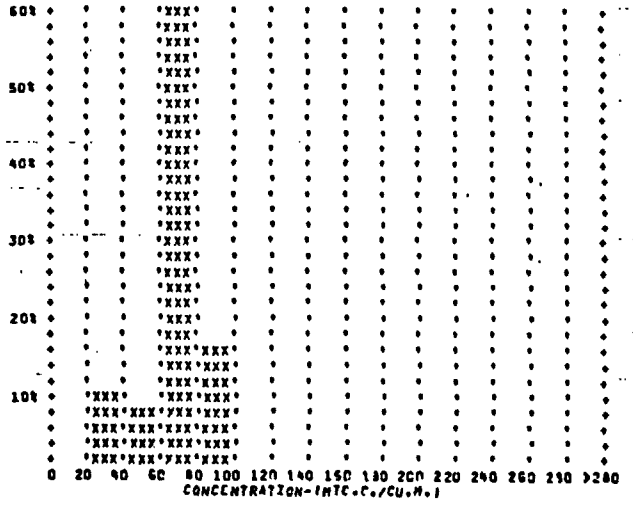
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



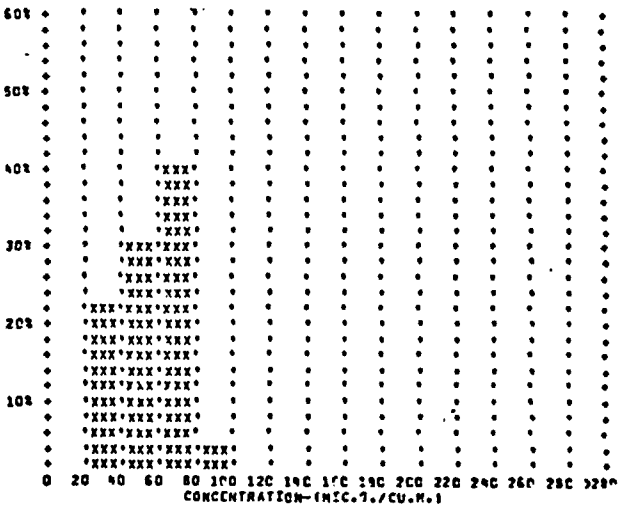
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



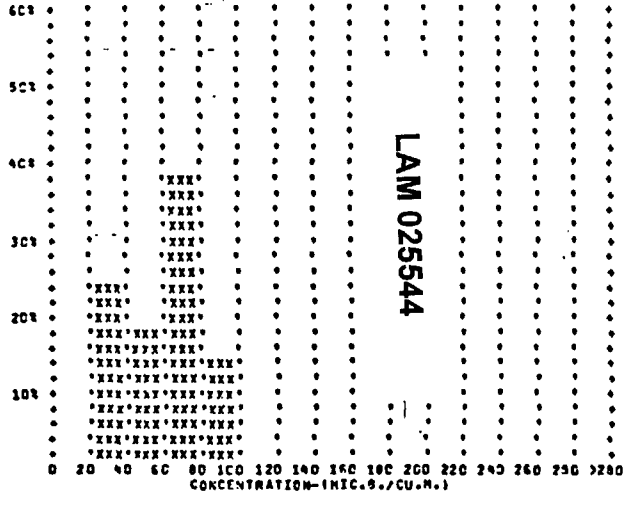
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



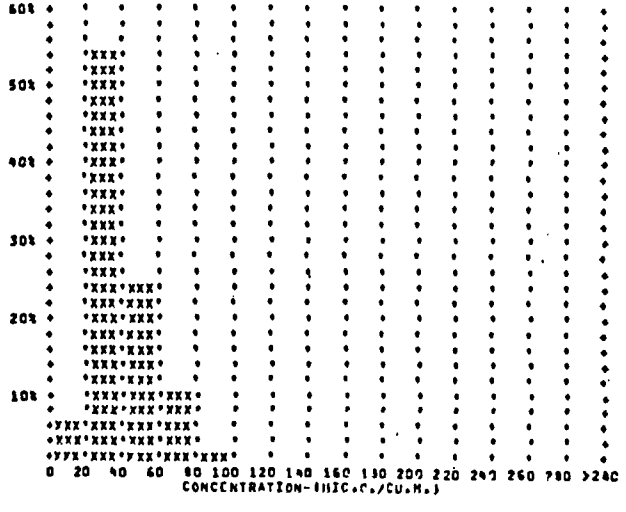
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



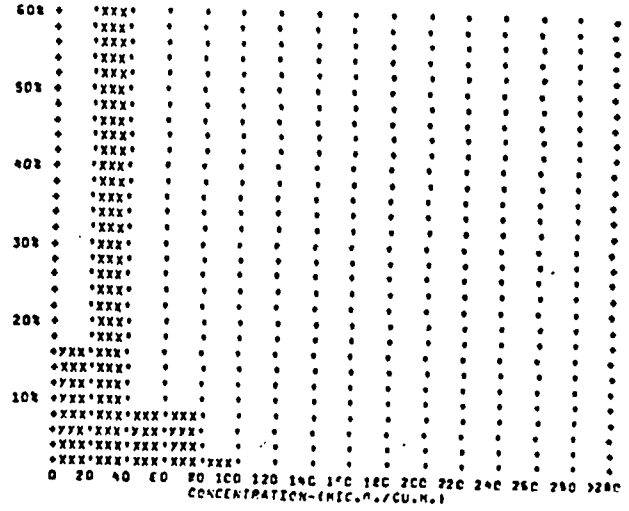
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1973 TO DECEM. 31, 1973
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



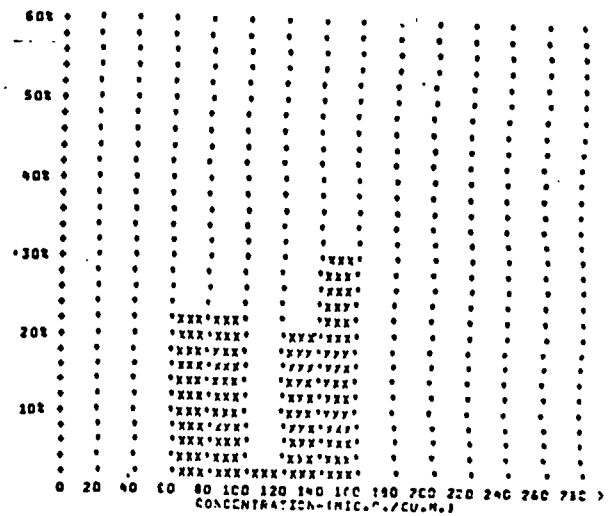
LAM 025544

ABS-035549

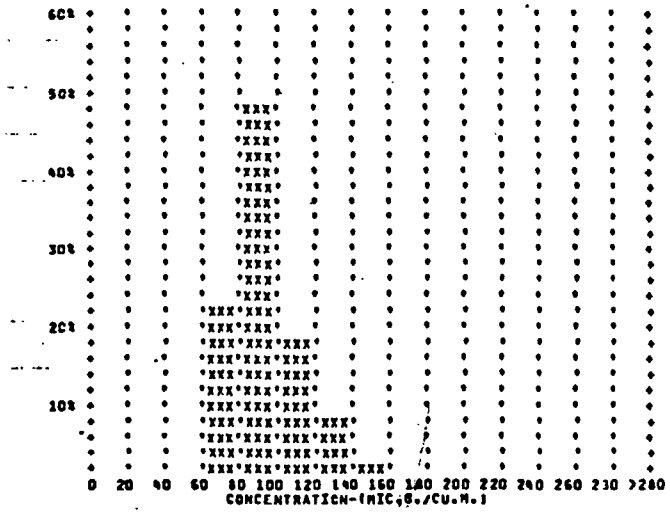
CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1974 TO DECEMBER 31,1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	120	109.2	30.4
NNE	81	97.1	33.0
NE	66	93.5	36.2
ENE	45	101.3	28.3
E	52	101.9	27.7
ESE	81	97.7	28.5
SE	108	72.6	29.1
SSE	75	66.4	22.8
S	179	69.9	25.6
SSW	39	74.4	30.1
SW	36	69.9	16.5
WSW	14	93.6	27.6
W	27	103.4	27.0
WNW	38	103.3	29.8
NW	68	90.1	20.7
NNW	63	111.5	35.2

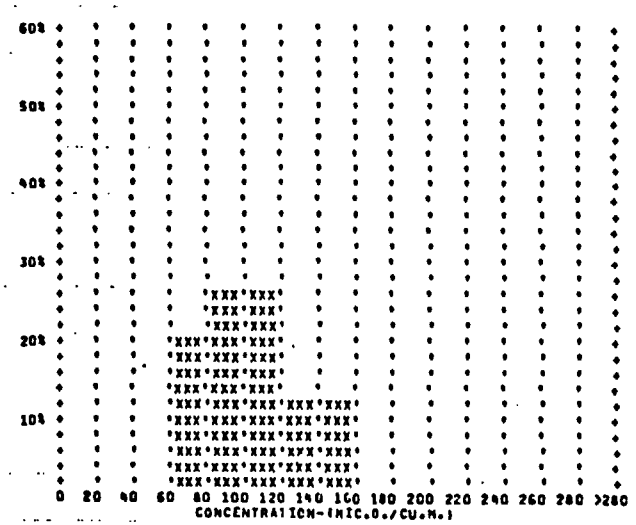
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1,1974 TO DECEMBER 31,1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



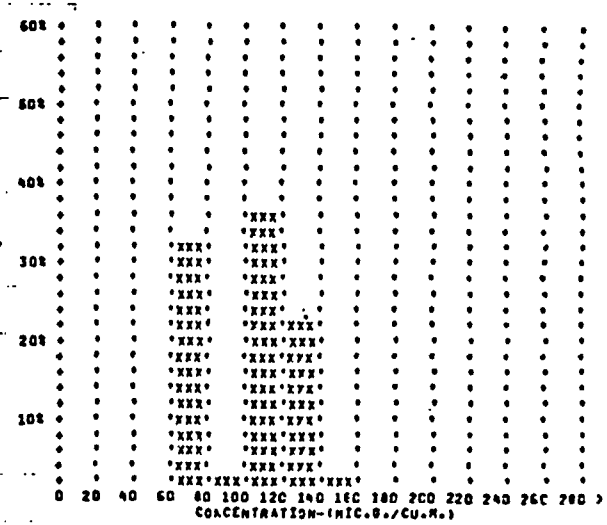
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1,1974 TO DECEMBER 31,1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1,1974 TO DECEMBER 31,1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



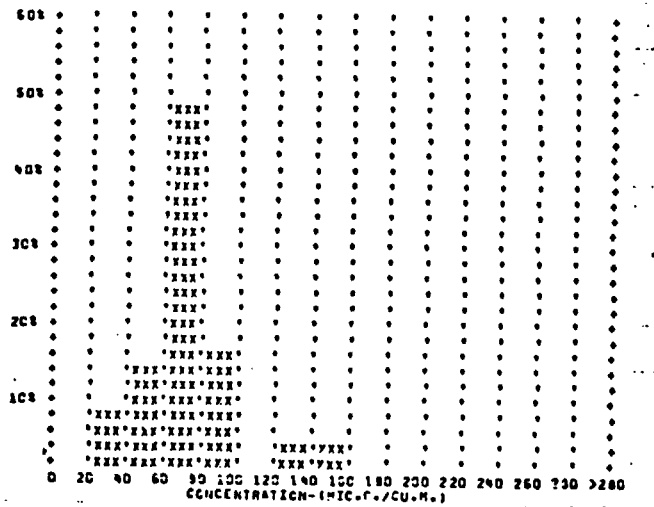
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1,1974 TO DECEMBER 31,1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



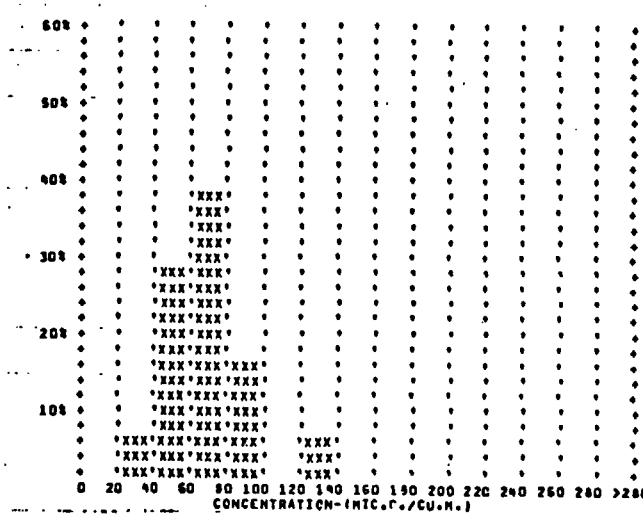
LAM 025545

ABS-035550

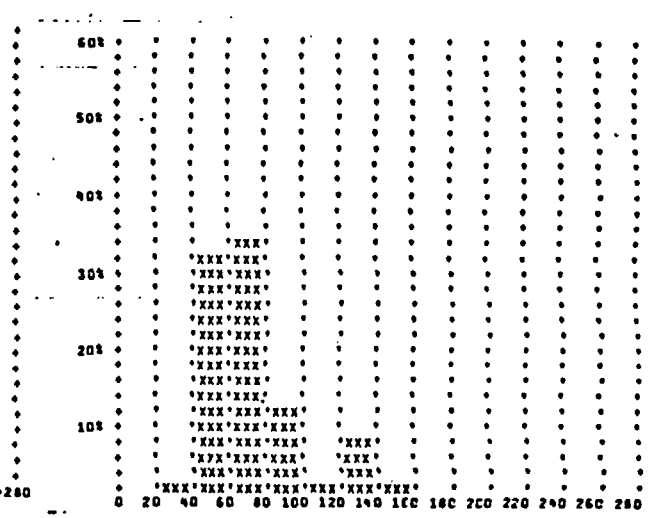
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



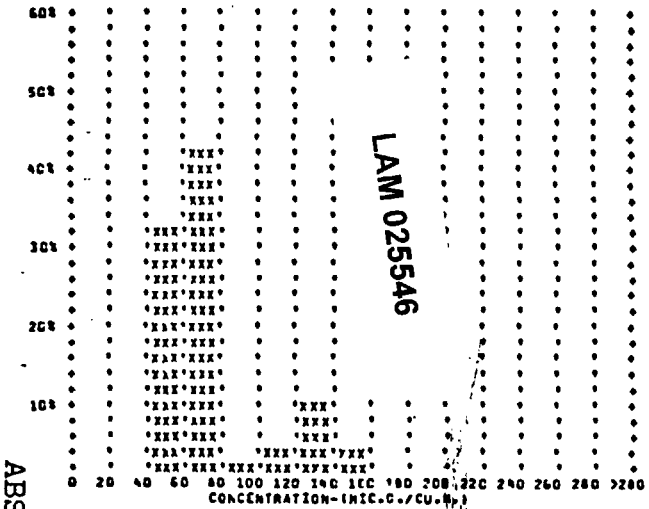
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



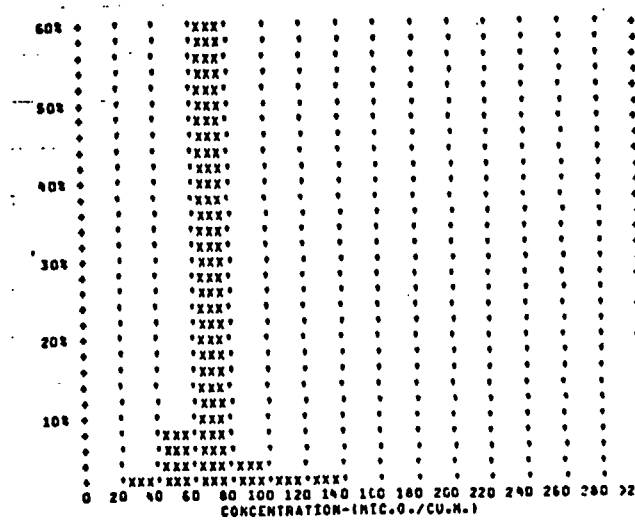
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



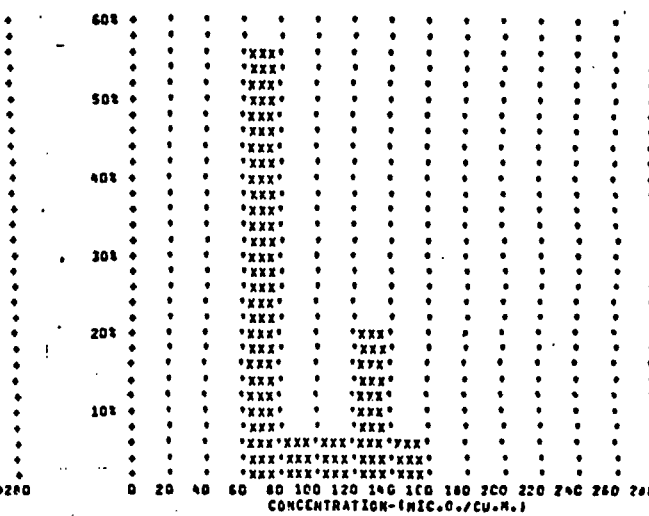
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



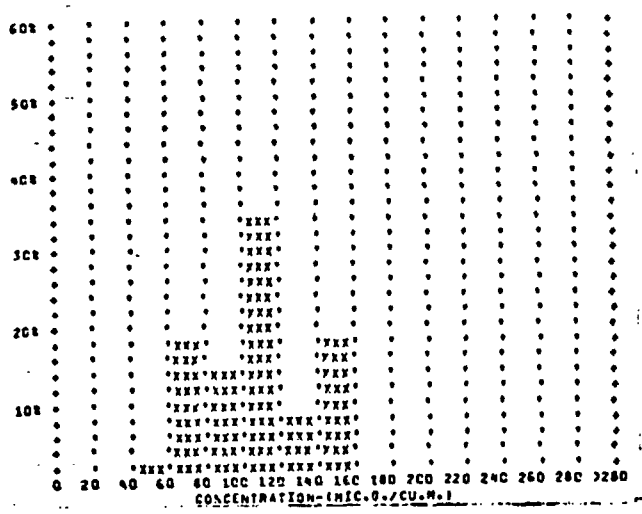
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



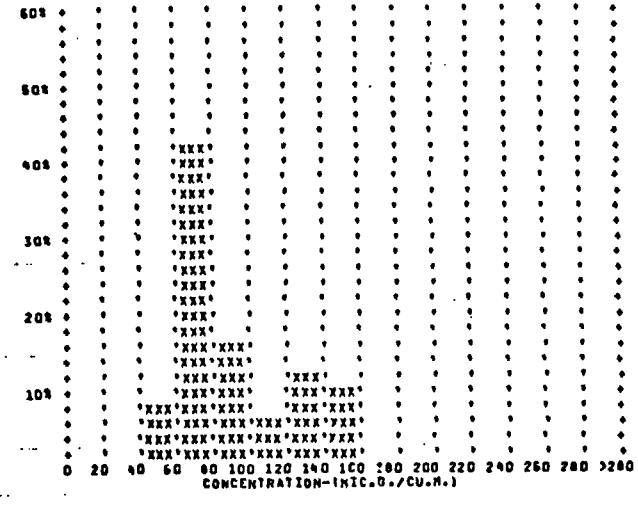
LAM 025546

ABS-035551

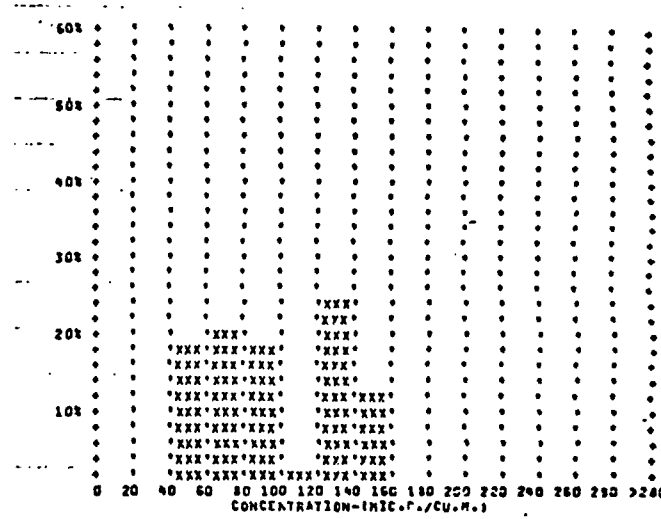
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



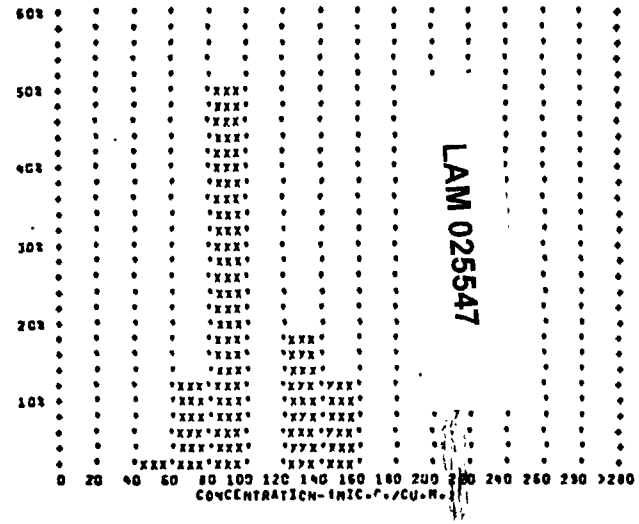
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



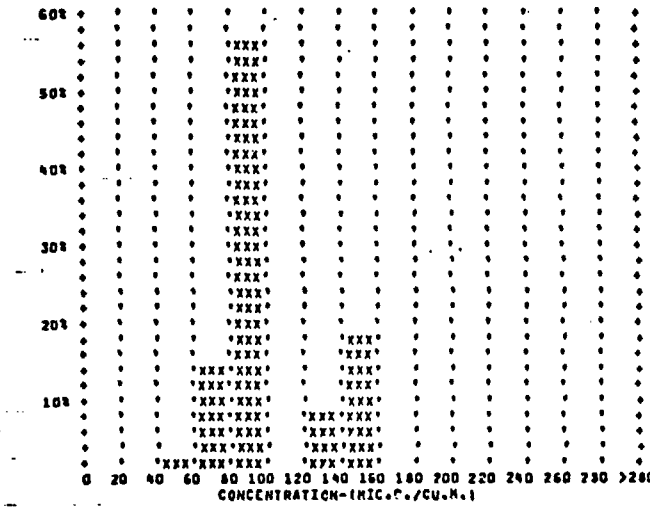
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



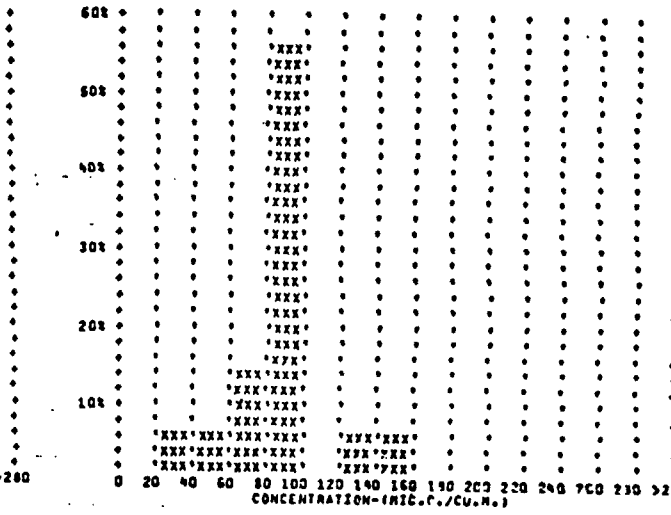
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1:1974 TO DECEMBER 31:1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



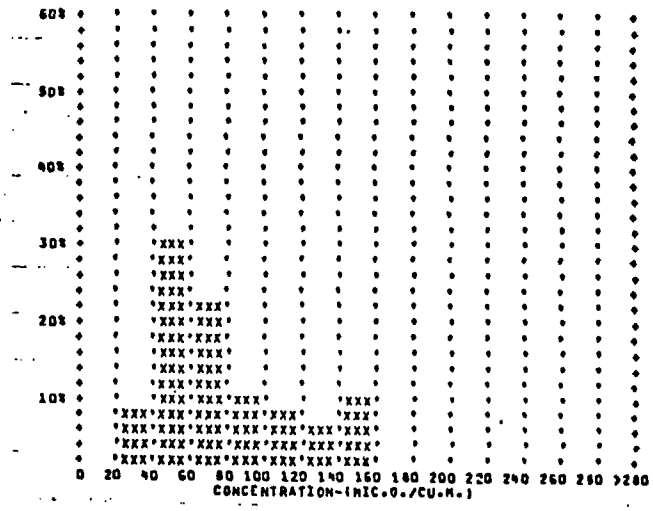
LAM 025547

ABS-035552

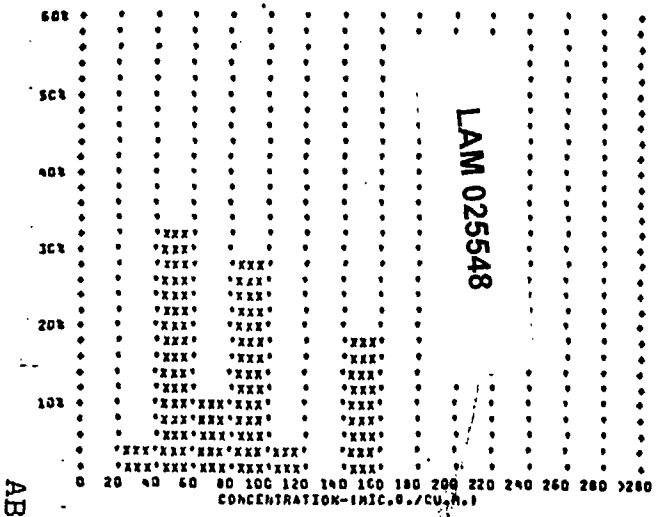
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	135	79.5	36.9
NNE	70	85.7	37.0
NE	80	101.9	35.0
ENE	64	105.7	24.5
E	64	106.3	28.4
ESE	52	101.9	31.3
SE	110	94.8	26.6
SSE	67	97.5	38.1
S	214	102.7	35.8
SSW	60	97.6	28.0
SW	56	91.7	22.5
WSW	31	104.0	34.6
W	48	111.5	40.7
WNW	42	93.7	46.1
NW	65	63.8	42.0
NNW	66	69.6	39.8

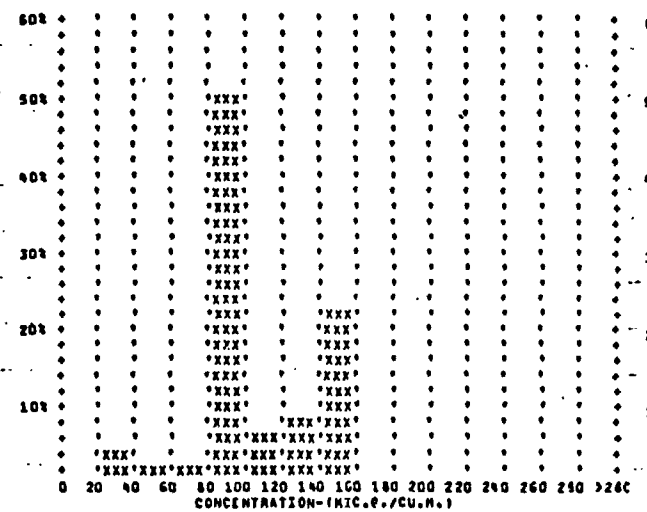
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



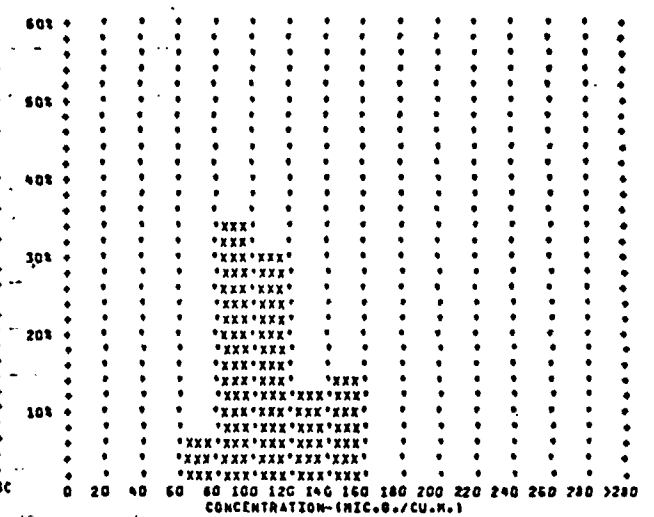
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



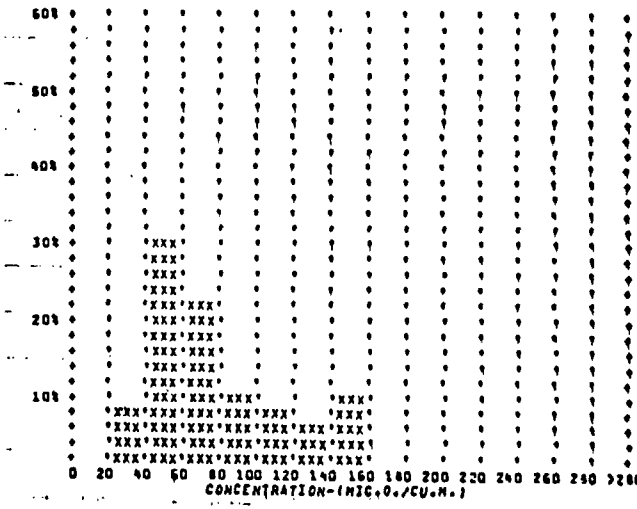
LAM 025548

ABS-035553

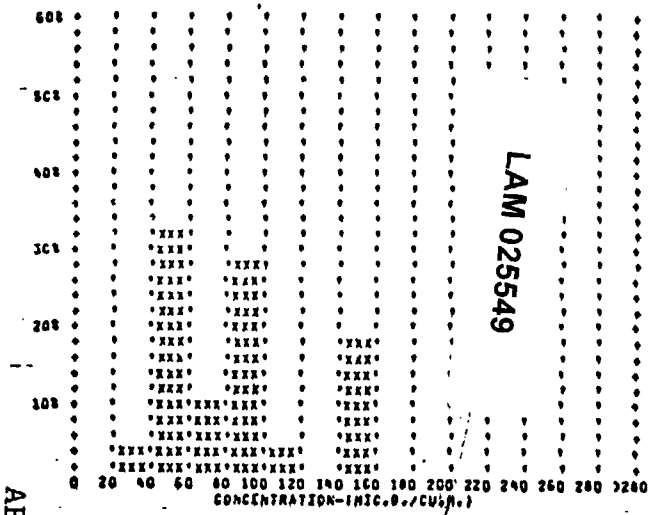
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF MAS.	MEAN	STD. DEV.
N	135	79.5	36.9
NNE	70	85.7	37.0
NE	80	101.9	35.0
ENE	64	105.7	29.5
E	64	106.3	28.4
ESE	52	101.8	31.3
SE	110	94.8	26.6
SSE	67	97.5	28.1
S	214	102.7	35.8
SSW	60	97.4	28.0
SW	56	91.7	22.5
WSW	31	109.0	34.6
W	48	111.5	40.7
WNW	42	93.7	46.1
NW	65	83.8	42.0
NNW	66	89.8	39.8

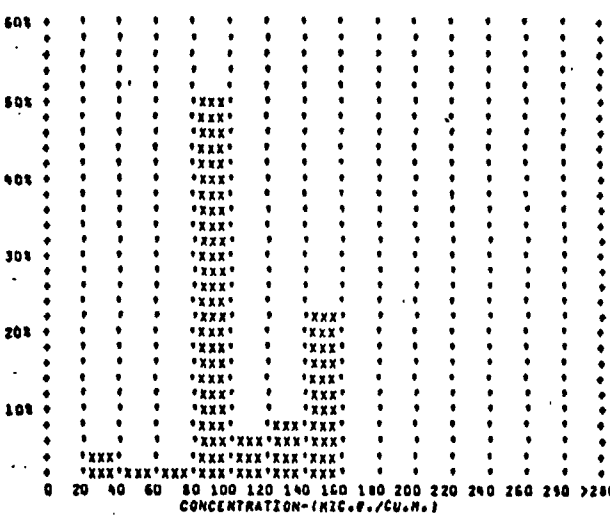
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



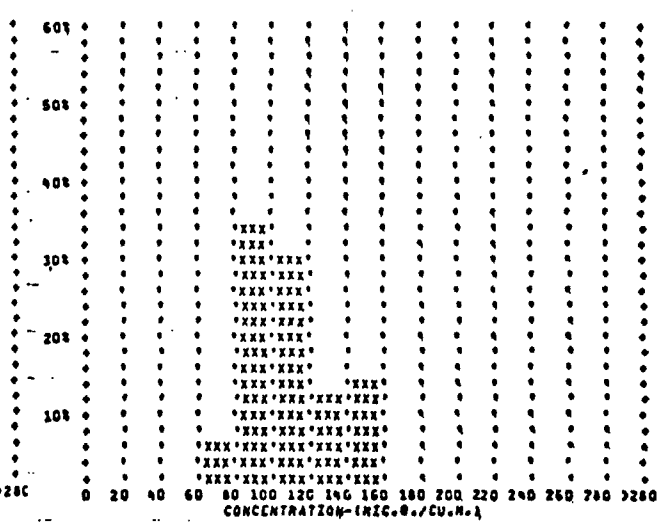
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



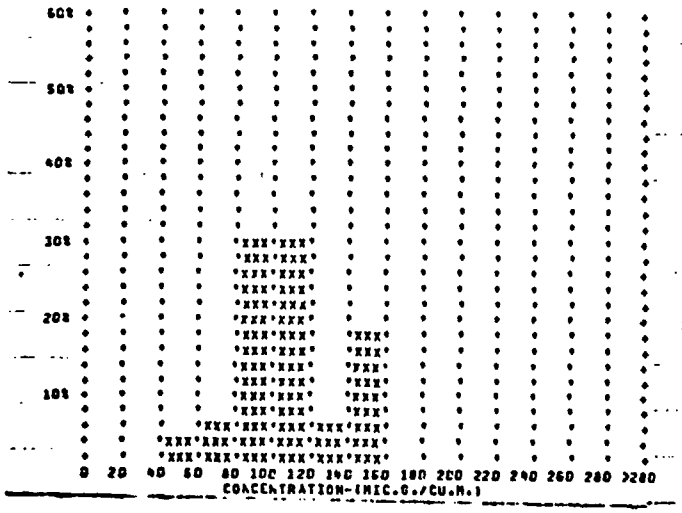
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



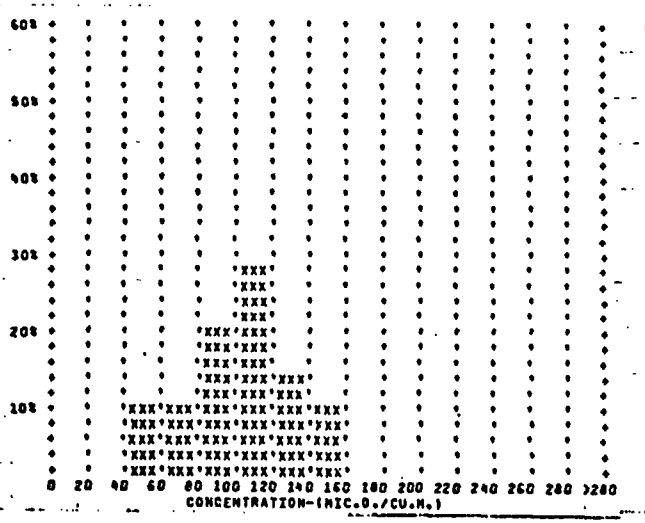
LAM 025549

ABS-035554

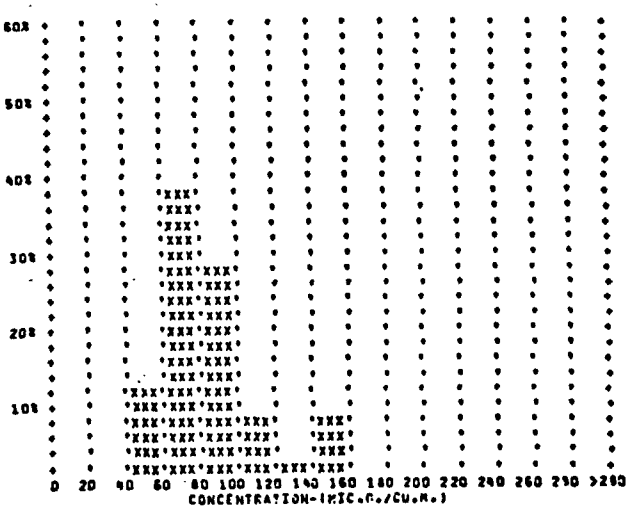
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



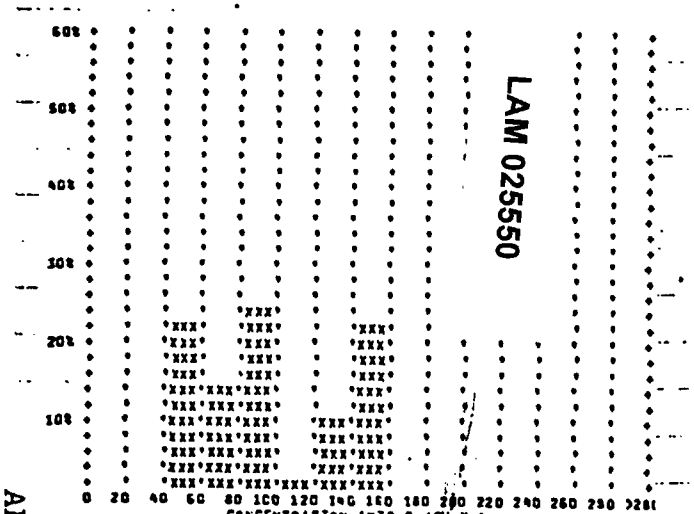
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



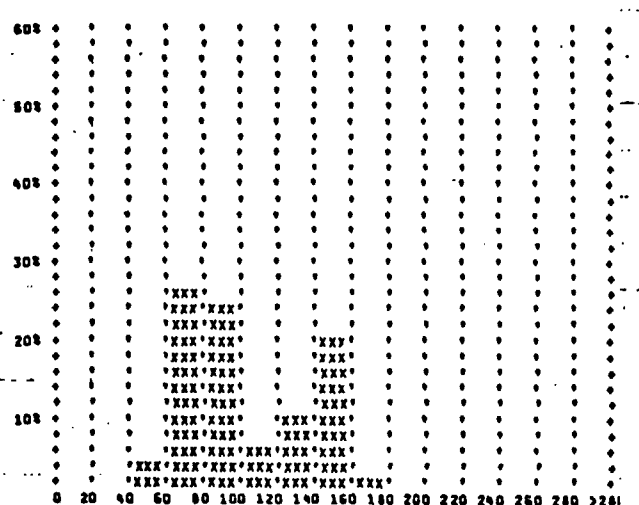
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART.



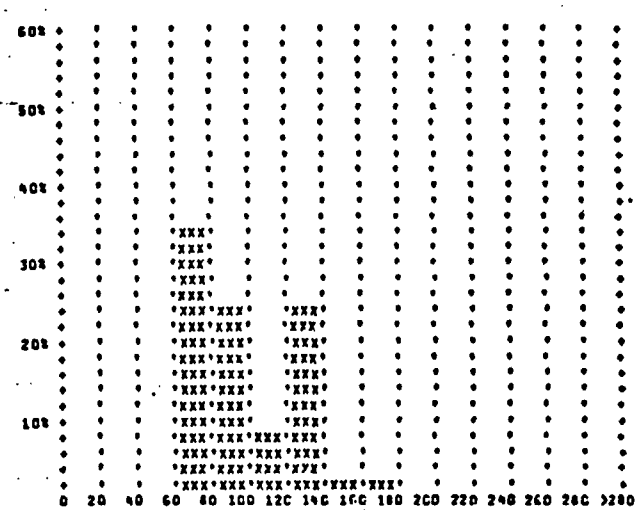
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



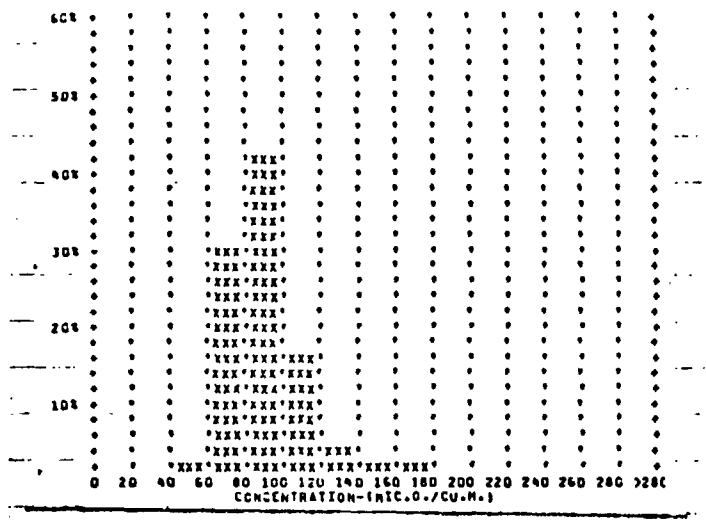
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



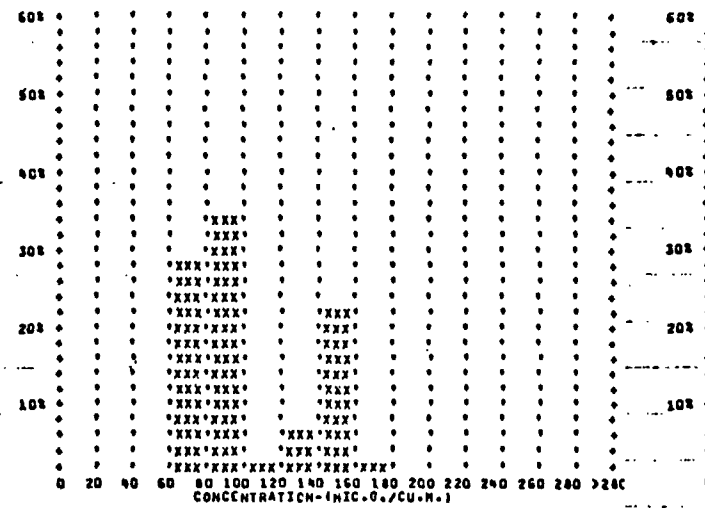
LAM 025550

ABS-035555

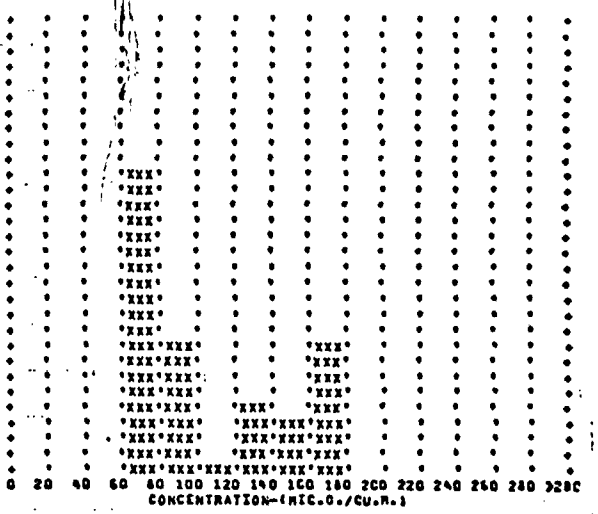
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



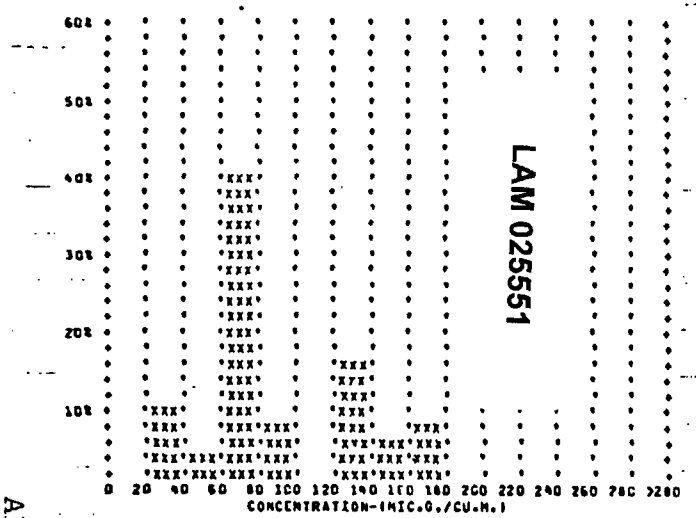
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



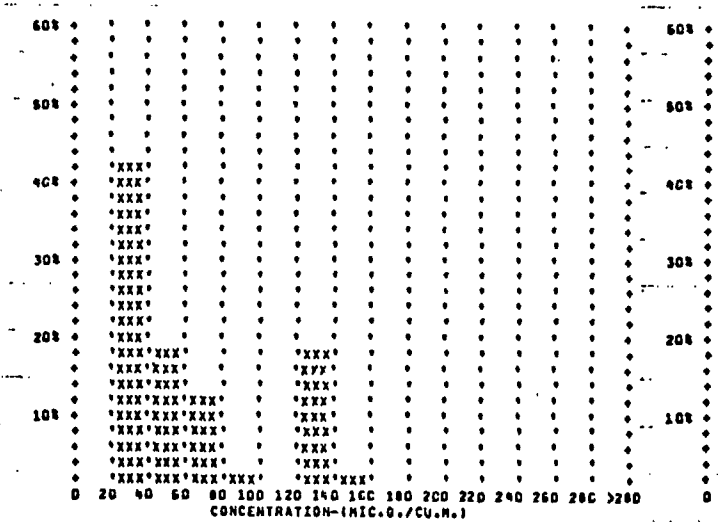
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



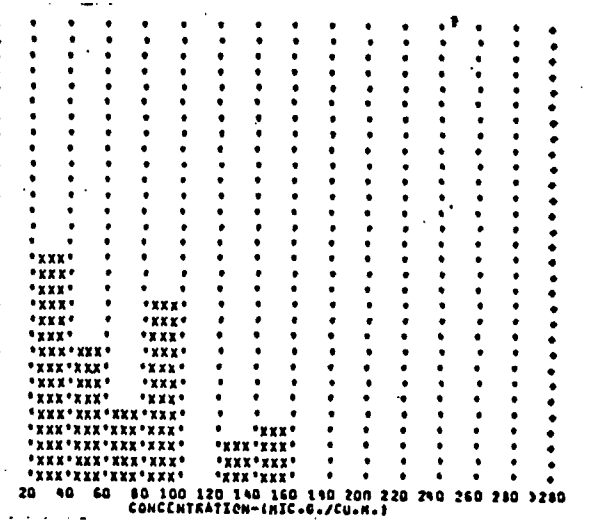
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



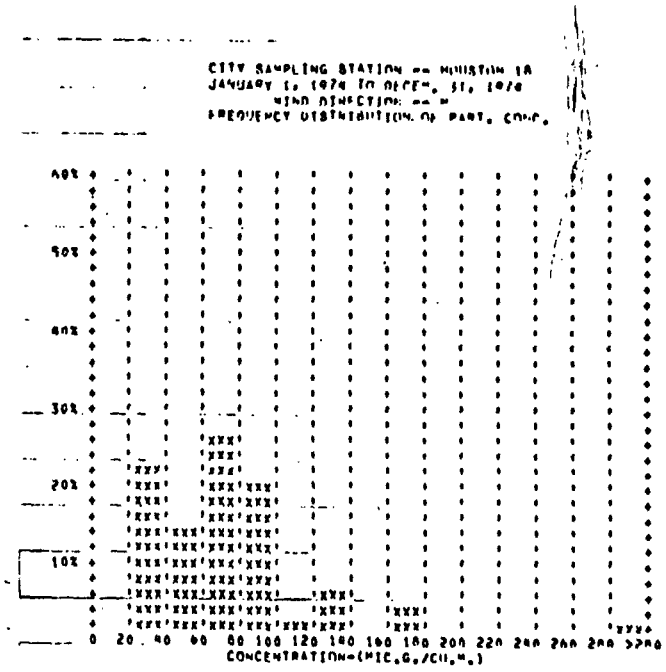
LAM 025551

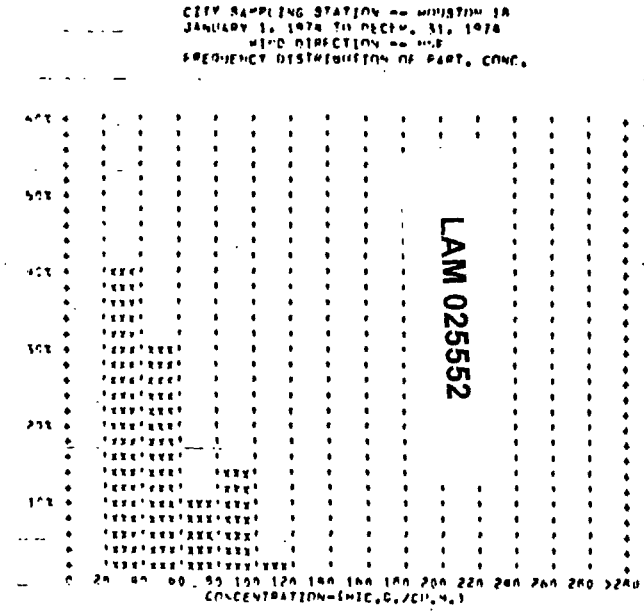
ABS-035556

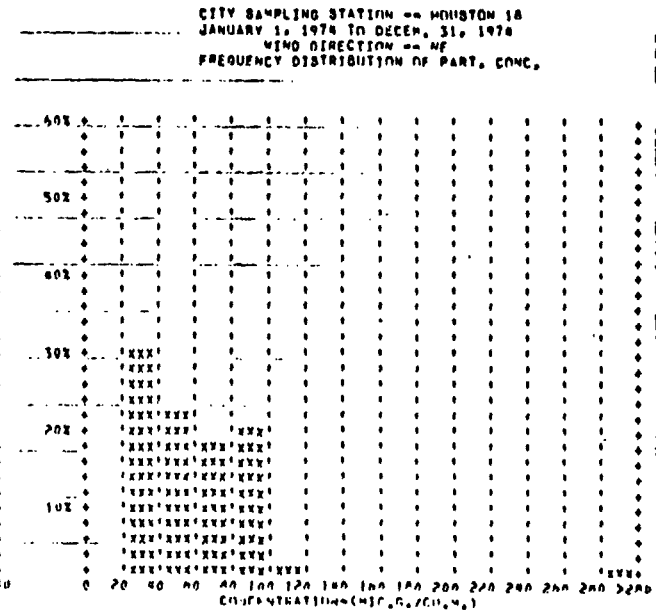
(with suspect data points)
— Not used in analysis —

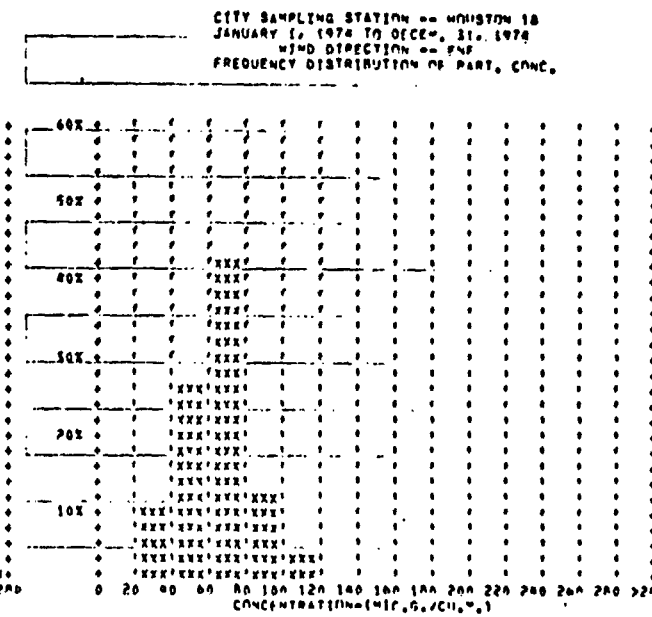
CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF OBS.	MEAN	STD. DEV.
N	109	72.6	44.2
NNE	77	67.2	23.8
NE	80	57.5	40.0
ENE	58	66.3	21.4
E	58	75.9	82.2
ESE	63	65.5	25.1
SE	91	58.9	23.0
SSE	80	58.7	28.9
S	257	73.7	35.7
SSW	82	91.5	59.1
SW	61	70.6	28.4
WSW	32	101.7	75.3
W	65	113.6	77.1
WNW	88	102.8	68.8
NW	78	101.9	70.3
NNW	57	95.9	67.7





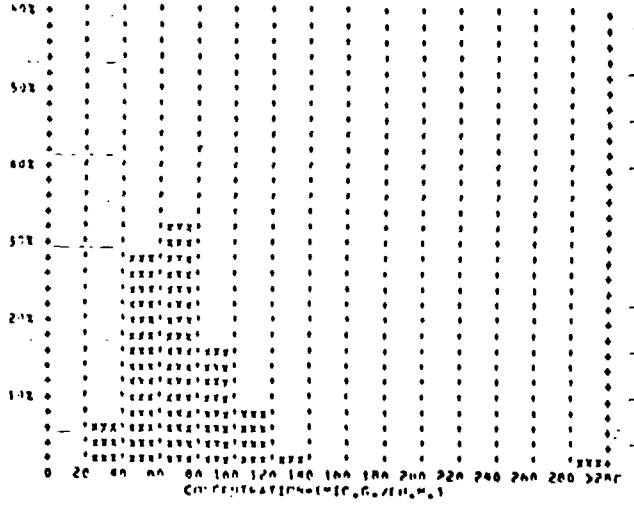




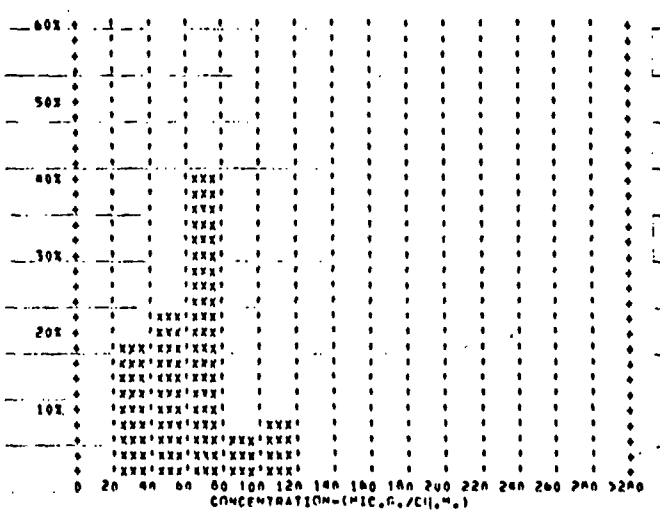
LAM 025552

ABS-035557

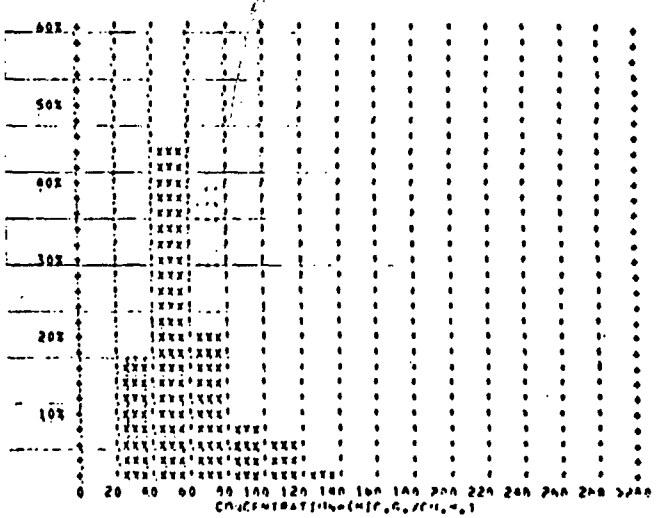
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



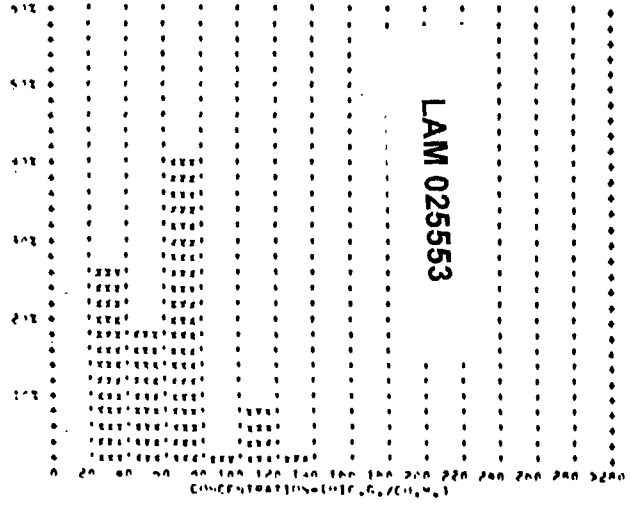
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



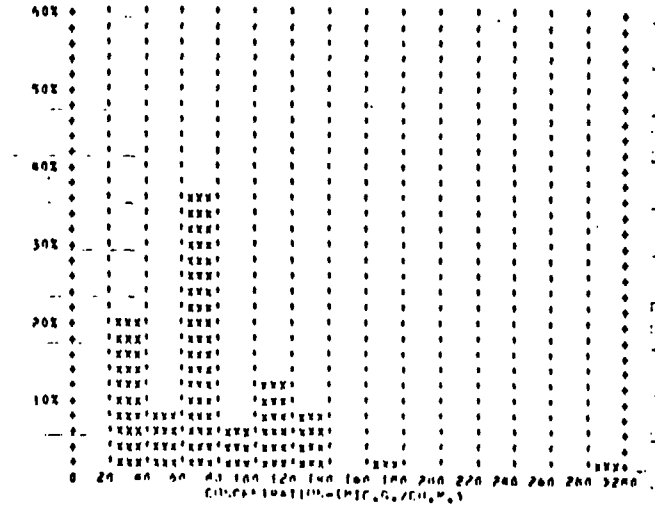
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



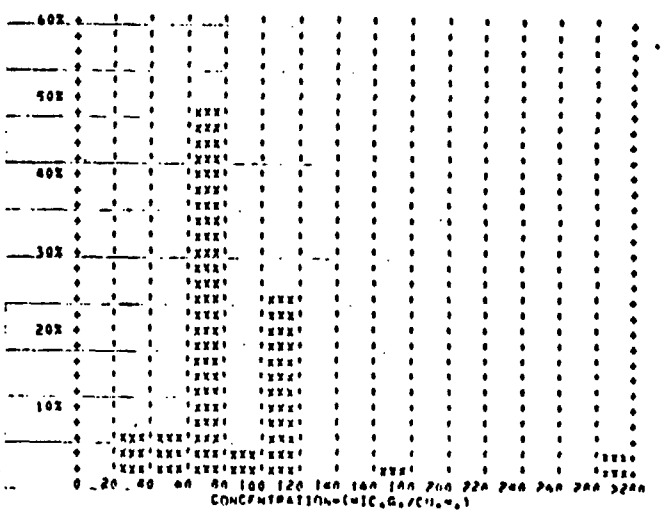
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



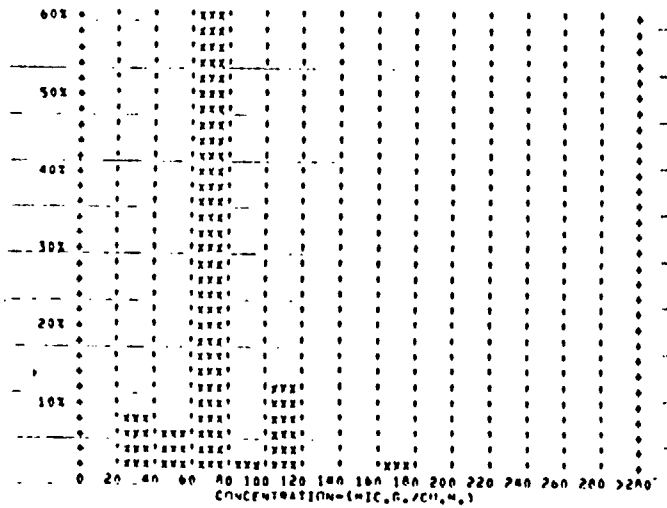
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM, 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



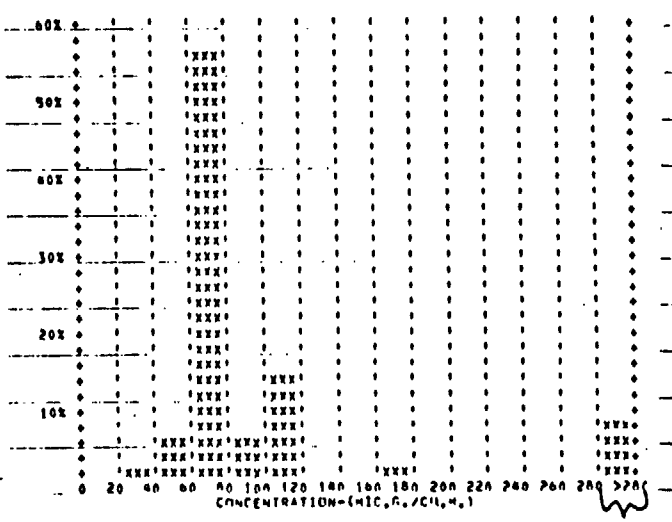
LAM 025553

ABS-035558

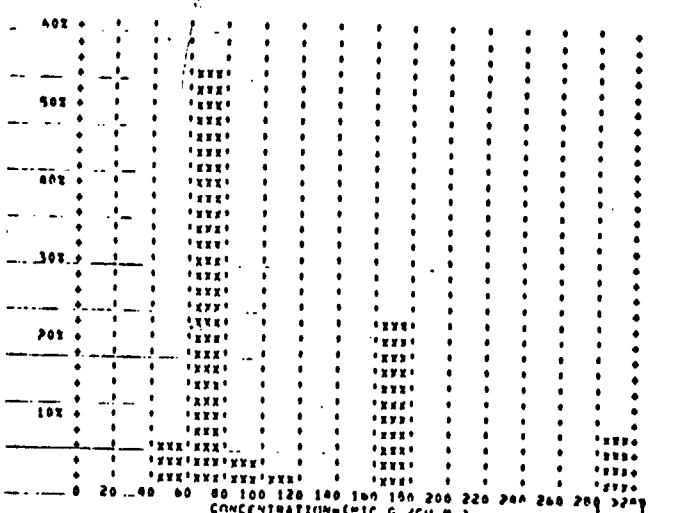
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



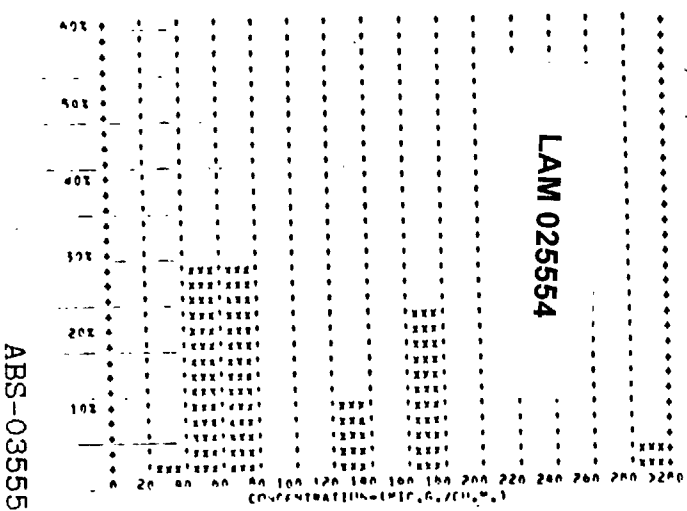
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



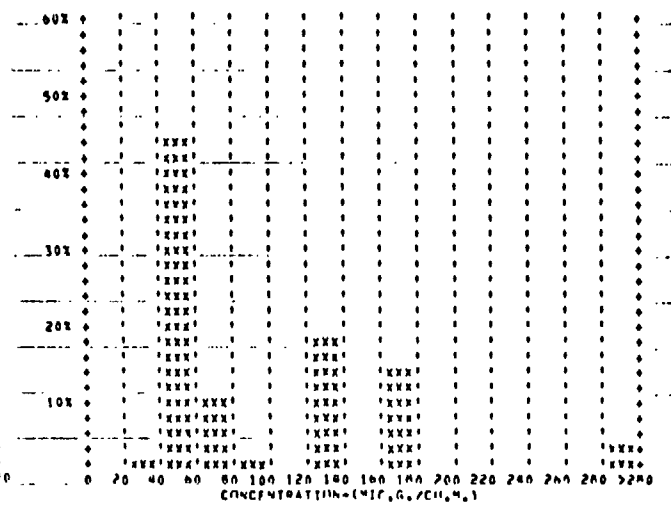
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



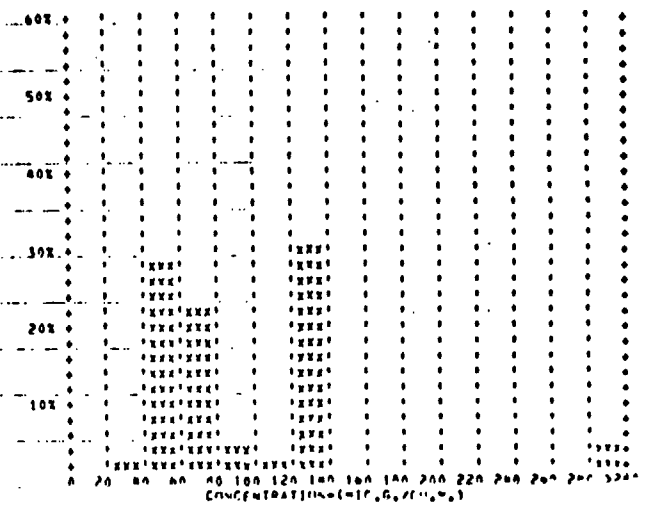
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



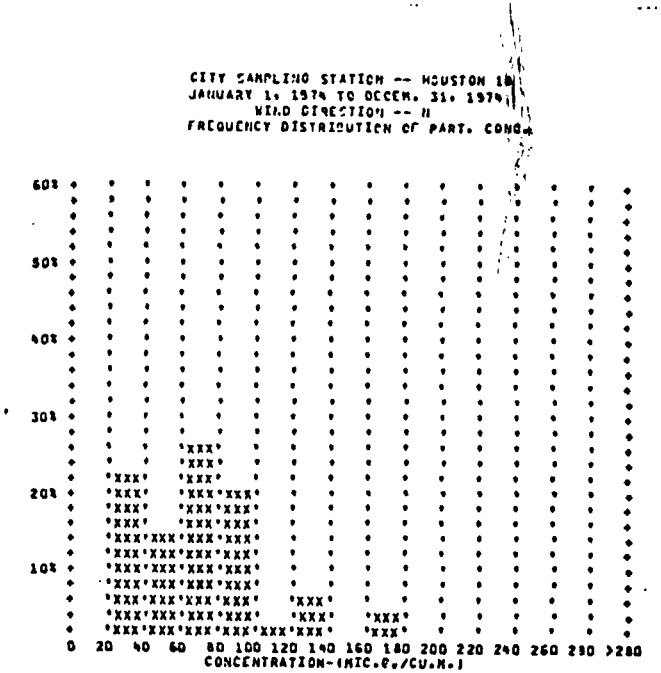
LAM 025554

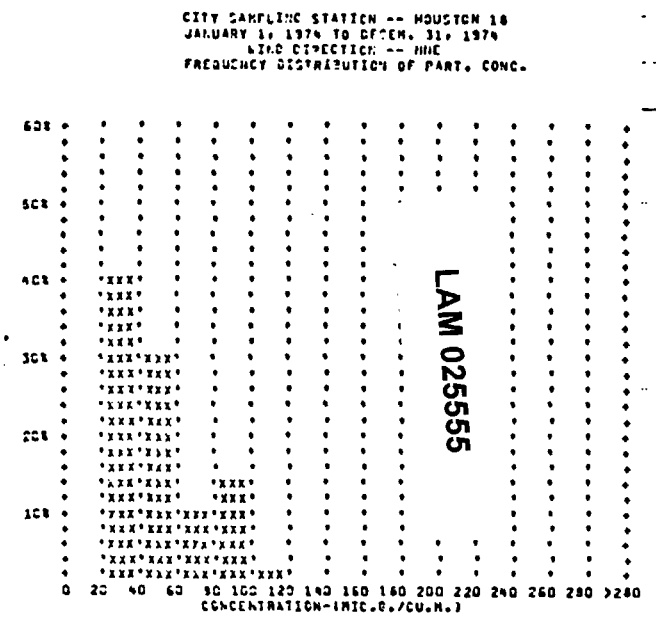
ABS-035559

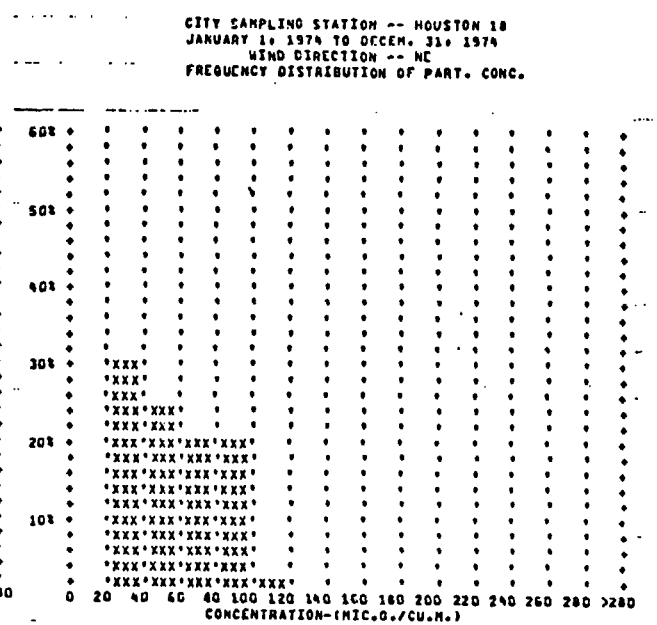
Used in Analysis
(Does not contain bad data points)

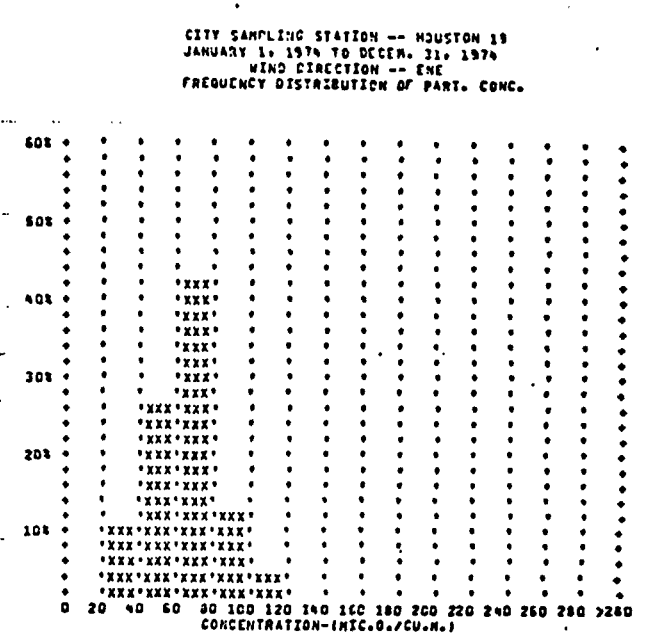
CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	147	69.2	35.8
NNE	77	47.2	23.8
NE	79	54.1	26.5
ENE	58	66.3	21.6
E	53	71.2	25.0
ESE	43	65.5	25.1
SE	91	58.9	23.0
SSE	64	58.7	24.9
S	256	72.7	32.2
SSW	59	79.6	27.5
SW	41	70.6	24.6
WSW	29	78.6	23.8
W	41	92.8	41.6
WNW	42	92.2	45.6
NW	70	98.6	47.0
NNW	94	83.1	32.7





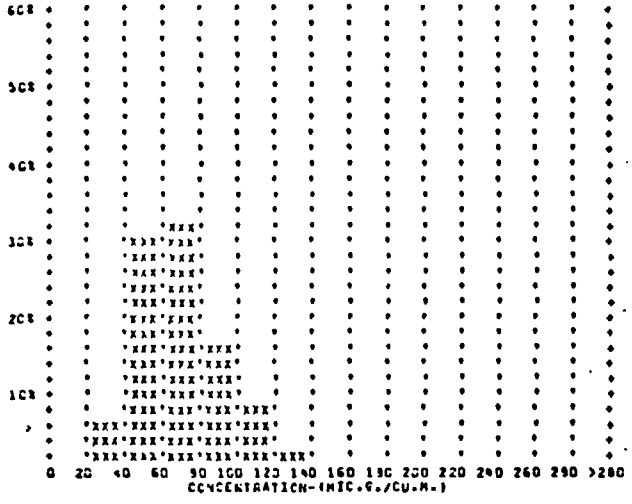




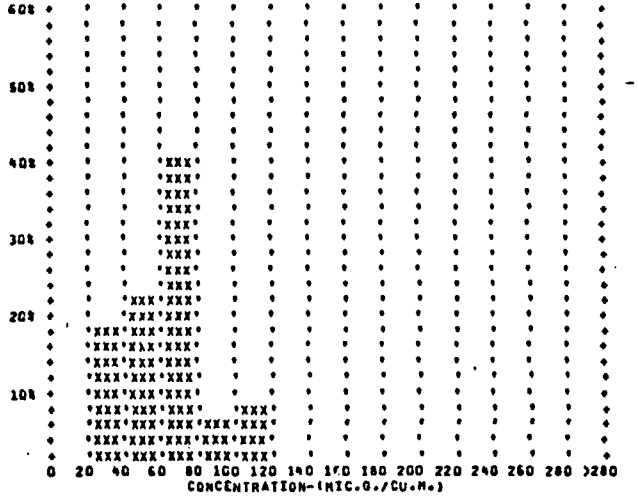
LAM 025555

ABS-035560

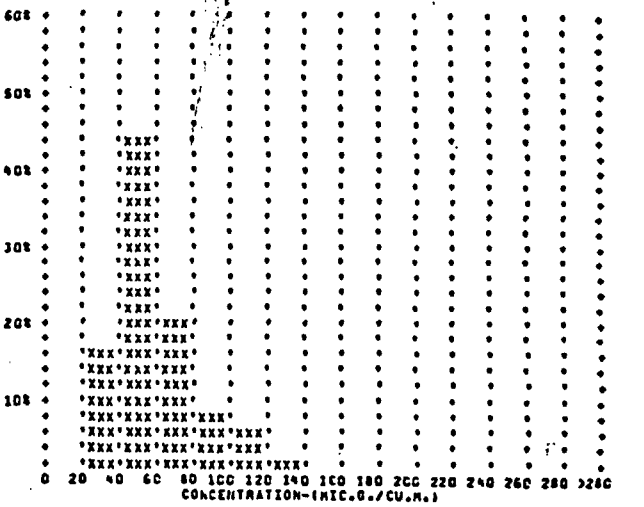
CITY ...ING STATION -- HOUSTON 18
JANUA... 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



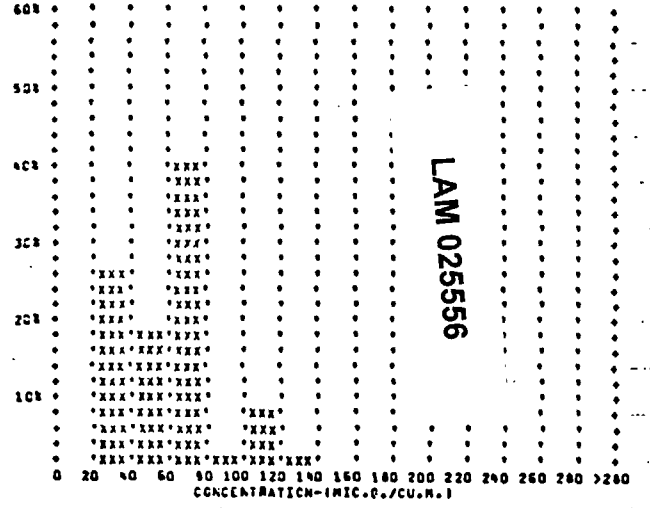
CITY SAMPLING STAT... -- HOUSTON 18
JANUARY 1, 1974 TO ...EM. 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



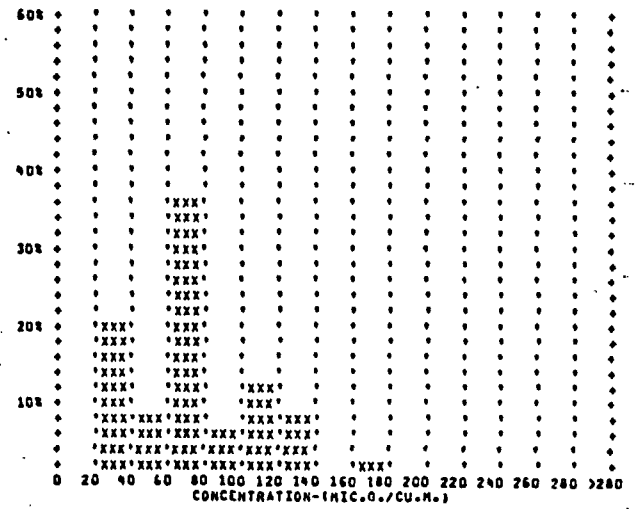
CITY SAMPLING STATION -- HOUSTON
JANUARY 1, 1974 TO DECEM. 31, 19...
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



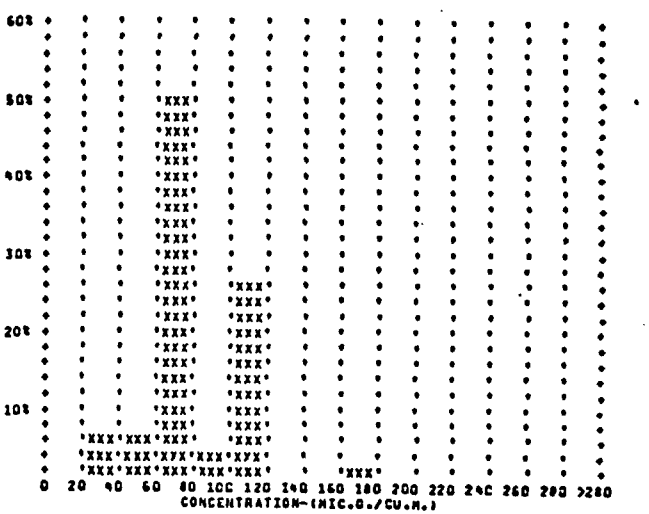
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

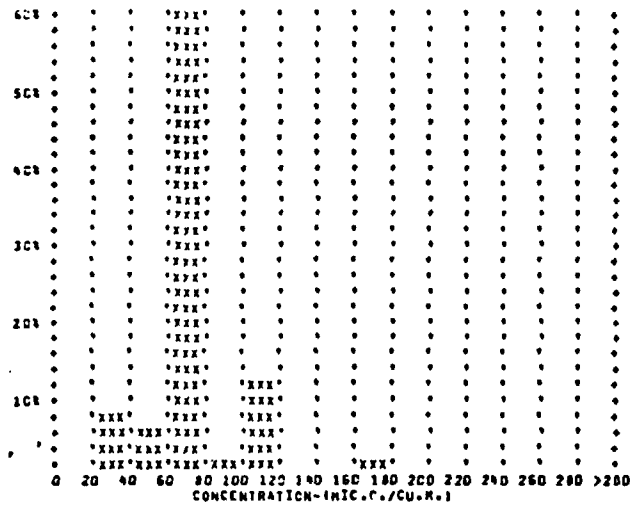


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

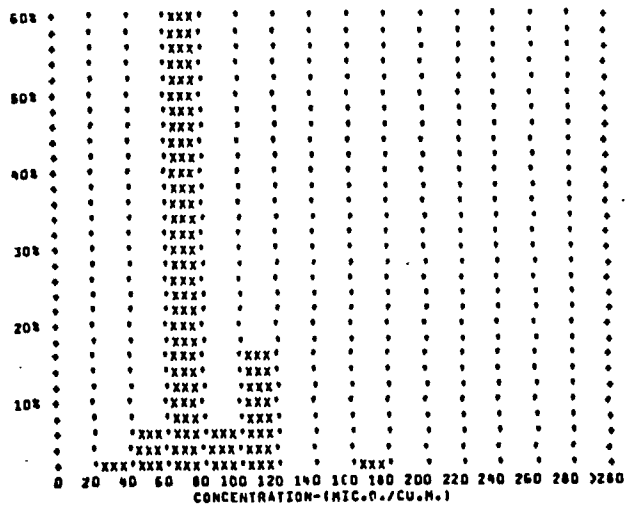


LAM 025556

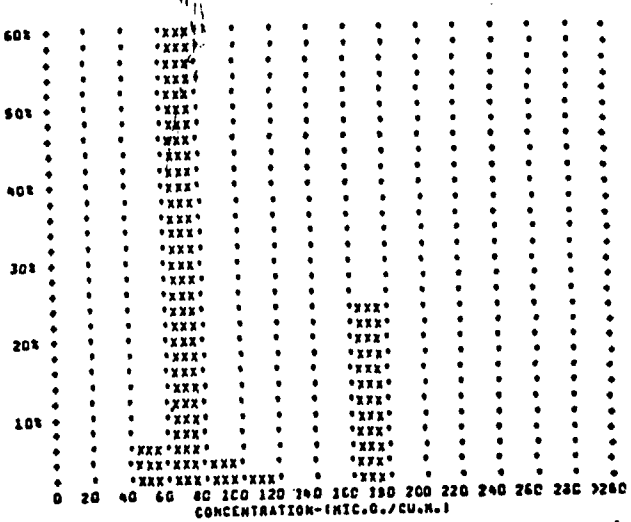
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



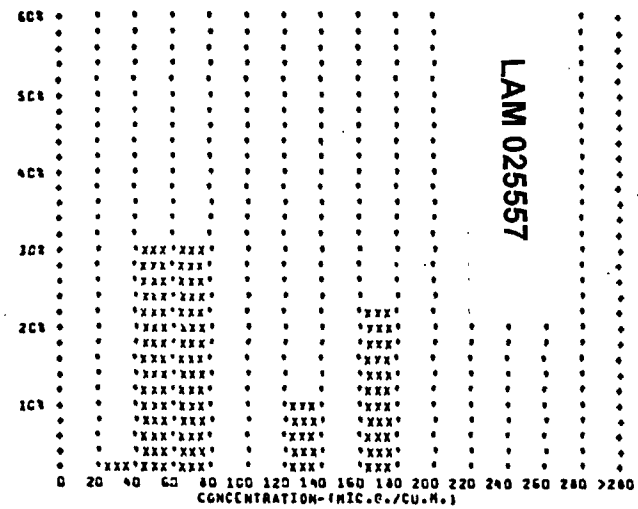
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

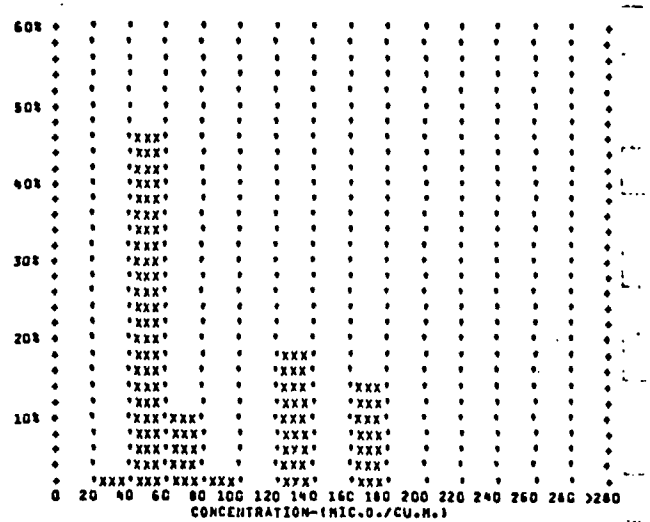


CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

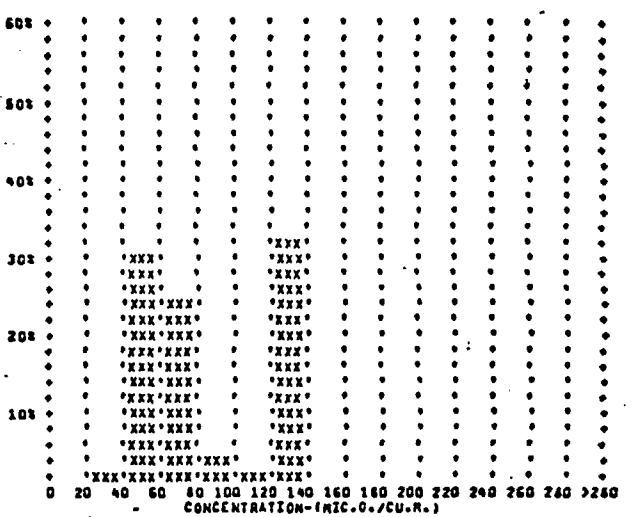


LAM 025557

CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

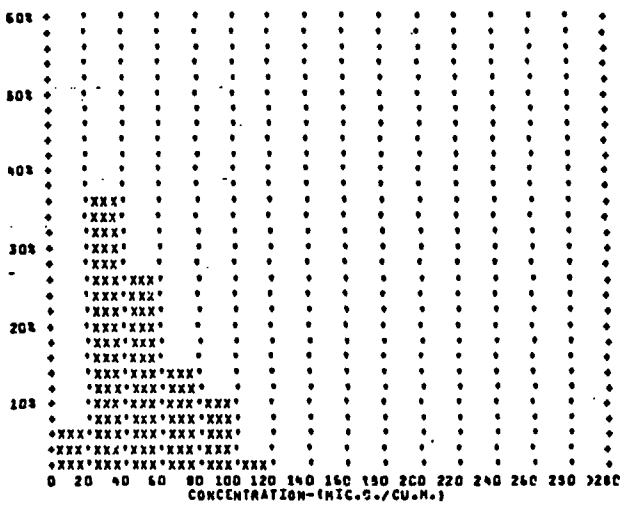


ABS-035562

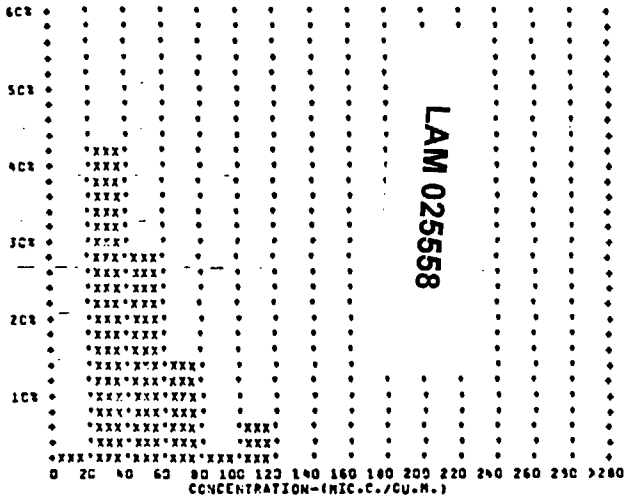
CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	161	47.9	23.9
NNE	94	45.2	22.7
NE	89	50.7	24.4
ENE	62	64.5	22.7
E	64	66.5	20.1
ESE	53	72.0	17.6
SE	121	76.9	20.9
SSE	84	73.9	23.2
S	246	78.8	24.7
SSW	65	67.9	20.7
SW	59	68.2	18.9
WSW	33	74.6	22.8
W	49	90.6	34.1
WNW	48	82.3	36.0
NW	74	46.1	28.8
NNW	66	44.4	24.4

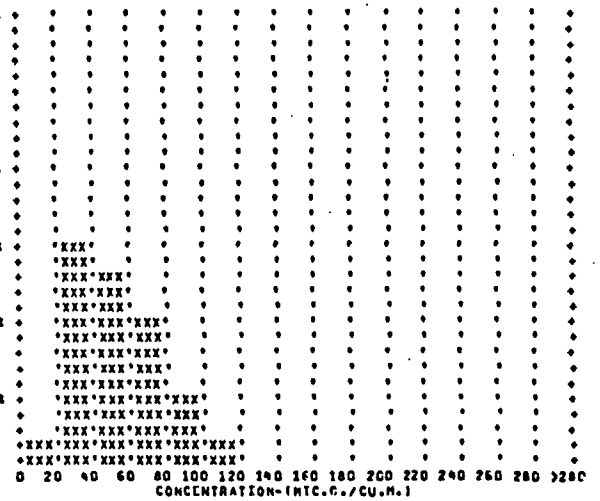
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



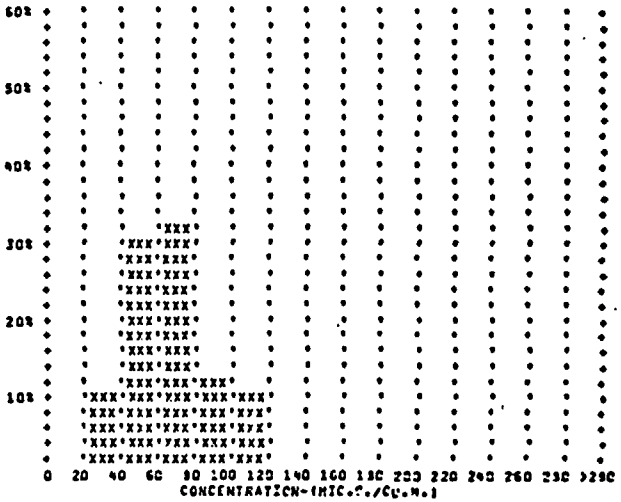
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



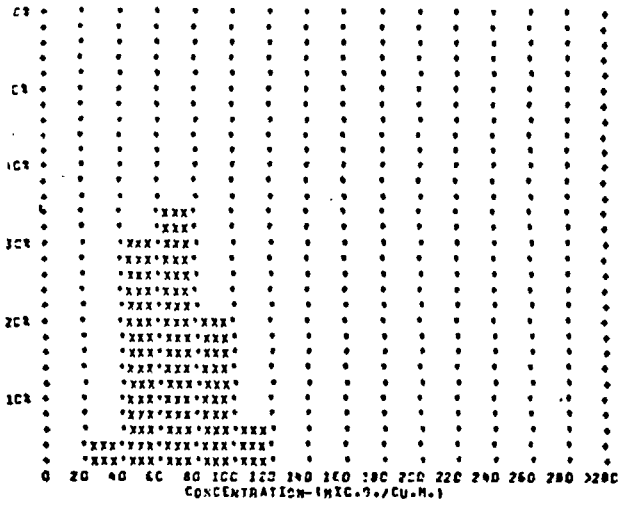
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



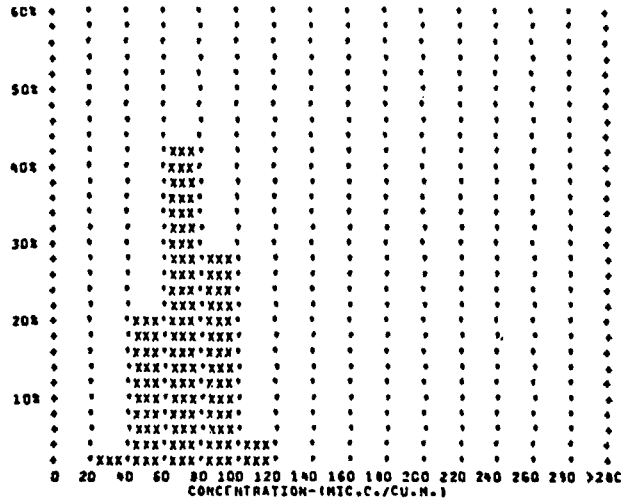
LAM 025558

ABS-035563

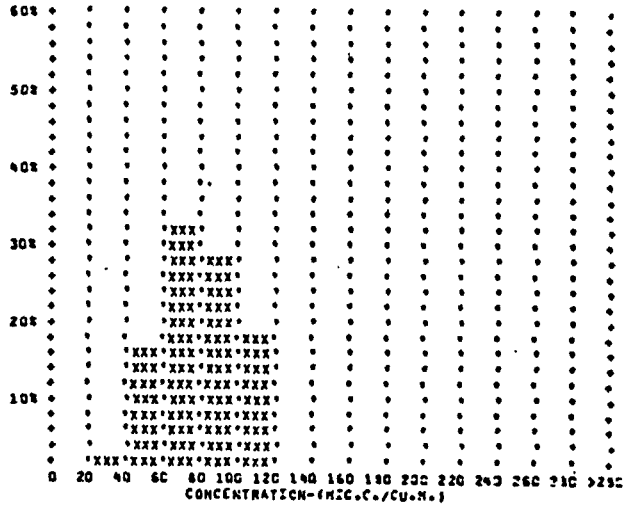
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



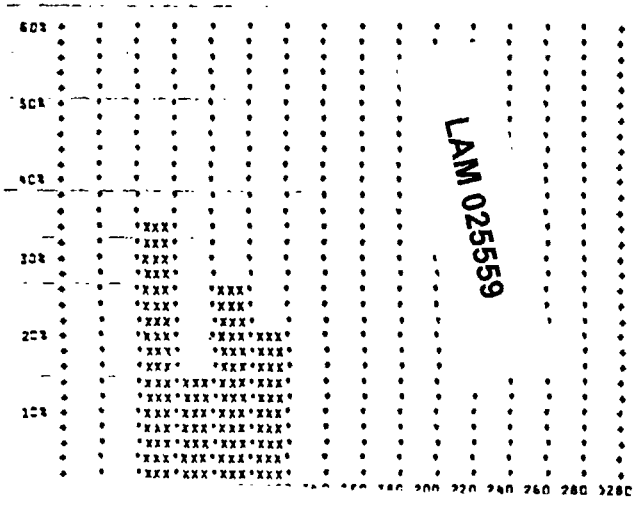
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



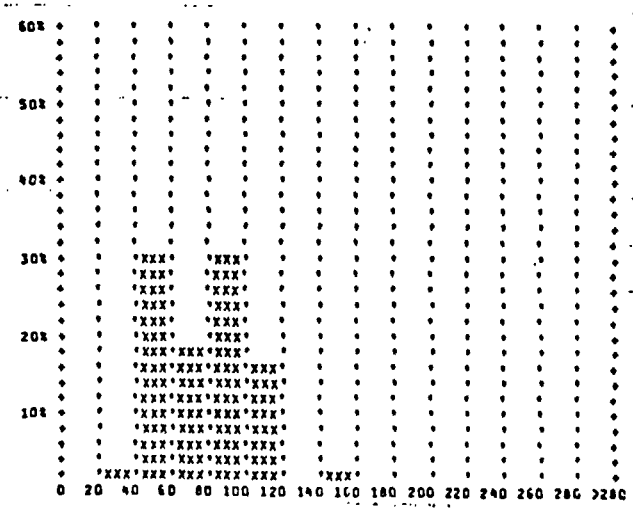
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



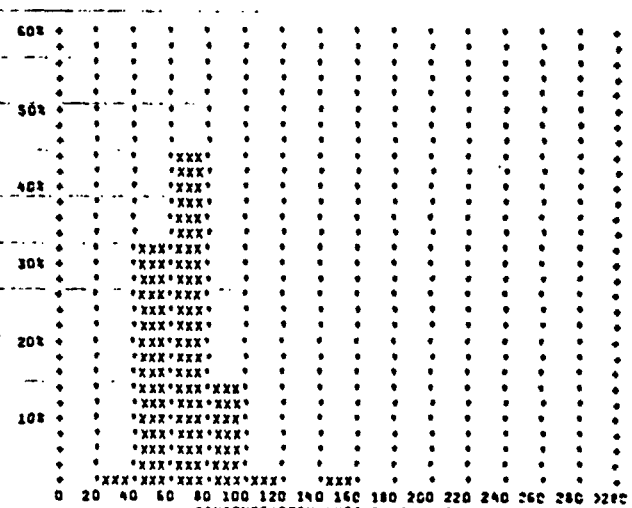
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



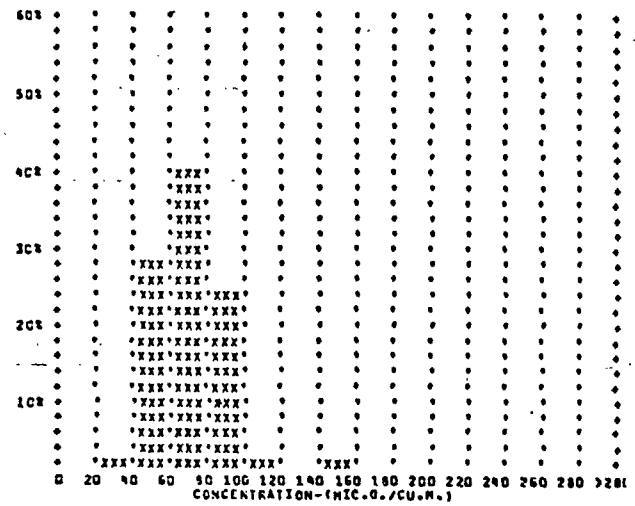
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



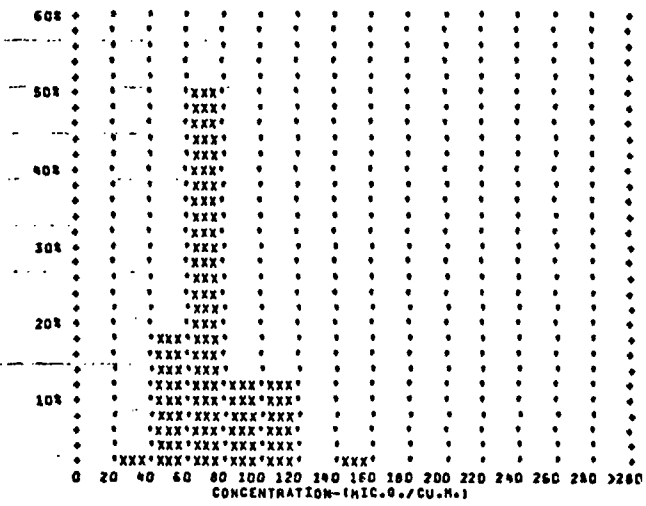
LAM 025559

ABS-035564

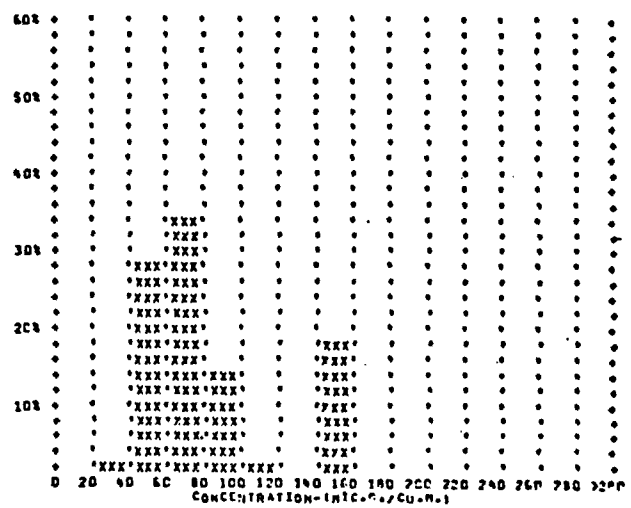
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



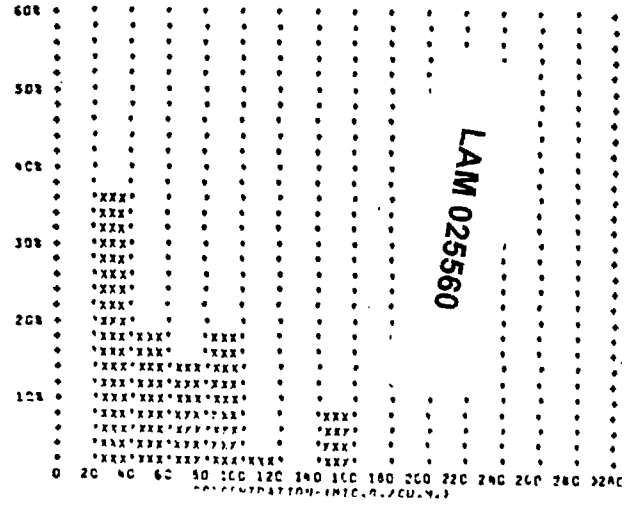
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



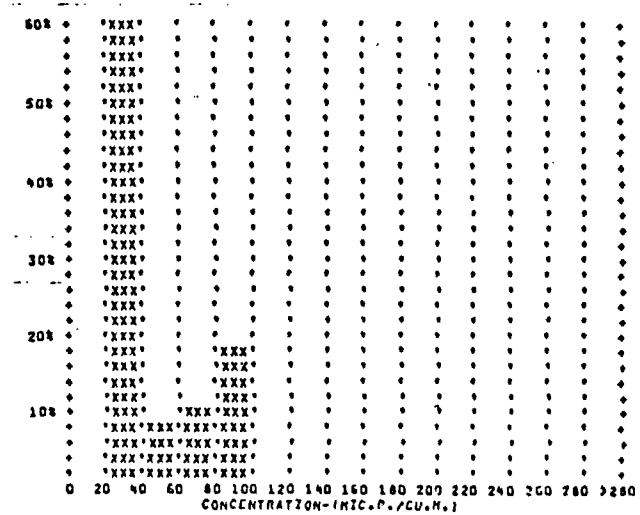
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



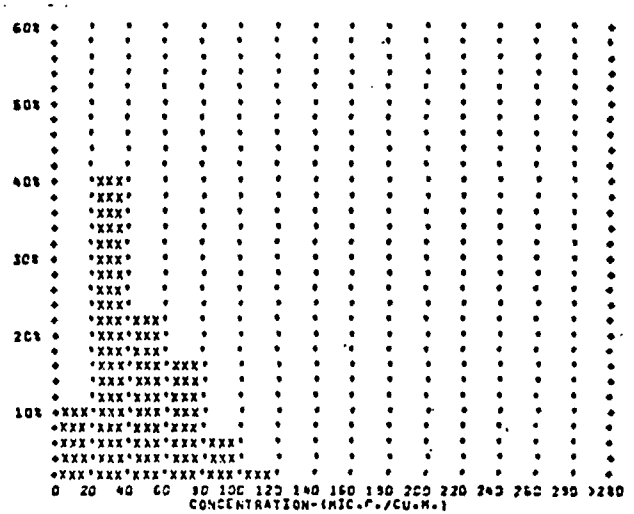
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1974 TO DECEM. 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



LAM 025560

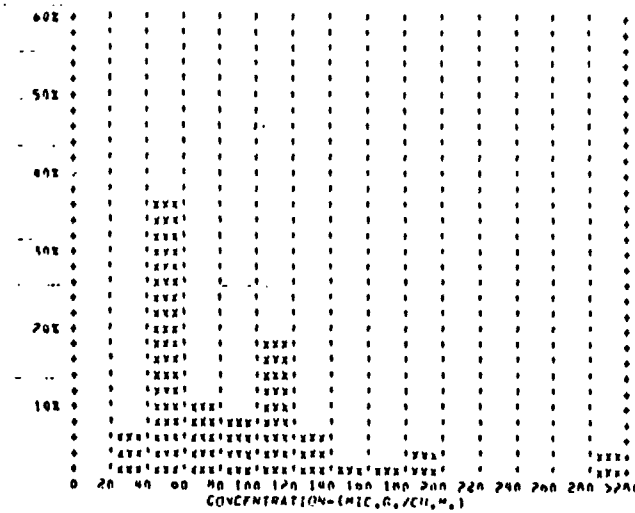
ABS-035565

CONTAINS BAD DATA POINTS
THIS WAS NOT USED FOR ANALYSIS

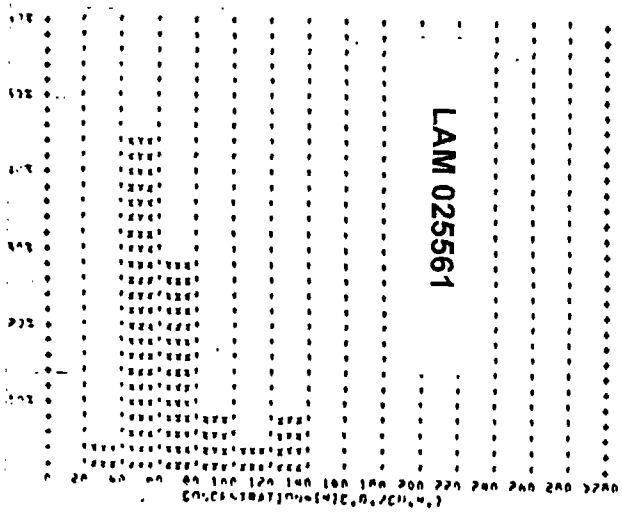
CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	166	97.0	78.0
NNE	74	66.7	28.1
NE	92	73.5	33.9
ENE	62	83.1	33.0
E	61	89.2	37.8
ESE	51	86.6	37.2
SE	123	67.2	33.8
SSE	88	73.0	33.6
S	258	72.2	36.9
SSW	69	68.1	40.0
SW	60	85.5	62.8
WSW	35	80.2	39.1
W	51	86.9	42.3
WNW	48	106.8	92.9
NW	75	124.5	108.6
NNW	79	174.7	127.1

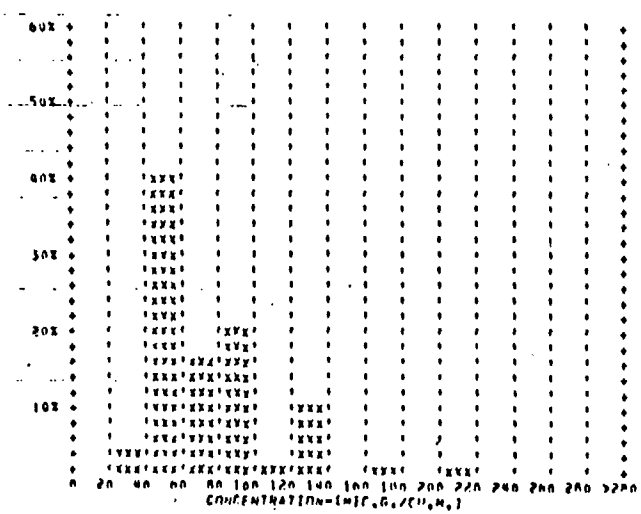
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



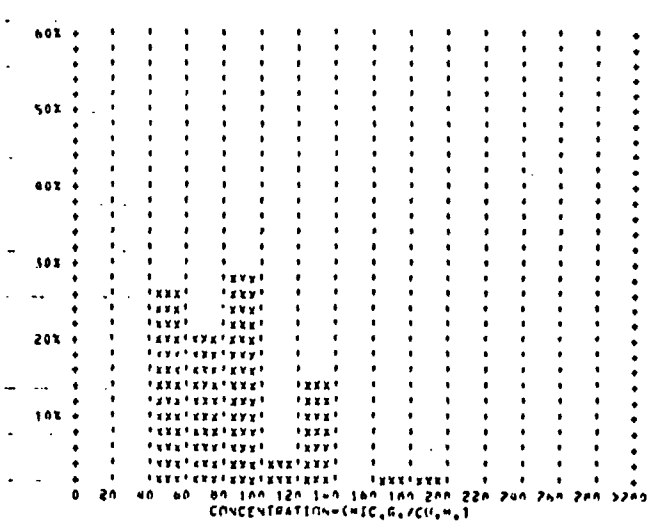
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

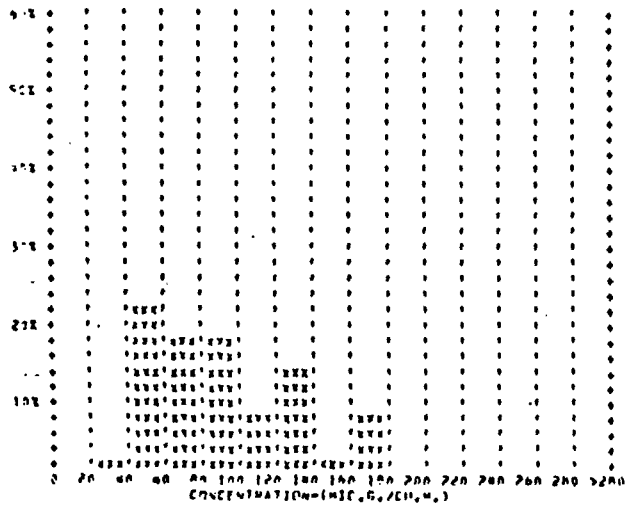


LAM 025561

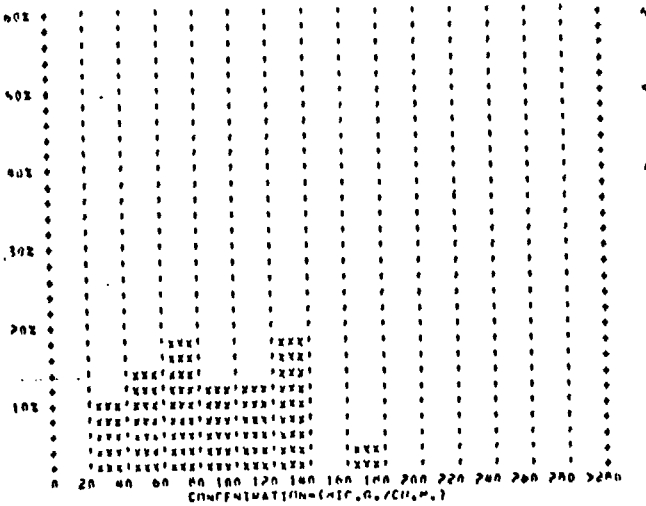
ABS-035566

ABS-035567

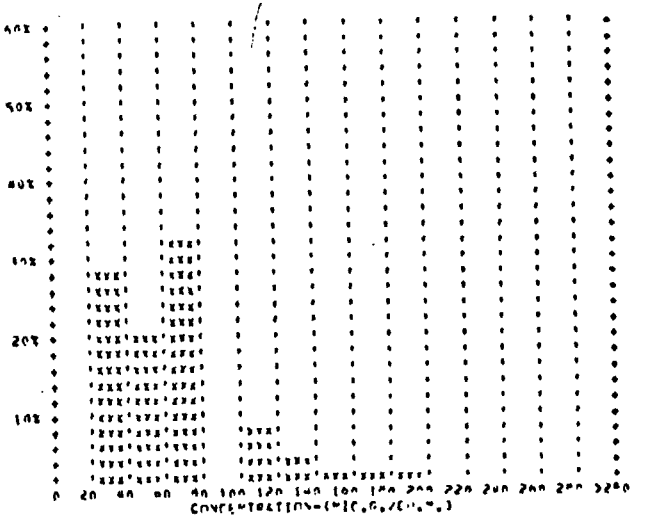
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



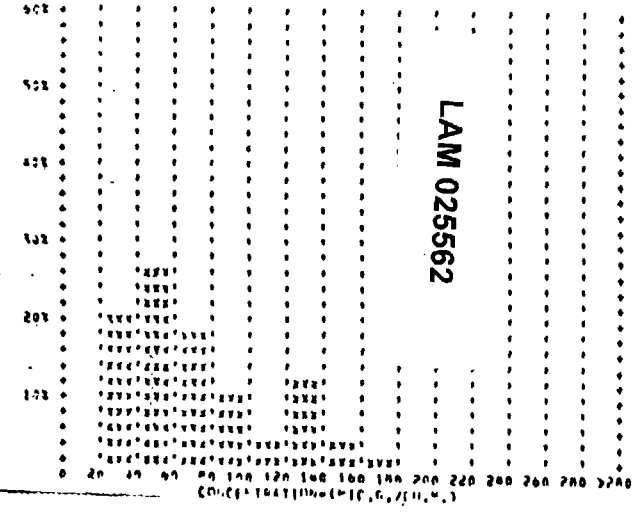
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



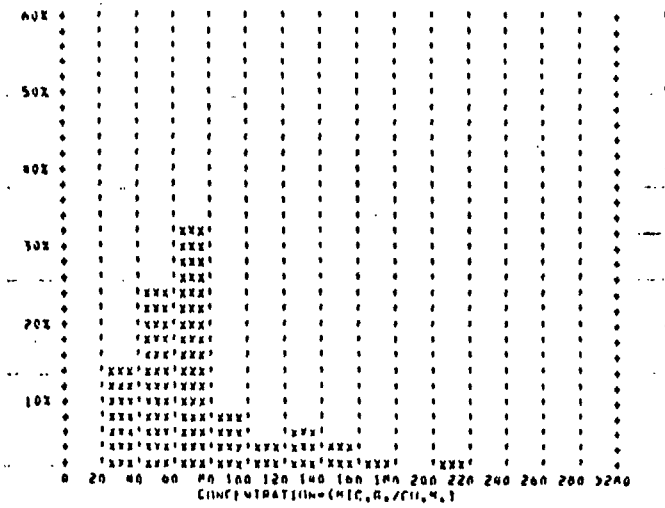
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



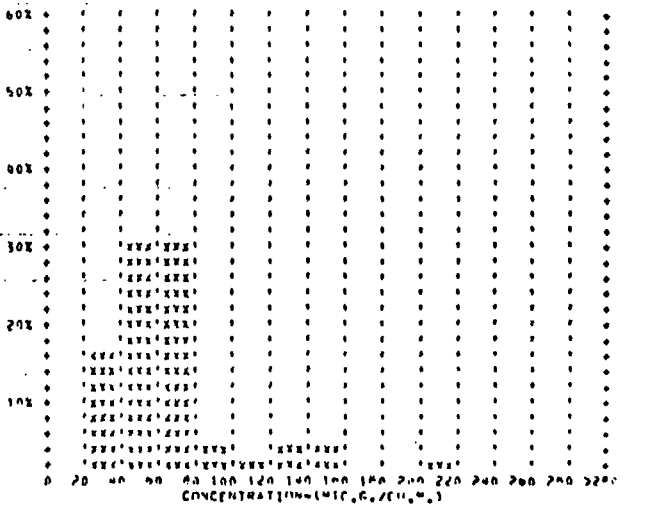
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



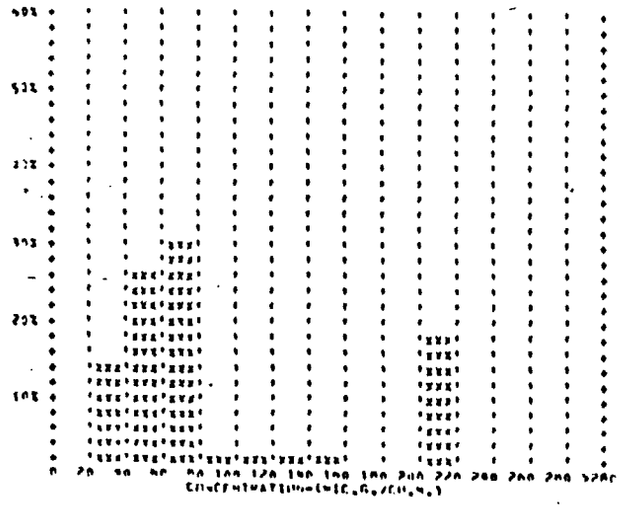
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEM 31, 1976
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



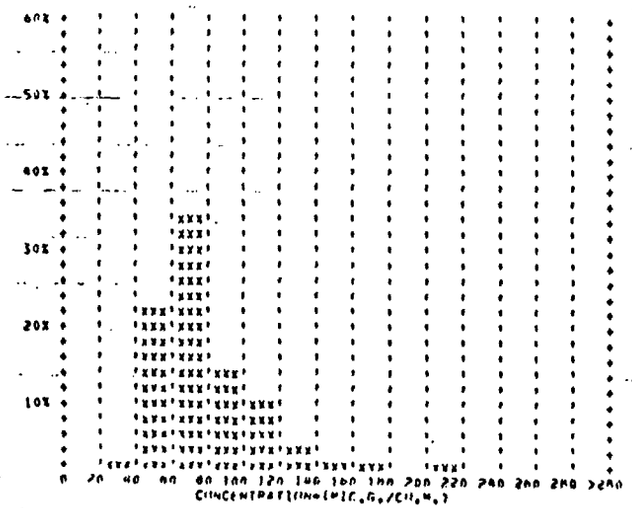
LAM 025562

ABS-035568

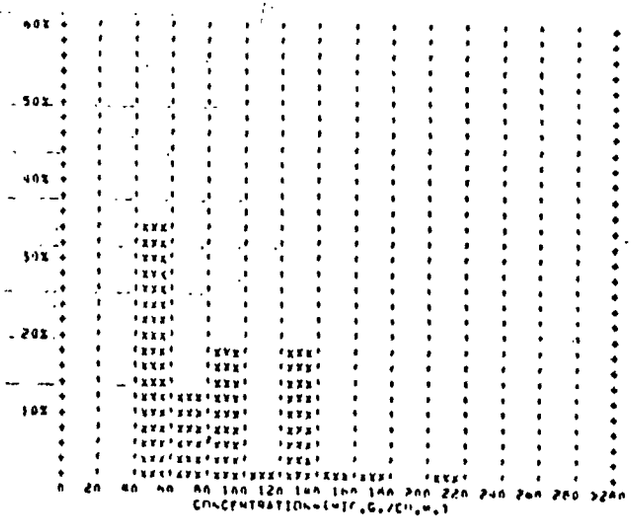
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



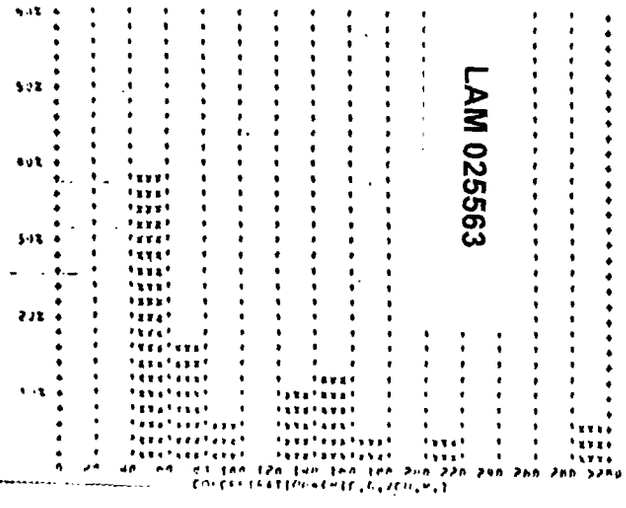
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



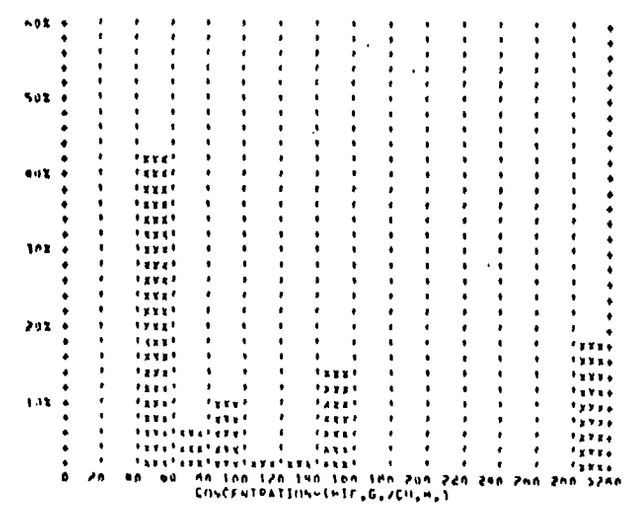
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



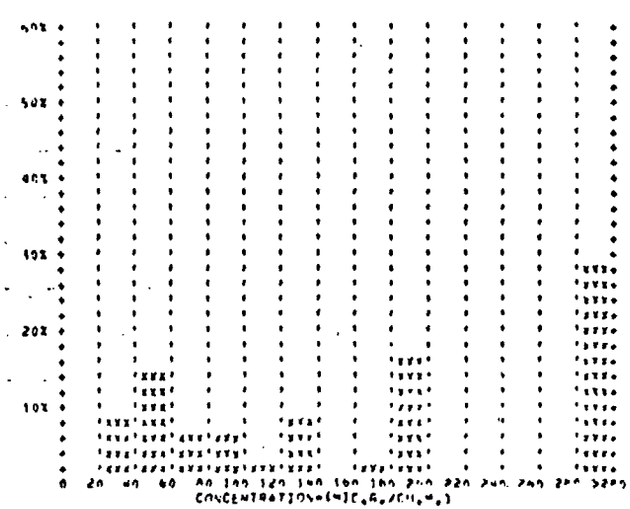
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1976 TO DECEMBER 31, 1976
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



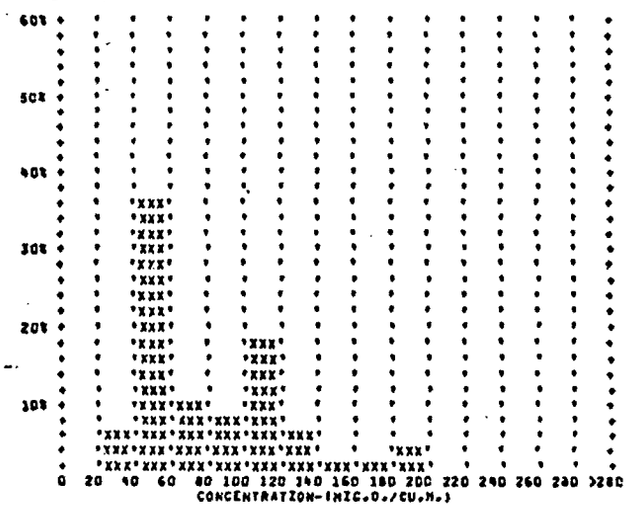
LAM 025563

WITHOUT SUSPECT DATA POINTS
(WAS USED IN ANALYSIS)

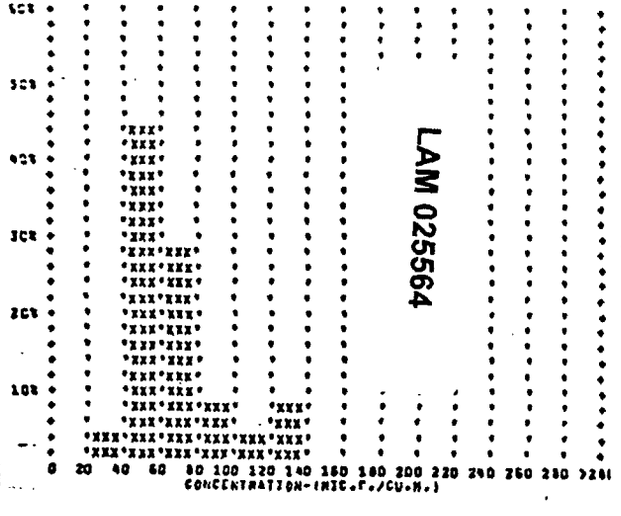
CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEM 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	159	82.6	38.2
NNE	74	66.7	28.1
NE	92	73.5	33.9
ENE	62	83.1	33.0
E	61	99.2	37.8
ESE	51	96.6	37.2
SE	123	97.2	33.8
SSE	88	73.0	33.6
S	256	72.2	36.9
SSW	69	68.1	40.0
SW	60	95.5	62.8
WSW	35	90.2	39.1
W	51	96.3	42.3
WNW	45	97.9	46.7
NW	60	78.2	35.7
NNW	56	102.2	56.9

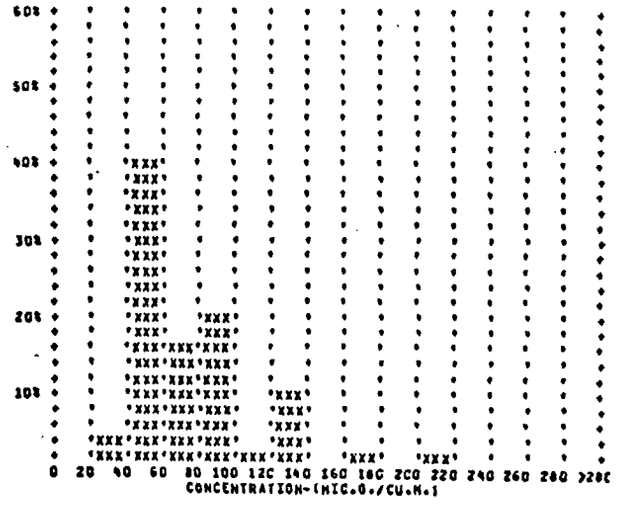
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



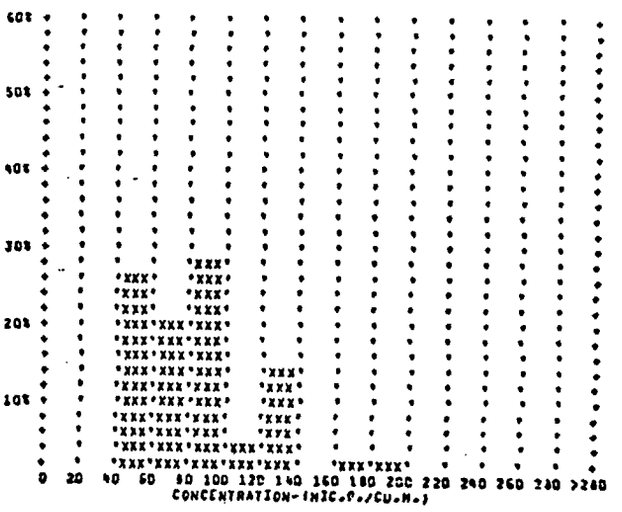
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

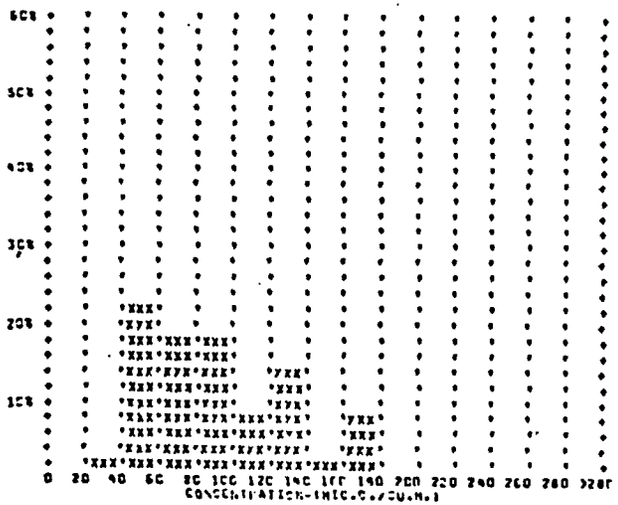


ABS-035569

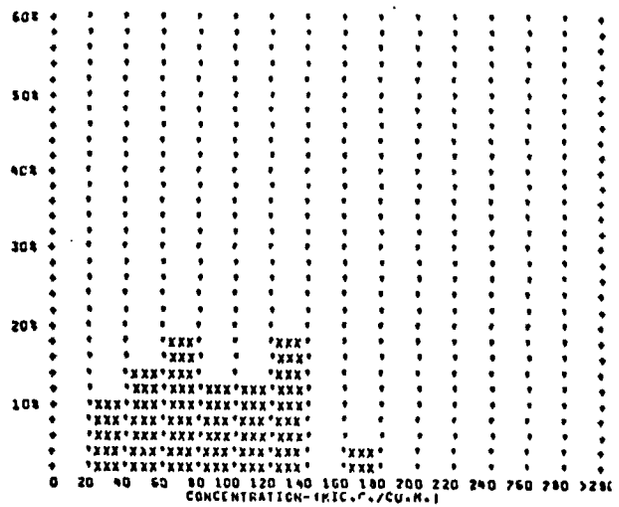
LAM 025564

ABS-035570

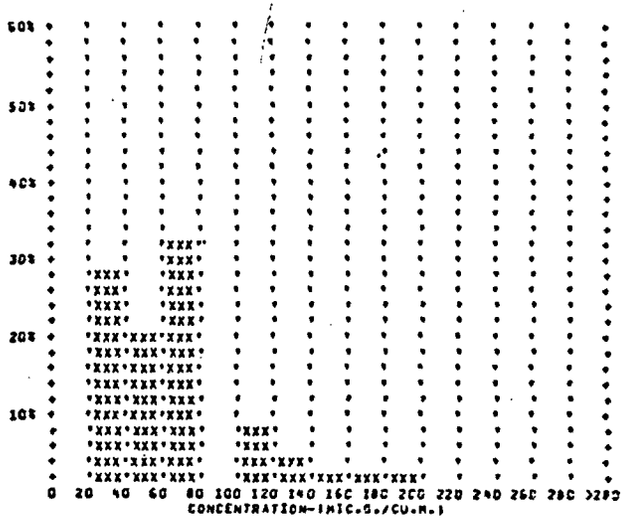
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



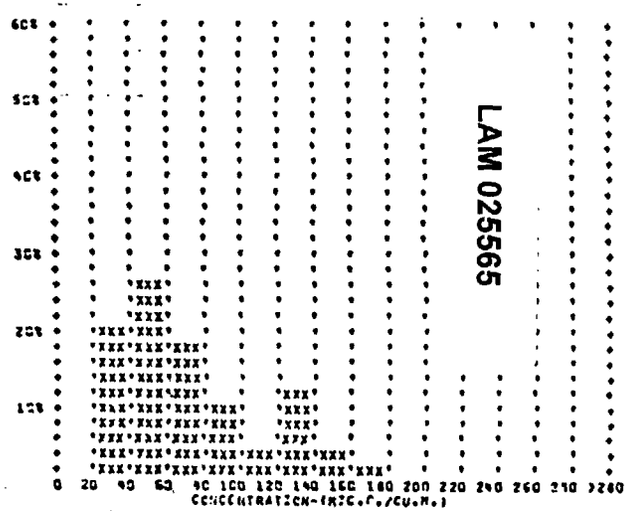
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



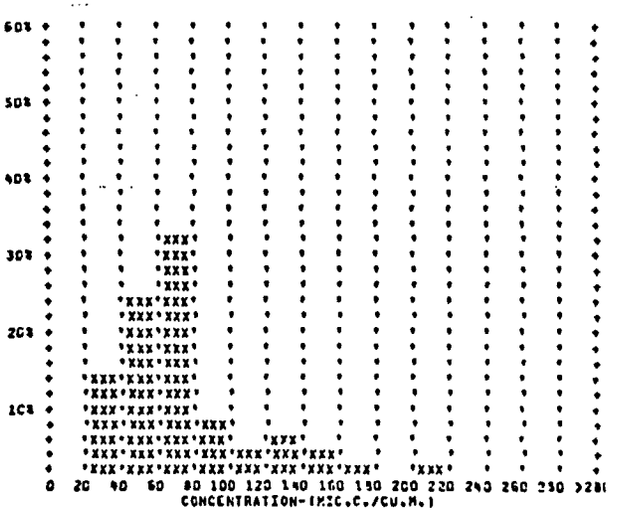
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



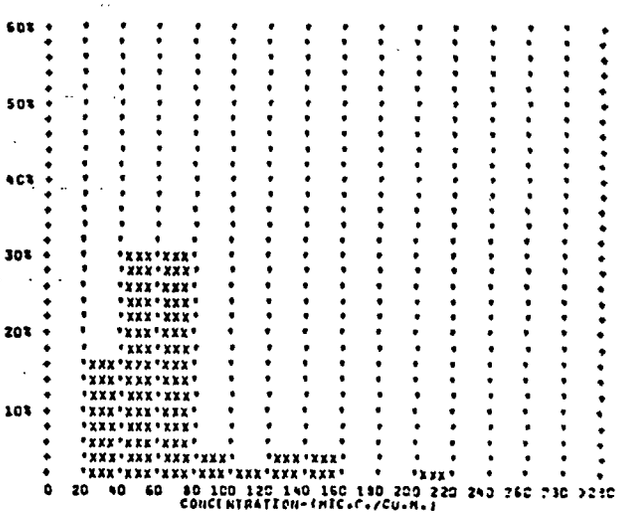
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



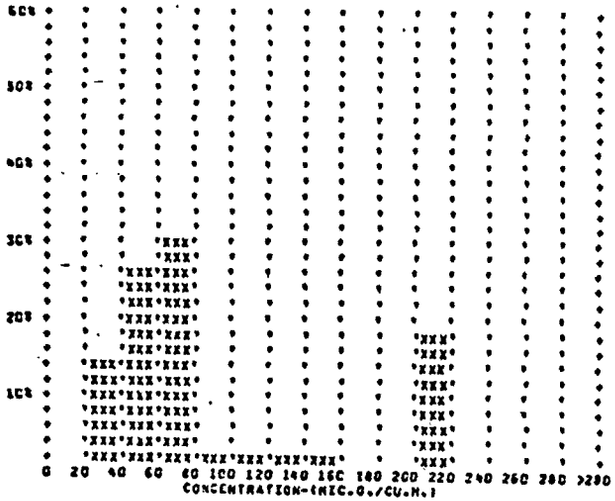
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



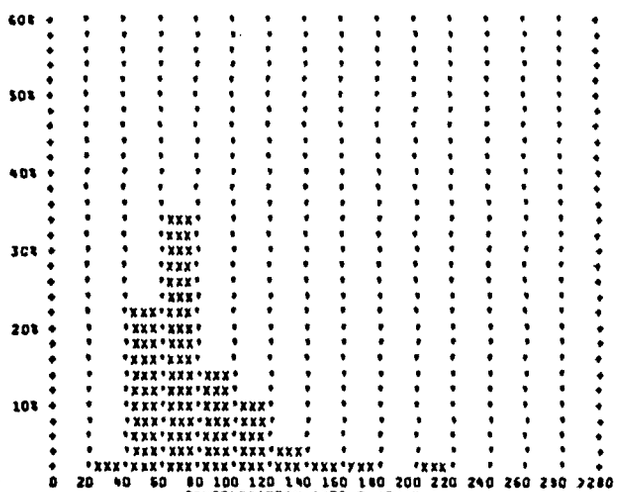
LAM 025565

ABS-035571

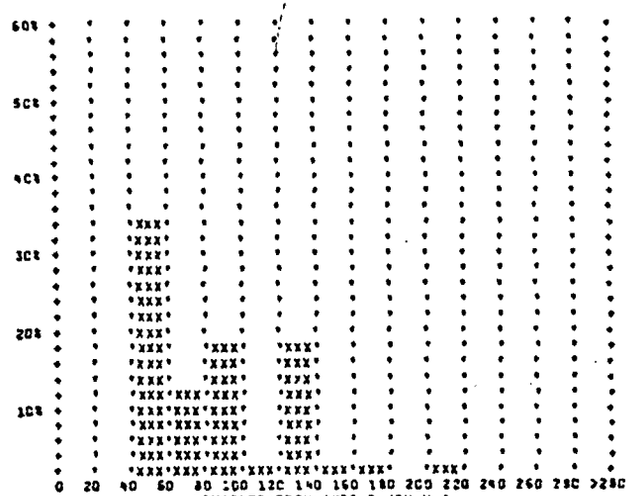
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



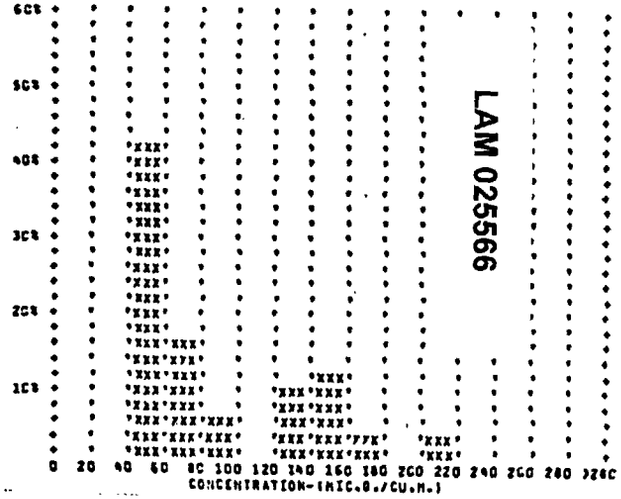
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

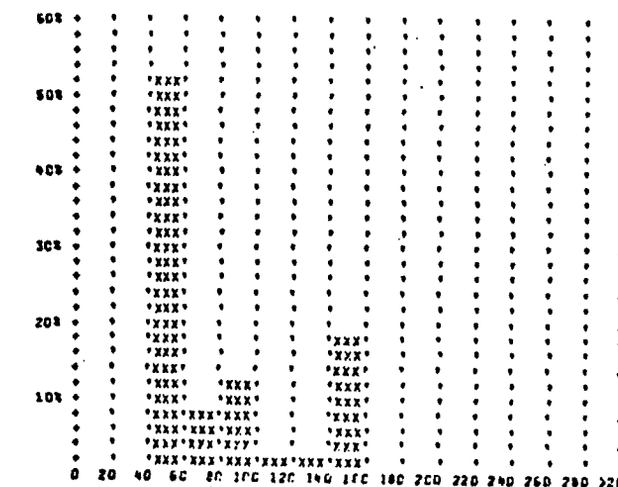


CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

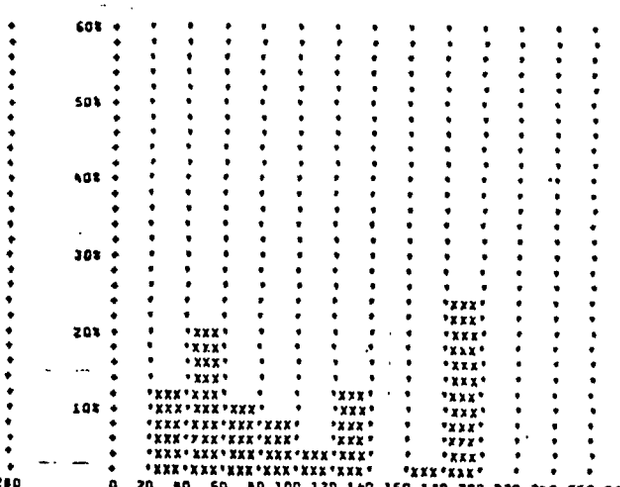


LAM 025566

CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



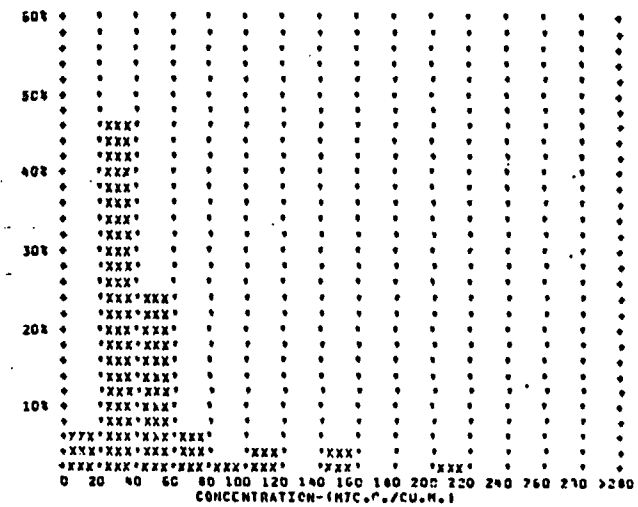
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1974 TO DECEM 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



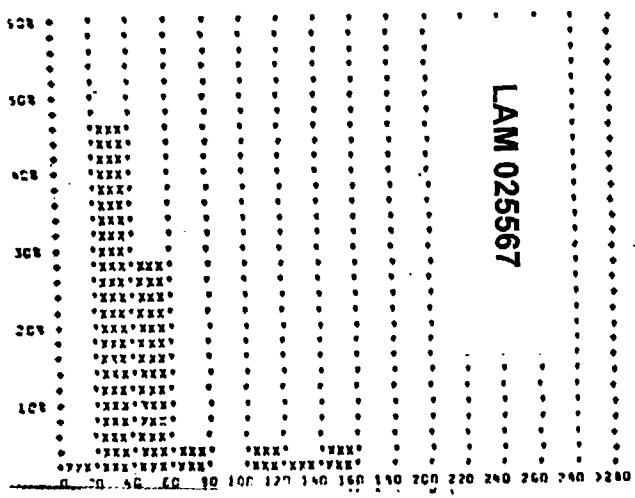
CITY SAMPLING STATION — HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1974 TO DECEMB. 31, 1974

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	159	51.9	39.6
NNE	88	48.1	34.7
NE	91	57.2	31.6
ENE	66	50.1	38.2
E	64	77.9	37.1
ESE	50	97.2	51.3
SE	121	79.8	33.0
SSE	77	73.2	41.8
S	225	71.5	36.2
SSW	61	62.1	29.1
SW	48	60.3	26.6
WSW	28	43.1	41.5
W	34	48.9	49.6
WNW	38	69.7	49.0
NW	69	86.7	35.1
NNW	77	91.4	42.8

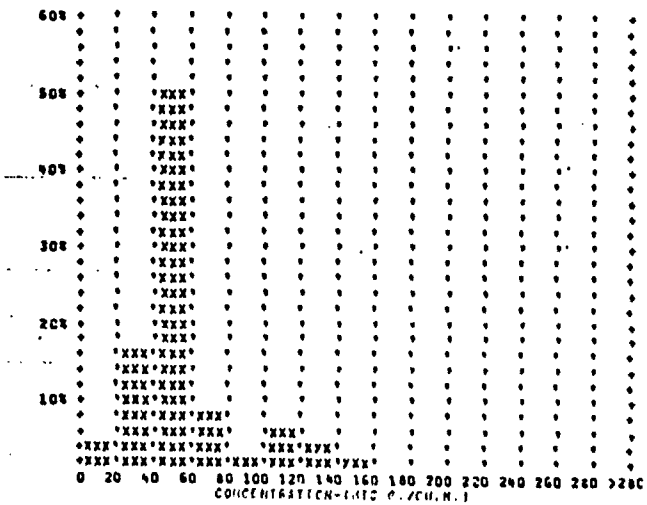
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



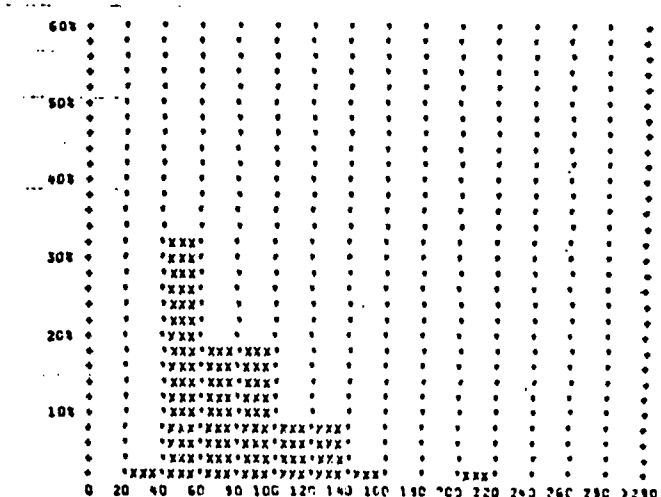
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



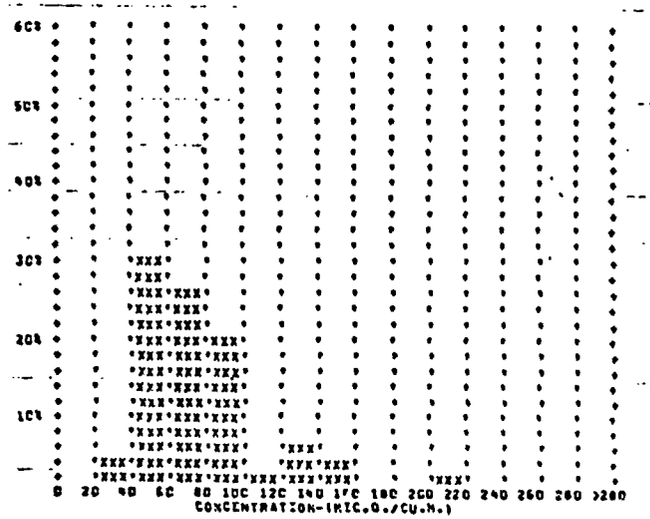
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



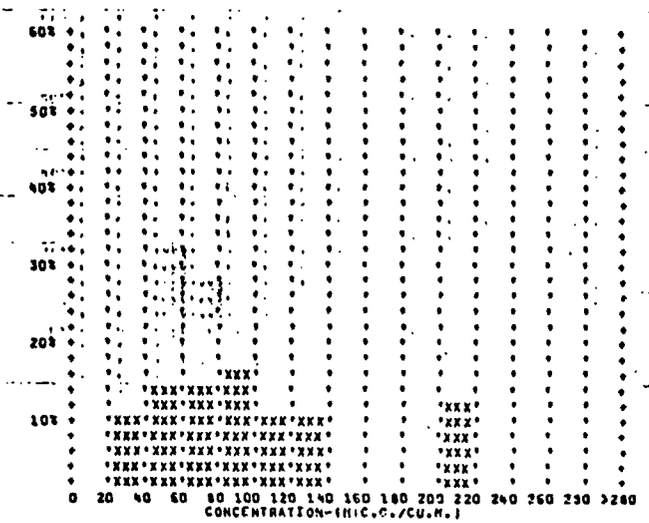
ABS-035572
LAM 025567

ABS-035573

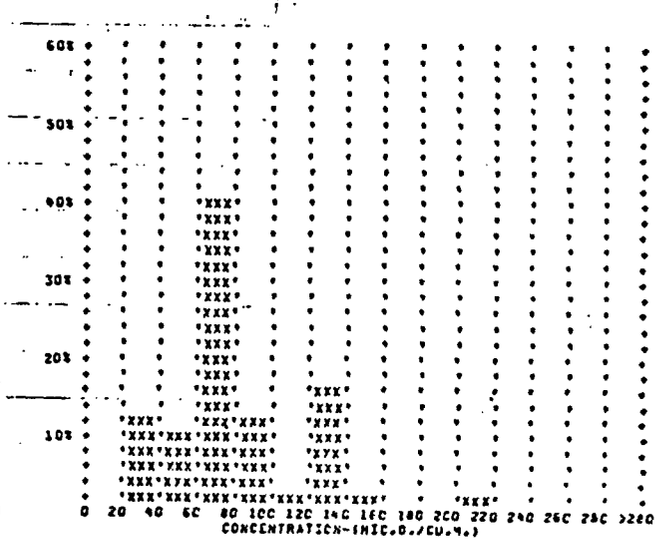
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



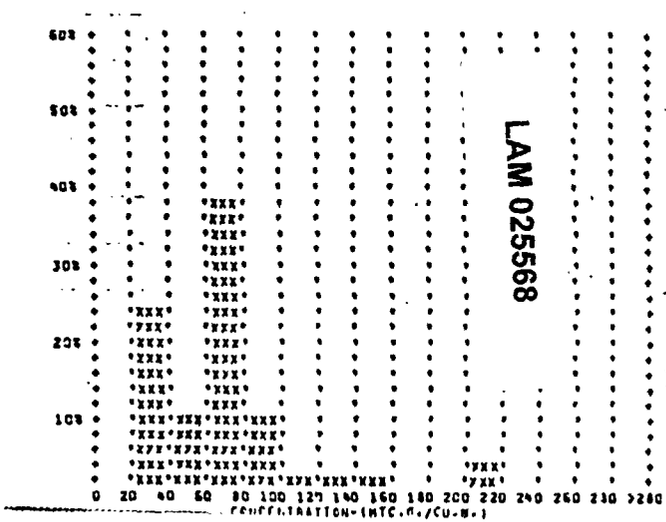
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



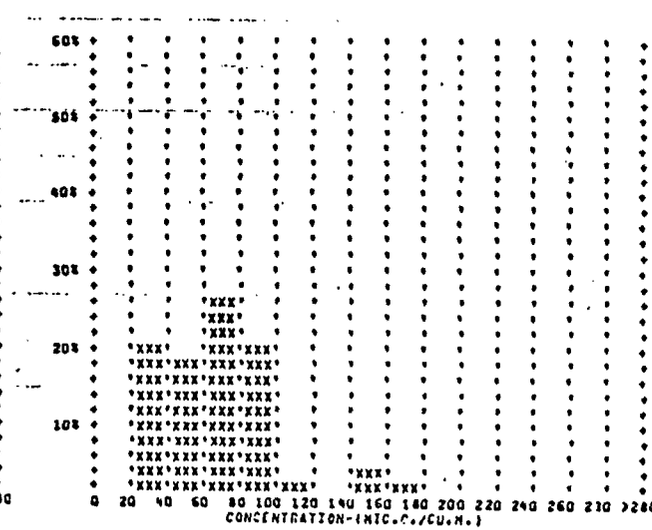
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



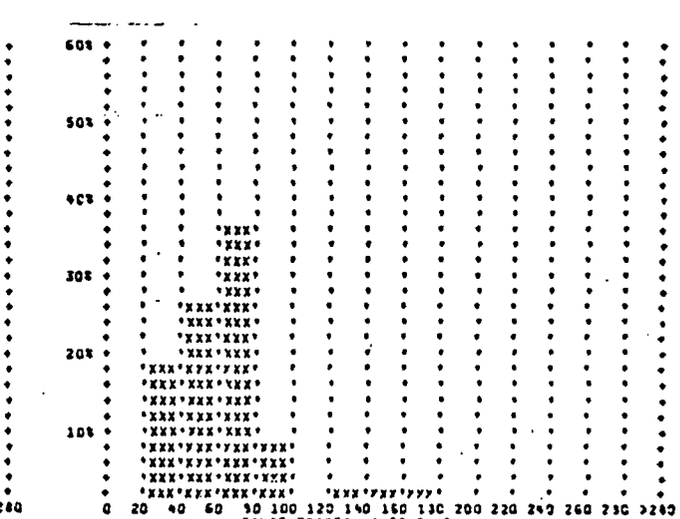
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



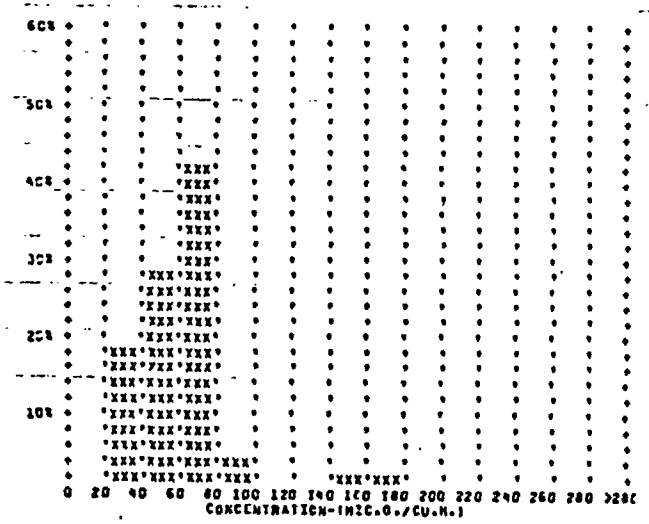
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



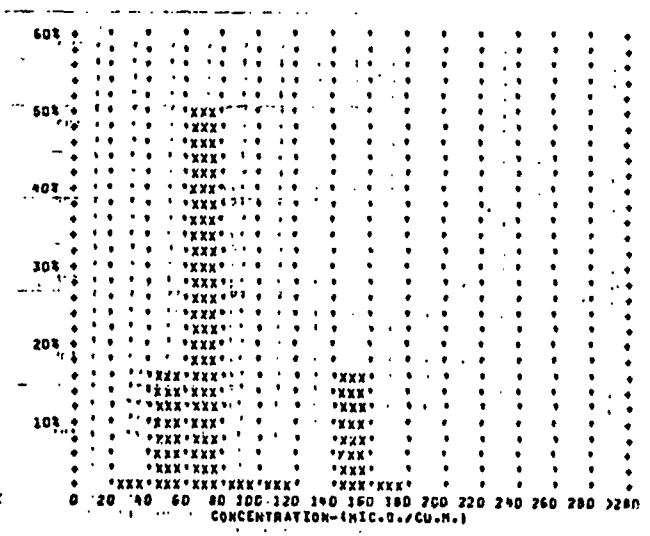
LAM 025568

ABS-035574

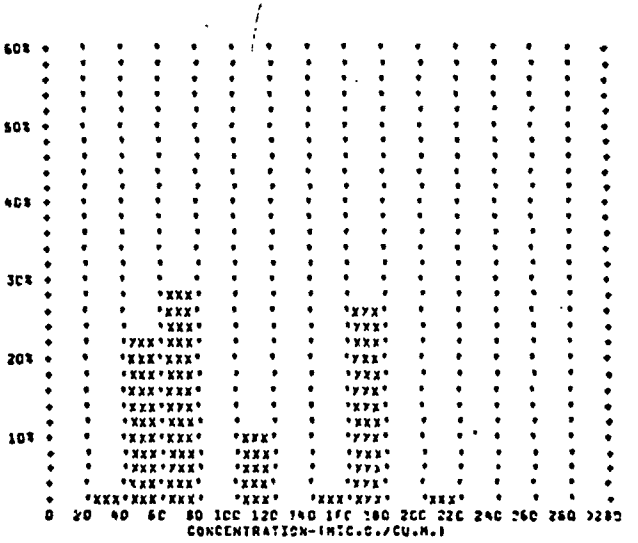
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



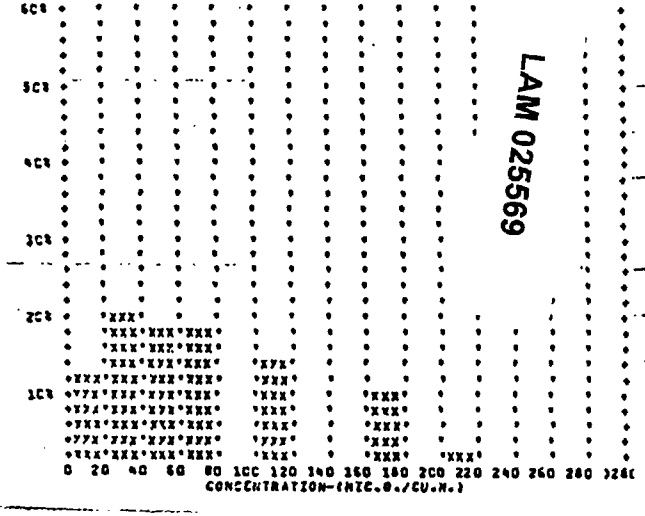
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

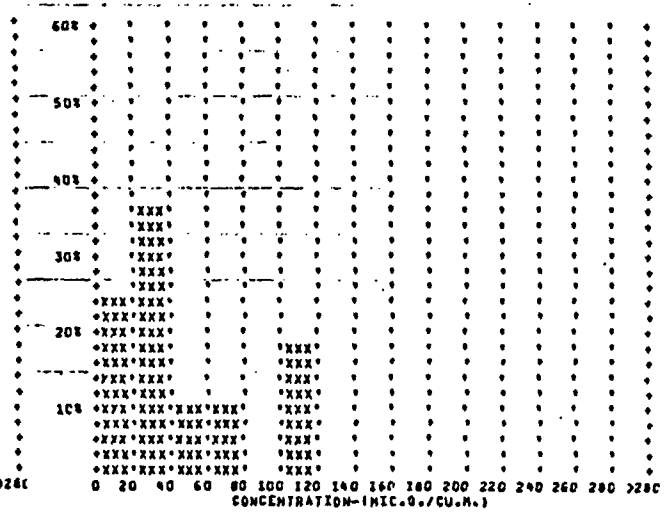


CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

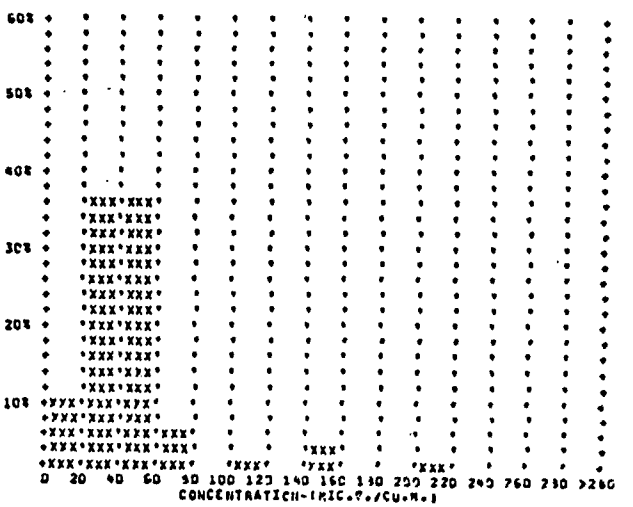


LAM 025569

CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



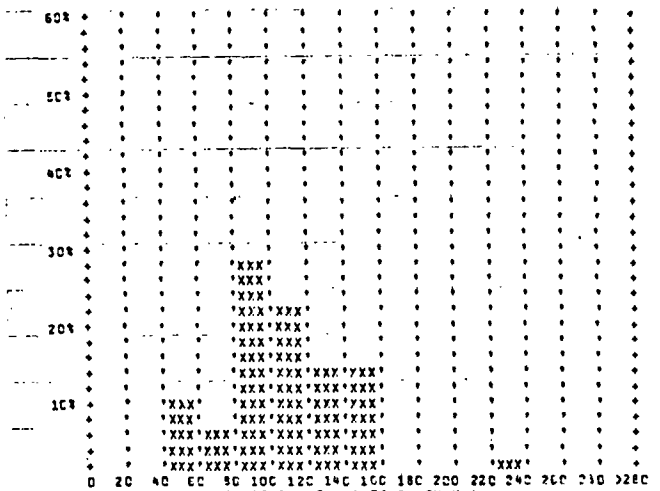
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1974 TO DECEMB. 31, 1974
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



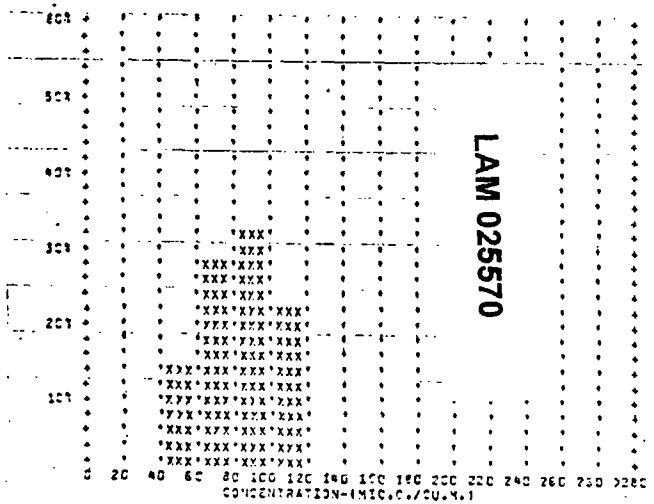
CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MICG./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	57	104.5	30.9
NNE	21	96.9	19.1
NE	36	97.2	23.8
ENE	40	99.3	33.6
E	57	97.4	25.6
ESE	48	109.1	40.3
SE	33	94.8	31.9
SSE	35	74.7	23.4
S	102	83.5	45.4
SSW	27	96.0	35.1
SW	19	76.4	24.8
WSW	26	128.0	63.3
W	71	105.0	43.4
WNW	22	73.3	26.5
NW	35	78.3	25.8
NNW	42	87.3	32.3

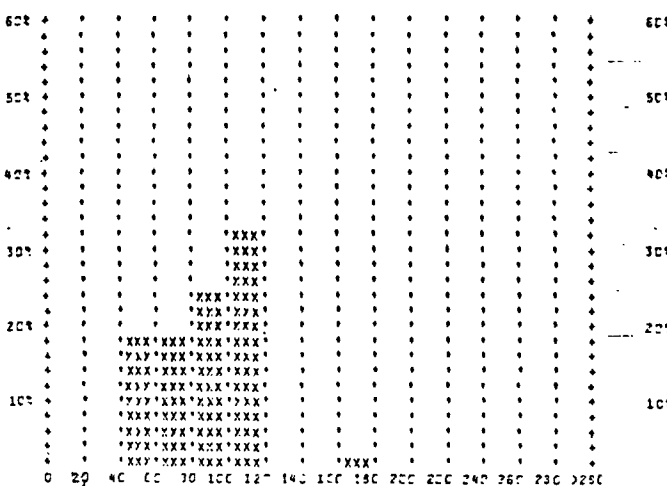
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



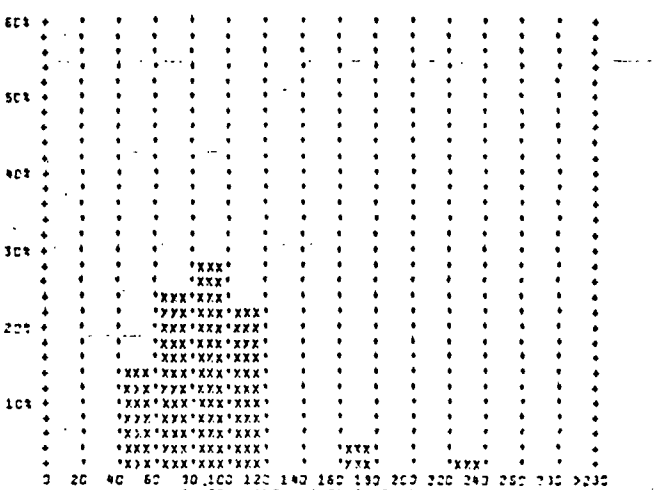
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



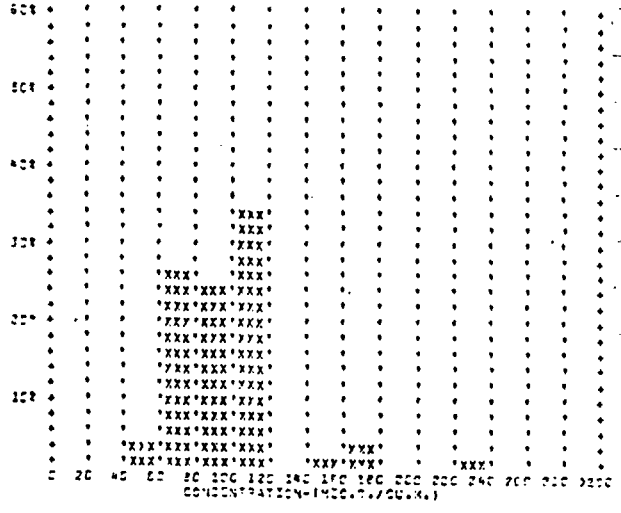
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



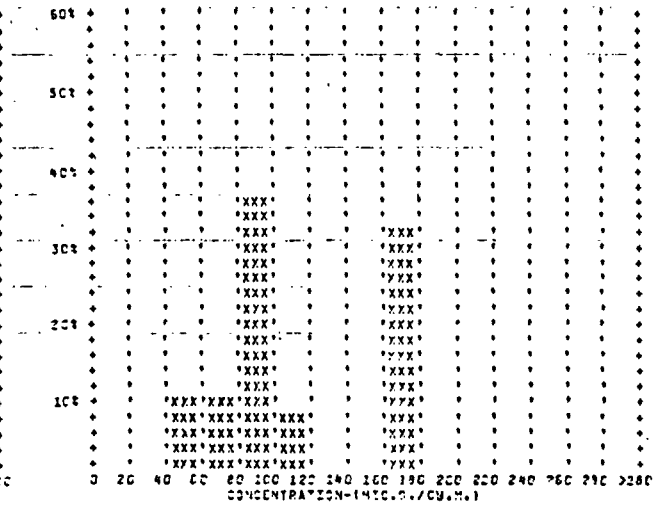
LAM 025570

ABS-035575

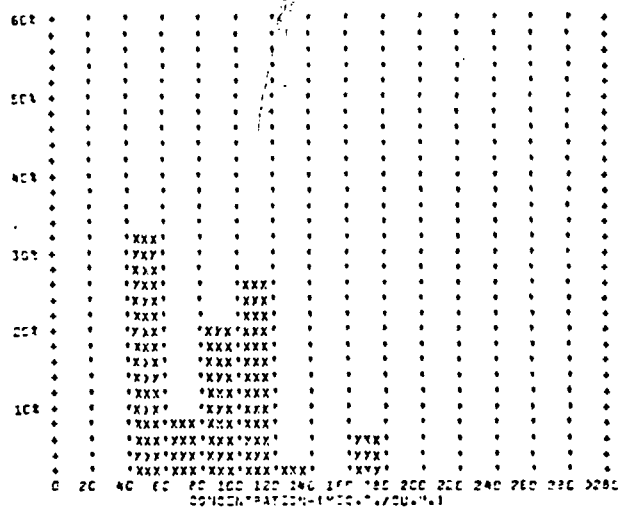
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



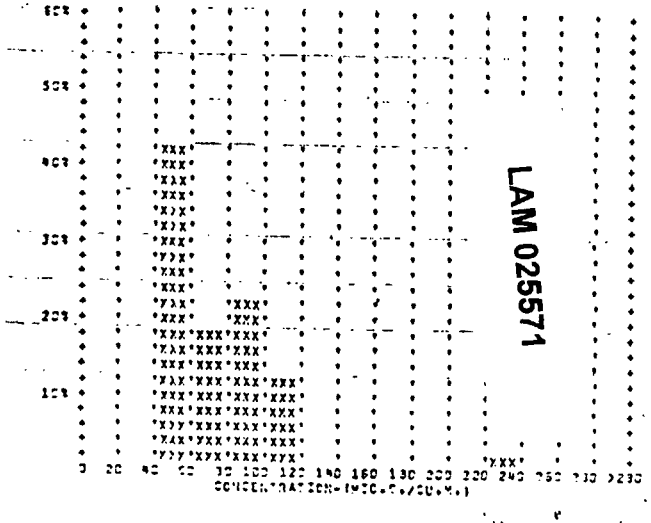
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

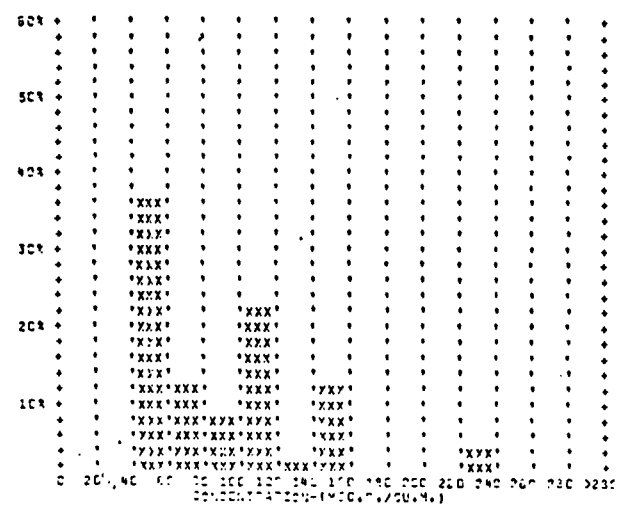


CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

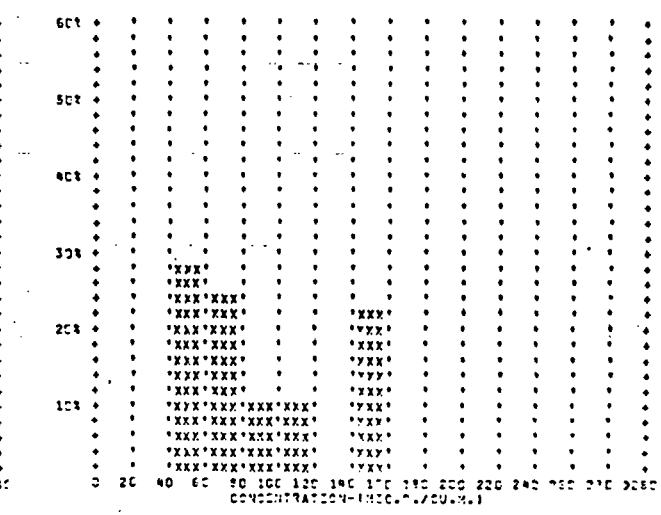


LAM 025571

CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

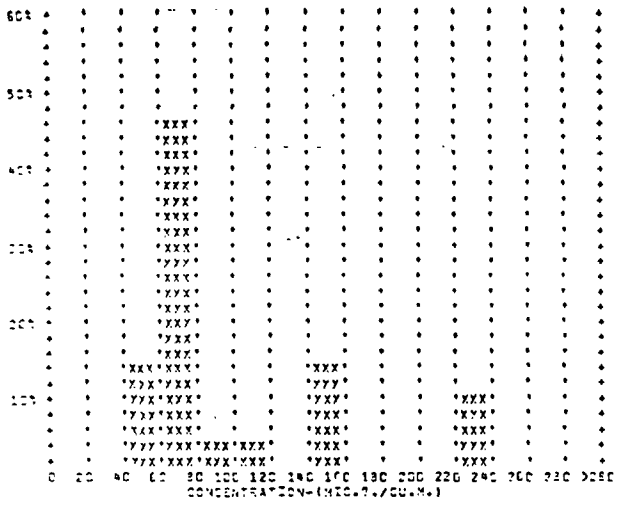


CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

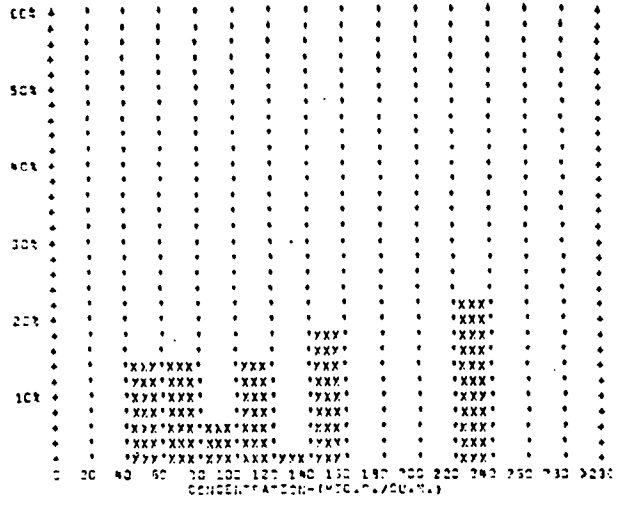


ABS-035576

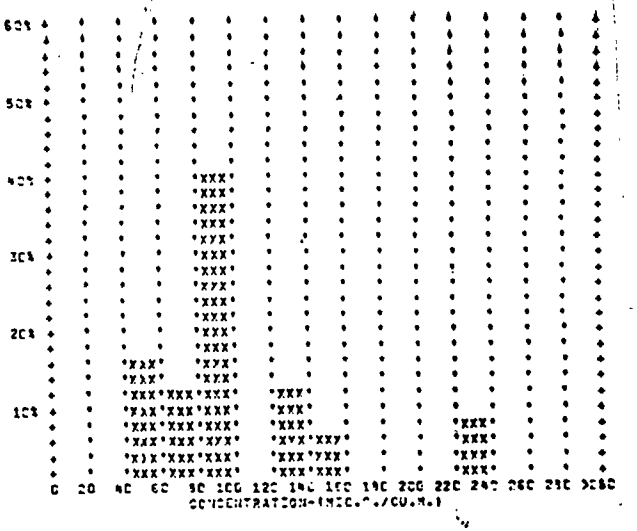
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



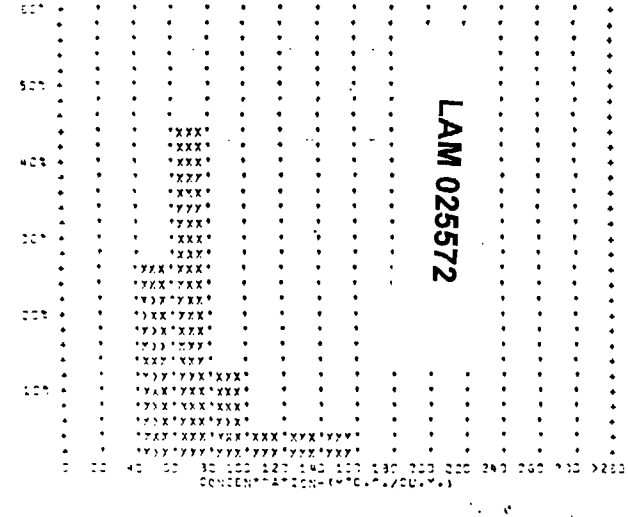
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



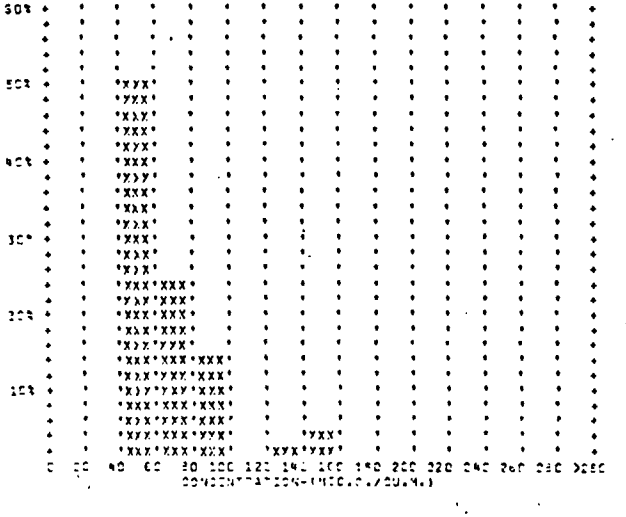
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



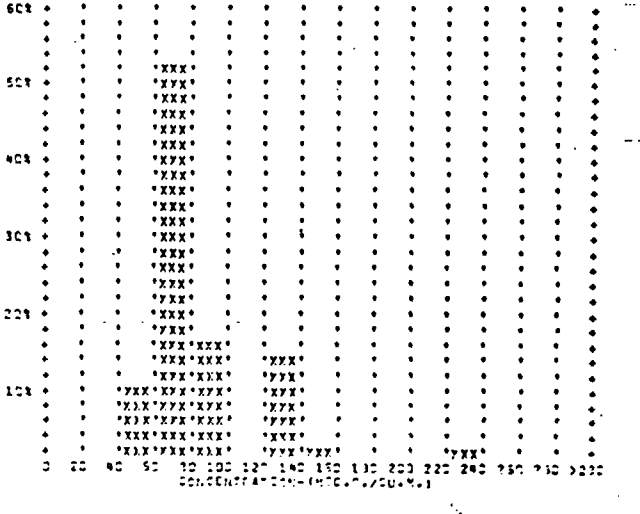
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



LAM 025572

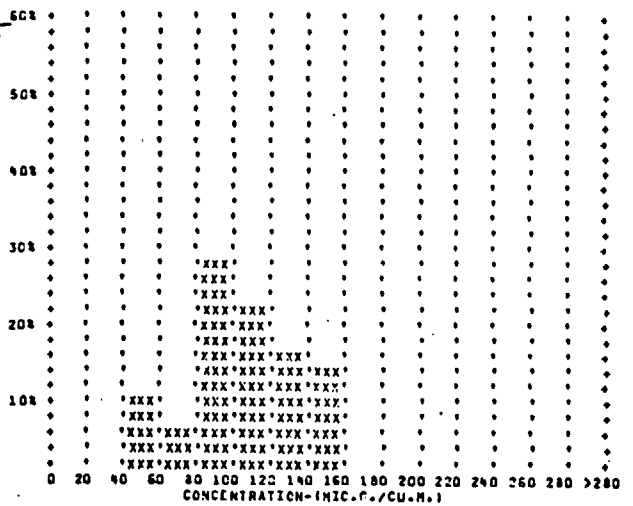
ABS-035577

WITHOUT SUSPECT DATA POINT
(NOT USED BECAUSE NO SIGN. DIFF.)

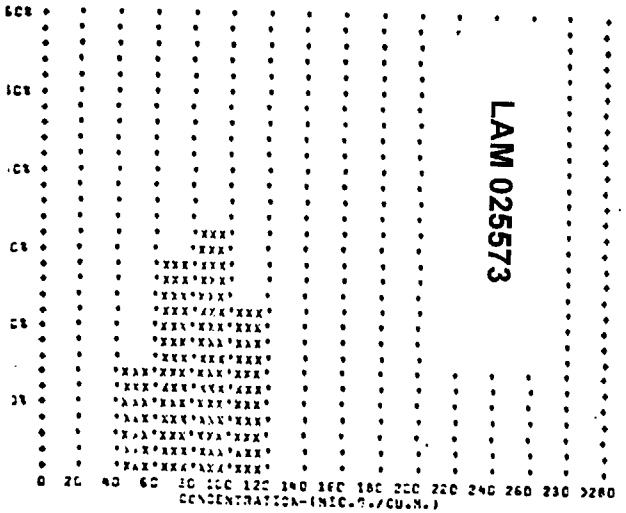
CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	56	102.2	26.2
NNE	21	94.4	19.1
NE	36	97.2	23.8
ENE	29	96.7	25.3
E	56	95.0	24.0
ESE	48	109.1	40.3
SE	33	94.4	31.9
SSE	54	71.9	20.5
S	125	95.4	31.8
SSW	27	96.0	25.1
SW	17	80.7	31.7
WSW	20	87.3	33.6
W	28	91.6	27.0
WNW	22	73.3	26.6
NW	39	78.3	25.8
NNW	41	94.4	23.6

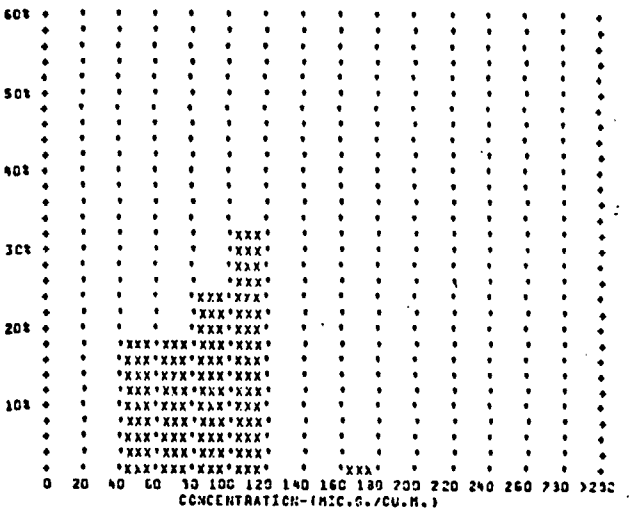
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 AUGUST 22, 1975
WIND DI CN -- N
FREQUENCY DIS'N ION OF PART. CONC.



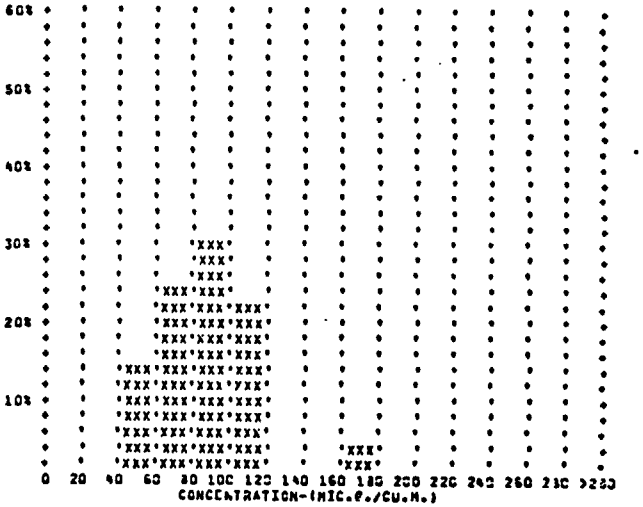
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



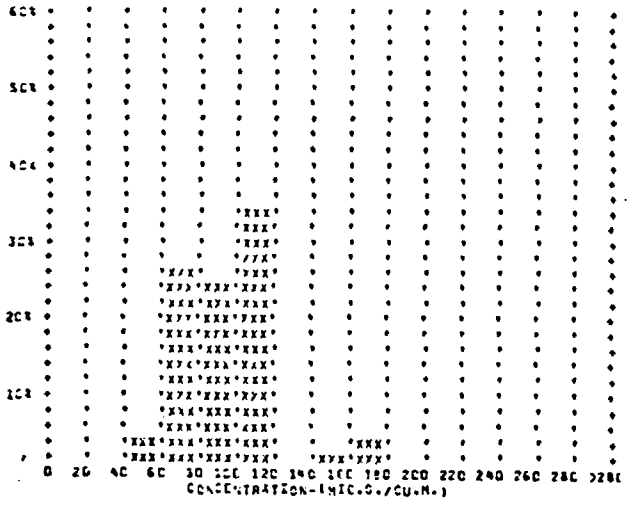
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



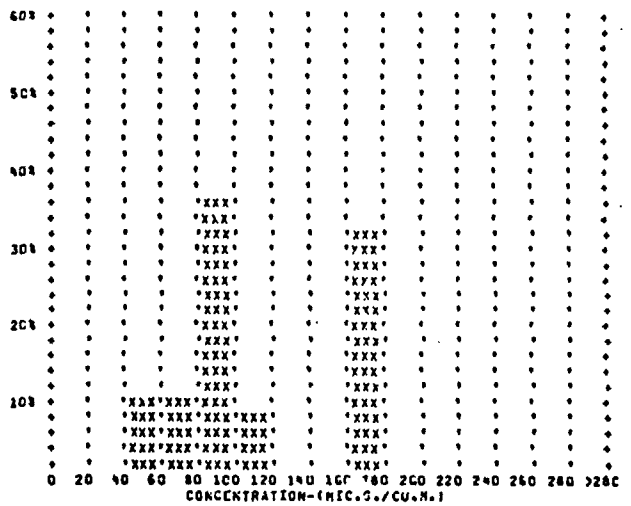
LAM 025573

ABS-035578

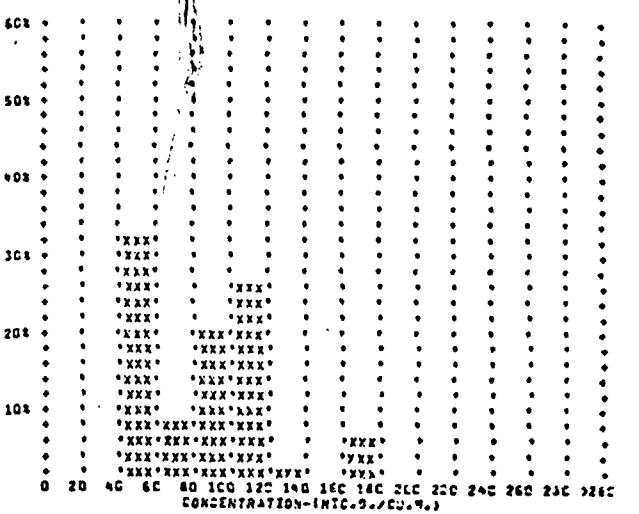
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



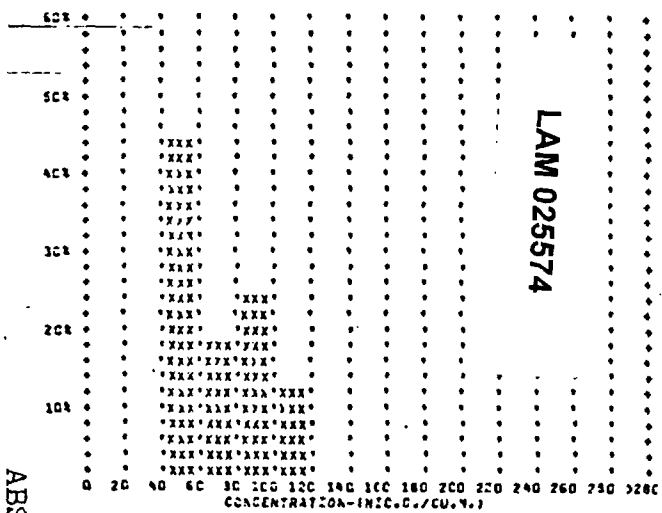
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



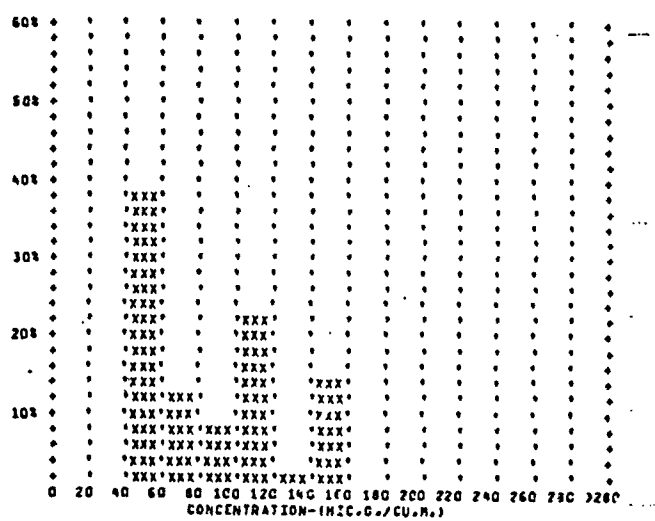
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART.



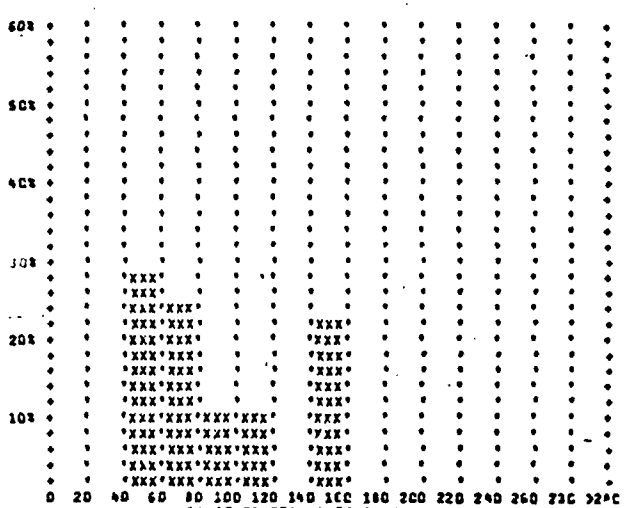
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



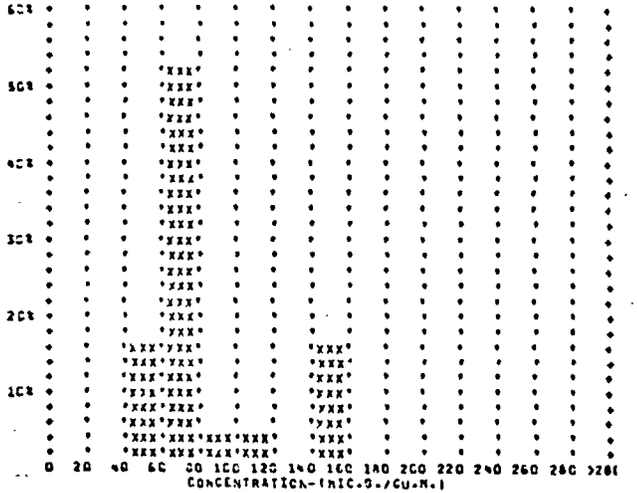
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



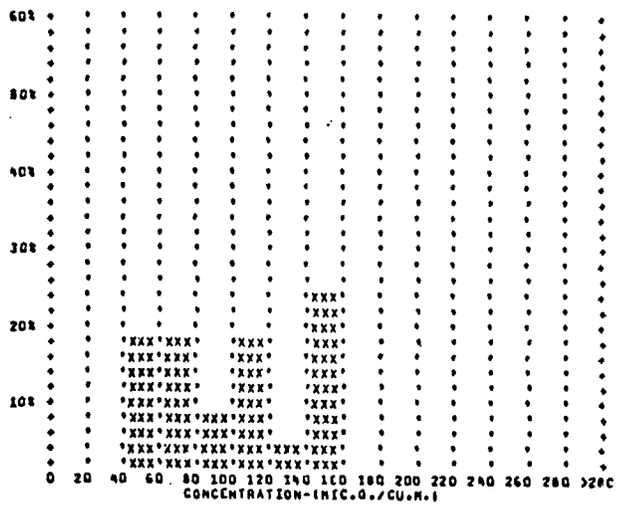
LAM 025574

ABS-035579

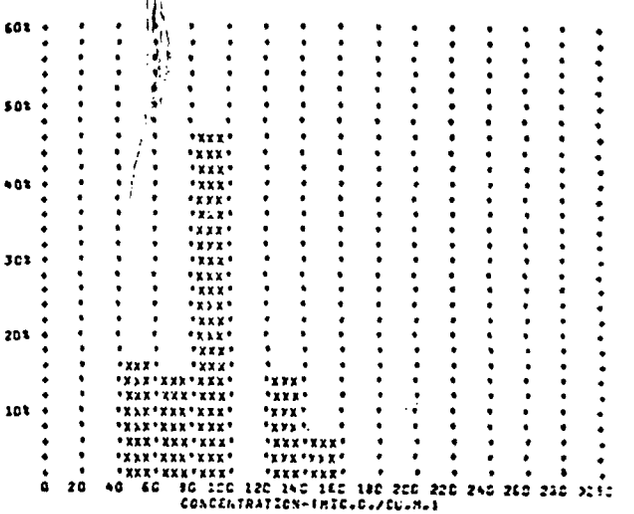
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



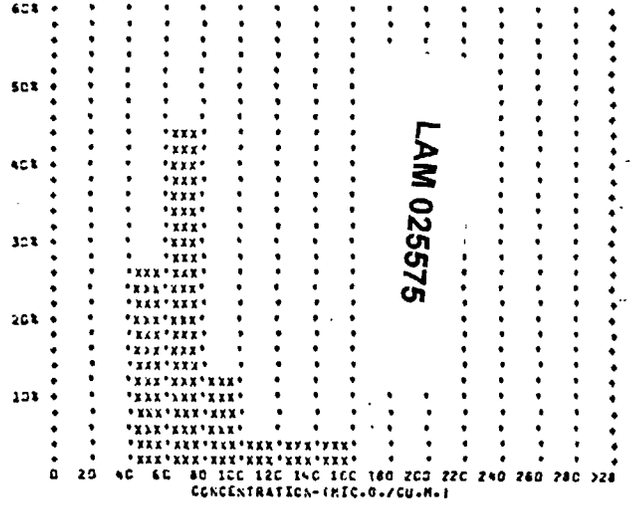
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



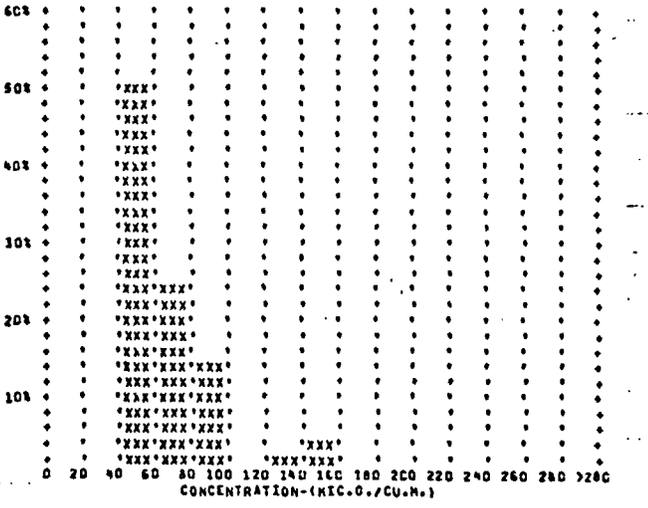
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



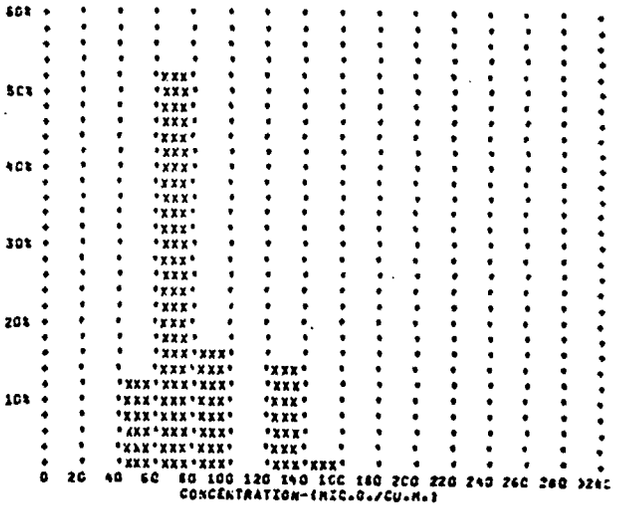
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



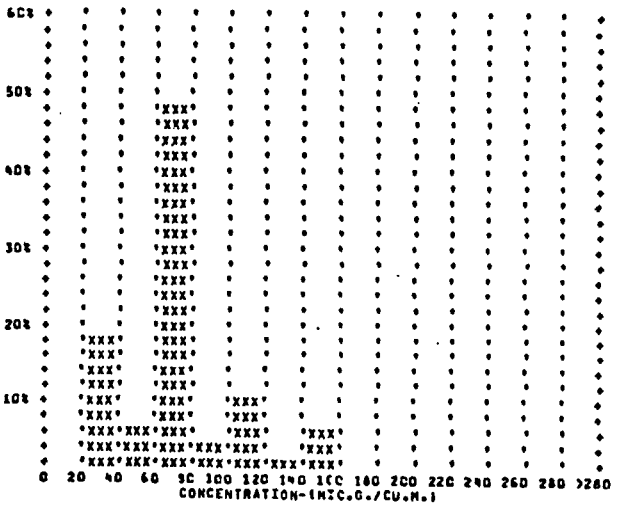
LAM 025575

ABS-035580

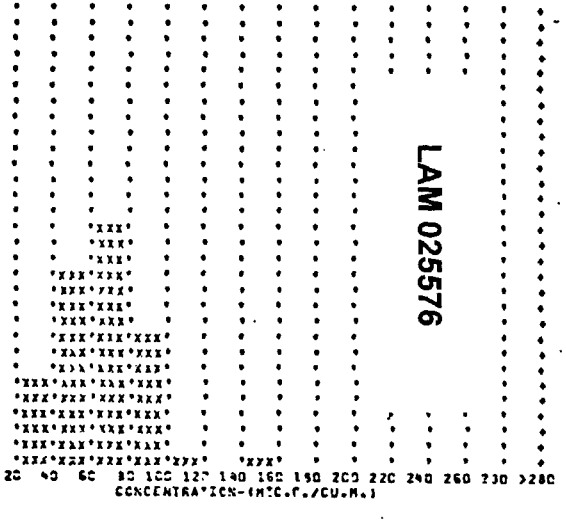
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF MPS.	MEAN	STD. DEV.
N	75	72.3	32.5
NNE	30	69.7	24.8
NE	59	51.9	26.4
ENE	50	55.5	26.1
E	73	51.3	17.1
ESE	76	49.7	21.4
SE	37	86.3	41.7
SSE	73	76.1	26.8
S	179	92.2	31.4
SSW	28	87.7	27.3
SW	18	97.0	26.4
WSW	29	93.9	24.6
W	37	94.2	24.0
WNW	26	73.1	16.7
NW	42	61.1	22.9
NNW	56	59.3	28.7

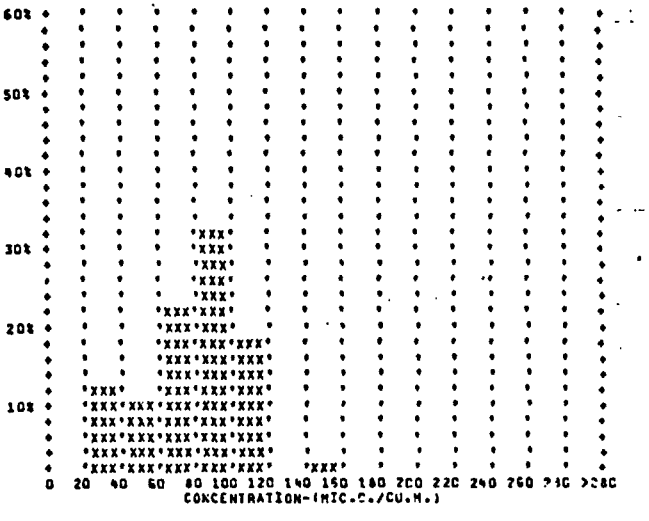
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



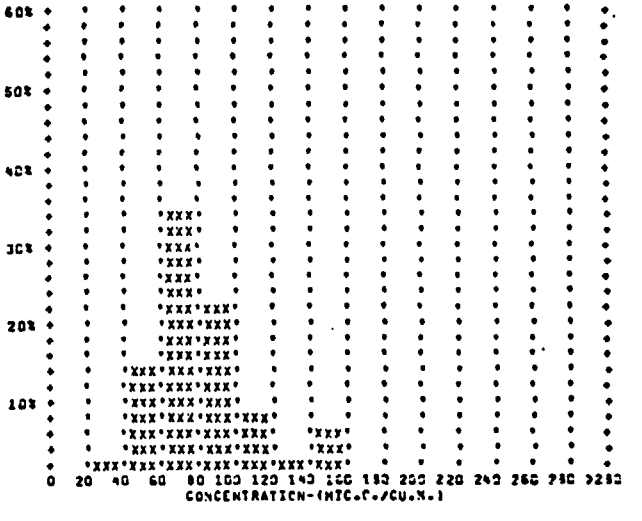
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



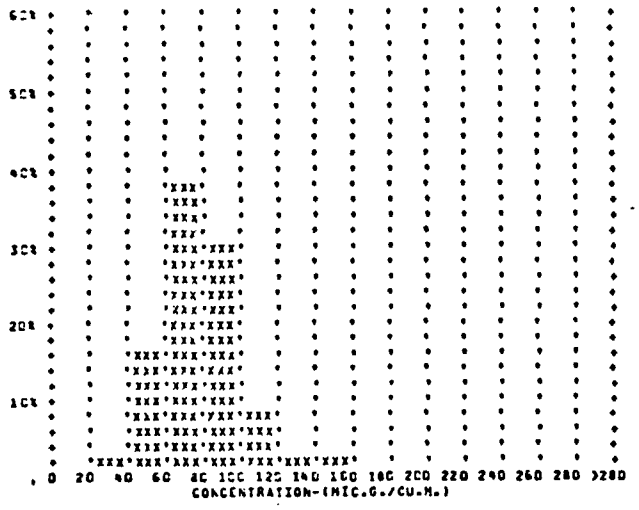
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



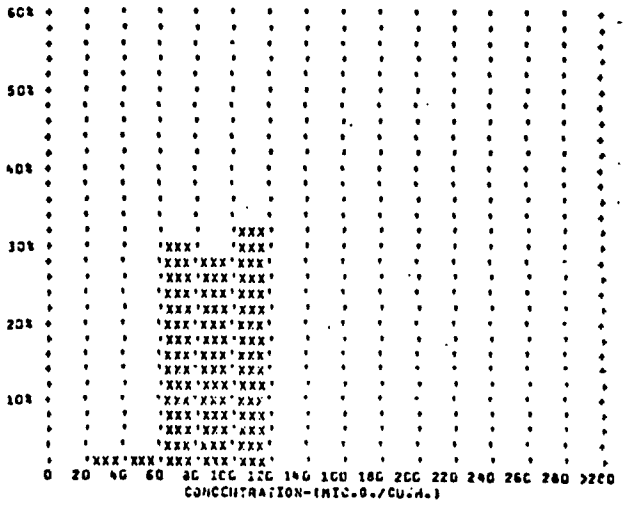
LAM 025576

ABS-035581

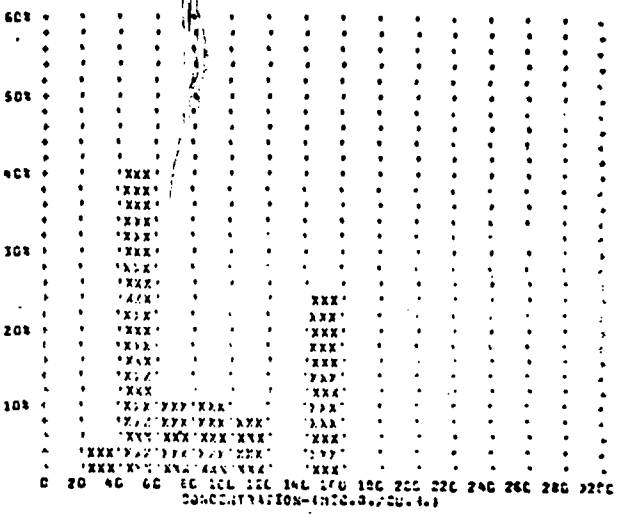
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



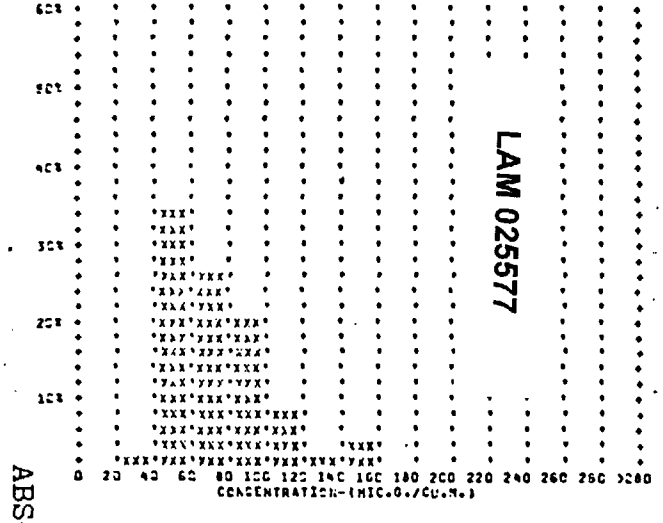
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



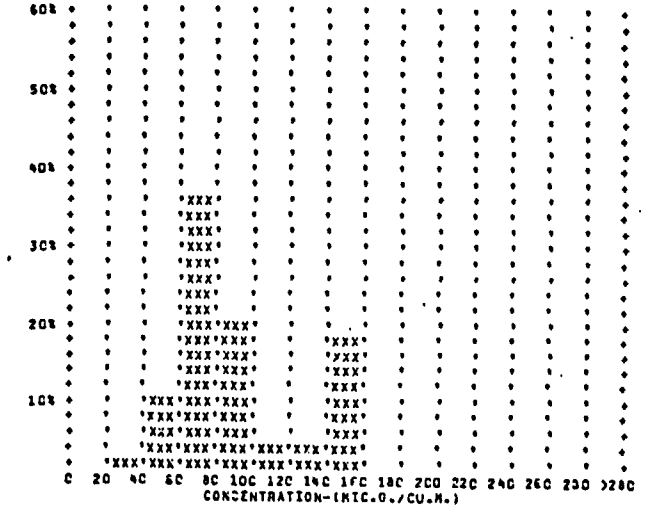
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



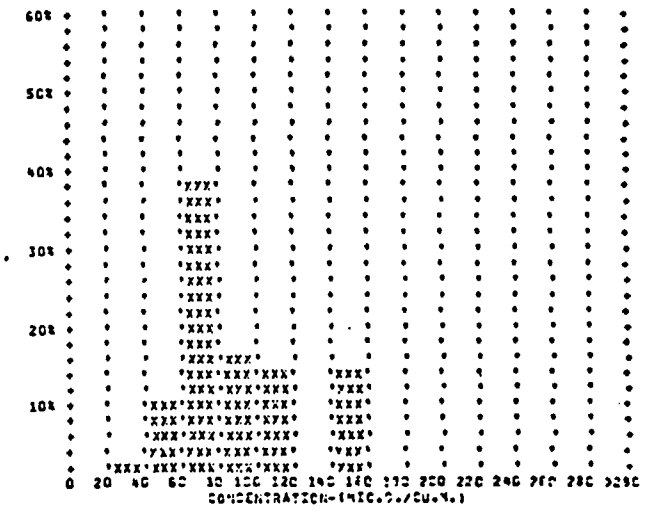
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

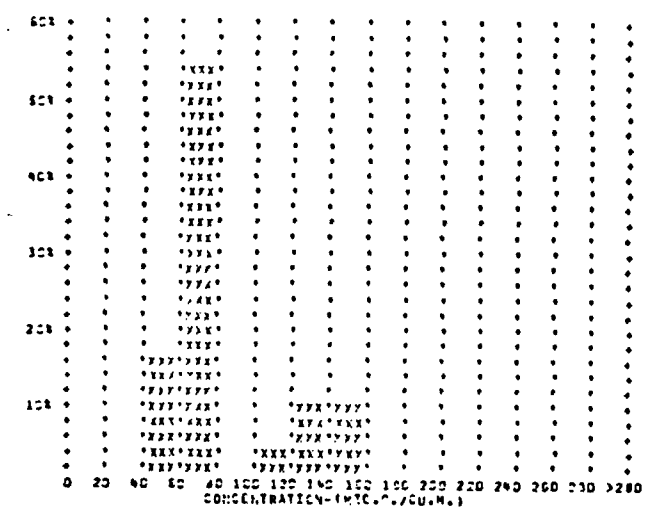


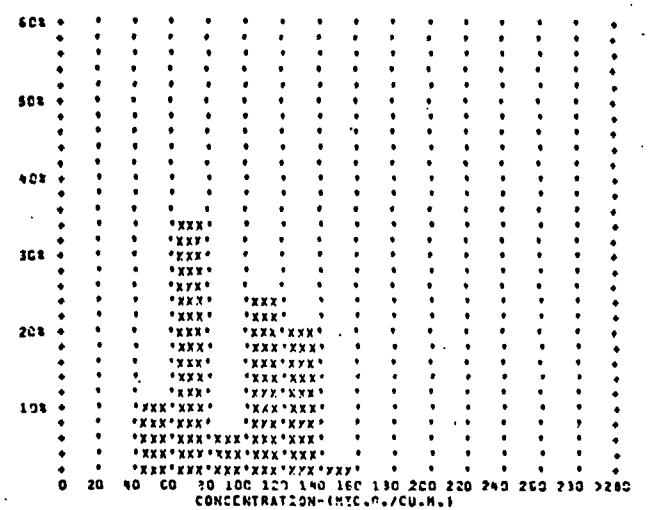
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

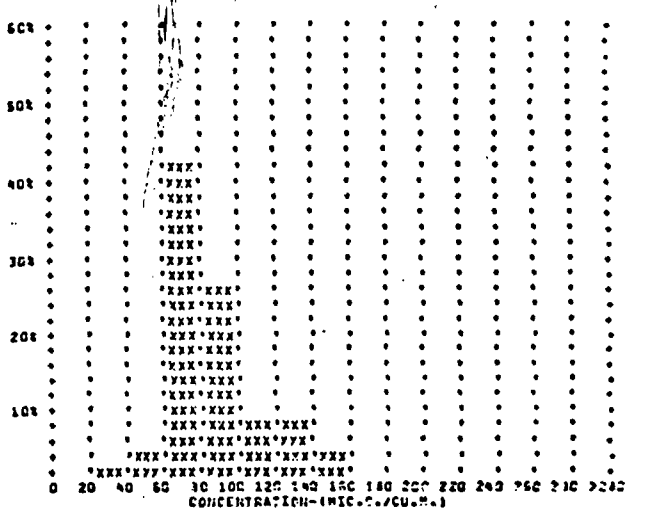


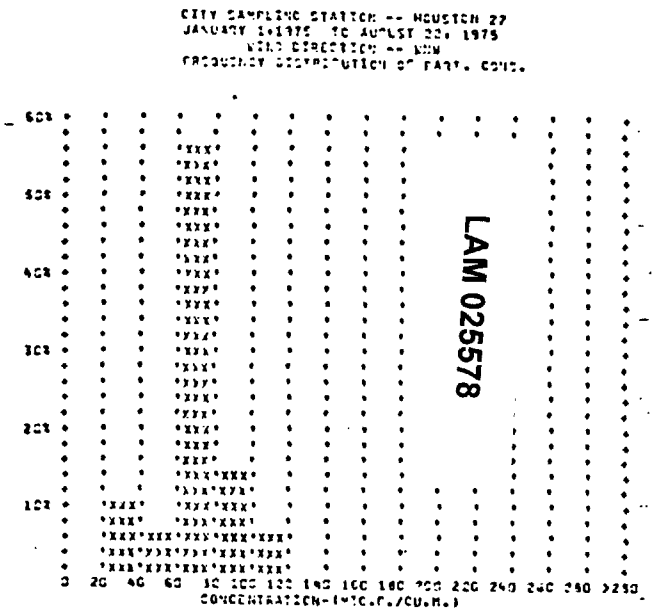
LAM 025577

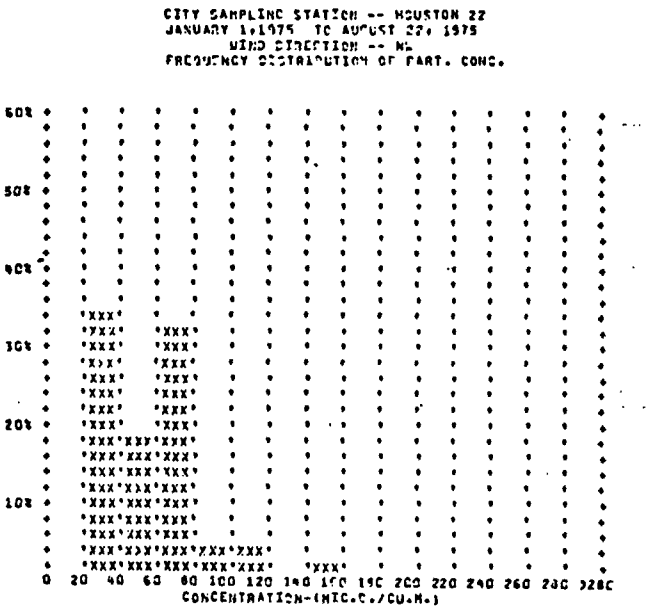
ABS-035582

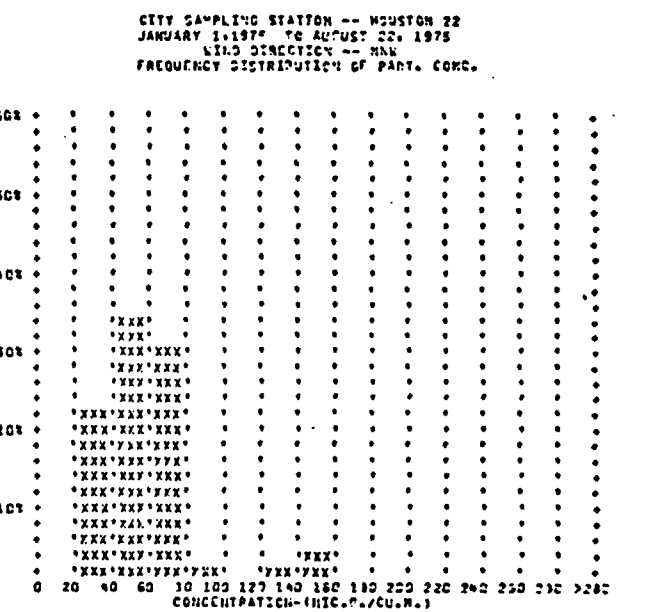












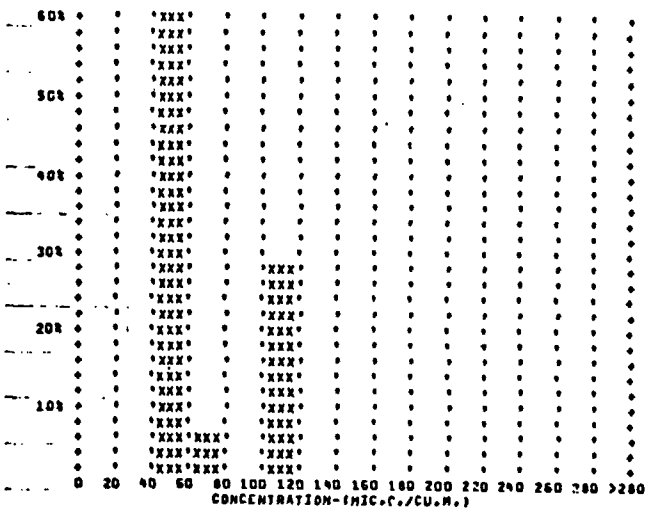
LAM 025578

ABS-035583

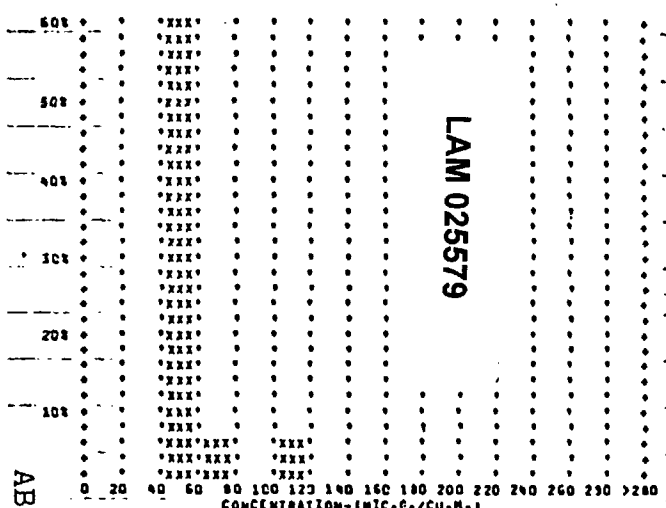
CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	28	67.8	29.8
NNE	15	50.4	16.1
NE	30	72.9	31.7
ENE	25	64.6	33.4
E	45	67.1	30.9
ESE	47	94.9	46.2
SE	10	69.2	49.2
SSE	27	54.9	12.9
S	91	65.4	26.0
SSW	15	85.1	28.8
SW	10	74.3	26.7
WSW	15	82.5	28.7
W	8	81.2	28.5
WNW	9	94.5	23.7
NW	23	97.4	23.0
NNW	10	77.6	25.9

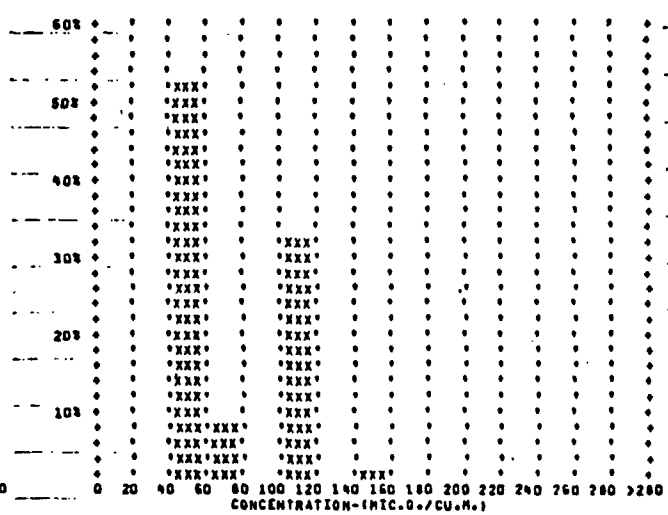
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRE -- N
FREQUENCY DISTRI..ON OF PART. CONC.



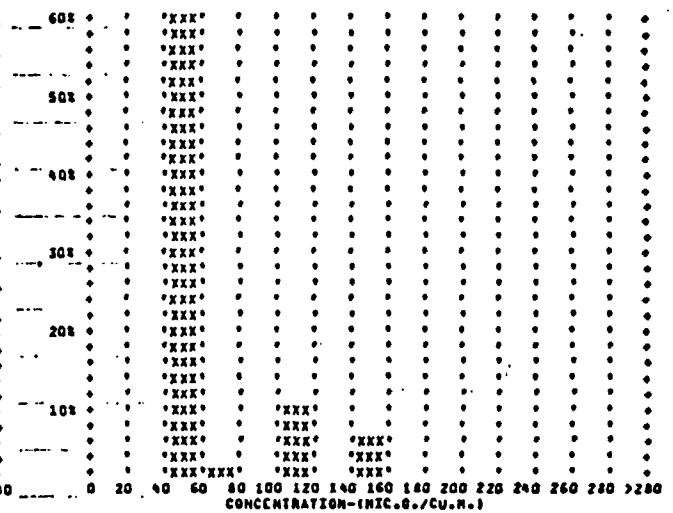
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



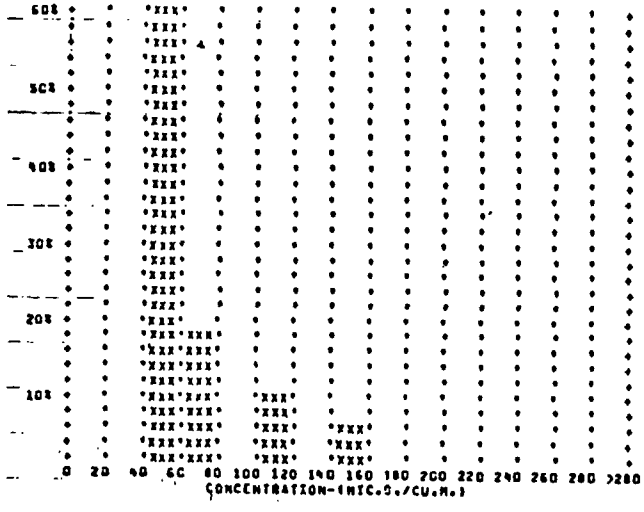
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



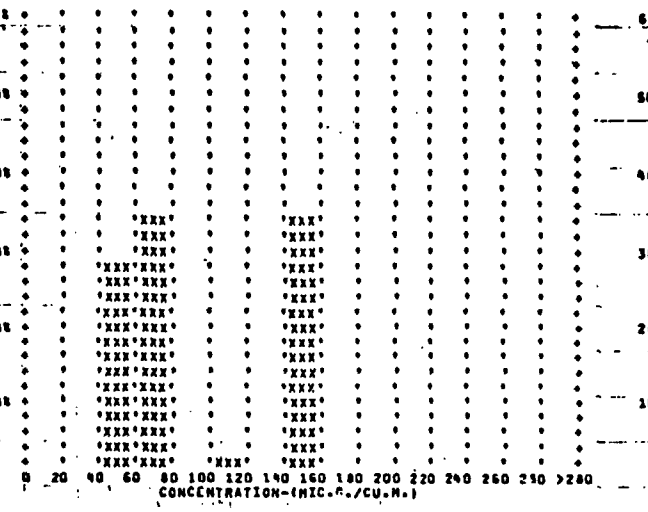
LAM 025579

ABS-035584

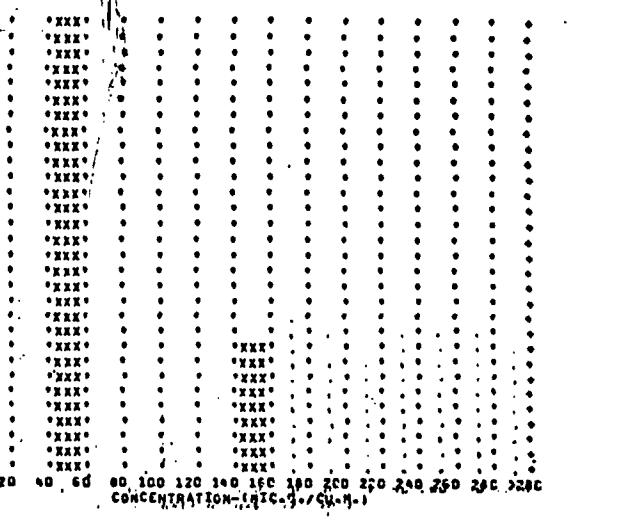
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



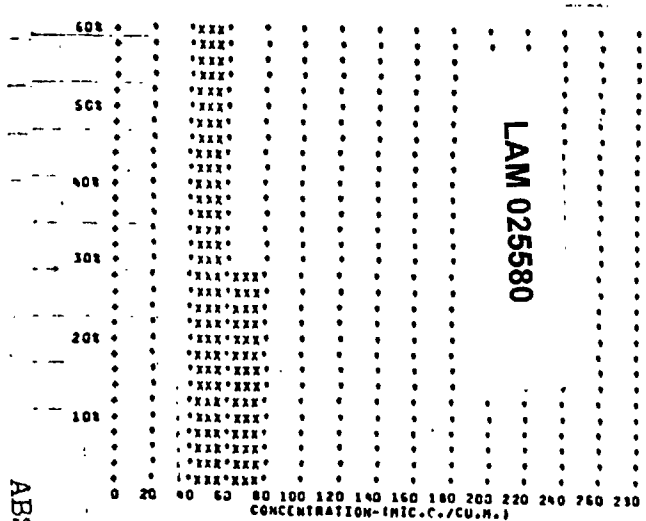
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



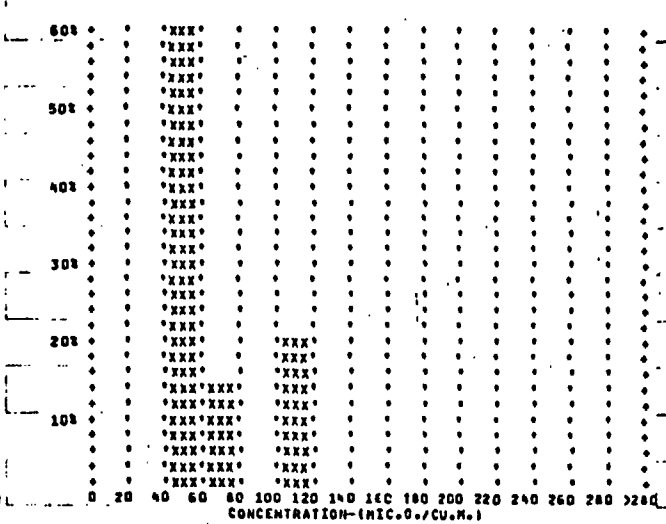
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



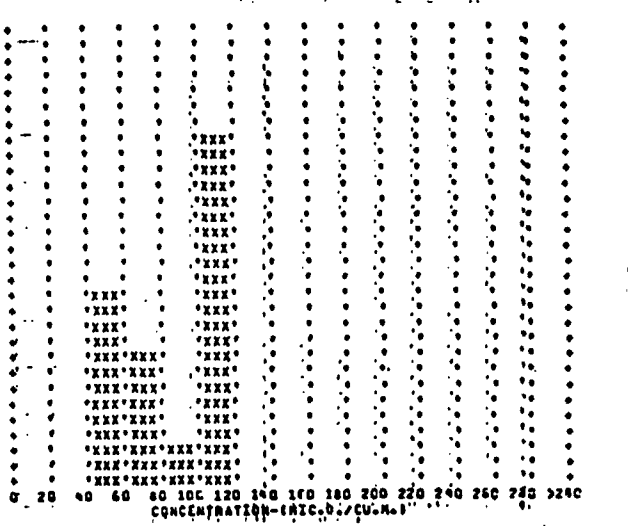
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



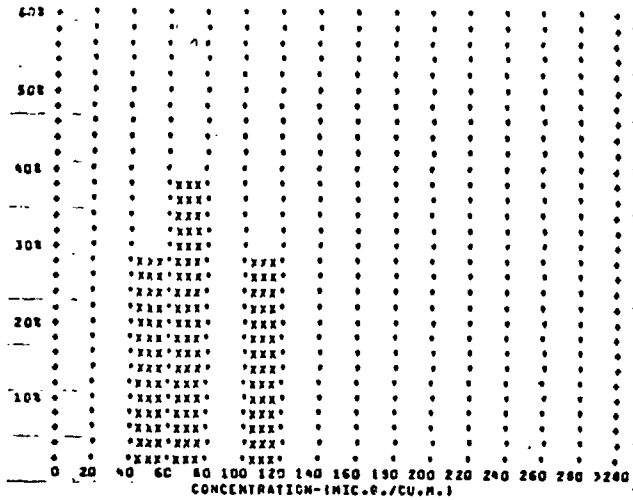
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



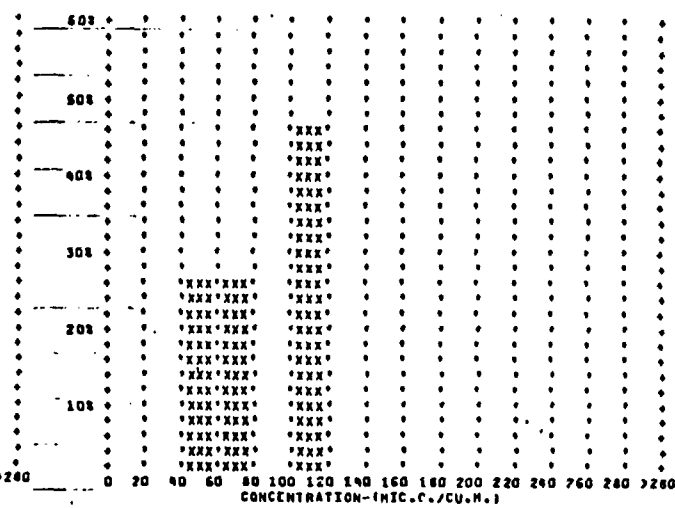
LAM 025580

ABS-035585

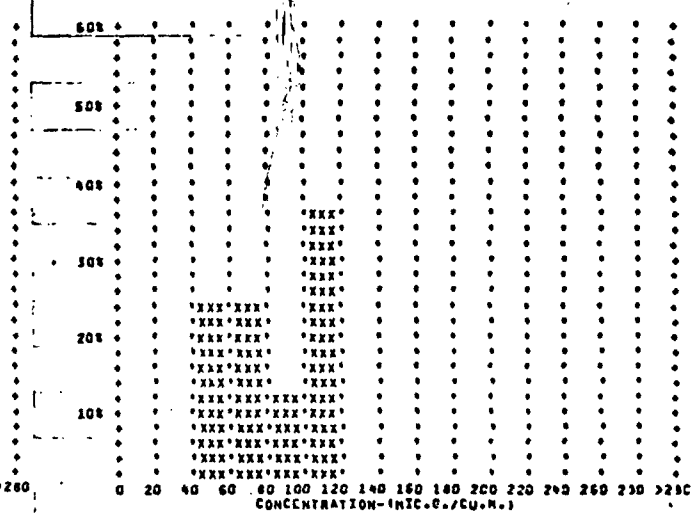
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



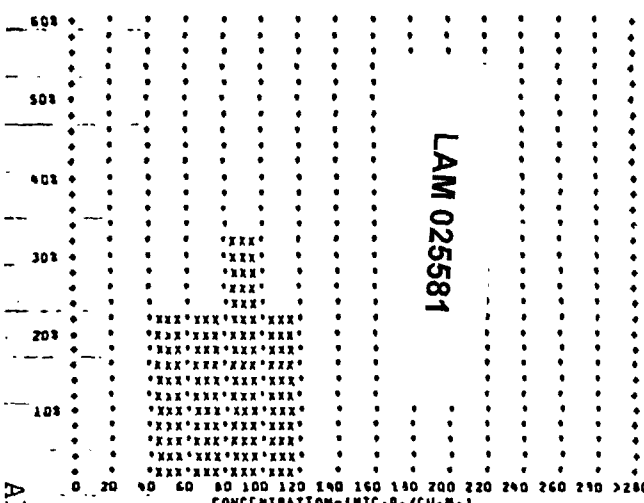
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



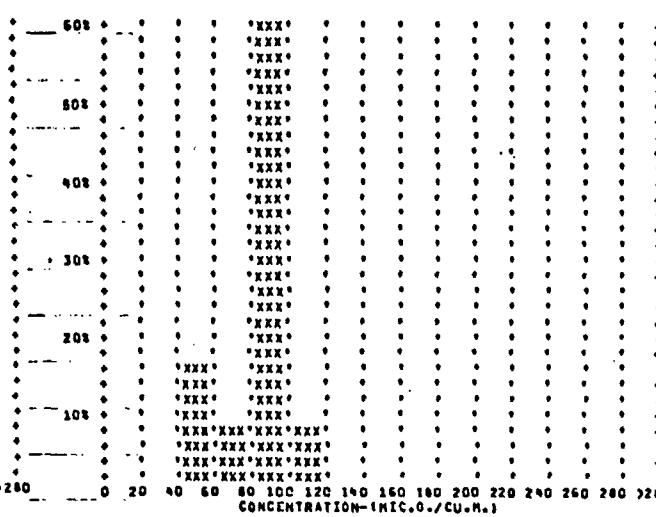
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



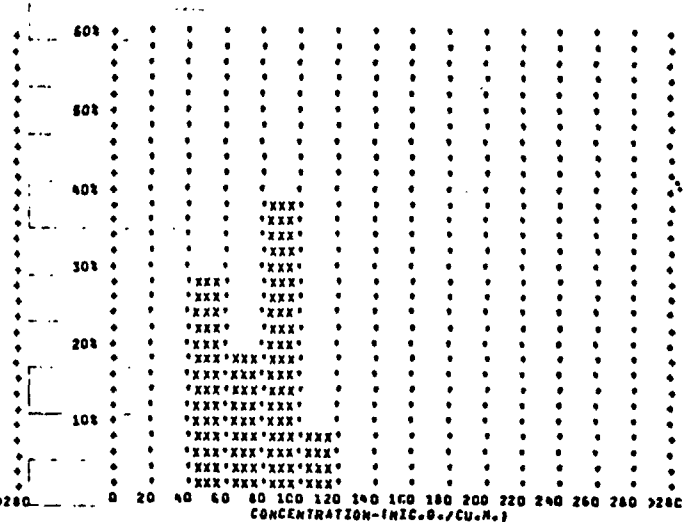
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



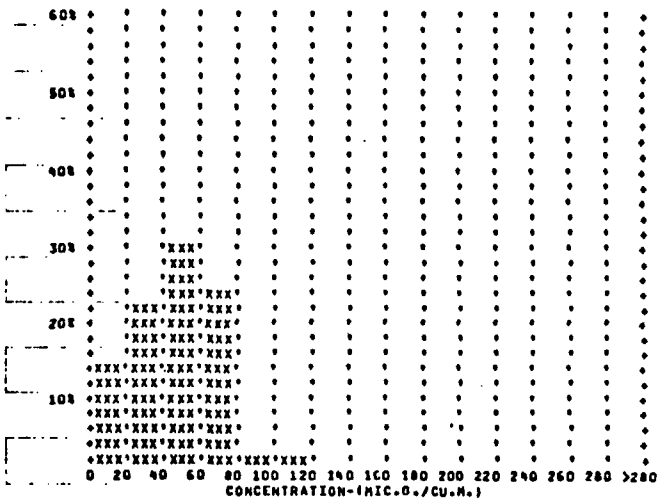
LAM 025581

ABS-035586

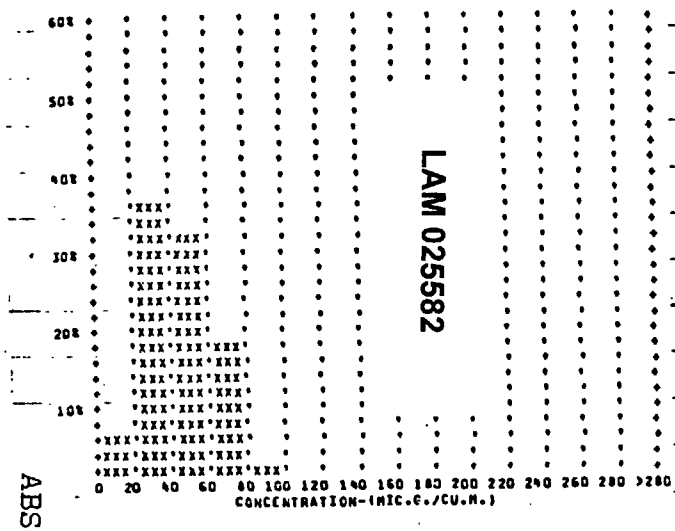
CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	78	47.9	23.0
NNE	3C	46.7	19.0
NE	51	55.4	23.8
ENE	48	59.4	27.3
E	75	62.3	27.1
ESE	79	84.5	42.9
SE	37	74.6	37.5
SSE	73	71.9	25.8
S	183	79.9	29.9
SSW	29	65.5	25.2
SW	19	66.9	28.2
WSW	3C	71.2	24.1
W	36	55.1	20.5
WNW	26	49.7	16.5
NW	42	38.7	14.9
NNW	56	37.8	21.6

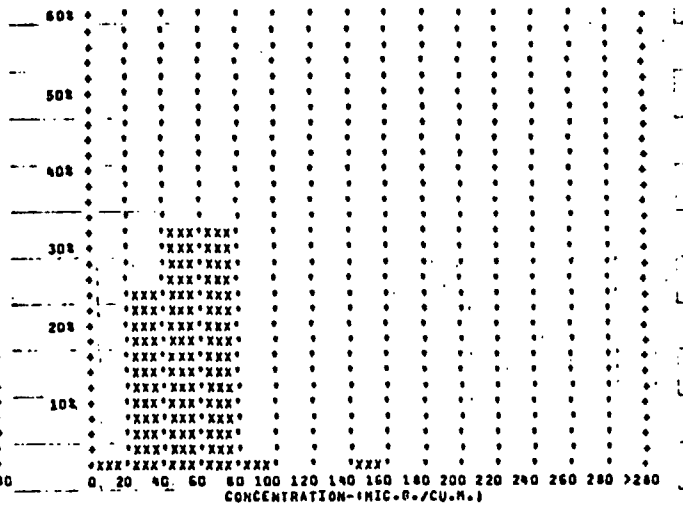
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



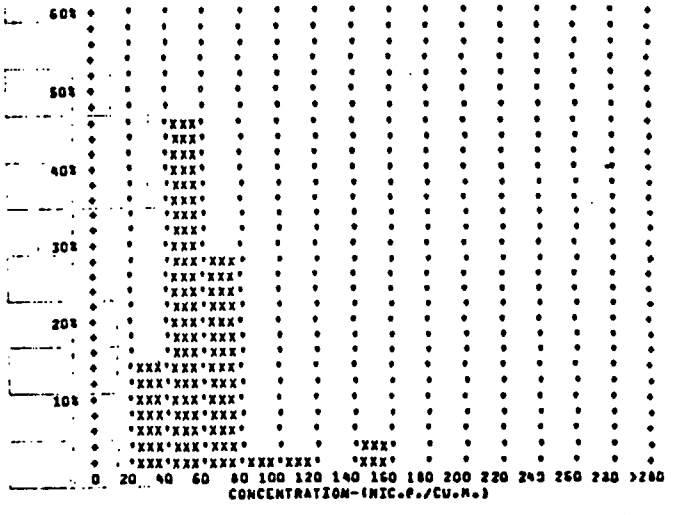
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.

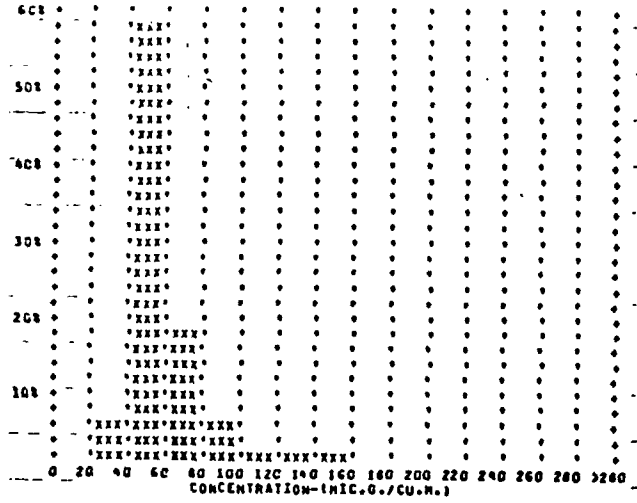


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

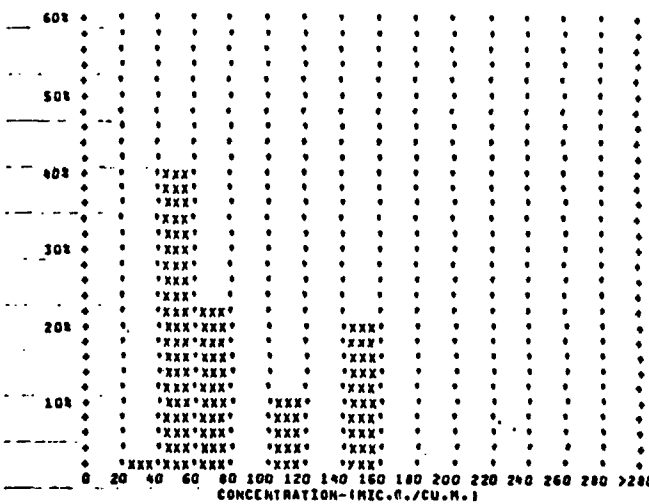


LAM 025582
ABS-035587

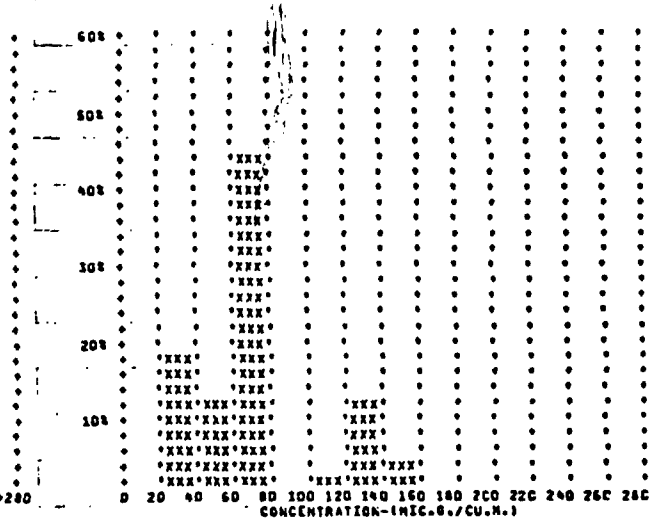
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



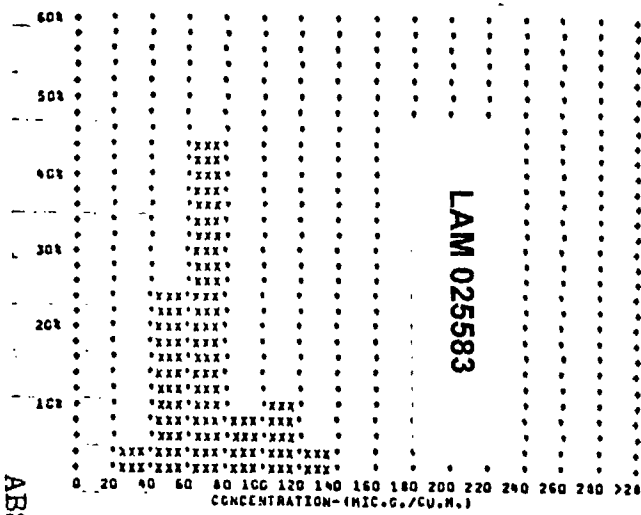
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



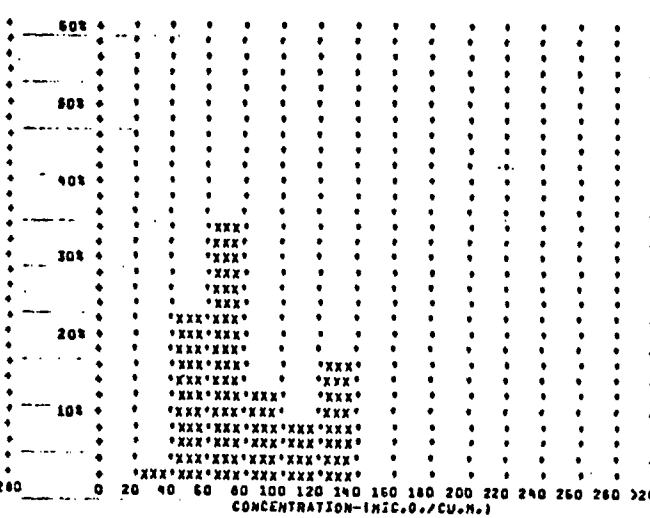
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



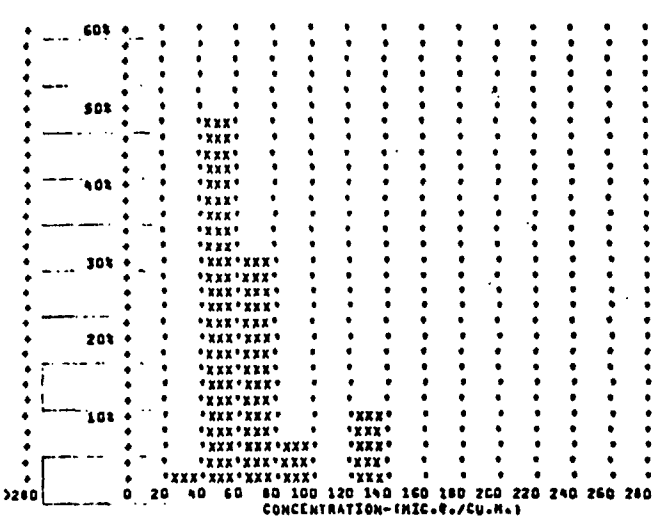
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

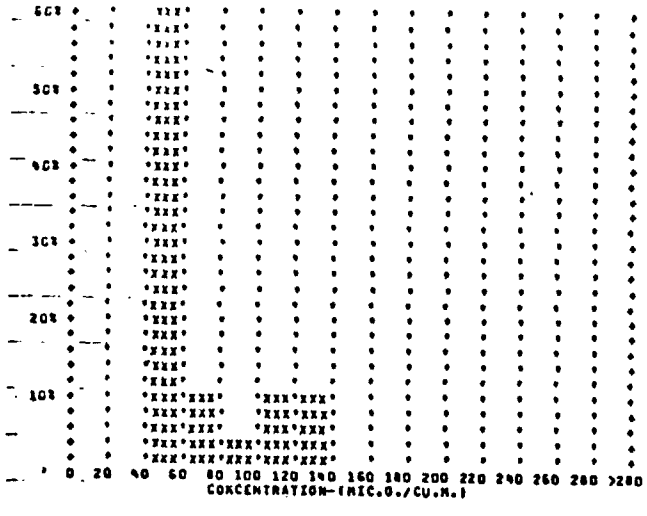


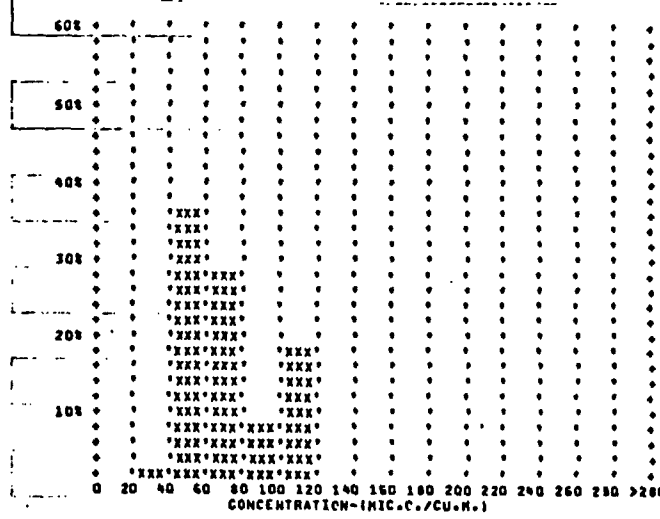
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

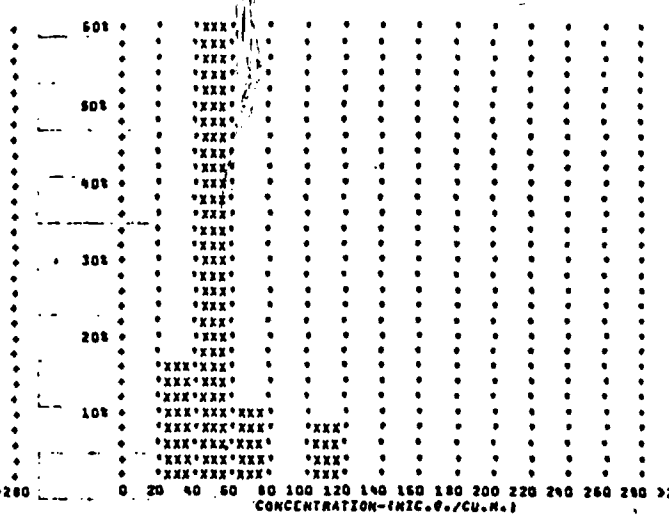


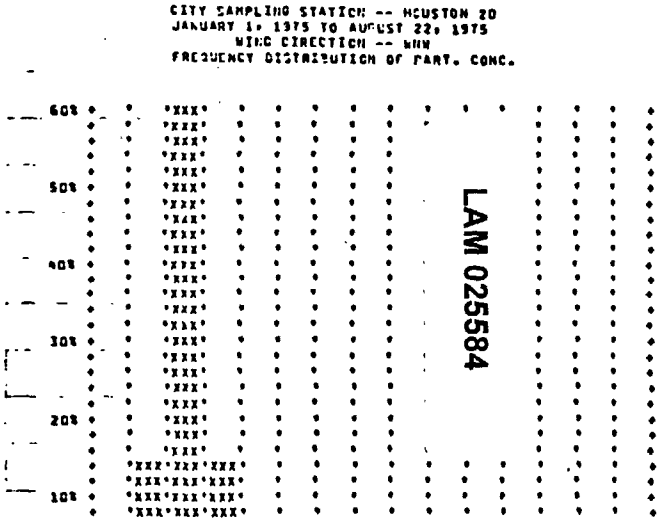
LAM 025583

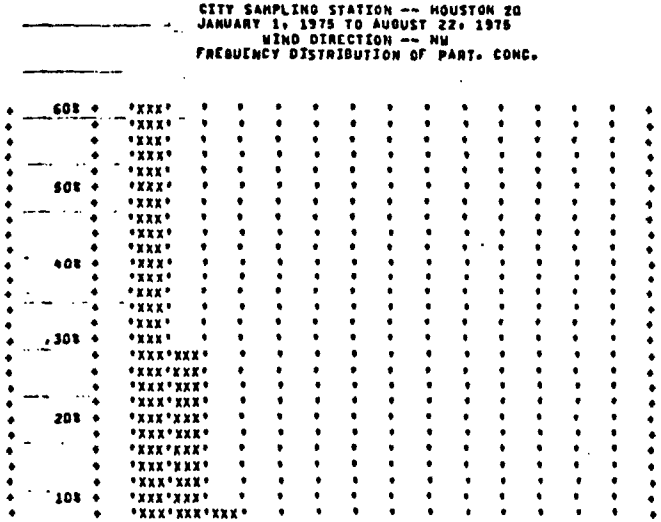
ABS-035588

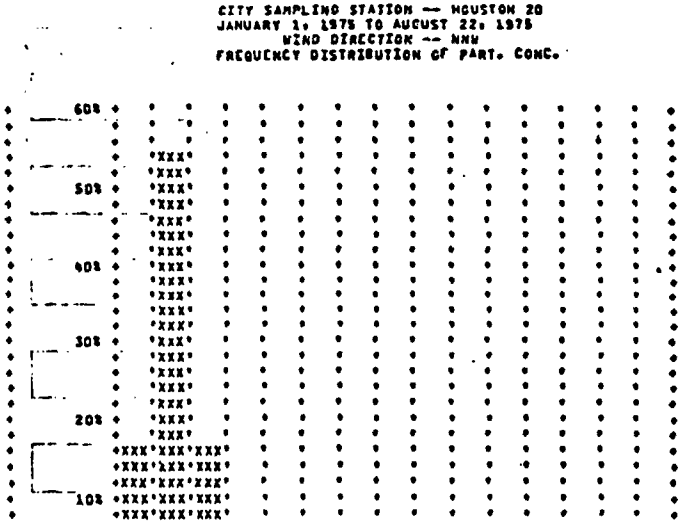












LAM 025584

ABS-035589

CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	63	81.3	23.4
NNE	27	67.6	19.2
NE	43	68.6	22.7
ENE	46	78.2	23.1
E	68	74.4	20.5
ESE	72	83.1	26.5
SE	37	71.3	34.4
SSE	68	61.5	25.4
S	172	72.6	27.1
SSW	26	82.8	56.9
SW	18	69.2	28.1
WSW	27	75.7	22.0
W	36	81.8	46.2

Not used
(bad data point)

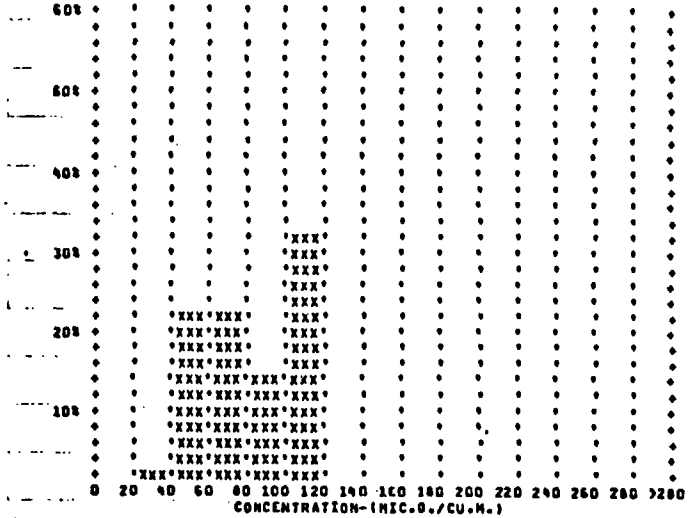
LAM 025585

ABS-035590

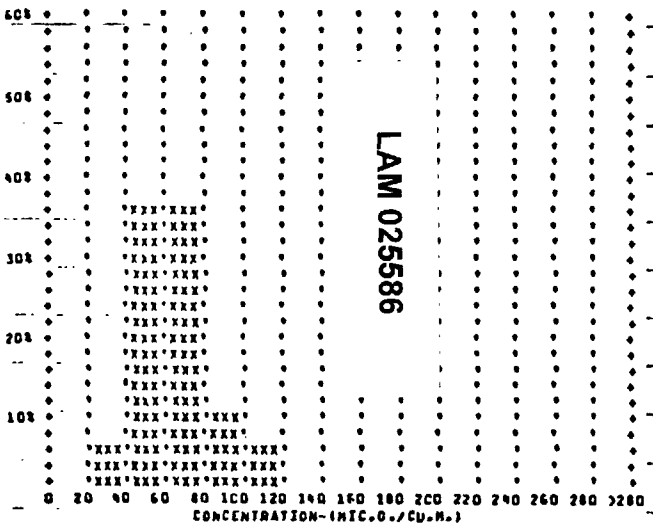
CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	63	81.3	23.4
NNE	27	67.6	19.2
NE	43	68.6	22.7
ENE	46	78.2	23.1
E	68	74.4	20.5
ESE	72	83.1	26.5
SE	37	71.3	34.4
SSE	68	61.5	25.4
S	172	72.6	27.1
SSW	25	72.8	27.5
SW	18	69.2	28.1
WSW	27	75.7	22.0
W	35	74.7	18.3
WNW	21	60.7	16.7
NW	27	73.5	22.3
NNW	43	70.6	20.4

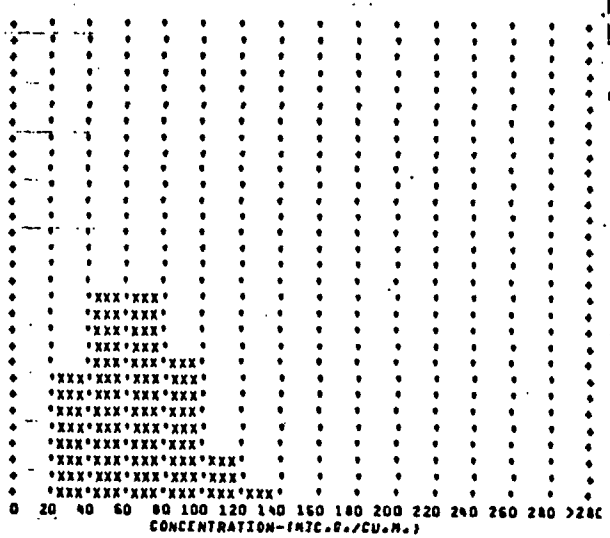
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



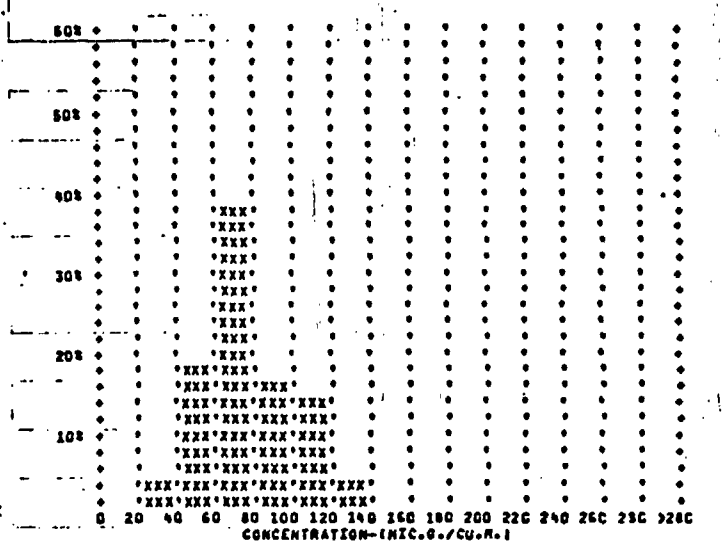
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



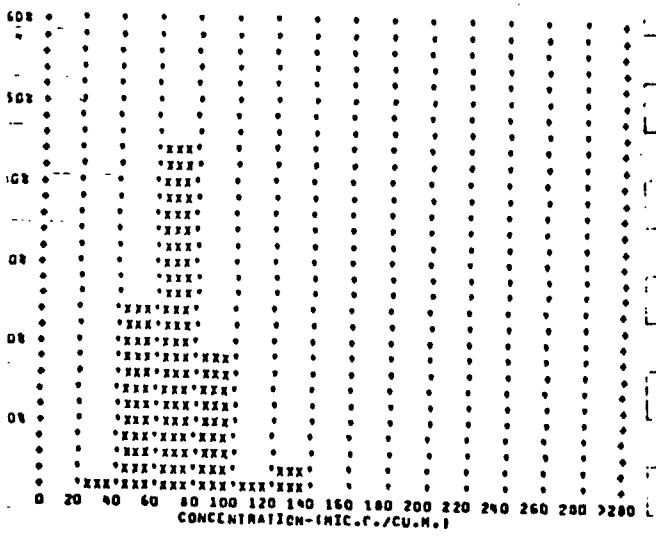
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



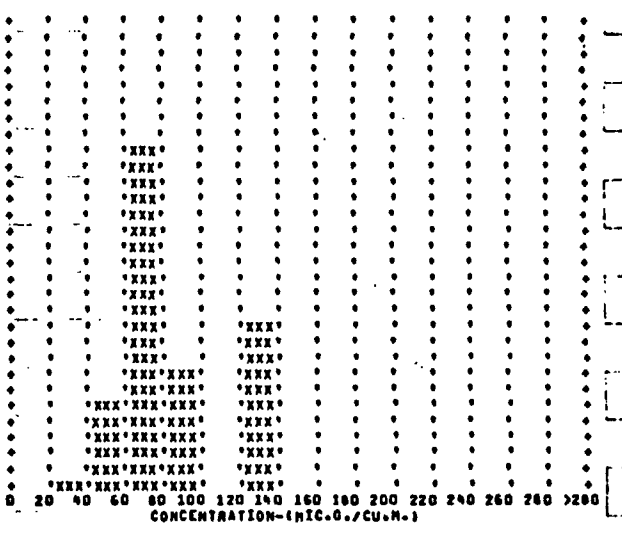
LAM 025586

ABS-035591

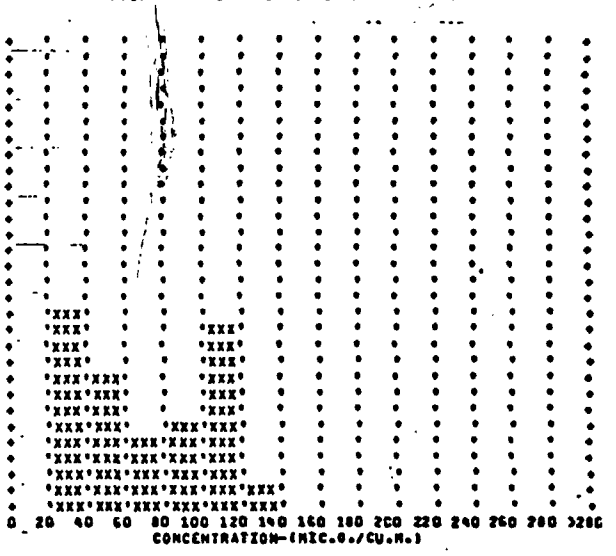
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



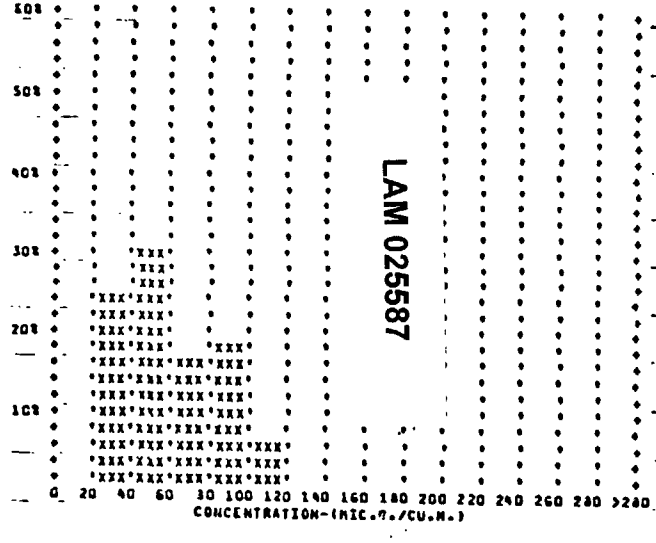
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



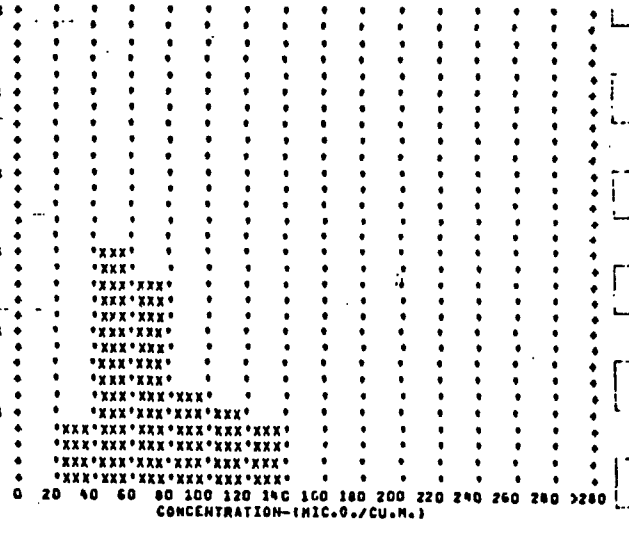
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART.



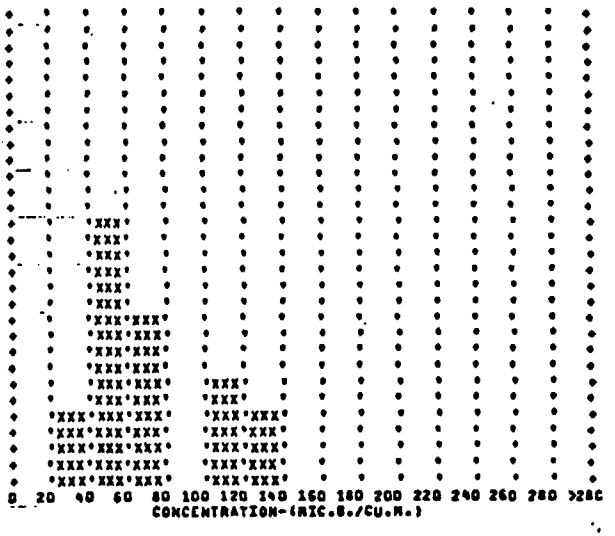
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



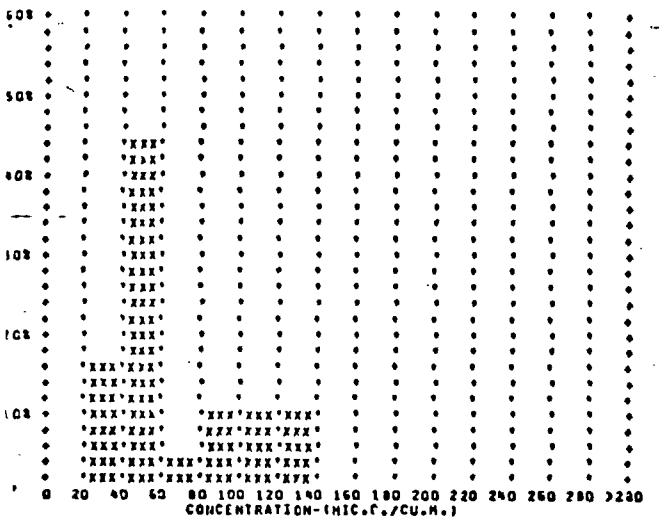
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



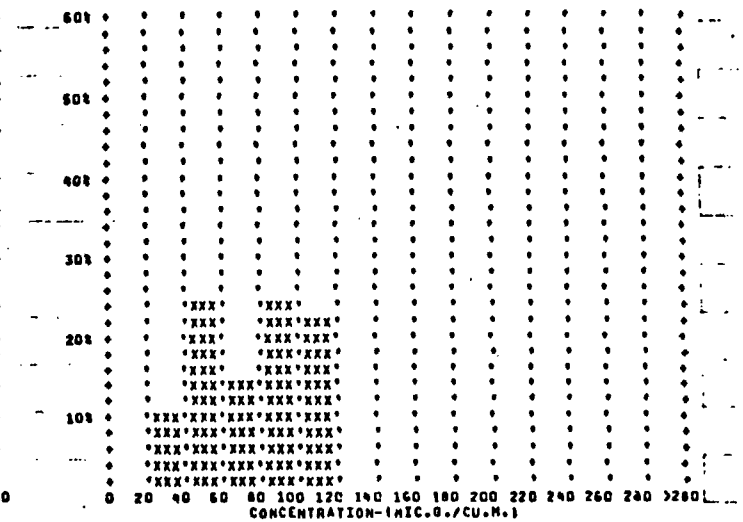
LAM 025587

ABS-035592

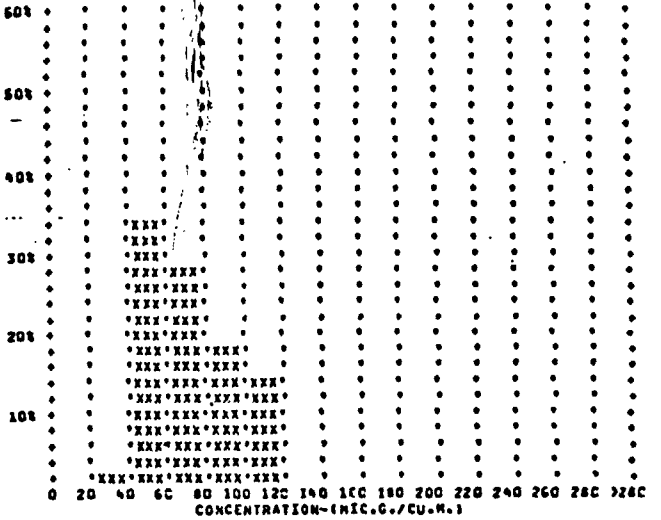
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



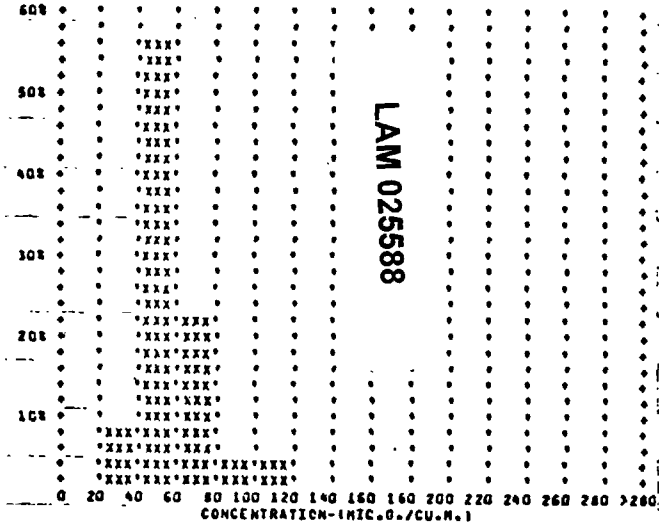
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



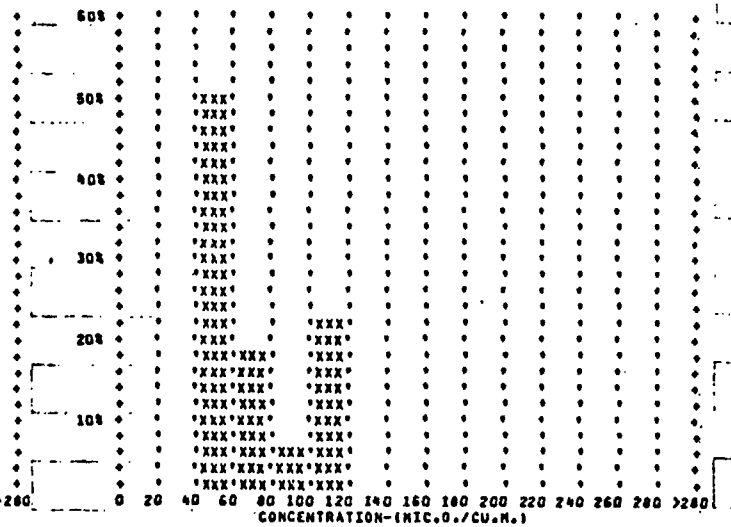
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



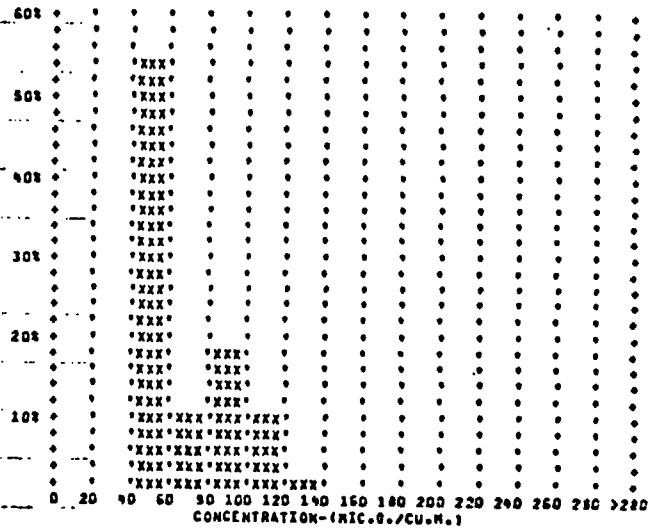
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

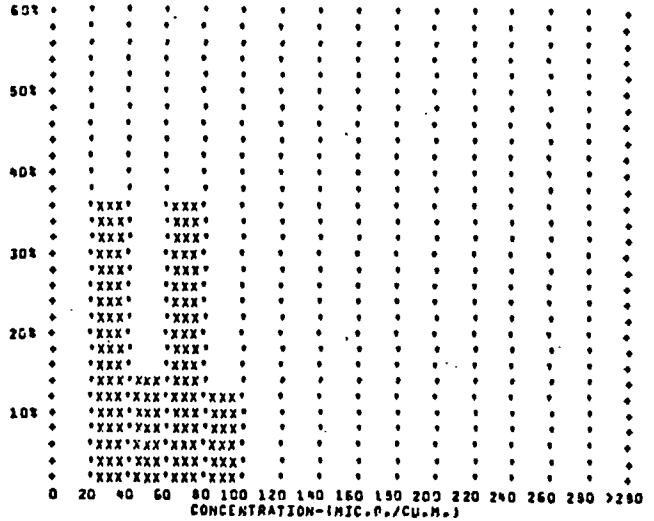


LAM 025588

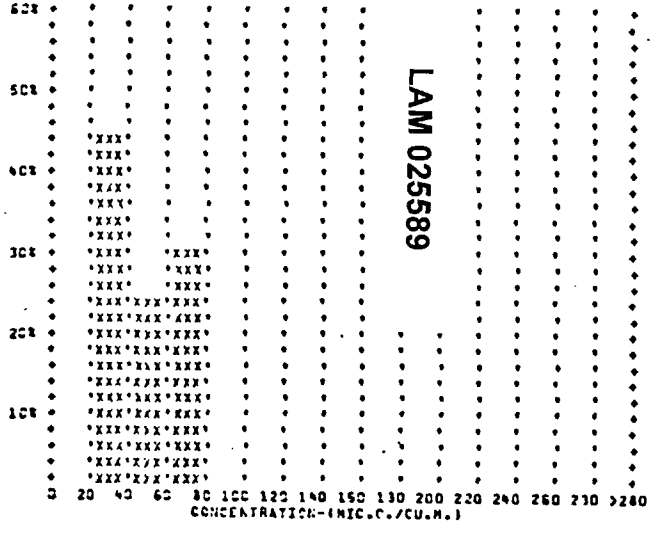
CITY SAMPLING STATION -- HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO AUGUST 22, 1975

WIND DIRECTION	NO. OF OBS.	MEAN	STD. DEV.
N	66	55.8	18.9
NNE	29	47.7	15.9
NE	50	62.0	26.2
ENE	51	65.2	28.4
E	79	66.4	25.9
ESE	70	78.9	36.3
SE	32	60.4	26.0
SSE	69	60.8	22.9
S	168	61.1	23.6
SSW	30	69.0	25.5
SW	19	56.0	22.0
WSW	32	51.2	18.4
W	37	54.0	16.6
WNW	27	48.7	20.1
NW	42	42.3	15.5
NNW	47	42.0	15.3

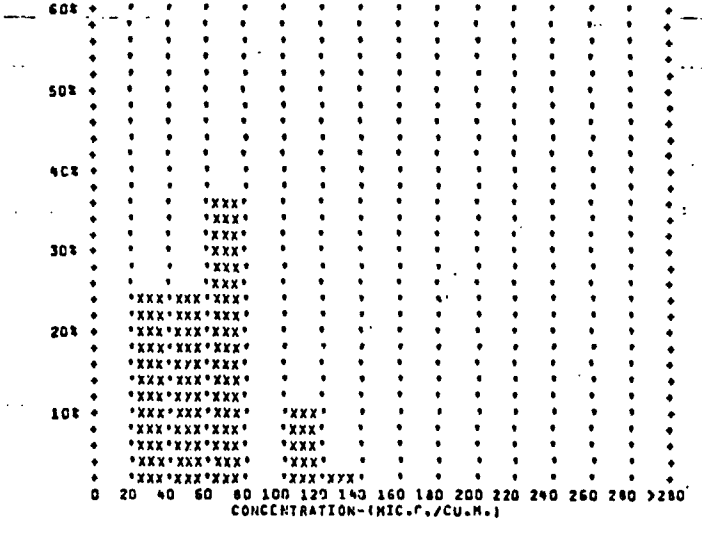
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



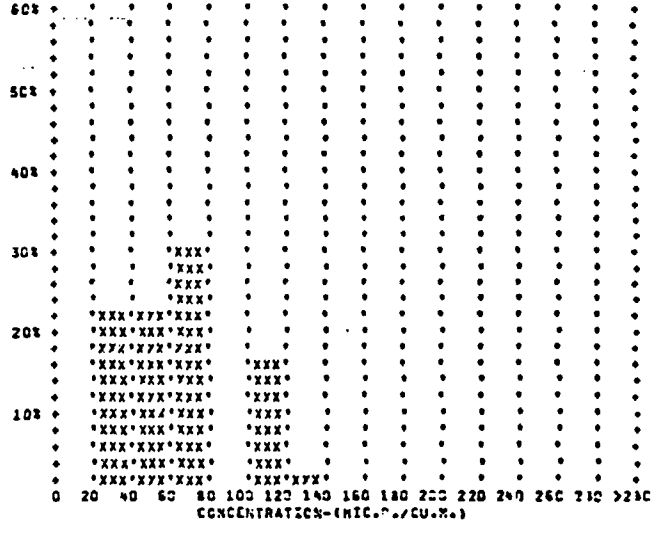
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



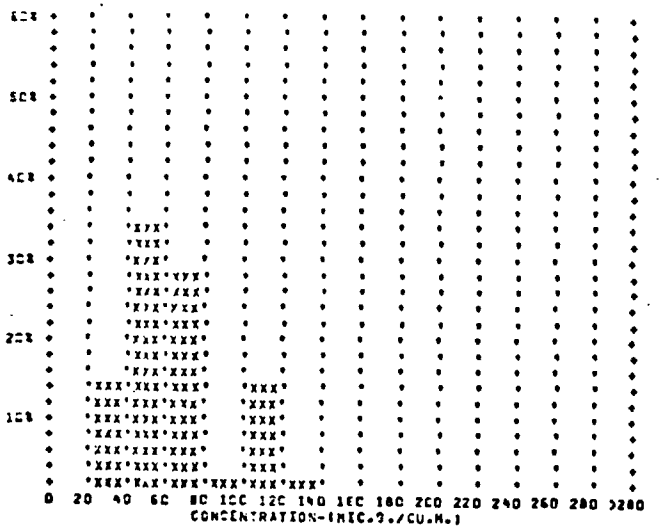
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



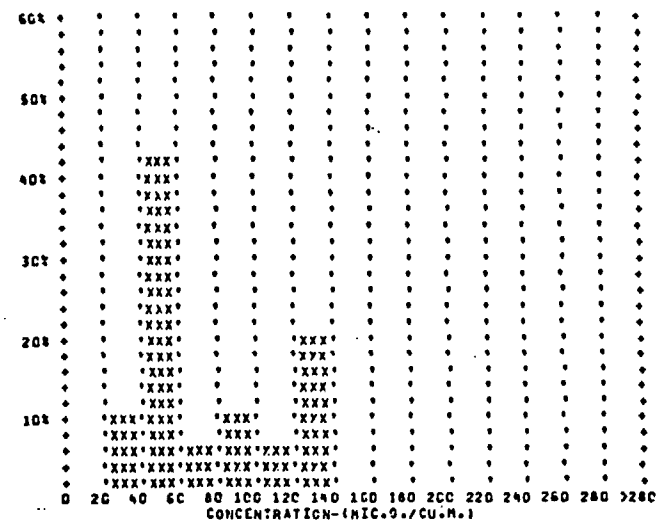
LAM 025589

ABS-035594

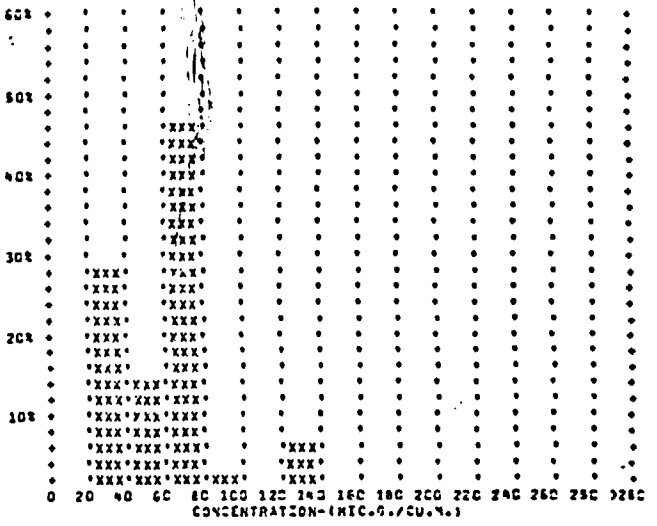
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



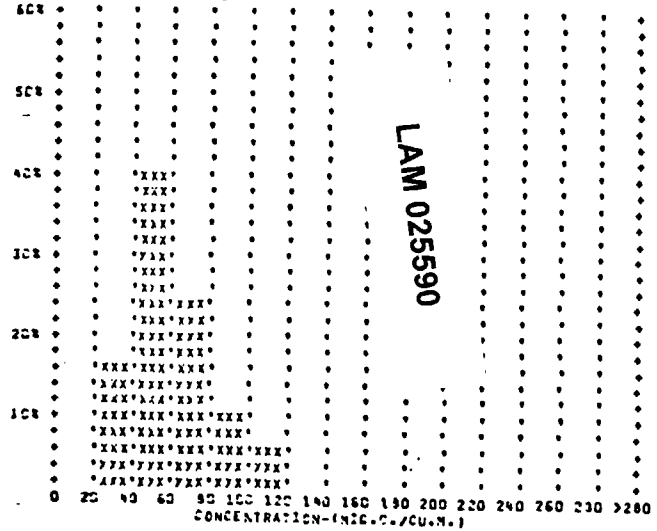
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



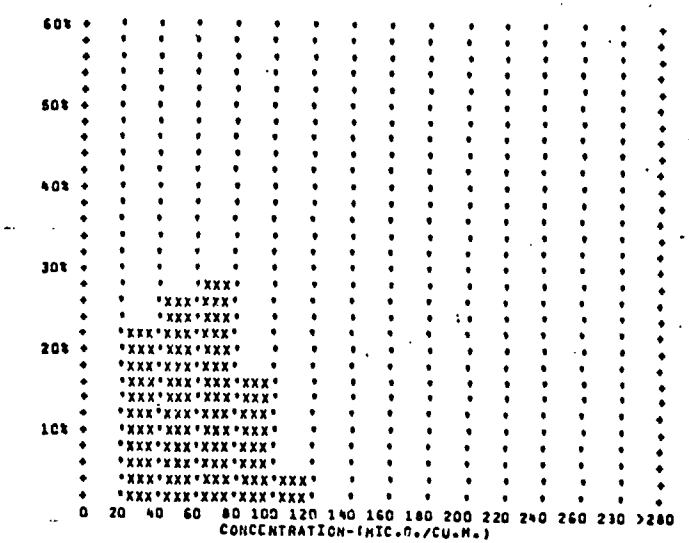
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



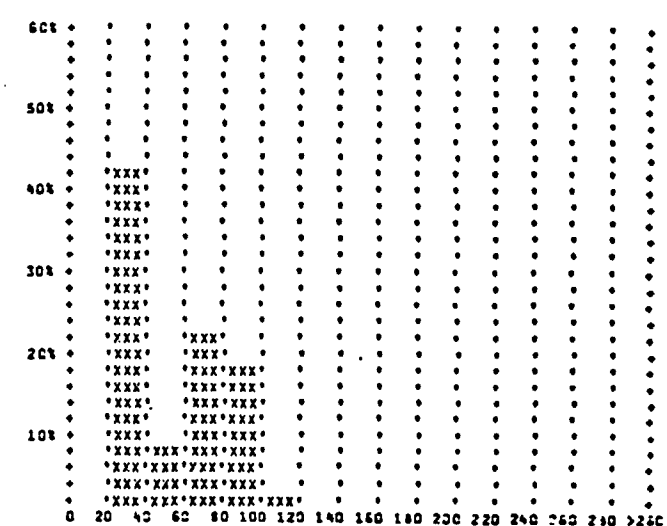
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



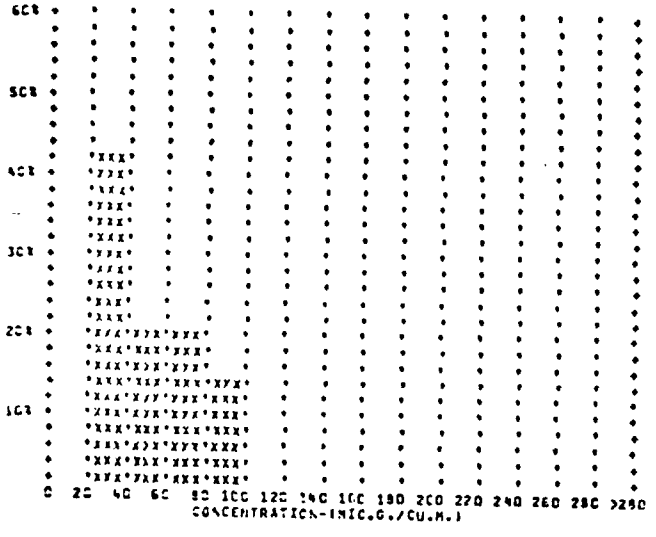
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



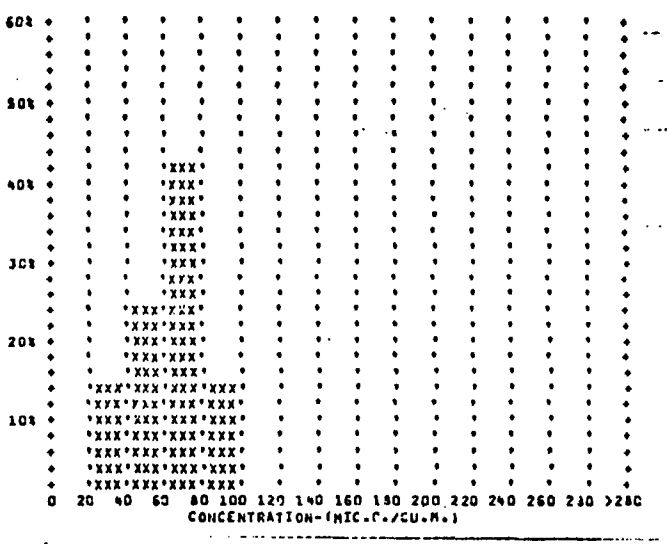
LAM 025590

ABS-035595

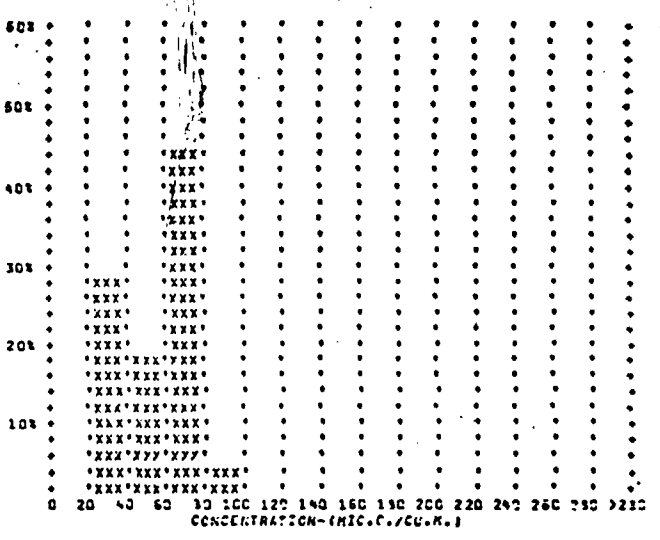
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



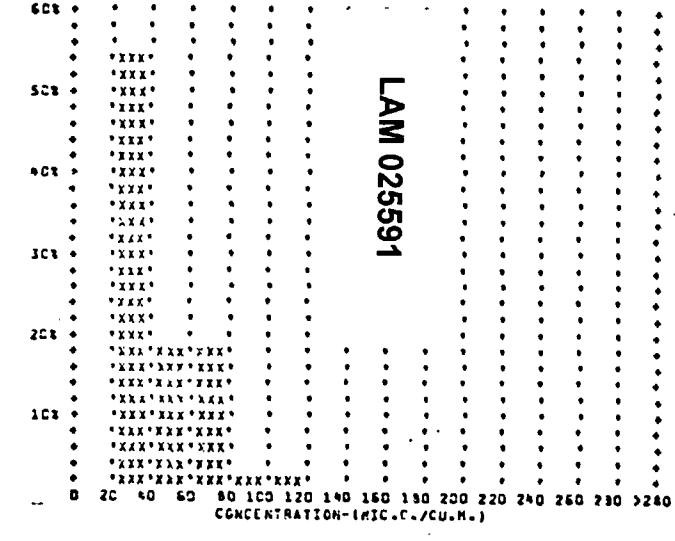
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



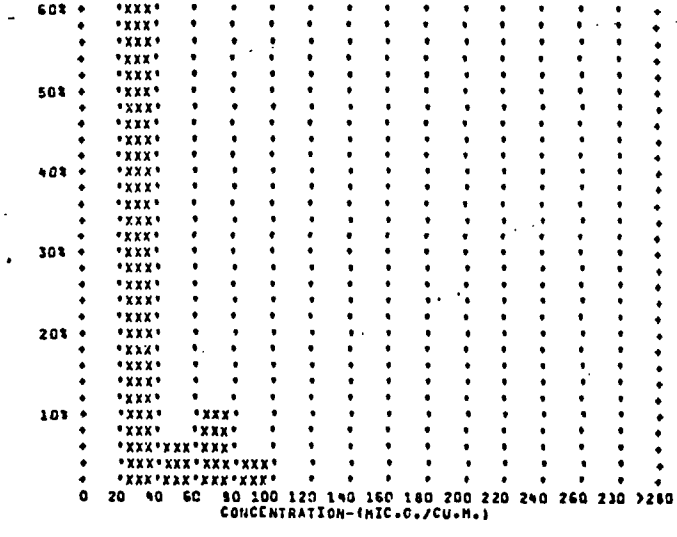
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



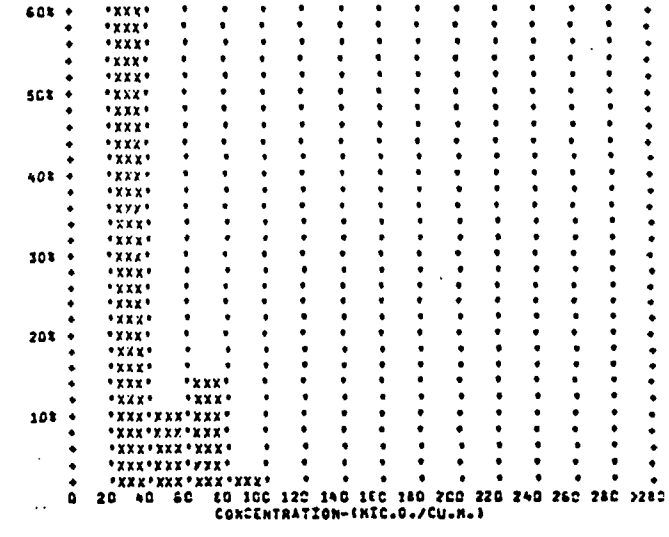
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO AUGUST 22, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

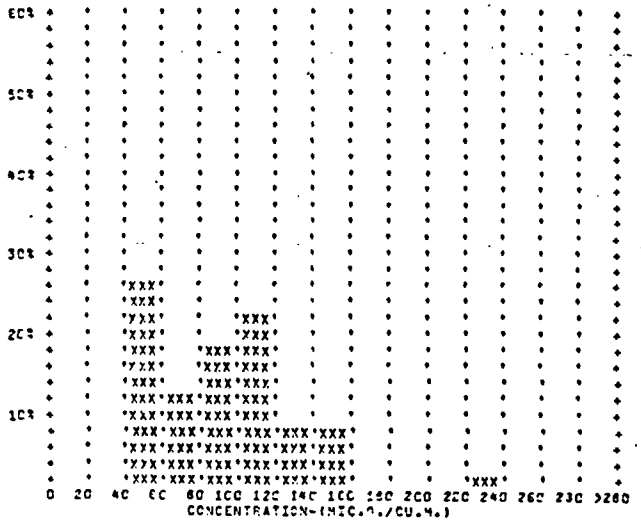


LAM 025591

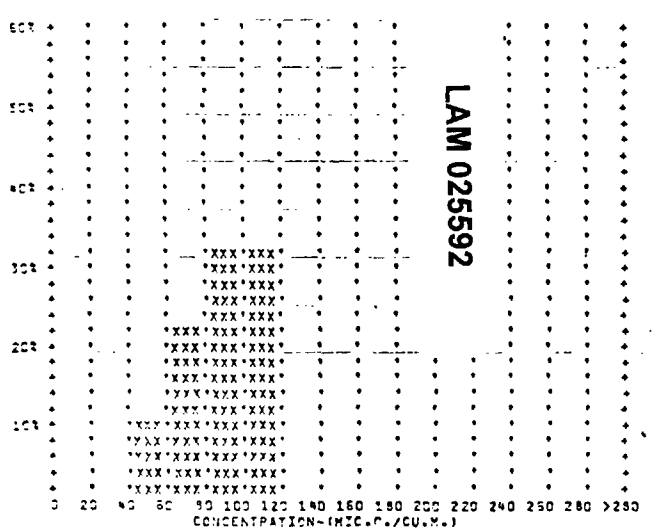
CITY SAMPLING STATION -- DEER PARK 1
AMBIENT LEVEL OF PARTICULATES (MICG./CU.M.)
JANUARY 1, 1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	98	89.3	33.7
NNE	27	93.0	18.3
NE	64	89.5	22.7
ENE	72	90.7	28.4
E	84	94.3	28.9
ESE	92	91.2	29.5
SE	108	71.4	29.7
SSE	99	70.3	27.9
S	197	97.6	43.7
SSW	29	94.5	34.4
SW	27	98.4	48.3
WSW	14	115.1	60.6
W	44	92.7	45.1
WNW	29	73.6	23.7
NW	51	69.4	23.3
NNW	58	91.0	30.8

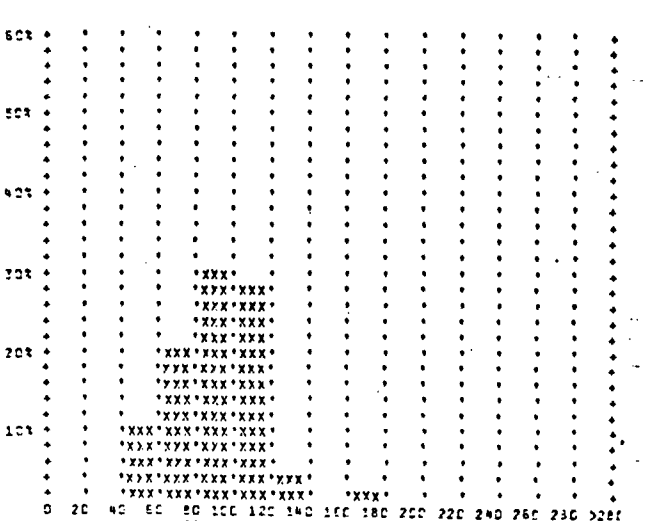
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



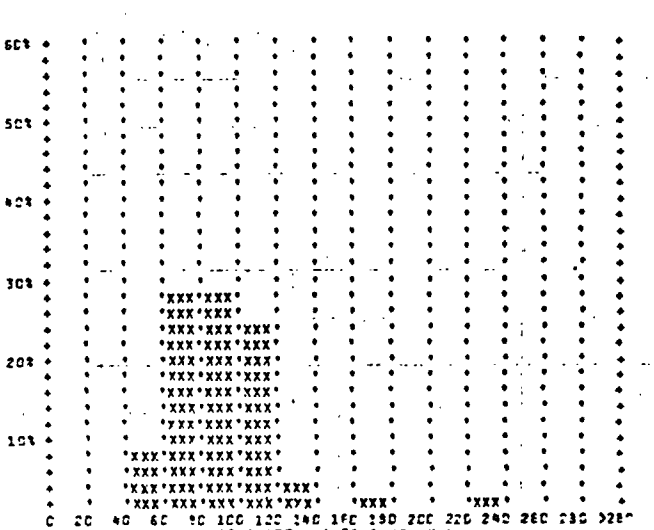
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.

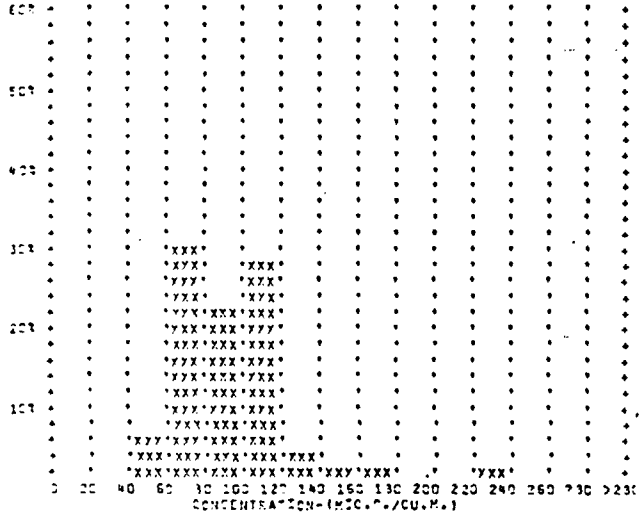


CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

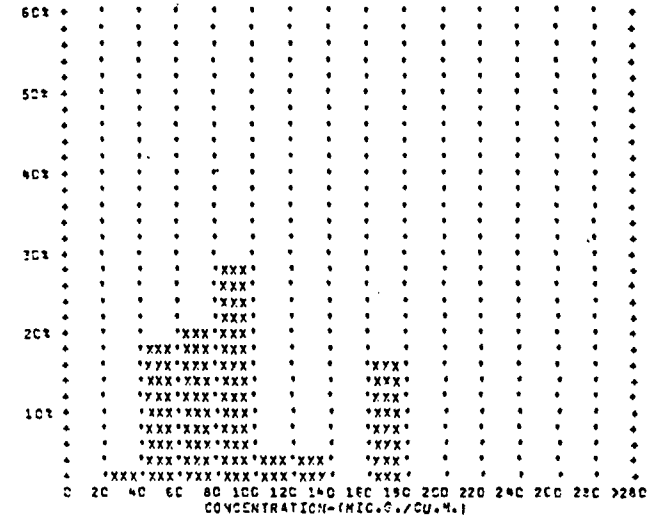


ABS-035597
LAM 025592

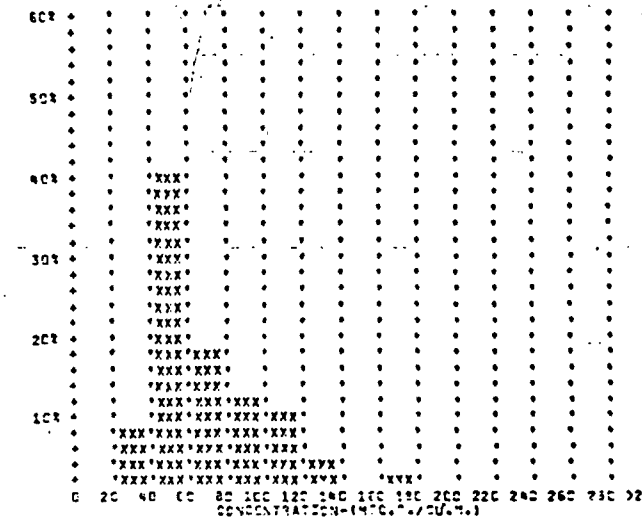
CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



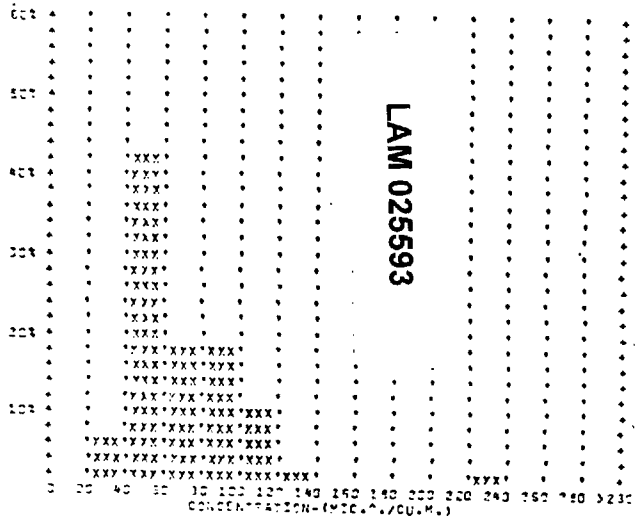
CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



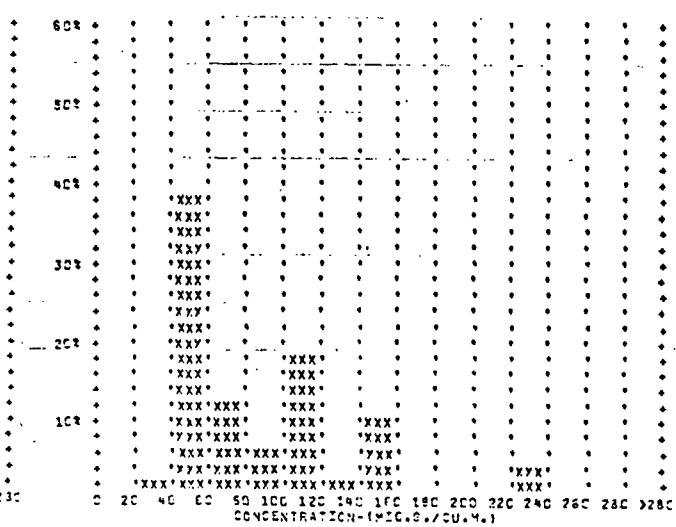
CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



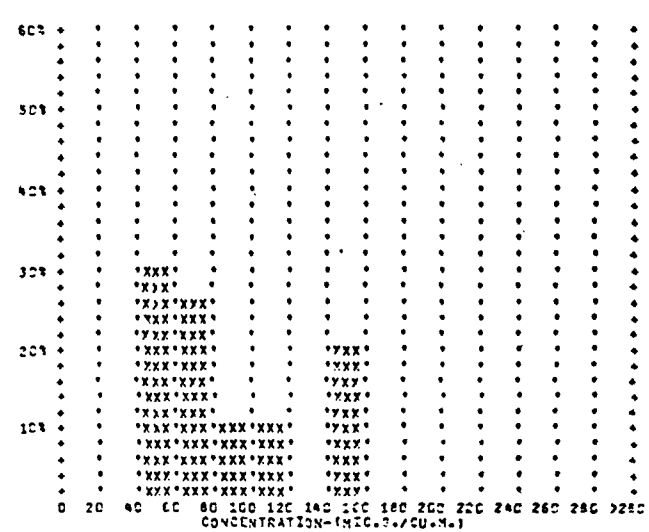
CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



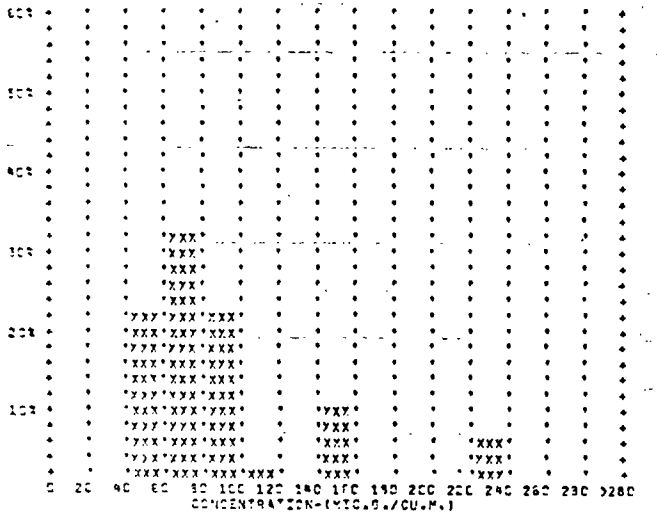
CITY SAMPLING STATION -- DEEP PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



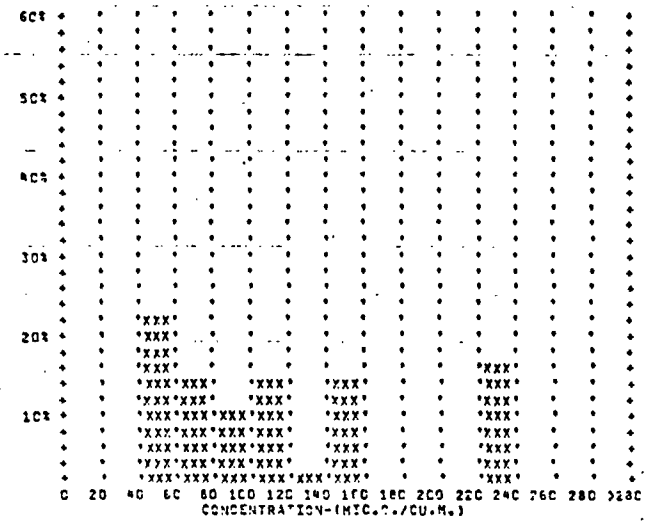
LAM 025593

ABS-035599

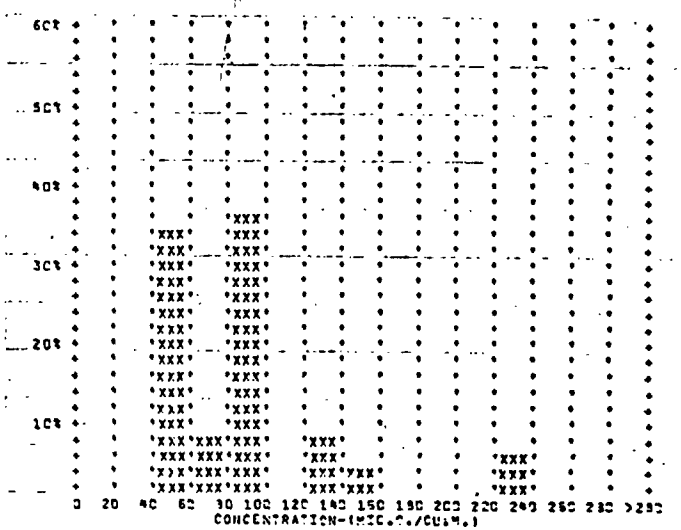
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



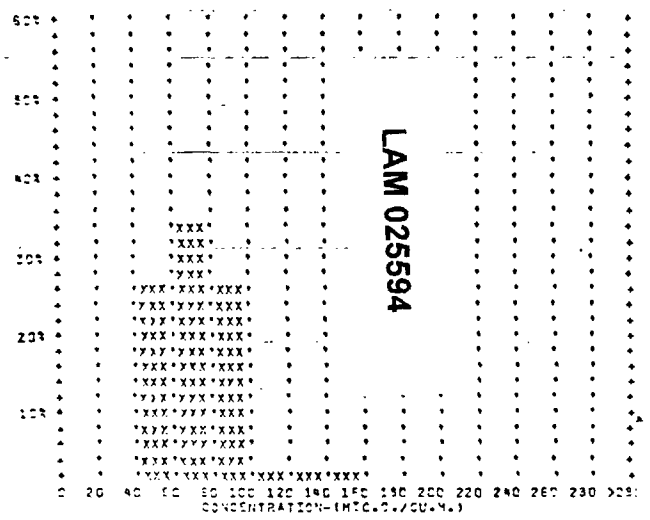
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

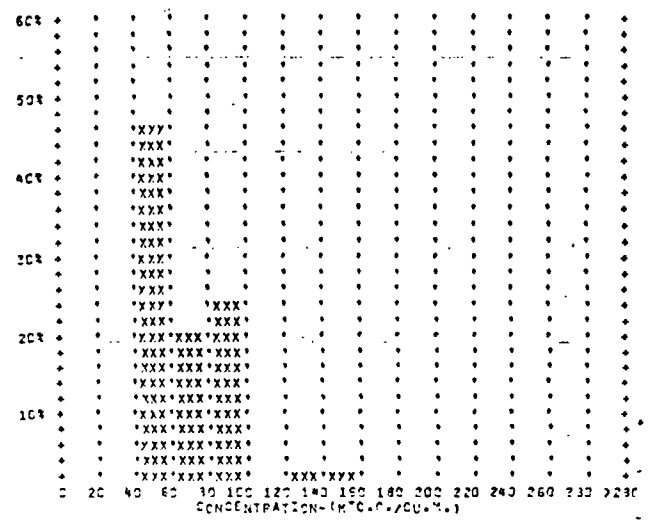


CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

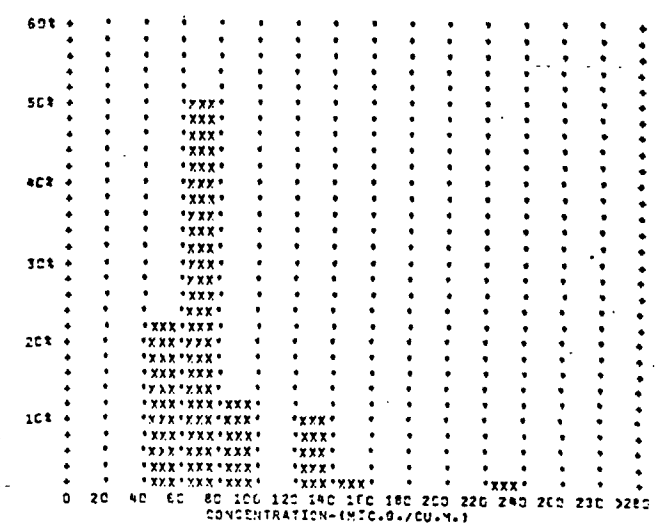


LAM 025594

CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



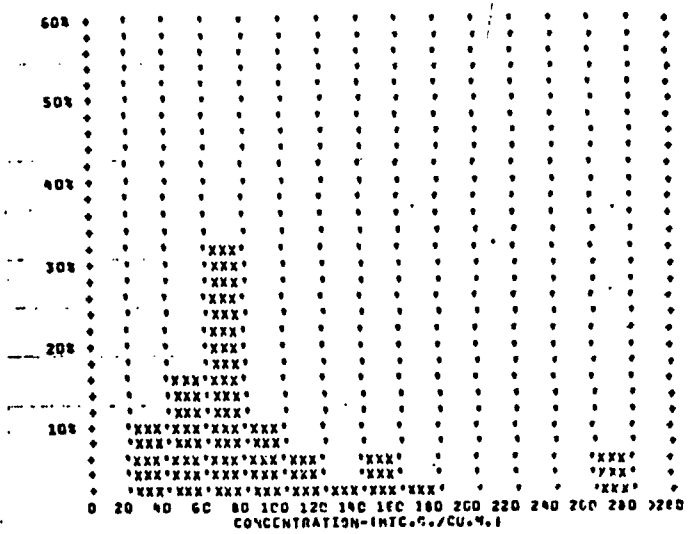
CITY SAMPLING STATION -- DEER PARK 1
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



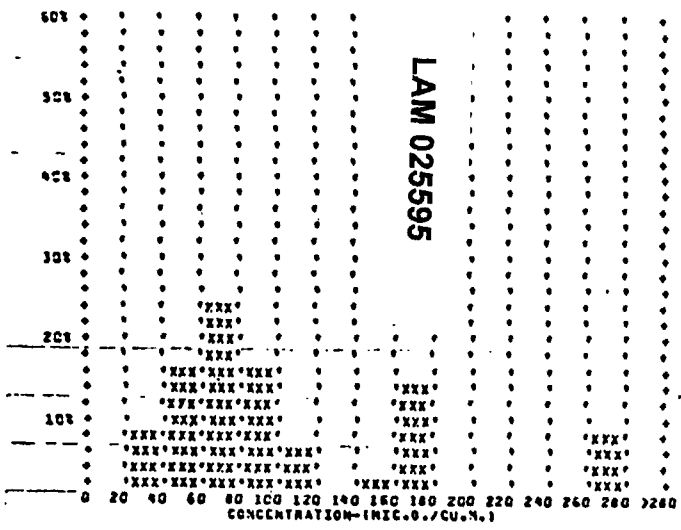
CITY SAMPLING STATION -- HOUSTON 22
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1,1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	136	93.8	62.5
NNE	97	105.6	65.8
NE	98	98.9	46.6
ENE	96	103.7	42.3
E	102	97.6	23.2
ESE	119	96.7	24.3
SE	114	91.5	35.0
SSE	118	75.6	26.7
S	222	97.0	31.1
SSW	30	98.3	26.7
SW	20	93.5	30.0
WSW	38	97.2	25.0
W	52	90.5	25.8
WNW	37	93.6	42.9
NW	66	75.9	34.9
NNW	70	71.7	50.1

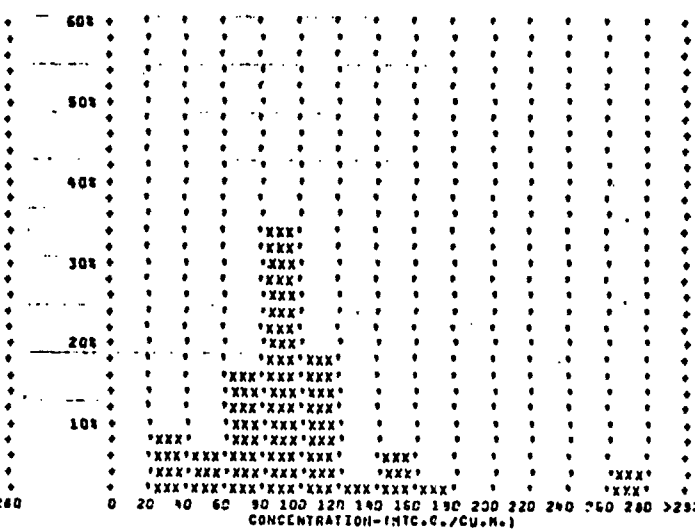
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



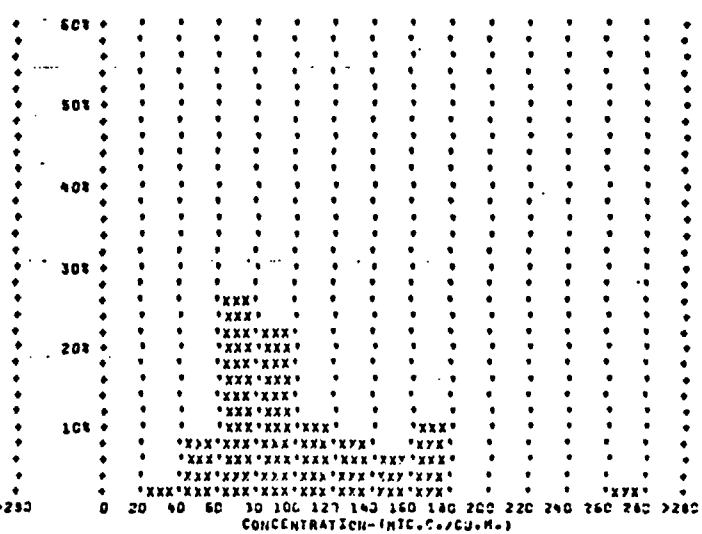
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



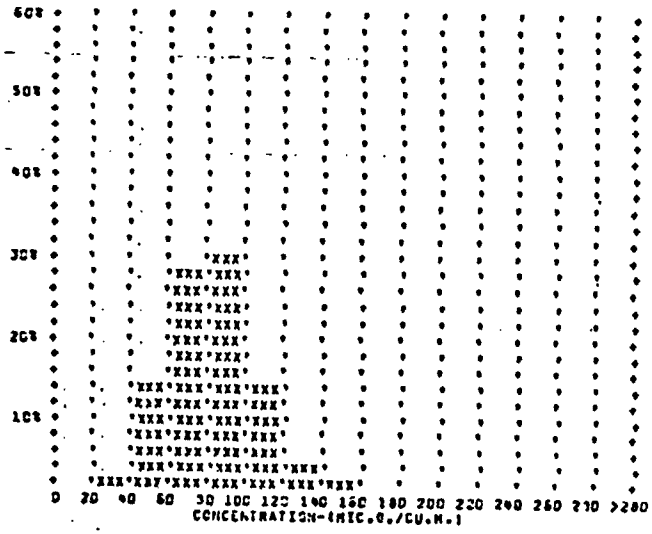
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



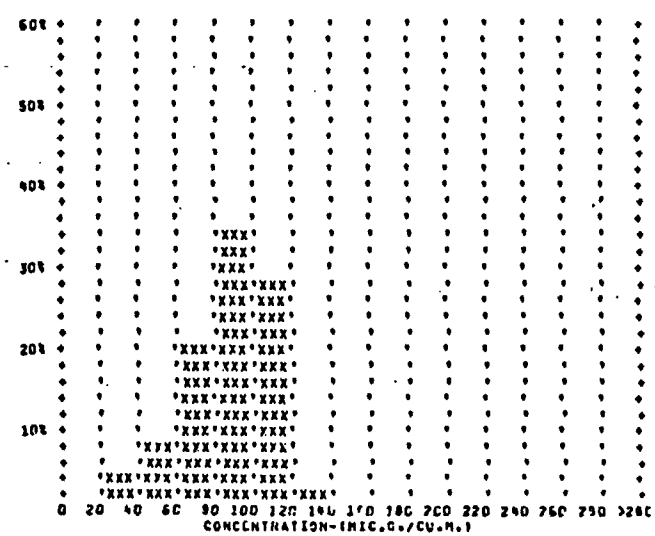
ABS-035600
LAM 025595

ABS-035601

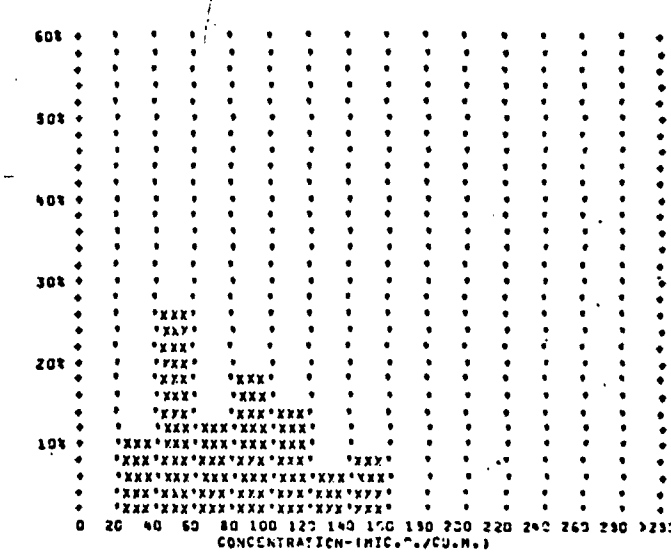
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



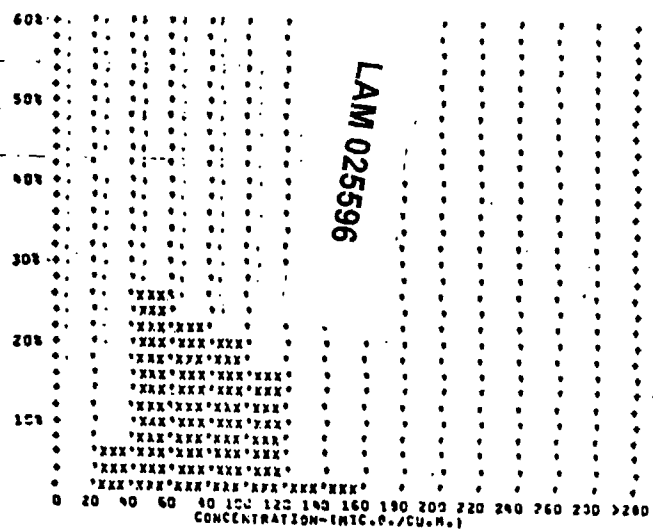
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

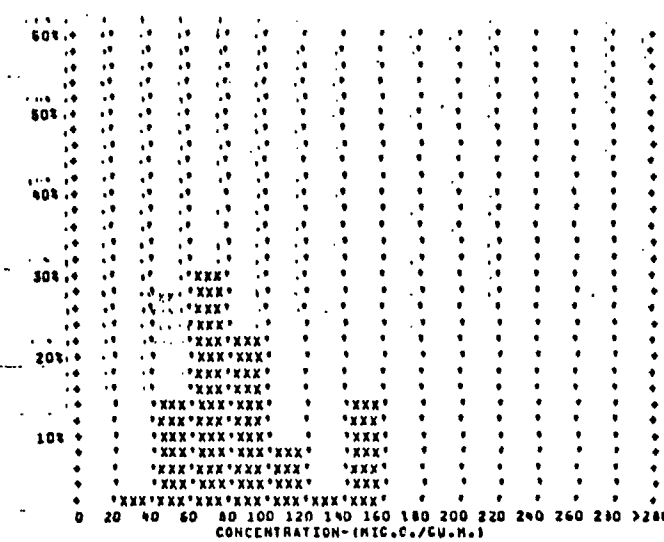


CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

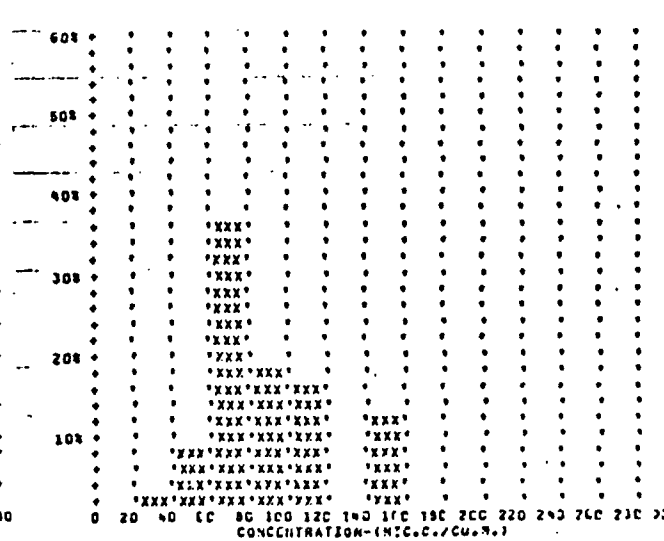


LAM 025596

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

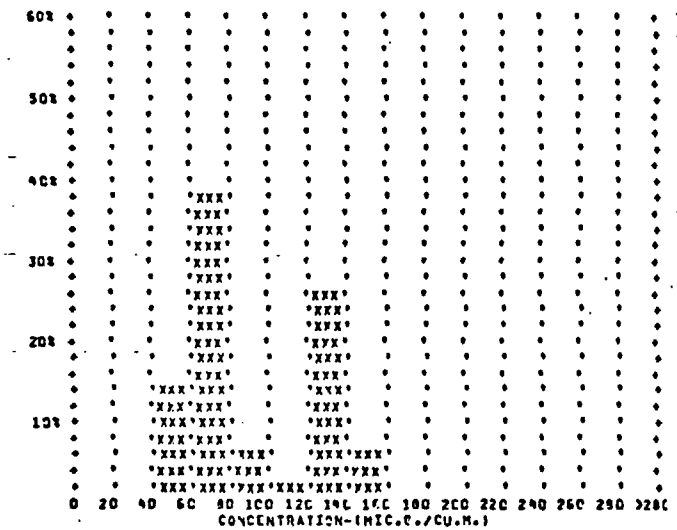


CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

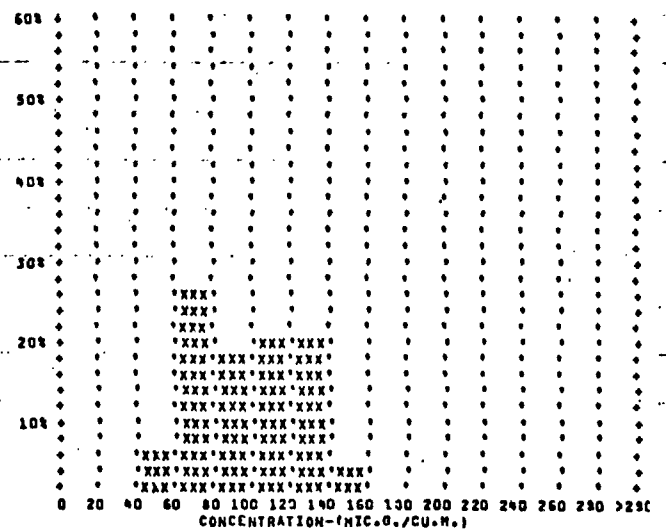


ABS-035602

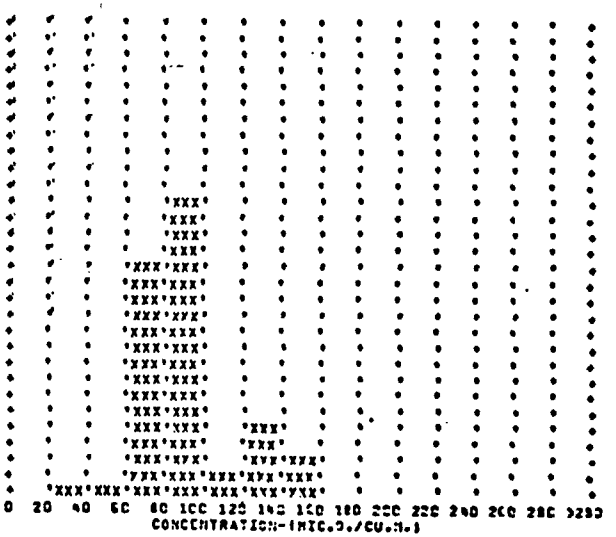
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



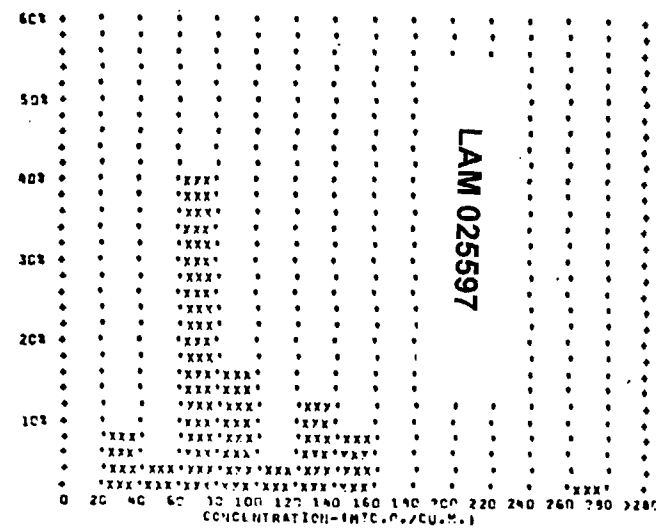
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

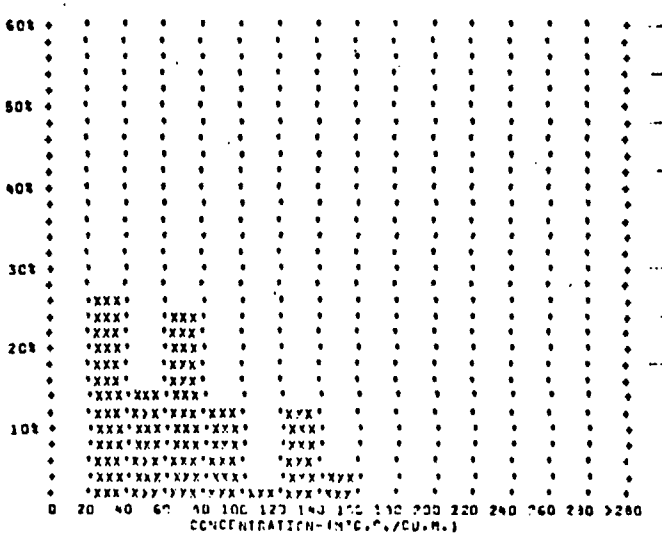


CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

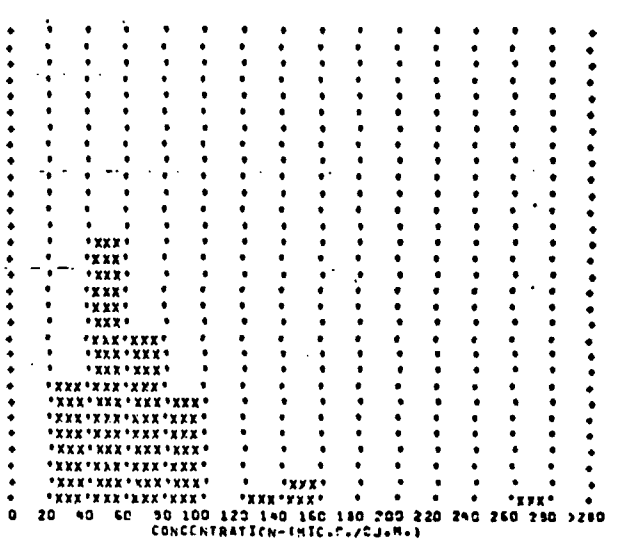


LAM 025597

CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



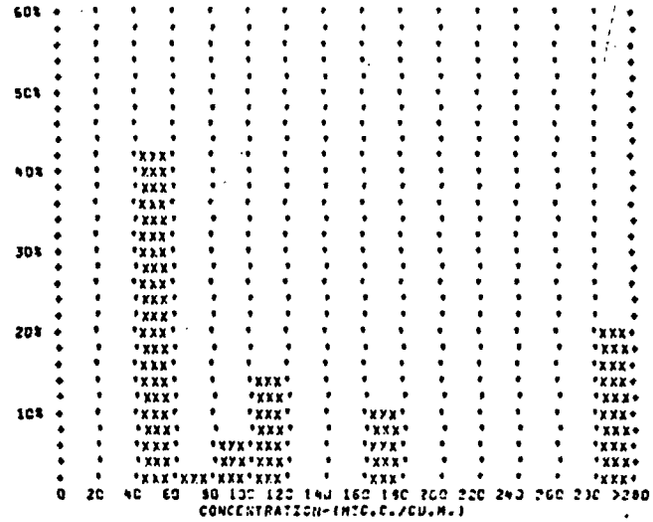
CITY SAMPLING STATION -- HOUSTON 22
JANUARY 1,1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



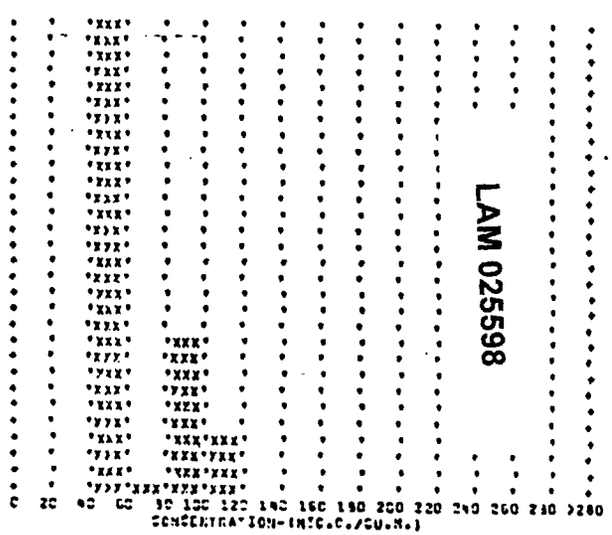
CITY SAMPLING STATION -- HOUSTON 18
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF MPS.	MEAN	STD. DEV.
N	42	191.2	209.8
NNE	32	71.6	22.3
NE	60	66.2	27.2
ENE	50	63.7	26.4
E	62	68.4	28.5
ESE	84	75.4	42.6
SE	72	72.4	29.7
SSE	70	67.8	32.1
S	131	62.2	28.0
SSW	17	72.4	29.0
SW	13	67.7	26.7
WSW	21	72.1	32.5
W	16	95.5	22.9
WNW	12	93.5	29.3
NW	28	93.5	27.8
NNW	29	299.5	195.1

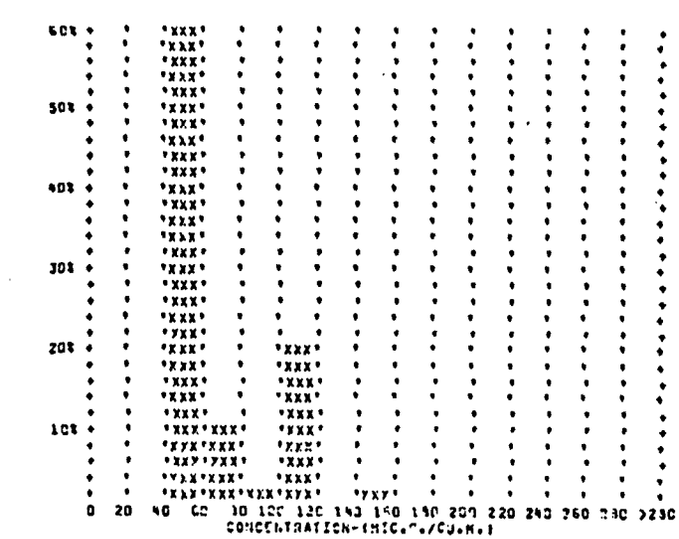
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



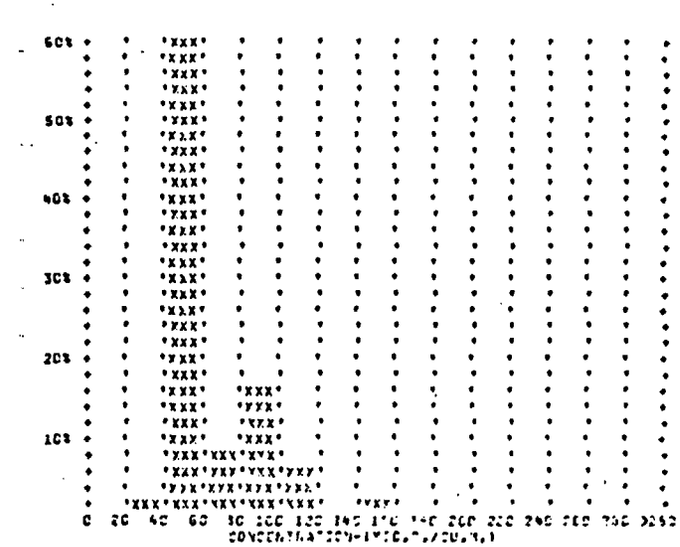
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



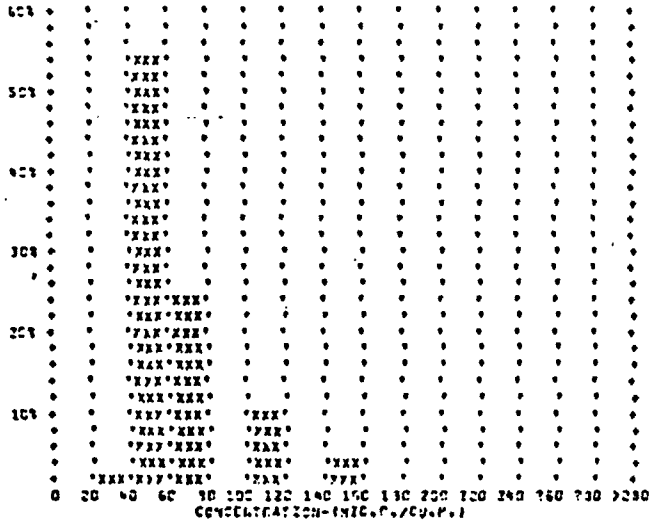
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



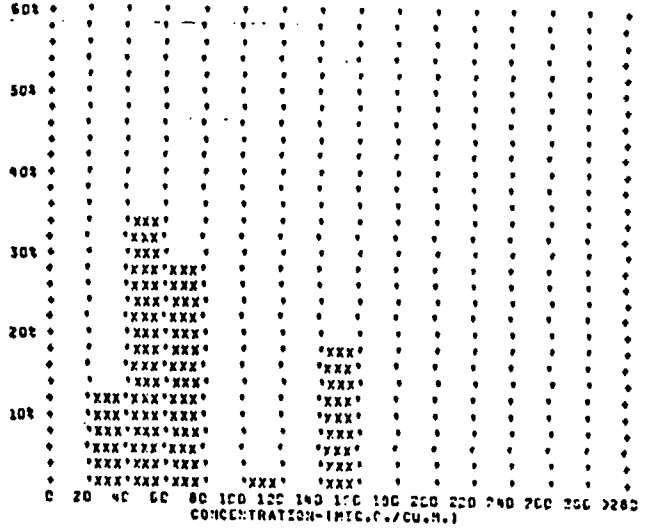
ABS-035603
LAM 025598

ABS-035604

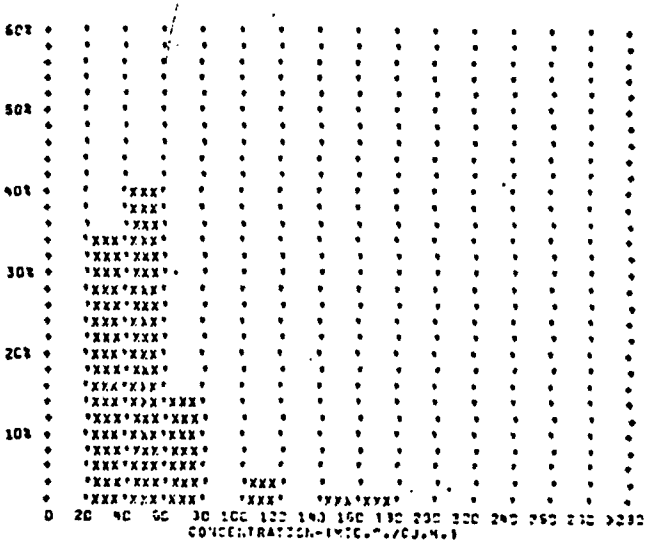
CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



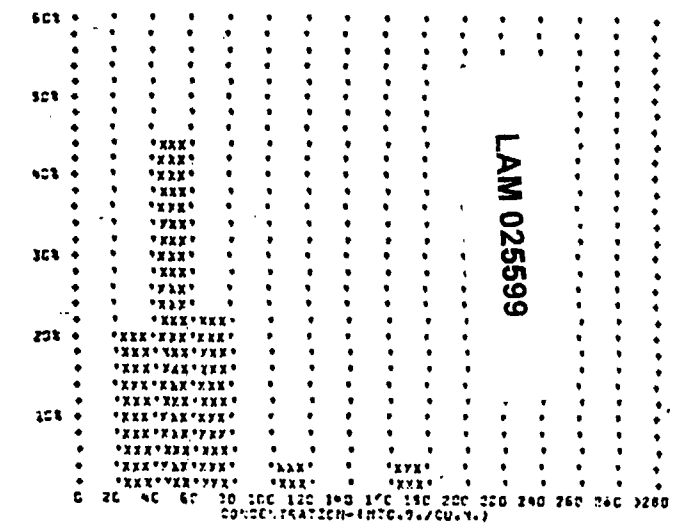
CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



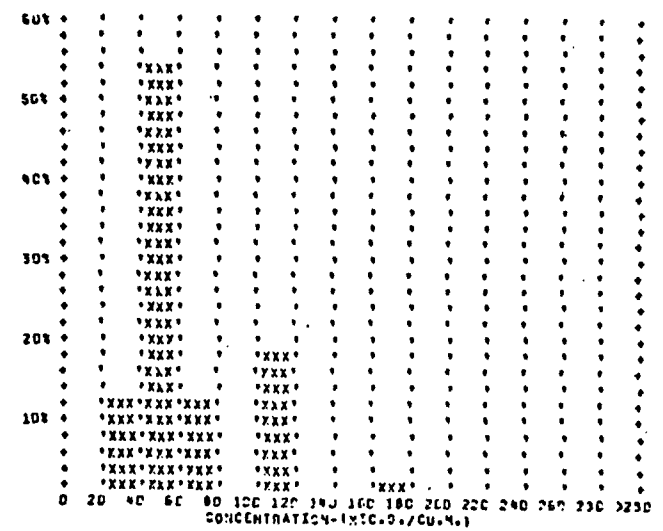
CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.



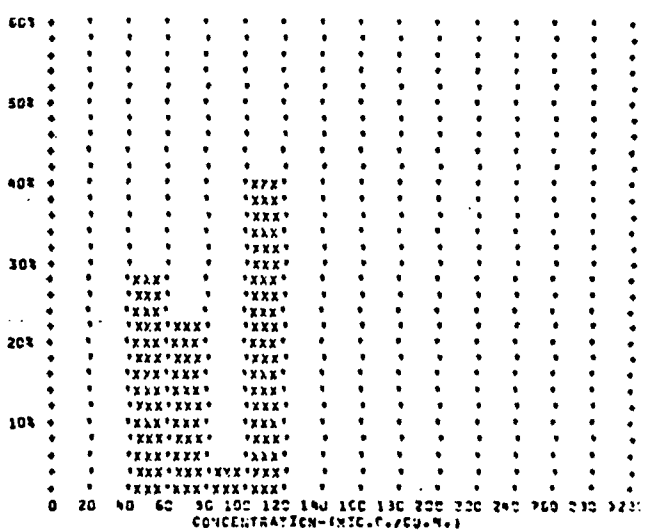
CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



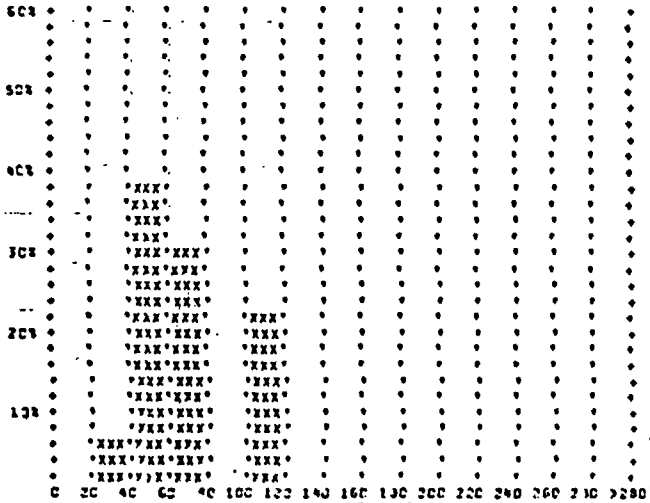
CITY SAMPLING STATION -- HOUSTON 19
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



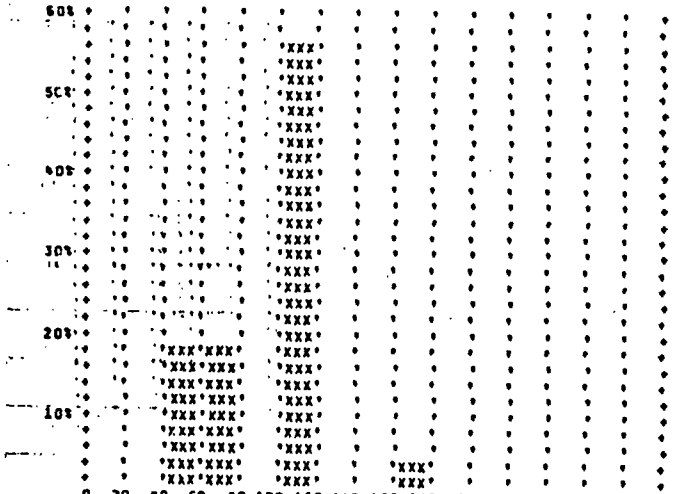
LAM 025599

ABS-035605

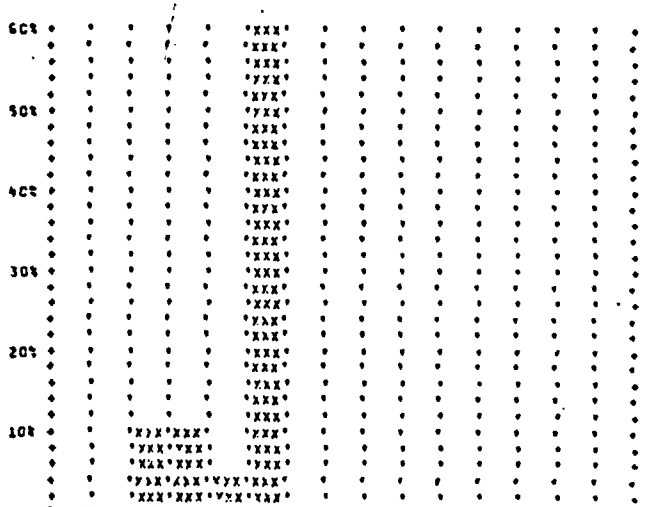
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



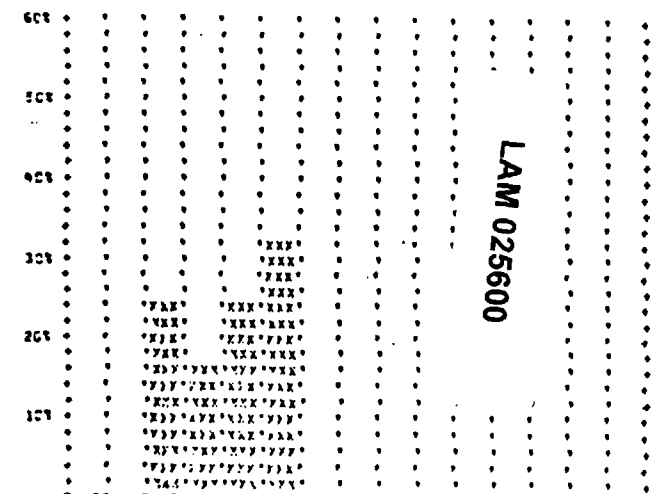
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



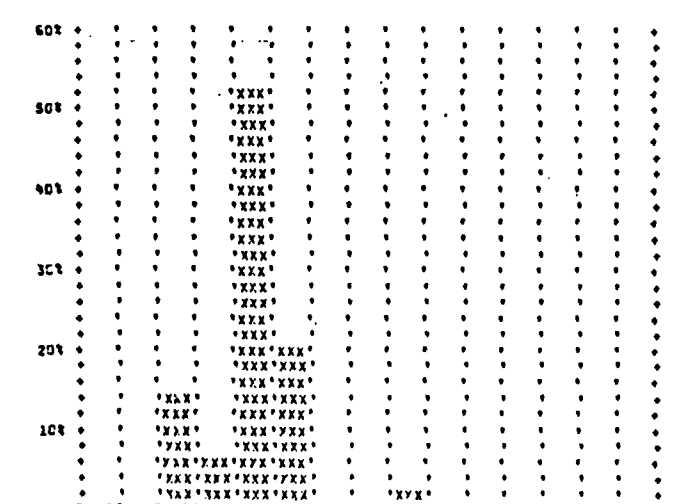
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



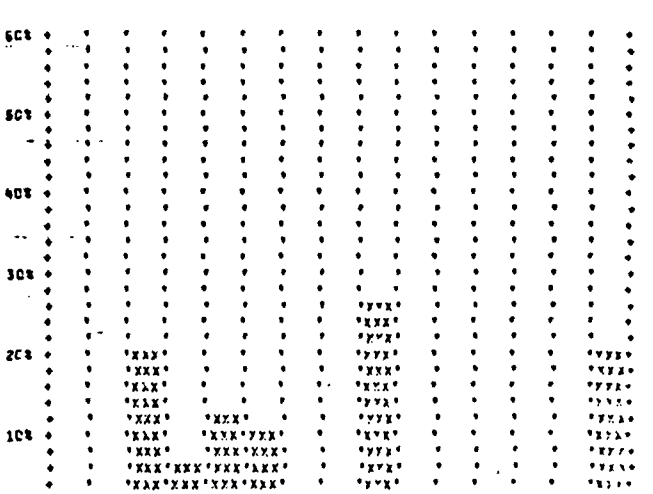
CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 18
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

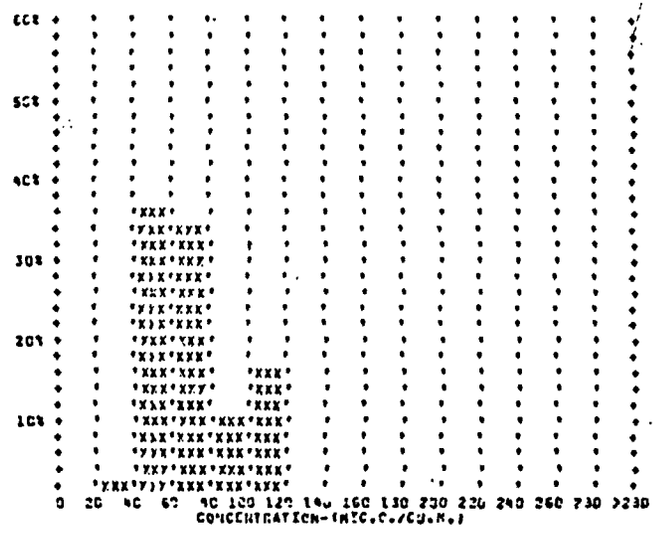


LAM 025600

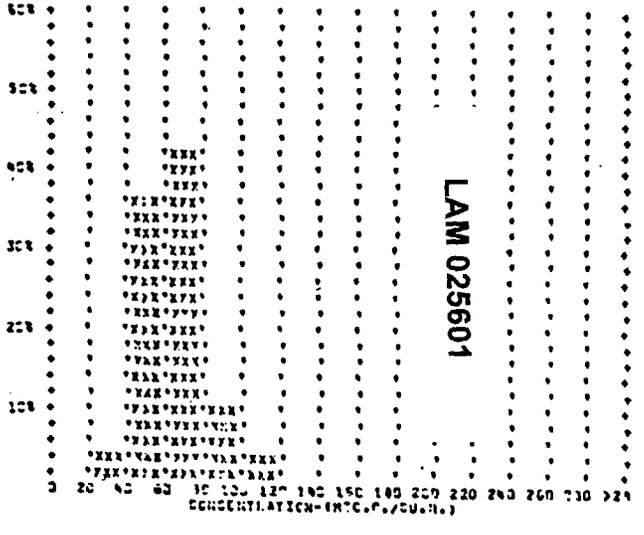
CITY SAMPLING STATION -- HOUSTON 21
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	119	70.1	22.6
NNE	44	48.2	16.4
NE	80	57.5	20.0
ENE	93	72.5	20.3
E	100	71.1	21.1
ESE	110	71.7	28.9
SE	118	77.3	28.4
SSE	114	88.2	24.5
S	219	89.5	27.5
SSW	26	80.7	55.4
SW	26	64.0	25.6
WSW	35	73.9	20.0
W	43	77.1	40.4
WNW	72	96.5	80.5
NW	59	143.4	118.9
NNW	60	93.5	66.2

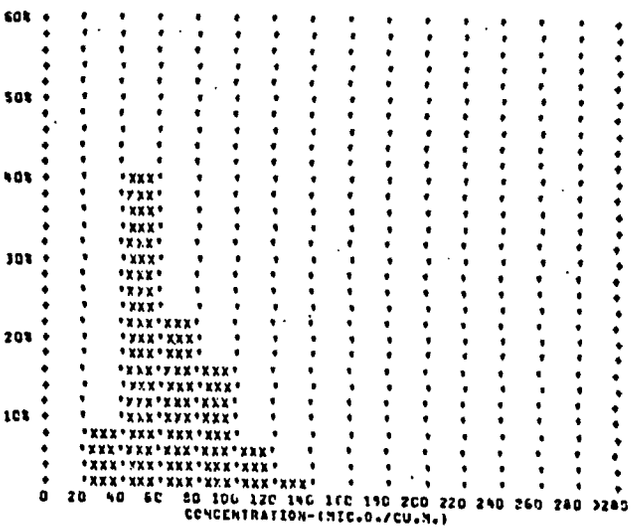
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



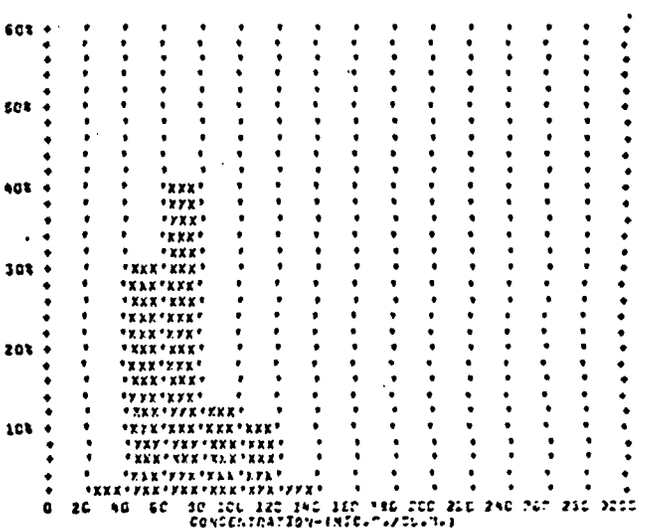
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



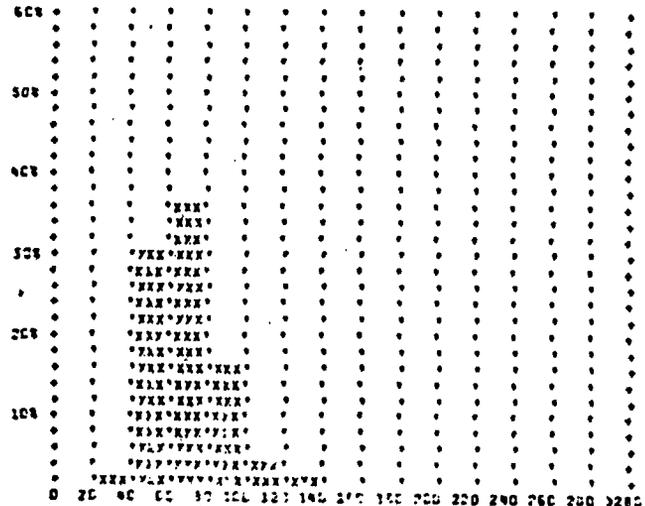
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



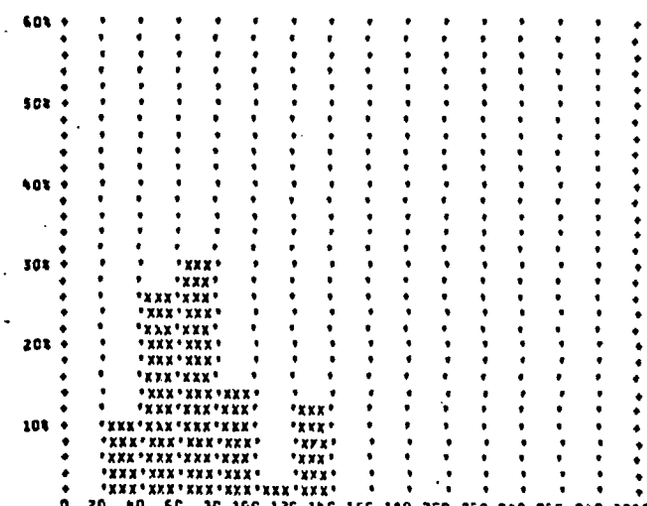
ABS-035606
LAM 025601

ABS-035607

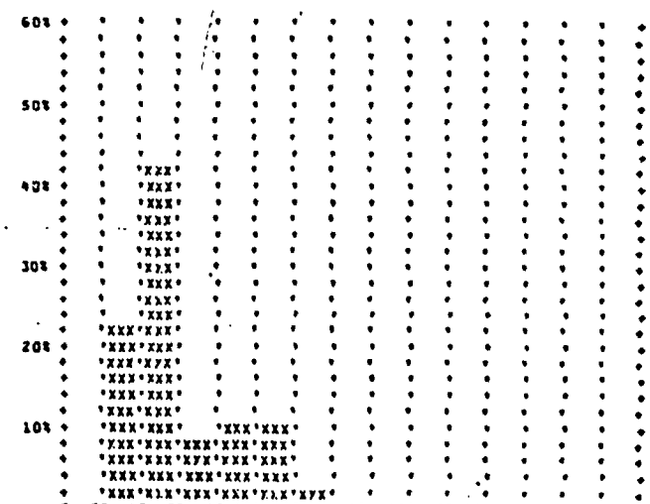
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



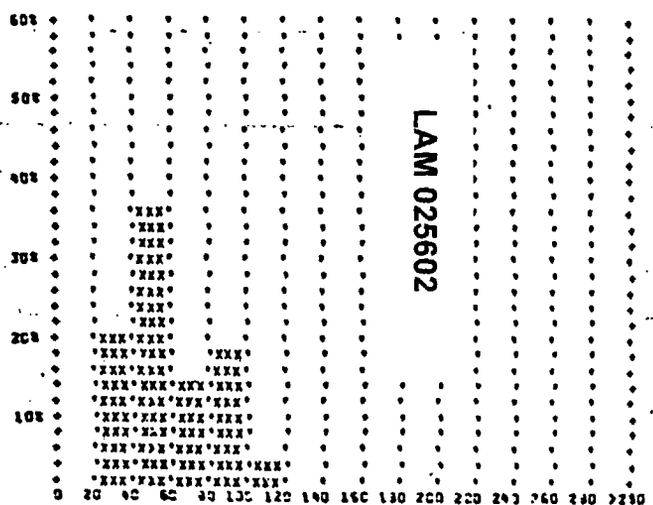
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

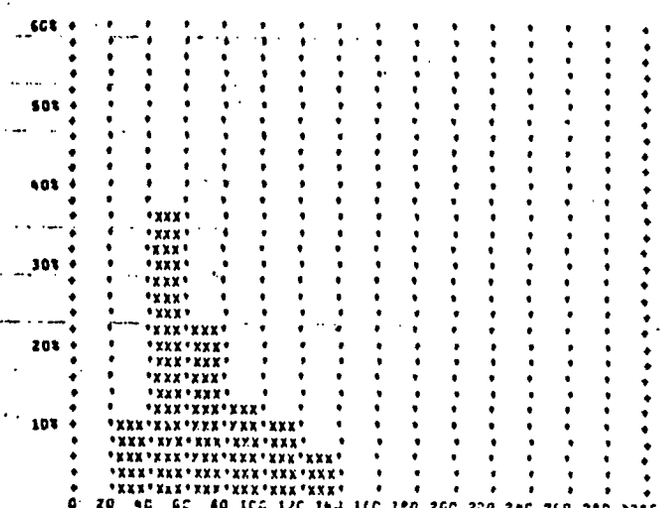


CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

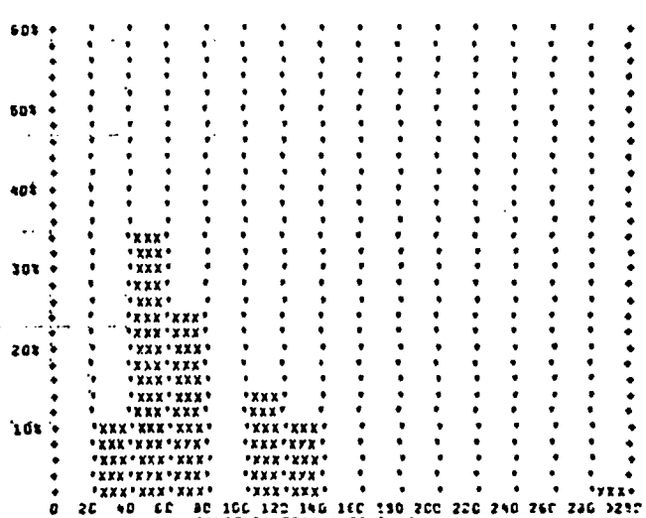


LAM 025602

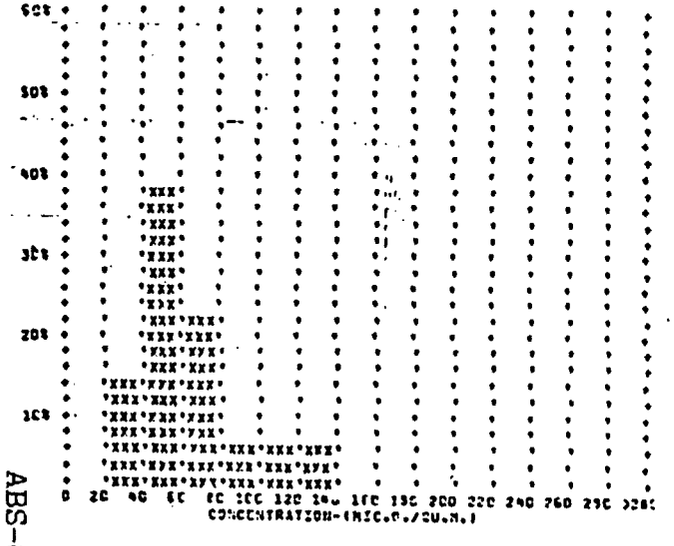
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



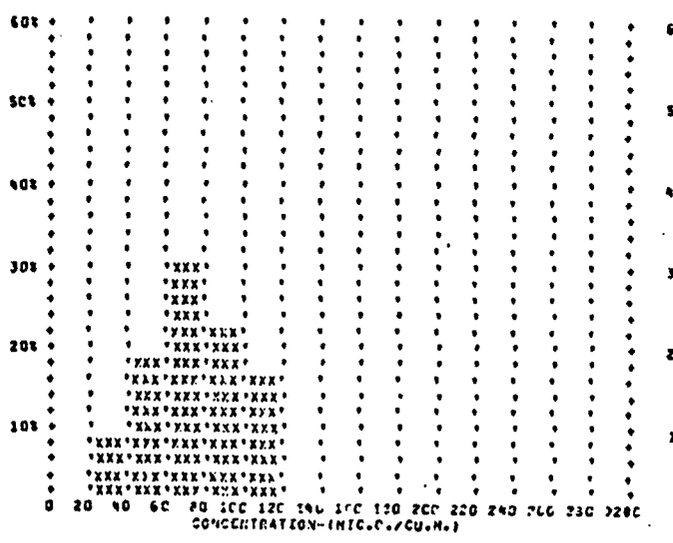
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



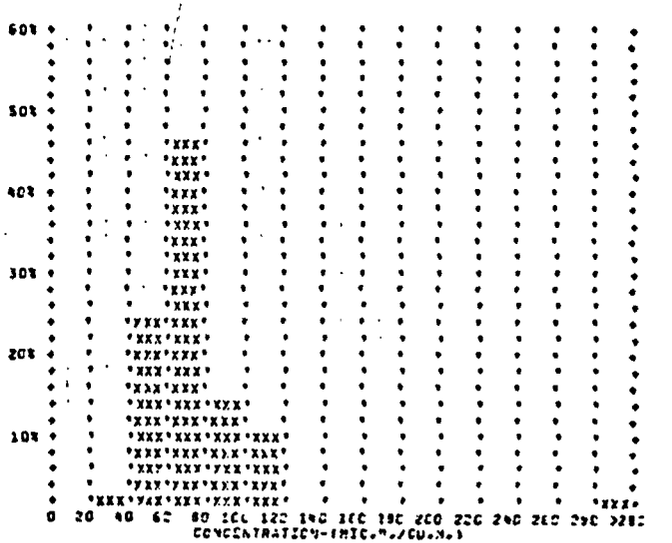
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.

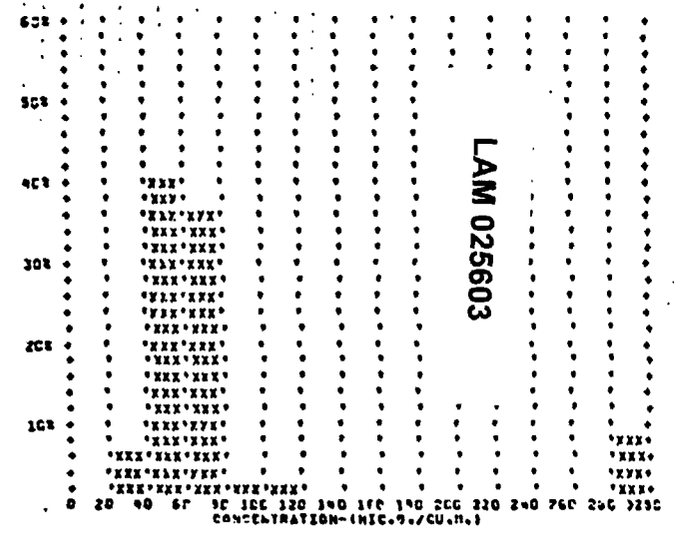


CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



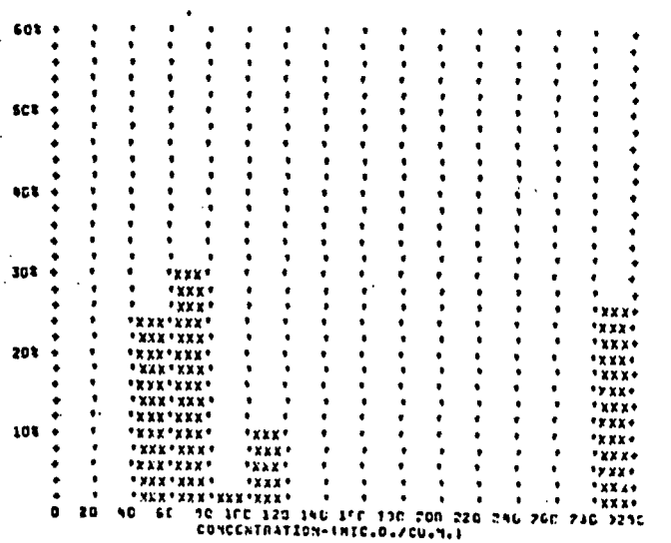
ABS-035608

CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.

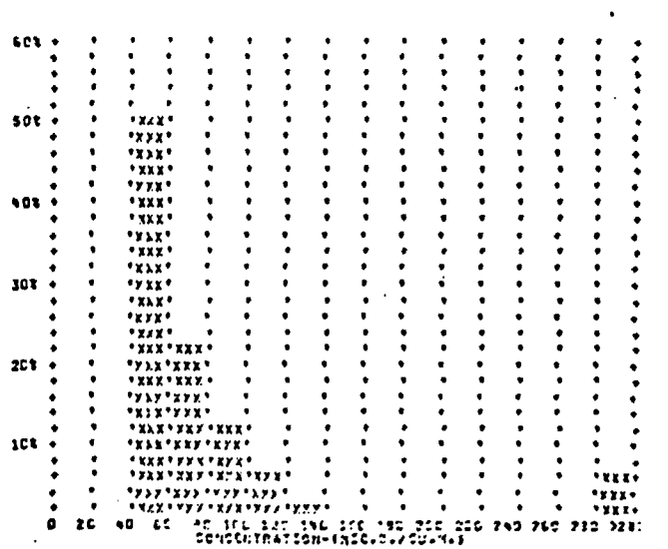


LAM 025603

CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



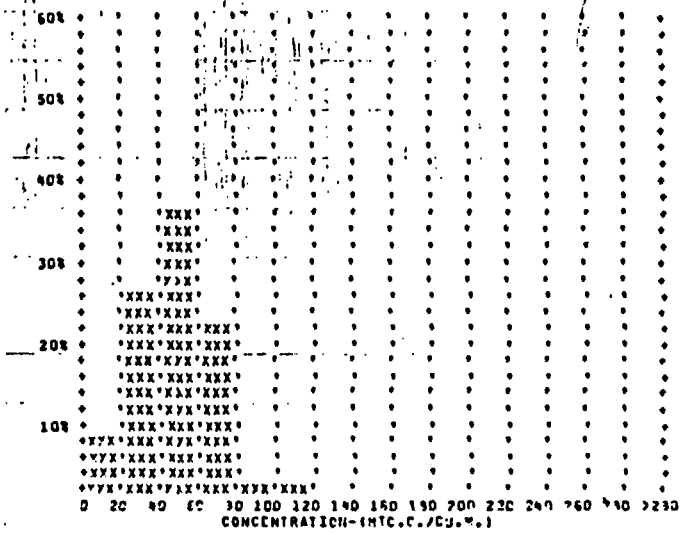
CITY SAMPLING STATION -- HOUSTON 21
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.



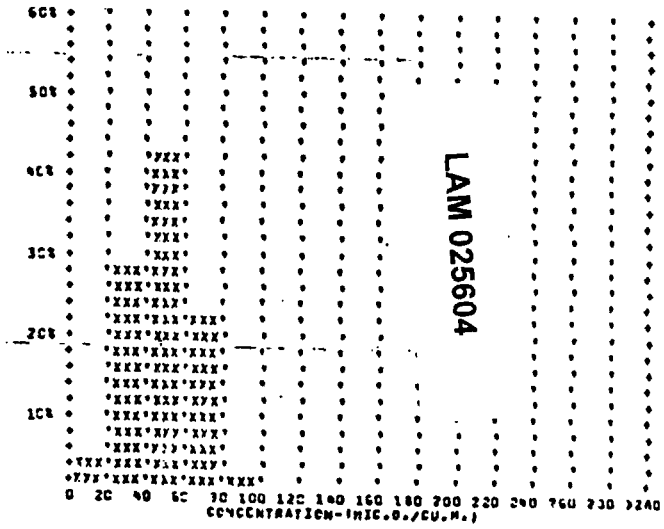
CITY SAMPLING STATION -- HOUSTON 20
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	132	47.3	20.5
NNE	45	49.0	16.6
NE	78	44.7	20.4
ENE	92	56.1	21.9
E	91	60.3	25.3
ESE	111	74.2	38.9
SE	96	63.0	28.7
SSE	112	66.2	24.7
S	216	75.0	29.7
SSW	31	63.1	24.6
SW	27	62.0	25.2
WSW	37	59.1	22.8
W	49	54.9	17.7
WNW	34	50.1	14.8
NW	54	61.4	14.4
NNW	75	49.7	21.1

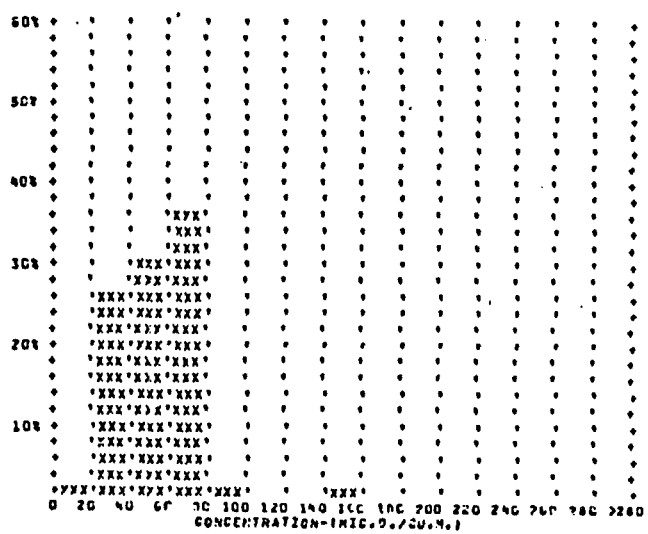
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



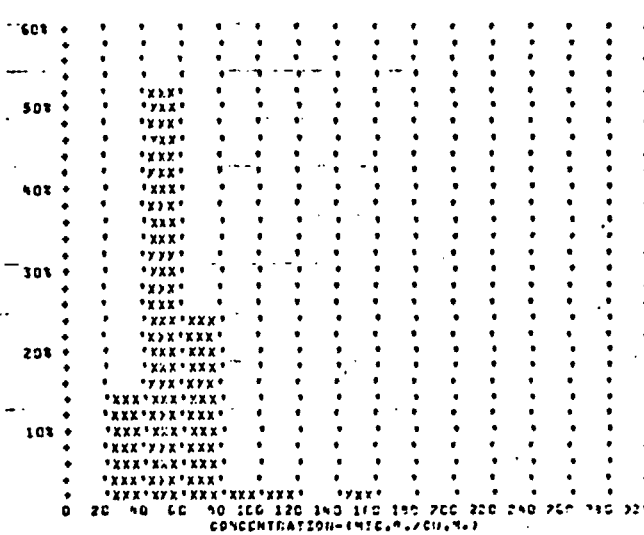
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.

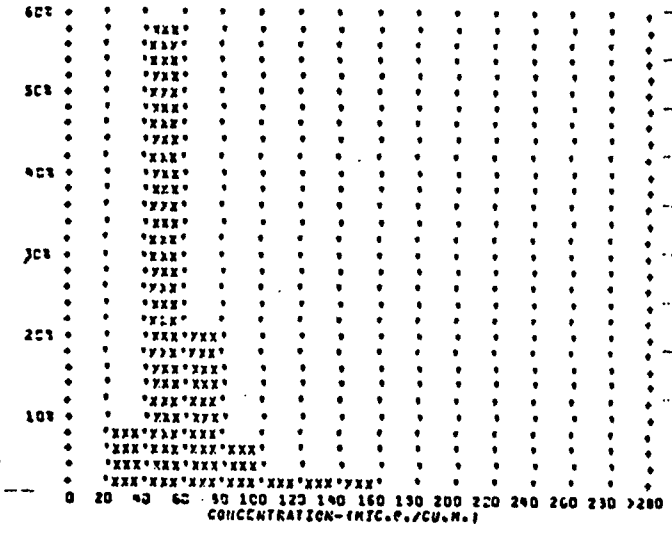


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.

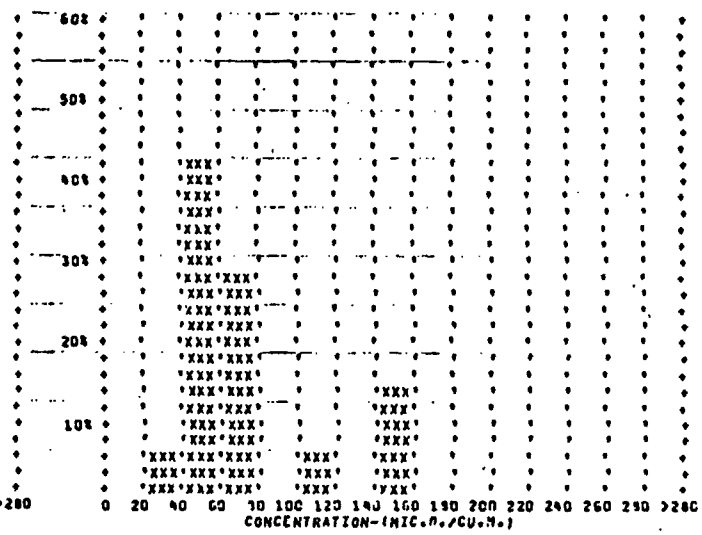


ABS-035609
LAM 025604

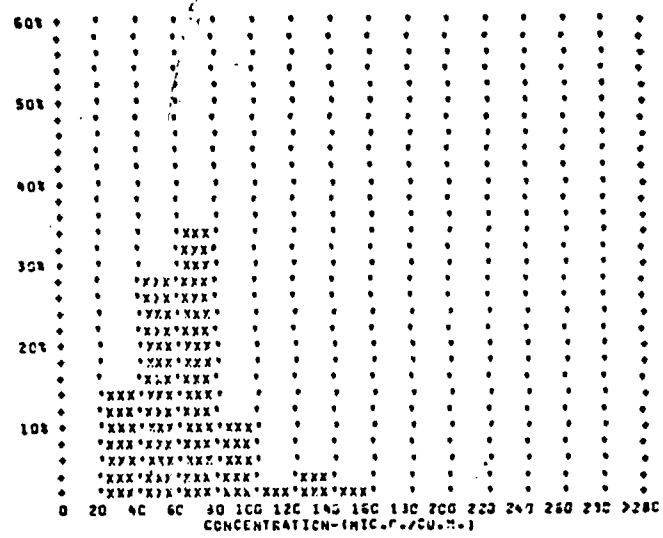
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



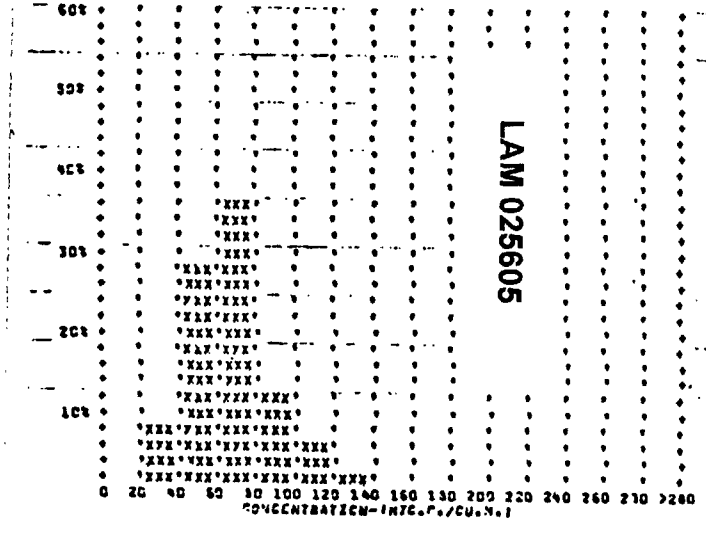
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

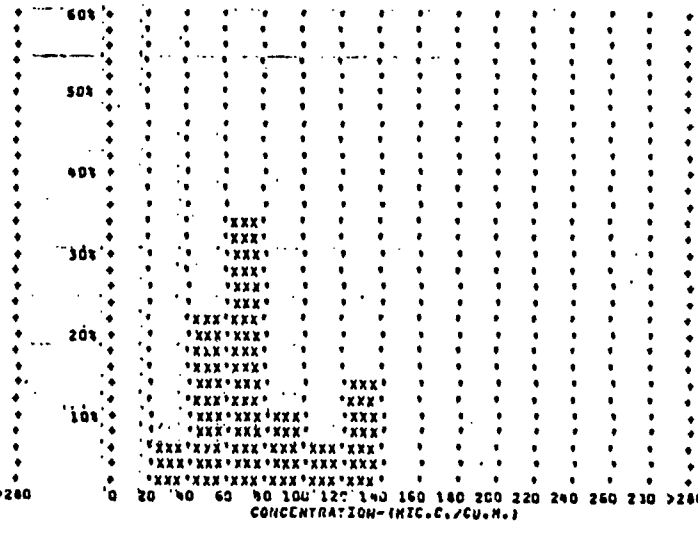


CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

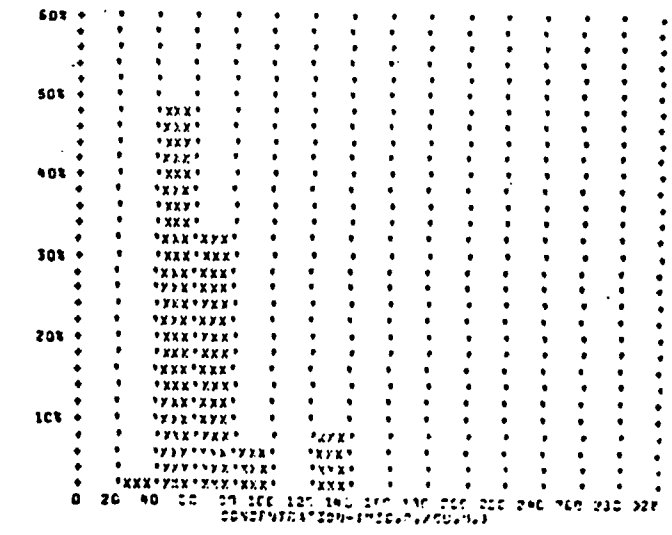


LAM 025605

CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.



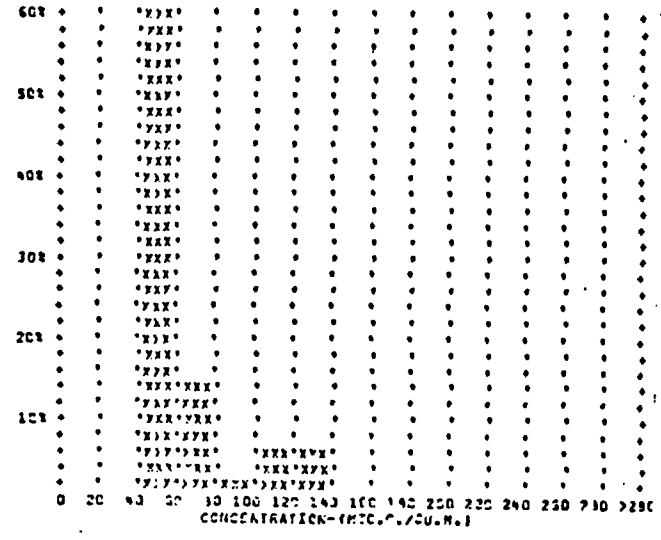
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.



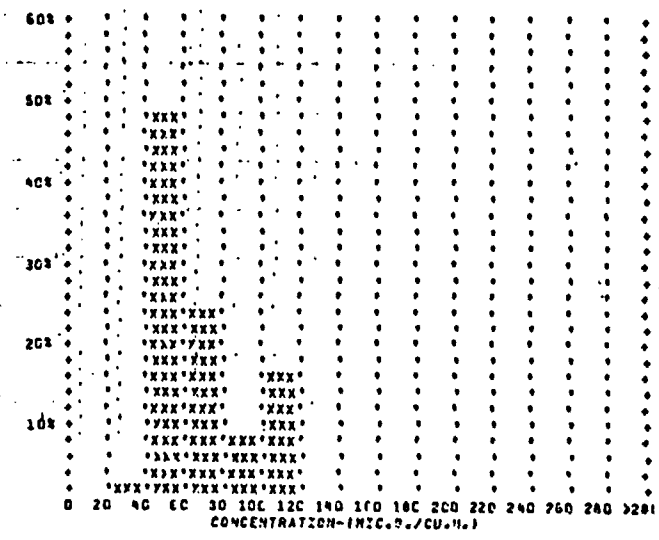
ABS-035610

ABS-035611

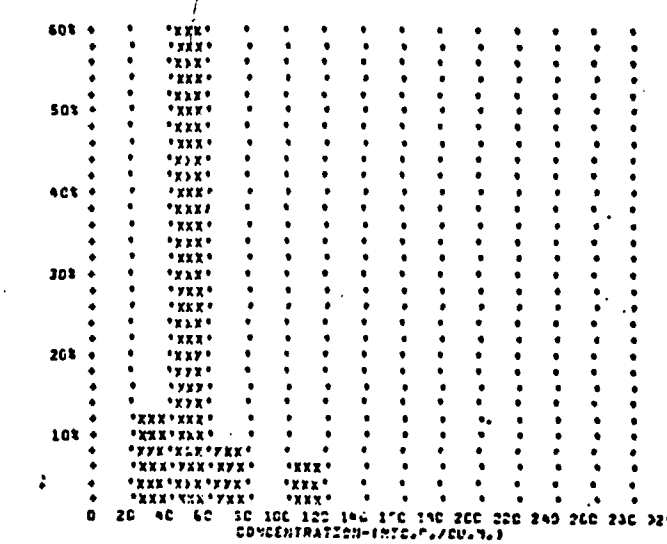
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



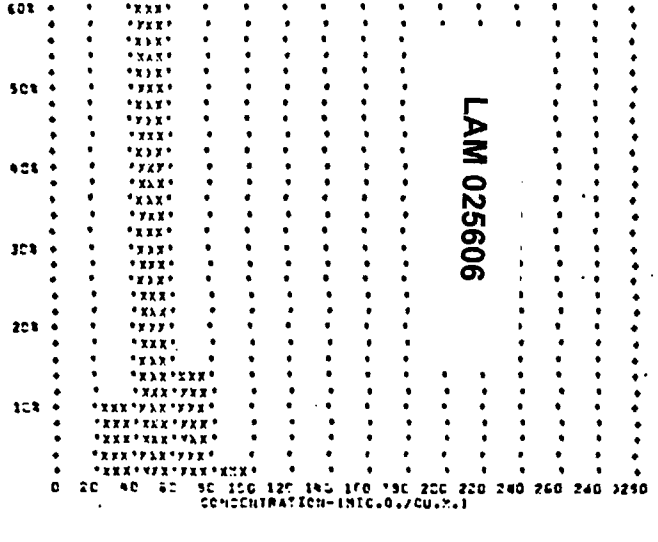
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



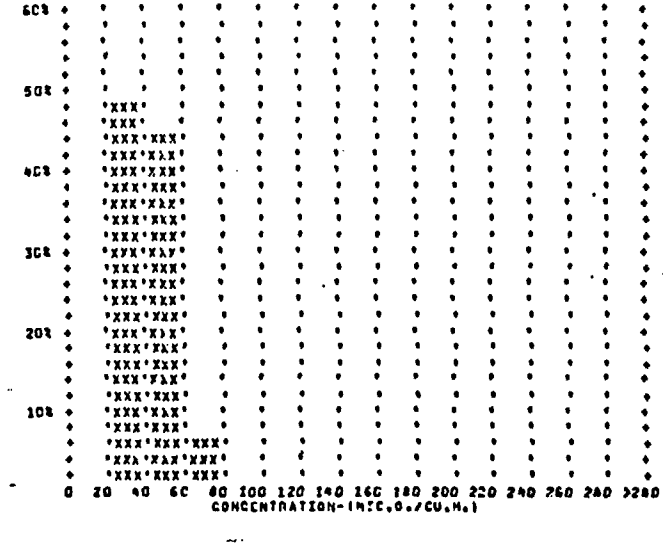
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.



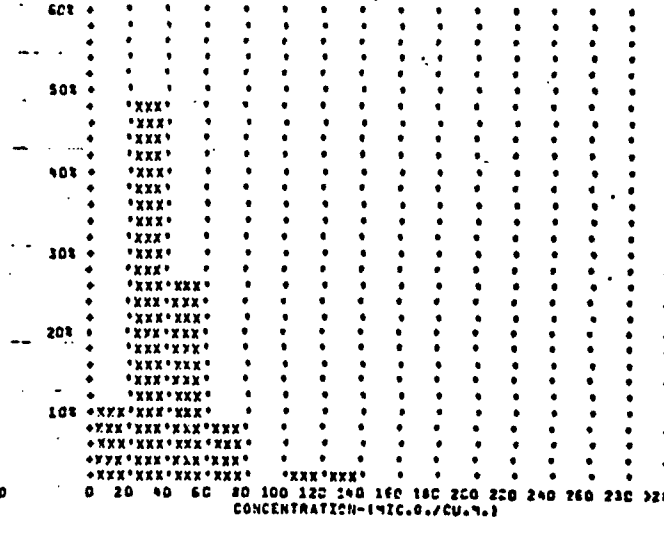
CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 20
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.

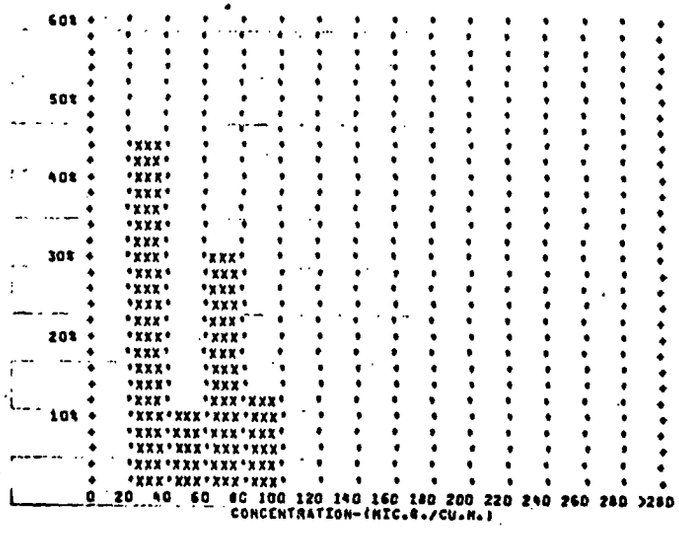


LAM 025606

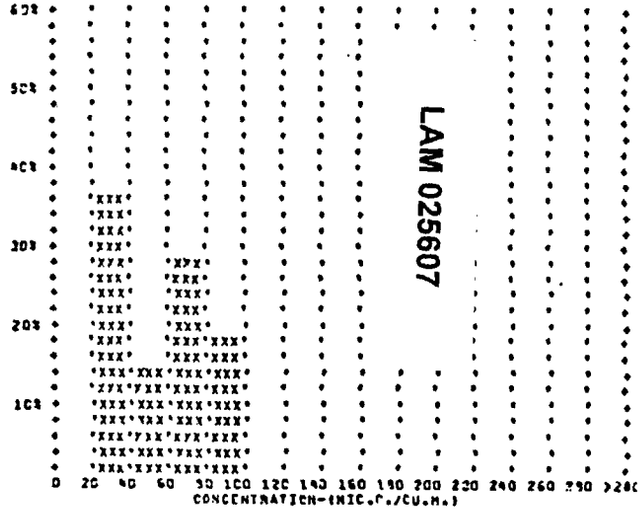
CITY SAMPLING STATION — HOUSTON 23
AMBIENT LEVEL OF PARTICULATES (MIC.G./CU.M.)
JANUARY 1, 1975 TO DECEM. 31, 1975

WIND DIRECTION	NO. OF HRS.	MEAN	STD. DEV.
N	118	52.2	21.5
NNE	46	55.3	20.7
NE	102	63.0	23.0
ENE	100	66.5	23.5
E	113	65.4	24.0
ESE	123	71.2	32.9
SE	113	58.0	22.2
SSE	112	58.9	21.4
S	214	60.6	23.1
SSW	32	59.6	25.1
SW	27	57.1	20.5
WSW	40	51.5	17.0
W	52	55.7	14.7
WNW	38	51.9	18.7
NW	55	46.4	15.7
NNW	59	48.8	15.5

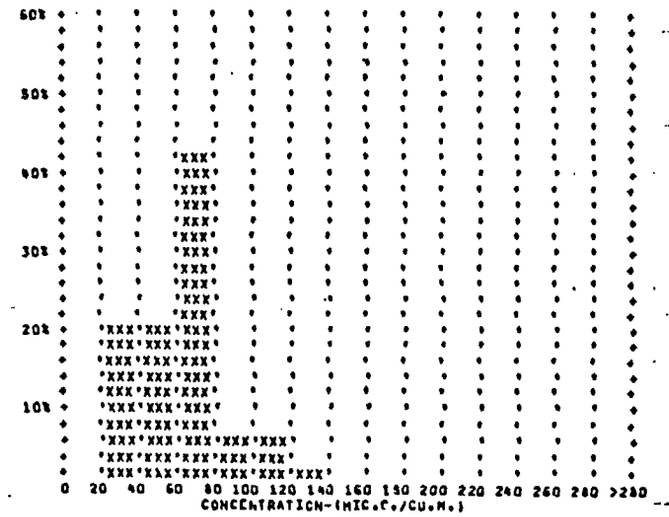
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- N
FREQUENCY DISTRIBUTION OF PART. CONC.



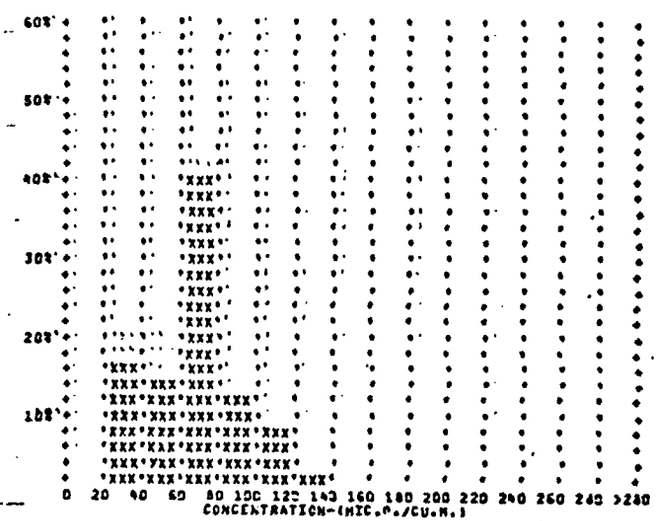
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NE
FREQUENCY DISTRIBUTION OF PART. CONC.



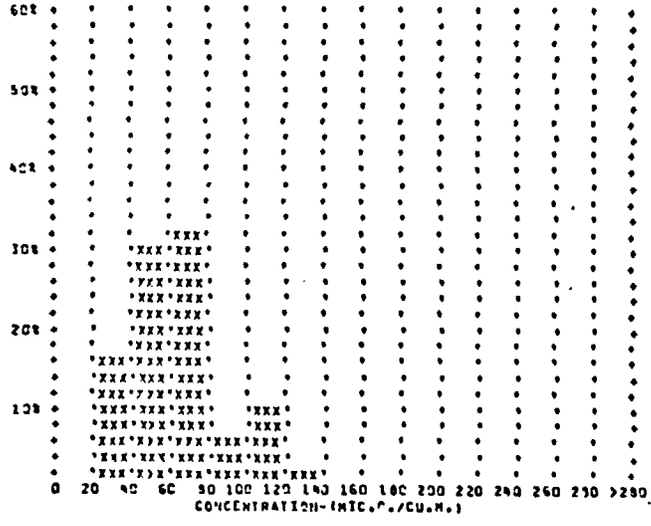
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ENE
FREQUENCY DISTRIBUTION OF PART. CONC.



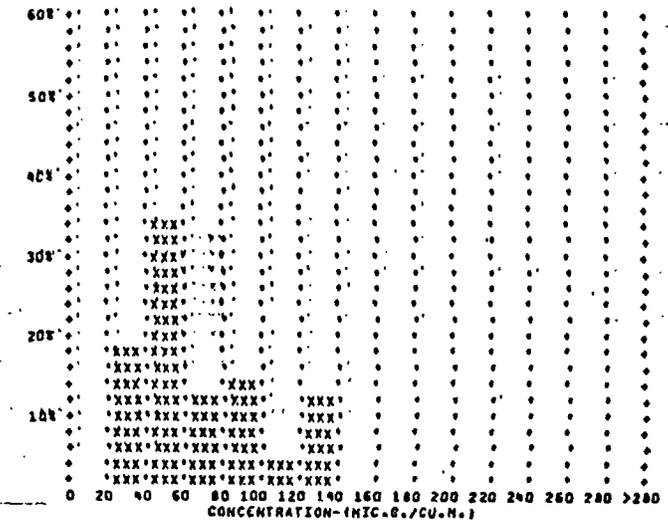
ABS-035612
LAM 025607

ABS-035613

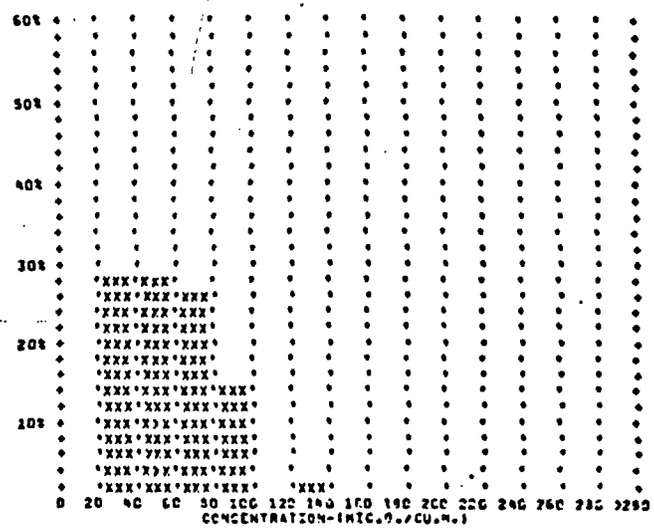
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- E
FREQUENCY DISTRIBUTION OF PART. CONC.



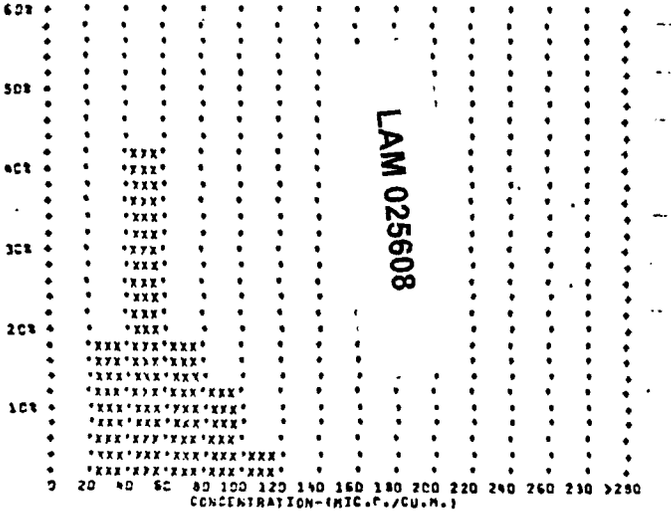
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- ESE
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SE
FREQUENCY DISTRIBUTION OF PART. CONC.

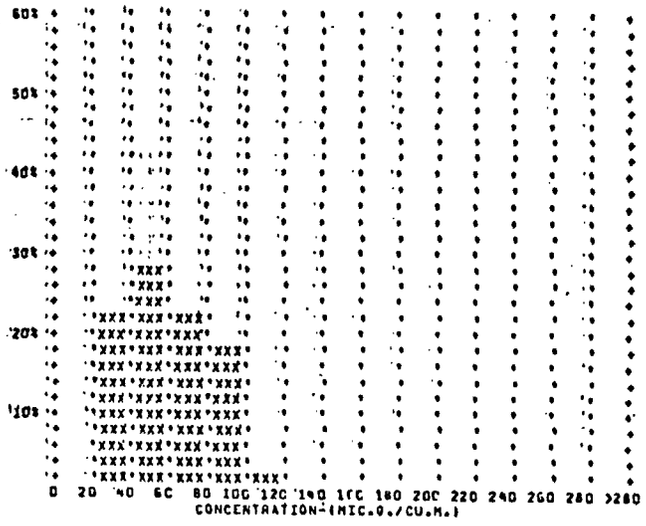


CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSE
FREQUENCY DISTRIBUTION OF PART. CONC.

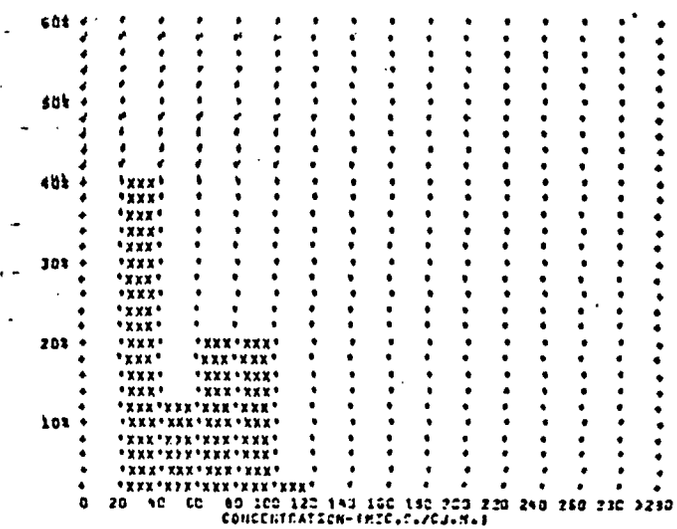


LAM 025608

CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- S
FREQUENCY DISTRIBUTION OF PART. CONC.

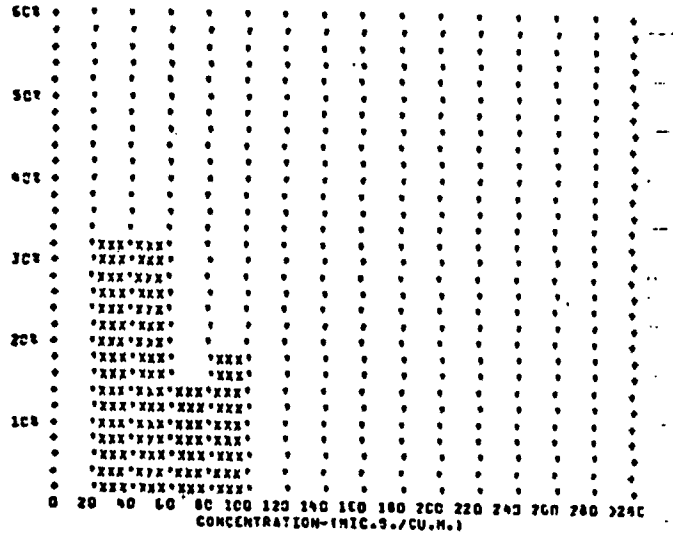


CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SSW
FREQUENCY DISTRIBUTION OF PART. CONC.

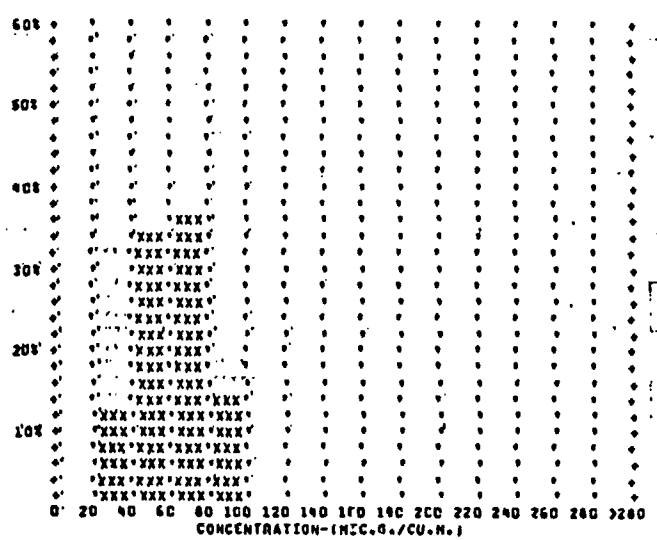


ABS-035614

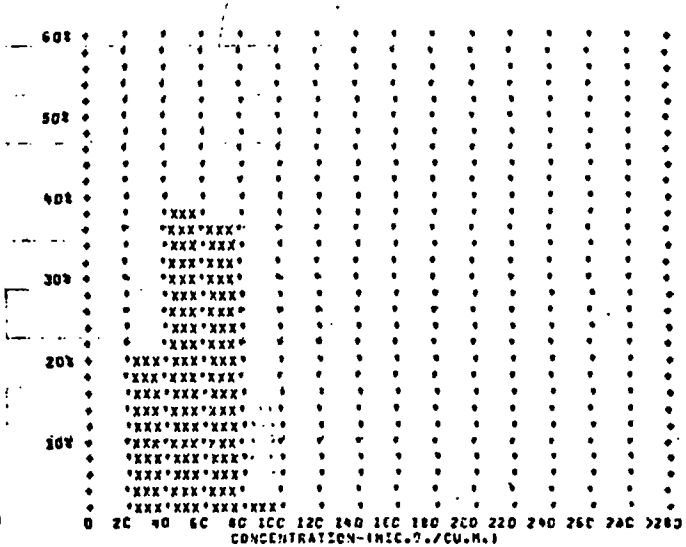
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- SW
FREQUENCY DISTRIBUTION OF PART. CONC.



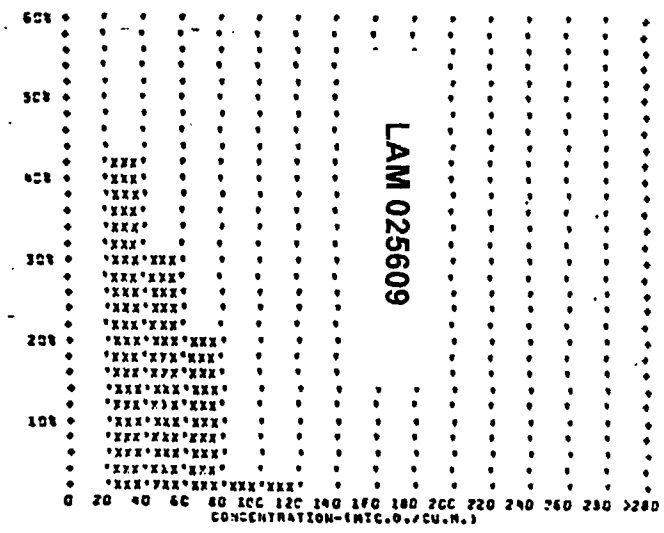
CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WSW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- W
FREQUENCY DISTRIBUTION OF PART. CONC.

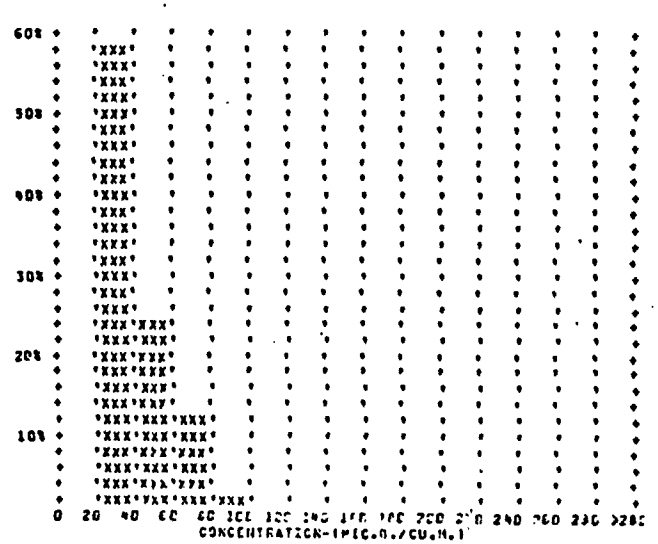
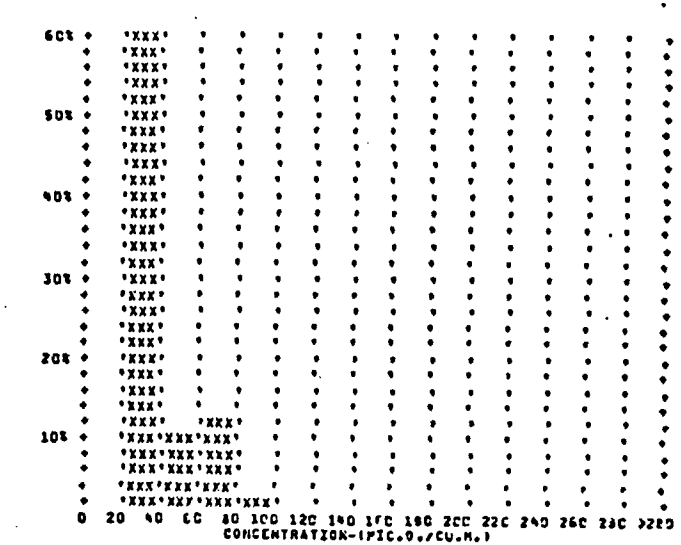


CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- WNW
FREQUENCY DISTRIBUTION OF PART. CONC.



LAM 025609

CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NW
FREQUENCY DISTRIBUTION OF PART. CONC.



CITY SAMPLING STATION -- HOUSTON 23
JANUARY 1, 1975 TO DECEM. 31, 1975
WIND DIRECTION -- NNW
FREQUENCY DISTRIBUTION OF PART. CONC.