Technical Report

Meteorology Research, Inc.

ANNUAL REPORT - 1976

PEBBLE SPRINGS METEOROLOGICAL MONITORING PROGRAM

MRI 77 R-1472

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ANNUAL REPORT
PEBBLE SPRINGS METEOROLOGICAL MONITORING PROGRAM

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1.0 INTRODUCTION

In anticipation of the eventual construction of a nuclear power plant, Portland General Electric Company (PGE) constructed and instrumented a 230-ft tower near the 700-ft level at the Pebble Springs site approximately three miles east-southeast of Arlington, Oregon. This tower system, which features meteorological instruments at three levels, was designed to meet the requirements specified in Regulatory Guide 1.23, which was promulgated by the Atomic Energy Commission (AEC), now the Nuclear Regulatory Commission (NRC). Operation of the tower system commenced on December 31, 1973. Data and summaries of data from previous years have been presented in Environmental and Safety Analyses Reports and in Annual Reports.

Summaries of the data collected in the year January 1, 1976 through December 31, 1976, are presented in this report, along with discussions and comparisons with previous years. The description of the system and its measurements is repeated, as is the description of the models used for calculation of dilution factors.

2.0 METEOROLOGICAL MEASUREMENT SYSTEM

The instrumented tower described here is located one-third mile west-northwest of the Containment.

2.1 INSTRUMENTATION

The instrumentation system used in the program was designed to meet the requirements and specifications of AEC (now NRC) Regulatory Guide 1.23. The primary system records digital signals on magnetic tape and the original analog signals on strip charts. The backup ΔT (30-ft to 130-ft) and wind speed and direction (at 30-ft) sensors record on separate analog strip charts. Primary a-c power is supplied by a commercial line. An Elgar Uninterruptible a-c Power Source (UPS) provides backup and ensures continuation of power during interruptions. This instrumentation system is described below.

2.1.1 METEOROLOGICAL MEASUREMENT SYSTEM (Tower)

The meteorological system, referred to as the meteorological tower, is designed to obtain measurements as indicated on the next page.

The sensors and related system equipment are listed in Table 2-1. Model and serial numbers and locations on the tower are also given. The specifications for the sensors and the sensor and digital system accuracies are given in Table 2-2. These specifications are all within the requirements of Paragraph C4 of Regulatory Guide 1.23. The measurements are described in Section 2.2.

2.1.2 DATA LOGGING AND RECORDING

MRI Model 1001 Transmuters, containing the signal conditioning circuit boards listed in Table 2-1, are used to accept signals from the sensors

Measurement	Level					
	8 ft	30 ft	130 ft	230 ft	30-130 ft	30-230 ft
Wind Direction		x	x	x		
Wind Run		x	x	x		
Wind Direction (backup)		x				
Wind Run (backup)		x				
Temperature		x				
Temperature Difference					x	x
Temperature Difference (backup)					x	
Relative Humidity				*		
Dew Point		x				
Turbulence		x				
Precipitation	x					
Solar Radiation	x					

* Relative Humidity sensor at 230-ft was removed during November 1975.

and convert the input voltages to a scale of 0 to 5 V. The MRI Model 1751A Digital Data Logger digitizes the signals from the transmuters and delivers them to the Kennedy Model 1600/360 Incremental Magnetic Tape Recorder. The logger handles 20 analog and 4 digital inputs, and it has a select capability and a 3-digit front panel display. The recorder is a nine-track 800 bpi unit that uses 0.5-in. magnetic tape. Tapes are changed monthly.

Analog recording is handled by six Model 1907 Dual-Channel Recorders. Each of these recorders consist of two Esterline-Angus Model A602C Recorders and two MRI event markers. The recorders accept analog signals and event pulses directly from the transmuter. Effective chart width is 2 inches. Charts are changed every 2 weeks.

2.1.3 POWER SUPPLY

Primary a-c power for operation of the system, the tower lighting, and the air conditioning and heating of the instrument building is provided by commercial line extended to the site. Also installed is an Edgar Uninterruptible a-c Power Source (UPS) which ensures no interruption of power during switching and can supply power (from batteries) on its own for short periods. The UPS also serves to maintain frequency at 60 Hz ±0.25 percent.

2.1.4 LIGHTNING PROTECTION

Lightning protection is provided by two standard grounding kits attached to the base of the tower and one kit to each of the guy wires. Each kit consists of a copper rod driven 6 feet into the ground and a No. 4 copper cable connecting the rod and the object to be grounded.

2.2 MEASUREMENTS

The nature of the various measurements is as follows:

2.2.1 WIND DIRECTION

An output voltage on a scale of 0-5 V is controlled by two potentiometers. The two potentiometers, each of which covers the full 360°, are 180° out of mechanical phase with each other. Their use in this manner eliminates the crossover problem of a single unit when the wind oscillates around the crossover point.

The continuous analog output voltage from this unit drives the scribe on the analog recorder. A sample is taken by the data logger once each minute, and the digital value is entered on the magnetic tape.

2.2.2 WIND RUN

The cups, through a gear train, rotate a magnet past a reed switch to produce a closure once for each 0.1 mile of wind flow. Each switch closure produces a pulse which is accepted by the data logger and recorded on the tape. Each pulse also drives an event marker to produce a mark on the analog chart.

2.2.3 TEMPERATURE

The sensor is a shielded and power-aspirated linear thermistor network which contains a resistor with a high temperature coefficient. The continuous voltage output on a scale of 0-5 V is recorded directly on the analog chart and is sampled and recorded once each minute on the magnetic tape.

2.2.4 TEMPERATURE DIFFERENTIAL

Two pairs of temperature sensors are located at the 30- and 130-ft levels and one pair is located on the 30- and 230-ft levels on the tower. The voltage output difference between the two in each pair is amplified to a scale of 0-5 V. This amplified output is sampled and recorded in °C in the same manner as temperature.

2.2.5 DEW POINT TEMPERATURE

This measurement is obtained by chilling a stainless steel mirror to the actual dewpoint. As the condensate forms on the mirror, an optical sensing bridge detects the change in the reflectance of the mirror surface. Appropriate circuitry controls the thermoelectric cooler to

permit the mirror to continuously track the dew point. The dew point temperature is measured by platinum resistance thermometers. The continuous output voltage on a scale of 0-5 V is recorded directly on the analog chart and recorded once each minute on the magnetic tape.

2.2.6 TURBULENCE (Sigma)

The fluctuating voltage output of the wind-vane potentiometers is passed through a high-pass filter circuit to obtain the standard deviation of the horizontal wind direction, commonly called "sigma". The unit works according to the principles presented by Jones and Pasquill[1]. In the 15-min mode used at the plant site, the unit outputs the 15-min running mean of standard deviations of 180 consecutive voltages sampled at 1-sec intervals. This is equivalent to a high-pass 3-db frequency of 0.0055 Hz and encompasses that portion of the turbulence spectrum that is responsible for initial dispersion of effluent clouds. The voltage is converted to sigma in degrees; the scaling is 0-45° for 0-5 V dc.

2.2.7 PRECIPITATION

Precipitation is funneled into a bucket collector which tips for each 0.01 in. collected. This event activates a frictionless magnet reed switch which produces a contact closure and sends a pulse to the data logger and analog recorder. The pulse is recorded as a count on the magnetic tape and actuates the event marker on the analog chart to produce a step in the trace.

2.2.8 SOLAR RADIATION

The detector is a differential thermopile with the hot-junction receivers blackened and the cold receivers whitened. The output is a voltage on a 0-5 V scale. It is recorded on the analog strip chart and is sampled once each minute by the data logger and recorded on the magnetic tape. Voltages are converted to units of langleys/min[a].

[a] One langley = 1 calorie/cm^2

2.3 CALIBRATION AND MAINTENANCE

The calibration and maintenance policy and general procedures of MRI are specified in the Quality Assurance Manual. Detailed procedures are specified in the Quality Assurance, Field Operations, and Data Management Manuals. Similar policies and procedures are specified in PGE manuals. All of them are undergoing constant review and upgrading in accordance with 10CFR50, Appendix B requirements.

2.3.1 CALIBRATION

All sensors and related equipment are calibrated according to procedures specified in these manuals. These procedures are designed to assure adherence to NRC specifications for accuracy. The first calibration is accomplished on the fully assembled system in the plant before delivery. A calibration check is made following installation. Site checks and calibrations are made at intervals of approximately 3 months. Starting in February, 1976, PGE personnel assumed responsibility for the calibrations. Calibrations were made on January 22-23, April 5-8, July 15-17, and September 24-27, 1976.

All meters and other equipment used in calibrations are, in turn, calibrated at frequent intervals. All calibrated instruments used have evidence of accuracy in the historical record. This evidence is traceable to the National Bureau of Standards.

2.3.2 MAINTENANCE

Inspection and maintenance of all equipment is accomplished in accordance with written procedures in the referenced manuals. All equipment is thoroughly inspected prior to each system calibration. Individual components are removed for servicing at intervals specified in the manual or more frequently if the need is detected. If the maintenance required cannot be accomplished at the site, the component concerned is returned to PGE's

instrument shop, to MRI, or, in the case of the recorder and data logger, to the manufacturer for refurbishing. Since assuming maintenance responsibility in February, PGE personnel have followed essentially the same procedures.

In order to assure the accuracy of the wind data, the wind sensors are removed and refurbished every six months. Calibration in the MRI wind tunnel before and after refurbishment provides the basis for correction of wind data.

2.3.3 ON-SITE MONITORING

The site is visited several days each week by a PGE instrument engineer or technician. This individual checks to ascertain that all components appear to be operating properly. He restarts the system if necessary, checks and makes zero-set adjustments of the analog recorders, puts ink in the pens, and examines the analog traces for reasonableness. In addition, the monitor changes charts and tapes, services the recorders, cleans the instrument shelter, and makes any repairs and adjustments that are necessary.

2.3.4 DATA MONITORING

All analog charts are subjected to a careful inspection for discrepancies or evidence of malfunction as soon as possible after receipt by MRI. Similarly, the magnetic tapes are immediately processed and the preliminary listing is examined for internal consistency and reasonableness in accordance with procedures in the Data Management Manual. Because a knowledge of what values to expect is required, a professional meteorologist is assigned to this task.

The primary purpose of this quality control procedure is to detect signs of malfunction or of the need for calibration. When a need for servicing is detected, MRI's Project Manager is advised immediately. He then initiates the necessary corrective action.

2.4 DATA RECOVERY

An evaluation of system performance (i.e., percent recovery of valid data) is made following the quality check of the data. The recovery rates are shown by parameter by month in Table 2-3. The overall rate for January 1, 1976 through December 31, 1976, has averaged 96.8 percent. It has averaged over 90 percent every month in the period. The recovery of all parameters except sigma averaged over 94 percent. The rate for ΔT 30-130 dropped below 90 percent during three months, one due to icing.

2.5 SYSTEM PERFORMANCE

The data recovery figures in Table 2-3 suggest that, on the whole, the system has performed well during 1976. This excellent performance is a result of the close attention paid by the technicians on site and of the supporting efforts by laboratory and contractor personnel. However, problems did arise. These are summarized here.

2.5.1 LIGHTNING STRIKE

A lightning strike nearby during Christmas week of 1975 resulted in problems which carried over into about February of 1976. One result that was very difficult to identify was the burning of the breaker strips in the aspirator circuits. These circuits opened intermittantly and caused anomalous ΔT readings.

2.5.2 RODENT DAMAGE

A mouse entered transmuter #1 early in June and shorted our some circuits. This incident was followed by the discovery in July that rats had gnawed through the conduit and chewed the insulation off of the cables. Several circuits were damaged. Weird troubles experienced earlier with the system undoubtedly were caused by this action. The cables were temporarily remounted on a trestle and were replaced in November-December.

2.5.3 ASPIRATORS

Intermittant problems with ΔT readings, especially during high wind speeds, were traced to the gradual deterioration in aspirator performance. New, more powerful motors were installed in May to correct this problem.

2.5.4 ICING

The synoptic pattern during the month of December was characterized by a large, stable high pressure area centered over the Pacific Northwest. This pattern resulted in persistant dense fog and below-freezing temperatures at the tower rather than the normal precipitation and wind. Fog at temperatures between about 15°F and 32°F normally consists of supercooled water droplets which freeze immediately upon impact to form rime ice. The amount of ice deposited is proportional to wind speed and duration of the condition.

The site technician reported considerable icing of the tower on two occasions. Icing sufficient to severely restrict or block the flow through the aspirators was observed at the same time; and ice could not be kept from the dome of the solar radiation sensor. Consequently all temperature, ΔT, and solar radiation data during these periods are suspect. The ΔT data that we could positively identify as being affected have been removed from the data base. Additional ΔT data may be in error, but it is our judgment that this error is not significant in terms of stability category distributions. The size of the temperature error cannot be determined; however, the temperature is certainly below freezing. The solar radiation data recorded during icing episodes is probably between 30 percent and 50 percent of the true values.

2.5.5 OTHER ITEMS

A number of lesser problems were encountered. Chief among these were the following:

- The recorder was out of service twice, once because of a burned out load marker light and once because of failure of a component on the control board.
- The usual troubles with pots and side markers.
- Extreme oscillations in the data traces caused by severe electrical storms during the summer.

3.0 PROCESSING AND ANALYSIS

The analysis procedures used in the Pebble Springs Project are designed to obtain the most accurate data and analyses possible. They are responsive to Regulatory Guide 1.23 and follow the guidelines provided in the NRC's Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants., Regulatory Guide 1.70 (Rev. 2), dated September, 1975.

3.1 DATA QUALITY CONTROL

As described in Section 2.3.4, all data are subjected to a quality check as soon after receipt as possible. The analog charts are given a detailed inspection which includes, but is not necessarily limited to, the following items:

(1) Chart timing. Timing is checked to see if it matches reported on and off times and the off time of the previous chart. Chart is retimed if necessary.

(2) Adherence to scale.

(3) Reasonableness of data. This includes consideration of the proper diurnal variations of temperature, humidity and temperature difference: the absolute values of these and other variables; and the relationships among variables such as wind speed, temperature and temperature difference.

(4) Continuity of data and of instrument operation.

(5) Evidence of power interruptions and of malfunctions.

a "dump" of the magnetic tape in engineering units is obtained as soon as possible after receipt, and the data are given a detailed inspection analogous to that of the charts. Data gaps are filled by data from the analog charts, and a new dump is obtained. These data are then compared on a random sample basis with data from the analog charts.

This quality control procedure is intended to detect electronic or sensor drift or malfunction, improper mechanical zero adjustment, or other sources of error in the data. Much of the time, erroneous data can be retrieved. This is usually accomplished on the basis of recalibrations. If valid correction factors cannot be determined, the questionable data are not used in the summaries and analyses.

3.2 DATA REDUCTION

Data recorded on magnetic tape consist of either voltages or impulses recorded at 1-min intervals as described in Section 2.2.1. These data are converted to engineering units by application of the appropriate scale factors and are averaged or summed to obtain the hourly values which are used in the analyses.

Wind direction, temperature, dew point, relative humidity, and temperature difference are averaged over a 15-min period centered on the hour. Wind run is accumulated over a 1-hr period centered on the hour. Because sigma is already averaged, the reading at 7.5 min past the hour is selected. Solar radiation and rainfall are summed over the previous hour. All data are entered on the new tape as hourly values.

Any reduction of analog charts that is necessary is accomplished on the Oscar S2 semiautomatic chart reader. The same averaging periods used for digital data reduction are used for the analog data.

3.3 CORRECTIONS

Calibration data provided the basis for almost all corrections made to the data. Delta temperature calibrations made quarterly or oftener are a frequent source. Wind speed corrections are based on calibrations made in the MRI wind tunnel. Zero-set observations are sometimes needed to correct analog data. The important corrections made to the Pebble Springs data are listed in Table 3-1.

3.4 ANALYSES

The hourly data are compiled into a series of summary tables presented following this text and discussed in Section 4. These tables are produced by month, season (quarter), or year. The data are also used as inputs in the computation of the χ/Q estimates described in Section 3.5.

Stability categories used in this report were determined by ΔT and/or sigma, as follows:

- For all tables except χ/Q. Stability category was determined by ΔT according to specifications from NRC Regulatory Guide 1.23, below. If ΔT was missing, the wind speed at the lowest level on the tower was greater than 3 mph, and sigma was available, stability category was determined by sigma, as also defined by Regulatory Guide 1.23. If the wind speed was 3 mph or less, and ΔT was missing, stability category could not be determined for that hour. The 30-230 ΔT was used if that for 30-130 ft was missing.
- For χ/Q tables. If wind speed exceeded 3 mph, σ_y was determined by sigma, and σ_z was determined by ΔT. If the wind speed was 3 mph or less, both σ_y and σ_z were determined by ΔT. If the wind speed was above 3 mph and ΔT was missing, both σ_y and σ_z were determined by sigma.

Stability Category	σ- Range (°)	ΔT-Range (°C/100 m)
A	≥ 22.5	< -1.9
B	$22.5 > \sigma \geq 17.5$	$-1.9 \leq \Delta T < -1.7$
C	$17.5 > \sigma \geq 12.5$	$-1.7 \leq \Delta T < -1.5$
D	$12.5 > \sigma \geq 7.5$	$-1.5 \leq \Delta T < -0.5$
E	$7.5 > \sigma \geq 3.75$	$-0.5 \leq \Delta T < 1.5$
F	$3.75 > \sigma \geq 2.0$	$1.5 \leq \Delta T < 4.0$
G	$\sigma < 2.0$	$4.0 \leq \Delta T$

The almost sole use of ΔT and the criteria given above for determining stability categories leads to a distortion in the distribution of Categories A, B, and C, if ΔT is rounded off to the nearest one-tenth degree. When the range of ΔT's encompasses an interval of only 0.2°C/100 m (0.06°C/100 ft), as it does for Categories B and C, and the measurements are made with an accuracy of ±0.1°C and read to the nearest 0.1°C, it is not possible to obtain the desired precision. The ΔT-interval for Category B is -0.52° to -0.58°C per 100 ft, so a value of -0.6° is classified as A and -0.5° is designated as C. In order to minimize this difficulty, the digital ΔT's are now recorded to two decimal places. While not fully justified by equipment accuracy capabilities, it is probable that the stability category distribution is more accurate than it would be otherwise.

3.5 DIFFUSION ESTIMATES

3.5.1 SHORT TERM (ACCIDENT) MODELS

All accidental atmospheric releases from the plant are assumed to occur at ground level. Hourly plume centerline χ/Q factors were calculated by means of the equation:

$$\chi/Q = \frac{1}{\bar{u}\,(\pi\sigma_y\sigma_z + A/2)} \quad (\text{sec/m}^3) \qquad (3\text{-}1)$$

where

χ = concentration of contaminant (units/m^3)

Q = source strength of contaminant (units/sec)

$\bar{u}$ = mean wind speed (m/sec)

σ_y = crosswind standard deviation of contaminant at downwind distance x (m)

σ_z = vertical standard deviation of contaminant at downwind distance x (m)

A = cross-sectional area of the containment = 2730 m^2

Values for σ_y and σ_z corresponding to the first six stability categories were determined from Meteorology and Atomic Energy[2]. Those for the seventh, Category G, were determined by extrapolation in the manner suggested by Yansky, Markee and Richter[3]. Calms were assigned to the last recorded direction and assigned a speed of 0.25 m/sec. The effect of the term A/2 is limited to a factor of 3.

In keeping with our practice in recent years, we have also computed χ/Q with an allowance for meander. When stability categories E, F, or G occurred simultaneously with wind speeds of 2.5 mph or less, allowance was made for meander by using the equation:

$$\chi/Q = \frac{1}{\bar{u}\,(4\,\pi\,\sigma_y\,\sigma_z + A/2)} \qquad (3\text{-}2)$$

where the effect of A/2 was limited to a factor of three. Precedent for the use of this equation for stable, light wind situations was set in the recent River Bend case. Justifications for its use were provided in the PSAR, and will not be reiterated here.

The "window" model suggested by Woodard[4] was used to compute sector averaged atmospheric dispersion factors for time periods of 8 hr, 16 hr, 3 days and 26 days. Cumulative frequency distributions were determined for each sector following computation of the average χ/Q for each "window" period by the equation:

$$\left(\frac{\chi}{Q}\right)_{dw} = \frac{1}{\beta N_w} \sqrt{\frac{2}{\pi}} \sum_{i=1}^{N_w} \frac{\delta_{d,\, d_i}}{\sigma_{zs_i} u_i x} \qquad (3\text{-}3)$$

where

$(\chi/Q)_{dw}$ = mean atmospheric dispersion factor for the window period w in the sector downwind from wind sector d (sec/m^3)

d = sector from which wind blows the first hour of the window period

d_i = sector from which wind blows the ith hour of the window period

β = sector width for 22.5° sector = 0.3927 radians

σ_{zs_i} = vertical standard deviation of contaminant at downwind distance x from wind direction sector d for stability index s_i (m)

s_i = stability index for the ith hour of the window period

u_i = average wind speed for the ith hour of the window period (m/sec)

x = downwind distance from Containment (m)

N_w = number of hours in window

$\delta_{d,\, d_i}$ = $\begin{cases} 1 \text{ if } d = d_i \\ 0 \text{ if } d \neq d_i \end{cases}$

Because a window begins each hour of the period, there are as many windows as hours. Hours of calm were included by attributing each one to the last recorded wind direction and by using $\bar{u}$ = 0.25 m/sec.

3.5.2 LONG TERM MODELS

All gaseous effluents which are released during normal plant operation are assumed to occur at ground level. Long term sector-averaged χ/Q values which are applicable for determining the consequences of these releases have been calculated with the equation:

$$\left(\frac{\chi}{Q}\right)_d = \sqrt{\frac{2}{\pi}}\,\frac{1}{\beta}\sum_{i=1}^{7}\sum_{s=1}^{14}\frac{f_{isd}}{\sigma_{zi}\,u_s\,x} \quad (\text{sec/m}^3) \qquad (3\text{-}4)$$

where

$(\chi/Q)_d$ = atmospheric dispersion factor for wind from sector d (sec/m^3)

β = sector width for 22.5° sector = 0.3927 (radians)

f_{isd} = joint frequency of stability index i, wind speed class s, and wind direction sector d

σ_{zi} = vertical standard deviation of contaminant at distance x for stability index i (m)

u_s = average wind speed for speed class s (m/sec)

x = downwind distance from Containment (m).

4.0 DISCUSSION

4.1 WINDS

4.1.1 WIND ROSES

Monthly, seasonal, and annual joint frequency distributions of wind directions and speeds (commonly referred to as "wind roses") are given in the tables for the three tower levels, 30, 130, and 230 feet, by month, season, and year. Those for the 30-foot level are also given by stability category by season and year.

Although the major features of the wind patterns observed during 1976 reflect strong terrain influence and, hence, are similar to those of preceding years, there are also some significant differences which bear on the χ/Q calculations:

- The average annual wind speed was about eight percent lower in 1976 than in 1975. It was lower during every month except February, March, April, and September, the greatest reduction (from 19 to 36 percent) occurring during the October-December period.

- The frequency of occurrence of low wind speeds increased markedly as is illustrated in Table 4-1. The frequency of speeds of 0.5 m/sec or less increased by a factor of four over that experienced in 1975, and speeds of 1.0 m/sec or less increased by a factor of almost 2.

- The prevailing westerlies tended to have a greater southerly component, especially with stability categories E and F.

- The frequency of northeasterly winds increased about 20 percent. The air tends to be stable at these times.

The reason for this dramatic reduction in wind speeds is found in the unusual pressure (weather) patterns that have characterized western North America and the World during 1976. A large, stationary high pressure area has been centered over the extreme eastern Pacific, Pacific Northwest, and Great Basin areas much of the year, especially during the last quarter. This high has forced storms to pass to the north and has resulted in unusually light winds because of the associated weak pressure gradients.

4.1.2 WIND DIRECTION PERSISTENCE

The persistence of wind directions is given on a seasonal and annual basis for the three tower levels. The most persistent winds were the prevailing winds from the west and west-southwest. These winds also tended to be the strongest. At 30 ft, west winds persisted 3 hours or more about 30 percent of the time and 5 hours or more about 15 percent of the time. About 13 percent of all cases persisted in their sectors for 3 hours or more. The maximum number of consecutive hours recorded for winds from any one sector was 19 hours (west-southwest). These persistences appear to be about the same as those noted in 1975.

It should be noted that the method of determination used makes no allowance for those cases where the mean direction for a persistence episode lies near the presently-used zone boundaries. It is likely that actual persistence of the prevailing westerlies was greater than indicated in both years.

4.2 STABILITY

4.2.1 DISTRIBUTION OF STABILITY CATEGORIES

The distribution of stability categories in 1976 differed noticeably from that in 1975. There were more occurrences of A, B, C, and G categories and fewer of E. Slight reductions in D and F are probably not significant. The combined total of E, F, and G categories decreased from about 62.6 percent to about 54.4 percent, which suggests an overall decrease in stability for the year. However, the increase in Category G from 9.80 to 12.44 percent represents a substantial increase in frequency of occurrence of extreme stability and has an adverse impact on the 5 percent χ/Q value.

The increase in frequency of G categories occurred mostly in the fall and winter months, as indicated in Table 4-2. These are also the periods of abnormally low wind speeds (see 4.1.1, above) which undoubtedly contributed to the more frequent occurrence of G's. Lower wind speeds probably also contributed to the increased frequency of occurrence of the unstable Categories, A, B, and C; however, a more important factor could have been the below-normal cloud cover that is also a consequence of the persistent high pressure area. Of course, this reduced cloudiness also contributed to the greater frequency of Category G at night.

Still another factor that may have contributed to the apparent year-to-year change in the stability category distribution is the problem experienced with the aspirators during the first portion of the year. Although an extraordinary effort was made to eliminate spurious data, its identification was sometimes very difficult. Should this indeed be a factor, it is most likely to have influenced the distribution of the unstable categories; and the effect on D through G should be slight..

4.2.2 DIURNAL STABILITY CATEGORY DISTRIBUTION

Tables of the variation of stability category distribution with time of day exhibit a continued clear tendency for Categories E and F to prevail during evening, night, and morning hours except for the fall months when G occurred more than F. Categories D and A were favored during the daytime in the fall, D was favored in winter, and A was favored in spring and summer.

4.2.3 STABILITY CATEGORY DISTRIBUTION BY WIND DIRECTION

A comparison of the annual 30' wind roses by stability category continues to demonstrate the tendency for the prevailing westerly winds to be in Category E except during spring and summer days when A predominates. Categories A through D also tend to occur with westerly winds. The stable F and G categories tend to favor the southwesterly and northeasterly to easterly quadrants. This suggests that local drainage flow is not well defined, if it does exist. Instead, the data suggest the larger, deeper flows off the Cascades or down the Columbia.

4.2.4 STABILITY PERSISTENCE

Category E continued to be the most persistent during 1976 with 23 percent of the E occurrences lasting 5 hours or more. One episode lasted 34 hours. Categories G and D also tended to be persistent with about 21 percent and 11 percent, respectively, lasting 5 hours or more. One Category D episode lasted 102 hours.

Persistence of the more meaningful F and G combination was much greater. Almost 36 percent of these cases lasted 5 hours or more, 12 percent lasted at least 10 hours, and over 6 percent lasted 14 hours. The lengthiest episode was 19 hours. For inversions as a class, the percentages were

49, 33, and 17, respectively. There appears to be little change from year to year in these figures.

4.3 DIFFUSION ESTIMATES

4.3.1 HOURLY VALUES

The seasonal and and annual cumulative frequency distributions of hourly χ/Q class intervals were computed for 800 m, 3200 m, and the distances to the actual site boundaries by means of Equations 3-1 and 3-2. The 5 and 50 percent χ/Q values and the worst conditions are given for each. The worst condition is defined here as the highest single hourly χ/Q computed for that distance.

At 9.3×10^{-4}, the 5 percent χ/Q value at 800 m has increased over the 1975 value by about 45 percent. Similar large increases occurred at 3200 m and at the site boundary. These and other pertinent statistics are summarized in Table 4-3. Taking credit for meander in the same manner as in previous years yields a χ/Q at 800 m of 4.0×10^{-4}, up from 2.95×10^{-4}. The seasonal summaries indicate that the increases over 1975 occurred in all seasons; however, the biggest increase was recorded in the winter.

In contrast, there is very little change in the 50 percent levels at 800 m and 3200 m, and there is a small decrease at the site boundary, probably due to the changed distribution of wind directions and speeds as they relate to variable boundary distances.

The reason for the increased 5 percent values is found in the increased frequency of occurrence of Category G and the greatly increased frequency of low wind speeds. Both of these factors were discussed earlier. However, the impact of these two causes is felt only on the low percentile end

of the scale. The 50 percentile values suggest that the redistribution of wind speeds and stabilities occurred within the low end and that the dispersion conditions over the balance of the scale were similar to those in previous years.

4.3.2 OTHER SHORT TERM VALUES

Cumulative frequency distributions of average χ/Q class intervals at 800 m and 3200 m by direction sector were computed annually by means of the window model (Equation 3-3) for 8 hr, 16 hr, 3 days, and 26 days. Also given in each table are the 5 and 50 percent levels and the worst conditions. The worst condition is considered to be the highest χ/Q value computed for any window.

The 5 and 50 percent values for each of the window periods and for the hourlies are presented as a function of distance in another table. In general, the 5 percentile values for the shorter windows changed in the same manner as the hourly values. However, the increase in the year-to-year 5 percentile values decreased with increased window length. In contrast, the 50 percentile values for the shorter windows showed no year-to-year increase, but those for the longer windows did.

4.3.3 ANNUAL AVERAGE

The annual average χ/Q's, computed by Equation 3-4 for each sector at distances ranging from 0.1 mile to 50 miles, are presented as the final χ/Q table. The highest values - for winds from the southwest through west - continue to reflect the high frequency of occurrence of winds from the west and west southwest and, probably, the stable flow from the southwest.

The calculated annual average χ/Q's increased at all distances in 14 of the 16 sectors. They held about even downwind from the west sector and decreased downwind from the north northwest sector. The increases are due to the factors discussed above, and the distribution of the changes reflects the changes in the joint frequency distribution of wind directions and speeds. Typical changes are shown in Table 4-4.

REFERENCES

(1) J. I. P. Jones and F. Pasquill, "An Experimental System for Directly Recording Statistics of the Intensity of Atmospheric Turbulence," Quarterly Journal Royal Meteorological Society, 85, 365 (1959) 225-236.

(2) U. S. Atomic Energy Commission (D. H. Slade, Ed.), Meteorology and Atomic Energy, Oak Ridge, Tenn. (1968) 445 pp.

(3) G. R. Yansky, E. H. Markee, Jr., and A. P. Richter, Climatography of the National Reactor Testing Station, Environmental Science Services Administration (January, 1966).

(4) K. Woodard, "Probability Treatment of Atmospheric Dispersion for Dose Calculations," Nuclear Technology, 12 (November, 1968) 281-289.

Table 2-1

INSTRUMENTATION MOUNTED ON TOWER
1976

Sensor Type	MRI Model Number	Serial Number[1]	Mounting Height	Distance from Tower	Direction from Tower
Wind	1074-1	576/283/278	230 ft	9 ft	S
Wind	1074-1	575/282/277	130	10	S
Wind	1074-1	573/280/281/270	30	9	S
Wind	1074-1 backup	574/281/280/411	30	9	N
Delta T	832-1	561B/593B/606B	230	2	W
Delta T	811-1	552A/587B/ 513B/599B	130	2	NW
Delta T	811-1 backup	549B/590B	130	2	S
Temp	811-1	008	30	2	NW
Delta T	832-2	552B/587A/ 513A/599A	30	2	NW
Delta T	832-2	561A/593A/606A	30	2	NW
Delta T	811-1 backup	549A/590A	30	2	S
Dew Point	(Cambridge Sys. Mod 110S)	289-293	31	2	NE
Raingage	302	909	8	23	SE
Solar Rad.	860 (Eppley Mod. 8-43 Pyranometer)	123	8	20	SW

Equipment Type	Model Number	Serial Number
Data Logger	1751/175/A	03/10013
Tape Recorder	1600/360	205-1142
E.A. Recorder	1907	518406
E.A. Recorder	1907	518407
E.A. Recorder	1907	513390
E.A. Recorder	1907	518391
E.A. Recorder	1907	518392
E.A. Recorder	1907	518393
Elgar UPS	UPS 501	155

Electronics Type	No.	Model Number	Serial Number
Transmuter	1	1001	362
Transmuter	1	1001	365
Circuit Bds.			
Azimuth	4	14303	
Sigma	1	14312	
Delta T	3	13936-1	
RH	2	15033	
4.7 V	1	14783-4	
4.7 V	1	14783-1	
Signal Cond.	1	14560	
Signal Cond.	1	14560-5	
Solar Rad.	1	14088	
Temperature	1	13495	

[1] Scheduled wind sensor changes were made January 22 and July 15, 1976. In addition the positions of SN 280 and 281 were exchanged on May 18.

All delta T sensors were replaced on April 15; the 30-130 primary sensors were replaced again on June 22, and sometime between September 27 and December 24; and the 30-230 sensors were replaced again on July 16.

Table 2-2.

METEOROLOGICAL SENSOR AND SYSTEM SPECIFICATIONS AND ACCURACIES

Parameter	Component	Model	Component Accuracy	System Accuracy (RSS)[a]	AEC Regulatory Guide 1.23	Specifications
Wind Run	Sensor	1074-1	± 0.40 mph			Response Distance = 18 ft (63% rec.) Flow Coefficient = 7.765 ft/rev Operating Temp. = -40°C to +50°C Starting Speed = 0.75 mph Accuracy Range = 0.75 - 25 mph
	Circuit Card	14783-1	0 mph			
	Data Logger	1751A	0 mph			
	Combination of Components			± 0.40 mph	± 0.50 mph	
Wind Dir.	Sensor	1074-1	± 2.00°			Delay Distance = 4 ft (50% rec.) Damping Ratio = 0.5 to 0.6 Starting Speed = 0.75 mph Resolution = 0.36° Linearity = 0.9°
	Circuit Card	14303	1.35°			Output Impedance = < 100 ohms Input Impedance = > 100 K ohms
	Data Logger	1751A	± 1.08°			
	Combination of Components			± 2.64°	± 5.0°	
Temperature	Sensor	832	± 0.15°C			Operating Temp. = -30°C to +50°C (range)
	Circuit Card	13495	± 0.20°C			
	Data Logger	1751A	± 0.16°C			
	Combination of Components			± 0.30°C	± 0.5°C	
Delta Temp.	Sensors	832	± 0.05			Operating Temp. = -30°C to +50°C Range = ±5.0°C
	Circuit Card	13936-1	± 0.025°C			
	Data Logger	1751A	± 0.02°C			
	Combination of Components			± 0.06°C	± 0.1°C	
Rel. Humidity	Sensor	832	± 1.0%			Range = 0 to 100% Linearity = 2% (0 to 100%)
	Circuit Card	15033	± 0.3%			
	Data Logger	1751A	± 0.2%			
	Combination of Components			± 1.06%	*	
*Accuracy of ± 1.07% Relative Humidity will provide measurements whose equivalent Dew Point accuracy is better than ± 0.5°C (all environments having RH higher than 35%).						
Rainfall	Tipping Bucket Raingage	302	± 1% at 3 in./hr ± < 1% at < 3 in./hr			Resolution = 0.01 in.
Turbulence (Sigma)	Vane	1074-1				Sampling Time = 180 sec Averaging Time = 900 sec High-Pass 3-db Frequency = 0.0055 Hz Scale = 0 to 45° Environment = -40°F to +120°F Output Voltage = 0 to 5 V dc Output Impedance = < 100 ohms Input Voltage Range = 0.75 to 5 V p-p Input Impedance > 50,000 ohms
	Circuit Card	14312	± 2% full scale			
Solar Rad.	Eppley	860	± 0.05 cal/cm²-min			Range = 0 to 2 cal/cm²-min Resolution = 0.01 cal/cm²-min
Dew Point	Cambridge Systems	110S	± 0.5°F			Sensitivity = ± 0.1°F Response = 3°F/sec

[a] RSS = square root of the sum of the squares.

Table 2-3

PEBBLE SPRINGS

SYSTEM DATA RECOVERY
(Percent)

Month and Total Hours (1976)

Parameter	Elevation (ft)	Jan. (744)	Feb. (696)	Mar. (744)	April (720)	May (744)	June (720)	July (744)	Aug. (744)	Sept. (720)	Oct. (744)	Nov. (720)	Dec. (744)	Annual (8784)
Δ T	30-130	98.37	99.43	99.81	86.25	94.55	86.39	95.30	99.87	98.19	100	100	73.25	94.28
Δ T	30-230	96.43	99.43	99.81	81.81	98.96	99.03	95.30	99.33	98.33	98.92	100	63.44	94.23
Wind Run	30	95.67	94.25	99.75	92.11	99.73	98.75	94.35	99.73	98.75	99.79	99.58	99.87	97.69
Wind Direction	30	97.14	97.76	99.75	93.95	99.66	97.08	95.16	99.87	99.44	98.79	100	100	98.22
Sigma	30	94.68	80.12	81.80	82.20	83.57	98.61	95.16	99.87	97.64	99.60	100	99.73	92.75
Wind Run	130	89.25	93.97	99.81	89.06	99.74	98.75	95.16	100	98.75	98.39	99.58	96.64	96.59
Wind Direction	130	94.90	93.97	99.85	94.58	99.73	97.08	95.16	100	98.75	95.83	100	99.87	97.48
Wind Run	230	90.33	93.97	99.85	91.53	99.73	98.75	94.89	100	98.75	99.60	99.58	99.87	97.24
Wind Direction	230	91.53	93.88	99.85	94.95	99.73	98.75	95.03	100	98.75	100	100	99.87	97.70
Temperature	30	98.71	99.60	99.78	90.02	99.53	100	95.56	87.63	98.47	99.46	99.58	100	97.36
Dew Point	30	96.84	99.94	99.88	97.15	99.87	100	99.60	99.19	100	99.06	100	99.87	99.28
Solar Radiation	8	98.71	99.52	90.61	90.74	99.93	100	92.61	99.87	98.75	92.34	98.89	99.87	96.82
Precipitation	8	99.81	99.53	99.88	93.60	99.87	100	100	100	99.58	99.33	99.86	99.87	99.28
Overall		95.56	95.79	97.73	91.18	98.04	97.94	95.64	98.87	98.78	98.51	99.78	94.78	96.84

WINL SPEED AND ΔT CORRECTIONS

Wind Speed Corrections

Level	Serial Number	Starting Coefficients Date	Time	A	B	C	D	Ending Coefficients Date	Time	A	B	C	D
30'	573	10/28/75	1900	0.45	0.911	0.30	0.974	1/22/76	1000	0.545	0.909	0.377	0.990
	280	1/22/76	1100	0.60	0.60	0.18	1.02	3/31/76	2400	0.60	0.60	0.18	1.02
	281	4/1/76	0100	0.60	0.60	0.21	0.99	7/15/76	1300	0.60	0.60	0.21	0.99
	270	7/15/76	1400	0.60	0.60	0.21	0.99	1/3/77	1300	0.60	0.60	0.21	0.99
130'	575	10/24/75	1900	0.45	0.911	0.30	0.974	1/22/76	1000	0.545	0.909	0.404	0.980
	282	1/22/76	1100	0.60	0.60	0.18	1.02	7/15/76	1300	0.60	0.60	0.18	1.02
	277	7/15/76	1400	0.60	0.60	0.21	0.99	1/3/77	1300	0.60	0.60	0.21	0.99
230'	576	10/24/75	1900	0.45	0.911	0.30	0.974	1/22/76	1000	0.770	0.769	0.272	0.981
	283	1/22/76	1100	0.60	0.60	0.18	1.02	7/15/76	1300	0.60	0.60	0.18	1.02
	278	7/15/76	1400	0.60	0.60	0.21	0.99	1/3/77	1300	0.60	0.60	0.21	0.99
New or Refurbished Sensor Values				0.6	0.6	0.21	0.99						

WIND SPEED CORRECTION EQUATIONS

After 1/22/76

$WS_{true} = WS_{ind}$ where $WS_{ind} = 0$

$WS_{true} = A + B \times WS_{ind}$ where $0 < WS_{ind} \leq 1.0$ mph

$WS_{true} = C + D \times WS_{ind}$ where $1.0 < WS_{ind}$

Prior to 1/22/76

$WS_{true} = A + B \times WS_{ind}$ where $0 < WS_{ind} \leq 2.6$ mph

$WS_{true} = C + D \times WS_{ind}$ where $2.6 < WS_{ind}$

ΔT Corrections

ΔT Interval	Date	Correction	Date	Correction	Basis
30/230	12/30/75	0	1/22/76	-0.15	Calibration
30/230	4/8/76	0	7/16/76	-0.101	Calibration
30/130	5/5/76	0	5/7/76	-0.20	Zero Check-Analog
30/130	5/7/76	0	5/12/76	-0.15	Zero Check-Analog
30/130	6/22/76	0	7/16/76	-0.152	Calibration
30/130	7/18/76	0	9/27/76	-0.068	Calibration
30/130	9/27/76	0	1/4/77	-0.206	Calibration
30/230	9/27/76	0	1/4/77	-0.08	Calibration
30/130 BU	9/27/76	0	1/4/77	-0.076	Calibration

Table 4-1

PERCENT FREQUENCIES OF OCCURRENCE OF LOW WIND SPEEDS

Year	Winter	Spring	Summer	Fall	Annual
		Wind Speed < 0.5 m/sec			
1976	2.71	0.94	0.05	3.04	1.69
1975	0.83	Ø	0.05	0.85	0.43
1974	0.51	0.14	0.05	1.55	0.56
		Wind Speed < 1.0 m/sec			
1976	18.64	7.84	3.07	21.38	12.73
1975	8.61	3.89	2.27	15.76	7.58
1974	8.92	3.51	3.67	18.48	8.61

Table 4-2

COMPARISON OF PERCENT FREQUENCIES

OF OCCURRENCE OF STABILITY CATEGORIES

		A	B	C	D	E	F	G
Winter	1976	3.60	2.32	3.01	23.16	39.87	17.15	10.89
	1975	0.52	0.42	0.21	20.57	55.51	14.83	7.94
Spring	1976	18.04	4.77	4.77	20.41	31.79	9.83	10.39
	1975	9.14	3.51	4.70	24.0	34.43	13.46	10.76
Summer	1976	27.71	6.05	6.66	22.45	26.18	5.54	5.40
	1975	21.06	3.45	4.63	23.32	36.97	5.95	4.63
Fall	1976	9.72	3.15	4.67	21.33	23.14	15.09	22.91
	1975	5.28	2.80	3.20	21.62	34.78	16.17	16.17
Annual	1976	14.90	4.09	4.80	21.82	30.09	11.84	12.44
	1975	9.26	2.56	3.29	22.38	40.32	12.46	9.80

Table 4-3

VARIATION IN ANNUAL STABILITIES,
MEAN WIND SPEEDS, AND HOURLY χ/Q

Year	Annual Average Wind Speed	HOURLY AVERAGE χ/Q-STANDARD 5 Percent Level 800 m	3200 m	Site Boundary	50 Percent Level 800 m	3200 m	Site Boundary	Percent Freq of Stability Class F	G
1974	4.7	6.85-04	1.8 -04	2.00-04	5.13-05	8.3 -06	7.32-06	11.0	9.9
1975	4.8	6.44-04	1.65-04	1.89-04	5.70-05	9.58-06	9.34-06	12.5	9.8
1976	4.4	9.33-04	2.70-04	2.90-04	5.79-05	9.57-06	8.23-06	11.8	12.4
		WITH MEANDER CREDIT							
1974		3.49-04	7.72-05	8.75-05	5.02-05	8.15-06	7.15-06		
1975		2.95-04	6.93-05	8.32-05	5.70-05	9.52-06	9.16-06		
1976		4.00-04	9.33-05	1.07-04	5.79-05	9.51-06	8.19-06		

Table 4-4

COMPARISONS OF ANNUAL AVERAGE χ/Qs

Distance (mi)	DOWNWIND FROM NE		SE		SW		W	
	1976	1975	1976	1975	1976	1975	1976	1975
1	1.4-06	1.1-06	1.2-06	9.3-07	3.8-06	2.5-06	3.0-06	3.0-06
10	4.8-08	3.6-08	4.2-08	3.2-08	1.4-07	9.0-08	9.9-08	9.9-08
25	1.5-08	1.1-08	1.4-08	9.9-09	4.5-08	2.9-08	3.1-08	3.0-08
50	6.5-09	4.8-09	5.8-09	4.1-09	2.0-08	1.3-08	1.3-08	1.2-08

DATA SUMMARIES

MONTHLY WIND SUMMARIES

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 1/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	4
0.26 TO 0.50	2	0	0	1	1	0	0	0	1	2	2	3	1	1	1	0	15
0.51 TO 1.00	2	5	3	5	5	10	7	10	3	5	10	10	9	3	5	5	97
1.01 TO 1.50	4	6	9	9	7	5	11	8	6	11	9	12	6	8	1	4	116
1.51 TO 2.00	2	1	6	9	11	4	8	7	3	6	9	7	7	10	2	2	94
2.01 TO 3.00	2	3	14	20	7	8	3	1	2	6	6	4	12	13	7	1	109
3.01 TO 4.00	0	2	6	14	4	0	1	0	1	3	6	7	14	9	3	0	70
4.01 TO 5.00	0	1	1	5	1	0	0	0	0	0	3	6	12	9	2	0	40
5.01 TO 6.00	0	0	1	0	1	0	0	0	0	1	4	6	10	11	3	0	37
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	16	20	12	0	0	48
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	1	7	21	8	0	0	37
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	3	9	4	0	0	17
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	4	9	2	0	0	15
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	7
TOTALS	12	18	40	63	37	27	30	26	16	34	51	87	135	90	24	12	706

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.57
0.26 TO 0.50	.28	0.00	0.00	.14	.14	0.00	0.00	0.00	.14	.28	.28	.42	.14	.14	.14	0.00	2.12
0.51 TO 1.00	.28	.71	.42	.71	.71	1.42	.99	1.42	.42	.71	1.42	1.42	1.27	.42	.71	.71	13.74
1.01 TO 1.50	.57	.85	1.27	1.27	.99	.71	1.56	1.13	.85	1.56	1.27	1.70	.85	1.13	.14	.57	16.43
1.51 TO 2.00	.28	.14	.85	1.27	1.56	.57	1.13	.99	.42	.85	1.27	.99	.99	1.42	.28	.28	13.31
2.01 TO 3.00	.28	.42	1.98	2.83	.99	1.13	.42	.14	.28	.85	.85	.57	1.70	1.84	.99	.14	15.44
3.01 TO 4.00	0.00	.28	.85	1.98	.57	0.00	.14	0.00	.14	.42	.85	.99	1.98	1.27	.42	0.00	9.92
4.01 TO 5.00	0.00	.14	.14	.71	.14	0.00	0.00	0.00	0.00	0.00	.42	.85	1.70	1.27	.28	0.00	5.67
5.01 TO 6.00	0.00	0.00	.14	0.00	.14	0.00	0.00	0.00	0.00	.14	.57	.85	1.42	1.56	.42	0.00	5.24
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	2.83	1.70	0.00	0.00	6.80
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.99	2.97	1.13	0.00	0.00	5.24
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.42	1.27	.57	0.00	0.00	2.41
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.57	1.27	.28	0.00	0.00	2.12
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.71	0.00	0.00	0.00	.99
TOTALS	1.70	2.55	5.67	8.92	5.24	3.82	4.25	3.68	2.27	4.82	7.22	12.32	19.12	12.75	3.40	1.70	100.00
AVE WIND SPEED	1.3	1.7	2.3	2.4	1.9	1.4	1.4	1.2	1.4	1.7	2.4	4.3	5.3	4.2	2.5	1.2	3.1

744 TOTAL HOURS INPUT 706 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 27 1776 TO 2/29/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	1	0	0	1	1	0	0	0	2	0	0	1	0	0	6
0.51 TO 1.00	0	1	0	0	1	3	6	6	6	6	6	5	4	4	3	0	55
1.01 TO 1.50	0	2	2	3	4	4	6	3	4	5	13	6	3	5	0	1	61
1.51 TO 2.00	0	1	2	2	2	4	8	1	0	6	10	4	8	1	3	0	52
2.01 TO 3.00	0	3	7	6	4	5	1	1	2	3	6	23	7	13	4	0	85
3.01 TO 4.00	1	5	11	5	3	1	0	0	1	5	6	15	13	15	0	0	81
4.01 TO 5.00	0	2	10	2	2	0	0	1	0	0	3	13	16	7	0	0	56
5.01 TO 6.00	0	0	4	0	0	0	0	0	0	0	4	16	16	7	0	0	47
6.01 TO 7.00	0	0	4	1	0	0	0	0	0	0	4	16	17	5	0	0	47
7.01 TO 8.00	0	3	2	0	0	0	0	0	0	0	2	14	17	3	0	0	41
8.01 TO 9.00	0	2	1	1	0	0	0	0	0	0	1	16	9	1	0	0	31
9.01 TO 10.00	0	4	1	0	0	0	0	0	0	0	1	13	9	0	0	0	28
MORE THAN 10	0	16	2	0	0	0	0	0	0	0	8	21	13	2	0	0	62
TOTALS	1	39	47	20	16	18	24	14	13	25	66	162	132	66	10	1	654

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	.15	0.00	0.00	.15	.15	0.00	0.00	0.00	.31	0.00	0.00	.15	0.00	0.00	.92
0.51 TO 1.00	0.00	.15	0.00	0.00	.15	.46	1.22	1.22	.92	.92	.92	.76	.61	.61	.46	0.00	8.41
1.01 TO 1.50	0.00	.31	.31	.46	.61	.61	.92	.46	.61	.76	1.99	.92	.46	.76	0.00	.15	9.33
1.51 TO 2.00	0.00	.15	.31	.31	.31	.61	1.22	.15	0.00	.92	1.53	.61	1.22	.15	.46	0.00	7.95
2.01 TO 3.00	0.00	.46	1.07	.92	.61	.76	.15	.15	.31	.46	.92	3.52	1.07	1.99	.61	0.00	13.00
3.01 TO 4.00	.15	.76	1.68	.76	.46	.15	0.00	0.00	.15	.76	.92	2.29	1.99	2.29	0.00	0.00	12.39
4.01 TO 5.00	0.00	.31	1.53	.31	.31	0.00	0.00	.15	0.00	0.00	.46	1.99	2.45	1.07	0.00	0.00	8.56
5.01 TO 6.00	0.00	0.00	.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.61	2.45	2.45	1.38	0.00	0.00	7.19
6.01 TO 7.00	0.00	0.00	.61	.15	0.00	0.00	0.00	0.00	0.00	0.00	.61	2.45	2.60	.76	0.00	0.00	7.19
7.01 TO 8.00	0.00	.46	.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.31	2.14	2.60	.46	0.00	0.00	6.27
8.01 TO 9.00	0.00	.31	.15	.15	0.00	0.00	0.00	0.00	0.00	0.00	.15	2.45	1.38	.15	0.00	0.00	4.74
9.01 TO 10.00	0.00	.61	.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.99	1.38	0.00	0.00	0.00	4.28
MORE THAN 10	0.00	2.45	.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	3.21	1.99	.31	0.00	0.00	9.48
TOTALS	.15	5.96	7.19	3.06	2.45	2.75	3.67	2.14	1.99	3.82	10.09	24.77	20.18	10.09	1.53	.15	100.00
AVE WIND SPEED	3.7	7.9	4.5	3.2	2.4	1.7	1.2	1.3	1.3	1.8	4.1	6.3	6.0	4.0	1.7	1.3	4.8

696 TOTAL HOURS INPUT 654 HOURS USED ABOVE

A-22

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 3/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	1	0	0	1	1	1	1	0	5	2	0	0	1	13
0.51 TO 1.00	0	4	6	3	3	4	5	4	7	5	17	7	9	3	4	1	82
1.01 TO 1.50	1	0	3	3	0	4	4	4	5	12	10	7	7	4	3	0	67
1.51 TO 2.00	0	2	3	10	3	7	1	1	2	2	5	3	6	6	3	1	55
2.01 TO 3.00	0	3	11	12	10	4	0	1	3	4	9	5	16	13	3	1	95
3.01 TO 4.00	0	4	10	11	2	0	0	0	0	0	5	4	16	7	3	1	63
4.01 TO 5.00	0	1	11	3	1	0	0	0	0	0	0	14	15	16	0	0	61
5.01 TO 6.00	0	0	1	4	0	1	0	0	0	0	0	14	15	8	0	0	43
6.01 TO 7.00	0	0	0	1	1	0	0	0	0	0	0	15	22	15	1	0	55
7.01 TO 8.00	0	0	0	3	2	0	0	0	0	0	0	9	18	7	0	0	39
8.01 TO 9.00	0	0	0	5	0	0	0	0	0	0	0	14	15	2	0	0	36
9.01 TO 10.00	0	0	0	1	0	0	0	0	0	0	0	6	18	1	0	0	26
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	24	77	3	0	0	105
TOTALS	1	14	45	57	22	20	11	11	18	24	47	127	236	85	17	5	740

A-3

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	.14	0.00	0.00	.14	.14	.14	.14	0.00	.68	.27	0.00	0.00	.14	1.76
0.51 TO 1.00	0.00	.54	.81	.41	.41	.54	.68	.54	.95	.68	2.30	.95	1.22	.41	.54	.14	11.08
1.01 TO 1.50	.14	0.00	.41	.41	0.00	.54	.54	.54	.68	1.62	1.35	.95	.95	.54	.41	0.00	9.05
1.51 TO 2.00	0.00	.27	.41	1.35	.41	.95	.14	.14	.27	.27	.68	.41	.81	.81	.41	.14	7.43
2.01 TO 3.00	0.00	.41	1.49	1.62	1.35	.54	0.00	.14	.41	.54	1.22	.68	2.16	1.76	.41	.14	12.84
3.01 TO 4.00	0.00	.54	1.35	1.49	.27	0.00	0.00	0.00	0.00	0.00	.68	.54	2.16	.95	.41	.14	8.51
4.01 TO 5.00	0.00	.14	1.49	.41	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.89	2.03	2.16	0.00	0.00	8.24
5.01 TO 6.00	0.00	0.00	.14	.54	0.00	.14	0.00	0.00	0.00	0.00	0.00	1.89	2.03	1.08	0.00	0.00	5.81
6.01 TO 7.00	0.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	2.03	2.97	2.03	.14	0.00	7.43
7.01 TO 8.00	0.00	0.00	0.00	.41	.27	0.00	0.00	0.00	0.00	0.00	0.00	1.22	2.43	.95	0.00	0.00	5.27
8.01 TO 9.00	0.00	0.00	0.00	.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	2.03	.27	0.00	0.00	4.86
9.01 TO 10.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.81	2.43	.14	0.00	0.00	3.51
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	3.24	10.41	.41	0.00	0.00	14.19
TOTALS	.14	1.89	6.08	7.70	2.97	2.70	1.49	1.49	2.43	3.24	6.35	17.16	31.89	11.49	2.30	.68	100.00
AVE WIND SPEED	1.5	2.3	2.9	3.7	3.0	1.7	.9	1.1	1.2	1.4	1.8	6.8	7.7	4.7	2.1	1.5	5.1

744 TOTAL HOURS INPUT 740 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 4/ 1/76 TO 4/30/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0	5
0.51 TO 1.00	2	2	1	1	1	1	2	1	3	2	5	4	3	5	1	1	35
1.01 TO 1.50	1	1	3	1	2	4	3	2	0	5	2	2	2	0	1	1	30
1.51 TO 2.00	0	3	2	3	2	3	1	2	2	4	5	3	4	0	2	0	36
2.01 TO 3.00	3	1	4	5	8	5	0	0	0	4	6	7	11	9	0	0	63
3.01 TO 4.00	0	1	9	9	7	0	0	0	0	0	10	18	19	11	0	0	84
4.01 TO 5.00	1	1	14	10	3	0	0	0	0	0	6	12	30	11	2	1	91
5.01 TO 6.00	0	0	17	10	1	0	0	0	0	0	1	10	32	10	1	0	82
6.01 TO 7.00	0	2	13	12	0	0	0	0	0	0	0	6	0	4	1	1	69
7.01 TO 8.00	0	0	3	11	2	0	0	0	0	0	0	9	17	2	0	0	44
8.01 TO 9.00	0	1	3	7	0	0	0	0	0	0	0	9	21	1	0	0	42
9.01 TO 10.00	0	0	3	2	0	0	0	0	0	0	0	4	10	0	0	0	19
MORE THAN 10	0	0	1	0	0	0	0	0	0	0	0	6	44	1	0	0	52
TOTALS	7	12	73	72	27	13	6	5	5	16	35	90	224	54	9	4	652

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	.15	.15	0.00	0.00	0.00	0.00	.15	0.00	0.00	.15	0.00	.15	0.00	.77
0.51 TO 1.00	.31	.31	.15	.15	.15	.15	.31	.15	.46	.31	.77	.61	.46	.77	.15	.15	5.37
1.01 TO 1.50	.15	.15	.46	.15	.31	.61	.46	.31	0.00	.77	.31	.31	.31	0.00	.15	.15	4.60
1.51 TO 2.00	0.00	.46	.31	.46	.31	.46	.15	.31	.31	.61	.77	.46	.61	0.00	.31	0.00	5.52
2.01 TO 3.00	.46	.15	.61	.77	1.23	.77	0.00	0.00	0.00	.61	.92	1.07	1.69	1.38	0.00	0.00	9.66
3.01 TO 4.00	0.00	.15	1.38	1.38	1.07	0.00	0.00	0.00	0.00	0.00	1.53	2.76	2.91	1.69	0.00	0.00	12.88
4.01 TO 5.00	.15	.15	2.15	1.53	.46	0.00	0.00	0.00	0.00	0.00	.92	1.84	4.60	1.69	.31	.15	13.96
5.01 TO 6.00	0.00	0.00	2.61	1.53	.15	0.00	0.00	0.00	0.00	0.00	.15	1.53	4.91	1.53	.15	0.00	12.58
6.01 TO 7.00	0.00	.31	1.99	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.92	4.60	.61	.15	.15	10.58
7.01 TO 8.00	0.00	0.00	.46	1.69	.31	0.00	0.00	0.00	0.00	0.00	0.00	1.38	2.61	.31	0.00	0.00	6.75
8.01 TO 9.00	0.00	.15	.46	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	3.22	.15	0.00	0.00	6.44
9.01 TO 10.00	0.00	0.00	.46	.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.61	1.53	0.00	0.00	0.00	2.91
MORE THAN 10	0.00	0.00	.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.92	6.75	.15	0.00	0.00	7.98
TOTALS	1.07	1.84	11.20	11.04	4.14	1.99	.92	.77	.77	2.45	5.37	13.80	34.36	8.28	1.38	.61	100.00
AVE WIND SPEED	2.2	3.3	5.2	5.4	3.2	1.7	1.2	1.4	1.1	1.6	2.7	5.4	6.8	4.3	3.0	3.1	5.2

720 TOTAL HOURS INPUT 652 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 5/ 1/76 TO 5/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
0.51 TO 1.00	2	1	2	2	1	1	0	0	1	1	6	4	4	2	2	1	30
1.01 TO 1.50	1	0	1	4	4	3	2	0	0	4	13	4	2	1	0	0	39
1.51 TO 2.00	0	0	0	1	3	3	1	0	3	4	13	4	3	8	4	3	50
2.01 TO 3.00	1	2	1	12	12	3	1	2	0	7	17	14	9	8	3	2	94
3.01 TO 4.00	1	2	10	11	6	0	0	1	0	2	10	10	26	10	0	0	89
4.01 TO 5.00	0	1	4	5	0	0	0	0	0	0	5	16	21	10	1	1	64
5.01 TO 6.00	0	0	3	4	0	0	0	0	0	1	5	17	31	6	0	0	67
6.01 TO 7.00	0	0	2	8	0	0	0	0	0	0	1	19	31	1	0	0	62
7.01 TO 8.00	0	0	0	2	0	0	0	0	0	0	1	10	24	4	0	0	41
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	3	16	20	1	0	0	40
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	13	37	0	0	0	50
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	24	84	1	0	0	109
TOTALS	6	6	23	50	26	10	4	3	4	19	74	151	292	52	10	7	737

A-5

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.14	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.27
0.51 TO 1.00	.27	.14	.27	.27	.14	.14	0.00	0.00	.14	.14	.81	.54	.54	.27	.27	.14	4.07
1.01 TO 1.50	.14	0.00	.14	.54	.54	.41	.27	0.00	0.00	.54	1.76	.54	.27	.14	0.00	0.00	5.29
1.51 TO 2.00	0.00	0.00	0.00	.14	.41	.41	.14	0.00	.41	.54	1.76	.54	.41	1.09	.54	.41	6.78
2.01 TO 3.00	.14	.27	.14	1.63	1.63	.41	.14	.27	0.00	.95	2.31	1.90	1.22	1.09	.41	.27	12.75
3.01 TO 4.00	.14	.27	1.36	1.49	.81	0.00	0.00	.14	0.00	.27	1.36	1.36	3.53	1.36	0.00	0.00	12.08
4.01 TO 5.00	0.00	.14	.54	.68	0.00	0.00	0.00	0.00	0.00	0.00	.68	2.17	2.85	1.36	.14	.14	8.68
5.01 TO 6.00	0.00	0.00	.41	.54	0.00	0.00	0.00	0.00	0.00	.14	.68	2.31	4.21	.81	0.00	0.00	9.09
6.01 TO 7.00	0.00	0.00	.27	1.09	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.58	4.21	.14	0.00	0.00	8.41
7.01 TO 8.00	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.36	3.26	.54	0.00	0.00	5.56
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.41	2.17	2.71	.14	0.00	0.00	5.43
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	5.02	0.00	0.00	0.00	6.78
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	11.40	.14	0.00	0.00	14.79
TOTALS	.81	.81	3.12	6.78	3.53	1.36	.54	.41	.54	2.58	10.04	20.49	39.62	7.06	1.36	.95	100.00
AVE WIND SPEED	1.6	2.8	3.9	3.8	2.4	1.7	1.7	2.6	1.4	2.2	2.8	6.5	7.9	3.9	2.1	2.2	5.7

744 TOTAL HOURS INPUT 737 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 6/30/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	0	0	2	3	1	2	1	1	4	7	0	5	1	0	0	28
1.01 TO 1.50	0	1	0	0	0	1	2	4	2	0	3	3	1	2	1	0	20
1.51 TO 2.00	2	4	0	0	1	0	1	0	1	2	6	4	4	2	1	1	29
2.01 TO 3.00	5	2	3	3	0	3	1	2	3	4	9	10	5	11	6	3	70
3.01 TO 4.00	2	0	3	3	3	0	0	0	0	0	6	11	19	11	0	0	58
4.01 TO 5.00	0	1	5	7	2	0	0	0	0	1	2	9	25	10	4	0	66
5.01 TO 6.00	0	0	2	2	1	0	0	0	0	0	10	18	41	13	0	0	87
6.01 TO 7.00	0	1	1	5	0	0	0	0	0	0	3	35	47	6	0	0	98
7.01 TO 8.00	0	0	1	1	0	0	0	0	0	0	0	19	52	3	0	0	76
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	15	42	1	0	0	59
9.01 TO 10.00	0	0	0	0	0	0	0	0	1	0	0	5	31	1	0	0	38
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	14	72	0	0	0	86
TOTALS	10	9	15	23	10	5	6	7	8	11	47	143	344	61	12	4	715

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.14	0.00	0.00	.28	.42	.14	.28	.14	.14	.56	.98	0.00	.70	.14	0.00	0.00	3.92
1.01 TO 1.50	0.00	.14	0.00	0.00	0.00	.14	.28	.56	.28	0.00	.42	.42	.14	.28	.14	0.00	2.80
1.51 TO 2.00	.28	.56	0.00	0.00	.14	0.00	.14	0.00	.14	.28	.84	.56	.56	.28	.14	.14	4.06
2.01 TO 3.00	.70	.28	.42	.42	0.00	.42	.14	.28	.42	.56	1.26	1.40	.70	1.54	.84	.42	9.79
3.01 TO 4.00	.28	0.00	.42	.42	.42	0.00	0.00	0.00	0.00	0.00	.84	1.54	2.66	1.54	0.00	0.00	8.11
4.01 TO 5.00	0.00	.14	.70	.98	.28	0.00	0.00	0.00	0.00	.14	.28	1.26	3.50	1.40	.56	0.00	9.23
5.01 TO 6.00	0.00	0.00	.28	.28	.14	0.00	0.00	0.00	0.00	0.00	1.40	2.52	5.73	1.82	0.00	0.00	12.17
6.01 TO 7.00	0.00	.14	.14	.70	0.00	0.00	0.00	0.00	0.00	0.00	.42	4.90	6.57	.84	0.00	0.00	13.71
7.01 TO 8.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	7.27	.42	0.00	0.00	10.63
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.10	5.87	.14	0.00	0.00	8.25
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	.70	4.34	.14	0.00	0.00	5.31
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	10.07	0.00	0.00	0.00	12.03
TOTALS	1.40	1.26	2.10	3.22	1.40	.70	.84	.98	1.12	1.54	6.57	20.00	48.11	8.53	1.68	.56	100.00
AVE WIND SPEED	2.3	2.7	4.3	4.4	2.9	1.9	1.3	1.6	2.8	2.0	3.3	6.5	7.7	4.4	3.0	2.3	6.1

720 TOTAL HOURS INPUT 715 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 7/ 1/76 TO 7/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	0	1	0	0	0	1	0	2	5	5	3	1	1	0	0	20
1.01 TO 1.50	1	0	0	0	0	0	0	1	4	7	3	0	1	0	0	1	18
1.51 TO 2.00	1	1	0	0	0	2	1	2	1	9	8	5	6	3	2	2	43
2.01 TO 3.00	2	3	2	2	2	0	1	1	3	5	11	18	23	13	2	3	91
3.01 TO 4.00	0	0	2	5	3	0	0	0	1	1	9	21	21	13	4	0	80
4.01 TO 5.00	0	1	4	9	3	0	0	0	0	1	3	23	21	14	1	0	80
5.01 TO 6.00	0	0	0	3	5	0	0	0	0	0	6	21	47	8	0	0	90
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	3	23	51	13	0	0	90
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	1	15	40	9	0	0	65
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	6	35	4	0	0	45
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	11	30	3	0	0	44
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	3	33	1	0	0	37
TOTALS	5	5	9	19	13	2	3	4	11	28	49	149	309	82	9	5	703

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.14	0.00	.14	0.00	0.00	0.00	.14	0.00	.28	.71	.71	.43	.14	.14	0.00	0.00	2.84
1.01 TO 1.50	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14	.57	1.00	.43	0.00	.14	0.00	0.00	.14	2.56
1.51 TO 2.00	.14	.14	0.00	0.00	0.00	.28	.14	.28	.14	1.28	1.14	.71	.85	.43	.28	.28	6.12
2.01 TO 3.00	.28	.43	.28	.28	.28	0.00	.14	.14	.43	.71	1.56	2.56	3.27	1.85	.28	.43	12.94
3.01 TO 4.00	0.00	0.00	.28	.71	.43	0.00	0.00	0.00	.14	.14	1.28	2.99	2.99	1.85	.57	0.00	11.38
4.01 TO 5.00	0.00	.14	.57	1.28	.43	0.00	0.00	0.00	0.00	.14	.43	3.27	2.99	1.99	.14	0.00	11.38
5.01 TO 6.00	0.00	0.00	0.00	.43	.71	0.00	0.00	0.00	0.00	0.00	.85	2.99	6.69	1.14	0.00	0.00	12.80
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.43	3.27	7.25	1.85	0.00	0.00	12.80
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.13	5.69	1.28	0.00	0.00	9.25
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.85	4.98	.57	0.00	0.00	6.40
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	4.27	.43	0.00	0.00	6.26
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.43	4.69	.14	0.00	0.00	5.26
TOTALS	.71	.71	1.28	2.70	1.85	.28	.43	.57	1.56	3.98	6.97	21.19	43.95	11.66	1.28	.85	100.00
AVE WIND SPEED	1.8	2.8	3.4	4.2	4.4	1.9	1.6	1.8	1.8	1.7	3.1	5.3	6.7	5.1	2.8	2.0	5.3

744 TOTAL HOURS INPUT 703 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 8/ 1/76 TO 8/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
0.51 TO 1.00	1	0	0	0	0	0	1	0	4	6	1	1	1	1	1	0	17
1.01 TO 1.50	2	0	1	1	1	2	1	1	3	1	5	3	0	4	1	0	26
1.51 TO 2.00	2	1	0	2	2	0	2	3	3	5	6	9	8	4	3	2	52
2.01 TO 3.00	2	2	4	7	6	1	1	0	4	11	15	28	19	10	3	1	114
3.01 TO 4.00	0	2	7	9	5	2	1	0	0	7	20	31	26	15	1	1	127
4.01 TO 5.00	0	0	5	10	1	0	0	0	0	2	10	24	28	12	1	0	93
5.01 TO 6.00	0	0	1	1	0	0	0	0	1	1	2	23	45	8	1	0	83
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	1	0	44	32	12	0	0	89
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	3	22	36	3	0	0	64
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	11	17	1	0	0	29
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	5	11	0	0	0	17
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	0	6	17	0	0	0	24
TOTALS	7	5	18	30	15	5	6	4	15	35	63	207	240	71	11	4	736

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	.14
0.51 TO 1.00	.14	0.00	0.00	0.00	0.00	0.00	.14	0.00	.54	.82	.14	.14	.14	.14	.14	0.00	2.31
1.01 TO 1.50	.27	0.00	.14	.14	.14	.27	.14	.14	.41	.14	.68	.41	0.00	.54	.14	0.00	3.53
1.51 TO 2.00	.27	.14	0.00	.27	.27	0.00	.27	.41	.41	.68	.82	1.22	1.09	.54	.41	.27	7.07
2.01 TO 3.00	.27	.27	.54	.95	.82	.14	.14	0.00	.54	1.49	2.04	3.80	2.58	1.36	.41	.14	15.49
3.01 TO 4.00	0.00	.27	.95	1.22	.68	.27	.14	0.00	0.00	.95	2.72	4.21	3.53	2.04	.14	.14	17.26
4.01 TO 5.00	0.00	0.00	.68	1.36	.14	0.00	0.00	0.00	0.00	.27	1.36	3.26	3.80	1.63	.14	0.00	12.64
5.01 TO 6.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	.14	.14	.27	3.13	6.11	1.09	.14	0.00	11.28
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	5.98	4.35	1.63	0.00	0.00	12.09
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.41	2.99	4.89	.41	0.00	0.00	8.70
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	2.31	.14	0.00	0.00	3.94
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.68	1.49	0.00	0.00	0.00	2.31
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	.82	2.31	0.00	0.00	0.00	3.26
TOTALS	.95	.68	2.45	4.09	2.04	.68	.82	.54	2.04	4.76	8.56	28.13	32.61	9.65	1.49	.54	100.00
AVE WIND SPEED	1.7	2.6	3.5	3.4	2.9	2.4	1.9	1.6	1.8	2.8	3.4	5.3	6.0	4.2	2.6	2.5	4.7

744 TOTAL HOURS INPUT 736 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 10/ 1/76 TO 10/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	0	2	4	0	3	1	2	1	2	2	2	2	6	0	0	28
0.51 TO 1.00	1	1	4	6	5	7	9	8	10	22	25	23	11	4	3	1	140
1.01 TO 1.50	4	6	4	4	1	2	4	8	4	11	9	9	5	3	1	2	77
1.51 TO 2.00	1	3	6	1	3	6	3	1	1	2	9	10	11	6	2	2	67
2.01 TO 3.00	0	5	10	11	6	2	1	0	0	6	15	9	16	9	3	0	93
3.01 TO 4.00	0	3	9	15	11	0	1	0	0	0	11	15	14	6	0	0	85
4.01 TO 5.00	0	0	13	11	6	0	0	0	0	0	9	14	19	14	0	0	86
5.01 TO 6.00	0	0	3	7	2	0	0	0	0	0	1	18	22	3	0	0	56
6.01 TO 7.00	0	0	1	7	1	0	0	0	0	0	0	10	13	1	0	0	33
7.01 TO 8.00	0	0	0	4	0	0	0	0	0	0	3	7	14	0	0	0	28
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	5	7	0	0	0	12
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	7	2	1	0	0	10
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	12	14	1	0	0	27
TOTALS	7	18	52	70	35	20	19	19	16	43	84	141	150	54	9	5	742

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.13	0.00	.27	.54	0.00	.40	.13	.27	.13	.27	.27	.27	.27	.81	0.00	0.00	3.77
0.51 TO 1.00	.13	.13	.54	.81	.67	.94	1.21	1.08	1.35	2.96	3.37	3.10	1.48	.54	.40	.13	18.87
1.01 TO 1.50	.54	.81	.54	.54	.13	.27	.54	1.08	.54	1.48	1.21	1.21	.67	.40	.13	.27	10.38
1.51 TO 2.00	.13	.40	.81	.13	.40	.81	.40	.13	.13	.27	1.21	1.35	1.48	.81	.27	.27	9.03
2.01 TO 3.00	0.00	.67	1.35	1.48	.81	.27	.13	0.00	0.00	.81	2.02	1.21	2.16	1.21	.40	0.00	12.53
3.01 TO 4.00	0.00	.40	1.21	2.02	1.48	0.00	.13	0.00	0.00	0.00	1.48	2.02	1.89	.81	0.00	0.00	11.46
4.01 TO 5.00	0.00	0.00	1.75	1.48	.81	0.00	0.00	0.00	0.00	0.00	1.21	1.89	2.56	1.89	0.00	0.00	11.59
5.01 TO 6.00	0.00	0.00	.40	.94	.27	0.00	0.00	0.00	0.00	0.00	.13	2.43	2.96	.40	0.00	0.00	7.55
6.01 TO 7.00	0.00	0.00	.13	.94	.13	0.00	0.00	0.00	0.00	0.00	0.00	1.35	1.75	.13	0.00	0.00	4.45
7.01 TO 8.00	0.00	0.00	0.00	.54	0.00	0.00	0.00	0.00	0.00	0.00	.40	.94	1.89	0.00	0.00	0.00	3.77
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.67	.94	0.00	0.00	0.00	1.62
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.94	.27	.13	0.00	0.00	1.35
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.89	.13	0.00	0.00	3.64
TOTALS	.94	2.43	7.01	9.43	4.72	2.70	2.56	2.56	2.16	5.80	11.32	19.00	20.22	7.28	1.21	.67	100.00
AVE WIND SPEED	1.1	2.0	3.1	3.6	3.1	1.2	1.2	1.0	.9	1.2	2.3	4.6	5.1	3.2	1.5	1.4	3.4

744 TOTAL HOURS INPUT 742 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 9/30/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	2	1	0	0	0	1	0	1	0	0	5
0.51 TO 1.00	2	2	0	1	2	4	1	7	7	11	12	9	5	5	4	3	75
1.01 TO 1.50	0	2	2	2	3	1	3	3	4	12	8	7	2	1	2	3	55
1.51 TO 2.00	2	2	1	5	3	2	0	1	2	6	9	8	4	2	3	3	53
2.01 TO 3.00	4	6	14	14	14	4	2	2	1	5	13	11	13	14	4	2	123
3.01 TO 4.00	1	2	7	14	12	1	0	1	1	1	8	13	20	13	0	0	94
4.01 TO 5.00	0	2	6	16	4	0	0	0	0	0	4	17	17	8	1	0	75
5.01 TO 6.00	0	0	3	10	3	0	0	0	1	1	6	20	14	2	0	0	60
6.01 TO 7.00	0	0	3	5	2	0	0	0	0	0	1	16	11	0	0	0	38
7.01 TO 8.00	0	0	2	6	0	0	0	0	0	0	0	21	20	0	0	0	49
8.01 TO 9.00	0	0	2	1	0	0	0	1	0	0	1	9	27	0	0	0	41
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	6	14	0	0	0	20
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	5	18	0	0	0	23
TOTALS	9	16	40	74	43	12	8	16	16	36	62	143	165	46	14	11	711

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	.28	.14	0.00	0.00	0.00	.14	0.00	.14	0.00	0.00	.70
0.51 TO 1.00	.28	.28	0.00	.14	.28	.56	.14	.98	.98	1.55	1.69	1.27	.70	.70	.56	.42	10.55
1.01 TO 1.50	0.00	.28	.28	.28	.42	.14	.42	.42	.56	1.69	1.13	.98	.28	.14	.28	.42	7.74
1.51 TO 2.00	.28	.28	.14	.70	.42	.28	0.00	.14	.28	.84	1.27	1.13	.56	.28	.42	.42	7.45
2.01 TO 3.00	.56	.84	1.97	1.97	1.97	.56	.28	.28	.14	.70	1.83	1.55	1.83	1.97	.56	.28	17.30
3.01 TO 4.00	.14	.28	.98	1.97	1.69	.14	0.00	.14	.14	.14	1.13	1.83	2.81	1.83	0.00	0.00	13.22
4.01 TO 5.00	0.00	.28	.84	2.25	.56	0.00	0.00	0.00	0.00	0.00	.56	2.39	2.39	1.13	.14	0.00	10.55
5.01 TO 6.00	0.00	0.00	.42	1.41	.42	0.00	0.00	0.00	.14	.14	.84	2.81	1.97	.28	0.00	0.00	8.44
6.01 TO 7.00	0.00	0.00	.42	.70	.28	0.00	0.00	0.00	0.00	0.00	.14	2.25	1.55	0.00	0.00	0.00	5.34
7.01 TO 8.00	0.00	0.00	.28	.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	2.81	0.00	0.00	0.00	6.89
8.01 TO 9.00	0.00	0.00	.28	.14	0.00	0.00	0.00	.14	0.00	0.00	.14	1.27	3.80	0.00	0.00	0.00	5.77
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.84	1.97	0.00	0.00	0.00	2.81
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.70	2.53	0.00	0.00	0.00	3.23
TOTALS	1.27	2.25	5.63	10.41	6.05	1.69	1.13	2.25	2.25	5.06	8.72	20.11	23.21	6.47	1.97	1.55	100.00
AVE WIND SPEED	2.0	2.5	4.1	4.2	3.2	1.8	1.2	1.8	1.5	1.5	2.5	5.2	6.5	2.9	1.7	1.3	4.2

720 TOTAL HOURS INPUT 711 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/ 1/76 TO 11/30/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	2	0	1	0	3	2	3	1	0	2	4	3	1	5	3	3	33
0.51 TO 1.00	6	3	7	16	9	11	9	6	12	23	22	17	18	9	9	5	183
1.01 TO 1.50	4	4	8	9	7	9	6	8	4	7	7	7	5	9	3	1	98
1.51 TO 2.00	1	5	7	13	4	2	7	2	0	1	5	7	6	8	3	1	72
2.01 TO 3.00	1	6	24	22	21	5	0	0	1	4	8	7	11	13	1	1	125
3.01 TO 4.00	0	4	17	28	11	0	0	0	1	0	3	8	9	6	0	0	87
4.01 TO 5.00	0	0	9	9	8	0	0	0	0	1	5	4	7	5	0	0	48
5.01 TO 6.00	0	0	0	3	3	0	0	0	0	0	2	4	5	0	0	0	17
6.01 TO 7.00	0	2	1	0	4	0	0	0	0	0	1	4	6	0	0	0	18
7.01 TO 8.00	0	2	0	1	0	0	0	0	0	0	0	1	2	0	0	0	6
8.01 TO 9.00	0	1	0	0	0	0	0	0	0	0	0	2	2	0	0	0	5
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	6
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	9	9	0	0	0	19
TOTALS	14	27	74	101	70	29	25	17	18	38	59	75	84	55	19	12	717

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.28	0.00	.14	0.00	.42	.28	.42	.14	0.00	.28	.56	.42	.14	.70	.42	.42	4.60
0.51 TO 1.00	.84	.42	.98	2.23	1.26	1.53	1.26	.84	1.67	3.21	3.07	2.37	2.51	1.26	1.26	.84	25.52
1.01 TO 1.50	.56	.56	1.12	1.26	.98	1.26	.84	1.12	.56	.98	.98	.98	.70	1.26	.42	.14	13.67
1.51 TO 2.00	.14	.70	.98	1.81	.56	.28	.98	.28	0.00	.14	.70	.98	.84	1.12	.42	.14	10.04
2.01 TO 3.00	.14	.84	3.35	3.07	2.93	.70	0.00	0.00	.14	.56	1.12	.98	1.53	1.81	.14	.14	17.43
3.01 TO 4.00	0.00	.56	2.37	3.91	1.53	0.00	0.00	0.00	.14	0.00	.42	1.12	1.26	.84	0.00	0.00	12.13
4.01 TO 5.00	0.00	0.00	1.26	1.26	1.12	0.00	0.00	0.00	0.00	.14	.70	.56	.98	.70	0.00	0.00	6.69
5.01 TO 6.00	0.00	0.00	0.00	.42	.42	0.00	0.00	0.00	0.00	0.00	.28	.56	.70	0.00	0.00	0.00	2.37
6.01 TO 7.00	0.00	.28	.14	0.00	.56	0.00	0.00	0.00	0.00	0.00	.14	.56	.84	0.00	0.00	0.00	2.51
7.01 TO 8.00	0.00	.28	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.28	0.00	0.00	0.00	.84
8.01 TO 9.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.28	0.00	0.00	0.00	.70
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.28	.42	0.00	0.00	0.00	.84
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.26	1.26	0.00	0.00	0.00	2.65
TOTALS	1.95	3.77	10.32	14.09	9.76	4.04	3.49	2.37	2.51	5.30	8.23	10.46	11.72	7.67	2.65	1.67	100.00
AVE WIND SPEED	1.1	3.0	2.6	2.6	2.7	1.2	1.1	1.1	1.1	1.1	2.2	4.1	4.1	2.0	1.1	.9	2.5

720 TOTAL HOURS INPUT 717 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	3	3	0	2	0	1	0	1	4	4	3	3	4	2	1	1	32
0.51 TO 1.00	4	3	10	10	10	22	14	13	12	23	12	8	13	11	12	6	183
1.01 TO 1.50	2	3	8	18	11	11	13	6	6	7	8	5	1	5	3	2	109
1.51 TO 2.00	1	7	10	12	15	10	4	3	0	6	3	3	8	10	2	2	96
2.01 TO 3.00	0	5	17	22	21	8	2	0	2	3	5	6	9	10	3	1	114
3.01 TO 4.00	0	2	9	14	2	0	0	0	0	2	7	8	10	11	1	0	66
4.01 TO 5.00	0	0	2	1	0	0	0	0	0	1	5	3	8	6	1	0	27
5.01 TO 6.00	0	0	2	0	0	0	0	0	0	0	7	10	8	3	1	0	31
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	4	17	8	4	0	0	33
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	5	5	3	0	0	13
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	5	4	2	0	0	11
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	6	7	1	0	0	14
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	8	6	0	0	0	14
TOTALS	10	23	58	79	59	52	33	23	24	46	54	87	91	68	24	12	743

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.40	.40	0.00	.27	0.00	.13	0.00	.13	.54	.54	.40	.40	.54	.27	.13	.13	4.31
0.51 TO 1.00	.54	.40	1.35	1.35	1.35	2.96	1.88	1.75	1.62	3.10	1.62	1.08	1.75	1.48	1.62	.81	24.63
1.01 TO 1.50	.27	.40	1.08	2.42	1.48	1.48	1.75	.81	.81	.94	1.08	.67	.13	.67	.40	.27	14.67
1.51 TO 2.00	.13	.94	1.35	1.62	2.02	1.35	.54	.40	0.00	.81	.40	.40	1.08	1.35	.27	.27	12.92
2.01 TO 3.00	0.00	.67	2.29	2.96	2.83	1.08	.27	0.00	.27	.40	.67	.81	1.21	1.35	.40	.13	15.34
3.01 TO 4.00	0.00	.27	1.21	1.88	.27	0.00	0.00	0.00	0.00	.27	.94	1.08	1.35	1.48	.13	0.00	8.88
4.01 TO 5.00	0.00	0.00	.27	.13	0.00	0.00	0.00	0.00	0.00	.13	.67	.40	1.08	.81	.13	0.00	3.63
5.01 TO 6.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.94	1.35	1.08	.40	.13	0.00	4.17
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.54	2.29	1.08	.54	0.00	0.00	4.44
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.67	.67	.40	0.00	0.00	1.75
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.67	.54	.27	0.00	0.00	1.48
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.81	.94	.13	0.00	0.00	1.88
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	.81	0.00	0.00	0.00	1.88
TOTALS	1.35	3.10	7.81	10.63	7.94	7.00	4.44	3.10	3.23	6.19	7.27	11.71	12.25	9.15	3.23	1.62	100.00
AVE WIND SPEED	.8	1.7	2.2	2.1	1.7	1.3	1.2	1.0	1.0	1.2	2.7	5.4	4.6	3.1	1.5	1.0	2.6

744 TOTAL HOURS INPUT 743 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 1/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	9
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	2	1	2	0	1	6	1	2	1	0	6	2	1	3	4	34
1.01 TO 1.50	1	0	6	4	7	4	7	4	5	7	6	10	9	7	2	0	79
1.51 TO 2.00	2	0	5	5	7	4	4	7	6	12	10	11	6	6	2	2	89
2.01 TO 3.00	1	3	12	15	13	5	6	3	3	15	5	17	16	16	2	1	133
3.01 TO 4.00	0	1	5	18	9	1	0	0	0	4	5	8	7	6	0	0	64
4.01 TO 5.00	0	4	3	8	1	0	0	0	0	2	3	4	15	5	1	0	46
5.01 TO 6.00	0	2	4	2	0	0	0	0	0	1	2	7	14	3	0	0	35
6.01 TO 7.00	0	0	3	1	0	0	0	0	0	2	2	9	10	3	1	0	31
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	1	3	5	16	2	0	0	27
8.01 TO 9.00	0	0	0	1	0	0	0	0	0	0	0	18	16	1	0	0	36
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	16	15	2	0	0	34
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	2	20	27	2	0	0	51
TOTALS	6	12	39	56	37	15	23	15	16	45	39	131	153	54	11	7	668

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	1.35
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.30	.30	.15	.30	0.00	.15	.90	.15	.30	.15	0.00	.90	.30	.15	.45	.60	5.09
1.01 TO 1.50	.15	0.00	.90	.60	1.05	.60	1.05	.60	.75	1.05	.90	1.50	1.35	1.05	.30	0.00	11.83
1.51 TO 2.00	.30	0.00	.75	.75	1.05	.60	.60	1.05	.90	1.80	1.50	1.65	.90	.90	.30	.30	13.32
2.01 TO 3.00	.15	.45	1.80	2.25	1.95	.75	.90	.45	.45	2.25	.75	2.54	2.40	2.40	.30	.15	19.91
3.01 TO 4.00	0.00	.15	.75	2.69	1.35	.15	0.00	0.00	0.00	.60	.75	1.20	1.05	.90	0.00	0.00	9.58
4.01 TO 5.00	0.00	.60	.45	1.20	.15	0.00	0.00	0.00	0.00	.30	.45	.60	2.25	.75	.15	0.00	6.89
5.01 TO 6.00	0.00	.30	.60	.30	0.00	0.00	0.00	0.00	0.00	.15	.30	1.05	2.10	.45	0.00	0.00	5.24
6.01 TO 7.00	0.00	0.00	.45	.15	0.00	0.00	0.00	0.00	0.00	.30	.30	1.35	1.50	.45	.15	0.00	4.64
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	.45	.75	2.40	.30	0.00	0.00	4.04
8.01 TO 9.00	0.00	0.00	0.00	.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	2.40	.15	0.00	0.00	5.39
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	2.40	2.25	.30	0.00	0.00	5.09
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.30	2.99	4.04	.30	0.00	0.00	7.63
TOTALS	.90	1.80	5.84	8.38	5.54	2.25	3.44	2.25	2.40	6.74	5.84	19.61	22.90	8.08	1.65	1.05	100.00
AVE WIND SPEED	1.5	3.3	3.1	3.2	2.4	1.8	1.5	1.7	1.6	2.6	3.8	6.0	6.6	3.7	2.2	1.3	4.2

744 TOTAL HOURS INPUT 668 HOURS USED ABOVE

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 2/ 1/76 TO 2/29/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
0.51 TO 1.00	1	0	1	0	1	0	3	1	1	1	2	3	3	1	1	0	17
1.01 TO 1.50	1	0	0	0	4	1	4	1	4	6	3	3	0	4	1	1	33
1.51 TO 2.00	1	0	0	5	4	2	3	2	0	6	8	3	5	1	0	2	42
2.01 TO 3.00	3	2	3	5	2	3	0	5	0	10	16	15	21	8	3	1	97
3.01 TO 4.00	1	1	1	9	4	2	2	0	0	5	4	8	16	11	2	2	69
4.01 TO 5.00	1	1	4	2	5	1	0	0	1	1	1	8	14	14	0	0	53
5.01 TO 6.00	0	2	1	5	2	0	0	0	0	1	2	8	18	10	6	0	47
6.01 TO 7.00	0	0	1	6	0	0	0	0	0	0	0	8	18	10	3	0	43
7.01 TO 8.00	0	1	4	3	0	0	0	0	0	0	1	12	16	9	0	0	46
8.01 TO 9.00	0	0	4	2	0	0	0	0	0	0	1	5	24	5	0	0	41
9.01 TO 10.00	0	1	2	2	0	0	0	0	0	0	0	6	21	0	0	0	32
MORE THAN 10	0	8	19	0	0	0	0	0	0	0	2	22	67	9	0	0	127
TOTALS	8	16	40	39	22	9	12	9	6	30	41	101	229	82	7	6	652

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	0.00	.15	0.00	0.00	0.00	.31
0.51 TO 1.00	.15	0.00	.15	0.00	.15	0.00	.46	.15	.15	.15	.31	.46	.46	.15	.15	0.00	2.61
1.01 TO 1.50	.15	0.00	0.00	0.00	.61	.15	.61	.15	.61	.92	.46	.46	0.00	.61	.15	.15	5.06
1.51 TO 2.00	.15	0.00	0.00	.77	.61	.31	.46	.31	0.00	.92	1.23	.46	.77	.15	0.00	.31	6.44
2.01 TO 3.00	.46	.31	.46	.77	.31	.46	0.00	.77	0.00	1.53	2.45	2.30	3.22	1.23	.46	.15	14.88
3.01 TO 4.00	.15	.15	.15	1.38	.61	.31	.31	0.00	0.00	.77	.61	1.23	2.45	1.69	.31	.31	10.43
4.01 TO 5.00	.15	.15	.61	.31	.77	.15	0.00	0.00	.15	.15	.15	1.23	2.15	2.15	0.00	0.00	8.13
5.01 TO 6.00	0.00	.31	.15	.77	.31	0.00	0.00	0.00	0.00	.15	.31	1.23	2.76	1.53	0.00	0.00	7.52
6.01 TO 7.00	0.00	0.00	.15	.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	2.76	1.53	0.00	0.00	6.60
7.01 TO 8.00	0.00	.15	.61	.46	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.84	2.45	1.38	0.00	0.00	7.06
8.01 TO 9.00	0.00	0.00	.61	.31	0.00	0.00	0.00	0.00	0.00	0.00	.15	.77	3.68	.77	0.00	0.00	6.29
9.01 TO 10.00	0.00	.15	.31	.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.92	3.22	0.00	0.00	0.00	4.91
MORE THAN 10	0.00	1.23	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.31	3.37	10.28	1.38	0.00	0.00	19.48
TOTALS	1.23	2.45	6.13	5.98	3.37	1.38	1.84	1.38	.92	4.60	6.29	15.49	34.36	12.58	1.07	.92	100.00
AVE WIND SPEED	2.4	8.5	10.3	4.8	2.9	2.6	1.6	2.0	1.7	2.3	3.1	7.3	7.9	5.7	2.2	2.2	6.2

696 TOTAL HOURS INPUT 652 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 3/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3
0.51 TO 1.00	0	2	1	0	0	2	3	2	3	2	2	2	3	2	2	1	27
1.01 TO 1.50	1	3	1	0	2	2	2	3	3	3	4	10	7	6	9	2	58
1.51 TO 2.00	1	3	4	0	1	1	2	1	3	2	15	8	13	8	1	2	65
2.01 TO 3.00	2	3	8	11	7	6	4	0	1	10	12	10	7	15	3	2	101
3.01 TO 4.00	0	1	5	9	9	1	0	0	1	2	2	3	11	8	2	1	54
4.01 TO 5.00	0	0	5	12	3	0	0	0	0	1	2	6	19	16	0	0	64
5.01 TO 6.00	0	1	3	3	0	0	0	0	0	0	1	4	11	8	0	0	31
6.01 TO 7.00	0	0	5	1	1	0	0	0	0	0	0	10	24	12	0	0	53
7.01 TO 8.00	0	2	2	4	0	0	0	0	0	0	0	8	17	11	0	0	44
8.01 TO 9.00	0	0	0	2	1	0	0	0	0	0	0	11	17	8	1	0	40
9.01 TO 10.00	0	0	0	4	3	0	0	0	0	0	0	5	16	3	0	0	31
MORE THAN 10	0	0	0	4	1	0	0	0	0	0	4	34	113	13	0	0	169
TOTALS	5	15	34	51	27	12	11	7	11	20	42	111	258	110	18	9	740

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.14	0.00	0.00	.14	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.41
0.51 TO 1.00	0.00	.27	.14	0.00	0.00	.27	.41	.27	.41	.27	.27	.27	.41	.27	.27	.14	3.65
1.01 TO 1.50	.14	.41	.14	0.00	.27	.27	.27	.41	.41	.41	.54	1.35	.95	.81	1.22	.27	7.84
1.51 TO 2.00	.14	.41	.54	0.00	.14	.14	.27	.14	.41	.27	2.03	1.08	1.76	1.08	.14	.27	8.78
2.01 TO 3.00	.27	.41	1.08	1.49	.95	.81	.54	0.00	.14	1.35	1.62	1.35	.95	2.03	.41	.27	13.65
3.01 TO 4.00	0.00	.14	.68	1.22	1.08	.14	0.00	0.00	.14	.27	.27	.41	1.49	1.08	.27	.14	7.30
4.01 TO 5.00	0.00	0.00	.68	1.62	.41	0.00	0.00	0.00	0.00	.14	.27	.81	2.57	2.16	0.00	0.00	8.65
5.01 TO 6.00	0.00	.14	.41	.41	0.00	0.00	0.00	0.00	0.00	0.00	.14	.54	1.49	1.08	0.00	0.00	4.19
6.01 TO 7.00	0.00	0.00	.68	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.35	3.24	1.62	0.00	0.00	7.16
7.01 TO 8.00	0.00	.27	.27	.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	2.30	1.49	0.00	0.00	5.95
8.01 TO 9.00	0.00	0.00	0.00	.27	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.49	2.30	1.08	.14	0.00	5.41
9.01 TO 10.00	0.00	0.00	0.00	.54	.41	0.00	0.00	0.00	0.00	0.00	0.00	.68	2.16	.41	0.00	0.00	4.19
MORE THAN 10	0.00	0.00	0.00	.54	.14	0.00	0.00	0.00	0.00	0.00	.54	4.59	15.27	1.76	0.00	0.00	22.84
TOTALS	.68	2.03	4.59	6.89	3.65	1.62	1.49	.95	1.49	2.70	5.68	15.00	34.86	14.86	2.43	1.08	100.00
AVE WIND SPEED	1.6	2.8	3.9	5.1	4.2	1.9	1.6	1.0	1.5	2.2	4.0	7.4	9.3	5.8	2.1	1.9	6.4

744 TOTAL HOURS INPUT 740 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 4/ 1/76 TO 4/30/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3
0.51 TO 1.00	1	1	0	1	0	0	0	1	1	1	1	1	2	0	1	0	11
1.01 TO 1.50	0	0	2	0	1	0	3	3	2	3	3	2	1	3	1	0	24
1.51 TO 2.00	0	1	1	1	2	0	3	3	3	3	3	3	4	1	1	2	31
2.01 TO 3.00	2	0	0	5	1	4	2	2	0	2	11	7	9	3	1	1	50
3.01 TO 4.00	0	1	4	6	8	0	2	0	0	2	10	9	11	3	1	0	57
4.01 TO 5.00	0	1	6	3	3	0	0	0	0	0	2	17	28	7	3	1	71
5.01 TO 6.00	0	3	2	12	1	1	0	0	0	0	2	9	24	10	0	0	64
6.01 TO 7.00	1	1	8	11	1	0	0	0	0	0	2	11	26	10	1	0	72
7.01 TO 8.00	0	1	14	7	2	0	0	0	0	0	1	8	29	6	0	0	68
8.01 TO 9.00	0	1	3	10	2	0	0	0	0	0	0	4	18	3	0	1	42
9.01 TO 10.00	0	1	3	5	0	0	0	0	0	0	0	2	19	2	0	0	32
MORE THAN 10	0	1	9	4	0	0	0	0	0	0	0	13	73	4	0	0	104
TOTALS	4	13	52	65	22	5	10	10	6	11	35	86	244	52	9	5	629

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	.16	0.00	0.00	.16	0.00	0.00	.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.48
0.51 TO 1.00	.16	.16	0.00	.16	0.00	0.00	0.00	.16	.16	.16	.16	.16	.32	0.00	.16	0.00	1.75
1.01 TO 1.50	0.00	0.00	.32	0.00	.16	0.00	.48	.48	.32	.48	.48	.32	.16	.48	.16	0.00	3.82
1.51 TO 2.00	0.00	.16	.16	.16	.32	0.00	.48	.48	.48	.48	.48	.48	.64	.16	.16	.32	4.93
2.01 TO 3.00	.32	0.00	0.00	.79	.16	.64	.32	.32	0.00	.32	1.75	1.11	1.43	.48	.16	.16	7.95
3.01 TO 4.00	0.00	.16	.64	.95	1.27	0.00	.32	0.00	0.00	.32	1.59	1.43	1.75	.48	.16	0.00	9.06
4.01 TO 5.00	0.00	.16	.95	.48	.48	0.00	0.00	0.00	0.00	0.00	.32	2.70	4.45	1.11	.48	.16	11.29
5.01 TO 6.00	0.00	.48	.32	1.91	.16	.16	0.00	0.00	0.00	0.00	.32	1.43	3.82	1.59	0.00	0.00	10.17
6.01 TO 7.00	.16	.16	1.27	1.75	.16	0.00	0.00	0.00	0.00	0.00	.32	1.75	4.13	1.59	.16	0.00	11.45
7.01 TO 8.00	0.00	.16	2.23	1.11	.32	0.00	0.00	0.00	0.00	0.00	.16	1.27	4.61	.95	0.00	0.00	10.81
8.01 TO 9.00	0.00	.16	.48	1.59	.32	0.00	0.00	0.00	0.00	0.00	0.00	.64	2.86	.48	0.00	.16	6.68
9.01 TO 10.00	0.00	.16	.48	.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.32	3.02	.32	0.00	0.00	5.09
MORE THAN 10	0.00	.16	1.43	.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	11.61	.64	0.00	0.00	16.53
TOTALS	.64	2.07	8.27	10.33	3.50	.79	1.59	1.59	.95	1.75	5.56	13.67	38.79	8.27	1.43	.79	100.00
AVE WIND SPEED	3.3	5.4	7.0	6.4	4.3	2.8	2.1	1.5	1.5	2.0	3.1	6.1	8.2	6.0	3.3	4.0	6.4

720 TOTAL HOURS INPUT 629 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 5/ 1/76 TO 5/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	1	5
1.01 TO 1.50	1	0	0	2	0	0	2	2	1	0	2	1	1	2	0	1	15
1.51 TO 2.00	0	1	0	1	1	1	3	1	1	7	9	7	5	4	3	1	45
2.01 TO 3.00	3	1	3	3	8	3	2	2	0	4	16	10	17	11	2	1	86
3.01 TO 4.00	0	1	2	11	12	5	1	0	0	3	7	16	13	12	0	0	83
4.01 TO 5.00	0	1	6	7	2	0	0	0	0	0	4	17	18	10	1	0	66
5.01 TO 6.00	0	2	1	1	2	0	0	0	0	0	2	14	22	7	1	0	52
6.01 TO 7.00	0	0	6	5	0	0	0	0	0	1	2	14	30	6	0	1	65
7.01 TO 8.00	0	0	2	9	0	0	0	0	0	0	1	13	28	6	0	0	59
8.01 TO 9.00	0	0	0	3	0	0	0	0	0	0	0	10	24	3	0	0	40
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	8	19	2	0	0	29
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	27	158	7	0	0	193
TOTALS	4	6	20	42	25	10	8	6	2	15	45	138	335	70	7	5	738

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	.14	0.00	0.00	.14	.14	0.00	0.00	0.00	.14	.68
1.01 TO 1.50	.14	0.00	0.00	.27	0.00	0.00	.27	.27	.14	0.00	.27	.14	.14	.27	0.00	.14	2.03
1.51 TO 2.00	0.00	.14	0.00	.14	.14	.14	.41	.14	.14	.95	1.22	.95	.68	.54	.41	.14	6.10
2.01 TO 3.00	.41	.14	.41	.41	1.08	.41	.27	.27	0.00	.54	2.17	1.36	2.30	1.49	.27	.14	11.65
3.01 TO 4.00	0.00	.14	.27	1.49	1.63	.68	.14	0.00	0.00	.41	.95	2.17	1.76	1.63	0.00	0.00	11.25
4.01 TO 5.00	0.00	.14	.81	.95	.27	0.00	0.00	0.00	0.00	0.00	.54	2.30	2.44	1.36	.14	0.00	8.94
5.01 TO 6.00	0.00	.27	.14	.14	.27	0.00	0.00	0.00	0.00	0.00	.27	1.90	2.98	.95	.14	0.00	7.05
6.01 TO 7.00	0.00	0.00	.81	.68	0.00	0.00	0.00	0.00	0.00	.14	.27	1.90	4.07	.81	0.00	.14	8.81
7.01 TO 8.00	0.00	0.00	.27	1.22	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.76	3.79	.81	0.00	0.00	7.99
8.01 TO 9.00	0.00	0.00	0.00	.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	3.25	.41	0.00	0.00	5.42
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	2.57	.27	0.00	0.00	3.93
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	3.66	21.41	.95	0.00	0.00	26.15
TOTALS	.54	.81	2.71	5.69	3.39	1.36	1.08	.81	.27	2.03	6.10	18.70	45.39	9.49	.95	.68	100.00
AVE WIND SPEED	2.4	3.9	5.0	5.0	3.3	2.7	2.1	1.6	1.4	2.6	3.2	6.7	9.5	5.5	3.0	2.7	7.0

744 TOTAL HOURS INPUT 738 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 6/30/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	1	0	1	0	1	1	0	0	1	0	0	0	0	0	0	5
1.01 TO 1.50	1	1	0	1	1	0	0	0	2	3	1	5	1	0	2	0	18
1.51 TO 2.00	0	1	0	0	2	0	3	1	1	1	6	2	2	1	1	2	23
2.01 TO 3.00	0	0	3	1	1	2	1	2	1	7	10	14	6	7	3	3	61
3.01 TO 4.00	1	4	2	4	2	0	0	0	0	1	4	12	14	12	3	2	61
4.01 TO 5.00	1	0	4	6	0	2	0	0	0	0	0	8	16	9	3	0	49
5.01 TO 6.00	0	0	2	4	4	0	0	0	0	0	3	8	28	9	0	0	58
6.01 TO 7.00	0	1	0	2	2	0	0	0	0	0	2	13	40	12	0	0	72
7.01 TO 8.00	0	0	1	2	1	0	0	0	0	0	3	18	37	11	0	0	73
8.01 TO 9.00	0	0	1	1	0	0	0	0	0	0	1	17	41	4	0	0	65
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	11	52	5	0	0	68
MORE THAN 10	0	0	0	0	0	0	0	0	1	0	0	8	143	3	0	0	155
TOTALS	3	8	13	22	13	5	5	3	5	13	30	116	380	73	12	7	708

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	.14	0.00	.14	0.00	.14	.14	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	.71
1.01 TO 1.50	.14	.14	0.00	.14	.14	0.00	0.00	0.00	.28	.42	.14	.71	.14	0.00	.28	0.00	2.54
1.51 TO 2.00	0.00	.14	0.00	0.00	.28	0.00	.42	.14	.14	.14	.85	.28	.28	.14	.14	.28	3.25
2.01 TO 3.00	0.00	0.00	.42	.14	.14	.28	.14	.28	.14	.99	1.41	1.98	.85	.99	.42	.42	8.62
3.01 TO 4.00	.14	.56	.28	.56	.28	0.00	0.00	0.00	0.00	.14	.56	1.69	1.98	1.69	.42	.28	8.62
4.01 TO 5.00	.14	0.00	.56	.85	0.00	.28	0.00	0.00	0.00	0.00	0.00	1.13	2.26	1.27	.42	0.00	6.92
5.01 TO 6.00	0.00	0.00	.28	.56	.56	0.00	0.00	0.00	0.00	0.00	.42	1.13	3.95	1.27	0.00	0.00	8.19
6.01 TO 7.00	0.00	.14	0.00	.28	.28	0.00	0.00	0.00	0.00	0.00	.28	1.84	5.65	1.69	0.00	0.00	10.17
7.01 TO 8.00	0.00	0.00	.14	.28	.14	0.00	0.00	0.00	0.00	0.00	.42	2.54	5.23	1.55	0.00	0.00	10.31
8.01 TO 9.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.40	5.79	.56	0.00	0.00	9.18
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	7.34	.71	0.00	0.00	9.60
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	1.13	20.20	.42	0.00	0.00	21.89
TOTALS	.42	1.13	1.84	3.11	1.84	.71	.71	.42	.71	1.84	4.24	16.38	53.67	10.31	1.69	.99	100.00
AVE WIND SPEED	3.0	2.9	4.6	4.7	4.4	2.9	1.8	2.2	3.4	2.1	3.7	6.3	9.1	6.0	3.1	2.5	7.2

720 TOTAL HOURS INPUT 708 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 7/ 1/76 TO 7/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
1.01 TO 1.50	1	0	0	0	0	0	0	0	2	1	5	0	0	0	1	0	10
1.51 TO 2.00	2	1	1	0	0	0	1	2	2	4	4	4	4	2	2	1	30
2.01 TO 3.00	0	1	2	0	1	0	0	1	4	5	14	13	20	12	2	3	78
3.01 TO 4.00	0	2	0	3	1	2	0	0	1	2	4	13	27	16	3	0	74
4.01 TO 5.00	0	0	1	8	8	0	0	0	0	0	5	16	25	10	0	0	73
5.01 TO 6.00	0	1	0	5	3	0	0	0	0	0	4	19	22	12	0	0	66
6.01 TO 7.00	0	0	0	1	6	0	0	0	0	0	1	19	41	16	0	0	84
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	1	10	34	18	0	0	63
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	2	11	53	20	0	0	86
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	8	28	9	0	0	45
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	6	82	8	0	0	96
TOTALS	3	5	4	17	19	2	1	3	9	12	41	120	336	123	8	4	707

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	.28
1.01 TO 1.50	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.14	.71	0.00	0.00	0.00	.14	0.00	1.41
1.51 TO 2.00	.28	.14	.14	0.00	0.00	0.00	.14	.28	.28	.57	.57	.57	.57	.28	.28	.14	4.24
2.01 TO 3.00	0.00	.14	.28	0.00	.14	0.00	0.00	.14	.57	.71	1.98	1.84	2.83	1.70	.28	.42	11.03
3.01 TO 4.00	0.00	.28	0.00	.42	.14	.28	0.00	0.00	.14	.28	.57	1.84	3.82	2.26	.42	0.00	10.47
4.01 TO 5.00	0.00	0.00	.14	1.13	1.13	0.00	0.00	0.00	0.00	0.00	.71	2.26	3.54	1.41	0.00	0.00	10.33
5.01 TO 6.00	0.00	.14	0.00	.71	.42	0.00	0.00	0.00	0.00	0.00	.57	2.69	3.11	1.70	0.00	0.00	9.34
6.01 TO 7.00	0.00	0.00	0.00	.14	.85	0.00	0.00	0.00	0.00	0.00	.14	2.69	5.80	2.26	0.00	0.00	11.88
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.41	4.81	2.55	0.00	0.00	8.91
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	1.56	7.50	2.83	0.00	0.00	12.16
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	3.96	1.27	0.00	0.00	6.36
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.85	11.60	1.13	0.00	0.00	13.58
TOTALS	.42	.71	.57	2.40	2.69	.28	.14	.42	1.27	1.70	5.80	16.97	47.52	17.40	1.13	.57	100.00
AVE WIND SPEED	1.5	3.1	2.9	4.8	5.1	3.7	1.7	1.9	2.0	2.3	3.3	5.8	7.7	6.4	2.5	2.0	6.4

744 TOTAL HOURS INPUT 707 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 8/ 1/76 TO 8/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5
1.01 TO 1.50	1	0	0	0	0	0	0	1	1	1	5	1	2	1	0	0	13
1.51 TO 2.00	1	0	0	2	3	1	0	0	1	4	6	4	4	1	2	1	30
2.01 TO 3.00	1	1	2	1	5	0	1	0	2	8	16	18	18	13	4	2	92
3.01 TO 4.00	1	0	4	12	5	2	0	1	1	5	9	21	27	15	2	1	106
4.01 TO 5.00	0	2	2	8	4	1	1	0	0	0	10	37	35	9	0	0	109
5.01 TO 6.00	0	0	1	5	2	0	0	0	0	1	4	24	30	12	2	0	81
6.01 TO 7.00	0	0	1	1	0	0	0	0	0	0	0	12	45	15	0	0	74
7.01 TO 8.00	0	0	0	2	0	0	0	0	1	0	1	18	48	16	0	0	86
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	21	24	7	0	0	52
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	13	19	6	0	0	38
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	1	10	40	3	0	0	55
TOTALS	5	4	10	31	19	6	2	2	6	20	52	179	293	98	10	4	741

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.13	.13	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	0.00	.13	0.00	0.00	0.00	.67
1.01 TO 1.50	.13	0.00	0.00	0.00	0.00	0.00	0.00	.13	.13	.13	.67	.13	.27	.13	0.00	0.00	1.75
1.51 TO 2.00	.13	0.00	0.00	.27	.40	.13	0.00	0.00	.13	.54	.81	.54	.54	.13	.27	.13	4.05
2.01 TO 3.00	.13	.13	.27	.13	.67	0.00	.13	0.00	.27	1.08	2.16	2.43	2.43	1.75	.54	.27	12.42
3.01 TO 4.00	.13	0.00	.54	1.62	.67	.27	0.00	.13	.13	.67	1.21	2.83	3.64	2.02	.27	.13	14.30
4.01 TO 5.00	0.00	.27	.27	1.08	.54	.13	.13	0.00	0.00	0.00	1.35	4.99	4.72	1.21	0.00	0.00	14.71
5.01 TO 6.00	0.00	0.00	.13	.67	.27	0.00	0.00	0.00	0.00	.13	.54	3.24	4.05	1.62	.27	0.00	10.93
6.01 TO 7.00	0.00	0.00	.13	.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	6.07	2.02	0.00	0.00	9.99
7.01 TO 8.00	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	.13	0.00	.13	2.43	6.48	2.16	0.00	0.00	11.61
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83	3.24	.94	0.00	0.00	7.02
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	2.56	.81	0.00	0.00	5.13
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	.13	1.35	5.40	.40	0.00	0.00	7.42
TOTALS	.67	.54	1.35	4.18	2.56	.81	.27	.27	.81	2.70	7.02	24.16	39.54	13.23	1.35	.54	100.00
AVE WIND SPEED	1.8	3.0	4.0	4.2	3.4	2.6	3.3	2.3	3.2	3.2	3.4	5.9	6.8	5.7	3.1	2.5	5.6

744 TOTAL HOURS INPUT 741 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 9/30/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	0	1	1	0	0	0	1	3	3	3	1	1	2	2	0	19
1.01 TO 1.50	2	0	0	0	1	3	2	2	3	2	4	3	1	7	2	1	33
1.51 TO 2.00	1	0	2	0	0	5	2	1	5	4	5	9	4	1	2	4	45
2.01 TO 3.00	1	6	9	10	7	9	2	3	2	19	15	20	15	7	4	1	130
3.01 TO 4.00	1	1	10	11	10	3	0	0	0	8	7	19	22	12	1	1	106
4.01 TO 5.00	0	1	4	17	11	1	0	0	1	0	0	12	21	10	0	0	78
5.01 TO 6.00	0	2	2	10	4	1	0	0	0	0	1	11	15	7	0	0	53
6.01 TO 7.00	0	1	3	11	5	1	0	0	1	1	2	17	22	2	1	0	67
7.01 TO 8.00	0	1	4	4	1	0	0	0	0	0	0	14	16	0	0	0	40
8.01 TO 9.00	0	0	0	7	0	0	0	0	0	0	0	10	18	1	0	0	36
9.01 TO 10.00	0	0	0	3	0	0	0	0	0	0	0	9	29	0	0	0	41
MORE THAN 10	0	0	1	0	0	0	0	1	0	0	0	6	54	1	0	0	63
TOTALS	6	12	36	74	39	23	6	8	15	37	37	131	218	50	12	7	711

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.14	0.00	.14	.14	0.00	0.00	0.00	.14	.42	.42	.42	.14	.14	.28	.28	0.00	2.67
1.01 TO 1.50	.28	0.00	0.00	0.00	.14	.42	.28	.28	.42	.28	.56	.42	.14	.98	.28	.14	4.64
1.51 TO 2.00	.14	0.00	.28	0.00	0.00	.70	.28	.14	.70	.56	.70	1.27	.56	.14	.28	.56	6.33
2.01 TO 3.00	.14	.84	1.27	1.41	.98	1.27	.28	.42	.28	2.67	2.11	2.81	2.11	.98	.56	.14	18.28
3.01 TO 4.00	.14	.14	1.41	1.55	1.41	.42	0.00	0.00	0.00	1.13	.98	2.67	3.09	1.69	.14	.14	14.91
4.01 TO 5.00	0.00	.14	.56	2.39	1.55	.14	0.00	0.00	.14	0.00	0.00	1.69	2.95	1.41	0.00	0.00	10.97
5.01 TO 6.00	0.00	.28	.28	1.41	.56	.14	0.00	0.00	0.00	0.00	.14	1.55	2.11	.98	0.00	0.00	7.45
6.01 TO 7.00	0.00	.14	.42	1.55	.70	.14	0.00	0.00	.14	.14	.28	2.39	3.09	.28	.14	0.00	9.42
7.01 TO 8.00	0.00	.14	.56	.56	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.97	2.25	0.00	0.00	0.00	5.63
8.01 TO 9.00	0.00	0.00	0.00	.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	2.53	.14	0.00	0.00	5.06
9.01 TO 10.00	0.00	0.00	0.00	.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	4.08	0.00	0.00	0.00	5.77
MORE THAN 10	0.00	0.00	.14	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	.84	7.59	.14	0.00	0.00	8.86
TOTALS	.84	1.69	5.06	10.41	5.49	3.23	.84	1.13	2.11	5.20	5.20	18.42	30.66	7.03	1.69	.98	100.00
AVE WIND SPEED	1.9	3.9	4.2	5.2	4.2	2.7	1.8	2.8	2.0	2.5	2.5	5.3	7.6	3.7	2.3	2.0	5.1

720 TOTAL HOURS INPUT 711 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 10/ 1/76 TO 10/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	3
0.51 TO 1.00	2	0	0	3	1	4	4	4	3	2	6	3	1	3	0	1	37
1.01 TO 1.50	2	5	3	1	4	3	5	4	5	16	7	8	13	5	1	4	86
1.51 TO 2.00	1	2	3	4	3	5	1	0	4	10	23	13	11	6	2	0	88
2.01 TO 3.00	0	6	2	7	7	7	2	0	0	20	26	14	19	4	1	0	115
3.01 TO 4.00	0	3	9	11	11	4	2	0	0	3	8	16	24	10	2	1	104
4.01 TO 5.00	0	1	3	13	10	2	0	0	0	0	1	15	15	8	1	0	69
5.01 TO 6.00	0	0	4	8	4	0	0	0	0	0	1	9	22	6	0	0	54
6.01 TO 7.00	0	1	5	6	4	0	0	0	0	0	0	10	17	9	0	0	52
7.01 TO 8.00	0	0	2	6	3	0	0	0	0	0	1	10	20	5	0	0	47
8.01 TO 9.00	0	0	1	3	0	0	0	0	0	0	0	7	11	0	0	0	22
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	5	10	3	0	0	19
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	6	37	3	0	0	46
TOTALS	5	18	32	62	47	25	14	8	13	51	75	116	200	62	8	5	742

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	0.00	.13	0.00	0.00	0.00	.13	0.00	.40
0.51 TO 1.00	.27	0.00	0.00	.40	.13	.54	.54	.54	.40	.27	.81	.40	.13	.40	0.00	.13	4.99
1.01 TO 1.50	.27	.67	.40	.13	.54	.40	.67	.54	.67	2.16	.94	1.08	1.75	.67	.13	.54	11.59
1.51 TO 2.00	.13	.27	.40	.54	.40	.67	.13	0.00	.54	1.35	3.10	1.75	1.48	.81	.27	0.00	11.86
2.01 TO 3.00	0.00	.81	.27	.94	.94	.94	.27	0.00	0.00	2.70	3.50	1.89	2.56	.54	.13	0.00	15.50
3.01 TO 4.00	0.00	.40	1.21	1.48	1.48	.54	.27	0.00	0.00	.40	1.08	2.16	3.23	1.35	.27	.13	14.02
4.01 TO 5.00	0.00	.13	.40	1.75	1.35	.27	0.00	0.00	0.00	0.00	.13	2.02	2.02	1.08	.13	0.00	9.30
5.01 TO 6.00	0.00	0.00	.54	1.08	.54	0.00	0.00	0.00	0.00	0.00	.13	1.21	2.96	.81	0.00	0.00	7.28
6.01 TO 7.00	0.00	.13	.67	.81	.54	0.00	0.00	0.00	0.00	0.00	0.00	1.35	2.29	1.21	0.00	0.00	7.01
7.01 TO 8.00	0.00	0.00	.27	.81	.40	0.00	0.00	0.00	0.00	0.00	.13	1.35	2.70	.67	0.00	0.00	6.33
8.01 TO 9.00	0.00	0.00	.13	.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.94	1.48	0.00	0.00	0.00	2.96
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	.67	1.35	.40	0.00	0.00	2.56
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.81	4.99	.40	0.00	0.00	6.20
TOTALS	.67	2.43	4.31	8.36	6.33	3.37	1.89	1.08	1.75	6.87	10.11	15.63	26.95	8.36	1.08	.81	100.00
AVE WIND SPEED	1.1	2.5	4.2	4.5	3.9	2.1	1.6	1.1	1.3	1.9	2.3	4.8	6.4	4.7	2.3	1.6	4.3

744 TOTAL HOURS INPUT 742 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/ 1/76 TO 11/30/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
0.51 TO 1.00	3	3	5	9	4	4	7	4	2	10	7	4	5	8	4	2	81
1.01 TO 1.50	2	1	11	4	11	11	6	4	7	13	9	18	7	8	4	6	122
1.51 TO 2.00	4	7	4	5	2	5	11	4	6	15	13	11	9	7	4	1	108
2.01 TO 3.00	0	2	12	22	14	11	0	1	0	16	13	8	16	6	1	0	122
3.01 TO 4.00	0	3	8	21	18	2	0	0	0	2	1	11	14	14	0	0	94
4.01 TO 5.00	0	0	10	20	19	1	0	0	0	0	3	5	11	4	0	0	73
5.01 TO 6.00	0	1	6	15	4	0	0	0	0	0	3	2	4	1	0	0	36
6.01 TO 7.00	0	0	1	5	7	0	0	0	0	0	1	4	6	1	0	0	25
7.01 TO 8.00	0	2	1	1	1	0	0	0	0	0	0	4	5	1	0	0	15
8.01 TO 9.00	0	1	0	1	0	0	0	0	0	0	1	1	3	0	0	0	7
9.01 TO 10.00	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	13	15	1	0	0	29
TOTALS	9	22	58	103	80	34	24	13	15	56	53	82	96	52	13	9	719

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.14	0.00	0.00	0.00	0.00	.42
0.51 TO 1.00	.42	.42	.70	1.25	.56	.56	.97	.56	.28	1.39	.97	.56	.70	1.11	.56	.28	11.27
1.01 TO 1.50	.28	.14	1.53	.56	1.53	1.53	.83	.56	.97	1.81	1.25	2.50	.97	1.11	.56	.83	16.97
1.51 TO 2.00	.56	.97	.56	.70	.28	.70	1.53	.56	.83	2.09	1.81	1.53	1.25	.97	.56	.14	15.02
2.01 TO 3.00	0.00	.28	1.67	3.06	1.95	1.53	0.00	.14	0.00	2.23	1.81	1.11	2.23	.83	.14	0.00	16.97
3.01 TO 4.00	0.00	.42	1.11	2.92	2.50	.28	0.00	0.00	0.00	.28	.14	1.53	1.95	1.95	0.00	0.00	13.07
4.01 TO 5.00	0.00	0.00	1.39	2.78	2.64	.14	0.00	0.00	0.00	0.00	.42	.70	1.53	.56	0.00	0.00	10.15
5.01 TO 6.00	0.00	.14	.83	2.09	.56	0.00	0.00	0.00	0.00	0.00	.42	.28	.56	.14	0.00	0.00	5.01
6.01 TO 7.00	0.00	0.00	.14	.70	.97	0.00	0.00	0.00	0.00	0.00	.14	.56	.83	.14	0.00	0.00	3.48
7.01 TO 8.00	0.00	.28	.14	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.56	.70	.14	0.00	0.00	2.09
8.01 TO 9.00	0.00	.14	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14	.14	.42	0.00	0.00	0.00	.97
9.01 TO 10.00	0.00	.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.14	0.00	0.00	.56
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	2.09	.14	0.00	0.00	4.03
TOTALS	1.25	3.06	8.07	14.33	11.13	4.73	3.34	1.81	2.09	7.79	7.37	11.40	13.35	7.23	1.81	1.25	100.00
AVE WIND SPEED	1.3	3.5	3.0	3.6	3.5	1.9	1.4	1.4	1.3	1.7	2.3	4.6	5.3	3.0	1.3	1.2	3.2

720 TOTAL HOURS INPUT 719 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/76 TO 12/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	1	1	0	2	0	0	0	0	0	0	0	1	1	1	0	8
0.51 TO 1.00	4	4	0	2	9	8	10	6	9	7	11	4	9	17	4	4	108
1.01 TO 1.50	3	6	3	6	11	10	10	6	2	7	9	11	6	5	5	1	101
1.51 TO 2.00	1	1	5	15	12	7	7	2	3	8	12	7	8	6	4	1	99
2.01 TO 3.00	0	3	12	15	26	18	4	1	2	16	7	8	6	11	2	0	131
3.01 TO 4.00	0	0	9	17	9	3	0	0	0	3	7	8	8	9	0	0	73
4.01 TO 5.00	0	0	3	13	1	0	0	0	0	0	1	10	16	9	1	0	54
5.01 TO 6.00	0	0	0	5	0	0	0	0	0	4	0	4	6	4	0	0	23
6.01 TO 7.00	0	0	1	1	0	0	0	0	0	0	4	4	6	4	0	0	20
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	3	11	6	3	0	0	23
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	14	8	4	0	0	27
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	9	6	2	0	0	17
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	12	21	2	0	0	35
TOTALS	9	15	34	74	70	46	31	15	16	45	55	102	107	77	17	6	719

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.14	.14	.14	0.00	.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.14	.14	0.00	1.11
0.51 TO 1.00	.56	.56	0.00	.28	1.25	1.11	1.39	.83	1.25	.97	1.53	.56	1.25	2.36	.56	.55	15.02
1.01 TO 1.50	.42	.83	.42	.83	1.53	1.39	1.39	.83	.28	.97	1.25	1.53	.83	.70	.70	.14	14.05
1.51 TO 2.00	.14	.14	.70	2.09	1.67	.97	.97	.28	.42	1.11	1.67	.97	1.11	.83	.56	.14	13.77
2.01 TO 3.00	0.00	.42	1.67	2.09	3.62	2.50	.56	.14	.28	2.23	.97	1.11	.83	1.53	.28	0.00	18.22
3.01 TO 4.00	0.00	0.00	1.25	2.36	1.25	.42	0.00	0.00	0.00	.42	.97	1.11	1.11	1.25	0.00	0.00	10.15
4.01 TO 5.00	0.00	0.00	.42	1.81	.14	0.00	0.00	0.00	0.00	0.00	.14	1.39	2.23	1.25	.14	0.00	7.51
5.01 TO 6.00	0.00	0.00	0.00	.70	0.00	0.00	0.00	0.00	0.00	.56	0.00	.56	.83	.56	0.00	0.00	3.20
6.01 TO 7.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.56	.56	.83	.56	0.00	0.00	2.78
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.42	1.53	.83	.42	0.00	0.00	3.20
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.95	1.11	.56	0.00	0.00	3.76
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	.83	.28	0.00	0.00	2.36
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	2.92	.28	0.00	0.00	4.87
TOTALS	1.25	2.09	4.73	10.29	9.74	6.40	4.31	2.09	2.23	6.26	7.65	14.19	14.88	10.71	2.36	.83	100.00
AVE WIND SPEED	1.0	1.3	2.8	3.0	2.0	1.8	1.4	1.2	1.2	2.2	2.6	5.9	6.0	3.6	1.5	1.1	3.4

744 TOTAL HOURS INPUT 719 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 1/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	5
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	1	3	1	1	4	5	4	1	4	0	1	1	2	1	1	32
1.01 TO 1.50	2	2	6	8	8	5	7	4	3	5	4	6	1	2	3	1	67
1.51 TO 2.00	1	2	1	4	9	3	3	4	3	8	6	9	10	4	3	1	71
2.01 TO 3.00	0	2	18	21	13	0	4	1	1	7	10	20	17	8	1	0	123
3.01 TO 4.00	1	1	6	15	7	2	0	0	0	2	3	13	15	7	1	0	73
4.01 TO 5.00	0	1	6	10	0	0	0	0	0	0	2	6	13	6	0	0	44
5.01 TO 6.00	0	3	4	3	1	0	0	0	0	1	1	7	14	2	0	0	36
6.01 TO 7.00	0	0	4	2	0	0	0	0	0	0	3	4	15	2	0	0	30
7.01 TO 8.00	0	0	0	1	0	0	0	0	0	0	2	11	12	4	0	0	30
8.01 TO 9.00	0	0	0	1	0	0	0	0	0	2	1	4	13	1	0	0	22
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	2	15	17	0	0	0	34
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	2	23	50	1	0	0	76
TOTALS	6	12	48	66	39	14	19	13	8	29	36	119	178	39	9	3	643

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.78
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.31	.16	.47	.16	.16	.62	.78	.62	.16	.62	0.00	.16	.16	.31	.16	.15	4.98
1.01 TO 1.50	.31	.31	.93	1.24	1.24	.78	1.09	.62	.47	.78	.62	.93	.16	.31	.47	.15	10.42
1.51 TO 2.00	.16	.31	.16	.62	1.40	.47	.47	.62	.47	1.24	.93	1.40	1.56	.62	.47	.15	11.04
2.01 TO 3.00	0.00	.31	2.80	3.27	2.02	0.00	.62	.16	.16	1.09	1.56	3.11	2.64	1.24	.16	0.00	19.13
3.01 TO 4.00	.16	.16	.93	2.33	1.09	.31	0.00	0.00	0.00	.31	.47	2.02	2.33	1.09	.16	0.00	11.35
4.01 TO 5.00	0.00	.16	.93	1.56	0.00	0.00	0.00	0.00	0.00	0.00	.31	.93	2.02	.93	0.00	0.00	6.84
5.01 TO 6.00	0.00	.47	.62	.47	.16	0.00	0.00	0.00	0.00	.16	.16	1.09	2.18	.31	0.00	0.00	5.60
6.01 TO 7.00	0.00	0.00	.62	.31	0.00	0.00	0.00	0.00	0.00	0.00	.47	.62	2.33	.31	0.00	0.00	4.67
7.01 TO 8.00	0.00	0.00	0.00	.16	0.00	0.00	0.00	0.00	0.00	0.00	.31	1.71	1.87	.62	0.00	0.00	4.67
8.01 TO 9.00	0.00	0.00	0.00	.16	0.00	0.00	0.00	0.00	0.00	.31	.16	.62	2.02	.16	0.00	0.00	3.42
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.31	2.33	2.64	0.00	0.00	0.00	5.29
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.31	3.58	7.78	.16	0.00	0.00	11.82
TOTALS	.93	1.87	7.47	10.26	6.07	2.18	2.95	2.02	1.24	4.51	5.60	18.51	27.68	6.07	1.40	.47	100.00
AVE WIND SPEED	1.4	2.9	3.1	3.2	2.2	1.5	1.5	1.4	1.4	2.4	4.1	6.2	7.3	3.9	1.6	1.3	4.7

744 TOTAL HOURS INPUT 643 HOURS USED ABOVE

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 2/ 1/76 TO 2/29/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	0	0	1	1	0	3	0	2	1	0	2	2	0	0	0	14
1.01 TO 1.50	1	0	1	3	0	2	3	1	4	5	1	1	2	3	1	0	23
1.51 TO 2.00	1	0	0	4	4	5	1	1	0	4	4	3	4	1	2	1	35
2.01 TO 3.00	1	2	3	8	3	2	2	2	4	4	7	14	18	6	6	1	83
3.01 TO 4.00	2	1	1	6	3	3	1	1	0	2	4	12	23	10	0	0	69
4.01 TO 5.00	1	1	2	5	4	2	0	0	0	2	2	11	14	3	0	0	52
5.01 TO 6.00	1	1	4	5	2	0	0	0	1	0	0	11	25	6	0	0	56
6.01 TO 7.00	0	2	0	3	1	0	0	0	0	0	1	11	14	4	0	0	36
7.01 TO 8.00	0	0	2	2	0	0	0	0	0	0	1	12	20	5	0	0	42
8.01 TO 9.00	0	2	5	3	0	0	0	0	0	0	1	10	24	1	0	0	47
9.01 TO 10.00	0	0	3	2	0	0	0	0	0	0	2	12	17	2	0	0	38
MORE THAN 10	0	11	19	0	0	0	0	0	0	0	6	36	75	4	0	0	151
TOTALS	9	20	41	42	19	14	10	5	11	18	29	135	238	50	9	2	651

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.31	0.00	0.00	.15	.15	0.00	.46	0.00	.31	.15	0.00	.31	.31	0.00	0.00	0.00	2.15
1.01 TO 1.50	.15	0.00	.15	.46	0.00	.31	.46	.15	.61	.77	.15	.15	.31	.46	.15	0.00	3.53
1.51 TO 2.00	.15	0.00	0.00	.61	.61	.77	.15	.15	0.00	.61	.61	.46	.61	.15	.31	.15	5.38
2.01 TO 3.00	.15	.31	.46	1.23	.46	.31	.31	.31	.61	.61	1.08	2.15	2.76	.92	.92	.15	12.73
3.01 TO 4.00	.31	.15	.15	.92	.46	.46	.15	.15	0.00	.31	.61	1.84	3.53	1.54	0.00	0.00	10.60
4.01 TO 5.00	.15	.15	.31	.77	.61	.31	0.00	0.00	0.00	.31	.31	1.69	2.15	1.23	0.00	0.00	7.99
5.01 TO 6.00	.15	.15	.61	.77	.31	0.00	0.00	0.00	.15	0.00	0.00	1.69	3.84	.92	0.00	0.00	8.60
6.01 TO 7.00	0.00	.31	0.00	.46	.15	0.00	0.00	0.00	0.00	0.00	.15	1.69	2.15	.61	0.00	0.00	5.53
7.01 TO 8.00	0.00	0.00	.31	.31	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.84	3.07	.77	0.00	0.00	6.45
8.01 TO 9.00	0.00	.31	.92	.46	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.54	3.69	.15	0.00	0.00	7.22
9.01 TO 10.00	0.00	0.00	.46	.31	0.00	0.00	0.00	0.00	0.00	0.00	.31	1.84	2.61	.31	0.00	0.00	5.84
MORE THAN 10	0.00	1.69	2.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.92	5.53	11.52	.61	0.00	0.00	23.20
TOTALS	1.38	3.07	6.30	6.45	2.76	2.15	1.54	.77	1.69	2.76	4.45	20.74	36.56	7.68	1.38	.31	100.00
AVE WIND SPEED	2.6	10.3	10.6	4.3	3.4	2.4	1.7	2.4	2.0	2.2	6.6	7.7	7.9	5.5	2.2	2.1	6.8

696 TOTAL HOURS INPUT 651 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 3/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	1	2	0	0	1	2	0	0	1	1	0	3	0	1	0	13
1.01 TO 1.50	2	2	1	3	2	3	0	1	2	3	2	6	5	4	5	5	46
1.51 TO 2.00	2	1	1	1	2	2	1	1	3	4	8	4	16	7	6	1	60
2.01 TO 3.00	2	4	12	8	10	5	1	0	3	4	5	7	21	19	5	2	108
3.01 TO 4.00	0	1	6	10	8	3	1	1	1	3	1	6	17	7	1	0	66
4.01 TO 5.00	0	1	5	9	2	0	0	0	0	0	1	8	16	11	0	0	53
5.01 TO 6.00	0	1	3	5	0	0	0	0	0	0	1	10	14	7	0	0	41
6.01 TO 7.00	0	1	7	1	1	0	0	0	0	0	0	4	17	7	0	0	38
7.01 TO 8.00	0	0	2	4	0	0	0	0	0	0	1	11	28	8	0	0	54
8.01 TO 9.00	0	2	1	1	0	0	0	0	0	0	0	8	19	3	0	0	34
9.01 TO 10.00	0	0	1	5	0	0	0	0	0	0	0	9	17	4	0	0	36
MORE THAN 10	0	0	0	6	2	0	0	0	0	0	1	46	134	2	0	0	191
TOTALS	7	14	41	53	27	14	5	3	9	15	21	119	307	79	18	8	740

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.14	.14	.27	0.00	0.00	.14	.27	0.00	0.00	.14	.14	0.00	.41	0.00	.14	0.00	1.76
1.01 TO 1.50	.27	.27	.14	.41	.27	.41	0.00	.14	.27	.41	.27	.81	.68	.54	.68	.68	6.22
1.51 TO 2.00	.27	.14	.14	.14	.27	.27	.14	.14	.41	.54	1.08	.54	2.16	.95	.81	.14	8.11
2.01 TO 3.00	.27	.54	1.62	1.08	1.35	.68	.14	0.00	.41	.54	.68	.95	2.84	2.57	.68	.27	14.59
3.01 TO 4.00	0.00	.14	.81	1.35	1.08	.41	.14	.14	.14	.41	.14	.81	2.30	.95	.14	0.00	8.92
4.01 TO 5.00	0.00	.14	.68	1.22	.27	0.00	0.00	0.00	0.00	0.00	.14	1.08	2.16	1.49	0.00	0.00	7.16
5.01 TO 6.00	0.00	.14	.41	.68	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.35	1.89	.95	0.00	0.00	5.54
6.01 TO 7.00	0.00	.14	.95	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.54	2.30	.95	0.00	0.00	5.14
7.01 TO 8.00	0.00	0.00	.27	.54	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.49	3.78	1.08	0.00	0.00	7.30
8.01 TO 9.00	0.00	.27	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	2.57	.41	0.00	0.00	4.59
9.01 TO 10.00	0.00	0.00	.14	.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	2.30	.54	0.00	0.00	4.86
MORE THAN 10	0.00	0.00	0.00	.81	.27	0.00	0.00	0.00	0.00	0.00	.14	6.22	18.11	.27	0.00	0.00	25.81
TOTALS	.95	1.89	5.54	7.16	3.65	1.89	.68	.41	1.22	2.03	2.84	16.08	41.49	10.68	2.43	1.08	100.00
AVE WIND SPEED	1.7	3.6	4.2	5.4	3.5	2.2	1.7	2.1	2.6	2.1	3.1	8.7	9.3	4.7	1.9	1.5	6.9

744 TOTAL HOURS INPUT 740 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 4/ 1/76 TO 4/30/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
0.51 TO 1.00	2	0	0	2	0	0	0	0	1	1	1	2	0	2	0	2	13
1.01 TO 1.50	1	0	1	0	0	1	0	0	0	3	1	2	1	1	0	0	11
1.51 TO 2.00	2	0	0	2	3	0	1	3	1	3	3	2	6	5	1	0	32
2.01 TO 3.00	1	0	1	4	0	3	1	1	0	3	3	8	8	9	1	1	44
3.01 TO 4.00	2	1	2	7	6	1	3	1	0	0	4	4	11	1	2	0	45
4.01 TO 5.00	0	1	6	8	5	0	1	0	0	0	3	19	22	6	1	1	73
5.01 TO 6.00	0	0	4	6	2	0	0	0	0	0	2	11	24	6	0	0	55
6.01 TO 7.00	0	3	7	12	1	0	0	0	0	0	1	10	32	6	1	0	73
7.01 TO 8.00	0	2	11	8	3	0	0	0	0	0	2	8	27	4	0	0	65
8.01 TO 9.00	0	2	16	9	1	0	0	0	0	0	0	8	19	3	0	0	58
9.01 TO 10.00	1	1	4	4	1	0	0	0	0	0	1	4	18	3	2	0	39
MORE THAN 10	0	2	20	6	0	0	0	0	0	0	0	14	92	6	0	0	140
TOTALS	9	12	73	68	23	5	6	5	2	10	21	92	260	52	8	4	650

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	.15	0.00	.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.31
0.51 TO 1.00	.31	0.00	0.00	.31	0.00	0.00	0.00	0.00	.15	.15	.15	.31	0.00	.31	0.00	.31	2.00
1.01 TO 1.50	.15	0.00	.15	0.00	0.00	.15	0.00	0.00	0.00	.46	.15	.31	.15	.15	0.00	0.00	1.69
1.51 TO 2.00	.31	0.00	0.00	.31	.46	0.00	.15	.46	.15	.46	.46	.31	.92	.77	.15	0.00	4.92
2.01 TO 3.00	.15	0.00	.15	.62	0.00	.46	.15	.15	0.00	.46	.46	1.23	1.23	1.38	.15	.15	6.77
3.01 TO 4.00	.31	.15	.31	1.08	.92	.15	.46	.15	0.00	0.00	.62	.62	1.69	.15	.31	0.00	6.92
4.01 TO 5.00	0.00	.15	.92	1.23	.77	0.00	.15	0.00	0.00	0.00	.46	2.92	3.38	.92	.15	.15	11.23
5.01 TO 6.00	0.00	0.00	.62	.92	.31	0.00	0.00	0.00	0.00	0.00	.31	1.69	3.69	.92	0.00	0.00	8.46
6.01 TO 7.00	0.00	.46	1.08	1.85	.15	0.00	0.00	0.00	0.00	0.00	.15	1.54	4.92	.92	.15	0.00	11.23
7.01 TO 8.00	0.00	.31	1.69	1.23	.46	0.00	0.00	0.00	0.00	0.00	.31	1.23	4.15	.62	0.00	0.00	10.00
8.01 TO 9.00	0.00	.31	2.46	1.38	.15	0.00	0.00	0.00	0.00	0.00	0.00	1.23	2.92	.46	0.00	0.00	8.92
9.01 TO 10.00	.15	.15	.62	.62	.15	0.00	0.00	0.00	0.00	0.00	.15	.62	2.77	.46	.31	0.00	6.00
MORE THAN 10	0.00	.31	3.08	.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	14.15	.92	0.00	0.00	21.54
TOTALS	1.38	1.85	11.23	10.46	3.54	.77	.92	.77	.31	1.54	3.23	14.15	40.00	8.00	1.23	.62	100.00
AVE WIND SPEED	2.8	7.7	8.1	6.3	4.6	2.4	3.2	2.2	1.3	1.7	3.8	6.3	8.6	5.7	5.2	2.4	7.0

720 TOTAL HOURS INPUT 650 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 5/ 1/76 TO 5/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
1.01 TO 1.50	0	0	0	1	1	0	2	0	1	2	1	1	2	1	0	1	13
1.51 TO 2.00	0	1	3	0	0	3	1	3	0	3	2	6	6	2	1	1	32
2.01 TO 3.00	1	3	3	2	7	0	1	3	3	2	6	11	14	10	0	3	69
3.01 TO 4.00	0	1	3	15	6	1	1	0	1	1	3	20	24	7	2	0	85
4.01 TO 5.00	0	0	7	6	6	1	0	0	0	0	2	12	17	4	0	0	55
5.01 TO 6.00	0	1	1	4	2	0	0	0	0	0	3	15	32	5	0	1	64
6.01 TO 7.00	0	1	2	7	0	0	0	0	0	1	1	16	21	4	0	0	53
7.01 TO 8.00	0	1	7	8	0	0	0	0	0	0	2	14	35	3	0	0	70
8.01 TO 9.00	0	0	1	3	0	0	0	0	0	0	0	14	26	2	0	0	46
9.01 TO 10.00	0	0	0	1	0	0	0	0	0	0	0	6	28	1	0	0	36
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	3	34	172	4	0	1	214
TOTALS	1	8	27	47	22	5	5	6	5	10	23	149	377	44	3	7	739

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	.14	0.00	0.00	.27
1.01 TO 1.50	0.00	0.00	0.00	.14	.14	0.00	.27	0.00	.14	.27	.14	.14	.27	.14	0.00	.14	1.76
1.51 TO 2.00	0.00	.14	.41	0.00	0.00	.41	.14	.41	0.00	.41	.27	.81	.81	.27	.14	.14	4.33
2.01 TO 3.00	.14	.41	.41	.27	.95	0.00	.14	.41	.41	.27	.81	1.49	1.89	1.35	0.00	.41	9.34
3.01 TO 4.00	0.00	.14	.41	2.03	.81	.14	.14	0.00	.14	.14	.41	2.71	3.25	.95	.27	0.00	11.50
4.01 TO 5.00	0.00	0.00	.95	.81	.81	.14	0.00	0.00	0.00	0.00	.27	1.62	2.30	.54	0.00	0.00	7.44
5.01 TO 6.00	0.00	.14	.14	.54	.27	0.00	0.00	0.00	0.00	0.00	.41	2.03	4.33	.68	0.00	.14	8.66
6.01 TO 7.00	0.00	.14	.27	.95	0.00	0.00	0.00	0.00	0.00	.14	.14	2.17	2.84	.54	0.00	0.00	7.17
7.01 TO 8.00	0.00	.14	.95	1.08	0.00	0.00	0.00	0.00	0.00	0.00	.27	1.89	4.74	.41	0.00	0.00	9.47
8.01 TO 9.00	0.00	0.00	.14	.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	3.52	.27	0.00	0.00	6.22
9.01 TO 10.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.81	3.79	.14	0.00	0.00	4.87
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.41	4.60	23.27	.54	0.00	.14	28.96
TOTALS	.14	1.08	3.65	6.36	2.98	.68	.68	.81	.68	1.35	3.11	20.16	51.01	5.95	.41	.95	100.00
AVE WIND SPEED	2.9	4.1	4.9	5.3	3.5	2.4	2.1	2.1	2.6	2.3	4.8	7.0	9.6	5.1	2.9	6.3	7.6

744 TOTAL HOURS INPUT 739 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 6/30/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	6
1.01 TO 1.50	0	0	1	0	0	1	1	0	1	1	0	1	0	2	1	1	10
1.51 TO 2.00	1	0	1	1	2	0	2	2	2	2	1	3	6	0	1	1	25
2.01 TO 3.00	2	1	1	3	1	2	0	2	2	1	5	6	10	9	0	4	49
3.01 TO 4.00	0	3	3	4	2	3	0	0	0	1	2	8	18	10	0	3	57
4.01 TO 5.00	0	0	4	6	0	1	0	0	0	0	1	6	22	6	2	0	48
5.01 TO 6.00	1	1	2	3	4	1	0	0	0	0	1	6	21	6	2	0	48
6.01 TO 7.00	1	0	1	3	1	0	0	0	0	0	0	16	34	14	0	0	70
7.01 TO 8.00	0	1	1	2	1	0	0	0	0	0	3	16	36	7	0	0	67
8.01 TO 9.00	0	0	1	1	0	0	0	0	0	0	1	14	39	10	0	0	66
9.01 TO 10.00	0	0	0	1	0	0	0	0	0	0	0	13	38	3	0	0	55
MORE THAN 10	0	0	0	0	0	0	0	0	1	0	1	18	133	5	0	0	208
TOTALS	7	6	15	24	11	9	4	4	6	5	16	107	408	72	6	2	709

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.28	0.00	0.00	0.00	0.00	.14	.14	0.00	0.00	0.00	.14	0.00	.14	0.00	0.00	0.00	.85
1.01 TO 1.50	0.00	0.00	.14	0.00	0.00	.14	.14	0.00	.14	.14	0.00	.14	0.00	.28	.14	.14	1.41
1.51 TO 2.00	.14	0.00	.14	.14	.28	0.00	.28	.28	.28	.28	.14	.42	.85	0.00	.14	.14	3.53
2.01 TO 3.00	.28	.14	.14	.42	.14	.28	0.00	.28	.28	.14	.71	.85	1.41	1.27	0.00	.55	6.91
3.01 TO 4.00	0.00	.42	.42	.56	.28	.42	0.00	0.00	0.00	.14	.28	1.13	2.54	1.41	0.00	.42	8.04
4.01 TO 5.00	0.00	0.00	.56	.85	0.00	.14	0.00	0.00	0.00	0.00	.14	.85	3.10	.85	.28	0.00	6.77
5.01 TO 6.00	.14	.14	.28	.42	.56	.14	0.00	0.00	0.00	0.00	.14	.85	2.96	.85	.28	0.00	6.77
6.01 TO 7.00	.14	0.00	.14	.42	.14	0.00	0.00	0.00	0.00	0.00	0.00	2.26	4.80	1.97	0.00	0.00	9.87
7.01 TO 8.00	0.00	.14	.14	.28	.14	0.00	0.00	0.00	0.00	0.00	.42	2.26	5.08	.99	0.00	0.00	9.45
8.01 TO 9.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.97	5.50	1.41	0.00	0.00	9.31
9.01 TO 10.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	5.36	.42	0.00	0.00	7.76
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	.14	2.54	25.81	.71	0.00	0.00	29.34
TOTALS	.99	.85	2.12	3.39	1.55	1.27	.56	.56	.85	.71	2.26	15.09	57.55	10.16	.85	1.27	100.00
AVE WIND SPEED	2.8	4.3	4.5	5.0	4.5	2.9	1.4	2.1	3.4	2.1	4.6	7.3	9.3	6.0	3.8	2.5	7.7

720 TOTAL HOURS INPUT 709 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 7/ 1/76 TO 7/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
1.01 TO 1.50	1	1	1	0	0	0	0	0	0	2	1	1	1	0	1	1	10
1.51 TO 2.00	2	0	0	0	0	0	1	1	1	2	2	3	7	3	1	0	23
2.01 TO 3.00	2	3	2	1	1	1	1	0	2	3	6	16	17	7	4	0	66
3.01 TO 4.00	1	2	1	3	1	0	0	0	0	0	2	19	25	11	3	0	67
4.01 TO 5.00	0	0	1	6	4	2	0	0	0	0	1	17	29	9	0	0	69
5.01 TO 6.00	0	1	2	5	3	0	0	0	0	0	5	14	24	5	0	0	59
6.01 TO 7.00	0	0	0	2	8	0	0	0	0	0	2	20	34	16	0	0	82
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	14	41	13	0	0	68
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	12	44	13	0	0	70
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	11	43	5	0	0	59
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	10	114	8	0	0	132
TOTALS	6	7	7	17	17	3	2	1	3	7	21	136	379	91	9	1	707

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	.14	0.00	0.00	.28
1.01 TO 1.50	.14	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	.28	.14	.14	.14	0.00	.14	.14	1.41
1.51 TO 2.00	.28	0.00	0.00	0.00	0.00	0.00	.14	.14	.14	.28	.28	.42	.99	.42	.14	0.00	3.25
2.01 TO 3.00	.28	.42	.28	.14	.14	.14	.14	0.00	.28	.42	.85	2.26	2.40	.99	.57	0.00	9.34
3.01 TO 4.00	.14	.28	.14	.42	.14	0.00	0.00	0.00	0.00	0.00	.28	2.55	3.54	1.56	.42	0.00	9.48
4.01 TO 5.00	0.00	0.00	.14	.85	.57	.28	0.00	0.00	0.00	0.00	.14	2.40	4.10	1.27	0.00	0.00	9.76
5.01 TO 6.00	0.00	.14	.28	.71	.42	0.00	0.00	0.00	0.00	0.00	.71	1.99	3.39	.71	0.00	0.00	8.35
6.01 TO 7.00	0.00	0.00	0.00	.28	1.13	0.00	0.00	0.00	0.00	0.00	.28	2.83	4.81	2.26	0.00	0.00	11.60
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	5.80	1.84	0.00	0.00	9.62
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.70	6.22	1.84	0.00	0.00	9.90
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	6.08	.71	0.00	0.00	8.35
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	16.12	1.13	0.00	0.00	18.67
TOTALS	.85	.99	.99	2.40	2.40	.42	.28	.14	.42	.99	2.97	19.24	53.61	12.87	1.27	.14	100.00
AVE WIND SPEED	2.2	3.1	3.8	4.7	5.4	3.6	2.0	1.6	2.1	2.0	3.8	6.1	8.1	6.4	2.6	1.4	6.9

744 TOTAL HOURS INPUT 707 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 8/ 1/76 TO 8/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
1.01 TO 1.50	0	2	0	0	0	0	0	1	0	2	2	2	2	0	0	0	11
1.51 TO 2.00	0	0	0	3	0	1	0	1	0	1	1	9	4	1	0	4	25
2.01 TO 3.00	2	3	1	2	2	1	1	0	2	3	5	13	13	7	2	1	58
3.01 TO 4.00	0	0	3	18	7	1	0	1	0	3	3	21	27	17	1	2	104
4.01 TO 5.00	0	0	2	8	4	0	1	0	0	0	7	36	27	5	0	0	90
5.01 TO 6.00	0	0	3	5	1	1	0	0	0	0	4	42	37	9	2	0	104
6.01 TO 7.00	0	2	1	1	1	0	0	0	0	2	3	21	39	7	0	0	77
7.01 TO 8.00	0	0	0	2	0	0	0	0	0	0	0	11	42	8	0	0	63
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	2	21	48	2	0	0	73
9.01 TO 10.00	0	0	0	0	0	0	0	0	1	0	0	20	32	1	0	0	54
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	1	22	54	3	0	0	81
TOTALS	2	7	10	39	15	4	2	3	3	13	28	218	325	60	5	7	741

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	0.00	0.00	0.00	0.00	0.00	0.00	.13
1.01 TO 1.50	0.00	.27	0.00	0.00	0.00	0.00	0.00	.13	0.00	.27	.27	.27	.27	0.00	0.00	0.00	1.48
1.51 TO 2.00	0.00	0.00	0.00	.40	0.00	.13	0.00	.13	0.00	.13	.13	1.21	.54	.13	0.00	.54	3.37
2.01 TO 3.00	.27	.40	.13	.27	.27	.13	.13	0.00	.27	.40	.67	1.75	1.75	.94	.27	.13	7.83
3.01 TO 4.00	0.00	0.00	.40	2.43	.94	.13	0.00	.13	0.00	.40	.40	2.83	3.64	2.29	.13	.27	14.04
4.01 TO 5.00	0.00	0.00	.27	1.08	.54	0.00	.13	0.00	0.00	0.00	.94	4.86	3.64	.67	0.00	0.00	12.15
5.01 TO 6.00	0.00	0.00	.40	.67	.13	.13	0.00	0.00	0.00	0.00	.54	5.67	4.99	1.21	.27	0.00	14.04
6.01 TO 7.00	0.00	.27	.13	.13	.13	0.00	0.00	0.00	0.00	.27	.40	2.83	5.26	.94	0.00	0.00	10.39
7.01 TO 8.00	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	5.67	1.08	0.00	0.00	8.50
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.27	2.83	6.48	.27	0.00	0.00	9.85
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	0.00	0.00	2.70	4.32	.13	0.00	0.00	7.29
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	.13	2.97	7.29	.40	0.00	0.00	10.93
TOTALS	.27	.94	1.35	5.26	2.02	.54	.27	.40	.40	1.75	3.78	29.42	43.86	8.10	.67	.94	100.00
AVE WIND SPEED	2.2	3.0	4.5	4.1	3.9	3.3	3.3	2.2	4.8	3.8	4.7	6.2	7.4	5.2	4.0	2.3	6.2

744 TOTAL HOURS INPUT 741 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 9/30/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
0.51 TO 1.00	0	1	0	0	0	0	0	1	1	1	1	2	2	2	1	0	12
1.01 TO 1.50	0	0	2	0	1	0	1	2	4	3	2	8	2	4	2	1	32
1.51 TO 2.00	0	1	1	2	4	1	3	2	2	5	3	7	4	1	1	4	41
2.01 TO 3.00	4	5	6	13	6	5	2	4	3	8	4	8	17	9	6	3	103
3.01 TO 4.00	0	0	7	9	11	5	0	0	1	3	0	10	36	13	1	0	96
4.01 TO 5.00	0	1	6	16	10	2	0	1	1	0	3	13	28	5	0	0	86
5.01 TO 6.00	0	1	3	6	8	0	0	0	0	0	0	11	27	2	0	0	58
6.01 TO 7.00	0	0	4	13	3	1	0	0	0	0	1	16	16	1	0	0	55
7.01 TO 8.00	0	3	3	9	2	1	0	0	1	1	0	18	17	1	0	0	56
8.01 TO 9.00	0	2	2	6	0	0	0	0	0	0	0	13	18	0	0	0	41
9.01 TO 10.00	0	0	0	2	0	0	0	0	0	0	0	13	24	0	0	0	39
MORE THAN 10	0	0	1	3	0	0	0	0	1	0	1	12	72	0	0	0	90
TOTALS	4	14	36	79	45	15	6	10	14	21	15	132	263	38	11	8	711

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	.28
0.51 TO 1.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	.14	.14	.14	.14	.28	.28	.28	.14	0.00	1.69
1.01 TO 1.50	0.00	0.00	.28	0.00	.14	0.00	.14	.28	.56	.42	.28	1.13	.28	.56	.28	.14	4.50
1.51 TO 2.00	0.00	.14	.14	.28	.56	.14	.42	.28	.28	.70	.42	.98	.56	.14	.14	.56	5.77
2.01 TO 3.00	.56	.70	.84	1.83	.84	.70	.28	.56	.42	1.13	.56	1.13	2.39	1.27	.84	.42	14.49
3.01 TO 4.00	0.00	0.00	.98	1.27	1.55	.70	0.00	0.00	.14	.42	0.00	1.41	5.06	1.83	.14	0.00	13.50
4.01 TO 5.00	0.00	.14	.84	2.25	1.41	.28	0.00	.14	.14	0.00	.42	1.83	3.94	.70	0.00	0.00	12.10
5.01 TO 6.00	0.00	.14	.42	.84	1.13	0.00	0.00	0.00	0.00	0.00	0.00	1.55	3.80	.28	0.00	0.00	8.16
6.01 TO 7.00	0.00	0.00	.56	1.83	.42	.14	0.00	0.00	0.00	0.00	.14	2.25	2.25	.14	0.00	0.00	7.74
7.01 TO 8.00	0.00	.42	.42	1.27	.28	.14	0.00	0.00	.14	.14	0.00	2.53	2.39	.14	0.00	0.00	7.88
8.01 TO 9.00	0.00	.28	.28	.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	2.53	0.00	0.00	0.00	5.77
9.01 TO 10.00	0.00	0.00	0.00	.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	3.38	0.00	0.00	0.00	5.49
MORE THAN 10	0.00	0.00	.14	.42	0.00	0.00	0.00	0.00	.14	0.00	.14	1.69	10.13	0.00	0.00	0.00	12.66
TOTALS	.56	1.97	5.06	11.11	6.33	2.11	.84	1.41	1.97	2.95	2.11	18.57	36.99	5.34	1.55	1.13	100.00
AVE WIND SPEED	2.2	4.6	4.5	5.4	4.1	3.7	1.9	2.1	3.2	2.5	3.2	6.1	7.6	3.2	2.0	1.9	5.7

720 TOTAL HOURS INPUT 711 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 10/ 1/76 TO 10/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
0.51 TO 1.00	1	1	0	1	0	3	2	0	2	1	1	1	4	1	1	2	21
1.01 TO 1.50	0	3	2	3	6	7	6	3	5	2	8	10	13	6	3	0	77
1.51 TO 2.00	0	4	8	7	2	3	3	6	1	1	6	10	21	17	3	1	93
2.01 TO 3.00	1	3	9	6	7	3	1	0	0	0	5	13	45	13	1	1	108
3.01 TO 4.00	0	2	10	10	10	3	2	0	0	0	0	9	35	7	0	0	88
4.01 TO 5.00	0	1	5	17	11	3	0	0	0	0	0	17	20	5	2	0	81
5.01 TO 6.00	0	0	3	9	4	1	0	0	0	0	1	20	18	3	0	0	59
6.01 TO 7.00	0	0	2	4	3	1	0	0	0	0	0	12	16	0	0	0	38
7.01 TO 8.00	0	1	2	4	3	0	0	0	0	0	0	6	20	3	0	0	39
8.01 TO 9.00	0	0	4	3	2	0	0	0	0	0	1	14	23	2	0	0	49
9.01 TO 10.00	0	0	1	2	0	0	0	0	0	0	0	11	12	0	0	0	26
MORE THAN 10	0	0	1	0	0	0	0	0	0	0	3	21	34	2	0	0	61
TOTALS	2	16	47	66	48	24	14	9	8	4	25	144	261	60	10	4	742

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	0.00	0.00	.27
0.51 TO 1.00	.13	.13	0.00	.13	0.00	.40	.27	0.00	.27	.13	.13	.13	.54	.13	.13	.27	2.83
1.01 TO 1.50	0.00	.40	.27	.40	.81	.94	.81	.40	.67	.27	1.08	1.35	1.75	.81	.40	0.00	10.38
1.51 TO 2.00	0.00	.54	1.08	.94	.27	.40	.40	.81	.13	.13	.81	1.35	2.83	2.29	.40	.13	12.53
2.01 TO 3.00	.13	.40	1.21	.81	.94	.40	.13	0.00	0.00	0.00	.67	1.75	6.06	1.75	.13	.13	14.56
3.01 TO 4.00	0.00	.27	1.35	1.35	1.35	.40	.27	0.00	0.00	0.00	0.00	1.21	4.72	.94	0.00	0.00	11.86
4.01 TO 5.00	0.00	.13	.67	2.29	1.48	.40	0.00	0.00	0.00	0.00	0.00	2.29	2.70	.67	.27	0.00	10.92
5.01 TO 6.00	0.00	0.00	.40	1.21	.54	.13	0.00	0.00	0.00	0.00	.13	2.70	2.43	.40	0.00	0.00	7.95
6.01 TO 7.00	0.00	0.00	.27	.54	.40	.13	0.00	0.00	0.00	0.00	0.00	1.62	2.16	0.00	0.00	0.00	5.12
7.01 TO 8.00	0.00	.13	.27	.54	.40	0.00	0.00	0.00	0.00	0.00	0.00	.81	2.70	.40	0.00	0.00	5.26
8.01 TO 9.00	0.00	0.00	.54	.40	.27	0.00	0.00	0.00	0.00	0.00	.13	1.89	3.10	.27	0.00	0.00	6.60
9.01 TO 10.00	0.00	0.00	.13	.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	1.62	0.00	0.00	0.00	3.50
MORE THAN 10	0.00	0.00	.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.40	2.83	4.58	.27	0.00	0.00	8.22
TOTALS	.27	2.16	6.33	8.89	6.47	3.23	1.99	1.21	1.08	.54	3.37	19.41	35.18	8.09	1.35	.54	100.00
AVE WIND SPEED	1.6	2.4	4.1	4.5	4.0	2.5	1.6	1.5	1.2	1.3	3.2	6.2	5.7	3.3	2.1	1.5	4.8

744 TOTAL HOURS INPUT 742 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/ 1/76 TO 11/30/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	1	0	1	0	0	0	1	3	0	1	0	0	7
0.51 TO 1.00	7	5	6	2	3	4	3	4	4	5	5	7	5	4	6	4	74
1.01 TO 1.50	4	4	7	7	3	7	6	3	6	3	7	12	5	11	4	5	94
1.51 TO 2.00	2	6	9	8	9	0	3	3	2	6	2	9	17	11	5	1	93
2.01 TO 3.00	0	1	14	26	21	10	2	1	2	1	5	11	18	14	3	0	129
3.01 TO 4.00	0	2	3	22	14	7	0	0	0	1	5	12	20	7	0	0	93
4.01 TO 5.00	0	1	12	16	17	1	0	0	0	0	1	8	20	2	0	0	78
5.01 TO 6.00	0	0	7	19	7	0	0	0	0	0	2	9	7	3	0	0	54
6.01 TO 7.00	0	1	0	10	9	0	0	0	0	0	1	2	4	1	0	0	28
7.01 TO 8.00	0	1	2	2	2	0	0	0	0	0	1	4	6	1	0	0	19
8.01 TO 9.00	0	1	0	2	1	0	0	0	0	0	0	4	4	0	0	0	12
9.01 TO 10.00	0	1	0	0	0	0	0	0	0	0	0	1	3	0	0	0	5
MORE THAN 10	0	2	0	0	0	0	0	0	0	0	0	16	15	0	0	0	33
TOTALS	13	25	60	114	87	29	15	11	14	16	30	98	124	55	18	10	719

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	.14	0.00	.14	0.00	0.00	0.00	.14	.42	0.00	.14	0.00	0.00	.97
0.51 TO 1.00	.97	.70	.83	.28	.42	.56	.42	.56	.56	.70	.70	.97	.70	.56	.83	.56	10.29
1.01 TO 1.50	.56	.56	.97	.97	.42	.97	.83	.42	.83	.42	.97	1.67	.70	1.53	.56	.70	13.07
1.51 TO 2.00	.28	.83	1.25	1.11	1.25	0.00	.42	.42	.28	.83	.28	1.25	2.36	1.53	.70	.14	12.93
2.01 TO 3.00	0.00	.14	1.95	3.62	2.92	1.39	.28	.14	.28	.14	.70	1.53	2.50	1.95	.42	0.00	17.94
3.01 TO 4.00	0.00	.28	.42	3.06	1.95	.97	0.00	0.00	0.00	.14	.70	1.67	2.78	.97	0.00	0.00	12.93
4.01 TO 5.00	0.00	.14	1.67	2.23	2.36	.14	0.00	0.00	0.00	0.00	.14	1.11	2.78	.28	0.00	0.00	10.85
5.01 TO 6.00	0.00	0.00	.97	2.64	.97	0.00	0.00	0.00	0.00	0.00	.28	1.25	.97	.42	0.00	0.00	7.51
6.01 TO 7.00	0.00	.14	0.00	1.39	1.25	0.00	0.00	0.00	0.00	0.00	.14	.28	.56	.14	0.00	0.00	3.89
7.01 TO 8.00	0.00	.14	.28	.28	.28	0.00	0.00	0.00	0.00	0.00	.14	.56	.83	.14	0.00	0.00	2.64
8.01 TO 9.00	0.00	.14	0.00	.28	.14	0.00	0.00	0.00	0.00	0.00	0.00	.56	.56	0.00	0.00	0.00	1.67
9.01 TO 10.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.42	0.00	0.00	0.00	.70
MORE THAN 10	0.00	.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23	2.09	0.00	0.00	0.00	4.59
TOTALS	1.81	3.48	8.34	15.86	12.10	4.03	2.09	1.53	1.95	2.23	4.17	13.63	17.25	7.65	2.50	1.39	100.00
AVE WIND SPEED	1.1	3.4	3.1	3.8	3.7	2.2	1.4	1.3	1.3	1.5	2.5	5.4	5.0	2.4	1.4	1.1	3.6

720 TOTAL HOURS INPUT 719 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/76 TO 12/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	2	0	1	0	0	0	1	1	2	1	0	0	8
0.51 TO 1.00	4	0	3	4	7	6	8	6	4	5	2	7	6	12	5	4	83
1.01 TO 1.50	1	10	6	6	10	8	13	7	1	4	4	6	11	6	2	3	98
1.51 TO 2.00	1	3	11	16	8	12	6	2	1	1	7	6	14	11	3	1	103
2.01 TO 3.00	1	3	14	17	28	15	4	1	0	7	3	10	14	10	1	0	128
3.01 TO 4.00	0	2	10	17	14	6	1	0	0	0	5	9	10	9	1	0	84
4.01 TO 5.00	0	0	8	16	3	0	0	0	0	0	5	16	11	3	0	0	62
5.01 TO 6.00	0	0	2	7	0	0	0	0	0	0	0	9	13	3	0	0	34
6.01 TO 7.00	0	0	1	1	0	0	0	0	0	2	1	4	10	1	0	0	20
7.01 TO 8.00	0	0	1	0	0	0	0	0	0	2	1	1	8	0	0	0	13
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	2	4	13	8	1	0	0	28
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	3	12	8	2	0	0	25
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	28	26	2	0	0	57
TOTALS	7	18	56	84	72	47	33	16	6	23	37	122	141	61	12	8	743

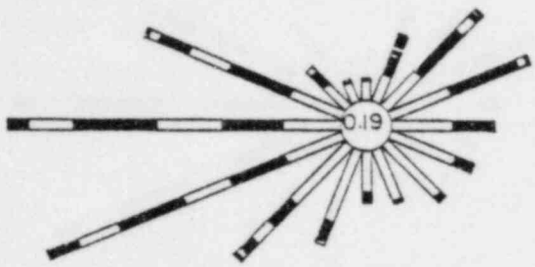
FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	.27	0.00	.13	0.00	0.00	0.00	.13	.13	.27	.13	0.00	0.00	1.08
0.51 TO 1.00	.54	0.00	.40	.54	.94	.81	1.08	.81	.54	.67	.27	.94	.81	1.62	.67	.54	11.17
1.01 TO 1.50	.13	1.35	.81	.81	1.35	1.08	1.75	.94	.13	.54	.54	.81	1.48	.81	.27	.40	13.19
1.51 TO 2.00	.13	.40	1.48	2.15	1.08	1.62	.81	.27	.13	.13	.94	.81	1.88	1.48	.40	.13	13.86
2.01 TO 3.00	.13	.40	1.88	2.29	3.77	2.02	.54	.13	0.00	.94	.40	1.35	1.88	1.35	.13	0.00	17.23
3.01 TO 4.00	0.00	.27	1.35	2.29	1.88	.81	.13	0.00	0.00	0.00	.67	1.21	1.35	1.21	.13	0.00	11.31
4.01 TO 5.00	0.00	0.00	1.08	2.15	.40	0.00	0.00	0.00	0.00	0.00	.67	2.15	1.48	.40	0.00	0.00	8.34
5.01 TO 6.00	0.00	0.00	.27	.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	1.75	.40	0.00	0.00	4.58
6.01 TO 7.00	0.00	0.00	.13	.13	0.00	0.00	0.00	0.00	0.00	.27	.13	.54	1.35	.13	0.00	0.00	2.69
7.01 TO 8.00	0.00	0.00	.13	0.00	0.00	0.00	0.00	0.00	0.00	.27	.13	.13	1.08	0.00	0.00	0.00	1.75
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.27	.54	1.75	1.08	.13	0.00	0.00	3.77
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.40	1.62	1.08	.27	0.00	0.00	3.36
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.13	3.77	3.50	.27	0.00	0.00	7.67
TOTALS	.94	2.42	7.54	11.31	9.69	6.33	4.44	2.15	.81	3.10	4.98	16.42	18.98	8.21	1.62	1.08	100.00
AVE WIND SPEED	1.3	1.8	2.8	3.1	2.3	2.0	1.3	1.2	1.0	3.1	4.1	6.6	5.9	2.9	1.5	1.1	3.8

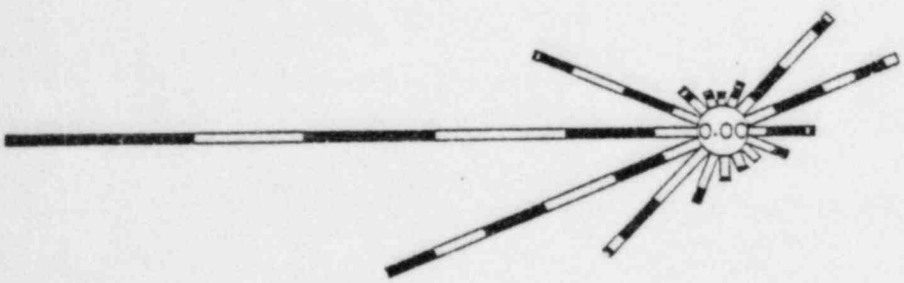
744 TOTAL HOURS INPUT 743 HOURS USED ABOVE

SEASONAL WIND SUMMARIES

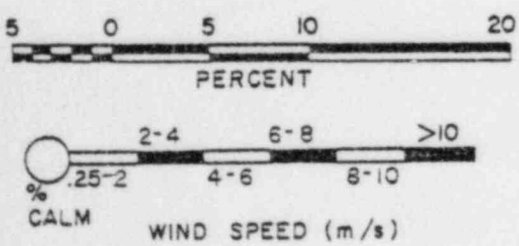
SEASONAL WIND ROSES
PEBBLE SPRINGS - 30 FT



Winter
1/1/76 to 2/29/76
and
12/1/76 to 12/31/76

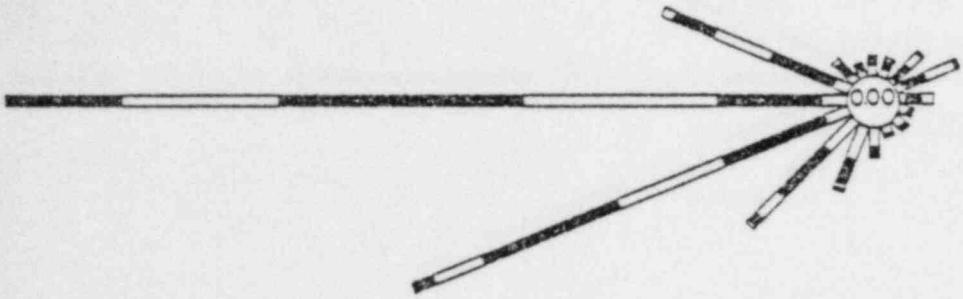


Spring
(3/1/76 to 5/31/76)

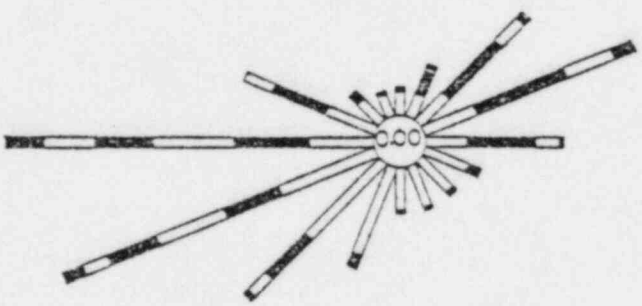


77-074

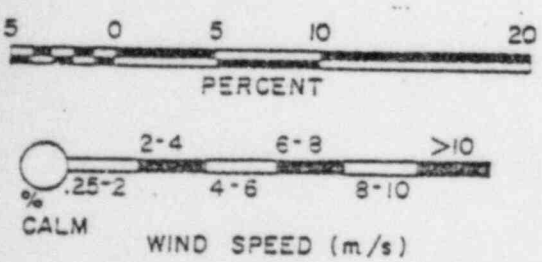
SEASONAL WIND ROSES
PEBBLE SPRINGS - 30 FT



Summer
(6/1/76 to 8/31/76)



Fall
(9/1/76 to 11/30/76)



PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	4
0.26 TO 0.50	5	3	1	3	1	2	1	1	5	6	7	6	5	4	2	1	53
0.51 TO 1.00	5	9	13	15	16	35	29	31	21	34	28	23	26	18	20	11	335
1.01 TO 1.50	6	11	19	30	22	20	30	17	16	23	30	23	10	18	4	7	286
1.51 TO 2.00	3	9	18	23	28	18	20	11	3	18	22	14	23	21	7	4	242
2.01 TO 3.00	2	11	38	48	32	21	6	2	6	12	17	33	26	36	14	2	308
3.01 TO 4.00	1	9	26	33	9	1	1	0	2	10	19	30	37	35	4	0	217
4.01 TO 5.00	0	3	13	6	3	0	0	1	0	1	11	22	36	22	3	0	123
5.01 TO 6.00	0	0	7	0	1	0	0	0	0	1	15	32	34	23	4	0	117
6.01 TO 7.00	0	0	4	1	0	0	0	0	0	0	8	49	45	21	0	0	128
7.01 TO 8.00	0	3	2	0	0	0	0	0	0	0	3	26	43	14	0	0	91
8.01 TO 9.00	0	2	1	1	0	0	0	0	0	0	2	24	22	7	0	0	59
9.01 TO 10.00	0	4	1	0	0	0	0	0	0	0	1	23	25	3	0	0	57
MORE THAN 10	0	16	2	0	0	0	0	0	0	0	8	31	24	2	0	0	83
TOTALS	23	80	145	162	112	97	87	63	53	105	171	336	356	224	58	25	2103

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.19
0.26 TO 0.50	.24	.14	.05	.14	.05	.10	.05	.05	.24	.29	.33	.29	.24	.19	.10	.05	2.52
0.51 TO 1.00	.24	.43	.62	.71	.76	1.66	1.38	1.47	1.00	1.62	1.33	1.09	1.24	.86	.95	.52	15.93
1.01 TO 1.50	.29	.52	.90	1.43	1.05	.95	1.43	.81	.76	1.09	1.43	1.09	.48	.86	.19	.33	13.60
1.51 TO 2.00	.14	.43	.86	1.09	1.33	.86	.95	.52	.14	.86	1.05	.67	1.09	1.00	.33	.19	11.51
2.01 TO 3.00	.10	.52	1.81	2.28	1.52	1.00	.29	.10	.29	.57	.81	1.57	1.33	1.71	.67	.10	14.65
3.01 TO 4.00	.05	.43	1.24	1.57	.43	.05	.05	0.00	.10	.48	.90	1.43	1.76	1.66	.19	0.00	10.32
4.01 TO 5.00	0.00	.14	.62	.38	.14	0.00	0.00	.05	0.00	.05	.52	1.05	1.71	1.05	.14	0.00	5.85
5.01 TO 6.00	0.00	0.00	0.00	.33	0.00	.05	0.00	0.00	0.00	0.00	.05	.71	1.52	1.62	1.09	.19	0.00	5.56
6.01 TO 7.00	0.00	0.00	0.00	.19	.05	0.00	0.00	0.00	0.00	0.00	0.00	.38	2.33	2.14	1.00	0.00	0.00	6.09
7.01 TO 8.00	0.00	0.00	.14	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.24	2.04	.67	0.00	0.00	4.33
8.01 TO 9.00	0.00	0.00	.10	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.10	1.14	1.05	.33	0.00	0.00	2.81
9.01 TO 10.00	0.00	0.00	.14	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	1.09	1.19	.14	0.00	0.00	2.71
MORE THAN 10	0.00	.76	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.38	1.47	1.14	.10	0.00	0.00	3.95
TOTALS	1.09	3.80	6.89	7.70	5.33	4.61	4.14	3.00	2.52	4.99	8.13	15.98	17.02	10.65	2.76	1.19	100.00
AVE WIND SPEED	1.2	4.7	3.0	2.3	1.7	1.9	1.3	1.1	1.2	1.5	3.1	5.5	5.4	3.8	2.0	1.1	3.5

2104 TOTAL HOURS INPUT 2103 HOURS USED ABOVE 2029 WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	0	0	3	1	0	1	1	1	2	0	5	3	0	1	1	20
0.51 TO 1.00	4	7	9	6	5	6	7	5	11	6	28	15	16	10	7	3	147
1.01 TO 1.50	3	1	7	6	5	11	9	6	5	21	25	13	11	5	4	1	130
1.51 TO 2.00	0	5	5	14	8	13	3	3	7	10	23	10	13	14	9	4	141
2.01 TO 3.00	4	6	16	29	30	12	1	3	3	15	32	26	36	30	6	3	252
3.01 TO 4.00	1	7	29	31	15	0	0	1	0	2	25	32	61	28	3	1	236
4.01 TO 5.00	1	3	29	13	4	0	0	0	0	0	11	42	66	37	3	2	216
5.01 TO 6.00	0	0	21	16	1	1	0	0	0	1	6	41	78	24	1	0	192
6.01 TO 7.00	0	2	15	21	1	0	0	0	0	0	4	40	83	20	2	1	186
7.01 TO 8.00	0	0	3	16	1	0	0	0	0	0	1	28	59	13	0	0	124
8.01 TO 9.00	0	1	3	12	0	0	0	0	0	0	3	39	56	4	0	0	118
9.01 TO 10.00	0	0	3	3	0	0	0	0	0	0	0	23	65	1	0	0	95
MORE THAN 10	0	0	1	0	0	0	0	0	0	0	1	54	205	5	0	0	266
TOTALS	14	32	141	179	75	43	21	19	27	59	156	368	752	191	36	16	2129

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.05	0.00	0.00	.14	.05	0.00	.05	.05	.05	.09	0.00	.23	.14	0.00	.05	.05	.94
0.51 TO 1.00	.19	.33	.42	.28	.23	.28	.33	.23	.52	.38	1.32	.70	.75	.47	.33	.14	6.90
1.01 TO 1.50	.14	.05	.33	.38	.28	.52	.42	.28	.23	.99	1.17	.61	.52	.23	.14	.05	6.39
1.51 TO 2.00	0.00	.23	.23	.66	.38	.61	.14	.14	.33	.47	1.08	.47	.61	.66	.42	.19	6.62
2.01 TO 3.00	.19	.28	.75	1.36	1.41	.56	.05	.14	.14	.70	1.50	1.22	1.69	1.41	.28	.14	11.84
3.01 TO 4.00	.05	.33	1.36	1.46	.70	0.00	0.00	.05	0.00	.09	1.17	1.50	2.87	1.32	.14	.05	11.09
4.01 TO 5.00	.05	.14	1.36	.35	.19	0.00	0.00	0.00	0.00	0.00	.52	1.97	3.10	1.74	.14	.09	10.15
5.01 TO 6.00	0.00	0.00	.99	.65	.05	.05	0.00	0.00	0.00	.05	.28	1.93	3.66	1.13	.05	0.00	9.02
6.01 TO 7.00	0.00	.09	.70	.99	.05	0.00	0.00	0.00	0.00	0.00	.05	1.88	3.90	.94	.09	.05	8.74
7.01 TO 8.00	0.00	0.00	.14	.75	.19	0.00	0.00	0.00	0.00	0.00	.05	1.32	2.77	.61	0.00	0.00	5.82
8.01 TO 9.00	0.00	.05	.14	.56	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.83	2.63	.19	0.00	0.00	5.54
9.01 TO 10.00	0.00	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	3.05	.05	0.00	0.00	4.46
MORE THAN 10	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	2.54	9.63	.23	0.00	0.00	12.49
TOTALS	.66	1.50	6.62	8.41	3.52	2.02	.99	.89	1.27	2.77	7.33	17.29	35.32	8.97	1.69	.75	100.00
AVE WIND SPEED	1.9	2.8	4.3	4.4	2.7	1.7	1.1	1.4	1.2	1.7	2.5	6.3	7.5	4.4	2.3	2.3	5.3

2203 TOTAL HOURS INPUT 2129 HOURS USED ABOVE 2117 WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
0.51 TO 1.00	3	0	1	2	3	1	4	1	7	15	13	4	7	3	1	0	65
1.01 TO 1.50	3	1	1	1	1	3	3	6	9	8	11	6	2	6	2	1	64
1.51 TO 2.00	5	6	0	2	3	2	4	5	5	16	20	18	16	9	6	5	124
2.01 TO 3.00	9	7	9	12	8	4	3	3	10	20	35	56	47	34	11	7	275
3.01 TO 4.00	2	2	12	17	11	2	1	0	1	8	35	63	66	39	5	1	265
4.01 TO 5.00	0	2	14	26	5	0	0	0	0	4	15	56	74	36	6	0	239
5.01 TO 6.00	0	0	3	6	6	0	0	0	1	1	18	62	133	29	1	0	260
6.01 TO 7.00	0	1	1	5	0	0	0	0	0	1	6	102	130	31	0	0	277
7.01 TO 8.00	0	0	1	1	0	0	0	0	0	0	4	56	128	15	0	0	205
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	32	94	6	0	0	133
9.01 TO 10.00	0	0	0	0	0	0	0	0	1	0	1	21	72	4	0	0	99
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	0	23	122	1	0	0	147
TOTALS	22	19	42	72	39	12	15	15	34	74	159	499	893	214	32	14	2154

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.05
0.51 TO 1.00	.14	0.00	.05	.09	.14	.05	.19	.05	.32	.70	.60	.19	.32	.14	.05	0.00	3.02
1.01 TO 1.50	.14	.05	.05	.05	.05	.14	.14	.28	.42	.37	.51	.28	.09	.28	.09	.05	2.97
1.51 TO 2.00	.23	.28	0.00	.09	.14	.09	.19	.23	.23	.74	.93	.84	.84	.42	.28	.23	5.76
2.01 TO 3.00	.42	.32	.42	.55	.37	.19	.14	.14	.46	.93	1.62	2.60	2.18	1.58	.51	.32	12.77
3.01 TO 4.00	.09	.09	.56	.79	.51	.09	.05	0.00	.05	.37	1.62	2.92	3.06	1.81	.23	.05	12.30
4.01 TO 5.00	0.00	.09	.65	1.21	.28	0.00	0.00	0.00	0.00	.19	.70	2.60	3.44	1.67	.28	0.00	11.10
5.01 TO 6.00	0.00	0.00	0.00	.14	.28	.28	0.00	0.00	0.00	.05	.05	.84	2.88	6.17	1.35	.05	0.00	12.07
6.01 TO 7.00	0.00	.05	.05	.23	0.00	0.00	0.00	0.00	0.00	0.00	.05	.28	4.74	6.04	1.44	0.00	0.00	12.86
7.01 TO 8.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.19	2.60	5.94	.70	0.00	0.00	9.52
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	1.49	4.36	.28	0.00	0.00	6.17
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.05	.97	3.34	.19	0.00	0.00	4.60
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	1.07	5.66	.05	0.00	0.00	6.82
TOTALS	1.02	.88	1.95	3.34	1.75	.56	.70	.70	1.58	3.44	7.38	23.17	41.46	9.94	1.49	.65	100.00
AVG WIND SPEED	2.0	2.7	3.8	3.9	3.4	2.1	1.6	1.6	2.0	2.3	3.3	5.6	6.9	4.6	2.8	2.3	5.4

2208 TOTAL HOURS INPUT 2154 HOURS USED ABOVE 2147 WITH STABILITY

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	3	0	3	4	3	5	6	4	1	4	6	6	3	12	3	3	66
0.51 TO 1.00	9	6	11	23	10	22	19	21	29	56	59	49	34	18	16	10	393
1.01 TO 1.50	6	12	14	15	11	12	13	19	12	30	24	23	12	13	6	6	230
1.51 TO 2.00	4	10	14	19	10	10	10	4	3	9	23	25	21	16	8	6	192
2.01 TO 3.00	5	17	48	47	41	11	3	2	2	15	36	27	40	35	8	3	341
3.01 TO 4.00	1	9	33	57	34	1	1	1	2	1	22	36	43	25	0	0	266
4.01 TO 5.00	0	2	28	36	18	0	0	0	0	1	18	35	43	27	1	0	209
5.01 TO 6.00	0	0	6	20	6	0	0	0	1	1	9	42	41	5	0	0	133
6.01 TO 7.00	0	2	5	12	7	0	0	0	0	0	2	30	30	1	0	0	89
7.01 TO 8.00	0	2	2	11	0	0	0	0	0	0	3	29	36	0	0	0	83
8.01 TO 9.00	0	1	2	1	0	0	0	1	0	0	1	16	36	0	0	0	58
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	15	19	1	0	0	36
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	26	41	1	0	0	69
TOTALS	30	61	166	245	149	61	52	52	50	117	205	359	349	155	42	28	2170

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.14	0.60	.14	.18	.14	.23	.28	.18	.05	.18	.28	.28	.14	.55	.14	.14	3.04
0.51 TO 1.00	.41	.28	.51	1.06	.74	1.01	.88	.97	1.34	2.58	2.72	2.26	1.57	.83	.74	.46	18.34
1.01 TO 1.50	.37	.55	.65	.69	.51	.55	.60	.88	.55	1.38	1.11	1.06	.55	.60	.28	.28	10.60
1.51 TO 2.00	.18	.46	.65	.88	.46	.46	.46	.18	.14	.41	1.06	1.15	.97	.74	.37	.28	8.85
2.01 TO 3.00	.23	.73	2.21	2.17	1.89	.51	.14	.09	.09	.69	1.66	1.24	1.84	1.66	.37	.14	15.71
3.01 TO 4.00	.05	.41	1.52	2.63	1.57	.05	.05	.05	.09	.05	1.01	1.66	1.98	1.15	0.00	0.00	12.26
4.01 TO 5.00	0.00	.09	1.29	1.66	.83	0.00	0.00	0.00	0.00	.05	.83	1.61	1.98	1.24	.05	0.00	9.63
5.01 TO 6.00	0.00	0.00	.28	.92	.37	0.00	0.00	0.00	.05	.05	.41	1.94	1.89	.23	0.00	0.00	6.13
6.01 TO 7.00	0.00	.09	.23	.55	.32	0.00	0.00	0.00	0.00	0.00	.09	1.38	1.38	.05	0.00	0.00	4.10
7.01 TO 8.00	0.00	.09	.09	.51	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.34	1.66	0.00	0.00	0.00	3.82
8.01 TO 9.00	0.00	.05	.09	.05	0.00	0.00	0.00	.05	0.00	0.00	.05	.74	1.66	0.00	0.00	0.00	2.67
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.69	.86	.05	0.00	0.00	1.66
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	1.20	1.89	.05	0.00	0.00	3.18
TOTALS	1.38	2.81	7.65	11.29	6.32	2.81	2.40	2.40	2.30	5.39	9.45	16.54	16.39	7.14	1.94	1.29	100.00
AVE WIND SPEED	1.3	2.6	3.1	3.4	3.0	1.3	1.2	1.3	1.2	1.2	2.3	4.7	5.5	2.7	1.4	1.2	3.3

2184 TOTAL HOURS INPUT 2170 HOURS USED ABOVE 2161 WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 130.0 FT

CONDITIONS: (HOURS)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	9
.25 TO 0.50	1	1	1	0	2	0	0	0	0	0	1	0	2	1	1	0	10
.51 TO 1.00	7	6	2	4	10	9	19	8	12	9	13	13	14	19	8	8	161
.01 TO 1.50	5	6	9	10	22	15	21	11	11	20	18	24	15	16	8	2	213
.51 TO 2.00	4	1	10	25	23	13	14	11	9	26	30	21	19	13	6	5	230
.01 TO 3.00	4	8	27	35	41	26	10	9	5	41	28	40	43	35	7	2	361
.01 TO 4.00	1	2	15	44	42	6	2	0	0	12	16	24	31	26	2	2	205
.01 TO 5.00	1	5	10	23	7	1	0	0	1	3	5	22	45	28	2	0	153
.01 TO 6.00	0	4	5	12	2	0	0	0	0	0	4	19	38	17	0	0	107
.01 TO 7.00	0	0	5	8	0	0	0	0	0	2	6	21	34	17	1	0	94
.01 TO 8.00	0	1	4	3	0	0	0	0	0	1	7	28	38	14	0	0	96
.01 TO 9.00	0	0	4	3	0	0	0	0	0	0	2	37	46	10	0	0	104
.01 TO 10.00	0	1	2	2	0	0	0	0	0	0	1	31	42	4	0	0	83
MORE THAN 10	0	0	19	0	0	0	0	0	0	0	4	54	115	13	0	0	213
TOTALS	23	43	113	169	129	70	66	39	38	120	135	334	484	213	35	19	2039

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.44
.25 TO 0.50	.05	.05	.05	0.00	.10	0.00	0.00	0.00	0.00	0.00	.05	0.00	.10	.05	.05	0.00	.49
.51 TO 1.00	.34	.29	.10	.20	.49	.44	.93	.39	.39	.44	.64	.64	.69	.93	.39	.39	7.90
1.01 TO 1.50	.25	.29	.44	.44	1.08	.74	1.03	.54	.54	.98	.88	1.18	.74	.78	.39	.10	10.45
1.51 TO 2.00	.20	.05	.49	1.23	1.13	.64	.69	.54	.44	1.28	1.47	1.03	.93	.64	.29	.25	11.28
2.01 TO 3.00	.20	.39	1.32	1.72	2.01	1.28	.49	.44	.25	2.01	1.37	1.96	2.11	1.72	.34	.10	17.70
3.01 TO 4.00	.05	.10	.74	2.16	1.08	.29	.10	0.00	0.00	.54	.78	1.18	1.52	1.28	.10	.10	10.05
4.01 TO 5.00	.05	.25	.49	1.13	.34	.05	0.00	0.00	.05	.15	.25	1.08	2.21	1.37	.10	0.00	7.50
5.01 TO 6.00	0.00	.20	.25	.54	.10	0.00	0.00	0.00	0.00	.29	.20	.93	1.86	.83	0.00	0.00	5.25
6.01 TO 7.00	0.00	0.00	.25	.39	0.00	0.00	0.00	0.00	0.00	.10	.29	1.03	1.67	.83	.05	0.00	4.61
7.01 TO 8.00	0.00	.05	.20	.15	0.00	0.00	0.00	0.00	0.00	.05	.34	1.37	1.86	.69	0.00	0.00	4.71
8.01 TO 9.00	0.00	0.00	.20	.15	0.00	0.00	0.00	0.00	0.00	.10	1.61	2.35	.49	0.00	0.00	0.00	5.10
9.01 TO 10.00	0.00	.05	.10	.10	0.00	0.00	0.00	0.00	0.00	.05	1.52	2.06	.20	0.00	0.00	0.00	4.07
MORE THAN 10	0.00	.39	.93	0.00	0.00	0.00	0.00	0.00	0.00	.20	2.65	5.64	.64	0.00	0.00	0.00	10.45
TOTALS	1.13	2.11	5.54	8.29	6.33	3.43	3.24	1.91	1.86	5.89	6.62	16.38	23.74	10.45	1.72	.93	100.00
VE WIND SPEED	1.6	4.5	5.5	3.5	2.3	1.9	1.5	1.5	1.5	2.4	3.1	6.2	7.1	4.4	1.9	1.5	4.6

2184 TOTAL HOURS INPUT 2039 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/75 TO 5/31/76 SPRING LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	1	1	0	1	1	0	0	2	0	0	0	0	0	0	0	0	6
0.51 TO 1.00	1	3	1	1	0	3	3	4	4	3	4	4	5	2	3	2	43
1.01 TO 1.50	2	3	3	2	3	2	7	8	6	6	9	13	9	11	10	3	97
1.51 TO 2.00	1	5	5	2	4	2	8	5	7	12	27	18	22	13	5	5	141
2.01 TO 3.00	7	4	11	19	16	13	8	4	1	16	39	27	33	29	6	4	237
3.01 TO 4.00	0	3	11	26	28	6	3	0	1	7	19	28	35	23	3	1	194
4.01 TO 5.00	0	2	17	22	8	0	0	0	0	1	8	40	65	33	4	1	201
5.01 TO 6.00	0	0	5	16	3	1	0	0	0	0	5	27	57	25	1	0	147
6.01 TO 7.00	1	1	19	17	2	0	0	0	0	1	4	35	80	28	1	1	190
7.01 TO 8.00	0	3	18	20	2	0	0	0	0	0	2	29	74	23	0	0	171
8.01 TO 9.00	0	1	3	15	3	0	0	0	0	0	0	25	59	14	1	1	122
9.01 TO 10.00	0	1	3	9	3	0	0	0	0	0	0	15	54	7	0	0	92
MORE THAN 10	0	1	9	8	1	0	0	0	0	0	5	74	344	24	0	0	466
TOTALS	13	34	106	158	74	27	29	23	19	46	122	335	837	232	34	18	2107

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	.05	.05	0.00	.05	.05	0.00	0.00	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28
0.51 TO 1.00	.05	.14	.05	.05	0.00	.14	.14	.19	.19	.14	.19	.19	.24	.09	.14	.09	2.04
1.01 TO 1.50	.07	.14	.14	.09	.14	.09	.33	.38	.28	.28	.43	.62	.43	.52	.47	.14	4.60
1.51 TO 2.00	.05	.24	.24	.09	.19	.09	.38	.24	.33	.57	1.28	.85	1.04	.62	.24	.24	6.69
2.01 TO 3.00	.33	.19	.52	.70	.76	.62	.38	.19	.05	.76	1.85	1.28	1.57	1.38	.28	.19	11.25
3.01 TO 4.00	0.00	.14	.52	1.23	1.33	.28	.14	0.00	.05	.33	.90	1.33	1.66	1.09	.14	.05	9.21
4.01 TO 5.00	0.00	.09	.81	1.04	.38	0.00	0.00	0.00	0.00	.05	.38	1.90	3.08	1.57	.19	.05	9.54
5.01 TO 6.00	0.00	.28	.23	.76	.14	.05	0.00	0.00	0.00	0.00	.24	1.28	2.71	1.19	.05	0.00	6.98
6.01 TO 7.00	.05	.05	.90	.81	.09	0.00	0.00	0.00	0.00	.05	.19	1.66	3.80	1.33	.05	.05	9.02
7.01 TO 8.00	0.00	.14	.85	.95	.09	0.00	0.00	0.00	0.00	0.00	.09	1.38	3.51	1.09	0.00	0.00	8.12
8.01 TO 9.00	0.00	.05	.14	.71	.14	0.00	0.00	0.00	0.00	0.00	0.00	1.19	2.80	.66	.05	.05	5.79
9.01 TO 10.00	0.00	.05	.14	.43	.14	0.00	0.00	0.00	0.00	0.00	0.00	.71	2.56	.33	0.00	0.00	4.37
MORE THAN 10	0.00	.05	.43	.38	.05	0.00	0.00	0.00	0.00	0.00	.24	3.51	16.33	1.14	0.00	0.00	22.12
TOTALS	.62	1.61	5.03	7.50	3.51	1.28	1.38	1.09	.90	2.18	5.79	15.90	39.72	11.01	1.61	.85	100.00
AVG WIND SPEED	2.3	4.0	5.6	5.6	3.7	2.4	1.9	1.4	1.5	2.3	3.5	6.8	9.0	5.3	2.6	2.7	6.6

2294 TOTAL HOURS INPUT 2107 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 6/31/76 SUMMER LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	1	2	0	1	0	3	1	0	0	1	1	1	1	0	0	0	12
1.01 TO 1.50	3	1	0	1	1	0	0	1	5	5	11	6	3	1	3	0	41
1.51 TO 2.00	3	2	1	2	5	1	4	3	4	4	16	10	10	4	5	4	83
2.01 TO 3.00	1	2	7	2	7	2	2	3	7	20	40	45	44	32	9	8	231
3.01 TO 4.00	2	3	6	19	8	4	0	1	2	8	17	46	68	43	8	3	241
4.01 TO 5.00	1	2	7	22	12	3	1	0	0	0	15	61	76	23	3	0	231
5.01 TO 6.00	0	1	3	14	9	0	0	0	0	1	11	51	80	33	2	0	205
6.01 TO 7.00	0	1	1	4	8	0	0	0	0	0	3	44	126	43	0	0	230
7.01 TO 8.00	0	0	1	4	1	0	0	0	1	0	5	46	119	45	0	0	222
8.01 TO 9.00	0	0	1	1	0	0	0	0	0	0	3	49	116	31	0	0	203
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	32	99	20	0	0	151
MORE THAN 10	0	0	0	0	0	0	0	0	1	1	1	24	255	14	0	0	306
TOTALS	11	17	27	70	51	13	8	8	20	45	123	415	1009	294	30	15	2156

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.05	.09	0.00	.05	0.00	.14	.05	0.00	0.00	.05	.05	.05	.05	0.00	0.00	0.00	.56
1.01 TO 1.50	.14	.05	0.00	.05	.05	0.00	0.00	.05	.23	.23	.51	.29	.14	.05	.14	0.00	1.90
1.51 TO 2.00	.14	.09	.05	.09	.23	.05	.14	.14	.19	.42	.74	.46	.46	.19	.23	.14	3.85
2.01 TO 3.00	.05	.09	.32	.09	.32	.09	.09	.14	.32	.93	1.86	2.09	2.04	1.48	.42	.37	10.71
3.01 TO 4.00	.09	.28	.23	.88	.37	.19	0.00	.05	.09	.37	.79	2.13	3.15	1.99	.37	.14	11.13
4.01 TO 5.00	.05	.09	.32	1.02	.56	.14	.05	0.00	0.00	0.00	.70	2.83	3.53	1.30	.14	0.00	10.71
5.01 TO 6.00	0.00	.05	.14	.65	.42	0.00	0.00	0.00	0.00	.05	.51	2.37	3.71	1.53	.09	0.00	9.51
6.01 TO 7.00	0.00	.05	.05	.19	.37	0.00	0.00	0.00	0.00	0.00	.14	2.04	5.84	1.99	0.00	0.00	10.67
7.01 TO 8.00	0.00	0.00	.05	.19	.09	0.00	0.00	0.00	.05	0.00	.23	2.13	5.52	2.09	0.00	0.00	10.30
8.01 TO 9.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.27	5.47	1.44	0.00	0.00	9.42
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	4.59	.93	0.00	0.00	7.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	.05	1.11	12.29	.65	0.00	0.00	14.19
TOTALS	.51	.79	1.25	3.25	2.37	.60	.37	.37	.93	2.09	5.71	19.25	46.80	13.64	1.39	.70	100.00
AVE WIND SPEED	2.0	3.0	4.1	4.5	4.3	2.9	2.2	2.1	2.7	2.6	3.4	6.0	7.9	5.1	2.9	2.4	6.4

2208 TOTAL HOURS INPUT 2156 HOURS USED ABOVE

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/ 1/75 TO 12/31/76 FALL LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	1	0	3	1	0	0	1	0	6
0.51 TO 1.00	5	3	6	13	5	6	11	9	8	15	16	8	7	13	6	3	137
1.01 TO 1.50	6	6	14	5	16	17	13	10	15	31	20	29	21	20	7	11	241
1.51 TO 2.00	6	7	7	9	5	15	14	5	15	29	41	33	24	14	8	5	241
2.01 TO 3.00	1	14	23	39	20	27	4	4	2	55	54	42	50	17	6	1	367
3.01 TO 4.00	1	7	27	43	39	9	2	0	0	13	16	46	60	36	3	2	304
4.01 TO 5.00	0	2	17	56	40	4	0	0	1	0	4	32	47	22	1	0	220
5.01 TO 6.00	0	3	12	33	12	1	0	0	0	0	5	22	41	14	0	0	143
6.01 TO 7.00	0	2	9	22	16	1	0	0	1	1	3	31	45	12	1	0	144
7.01 TO 8.00	0	3	7	11	5	0	0	0	0	0	1	28	41	6	0	0	102
8.01 TO 9.00	0	1	1	11	0	0	0	0	0	0	1	18	32	1	0	0	65
9.01 TO 10.00	0	2	0	3	0	0	0	0	0	0	1	14	40	4	0	0	64
MORE THAN 10	0	0	1	0	0	0	0	1	0	0	0	25	106	5	0	0	138
TOTALS	20	52	126	239	166	82	44	29	43	144	165	329	514	164	33	22	2172

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.14	.05	0.00	0.00	.05	0.00	.28
0.51 TO 1.00	.23	.14	.28	.60	.23	.37	.51	.41	.37	.69	.74	.37	.32	.60	.28	.14	6.31
1.01 TO 1.50	.28	.23	.64	.23	.74	.78	.60	.46	.69	1.43	.92	1.34	.97	.92	.32	.51	11.10
1.51 TO 2.00	.23	.41	.41	.41	.23	.69	.64	.23	.69	1.34	1.89	1.52	1.10	.64	.37	.23	11.10
2.01 TO 3.00	.05	.64	1.66	1.80	1.27	1.24	.18	.18	.09	2.53	2.49	1.93	2.30	.78	.28	.05	16.90
3.01 TO 4.00	.05	.32	1.24	1.98	1.80	.41	.09	0.00	0.00	.60	.74	2.12	2.76	1.66	.14	.09	14.00
4.01 TO 5.00	0.00	.09	.78	2.30	1.84	.18	0.00	0.00	.05	0.00	.18	1.47	2.16	1.01	.05	0.00	10.13
5.01 TO 6.00	0.00	.14	.55	1.52	.55	.05	0.00	0.00	0.00	0.00	.23	1.01	1.89	.64	0.00	0.00	6.58
6.01 TO 7.00	0.00	.09	.41	1.01	.74	.05	0.00	0.00	.05	.05	.14	1.43	2.07	.55	.05	0.00	6.63
7.01 TO 8.00	0.00	.14	.32	.51	.23	0.00	0.00	0.00	0.00	0.00	.05	1.29	1.89	.28	0.00	0.00	4.70
8.01 TO 9.00	0.00	.05	.05	.51	0.00	0.00	0.00	0.00	0.00	0.00	.05	.83	1.47	.05	0.00	0.00	2.99
9.01 TO 10.00	0.00	.09	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	.05	.64	1.84	.18	0.00	0.00	2.95
MORE THAN 10	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	1.15	4.88	.23	0.00	0.00	6.35
TOTALS	.92	2.39	5.80	11.00	7.64	3.78	2.03	1.34	1.98	6.63	7.60	15.15	23.66	7.55	1.52	1.01	100.00
AVE WIND SPEED	1.4	3.2	3.6	4.3	3.8	2.2	1.5	1.7	1.6	2.0	2.3	5.0	6.7	3.9	1.9	1.5	4.2

2184 TOTAL HOURS INPUT 2172 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/75 TO 12/31/76 WINTER LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	5
0.26 TO 0.50	0	0	0	0	2	0	1	0	0	0	1	1	2	1	0	0	8
0.51 TO 1.00	8	1	6	6	9	10	16	10	7	10	2	10	9	14	6	5	129
1.01 TO 1.50	4	12	13	17	18	15	23	12	8	14	9	13	14	11	5	4	193
1.51 TO 2.00	3	5	12	24	21	20	10	7	4	13	17	18	26	16	8	3	209
2.01 TO 3.00	2	7	35	46	44	17	10	4	5	18	20	44	49	24	8	1	334
3.01 TO 4.00	3	4	17	38	24	11	2	1	0	4	12	34	48	26	2	0	226
4.01 TO 5.00	1	2	15	31	7	2	0	0	0	2	9	33	38	17	0	0	158
5.01 TO 6.00	1	4	10	15	3	0	0	0	1	1	1	27	32	11	0	0	126
6.01 TO 7.00	0	2	5	6	1	0	0	0	0	2	5	19	39	7	0	0	86
7.01 TO 8.00	0	0	3	3	0	0	0	0	0	2	4	24	40	9	0	0	85
8.01 TO 9.00	0	2	6	4	0	0	0	0	0	4	6	27	45	3	0	0	97
9.01 TO 10.00	0	0	3	2	0	0	0	0	0	0	7	39	42	4	0	0	97
MORE THAN 10	0	11	19	0	0	0	0	0	0	0	9	87	151	7	0	0	284
TOTALS	22	50	145	192	129	75	62	34	25	70	102	376	557	150	30	13	2037

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.25
0.26 TO 0.50	0.00	0.00	0.00	0.00	.10	0.00	.05	0.00	0.00	0.00	.05	.05	.10	.05	0.00	0.00	.39
0.51 TO 1.00	.39	.05	.29	.29	.44	.49	.79	.49	.34	.49	.10	.49	.44	.67	.29	.25	6.33
1.01 TO 1.50	.20	.59	.64	.83	.88	.74	1.13	.59	.39	.64	.44	.64	.69	.54	.29	.20	9.47
1.51 TO 2.00	.15	.25	.59	1.18	1.03	.93	.49	.34	.20	.64	.83	.88	1.37	.79	.39	.15	10.26
2.01 TO 3.00	.10	.34	1.72	2.26	2.16	.83	.49	.20	.25	.88	.98	2.16	2.41	1.13	.39	.05	16.40
3.01 TO 4.00	.15	.20	.83	1.87	1.18	.54	.10	.05	0.00	.20	.54	1.67	2.36	1.28	.10	0.00	11.09
4.01 TO 5.00	.05	.10	.79	1.52	.34	.10	0.00	0.00	0.00	.10	.44	1.62	1.87	.83	0.00	0.00	7.76
5.01 TO 6.00	.05	.20	.44	.74	.15	0.00	0.00	0.00	.05	.05	.05	1.33	2.55	.54	0.00	0.00	6.19
6.01 TO 7.00	0.00	.10	.25	.29	.05	0.00	0.00	0.00	0.00	.10	.25	.93	1.91	.34	0.00	0.00	4.22
7.01 TO 8.00	0.00	.15	.15	0.00	0.00	0.00	0.00	0.00	0.00	.10	.20	1.18	1.96	.44	0.00	0.00	4.17
8.01 TO 9.00	0.00	.10	.29	.20	0.00	0.00	0.00	0.00	0.00	.20	.29	1.33	2.21	.15	0.00	0.00	4.76
9.01 TO 10.00	0.00	0.00	.15	.10	0.00	0.00	0.00	0.00	0.00	0.00	.34	1.91	2.06	.20	0.00	0.00	4.76
MORE THAN 10	0.00	.54	.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.44	4.27	7.41	.34	0.00	0.00	13.94
TOTALS	1.03	2.45	7.12	9.43	6.33	3.68	3.04	1.67	1.23	3.44	5.01	18.46	27.34	7.36	1.47	.64	100.00
AVE WIND SPEED	1.9	5.4	5.1	3.4	2.9	2.0	1.4	1.4	1.6	2.6	4.8	6.8	7.2	4.0	1.7	1.3	5.0

2104 TOTAL HOURS INPUT 2037 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
0.51 TO 1.00	3	1	2	2	3	1	2	0	1	3	2	2	3	3	1	2	26
1.01 TO 1.50	3	2	2	4	3	4	2	1	3	8	4	9	8	6	5	6	70
1.51 TO 2.00	4	2	4	3	5	5	3	7	4	10	13	12	28	14	8	2	124
2.01 TO 3.00	4	7	16	14	17	8	3	4	6	9	14	26	43	38	6	6	221
3.01 TO 4.00	2	3	11	32	20	5	5	2	2	4	8	30	52	15	5	0	196
4.01 TO 5.00	0	2	18	23	13	1	1	0	0	0	6	39	55	21	1	1	181
5.01 TO 6.00	1	2	8	15	4	0	0	0	0	0	6	36	70	18	0	1	160
6.01 TO 7.00	0	5	16	20	2	0	0	0	0	1	2	30	70	17	1	0	164
7.01 TO 8.00	0	3	20	20	3	0	0	0	0	0	5	33	90	15	0	0	189
8.01 TO 9.00	0	4	18	13	1	0	0	0	0	0	0	30	64	8	0	0	138
9.01 TO 10.00	1	1	5	10	1	0	0	0	0	0	1	17	53	8	2	0	111
MORE THAN 10	0	2	20	12	2	0	0	0	0	0	4	94	398	12	0	1	545
TOTALS	17	34	141	168	72	24	16	14	16	35	65	360	944	175	29	19	2129

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	.05	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09
0.51 TO 1.00	.14	.05	.09	.09	0.00	.05	.09	0.00	.05	.14	.09	.09	.14	.14	.05	.09	1.32
1.01 TO 1.50	.14	.09	.09	.14	.14	.19	.09	.05	.14	.38	.19	.42	.38	.28	.23	.28	3.29
1.51 TO 2.00	.19	.09	.19	.14	.23	.23	.14	.33	.19	.47	.61	.56	1.32	.66	.38	.09	5.82
2.01 TO 3.00	.19	.33	.75	.66	.30	.38	.14	.19	.28	.42	.66	1.22	2.02	1.78	.28	.28	10.38
3.01 TO 4.00	.09	.14	.52	1.50	.94	.23	.23	.09	.09	.19	.38	1.41	2.44	.70	.23	0.00	9.21
4.01 TO 5.00	0.00	.09	.85	1.08	.61	.05	.05	0.00	0.00	0.00	.28	1.83	2.58	.99	.05	.05	8.50
5.01 TO 6.00	0.00	.09	.38	.75	.19	0.00	0.00	0.00	0.00	0.00	.28	1.69	3.29	.85	0.00	.05	7.52
6.01 TO 7.00	0.00	.23	.75	.94	.09	0.00	0.00	0.00	0.00	.05	.09	1.41	3.29	.80	.05	0.00	7.70
7.01 TO 8.00	0.00	.14	.94	.94	.14	0.00	0.00	0.00	0.00	0.00	.23	1.55	4.23	.70	0.00	0.00	8.84
8.01 TO 9.00	0.00	.19	.85	.61	.05	0.00	0.00	0.00	0.00	0.00	0.00	1.41	3.01	.38	0.00	0.00	6.48
9.01 TO 10.00	.05	.05	.23	.47	.05	0.00	0.00	0.00	0.00	0.00	.05	.89	2.96	.38	.09	0.00	5.21
MORE THAN 10	0.00	.09	.94	.56	.09	0.00	0.00	0.00	0.00	0.00	.19	4.42	18.59	.56	0.00	.05	25.60
TOTALS	.80	1.60	6.62	7.89	3.38	1.13	.75	.66	.75	1.64	3.05	16.91	44.34	8.22	1.36	.89	100.00
AVE WIND SPEED	2.3	5.2	6.4	5.8	3.9	2.3	2.4	2.1	2.1	2.0	3.9	7.4	9.2	5.1	2.9	3.5	7.2

2205 TOTAL HOURS INPUT 2129 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 07/1/76 TO 08/31/76 SUMMER LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	0	0	0	0	1	1	0	0	1	2	0	1	1	0	0	9
1.01 TO 1.50	1	3	2	0	0	1	1	1	1	5	3	4	3	2	2	2	31
1.51 TO 2.00	3	0	1	4	2	1	3	4	3	5	4	15	17	4	2	5	73
2.01 TO 3.00	6	7	4	6	4	4	2	2	6	7	16	35	40	23	6	5	173
3.01 TO 4.00	1	5	7	25	10	4	0	1	0	4	7	47	70	38	4	5	228
4.01 TO 5.00	0	0	7	20	8	3	1	0	0	0	9	59	78	20	2	0	207
5.01 TO 6.00	1	2	7	13	8	2	0	0	0	0	10	62	82	20	4	0	211
6.01 TO 7.00	1	2	2	6	10	6	0	0	0	2	5	57	107	37	0	0	229
7.01 TO 8.00	0	1	1	4	1	0	0	0	0	0	3	41	119	23	0	0	193
8.01 TO 9.00	0	0	1	1	0	0	0	0	0	0	4	47	131	25	0	0	209
9.01 TO 10.00	0	0	0	1	0	0	0	0	1	0	0	44	113	9	0	0	168
MORE THAN 10	0	0	0	0	0	0	0	0	1	1	2	50	351	16	0	0	421
TOTALS	15	20	32	80	43	16	8	8	12	25	65	461	1112	223	20	17	2157

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.09	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	.05	.09	0.00	.05	.05	0.00	0.00	.42
1.01 TO 1.50	.05	.14	.09	0.00	0.00	.05	.05	.05	.05	.23	.14	.19	.14	.09	.09	.09	1.44
1.51 TO 2.00	.14	0.00	.05	.19	.09	.05	.14	.19	.14	.23	.19	.70	.79	.19	.09	.23	3.38
2.01 TO 3.00	.28	.32	.19	.28	.19	.19	.09	.09	.28	.32	.74	1.62	1.85	1.07	.28	.23	8.02
3.01 TO 4.00	.05	.23	.32	1.16	.46	.19	0.00	.05	0.00	.19	.32	2.18	3.25	1.76	.19	.23	10.57
4.01 TO 5.00	0.00	0.00	.32	.93	.37	.14	.05	0.00	0.00	0.00	.42	2.74	3.62	.93	.09	0.00	9.60
5.01 TO 6.00	.05	.09	.32	.60	.37	.09	0.00	0.00	0.00	0.00	.46	2.87	3.80	.93	.19	0.00	9.78
6.01 TO 7.00	.05	.09	.09	.28	.46	0.00	0.00	0.00	0.00	.09	.23	2.64	4.96	1.72	0.00	0.00	10.62
7.01 TO 8.00	0.00	.05	.05	.19	.05	0.00	0.00	0.00	0.00	0.00	.14	1.90	5.52	1.30	0.00	0.00	9.18
8.01 TO 9.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.19	2.18	6.07	1.16	0.00	0.00	9.69
9.01 TO 10.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04	5.24	.42	0.00	0.00	7.79
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	.09	2.32	16.27	.74	0.00	0.00	19.52
TOTALS	.70	.93	1.48	3.71	1.99	.74	.37	.37	.56	1.16	3.01	21.37	51.55	10.34	.93	.79	100.00
AVE WIND SPEED	2.5	3.4	4.4	4.5	4.7	3.1	2.1	2.1	3.4	2.9	4.3	6.4	8.3	8.0	3.3	2.4	6.9

2208 TOTAL HOURS INPUT 2157 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	1	1	0	1	0	1	0	0	0	1	4	0	2	0	0	11
0.51 TO 1.00	3	7	6	3	3	7	5	5	7	7	7	10	11	7	8	6	107
1.01 TO 1.50	4	7	11	10	10	14	13	8	15	8	17	30	20	21	9	6	203
1.51 TO 2.00	2	11	13	17	15	4	9	11	5	12	11	26	42	29	9	6	227
2.01 TO 3.00	5	9	29	45	34	18	5	5	5	9	14	32	80	36	10	4	340
3.01 TO 4.00	0	4	20	41	35	15	2	0	1	4	5	31	41	27	1	0	277
4.01 TO 5.00	0	3	23	49	38	6	0	1	1	0	4	38	66	12	2	0	245
5.01 TO 6.00	0	1	13	34	19	1	0	0	0	0	3	40	52	8	0	0	171
6.01 TO 7.00	0	1	6	27	15	2	0	0	0	0	2	30	36	2	0	0	121
7.01 TO 8.00	0	5	7	15	7	1	0	0	1	1	1	28	43	5	0	0	114
8.01 TO 9.00	0	3	6	11	3	0	0	0	0	0	1	31	45	2	0	0	102
9.01 TO 10.00	0	1	1	4	0	0	0	0	0	0	0	25	39	0	0	0	70
MORE THAN 10	0	2	2	3	0	0	0	0	1	0	4	49	121	2	0	0	184
TOTALS	19	55	143	259	180	68	35	30	36	41	70	374	646	153	39	22	2172

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	.05	.05	0.00	.05	0.00	.05	0.00	0.00	0.00	.05	.18	0.00	.09	0.00	0.00	.51
0.51 TO 1.00	.37	.32	.28	.14	.14	.32	.23	.23	.32	.32	.32	.46	.51	.32	.37	.28	4.93
1.01 TO 1.50	.18	.32	.51	.46	.46	.64	.60	.37	.69	.37	.78	1.38	.92	.97	.41	.28	9.35
1.51 TO 2.00	.09	.51	.83	.78	.69	.18	.41	.51	.23	.55	.51	1.20	1.93	1.34	.41	.28	10.45
2.01 TO 3.00	.23	.41	1.34	2.07	1.57	.83	.23	.23	.23	.41	.64	1.47	3.66	1.66	.46	.18	15.65
3.01 TO 4.00	0.00	.18	.92	1.89	1.61	.69	.09	0.00	.05	.18	.23	1.43	4.19	1.24	.05	0.00	12.75
4.01 TO 5.00	0.00	.14	1.06	2.26	1.75	.28	0.00	.05	.05	0.00	.18	1.75	3.13	.55	.09	0.00	11.26
5.01 TO 6.00	0.00	.05	.60	1.57	.87	.05	0.00	0.00	0.00	0.00	.14	1.84	2.39	.37	0.00	0.00	7.87
6.01 TO 7.00	0.00	.05	.28	1.24	.69	.09	0.00	0.00	0.00	0.00	.09	1.38	1.66	.09	0.00	0.00	5.57
7.01 TO 8.00	0.00	.23	.32	.69	.32	.05	0.00	0.00	.05	.05	.05	1.29	1.98	.23	0.00	0.00	5.25
8.01 TO 9.00	0.00	.14	.28	.51	.14	0.00	0.00	0.00	0.00	0.00	.05	1.43	2.07	.09	0.00	0.00	4.70
9.01 TO 10.00	0.00	.05	.05	.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.80	0.00	0.00	0.00	3.22
MORE THAN 10	0.00	.09	.09	.14	0.00	0.00	0.00	0.00	.05	0.00	.18	2.26	5.57	.09	0.00	0.00	8.47
TOTALS	.87	2.53	6.58	11.92	8.29	3.13	1.61	1.38	1.66	1.89	3.22	17.22	29.83	7.04	1.80	1.01	100.00
AVE WIND SPEED	1.4	3.4	3.8	4.5	3.7	2.7	1.5	1.6	2.0	2.0	2.9	6.0	6.3	3.0	1.8	1.4	4.7

2194 TOTAL HOURS INPUT 2172 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY A ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.51 TO 1.00	0	0	0	0	0	2	0	0	0	0	1	0	0	0	2	0	5
1.01 TO 1.50	0	0	2	0	0	0	0	0	1	1	2	0	0	0	0	0	6
1.51 TO 2.00	1	1	0	1	0	0	1	0	0	0	0	1	0	1	0	1	7
2.01 TO 3.00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
3.01 TO 4.00	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2
4.01 TO 5.00	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	5
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	1	5	2	0	0	8
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	4	2	1	0	0	8
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	5	7	0	0	0	12
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	2	3	2	0	0	8
TOTALS	1	1	3	4	0	2	1	0	1	1	5	16	28	7	2	1	73

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.10	0.00	.25
1.01 TO 1.50	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	.05	.05	.10	0.00	0.00	0.00	0.00	0.00	.30
1.51 TO 2.00	.05	.05	0.00	.05	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05	0.00	.05	0.00	.05	.34
2.01 TO 3.00	0.00	0.00	.05	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15
3.01 TO 4.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.10
4.01 TO 5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.15	0.00	0.00	0.00	.20
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.15	.05	0.00	0.00	.25
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.25	.10	0.00	0.00	.39
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.20	0.00	0.00	0.00	.25
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.20	.10	.05	0.00	0.00	.39
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.25	.34	0.00	0.00	0.00	.59
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.10	.15	.10	0.00	0.00	.39
TOTALS	.05	.05	.15	.20	0.00	.10	.05	0.00	.05	.05	.25	.79	1.38	.34	.10	.05	3.60
VE WIND SPEED	1.5	1.5	1.5	2.7	0.0	.9	1.7	0.0	1.2	1.3	4.5	7.9	7.6	7.7	.9	1.6	6.1

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
																	0
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3
1.01 TO 1.50	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	3
1.51 TO 2.00	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	3
2.01 TO 3.00	0	0	2	0	1	0	0	0	0	0	0	0	0	1	0	0	4
3.01 TO 4.00	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	4
4.01 TO 5.00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	6
6.01 TO 7.00	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	4
7.01 TO 8.00	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	0	5
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	4
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	5
TOTALS	0	1	4	3	2	1	2	0	1	0	3	8	16	6	0	0	47

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
																	0.00
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.05	0.00	0.00	0.00	.15
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	.15
1.51 TO 2.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.20
2.01 TO 3.00	0.00	0.00	.10	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	.20
3.01 TO 4.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10
4.01 TO 5.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.10	.15	0.00	0.00	.30
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.05	0.00	0.00	0.00	.20
6.01 TO 7.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.05	0.00	0.00	.25
7.01 TO 8.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.05	.05	0.00	.20
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.15	0.00	0.00	.20
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.10	.05	0.00	.25
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.15	.39	.79	.30	0.00	0.00	2.32
TOTALS	0.00	.05	.20	.15	.10	.05	.10	0.00	.05	0.00	.15	.39	.79	.30	0.00	0.00	2.32
AVE WIND SPEED	0.0	.9	4.0	5.3	3.3	1.7	1.4	0.0	.9	0.0	9.1	7.6	6.5	5.2	0.0	0.0	5.7

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY C ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	3
1.01 TO 1.50	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
1.51 TO 2.00	0	0	0	0	0	0	1	1	0	0	0	0	2	0	0	0	4
2.01 TO 3.00	0	0	3	1	1	0	0	0	1	0	0	0	3	0	1	0	10
3.01 TO 4.00	0	0	1	5	0	0	0	0	0	0	0	0	0	3	0	0	9
4.01 TO 5.00	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0	0	7
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	5
7.01 TO 8.00	0	1	0	0	0	0	0	0	0	0	0	0	3	1	0	0	5
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	1	6	0	0	0	8
TOTALS	0	1	5	5	1	0	4	2	1	0	1	4	27	8	1	0	61

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.15
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	0.00	.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15
1.51 TO 2.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	.10	0.00	0.00	0.00	.20
2.01 TO 3.00	0.00	0.00	.15	.05	.05	0.00	0.00	0.00	.05	0.00	0.00	0.00	.15	0.00	.05	0.00	.49
3.01 TO 4.00	0.00	0.00	.05	.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	0.00	0.00	.44
4.01 TO 5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.25	.10	0.00	0.00	.44
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.05	0.00	0.00	.15
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.15	.05	0.00	0.00	.25
7.01 TO 8.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	.05	0.00	0.00	.25
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	0.00	0.00	0.00	.10
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	.30	0.00	0.00	.39
TOTALS	0.00	.05	.25	.30	.05	0.00	.25	.10	.05	0.00	.05	.20	1.33	.39	.05	0.00	3.01
AVE WIND SPEED	0.0	7.2	2.5	3.4	2.4	0.0	1.3	1.4	2.8	0.0	13.5	6.1	6.2	4.3	2.8	0.0	5.1

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY D ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	6	0	3	0	0	0	0	0	0	1	0	0	0	0	1
0.51 TO 1.00	0	1	0	0	0	3	8	3	2	3	2	2	3	2	2	0	31
1.01 TO 1.50	2	2	4	5	5	3	8	3	1	6	7	4	6	6	2	1	66
1.51 TO 2.00	0	2	5	12	12	6	7	6	3	5	6	5	7	5	2	0	83
2.01 TO 3.00	1	2	7	20	12	6	3	1	1	1	3	11	9	9	7	0	93
3.01 TO 4.00	0	4	3	13	4	0	0	0	1	1	0	7	10	9	0	0	52
4.01 TO 5.00	0	0	2	3	1	0	0	0	0	0	0	3	9	5	0	0	23
5.01 TO 6.00	0	0	1	0	0	0	0	0	0	1	2	6	8	7	0	0	25
6.01 TO 7.00	0	0	2	0	0	0	0	0	0	0	0	8	10	4	0	0	24
7.01 TO 8.00	0	0	0	3	0	0	0	0	0	0	0	4	13	3	0	0	20
8.01 TO 9.00	0	0	0	1	0	0	0	0	0	0	0	0	7	6	1	0	15
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	4	8	1	0	13
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	1	15	8	0	0	24
TOTALS	3	11	29	54	35	18	26	13	8	17	21	77	97	52	13	1	470

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05
0.51 TO 1.00	0.00	.05	0.00	0.00	0.00	.15	.39	.15	.10	.15	.10	.10	.15	.10	.10	0.00	1.53
1.01 TO 1.50	.10	.10	.20	.25	.33	.15	.39	.15	.05	.30	.34	.20	.30	.30	.10	.05	3.25
1.51 TO 2.00	0.00	.10	.25	.59	.59	.30	.34	.30	.15	.25	.30	.25	.34	.25	.10	0.00	4.09
2.01 TO 3.00	.05	.10	.34	.39	.59	.30	.15	.05	.05	.05	.15	.54	.44	.44	.34	0.00	4.53
3.01 TO 4.00	0.00	.20	.15	.64	.20	0.00	0.00	0.00	.05	.05	0.00	.34	.49	.44	0.00	0.00	2.56
4.01 TO 5.00	0.00	0.00	.10	.15	.05	0.00	0.00	0.00	0.00	0.00	0.00	.15	.44	.25	0.00	0.00	1.13
5.01 TO 6.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.10	.30	.39	.34	0.00	0.00	1.23
6.01 TO 7.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.39	.49	.20	0.00	0.00	1.18
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.20	.64	.15	0.00	0.00	.99
8.01 TO 9.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.34	.30	.05	0.00	0.00	.74
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.20	.39	.05	0.00	0.00	.64
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.74	.39	0.00	0.00	1.18
TOTALS	.15	.54	1.38	2.66	1.72	.89	1.28	.64	.39	.84	1.03	3.79	4.78	2.56	.64	.05	23.16
AVE WIND SPEED	1.5	2.3	2.9	2.5	2.1	1.6	1.9	1.5	1.6	1.7	2.5	6.2	5.6	3.9	1.8	1.4	3.7

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY E ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	1
0.26 TO 0.50	0	0	0	1	0	0	0	0	0	1	2	2	0	1	0	0	7
0.51 TO 1.00	2	3	2	6	3	7	3	5	1	1	3	5	6	0	5	6	58
1.01 TO 1.50	1	4	5	11	2	7	8	9	4	5	7	11	2	5	0	3	84
1.51 TO 2.00	1	4	9	6	12	4	6	3	0	8	7	6	10	6	4	2	88
2.01 TO 3.00	0	0	16	16	12	10	2	0	3	8	8	15	9	17	6	2	124
3.01 TO 4.00	0	0	9	7	3	1	1	0	1	6	14	17	17	17	2	0	95
4.01 TO 5.00	0	2	5	2	0	0	0	1	0	1	8	15	12	13	1	0	60
5.01 TO 6.00	0	0	2	0	0	0	0	0	0	0	11	21	15	8	2	0	59
6.01 TO 7.00	0	0	2	0	0	0	0	0	0	0	8	39	23	11	0	0	83
7.01 TO 8.00	0	2	1	0	0	0	0	0	0	0	3	21	19	8	0	0	54
8.01 TO 9.00	0	2	1	0	0	0	0	0	0	0	1	11	11	4	0	0	30
9.01 TO 10.00	0	4	1	0	0	0	0	0	0	0	1	13	7	2	0	0	28
MORE THAN 10	0	16	2	0	0	0	0	0	0	0	3	11	6	0	0	0	38
TOTALS	4	37	55	49	32	29	20	18	9	30	76	187	137	92	20	13	809

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.05
0.26 TO 0.50	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.05	.10	.10	0.00	.05	0.00	0.00	.34
0.51 TO 1.00	.10	.15	.10	.30	.15	.34	.15	.25	.05	.05	.15	.25	.30	0.00	.25	.30	2.86
1.01 TO 1.50	.05	.20	.25	.54	.10	.34	.39	.44	.20	.25	.34	.54	.10	.25	0.00	.15	4.14
1.51 TO 2.00	.05	.25	.44	.30	.59	.20	.30	.15	0.00	.39	.34	.30	.49	.30	.20	.10	4.34
2.01 TO 3.00	0.00	0.00	.79	.79	.59	.49	.10	0.00	.15	.39	.39	.74	.44	.84	.30	.10	6.11
3.01 TO 4.00	0.00	0.00	.44	.34	.15	.05	.05	0.00	.05	.30	.69	.84	.84	.84	.10	0.00	4.68
4.01 TO 5.00	0.00	.10	.25	.10	0.00	0.00	0.00	.05	0.00	.05	.39	.74	.59	.64	.05	0.00	2.96
5.01 TO 6.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.54	1.03	.74	.39	.10	0.00	2.91
6.01 TO 7.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.39	1.92	1.13	.54	0.00	0.00	4.09
7.01 TO 8.00	0.00	.10	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.03	.74	.39	0.00	0.00	2.66
8.01 TO 9.00	0.00	.10	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.54	.54	.20	0.00	0.00	1.48
9.01 TO 10.00	0.00	.20	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.64	.34	.10	0.00	0.00	1.38
MORE THAN 10	0.00	.79	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	.54	.30	0.00	0.00	0.00	1.87
TOTALS	.20	1.82	2.71	2.41	1.58	1.43	.99	.89	.44	1.48	3.75	9.22	6.75	4.53	.99	.64	39.87
AVE WIND SPEED	1.2	7.7	3.5	2.1	2.0	1.7	1.5	1.3	1.8	2.2	4.2	5.8	5.6	4.4	2.4	1.2	4.3

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/ 1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY F ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	3
0.26 TO 0.50	2	2	0	1	0	0	0	1	2	2	2	0	2	2	1	0	17
0.51 TO 1.00	1	3	6	4	7	7	4	10	5	14	7	5	5	11	5	2	90
1.01 TO 1.50	2	4	4	5	6	6	4	1	4	3	7	3	2	5	1	2	59
1.51 TO 2.00	1	1	4	1	4	2	4	1	0	4	6	2	2	5	1	1	39
2.01 TO 3.00	0	8	5	2	5	3	1	1	1	3	5	5	5	7	0	0	51
3.01 TO 4.00	0	5	10	3	1	0	0	0	0	3	4	5	6	4	2	0	43
4.01 TO 5.00	0	1	2	2	1	0	0	0	0	0	3	1	6	2	2	0	20
5.01 TO 6.00	0	0	2	6	1	0	0	0	0	0	1	1	3	6	0	0	14
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	6	24	33	18	25	18	13	14	12	29	35	22	34	45	12	5	348

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.15
0.26 TO 0.50	.10	.10	0.00	.05	0.00	0.00	0.00	.05	.10	.10	.10	0.00	.10	.10	.05	0.00	.84
0.51 TO 1.00	.05	.15	.30	.20	.34	.34	.20	.49	.25	.69	.34	.25	.25	.54	.25	.10	4.73
1.01 TO 1.50	.10	.20	.20	.25	.30	.30	.20	.05	.20	.15	.34	.15	.10	.25	.05	.10	2.91
1.51 TO 2.00	.05	.05	.20	.05	.20	.10	.20	.05	0.00	.20	.30	.10	.10	.25	.05	.05	1.92
2.01 TO 3.00	0.00	.39	.25	.10	.25	.15	.05	.05	.05	.15	.25	.25	.25	.34	0.00	0.00	2.51
3.01 TO 4.00	0.00	.25	.49	.15	.05	0.00	0.00	0.00	0.00	.15	.20	.25	.30	.20	.10	0.00	2.12
4.01 TO 5.00	0.00	.05	.10	.10	.05	0.00	0.00	0.00	0.00	0.00	.15	.05	.30	.10	.10	0.00	.99
5.01 TO 6.00	0.00	0.00	.10	0.00	.05	0.00	0.00	0.00	0.00	0.00	.05	.05	.15	.30	0.00	0.00	.69
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.10	.10	0.00	0.00	.20
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	.10
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.30	1.18	1.63	.89	1.23	.89	.64	.69	.59	1.43	1.72	1.08	1.68	2.22	.59	.25	17.15
AVG WIND SPEED	.9	2.2	2.5	2.1	1.7	1.3	1.3	.9	.9	1.4	1.9	2.2	3.1	2.6	1.9	1.2	2.0

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 12/1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	3	0	1	0	1	2	1	0	3	3	3	2	2	1	1	0	23
0.51 TO 1.00	2	0	1	4	3	8	6	10	11	14	13	11	10	4	5	2	104
1.01 TO 1.50	0	0	1	3	5	1	1	1	4	5	5	2	0	2	1	0	31
1.51 TO 2.00	0	1	0	3	0	5	1	0	0	1	3	0	1	3	0	0	18
2.01 TO 3.00	1	1	4	7	1	2	0	0	0	0	1	2	2	2	0	0	23
3.01 TO 4.00	1	0	2	3	1	0	0	0	0	0	1	1	2	1	0	0	12
4.01 TO 5.00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5
5.01 TO 6.00	0	0	2	0	0	0	0	0	0	0	0	1	0	0	2	0	5
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	7	2	15	20	11	18	9	11	18	23	26	19	18	13	9	2	221

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.15	0.00	.05	0.00	.05	.10	.05	0.00	.15	.15	.15	.10	.10	.05	.05	0.00	1.13
0.51 TO 1.00	.10	0.00	.05	.20	.15	.39	.30	.49	.54	.69	.64	.54	.49	.20	.25	.10	5.13
1.01 TO 1.50	0.00	0.00	.05	.15	.25	.05	.05	.05	.20	.25	.25	.10	0.00	.10	.05	0.00	1.53
1.51 TO 2.00	0.00	.05	0.00	.15	0.00	.25	.05	0.00	0.00	.05	.15	0.00	.05	.15	0.00	0.00	.89
2.01 TO 3.00	.05	.05	.20	.34	.05	.10	0.00	0.00	0.00	0.00	.05	.10	.10	.10	0.00	0.00	1.13
3.01 TO 4.00	.35	0.00	.10	.15	.05	0.00	0.00	0.00	0.00	0.00	.05	.05	.10	.05	0.00	0.00	.59
4.01 TO 5.00	0.00	0.00	.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.25
5.01 TO 6.00	0.00	0.00	.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.10	0.00	.25
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.34	.10	.74	.99	.54	.89	.44	.54	.89	1.13	1.28	.94	.89	.64	.44	.10	10.89
AVE WIND SPEED	1.3	2.1	3.1	2.6	1.3	1.2	.8	.7	.8	.8	1.1	1.4	1.4	1.5	1.7	.6	1.4

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY A ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
1.01 TO 1.99	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
1.51 TO 2.00	0	0	0	0	2	1	0	0	1	0	2	1	0	2	1	2	12
2.01 TO 3.00	1	0	2	3	5	2	1	1	0	0	3	0	0	0	1	0	19
3.01 TO 4.00	0	0	4	7	7	0	0	1	0	1	0	1	2	1	0	0	24
4.01 TO 5.00	0	1	2	4	0	0	0	0	0	0	0	1	3	4	0	0	15
5.01 TO 6.00	0	0	7	4	0	0	0	0	0	1	0	2	13	5	0	0	32
6.01 TO 7.00	0	0	3	10	0	0	0	0	0	0	0	5	29	9	0	0	56
7.01 TO 8.00	0	0	0	0	1	0	0	0	0	0	0	4	18	3	0	0	26
8.01 TO 9.00	0	0	0	2	0	0	0	0	0	0	0	2	21	3	0	0	28
9.01 TO 10.00	0	0	0	1	0	0	0	0	0	0	0	4	31	0	0	0	36
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	18	112	1	0	0	131
TOTALS	1	1	19	31	15	3	2	3	1	2	5	38	229	28	2	2	382

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
1.01 TO 1.50	0.00	0.00	.05	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09
1.51 TO 2.00	0.00	0.00	0.00	0.00	.09	.05	0.00	0.00	.05	0.00	.09	.05	0.00	.09	.05	.09	.57
2.01 TO 3.00	.05	0.00	.09	.14	.24	.09	.05	.05	0.00	0.00	.14	0.00	0.00	0.00	.05	0.00	.90
3.01 TO 4.00	0.00	0.00	.14	.33	.33	0.00	0.00	.05	0.00	.05	0.00	.05	.09	.05	0.00	0.00	1.13
4.01 TO 5.00	0.00	.05	.09	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.14	.14	0.00	0.00	.71
5.01 TO 6.00	0.00	0.00	.33	.14	0.00	0.00	0.00	0.00	0.00	.05	0.00	.09	.61	.24	0.00	0.00	1.51
6.01 TO 7.00	0.00	0.00	.14	.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.24	1.37	.43	0.00	0.00	2.65
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.19	.05	.14	0.00	0.00	1.23
8.01 TO 9.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.09	.14	0.00	0.00	1.32
9.01 TO 10.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.19	1.46	0.00	0.00	0.00	1.70
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.85	5.29	.05	0.00	0.00	6.19
TOTALS	.05	.05	.90	1.46	.71	.14	.09	.14	.05	.09	.24	1.79	10.82	1.32	.09	.09	18.04
AVE WIND SPEED	2.6	4.6	4.6	5.3	3.2	2.3	1.8	2.2	1.5	4.5	2.2	10.3	10.0	8.0	2.4	1.8	8.4

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/75 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51 TO 2.00	0	0	0	3	0	4	0	1	0	0	1	0	0	0	0	0	9
2.01 TO 3.00	0	1	3	4	3	0	0	1	0	0	1	2	2	0	0	1	18
3.01 TO 4.00	0	0	1	5	0	0	0	0	0	0	0	0	0	2	0	0	8
4.01 TO 5.00	0	0	2	4	0	0	0	0	0	0	0	0	0	2	1	0	9
5.01 TO 6.00	0	0	1	5	0	0	0	0	0	0	0	1	2	3	0	0	12
6.01 TO 7.00	0	0	2	4	0	0	0	0	0	0	0	1	9	0	0	0	16
7.01 TO 8.00	0	0	0	1	1	0	0	0	0	0	0	1	3	1	0	0	7
8.01 TO 9.00	0	0	0	3	0	0	0	0	0	0	0	2	1	0	0	0	6
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	12
TOTALS	0	1	9	30	4	4	0	2	0	0	2	9	30	8	1	1	101

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
1.51 TO 2.00	0.00	0.00	0.00	.14	0.00	.19	0.00	.05	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.43
2.01 TO 3.00	0.00	.05	.14	.19	.14	0.00	0.00	.05	0.00	0.00	.05	.09	.09	0.00	0.00	.05	.85
3.01 TO 4.00	0.00	0.00	0.00	.05	.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	.38
4.01 TO 5.00	0.00	0.00	0.00	.09	.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.05	0.00	.43
5.01 TO 6.00	0.00	0.00	0.00	.05	.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.09	.14	0.00	0.00	.57
6.01 TO 7.00	0.00	0.00	0.00	.09	.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.43	0.00	0.00	0.00	.76
7.01 TO 8.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.14	.05	0.00	0.00	.33
8.01 TO 9.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.05	0.00	0.00	0.00	.28
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	.14
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.47	0.00	0.00	0.00	.57
TOTALS	0.00	.05	.43	1.42	.19	.19	0.00	.09	0.00	0.00	.09	.43	1.42	.38	.05	.05	4.77
AVG WIND SPEED	0.0	2.6	4.4	4.6	3.7	1.7	0.0	1.4	0.0	0.0	2.2	7.0	8.5	5.0	4.2	2.6	5.7

01/25/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY C ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	1	0	0	0	0	0	2	0	2	0	0	0	1	12
1.51 TO 2.00	3	1	1	2	0	1	1	0	1	1	1	0	2	0	1	0	18
2.01 TO 3.00	0	1	1	5	2	1	0	0	1	0	3	0	2	1	1	0	13
3.01 TO 4.00	0	1	1	4	1	0	0	0	0	0	0	1	4	1	0	0	15
4.01 TO 5.00	0	1	1	4	1	0	0	0	0	0	0	0	6	7	0	0	13
5.01 TO 6.00	0	0	0	2	0	0	0	0	0	0	0	1	7	2	0	0	5
6.01 TO 7.00	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	5
7.01 TO 8.00	0	0	2	2	0	0	0	0	0	0	0	0	2	3	0	0	2
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	12
TOTALS	0	3	7	17	3	2	1	0	2	3	4	4	6	1	0	0	12

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.09	0.00	.09	0.00	0.00	0.00	0.00	.24
1.51 TO 2.00	0.00	.05	.05	.09	0.00	.05	.05	0.00	.05	.05	.05	0.00	.09	0.00	0.00	.05	.57
2.01 TO 3.00	0.00	.05	.05	.24	.09	.05	0.00	0.00	.05	0.00	.14	0.00	.09	.05	.05	0.00	.85
3.01 TO 4.00	0.00	.05	.05	.14	.05	0.00	0.00	0.00	0.00	0.00	.05	.19	.05	0.00	0.00	0.00	.61
4.01 TO 5.00	0.00	.05	.05	.14	.05	0.00	0.00	0.00	0.00	0.00	0.00	.28	.33	0.00	0.00	0.00	.71
5.01 TO 6.00	0.00	0.00	0.00	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.33	.09	0.00	0.00	.61
6.01 TO 7.00	0.00	0.00	0.00	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.24
7.01 TO 8.00	0.00	0.00	0.00	.09	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.14	0.00	0.00	.24
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	.09
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.05
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.24	.28	.05	0.00	.57
TOTALS	0.00	.14	.23	.80	.14	.09	.05	0.00	.09	.14	.19	.43	1.56	.71	.05	.05	4.77
AVE WIND SPEED	0.0	2.4	4.0	3.4	3.2	2.2	1.6	0.0	1.8	1.5	2.2	8.5	6.3	5.8	2.9	1.6	5.0

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY D ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
0.51 TO 1.00	1	0	0	0	0	0	0	0	1	0	1	1	1	2	0	0	7
1.01 TO 1.50	3	0	3	0	1	2	1	3	2	7	3	0	7	2	1	0	35
1.51 TO 2.00	0	3	1	3	2	2	0	0	2	0	3	4	2	8	2	0	32
2.01 TO 3.00	2	2	3	8	8	2	0	1	0	1	4	6	13	17	2	0	69
3.01 TO 4.00	0	1	4	6	2	0	0	0	0	0	2	3	22	9	0	0	49
4.01 TO 5.00	0	0	2	2	1	0	0	0	0	0	1	5	16	7	1	1	39
5.01 TO 6.00	0	0	2	2	1	0	0	0	0	0	0	10	20	2	1	0	38
6.01 TO 7.00	0	0	2	4	0	0	0	0	0	0	1	8	11	4	0	0	30
7.01 TO 8.00	0	0	2	10	1	0	0	0	0	0	0	2	15	2	0	0	32
8.01 TO 9.00	0	0	2	2	0	0	0	0	0	0	0	8	12	0	0	0	24
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	8	16	0	0	0	24
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	11	39	2	0	0	52
TOTALS	6	6	21	37	16	6	1	4	5	8	15	68	176	55	7	1	432

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	.05
0.51 TO 1.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.05	.05	.05	.09	0.00	0.00	.33
1.01 TO 1.50	.14	0.00	.14	0.00	.05	.09	.05	.14	.09	.33	.14	0.00	.33	.09	.05	0.00	1.65
1.51 TO 2.00	0.00	.14	.05	.14	.09	.09	0.00	0.00	.09	0.00	.14	.19	.09	.38	.09	0.00	1.51
2.01 TO 3.00	.09	.09	.14	.38	.38	.09	0.00	.05	0.00	.05	.19	.28	.61	.80	.09	0.00	3.26
3.01 TO 4.00	0.00	.05	.19	.28	.09	0.00	0.00	0.00	0.00	0.00	.09	.14	1.04	.43	0.00	0.00	2.31
4.01 TO 5.00	0.00	0.00	.09	.09	.05	0.00	0.00	0.00	0.00	0.00	.05	.28	.85	.33	.05	.05	1.84
5.01 TO 6.00	0.00	0.00	.09	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	.47	.24	.09	.05	0.00	1.79
6.01 TO 7.00	0.00	0.00	.09	.19	0.00	0.00	0.00	0.00	0.00	0.00	.05	.38	.52	.19	0.00	0.00	1.42
7.01 TO 8.00	0.00	0.00	.09	.47	.05	0.00	0.00	0.00	0.00	0.00	0.00	.09	.71	.09	0.00	0.00	1.51
8.01 TO 9.00	0.00	0.00	.09	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.38	.57	0.00	0.00	0.00	1.13
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.38	.76	0.00	0.00	0.00	1.13
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.52	1.84	.09	0.00	0.00	2.46
TOTALS	.29	.28	.99	1.75	.76	.28	.05	.19	.24	.38	.71	3.21	8.31	2.60	.33	.05	20.41
AVG WIND SPEED	1.7	2.9	4.9	4.9	3.1	1.8	1.3	1.7	1.3	1.3	2.5	6.7	6.9	3.5	2.8	4.2	5.4

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/75 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY E ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
0.51 TO 1.00	0	1	4	1	2	3	1	0	2	2	6	2	4	2	3	0	33
1.01 TO 1.50	0	1	3	2	0	1	4	0	1	1	6	0	1	3	3	0	26
1.51 TO 2.00	0	0	1	0	1	0	1	0	2	1	7	5	3	3	3	1	28
2.01 TO 3.00	1	1	2	4	7	4	0	0	1	5	10	9	15	9	2	0	70
3.01 TO 4.00	0	1	5	1	2	0	0	0	0	1	19	18	27	12	3	1	90
4.01 TO 5.00	1	1	5	4	1	0	0	0	0	0	8	24	35	12	0	0	91
5.01 TO 6.00	0	0	3	2	3	1	0	0	0	0	4	22	31	12	0	0	75
6.01 TO 7.00	0	1	2	1	1	0	0	0	0	0	0	23	26	5	2	0	64
7.01 TO 8.00	0	0	1	4	1	0	0	0	0	0	1	21	19	4	0	0	51
8.01 TO 9.00	0	1	1	5	0	0	0	0	0	0	3	26	18	1	0	0	55
9.01 TO 10.00	0	0	2	2	0	0	0	0	0	0	0	11	14	1	0	0	30
MORE THAN 10	0	0	1	0	0	0	0	0	0	0	1	18	36	1	0	0	57
TOTALS	2	7	30	26	15	9	6	0	6	10	65	180	231	65	16	3	673

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.05	.14
0.51 TO 1.00	0.00	.05	.19	.05	.09	.14	.05	0.00	.09	.09	.28	.09	.19	.09	.14	0.00	1.56
1.01 TO 1.50	0.00	.05	.14	.09	0.00	.05	.19	0.00	.05	.05	.28	0.00	.05	.14	.14	0.00	1.23
1.51 TO 2.00	0.00	0.00	.05	0.00	.05	0.00	.05	0.00	.09	.05	.33	.24	.14	.14	.14	.05	1.32
2.01 TO 3.00	.05	.05	.09	.19	.33	.19	0.00	0.00	.05	.24	.47	.43	.71	.43	.09	0.00	3.31
3.01 TO 4.00	0.00	.05	.24	.05	.09	0.00	0.00	0.00	0.00	.05	.90	.85	1.28	.57	.14	.05	4.25
4.01 TO 5.00	.05	.05	.24	.19	.05	0.00	0.00	0.00	0.00	0.00	.38	1.13	1.65	.57	0.00	0.00	4.30
5.01 TO 6.00	0.00	0.00	.14	.09	0.00	.05	0.00	0.00	0.00	0.00	.19	1.04	1.46	.57	0.00	0.00	3.54
6.01 TO 7.00	0.00	.05	.09	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	1.09	1.32	.28	.09	0.00	3.02
7.01 TO 8.00	0.00	0.00	0.00	.05	.19	.05	0.00	0.00	0.00	0.00	.05	.99	.90	.19	0.00	0.00	2.41
8.01 TO 9.00	0.00	.05	.05	.05	.24	0.00	0.00	0.00	0.00	0.00	.14	1.23	.85	.05	0.00	0.00	2.60
9.01 TO 10.00	0.00	0.00	.09	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.52	.66	.05	0.00	0.00	1.42
MORE THAN 10	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.85	1.70	.05	0.00	0.00	2.69
TOTALS	.05	.33	1.42	1.23	.76	.43	.28	0.00	.28	.47	3.07	8.50	10.91	3.12	.76	.14	31.79
AVE WIND SPEED	3.5	4.1	4.3	5.5	2.9	1.9	1.2	0.0	1.4	2.0	3.3	6.5	6.5	4.5	2.5	1.8	5.4

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY F ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	2	0	0	1	0	1	0	0	2	0	0	0	0	6
0.51 TO 1.00	1	4	2	3	1	1	3	2	3	2	5	3	2	1	1	2	36
1.01 TO 1.50	0	0	0	1	2	3	3	3	0	1	4	2	1	0	0	1	21
1.51 TO 2.00	0	0	1	2	0	4	0	2	0	3	2	0	3	0	0	0	17
2.01 TO 3.00	0	1	2	3	0	2	0	0	1	7	6	6	4	1	0	1	34
3.01 TO 4.00	0	2	4	4	1	0	0	0	0	0	3	6	4	2	0	0	26
4.01 TO 5.00	0	0	8	1	2	0	0	0	0	0	2	10	4	5	0	0	32
5.01 TO 6.00	0	0	2	3	0	0	0	0	0	0	2	5	5	0	0	0	17
6.01 TO 7.00	0	0	3	0	0	0	0	0	0	0	0	3	5	1	0	1	13
7.01 TO 8.00	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
9.01 TO 10.00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1	7	23	20	6	10	7	7	5	13	24	38	31	10	1	5	208

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	.09	0.00	0.00	.05	0.00	.05	0.00	0.00	.09	0.00	0.00	0.00	0.00	.28
0.51 TO 1.00	.05	.19	.09	.14	.05	.05	.14	.09	.14	.09	.24	.14	.09	.05	.05	.09	1.70
1.01 TO 1.50	0.00	0.00	0.00	.05	.09	.14	.14	.14	0.00	.65	.19	.09	.05	0.00	0.00	.05	.97
1.51 TO 2.00	0.00	0.00	.05	.09	0.00	.19	0.00	.09	0.00	.14	.09	0.00	.14	0.00	0.00	0.00	.80
2.01 TO 3.00	0.00	.05	.09	.14	0.00	.09	0.00	0.00	.05	.33	.28	.28	.19	.05	0.00	.05	1.61
3.01 TO 4.00	0.00	.09	.19	.19	.05	0.00	0.00	0.00	0.00	0.00	.14	.28	.19	.09	0.00	0.00	1.23
4.01 TO 5.00	0.00	0.00	.33	.05	.09	0.00	0.00	0.00	0.00	0.00	.09	.47	.19	.24	0.00	0.00	1.51
5.01 TO 6.00	0.00	0.00	.09	.14	0.00	0.00	0.00	0.00	0.00	0.00	.09	.24	.24	0.00	0.00	0.00	.80
6.01 TO 7.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.24	.05	0.00	.05	.61
7.01 TO 8.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	.14
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.09
9.01 TO 10.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.05	.33	1.09	.94	.28	.47	.33	.33	.24	.61	1.13	1.79	1.46	.47	.05	.24	9.83
AVG WIND SPEED	.9	1.7	4.3	2.9	2.6	1.7	.9	1.2	1.0	2.0	2.4	3.8	4.3	3.9	.7	2.3	3.0

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	1	0	0	1	0	0	0	1	0	2	0	1	3	0	1	0	10
0.51 TO 1.00	2	2	3	2	2	2	3	2	5	4	16	9	9	5	3	1	70
1.01 TO 1.50	0	0	0	3	3	5	0	0	2	9	12	9	2	0	0	0	45
1.51 TO 2.00	0	1	1	4	3	1	1	0	1	4	7	0	3	1	3	0	30
2.01 TO 3.00	0	0	2	2	4	1	0	0	0	1	5	3	0	2	0	1	21
3.01 TO 4.00	1	1	10	4	1	0	0	0	0	0	1	3	1	0	0	0	22
4.01 TO 5.00	0	1	10	1	0	0	0	0	0	0	0	1	0	0	1	1	15
5.01 TO 6.00	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	5
6.01 TO 7.00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	6	31	18	13	9	4	3	8	20	41	26	18	8	8	3	220

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.05	0.00	0.00	.05	0.00	0.00	0.00	.05	0.00	.09	0.00	.05	.14	0.00	.05	0.00	.47
0.51 TO 1.00	.09	.09	.14	.09	.09	.09	.14	.09	.24	.19	.76	.43	.43	.24	.14	.05	3.31
1.01 TO 1.50	0.00	0.00	0.00	.14	.14	.24	0.00	0.00	.09	.43	.57	.43	.09	0.00	0.00	0.00	2.13
1.51 TO 2.00	0.00	.05	.05	.19	.14	.05	.05	0.00	.05	.19	.33	0.00	.14	.05	.14	0.00	1.42
2.01 TO 3.00	0.00	0.00	.09	.09	.19	.05	0.00	0.00	0.00	.05	.24	.14	0.00	.09	0.00	.05	.99
3.01 TO 4.00	.05	.05	.47	.19	.05	0.00	0.00	0.00	0.00	0.00	.05	.14	.05	0.00	0.00	0.00	1.04
4.01 TO 5.00	0.00	.05	.47	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.05	.05	.71
5.01 TO 6.00	0.00	0.00	.19	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.24
6.01 TO 7.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.19	.28	1.46	.85	.61	.43	.19	.14	.38	.94	1.94	1.23	.85	.38	.38	.14	10.39
AVE WIND SPEED	1.4	2.0	3.6	2.3	1.8	1.3	1.0	.5	.9	1.2	1.3	1.6	1.0	1.3	1.6	2.5	1.6

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 06/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY A ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
1.51 TO 2.00	1	1	0	0	1	1	0	0	1	0	1	3	0	2	0	0	11
2.01 TO 3.00	2	1	4	4	3	3	1	1	3	6	2	3	6	2	1	0	42
3.01 TO 4.00	1	1	9	10	4	1	0	0	1	0	1	2	4	5	2	0	41
4.01 TO 5.00	0	0	7	19	2	0	0	0	0	0	2	7	7	6	1	0	51
5.01 TO 6.00	0	0	2	6	3	0	0	0	0	0	2	14	53	18	1	0	99
6.01 TO 7.00	0	0	0	5	0	0	0	0	0	0	0	14	46	18	0	0	83
7.01 TO 8.00	0	0	1	1	0	0	0	0	0	0	0	3	59	10	0	0	74
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	6	44	4	0	0	54
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	2	42	3	0	0	47
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	16	74	1	0	0	91
TOTALS	4	3	23	45	13	5	1	3	5	6	8	70	335	69	5	0	595

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09
1.51 TO 2.00	.05	.05	0.00	0.00	.09	.05	0.00	0.00	.05	0.00	.05	.14	0.00	.09	0.00	0.00	.51
2.01 TO 3.00	.09	.05	.19	.19	.14	.14	.05	.05	.14	.26	.09	.14	.28	.09	.05	0.00	1.96
3.01 TO 4.00	.05	.05	.42	.47	.19	.05	0.00	0.00	.05	0.00	.05	.09	.19	.23	.09	0.00	1.91
4.01 TO 5.00	0.00	0.00	.33	.85	.09	0.00	0.00	0.00	0.00	0.00	.09	.33	.33	.28	.05	0.00	2.36
5.01 TO 6.00	0.00	0.00	.07	.28	.14	0.00	0.00	0.00	0.00	0.00	.09	.65	2.47	.84	.05	0.00	4.61
6.01 TO 7.00	0.00	0.00	0.00	.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.65	2.14	.84	0.00	0.00	3.87
7.01 TO 8.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.14	2.75	.47	0.00	0.00	3.45
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	2.05	.19	0.00	0.00	2.52
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	1.96	.14	0.00	0.00	2.19
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.75	3.45	.05	0.00	0.00	4.24
TOTALS	.19	.14	1.07	2.10	.61	.23	.05	.14	.23	.28	.37	3.26	15.60	3.21	.23	0.00	27.71
AVE WIND SPEED	2.6	2.5	4.0	4.5	3.6	2.6	2.3	1.6	2.5	2.6	3.8	7.0	8.2	6.1	3.6	0.0	6.9

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/75 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY B ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
1.51 TO 2.00	0	0	0	1	1	0	2	0	0	0	0	1	0	1	1	0	7
2.01 TO 3.00	2	0	1	1	1	0	0	0	1	1	3	2	5	5	1	0	23
3.01 TO 4.00	0	0	1	1	2	1	0	0	0	0	1	3	7	7	1	0	24
4.01 TO 5.00	0	0	1	1	1	0	0	0	0	0	0	1	9	6	1	0	20
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	0	1	9	2	0	0	12
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	4	6	2	0	0	12
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	3	5	1	0	0	9
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	2	3	1	0	0	6
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	12
TOTALS	2	0	3	4	5	1	2	0	1	2	4	18	59	25	4	0	130

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
% CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05
1.51 TO 2.00	0.00	0.00	0.00	.05	.05	0.00	.09	0.00	0.00	0.00	0.00	.05	0.00	.05	.05	0.00	.33
2.01 TO 3.00	.09	0.00	.05	.05	.05	0.00	0.00	0.00	.05	.05	.14	.09	.23	.23	.05	0.00	1.07
3.01 TO 4.00	0.00	0.00	.05	.05	.09	.05	0.00	0.00	0.00	0.00	.05	.14	.33	.33	.05	0.00	1.12
4.01 TO 5.00	0.00	0.00	.05	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.42	.28	.05	0.00	.93
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.42	.09	0.00	0.00	.56
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.19	.28	.09	0.00	0.00	.56
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.23	.05	0.00	0.00	.42
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.14	.05	0.00	0.00	.28
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.14	0.00	0.00	0.00	.19
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.56	0.00	0.00	0.00	.56
TOTALS	.09	0.00	.14	.19	.23	.05	.09	0.00	.05	.09	.19	.84	2.75	1.16	.19	0.00	6.05
AVG WIND SPEED	2.9	0.0	3.0	3.2	3.1	3.4	4.9	0.0	2.6	2.0	2.9	5.7	6.6	4.2	3.0	0.0	5.2

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY C ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	4
1.51 TO 2.00	1	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0	5
2.01 TO 3.00	1	1	0	1	0	0	0	0	2	1	1	5	5	9	4	0	30
3.01 TO 4.00	0	0	0	3	0	0	1	0	0	0	0	5	7	12	1	0	29
4.01 TO 5.00	0	0	1	1	0	0	0	0	0	0	1	5	7	7	2	0	24
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	1	1	6	1	0	0	9
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	5	6	0	0	0	11
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	3	5	1	0	0	9
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	3	7	0	0	0	10
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
TOTALS	2	2	1	5	0	0	1	1	3	1	6	29	54	30	8	0	143

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	.05	0.00	0.00	0.00	.05	0.00	.19
1.51 TO 2.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.05	0.00	0.00	0.00	0.00	.23
2.01 TO 3.00	.05	.05	0.00	.05	0.00	0.00	0.00	0.00	.09	.05	.05	.23	.23	.42	.19	0.00	1.40
3.01 TO 4.00	0.00	0.00	0.00	.14	0.00	0.00	.05	0.00	0.00	0.00	0.00	.23	.33	.56	.05	0.00	1.35
4.01 TO 5.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.23	.33	.33	.09	0.00	1.12
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	.28	.09	0.00	0.00	.42
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.23	.26	0.00	0.00	0.00	.51
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.23	.05	0.00	0.00	.42
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.33	0.00	0.00	0.00	.47
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.23	0.00	0.00	0.00	.28
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.26	0.00	0.00	0.00	.23
TOTALS	.09	.09	.05	.23	0.00	0.00	.05	.05	.14	.05	.28	1.35	2.52	1.40	.37	0.00	6.66
AVE WIND SPEED	2.1	2.0	4.3	3.5	0.0	0.0	3.8	1.3	2.2	2.5	2.8	5.1	6.6	3.6	3.0	0.0	4.7

01/25/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 5/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY D ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
1.01 TO 1.50	0	0	0	0	0	1	1	1	0	1	1	0	0	2	0	0	7
1.51 TO 2.00	0	2	0	0	1	0	0	0	2	3	4	6	3	2	3	2	33
2.01 TO 3.00	1	0	1	1	2	0	0	0	1	1	8	9	20	7	4	4	59
3.01 TO 4.00	0	0	0	1	0	0	0	0	0	3	7	10	19	3	0	0	43
4.01 TO 5.00	0	2	1	0	2	0	0	0	0	0	3	14	13	9	0	0	44
5.01 TO 6.00	0	0	0	0	3	0	0	0	0	1	4	21	26	2	0	0	57
6.01 TO 7.00	0	1	1	0	0	0	0	0	0	0	0	40	38	2	0	0	82
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	3	20	27	2	0	0	52
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	13	29	0	0	0	43
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	12	17	1	0	0	31
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	0	4	24	0	0	0	29
TOTALS	1	5	3	2	8	1	1	1	3	11	33	149	221	30	7	6	482

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	.09
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	.05	.05	.05	0.00	.05	.05	0.00	0.00	.09	0.00	0.00	.33
1.51 TO 2.00	0.00	.09	0.00	0.00	.05	0.00	0.00	0.00	.09	.14	.19	.28	.37	.09	.14	.09	1.54
2.01 TO 3.00	.05	0.00	.05	.05	.09	0.00	0.00	0.00	.05	.05	.37	.42	.93	.33	.19	.19	2.75
3.01 TO 4.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.14	.33	.47	.88	.14	0.00	0.00	2.00
4.01 TO 5.00	0.00	.09	.05	0.00	.09	0.00	0.00	0.00	0.00	0.00	.14	.65	.61	.42	0.00	0.00	2.05
5.01 TO 6.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	0.00	.05	.19	.98	1.21	.09	0.00	0.00	2.65
6.01 TO 7.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86	1.77	.09	0.00	0.00	3.82
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.93	1.26	.09	0.00	0.00	2.42
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.61	1.35	0.00	0.00	0.00	2.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.56	.79	.05	0.00	0.00	1.44
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.19	1.12	0.00	0.00	0.00	1.35
TOTALS	.05	.23	.14	.09	.37	.05	.05	.05	.14	.51	1.54	6.94	10.29	1.40	.33	.28	22.45
AVE WIND SPEED	2.8	5.4	4.4	3.4	4.0	1.5	1.2	1.1	2.1	3.3	3.9	6.2	6.5	4.1	2.2	2.2	5.0

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY E ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	1	0	0	0	2	1	0	1	0	0	0	0	0	0	5
1.01 TO 1.50	1	0	1	0	1	1	0	0	2	2	0	0	0	1	0	0	9
1.51 TO 2.00	1	1	0	0	0	0	1	3	0	4	4	3	6	2	0	1	26
2.01 TO 3.00	0	1	1	2	0	0	0	2	1	7	10	29	10	7	1	2	73
3.01 TO 4.00	1	0	1	2	3	0	0	0	0	3	19	39	28	10	0	0	106
4.01 TO 5.00	0	0	0	1	0	0	0	0	0	3	5	24	37	7	2	0	79
5.01 TO 6.00	0	0	0	0	0	0	0	0	1	0	1	24	38	6	0	0	80
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	1	6	39	34	9	0	0	89
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	1	27	32	1	0	0	61
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	8	11	1	0	0	20
9.01 TO 10.00	0	0	0	0	0	0	0	0	1	0	0	5	5	0	0	0	11
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
TOTALS	3	2	4	5	4	1	3	6	5	21	56	199	203	44	3	3	562

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	.05	0.00	0.00	0.00	.09	.05	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.23
1.01 TO 1.50	.05	0.00	.05	0.00	.05	.05	0.00	0.00	.09	.09	0.00	0.00	0.00	.05	0.00	0.00	.42
1.51 TO 2.00	.05	.05	0.00	0.00	0.00	0.00	.05	.14	0.00	.19	.19	.14	.28	.09	0.00	.05	1.21
2.01 TO 3.00	0.00	.05	.05	.09	0.00	0.00	0.00	.09	.05	.33	.47	1.39	.47	.33	.05	.09	3.40
3.01 TO 4.00	.05	0.00	.05	.09	.14	0.00	0.00	0.00	0.00	.14	.88	1.82	1.30	.47	0.00	0.00	4.94
4.01 TO 5.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.14	.23	1.12	1.72	.33	.09	0.00	3.68
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.51	1.12	1.77	.28	0.00	0.00	3.73
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.28	1.82	1.58	.42	0.00	0.00	4.15
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	1.26	1.49	.05	0.00	0.00	2.84
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.37	.51	.05	0.00	0.00	.93
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.23	.23	0.00	0.00	0.00	.51
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.09	0.00	0.00	0.00	.14
TOTALS	.14	.09	.19	.23	.19	.05	.14	.28	.23	.98	2.61	9.27	9.46	2.05	.14	.14	26.16
AVE WIND SPEED	1.9	2.1	2.2	3.4	3.0	1.4	1.0	1.8	4.2	2.8	4.1	5.2	5.6	4.5	3.6	2.2	4.9

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/75 TO 6/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY F ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	1	0	1	0	4	3	0	0	1	0	1	0	11
1.01 TO 1.50	1	0	0	1	0	0	0	1	3	1	0	1	0	1	1	0	10
1.51 TO 2.00	1	0	0	1	0	1	0	1	2	5	4	3	2	2	1	1	24
2.01 TO 3.00	2	3	1	0	2	1	2	0	2	1	10	7	1	3	0	1	36
3.01 TO 4.00	0	1	1	0	2	0	0	0	0	2	7	4	1	2	1	1	22
4.01 TO 5.00	0	0	1	2	1	0	0	0	0	1	4	3	1	1	0	0	14
5.01 TO 6.00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	4	4	3	4	6	2	3	2	11	13	25	19	7	9	4	3	119

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	.05	0.00	.05	0.00	.19	.14	0.00	0.00	.05	0.00	.05	0.00	.51
1.01 TO 1.50	.05	0.00	0.00	.05	0.00	0.00	0.00	.05	.14	.05	0.00	.05	0.00	.05	.05	0.00	.47
1.51 TO 2.00	.05	0.00	0.00	.05	0.00	.05	0.00	.05	.09	.23	.19	.14	.09	.09	.05	.05	1.12
2.01 TO 3.00	.09	.14	.05	0.00	.09	.05	.09	0.00	.09	.05	.47	.33	.05	.14	0.00	.05	1.68
3.01 TO 4.00	0.00	.05	.05	0.00	.09	0.00	0.00	0.00	0.00	.09	.33	.19	.05	.09	.05	.05	1.02
4.01 TO 5.00	0.00	0.00	.05	.09	.05	0.00	0.00	0.00	0.00	.05	.19	.14	.05	.05	0.00	0.00	.65
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	.09
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.19	.19	.14	.19	.29	.09	.14	.09	.51	.61	1.16	.88	.33	.42	.19	.14	5.54
AVG WIND SPEED	2.0	2.3	3.3	2.8	3.0	2.0	1.8	1.5	1.4	2.0	2.9	3.0	2.7	2.5	1.7	2.7	2.3

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
0.51 TO 1.00	3	0	0	2	2	1	1	0	3	10	12	4	6	3	0	0	47
1.01 TO 1.50	1	1	0	0	0	1	2	1	3	3	9	5	2	2	0	1	31
1.51 TO 2.00	1	1	0	0	0	0	1	1	0	4	5	1	2	0	1	1	18
2.01 TO 3.00	1	1	1	3	0	0	0	0	0	3	1	1	0	1	0	0	12
3.01 TO 4.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.01 TO 5.00	0	0	3	2	0	0	0	0	0	0	0	1	0	0	0	0	6
5.01 TO 6.00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	6	3	5	7	2	2	4	2	6	20	27	12	10	7	1	2	116

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.05
0.51 TO 1.00	.14	0.00	0.00	.09	.09	.05	.05	0.00	.14	.47	.56	.19	.28	.14	0.00	0.00	2.19
1.01 TO 1.50	.05	.05	0.00	0.00	0.00	.05	.09	.05	.14	.14	.42	.23	.09	.09	0.00	.05	1.44
1.51 TO 2.00	.05	.05	0.00	0.00	0.00	0.00	.05	.05	0.00	.19	.23	.05	.09	0.00	.05	.05	.84
2.01 TO 3.00	.05	.05	.05	.14	0.00	0.00	0.00	0.00	0.00	.14	.05	.05	0.00	.05	0.00	0.00	.56
3.01 TO 4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.01 TO 5.00	0.00	0.00	.09	.14	.09	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	.28
5.01 TO 6.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.28	.19	.23	.33	.09	.09	.19	.09	.28	.93	1.26	.56	.47	.33	.05	.09	5.40
AVE WIND SPEED	1.3	1.7	4.3	2.5	.7	1.0	1.2	1.3	.9	1.2	1.2	1.5	.9	1.1	1.9	1.7	1.4

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY A ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.01 TO 1.50	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	4
1.51 TO 2.00	1	0	1	0	1	1	0	1	0	0	0	2	1	1	0	1	10
2.01 TO 3.00	0	0	4	3	5	1	0	1	1	0	0	3	1	1	1	1	22
3.01 TO 4.00	0	1	2	9	3	0	1	0	0	0	1	0	2	2	0	0	21
4.01 TO 5.00	0	0	2	10	1	0	0	0	0	0	0	4	5	2	0	0	24
5.01 TO 6.00	0	0	3	10	0	0	0	0	0	0	1	3	6	1	0	0	24
6.01 TO 7.00	0	1	3	6	3	0	0	0	0	0	0	4	6	0	0	0	23
7.01 TO 8.00	0	2	2	7	0	0	0	0	0	0	0	4	15	0	0	0	30
8.01 TO 9.00	0	1	2	1	0	0	0	0	0	0	0	5	14	0	0	0	23
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	7
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	5	15	0	0	0	20
TOTALS	1	5	19	46	13	2	2	3	1	1	2	33	70	7	1	2	210

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01 TO 1.50	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	.05	0.00	.05	0.00	0.00	0.00	0.00	.19
1.51 TO 2.00	.05	0.00	.05	0.00	.05	.05	0.00	.05	0.00	0.00	0.00	.09	.05	.05	0.00	.05	.46
2.01 TO 3.00	0.00	0.00	.14	.14	.23	.05	0.00	.05	.05	0.00	0.00	.14	.05	.05	.05	.05	1.02
3.01 TO 4.00	0.00	.05	.09	.42	.14	0.00	.05	0.00	0.00	0.00	.05	0.00	.09	.09	0.00	0.00	.97
4.01 TO 5.00	0.00	0.00	.09	.46	.05	0.00	0.00	0.00	0.00	0.00	0.00	.19	.23	.09	0.00	0.00	1.11
5.01 TO 6.00	0.00	0.00	.14	.46	0.00	0.00	0.00	0.00	0.00	0.00	.05	.14	.28	.05	0.00	0.00	1.11
6.01 TO 7.00	0.00	.05	.14	.37	.14	0.00	0.00	0.00	0.00	0.00	0.00	.19	.28	0.00	0.00	0.00	1.16
7.01 TO 8.00	0.00	.09	.09	.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.19	.69	0.00	0.00	0.00	1.39
8.01 TO 9.00	0.00	.05	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.23	.65	0.00	0.00	0.00	1.06
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.23	0.00	0.00	0.00	.32
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.23	.69	0.00	0.00	0.00	.93
TOTALS	.05	.23	.88	2.22	.60	.09	.09	.14	.05	.05	.09	1.53	3.24	.32	.05	.09	9.72
AVE WIND SPEED	4.0	6.6	5.2	5.2	3.7	2.2	2.2	1.6	2.2	1.4	4.5	6.8	8.2	3.6	2.4	1.8	6.1

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/75 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY 6 ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
1.01 TO 1.50	1	0	0	0	0	0	1	3	1	0	0	0	0	0	0	0	6
1.51 TO 2.00	1	2	0	1	0	1	0	0	1	0	0	0	0	0	0	1	7
2.01 TO 3.00	0	1	2	1	2	0	2	0	0	1	1	1	2	2	1	1	17
3.01 TO 4.00	0	0	0	5	0	1	0	0	0	0	0	0	2	0	0	0	8
4.01 TO 5.00	0	0	0	2	1	0	0	0	0	0	0	0	4	2	0	0	9
5.01 TO 6.00	0	0	0	0	2	0	0	0	0	0	0	1	4	0	0	0	7
6.01 TO 7.00	0	0	1	0	1	0	0	0	0	0	0	2	2	0	0	0	6
7.01 TO 8.00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
TOTALS	2	3	3	10	6	2	3	3	2	1	2	5	19	4	1	2	68

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.05
1.01 TO 1.50	.05	0.00	0.00	0.00	0.00	0.00	.05	.14	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28
1.51 TO 2.00	.05	.04	0.00	.05	0.00	.05	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.05	.32
2.01 TO 3.00	0.00	.05	.09	.05	.07	0.00	.09	0.00	0.00	.05	.05	.05	.09	.09	.05	.05	.77
3.01 TO 4.00	0.00	0.00	0.00	.23	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	.37
4.01 TO 5.00	0.00	0.00	0.00	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.09	0.00	0.00	.42
5.01 TO 6.00	0.00	0.00	0.00	0.00	.07	0.00	0.00	0.00	0.00	0.00	0.00	.05	.14	0.00	0.00	0.00	.32
6.01 TO 7.00	0.00	0.00	0.00	.05	0.00	.05	0.00	0.00	0.00	0.00	0.00	.09	.09	0.00	0.00	0.00	.28
7.01 TO 8.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	.09
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	0.00	0.00	0.00	.14
TOTALS	.07	.14	.14	.46	.28	.07	.14	.14	.09	.05	.09	.23	.88	.19	.05	.09	3.15
AVE WIND SPEED	1.5	2.0	3.7	3.8	4.5	2.7	2.2	1.2	1.3	2.2	1.6	6.1	6.4	3.8	2.2	1.9	4.1

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY C ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
1.01 TO 1.50	0	1	1	0	0	0	1	4	1	1	0	0	0	0	0	0	9
1.51 TO 2.00	0	0	0	2	0	1	1	0	0	1	1	3	1	0	1	1	12
2.01 TO 3.00	1	1	2	1	2	0	0	0	0	0	1	0	3	4	0	0	15
3.01 TO 4.00	0	0	1	4	4	0	0	0	0	1	0	2	4	1	0	0	17
4.01 TO 5.00	0	0	1	2	1	0	0	0	0	0	0	2	2	4	0	0	12
5.01 TO 6.00	0	0	1	4	0	0	0	0	0	0	1	1	3	0	0	0	10
6.01 TO 7.00	0	0	1	1	0	0	0	0	0	0	0	2	5	0	0	0	9
7.01 TO 8.00	0	0	0	1	0	0	0	0	0	0	0	2	3	0	0	0	6
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	3
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
TOTALS	1	2	7	15	7	1	3	4	1	3	4	12	30	9	1	1	101

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.09
1.01 TO 1.50	0.00	.05	.05	0.00	0.00	0.00	.05	.19	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	.42
1.51 TO 2.00	0.00	0.00	0.00	.09	0.00	.05	.05	0.00	0.00	.05	.05	.14	.05	0.00	.05	.05	.56
2.01 TO 3.00	.05	.05	.09	.05	.09	0.00	0.00	0.00	0.00	0.00	.05	0.00	.14	.19	0.00	0.00	.69
3.01 TO 4.00	0.00	0.00	.05	.19	.19	0.00	0.00	0.00	0.00	.05	0.00	.09	.19	.05	0.00	0.00	.79
4.01 TO 5.00	0.00	0.00	.05	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	.09	.09	.19	0.00	0.00	.56
5.01 TO 6.00	0.00	0.00	.05	.19	0.00	0.00	0.00	0.00	0.00	0.00	.05	.05	.14	0.00	0.00	0.00	.46
6.01 TO 7.00	0.00	0.00	.05	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.23	0.00	0.00	0.00	.42
7.01 TO 8.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.14	0.00	0.00	0.00	.28
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.09	0.00	0.00	0.00	.14
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	.09
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.19	0.00	0.00	0.00	.19
TOTALS	.05	.09	.32	.69	.32	.05	.14	.19	.05	.14	.19	.56	1.39	.42	.05	.05	4.67
AVG WIND SPEED	2.0	4.6	3.8	4.4	3.4	1.8	1.4	1.3	1.3	2.0	4.3	4.7	6.3	3.5	1.8	1.7	4.3

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY D ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	2	0	0	3	2	3	1	4	5	1	0	3	2	0	0	2	23
1.01 TO 1.50	2	2	5	2	2	4	2	2	3	3	5	4	9	7	2	2	61
1.51 TO 2.00	0	3	3	4	2	1	5	1	0	2	4	7	10	7	2	1	52
2.01 TO 3.60	2	0	10	16	10	3	0	0	0	2	4	6	18	11	2	0	84
3.01 TO 4.00	0	0	3	13	13	0	0	1	0	0	2	7	17	15	0	0	71
4.01 TO 5.00	0	1	2	11	11	0	0	0	0	0	0	4	12	7	0	0	48
5.01 TO 6.00	0	0	0	3	5	0	0	0	1	1	3	7	4	1	0	0	25
6.01 TO 7.00	0	1	0	3	3	0	0	0	0	0	1	9	7	0	0	0	24
7.01 TO 8.00	0	0	0	2	0	0	0	0	0	0	0	10	9	0	0	0	21
8.01 TO 9.00	0	0	0	0	0	0	0	1	0	0	0	3	9	0	0	0	13
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	1	7	7	0	0	0	15
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	6	13	0	0	0	19
TOTALS	6	7	23	57	48	11	8	9	9	9	20	78	117	46	6	5	461

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	.09	0.00	0.00	.14	.09	.14	.05	.19	.23	.05	0.00	.14	.09	0.00	0.00	.09	1.30
1.01 TO 1.50	.09	.09	.23	.09	.09	.19	.09	.09	.14	.14	.23	.42	.42	.32	.09	.09	2.82
1.51 TO 2.00	0.00	.14	.14	.19	.09	.05	.23	.05	0.00	.09	.19	.32	.46	.32	.09	.05	2.41
2.01 TO 3.00	.09	0.00	.46	.74	.46	.14	0.00	0.00	0.00	.09	.19	.28	.83	.51	.09	0.00	3.89
3.01 TO 4.00	0.00	0.00	.14	.60	.60	0.00	0.00	.05	0.00	0.00	.09	.32	.79	.69	0.00	0.00	3.29
4.01 TO 5.00	0.00	.09	.09	.51	.51	0.00	0.00	0.00	0.00	0.00	0.00	.19	.56	.32	0.00	0.00	2.22
5.01 TO 6.00	0.00	0.00	0.00	0.00	.14	.23	0.00	0.00	0.00	.05	.05	.14	.32	.19	.05	0.00	1.16
6.01 TO 7.00	0.00	.05	0.00	.14	.14	0.00	0.00	0.00	0.00	0.00	.05	.42	.32	0.00	0.00	0.00	1.11
7.01 TO 8.00	0.00	0.00	0.00	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.46	.42	0.00	0.00	0.00	.97
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	.14	.42	0.00	0.00	0.00	.60
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.32	.32	0.00	0.00	0.00	.69
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.60	0.00	0.00	0.00	.86
TOTALS	.26	.32	1.06	2.64	2.22	.51	.37	.42	.42	.42	.93	3.61	5.41	2.22	.28	.23	21.33
AVE WIND SPEED	1.5	2.7	2.5	3.5	3.6	1.4	1.5	2.3	1.5	2.0	3.1	5.4	5.3	2.9	1.8	1.2	3.9

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY E ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.25 TO 0.50	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3
0.51 TO 1.00	1	2	4	9	2	2	1	3	2	10	3	2	2	5	4	2	54
1.01 TO 1.50	1	3	3	2	5	3	3	3	1	4	3	1	2	3	0	1	38
1.51 TO 2.00	2	2	6	5	2	1	1	1	0	2	6	4	3	4	2	1	42
2.01 TO 3.00	0	5	9	15	11	1	0	1	0	1	7	9	11	12	1	0	83
3.01 TO 4.00	1	1	9	8	5	0	0	0	0	0	3	17	12	4	0	0	60
4.01 TO 5.00	0	0	1	3	2	0	0	0	0	1	8	22	17	9	1	0	64
5.01 TO 6.00	0	0	0	2	0	0	0	0	0	0	4	28	21	1	0	0	56
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	1	13	10	0	0	0	24
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	3	13	9	0	0	0	25
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	7	10	0	0	0	17
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	6	5	1	0	0	12
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	15	5	1	0	0	22
TOTALS	5	13	32	44	28	7	5	8	3	18	39	137	108	40	9	4	500

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.25 TO 0.50	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.05	0.00	.14
0.51 TO 1.00	.05	.09	.19	.42	.09	.09	.05	.14	.09	.46	.14	.09	.09	.23	.19	.09	2.50
1.01 TO 1.50	.05	.14	.14	.09	.23	.14	.14	.14	.05	.19	.14	.05	.09	.14	0.00	.05	1.76
1.51 TO 2.00	.09	.09	.28	.23	.09	.05	.05	.05	0.00	.09	.28	.19	.14	.19	.09	.05	1.94
2.01 TO 3.00	0.00	.23	.42	.69	.51	.05	0.00	.05	0.00	.05	.32	.42	.51	.56	.05	0.00	3.84
3.01 TO 4.00	.05	.05	.42	.37	.23	0.00	0.00	0.00	0.00	0.00	.14	.79	.56	.19	0.00	0.00	2.78
4.01 TO 5.00	0.00	0.00	.05	.14	.09	0.00	0.00	0.00	0.00	.05	.37	1.62	.79	.42	.05	0.00	2.96
5.01 TO 6.00	0.00	0.00	0.00	.09	.09	0.00	0.00	0.00	0.00	0.00	.19	1.30	.97	.05	0.00	0.00	2.59
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.60	.46	0.00	0.00	0.00	1.11
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14	.60	.42	0.00	0.00	0.00	1.16
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.32	.46	0.00	0.00	0.00	.79
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	.23	.05	0.00	0.00	.56
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.69	.23	.05	0.00	0.00	1.02
TOTALS	.23	.69	1.48	2.04	1.30	.32	.23	.37	.14	.83	1.80	6.34	5.00	1.85	.42	.19	23.14
VE WIND SPEED	1.9	1.8	2.4	2.5	2.3	1.2	1.2	1.3	.9	1.2	3.7	6.0	5.5	3.0	1.6	1.2	4.1

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 11/ 1/75 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY F ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	1	0	2	1	1	0	2	1	2	0	3	1	3	17
0.51 TO 1.00	3	1	1	3	5	5	5	6	3	15	9	7	5	2	5	1	80
1.01 TO 1.50	3	5	2	3	3	2	4	2	2	5	3	5	0	2	0	1	39
1.51 TO 2.00	0	2	1	3	2	2	1	0	1	1	1	3	3	3	1	1	25
2.01 TO 3.00	0	5	12	3	6	2	1	0	0	8	16	5	3	5	2	0	68
3.01 TO 4.00	0	5	7	14	7	0	0	0	2	0	10	9	5	2	0	0	61
4.01 TO 5.00	0	0	8	3	0	0	0	0	0	0	8	3	3	3	0	0	28
5.01 TO 6.00	0	0	0	0	1	0	0	0	0	0	0	2	2	2	0	0	7
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	6	18	31	30	21	13	12	9	8	35	48	36	21	23	9	6	326

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	.05	0.00	.09	.05	.05	0.00	.09	.05	.09	0.00	.14	.05	.14	.79
0.51 TO 1.00	.14	.05	.09	.14	.23	.23	.23	.28	.14	.68	.42	.32	.23	.09	.23	.05	3.70
1.01 TO 1.50	.14	.23	.09	.14	0.00	.09	.14	.09	.09	.23	.14	.23	0.00	.09	0.00	.05	1.80
1.51 TO 2.00	0.00	.09	.05	.14	.09	.09	.05	0.00	.05	.05	.05	.14	.14	.14	.05	.05	1.16
2.01 TO 3.00	0.00	.23	.56	.14	.23	.09	.05	0.00	0.00	.37	.74	.23	.14	.23	.09	0.00	3.15
3.01 TO 4.00	0.00	.23	.32	.65	.32	0.00	0.00	0.00	.09	0.00	.46	.42	.23	.09	0.00	0.00	2.82
4.01 TO 5.00	0.00	0.00	0.00	.37	.14	0.00	0.00	0.00	0.00	0.00	.37	.14	.14	.14	0.00	0.00	1.30
5.01 TO 6.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	.09	.09	.09	0.00	0.00	.32
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	.05
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.28	.83	1.43	1.39	.97	.60	.56	.42	.37	1.62	2.22	1.67	.97	1.06	.42	.28	15.09
AVE WIND SPEED	.9	2.3	3.1	2.8	2.6	1.3	1.1	.5	1.7	1.2	2.5	2.4	2.7	2.7	1.1	.8	2.2

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 07/1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	3	6	3	3	2	3	5	3	1	2	5	4	2	9	1	0	46
0.51 TO 1.00	3	3	6	8	7	12	11	8	19	26	46	37	24	11	7	5	233
1.01 TO 1.50	1	1	3	8	4	3	1	2	4	16	13	7	1	1	3	2	70
1.51 TO 2.00	0	0	3	4	3	3	2	1	1	3	11	6	3	1	2	0	43
2.01 TO 3.00	2	5	8	8	5	4	0	0	1	3	7	3	2	1	1	1	51
3.01 TO 4.00	0	2	10	3	2	0	0	0	0	0	6	1	1	1	0	0	26
4.01 TO 5.00	0	1	14	5	2	0	0	0	0	0	1	0	0	0	0	0	23
5.01 TO 6.00	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
6.01 TO 7.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	9	12	49	40	25	25	19	14	26	50	89	58	33	24	14	8	495

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.14	0.00	.14	.14	.09	.14	.23	.14	.05	.09	.23	.19	.09	.42	.05	0.00	2.13
0.51 TO 1.00	.14	.19	.28	.37	.32	.56	.51	.37	.88	1.20	2.13	1.71	1.11	.51	.32	.23	10.78
1.01 TO 1.50	.05	.09	.14	.37	.19	.14	.05	.09	.19	.74	.60	.32	.05	.05	.14	.09	3.24
1.51 TO 2.00	0.00	0.00	.14	.19	.14	.14	.09	.05	.05	.14	.51	.28	.14	.05	.09	0.00	1.97
2.01 TO 3.00	.09	.23	.37	.37	.23	.19	0.00	0.00	.05	.14	.32	.14	.09	.05	.05	.05	2.36
3.01 TO 4.00	0.00	.09	.46	.14	.09	0.00	0.00	0.00	0.00	0.00	.28	.05	.05	.05	0.00	0.00	1.20
4.01 TO 5.00	0.00	.05	.05	.23	.09	0.00	0.00	0.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	1.06
5.01 TO 6.00	0.00	0.00	.09	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.14
6.01 TO 7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.42	.56	2.27	1.85	1.16	1.16	.88	.65	1.20	2.31	4.12	2.68	1.53	1.11	.65	.37	22.91
AVE WIND SPEED	1.1	2.3	3.0	2.1	1.8	1.2	.7	.8	.9	1.0	1.3	1.0	1.0	.8	1.1	1.0	1.4

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PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 12/1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	22	44	66	80	79	53	62	53	45	73	115	127	126	101	50	23	1126
2	8	5	15	16	16	17	8	4	3	12	15	34	39	33	4	1	223
3	0	2	3	10	1	1	2	0	1	3	3	14	12	11	0	0	63
4	0	0	2	4	0	1	0	1	0	0	2	7	13	4	0	0	34
5	1	0	1	1	0	0	1	0	0	0	2	5	5	0	0	0	16
6	0	0	2	1	0	0	0	0	0	0	0	2	4	0	0	0	9
7	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	23	53	87	112	96	77	73	58	49	88	137	192	201	150	54	24	1484
PERCENTILE LEVELS																	
50.0	.5	.6	.7	.7	.6	.7	.6	.5	.5	.6	.6	.8	.8	.7	.5	.5	.7
80.0	.8	1.6	1.6	1.6	1.0	1.2	.9	.9	.9	1.0	1.3	1.8	1.9	1.6	.9	.8	1.3
90.0	.9	1.7	2.4	2.5	1.5	1.7	1.5	1.0	1.0	1.5	1.6	2.8	3.3	2.1	1.0	.9	1.9
99.0	4.5	12.5	5.5	4.7	2.0	3.2	4.3	3.4	2.5	2.7	4.3	10.1	6.0	3.9	1.9	1.8	5.2
99.9	5.0	12.7	6.0	5.9	2.9	3.9	4.7	3.7	3.0	3.0	4.9	15.8	9.8	7.9	2.0	2.0	12.5
MAX HRS. HOURS	5	13	6	6	3	4	5	4	1	3	5	16	10	3	2	2	16

2184 TOTAL HOURS INPUT 2127 HOURS USED ABOVE 2091 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 3/ 1/75 TO 5/31/76 SPRING LEVEL = 30.0 FT

* CONDITIONS: (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	16	29	52	51	46	31	19	15	23	39	83	146	137	100	28	12	821
2	4	3	15	16	10	5	1	2	3	3	25	28	51	16	4	2	190
3	0	0	4	6	2	1	0	0	0	0	3	8	25	8	0	0	57
4	0	0	5	4	0	0	0	0	0	1	1	7	13	5	0	0	36
5	0	0	1	5	0	0	0	0	0	0	1	6	7	0	0	0	20
6	0	0	1	1	1	0	0	0	0	0	1	3	7	0	0	0	14
7	0	0	1	1	0	0	0	0	0	0	0	1	11	1	0	0	15
8	0	0	0	0	0	0	0	0	0	0	0	2	6	1	0	0	9
9	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
10	0	0	0	3	0	0	0	0	0	0	0	1	2	0	0	0	6
11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4
13	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
14	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	12	32	80	87	59	37	20	17	29	48	114	205	272	131	32	14	1165
PERCENTILE LEVELS																	
50.0	.6	.6	.8	.9	.6	.6	.5	.6	.5	.6	.7	.7	1.0	.7	.6	.6	.7
80.0	1.0	.9	1.8	2.4	1.1	1.0	.8	.9	.7	1.0	1.3	1.6	3.4	1.3	.9	.9	1.7
90.0	1.9	1.0	3.2	4.3	1.7	1.5	.9	1.2	1.0	1.9	1.8	3.4	6.4	2.2	1.2	1.3	3.0
95.0	1.9	1.9	13.2	9.7	5.4	2.0	1.3	1.9	1.9	3.5	4.9	10.0	16.1	6.7	1.9	1.9	10.7
99.9	2.0	2.0	13.9	10.0	5.9	3.0	2.0	2.0	2.0	4.0	5.9	11.9	17.7	7.9	2.0	2.0	16.9
MAX HRS	2	2	14	10	6	3	2	2	2	4	6	12	18	8	2	2	18

2201 TOTAL HOURS INPUT 2150 HOURS USED ABOVE 2121 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 5/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS (HOURS)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	16	13	23	24	18	13	16	14	11	39	94	159	129	101	24	14	728
2	3	3	6	8	5	0	0	1	2	16	21	55	36	34	4	0	194
3	0	0	1	4	2	0	0	0	0	1	5	21	25	7	0	0	67
4	0	0	1	2	1	0	0	0	0	0	0	12	32	4	0	0	52
5	1	0	0	0	0	0	0	0	0	0	1	12	21	0	0	0	34
6	0	0	0	2	0	0	0	0	0	0	0	0	13	0	0	0	15
7	0	0	0	0	0	0	0	0	0	0	0	4	7	0	0	0	11
8	0	0	0	0	0	0	0	0	0	0	0	1	5	1	0	0	7
9	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
10	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
13	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	19	16	31	40	26	13	16	15	13	56	122	266	287	147	28	14	1129
PERCENTILE LEVELS																	
50.0	.6	.6	.7	.8	.7	.5	.5	.5	.5	.7	.6	.3	1.4	.7	.6	.5	.3
80.0	1.0	1.0	1.3	2.0	1.6	.8	.8	.9	.9	1.4	1.2	2.0	4.4	1.5	.9	.8	1.9
90.0	1.4	1.3	1.9	3.0	2.2	.9	.9	1.0	1.0	1.7	1.8	3.4	6.3	1.9	1.3	.9	3.5
99.0	1.9	1.9	3.7	5.6	3.7	1.0	1.0	1.9	1.8	2.4	3.0	7.3	13.1	3.9	1.9	1.0	10.2
99.9	2.0	2.0	4.3	5.8	4.0	1.0	1.0	2.0	2.0	2.9	4.4	10.7	16.9	7.4	2.0	1.0	16.9
MAX HRS. HOURS	2	2	4	6	4	1	1	2	2	3	5	19	17	6	2	1	19

2208 TOTAL HOURS IN PDI 2164 HOURS USED ABOVE 2156 HOURS WITH STABILITY

01/23/78

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 07 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	30	46	72	92	80	43	43	44	44	77	100	139	118	66	32	28	1001
2	0	4	23	23	16	5	5	4	3	9	26	43	31	12	5	0	209
3	0	1	4	11	5	1	0	0	0	5	11	19	13	7	0	0	77
4	0	1	3	6	4	0	0	0	0	0	5	7	11	3	0	0	40
5	0	0	2	3	0	0	0	0	0	1	0	3	5	1	0	0	15
6	0	0	1	1	1	0	0	0	0	0	0	2	5	0	0	0	10
7	0	0	0	2	0	0	0	0	0	0	0	2	3	1	0	0	8
8	0	0	1	2	0	0	0	0	0	0	0	1	4	0	0	0	8
9	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	30	52	106	140	106	54	48	48	47	94	142	216	193	110	37	28	1451
PERCENTILE LEVELS																	
50.0	.5	.6	.7	.8	.7	.6	.6	.5	.5	.6	.7	.8	.8	.6	.6	.5	.7
90.0	.9	1.7	1.6	1.9	1.3	.9	.9	.9	.9	1.0	1.5	1.8	2.4	1.2	.9	.8	1.4
95.0	.9	1.2	2.1	3.0	2.0	1.1	1.0	1.0	1.0	1.8	2.2	2.7	4.1	2.1	1.3	.9	2.2
99.0	1.0	3.5	5.9	7.3	4.0	2.5	1.9	1.9	1.9	4.1	3.7	6.4	8.3	4.9	1.9	1.0	6.0
99.9	1.0	3.9	7.9	7.5	5.9	2.9	2.0	2.0	2.0	4.9	4.0	7.8	9.8	6.9	2.0	1.0	8.8
MAX HR. HOURS	4	4	8	8	8	3	2	2	2	5	4	8	10	7	2	1	10

2184 TOTAL HOURS INPUT 2173 HOURS USED ABOVE 2164 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 12/ 1/75 TO 12/31/76 WINTER LEVEL = 130.0 FT

CONDITIONS: ENDING

WIND DIRECTION SECTOR

RATING HOURS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	28	24	54	63	65	52	51	33	39	70	32	128	135	68	33	19	952
2	1	4	13	21	26	9	9	3	1	12	15	47	48	30	1	0	240
3	1	3	4	10	7	1	2	2	0	6	5	14	23	10	0	0	88
4	0	0	0	5	1	0	1	0	0	1	0	6	9	4	0	0	27
5	0	1	0	1	0	1	0	0	0	0	1	1	11	3	0	0	19
6	0	0	0	1	0	0	0	0	0	0	1	4	5	1	0	0	12
7	0	0	0	1	0	0	0	0	0	1	0	2	1	0	0	0	5
8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 - >60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	30	36	72	102	99	64	63	38	40	90	104	203	238	136	34	19	1351

PERCENTILE LEVELS

50.0	.8	.7	.7	.8	.8	.8	.8	.9	.5	.6	.6	.8	.9	.8	.5	.5	.7
80.0	.9	1.5	1.3	1.9	1.5	1.0	1.0	.9	.8	1.2	1.1	1.7	2.3	1.7	.8	.8	1.5
90.0	1.0	2.3	1.3	2.0	1.9	1.5	1.0	1.4	.9	1.9	1.8	2.6	3.9	2.4	.9	.9	2.3
99.0	2.5	9.7	20.4	6.0	3.0	4.4	3.4	2.8	1.6	6.1	5.0	6.5	10.6	4.9	1.7	1.0	6.0
99.9	3.0	9.0	29.3	6.9	3.9	4.9	3.9	3.0	2.5	6.9	5.9	7.3	13.8	5.9	2.0	1.0	13.6
MAX NO. HOURS	3	5	26	7	4	5	4	3	2	7	6	10	14	6	2	1	26

2184 TOTAL HOURS INPUT 2166 HOURS USED ABOVE 2075 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 130.0 FT

CONSECUTIVE HOURS

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	13	19	40	37	44	17	21	17	17	32	57	122	128	102	26	16	714
2	0	7	13	16	15	5	2	3	1	7	15	27	46	30	4	1	191
3	0	1	2	7	2	0	0	0	0	0	5	18	30	11	0	0	76
4	0	0	4	5	0	0	1	0	0	0	2	4	19	4	0	0	43
5	0	0	3	3	0	0	0	0	0	0	1	4	3	0	0	0	14
6	0	0	1	1	0	0	0	0	0	0	0	2	6	1	0	0	11
7	0	0	0	2	0	0	0	0	0	0	0	1	3	6	0	0	0	12
8	0	0	1	2	0	0	0	0	0	0	0	0	8	2	0	0	13
9	0	0	1	0	0	0	0	0	0	0	0	1	5	0	0	0	7
10	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2
11	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	7
12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
17	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 +100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	13	27	68	74	61	22	24	20	18	34	81	185	270	150	30	17	1100

PERCENTILE LEVELS

50.0	.5	.7	.7	1.0	.7	.6	.6	.5	.5	.6	.7	.8	1.1	.7	.6	.5	.3
80.0	.1	1.9	1.6	2.9	1.3	1.1	.7	.7	.5	1.0	1.5	2.0	3.5	1.6	.9	.9	1.9
90.0	.3	1.6	3.8	4.5	1.7	1.6	1.3	1.3	1.0	1.4	2.2	3.1	7.4	2.3	1.3	1.0	3.2
99.0	1.6	2.7	6.3	9.3	2.7	2.6	3.3	1.7	1.8	1.9	6.2	8.1	20.5	7.3	1.9	1.8	10.9
99.9	1.0	3.1	8.7	9.9	3.0	2.0	4.0	2.0	2.0	2.0	8.9	10.3	24.8	7.9	2.0	2.0	23.2

MAX NO. HOURS	1	3	7	16	5	2	4	2	2	2	7	11	25	8	2	2	25

2209 TOTAL HOURS ENTERED 2151 HOURS USED ABOVE 2121 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 07/1976 TO 07/31/76 SUMMER LEVEL = 130.0 FT

CONDITIONS (ALL)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	9	13	19	14	13	11	3	8	16	24	69	112	124	107	22	15	598
2	1	2	4	7	2	1	0	0	1	8	10	51	53	37	4	0	181
3	6	0	0	4	6	6	0	0	0	0	7	19	35	15	0	6	86
4	0	0	0	1	1	0	0	0	0	0	2	12	22	7	0	0	45
5	0	0	0	1	1	0	0	0	0	0	1	4	16	1	0	0	26
6	0	0	0	0	0	0	0	0	0	0	0	3	10	3	0	0	16
7	0	0	0	0	1	0	0	0	0	0	0	2	6	1	0	0	10
8	0	0	0	2	0	0	0	0	0	0	0	1	12	1	0	0	16
9	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
11	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	4
12	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
13	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
17	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	16	15	23	34	24	12	3	8	19	37	89	207	302	174	26	15	1003
PERCENTILE LEVELS																	
50.0	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.5	.9	1.5	.8	.6	.5	.8
80.0	.9	.9	1.0	2.3	2.7	.9	.8	.3	.8	1.1	1.2	2.1	4.4	1.8	.9	.8	2.3
90.0	1.0	1.3	1.4	3.6	3.6	1.0	.9	.9	1.0	1.5	2.2	3.4	7.3	2.7	1.4	.9	3.8
99.0	1.9	1.9	1.9	7.5	6.8	1.9	1.0	1.0	1.6	2.0	4.1	8.9	10.0	6.3	1.9	1.0	12.0
99.9	2.0	2.0	2.0	9.0	7.0	2.0	1.0	1.0	2.0	2.0	4.9	10.3	33.5	7.8	2.0	1.0	17.3
MAX HR. HOURS	2	2	2	6	7	2	1	1	2	2	5	17	36	8	2	1	36

2208 TOTAL HOURS INPUT 2157 HOURS USED ABOVE 2157 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 07/ 1/76 TO 11/30/76 FALL LEVEL = 130.0 FT

CONDITIONS ENTERED

WIND DIRECTION SECTOR

PERIOD HOURS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	25	36	69	66	64	51	31	27	36	78	90	128	117	62	23	19	939
2	0	3	15	25	15	9	3	1	4	18	13	32	37	22	5	0	203
3	0	0	6	11	10	3	1	0	0	3	7	18	24	5	0	1	89
4	0	2	1	10	1	1	1	0	0	4	4	3	11	3	0	0	46
5	0	0	1	2	6	0	0	0	0	1	1	5	5	1	0	0	22
6	0	0	0	1	1	0	0	0	0	0	0	2	4	1	0	0	9
7	0	0	0	2	0	0	0	0	0	0	1	2	5	0	0	0	10
8	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0	0	7
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
12	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	26	43	92	119	98	69	36	28	40	104	116	195	215	114	28	20	1332
EXCEEDED LEVELS																	
50.0	.5	.6	.7	.7	.8	.6	.5	.5	.6	.7	.6	.8	.9	.7	.6	.5	.7
80.0	.3	.5	1.3	2.4	1.9	1.0	.7	.8	.9	1.3	1.2	1.9	2.8	1.4	1.0	.6	1.5
90.0	.7	1.2	1.7	3.5	2.8	1.7	1.5	.7	1.0	1.7	2.2	2.7	4.7	1.9	1.4	.9	2.6
99.0	1.0	3.5	4.1	7.8	5.0	3.4	3.6	1.7	1.7	4.0	4.8	6.0	10.9	4.7	1.4	2.8	7.1
99.9	1.0	4.1	4.7	11.9	5.7	3.7	4.0	2.0	2.0	4.7	6.7	6.7	16.9	5.9	2.0	3.0	16.3
MAX VEL. HOURS	1	4	5	12	8	4	4	2	2	5	7	7	17	6	2	3	17

2154 TIME HOURS INPUT 2173 HOURS USED ABOVE 2167 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 12/1/76 TO 12/31/76 WINTER LEVEL = 230.0 FT

CONDITIONS: (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	15	24	61	70	73	54	41	30	21	50	80	123	136	86	22	9	900
2	2	5	23	24	20	11	8	4	3	6	8	48	41	17	4	2	226
3	1	2	0	13	6	1	3	1	0	1	1	19	30	6	0	0	84
4	0	0	3	7	1	0	1	0	0	0	1	9	13	0	0	0	35
5	0	1	1	2	0	1	0	0	0	1	0	6	9	1	0	0	22
6	0	0	1	0	0	0	0	0	0	0	0	4	9	0	0	0	14
7	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4
8	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	5
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	4
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 - 160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	18	32	91	116	100	67	53	35	24	58	90	210	249	111	26	11	1296
PERCENTILE LEVELS																	
50.0	.6	.6	.7	.8	.7	.6	.6	.6	.6	.6	.6	.9	.9	.6	.6	.6	.7
80.0	1.6	1.1	1.5	2.0	1.4	1.0	1.2	.9	.9	.9	.9	1.9	2.7	1.2	.9	1.0	1.6
90.0	1.6	1.9	1.9	2.6	1.9	1.6	1.8	1.4	1.2	1.4	1.1	2.9	4.5	1.8	1.4	1.5	2.5
95.0	2.6	4.6	4.1	4.4	3.0	4.3	3.5	2.7	1.9	4.4	3.1	5.7	9.8	4.4	1.9	1.9	6.5
99.0	3.5	5.0	9.7	4.9	3.9	4.9	3.9	3.0	2.0	4.7	3.9	9.8	12.8	6.9	2.0	2.0	11.7
MAX HL. HOURS	3	5	10	5	4	5	4	3	2	5	4	10	13	7	2	2	13

2184 TOTAL HOURS INPUT 2071 HOURS USED ABOVE 2113 HOURS WITH STABILITY

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 230.0 FT

CONDITIONS: (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	15	23	48	46	48	18	9	10	14	30	50	124	98	81	19	17	650
2	1	4	9	17	9	3	2	2	1	1	4	30	43	23	5	1	155
3	0	1	5	5	1	0	1	0	0	1	1	18	30	6	0	0	69
4	0	0	4	5	1	0	0	0	0	0	1	9	13	2	0	0	35
5	0	0	5	4	0	0	0	0	0	0	0	6	9	0	0	0	24
6	0	0	1	2	0	0	0	0	0	0	0	1	15	0	0	0	19
7	0	0	0	2	0	0	0	0	0	0	0	2	10	2	0	0	16
8	0	0	1	1	0	0	0	0	0	0	0	2	5	1	0	0	10
9	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
10	0	0	0	1	0	0	0	0	0	0	0	1	3	0	0	0	5
11	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	7
12	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3
13	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
17	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	16	28	74	83	59	21	12	12	15	32	56	194	251	115	24	18	1010
PERCENTILE LEVELS																	
50.0	.5	.6	.8	.9	.6	.6	.7	.6	.5	.5	.6	.8	1.6	.7	.6	.5	.8
80.0	.9	1.0	2.4	2.7	1.0	.9	1.3	1.0	.9	.9	.9	2.1	5.5	1.5	1.0	.8	2.0
90.0	1.0	1.6	4.1	4.4	1.6	1.3	1.9	1.4	1.0	1.0	1.1	3.3	8.6	2.0	1.5	1.0	4.0
99.0	1.0	2.7	11.3	9.2	3.4	1.9	2.9	1.9	1.9	2.7	3.4	9.1	19.7	6.9	2.0	1.8	12.6
99.9	2.0	3.0	11.9	9.9	3.9	2.0	3.0	2.0	2.0	3.0	3.9	10.8	33.7	7.9	2.0	2.0	25.0
MAX NO. HOURS	2	3	12	10	4	2	3	2	2	3	4	11	31	8	2	2	31

2208 TOTAL HOURS INPUT 2151 HOURS USED ABOVE 2121 HOURS WITH STABILITY

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 230.0 FT

CONDITIONAL (RURAL)

DURATION (HOURS)	WIND DIRECTION SECTOR																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	13	13	24	16	14	11	8	8	12	22	52	121	107	94	14	15	543
2	1	2	2	11	3	1	0	0	0	0	5	48	52	31	3	1	160
3	0	1	0	3	2	1	0	0	0	1	1	23	25	10	0	0	67
4	0	0	1	4	3	0	0	0	0	0	0	9	16	4	0	0	37
5	0	0	0	3	1	0	0	0	0	0	0	8	20	2	0	0	34
6	0	0	0	0	0	0	0	0	0	0	0	5	14	1	0	0	20
7	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
8	0	0	0	0	0	0	0	0	0	0	0	3	15	1	0	0	19
9	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	9
10	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
13	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
16	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
17	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	14	16	27	39	23	13	8	8	12	23	58	221	287	140	17	16	922
PERCENTILE LEVELS																	
50.0	.5	.6	.6	1.1	.3	.6	.3	.5	.5	.5	.6	.9	1.7	.8	.6	.5	.8
80.0	.9	1.0	.9	2.7	2.7	.9	.8	.8	.8	.8	.9	2.3	5.7	1.7	1.0	.9	2.5
90.0	1.0	1.7	1.2	3.8	3.6	1.7	.9	.9	.9	.9	1.0	3.8	8.5	2.4	1.4	1.0	4.7
99.0	1.9	2.8	3.7	4.9	4.8	2.9	1.0	1.0	1.0	2.8	2.4	6.8	18.1	5.6	1.9	1.8	14.9
99.9	2.0	3.9	4.0	5.0	5.0	3.0	1.0	1.0	1.0	3.0	2.9	16.3	23.6	7.9	2.0	2.0	20.4
MAX HR. HOURS	2	3	4	5	5	3	1	1	1	3	3	17	25	6	2	2	25

2208 TOTAL HOURS INPUT 2157 HOURS USED ABOVE 2157 HOURS WITH STABILITY

01/25/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 230.0 FT

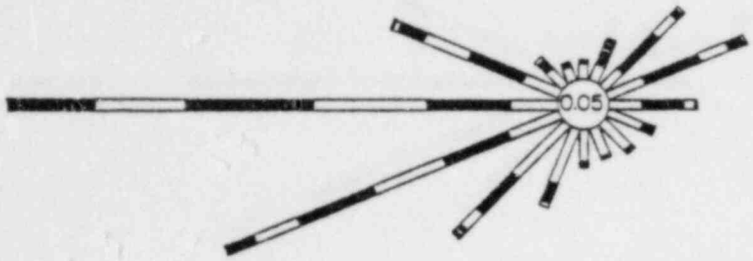
CONDITIONS: (NONE)

DURATION (HOURS)	WIND DIRECTION SECTOR																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	15	41	72	70	56	33	27	23	26	32	52	130	116	83	29	15	820
2	2	3	13	31	29	8	2	2	5	3	7	31	47	18	5	2	213
3	0	0	1	10	11	5	0	1	0	1	0	17	23	3	0	1	73
4	0	2	2	9	2	1	1	0	0	0	1	4	15	4	0	0	41
5	0	0	2	2	5	0	0	0	0	0	0	6	7	2	0	0	24
6	0	0	1	1	0	0	0	0	0	0	0	2	7	0	0	0	11
7	0	0	0	1	0	0	0	0	0	0	0	4	4	0	0	0	9
8	0	0	1	1	0	0	0	0	0	0	0	1	3	0	0	0	6
9	0	0	0	2	0	0	0	0	0	0	0	1	3	0	0	0	6
10	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
11	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
12	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3
13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
14	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	17	46	97	128	103	47	30	26	31	36	60	193	238	110	34	18	1219
PERCENTILE LEVELS																	
50.0	.6	.6	.7	.9	.9	.7	.6	.6	.6	.6	.6	.8	1.1	.7	.6	.6	.7
80.0	.9	.9	1.3	2.1	1.9	1.6	.9	.9	1.0	.9	.9	1.7	3.3	1.3	.9	1.0	1.7
90.0	1.2	1.1	1.7	3.5	2.7	2.3	1.0	1.2	1.4	1.1	1.3	3.1	5.9	1.9	1.3	1.6	2.9
99.0	1.9	3.0	7.0	8.9	4.8	3.5	3.7	2.7	1.9	2.6	3.4	13.0	12.6	4.5	1.9	2.8	9.6
99.9	2.0	4.0	7.9	11.9	5.0	4.0	4.0	3.0	2.0	3.0	3.9	13.9	16.9	4.9	2.0	3.0	16.4
MAX HR. HOURS	2	4	3	12	5	4	4	3	2	3	4	14	17	5	2	3	17

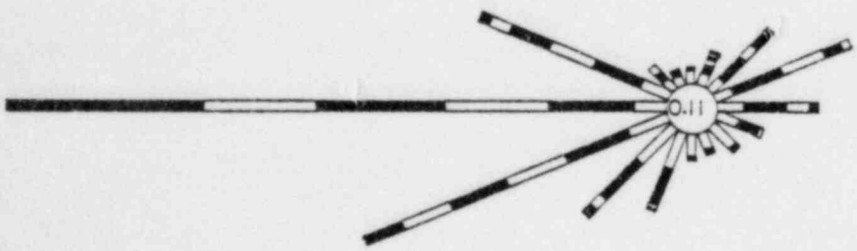
2184 TOTAL HOURS INPUT 2173 HOURS USED ABOVE 2166 HOURS WITH STABILITY

ANNUAL WIND SUMMARIES

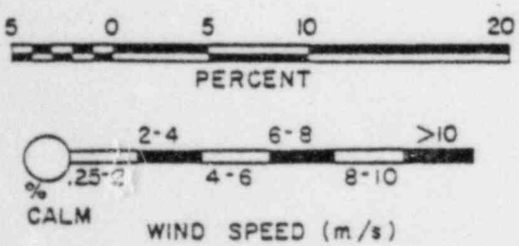
ANNUAL WIND ROSE
PEBBLE SPRINGS



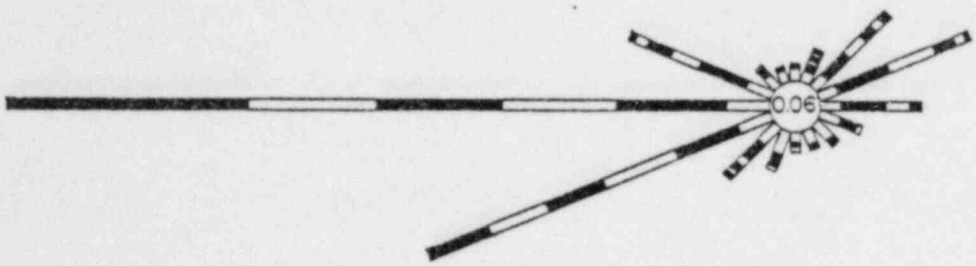
Annual - 30 ft
(1/1/76 to 12/31/76)



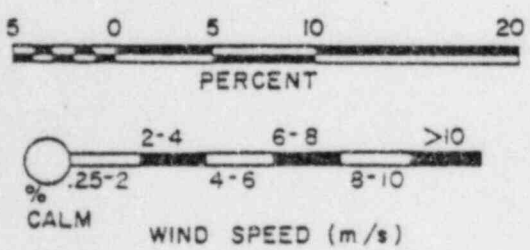
Annual - 130 ft
(1/1/76 to 12/31/76)



ANNUAL WIND ROSE
PEBBLE SPRINGS



Annual - 230 ft
(1/1/76 to 12/31/76)



77-073

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	4
0.26 TO 0.50	9	3	4	10	5	7	8	6	7	12	13	17	11	17	6	5	140
0.51 TO 1.00	22	22	34	46	40	64	59	58	68	113	128	91	83	49	44	24	945
1.01 TO 1.50	20	25	41	54	40	46	55	48	42	82	90	65	35	42	16	15	716
1.51 TO 2.00	12	30	37	58	49	43	37	23	18	53	88	67	75	60	30	19	699
2.01 TO 3.00	20	41	111	136	111	46	13	10	21	62	120	142	151	136	39	15	1176
3.01 TO 4.00	5	27	100	138	69	4	3	2	5	21	101	161	207	127	12	2	984
4.01 TO 5.00	1	10	84	88	31	0	0	1	0	6	55	155	219	122	13	2	787
5.01 TO 6.00	0	0	37	44	16	1	0	0	2	4	48	177	286	81	6	0	702
6.01 TO 7.00	0	5	25	34	8	0	0	0	0	1	17	221	288	73	2	1	680
7.01 TO 8.00	0	5	8	28	4	0	0	0	0	0	11	139	266	42	0	0	503
8.01 TO 9.00	0	4	6	14	0	0	0	1	0	0	7	111	206	17	0	0	368
9.01 TO 10.00	0	4	4	3	0	0	0	0	1	0	3	82	181	9	0	0	287
MORE THAN 10	0	16	3	0	0	0	0	0	0	1	10	134	392	9	0	0	565
TOTALS	89	192	494	658	373	213	175	149	164	355	691	1562	2402	784	168	83	8556

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.05
0.26 TO 0.50	.11	.04	.05	.12	.06	.08	.09	.07	.08	.14	.15	.20	.13	.20	.07	.06	1.64
0.51 TO 1.00	.26	.26	.40	.54	.47	.75	.69	.68	.79	1.32	1.50	1.06	.97	.57	.51	.28	11.04
1.01 TO 1.50	.23	.29	.48	.63	.47	.54	.64	.56	.49	.96	1.05	.76	.41	.49	.19	.18	8.37
1.51 TO 2.00	.14	.35	.43	.68	.57	.50	.43	.27	.21	.62	1.03	.78	.38	.70	.35	.22	8.17
2.01 TO 3.00	.23	.48	1.30	1.59	1.30	.56	.15	.12	.25	.72	1.40	1.65	1.76	1.59	.46	.18	13.74
3.01 TO 4.00	.06	.32	1.17	1.61	.81	.05	.04	.02	.06	.25	1.18	1.88	2.42	1.48	.14	.02	11.50
4.01 TO 5.00	.01	.12	.98	1.03	.36	0.00	0.00	.01	0.00	.07	.64	1.81	2.56	1.43	.15	.02	9.20
5.01 TO 6.00	0.00	0.00	.43	.51	.19	.01	0.00	0.00	.02	.05	.56	2.07	3.34	.95	.07	0.00	8.20
6.01 TO 7.00	0.00	.06	.29	.40	.09	0.00	0.00	0.00	0.00	.01	.20	2.58	3.37	.85	.02	.01	7.95
7.01 TO 8.00	0.00	.06	.09	.33	.05	0.00	0.00	0.00	0.00	0.00	.13	1.62	3.11	.49	0.00	0.00	5.88
8.01 TO 9.00	0.00	.05	.07	.16	0.00	0.00	0.00	.01	0.00	0.00	.08	1.30	2.43	.20	0.00	0.00	4.30
9.01 TO 10.00	0.00	.05	.05	.04	0.00	0.00	0.00	0.00	.01	0.00	.04	.96	2.12	.11	0.00	0.00	3.35
MORE THAN 10	0.00	.19	.04	0.00	0.00	0.00	0.00	0.00	0.00	.01	.12	1.57	4.56	.11	0.00	0.00	6.60
TOTALS	1.04	2.24	5.77	7.69	4.36	2.49	2.05	1.74	1.92	4.15	8.08	18.26	28.07	9.16	1.96	.97	100.00
AVE WIND SPEED	1.5	3.5	3.5	3.5	2.7	1.5	1.3	1.3	1.4	1.6	2.8	5.6	6.6	3.9	2.1	1.5	4.4

8784 TOTAL HOURS INPUT 8556 HOURS USED ABOVE 8454 WITH STABILITY

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	9
0.26 TO 0.50	2	2	1	1	3	0	0	2	1	0	4	1	2	1	2	0	22
0.51 TO 1.00	15	14	9	19	15	23	34	21	24	28	34	26	27	34	17	13	353
1.01 TO 1.50	16	16	26	18	42	34	41	30	37	62	58	72	48	48	28	15	592
1.51 TO 2.00	14	17	25	38	37	31	40	24	35	76	114	82	75	44	24	13	695
2.01 TO 3.00	13	28	68	95	92	68	24	20	15	132	161	154	170	113	28	15	1196
3.01 TO 4.00	4	18	59	132	97	25	7	1	3	40	68	144	194	128	16	9	944
4.01 TO 5.00	2	11	51	117	67	8	1	0	2	4	32	155	233	111	10	1	805
5.01 TO 6.00	0	14	26	75	26	2	0	0	0	7	25	119	216	89	3	0	602
6.01 TO 7.00	1	4	34	51	26	1	0	0	1	4	16	131	285	100	3	1	658
7.01 TO 8.00	0	7	30	38	8	0	0	0	1	1	15	131	272	88	0	0	591
8.01 TO 9.00	0	2	9	30	3	0	0	0	0	0	6	129	257	56	1	1	494
9.01 TO 10.00	0	4	5	14	3	0	0	0	0	0	2	92	235	35	0	0	390
MORE THAN 10	0	9	29	8	1	0	0	1	1	1	10	177	830	56	0	0	1123
TOTALS	67	146	372	636	420	192	147	99	120	355	545	1413	2844	903	132	74	8474

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.11
0.26 TO 0.50	.02	.02	.01	.01	.04	0.00	0.00	.02	.01	0.00	.05	.01	.02	.01	.02	0.00	.26
0.51 TO 1.00	.18	.17	.11	.22	.18	.27	.40	.25	.28	.33	.40	.31	.32	.40	.20	.15	4.17
1.01 TO 1.50	.19	.19	.31	.21	.50	.40	.48	.35	.44	.73	.68	.85	.57	.57	.33	.17	6.99
1.51 TO 2.00	.17	.20	.30	.45	.44	.37	.47	.28	.41	.90	1.35	.97	.89	.52	.28	.22	8.20
2.01 TO 3.00	.15	.33	.80	1.12	1.09	.80	.28	.24	.18	1.56	1.90	1.82	2.01	1.33	.33	.18	14.11
3.01 TO 4.00	.05	.21	.70	1.56	1.14	.30	.08	.01	.04	.47	.80	1.70	2.29	1.51	.19	.09	11.14
4.01 TO 5.00	.02	.13	.60	1.38	.79	.09	.01	0.00	.02	.05	.38	1.83	2.75	1.31	.12	.01	9.50
5.01 TO 6.00	0.00	.17	.31	.89	.31	.02	0.00	0.00	0.00	.08	.30	1.40	2.55	1.05	.04	0.00	7.10
6.01 TO 7.00	.01	.05	.40	.60	.31	.01	0.00	0.00	.01	.05	.19	1.55	3.36	1.18	.04	.01	7.76
7.01 TO 8.00	0.00	.08	.35	.45	.09	0.00	0.00	0.00	.01	.01	.18	1.55	3.21	1.04	0.00	0.00	6.97
8.01 TO 9.00	0.00	.02	.11	.35	.04	0.00	0.00	0.00	0.00	0.00	.07	1.52	3.03	.66	.01	.01	5.83
9.01 TO 10.00	0.00	.05	.06	.17	.04	0.00	0.00	0.00	0.00	0.00	.02	1.09	2.77	.41	0.00	0.00	4.60
MORE THAN 10	0.00	.11	.34	.09	.01	0.00	0.00	.01	.01	.01	.12	2.09	9.79	.66	0.00	0.00	13.25
TOTALS	.79	1.72	4.39	7.51	4.96	2.27	1.73	1.17	1.42	4.19	6.43	16.67	33.56	10.66	1.56	.87	100.00
AVE WIND SPEED	1.8	3.8	4.8	4.4	3.4	2.2	1.6	1.6	1.7	2.2	3.0	6.0	7.9	5.2	2.3	2.0	5.5

8784 TOTAL HOURS INPUT 8474 HOURS USED ABOVE

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	5
0.26 TO 0.50	0	1	2	0	4	0	2	0	0	0	2	5	2	3	0	0	21
0.51 TO 1.00	21	9	14	11	12	19	24	15	15	21	13	22	24	25	15	13	273
1.01 TO 1.50	12	24	28	31	31	34	39	22	27	35	33	56	45	43	22	13	497
1.51 TO 2.00	12	18	35	48	43	30	25	29	16	40	45	71	115	63	27	15	633
2.01 TO 3.00	17	30	84	111	99	47	20	15	22	43	64	137	212	121	30	15	1068
3.01 TO 4.00	6	16	55	136	89	35	9	4	3	16	32	142	261	106	12	5	927
4.01 TO 5.00	1	7	64	123	66	12	2	1	1	2	28	169	239	70	5	1	791
5.01 TO 6.00	2	9	38	77	34	3	0	0	1	1	20	165	256	57	4	1	668
6.01 TO 7.00	1	10	29	59	28	2	0	0	0	5	14	136	252	63	1	0	600
7.01 TO 8.00	0	9	31	42	11	1	0	0	1	3	13	126	292	57	0	0	586
8.01 TO 9.00	0	9	31	29	4	0	0	0	0	4	11	135	285	38	0	0	546
9.01 TO 10.00	1	2	9	17	1	0	0	0	1	0	8	127	257	21	2	0	446
MORE THAN 10	0	15	41	15	2	0	0	0	2	1	19	280	1021	37	0	1	1434
TOTALS	73	159	461	699	424	183	121	86	89	171	302	1571	3261	701	118	71	8495

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.06
0.26 TO 0.50	0.00	.01	.02	0.00	.05	0.00	.02	0.00	0.00	0.00	.02	.06	.02	.04	0.00	0.00	.25
0.51 TO 1.00	.25	.11	.16	.13	.14	.22	.28	.18	.18	.25	.15	.26	.28	.29	.18	.15	3.21
1.01 TO 1.50	.14	.28	.33	.36	.36	.40	.46	.26	.32	.41	.39	.66	.53	.47	.26	.21	5.85
1.51 TO 2.00	.14	.21	.41	.57	.51	.35	.29	.34	.19	.47	.53	.84	1.35	.74	.32	.13	7.45
2.01 TO 3.00	.20	.35	.99	1.31	1.17	.55	.24	.18	.26	.51	.75	1.61	2.50	1.42	.35	.13	12.57
3.01 TO 4.00	.07	.19	.65	1.60	1.05	.41	.11	.05	.04	.19	.38	1.67	3.07	1.25	.14	.05	10.91
4.01 TO 5.00	.01	.08	.75	1.45	.78	.14	.02	.01	.01	.02	.33	1.99	2.81	.82	.06	.01	9.31
5.01 TO 6.00	.02	.11	.45	.91	.40	.04	0.00	0.00	.01	.01	.24	1.94	3.01	.67	.05	.01	7.86
6.01 TO 7.00	.01	.12	.34	.69	.33	.02	0.00	0.00	0.00	.06	.16	1.60	2.97	.74	.01	0.00	7.06
7.01 TO 8.00	0.00	.11	.36	.49	.13	.01	0.00	0.00	.01	.04	.15	1.48	3.44	.67	0.00	0.00	6.90
8.01 TO 9.00	0.00	.11	.36	.34	.05	0.00	0.00	0.00	0.00	.05	.13	1.59	3.35	.45	0.00	0.00	6.43
9.01 TO 10.00	.01	.02	.11	.20	.01	0.00	0.00	0.00	.01	0.00	.09	1.49	3.03	.25	.02	0.00	5.25
MORE THAN 10	0.00	.18	.48	.18	.02	0.00	0.00	0.00	.02	.01	.22	3.30	12.02	.44	0.00	.01	16.88
TOTALS	.86	1.87	5.43	8.23	4.99	2.15	1.42	1.01	1.05	2.01	3.56	18.49	38.39	8.25	1.39	.84	100.00
AVE WIND SPEED	2.0	4.4	5.0	4.5	3.5	2.4	1.6	1.7	2.1	2.4	4.1	6.6	8.0	4.7	2.3	2.2	6.0

8794 TOTAL HOURS INPUT 8495 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY A ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	0	0	0	2	0	1	0	0	1	0	0	0	2	0	6
1.01 TO 1.50	0	0	3	0	0	0	2	3	1	2	2	1	0	0	0	0	14
1.51 TO 2.00	3	2	1	1	4	3	1	1	2	0	3	7	1	6	1	4	40
2.01 TO 3.00	3	1	11	12	13	6	2	3	4	6	5	6	7	3	3	1	86
3.01 TO 4.00	1	2	15	27	14	1	1	1	1	1	2	3	9	8	2	0	88
4.01 TO 5.00	0	1	11	33	3	0	0	0	0	0	2	13	16	12	1	0	94
5.01 TO 6.00	0	0	12	20	3	0	0	0	0	1	3	20	75	25	1	0	160
6.01 TO 7.00	0	1	6	23	3	0	0	0	0	0	0	24	86	29	0	0	172
7.01 TO 8.00	0	2	3	8	1	0	0	0	0	0	0	12	96	13	0	0	135
8.01 TO 9.00	0	1	2	3	0	0	0	0	0	0	1	17	81	8	0	0	113
9.01 TO 10.00	0	0	0	1	0	0	0	0	0	0	0	13	35	3	0	0	102
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	1	41	204	4	0	0	250
TOTALS	7	10	64	128	41	12	6	9	8	10	20	157	662	111	10	5	1260

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	0.00	0.00	0.00	.02	0.00	.01	0.00	0.00	.01	0.00	0.00	0.00	.02	0.00	.07
1.01 TO 1.50	0.00	0.00	.04	0.00	0.00	0.00	.02	.04	.01	.02	.02	.01	0.00	0.00	0.00	0.00	.17
1.51 TO 2.00	.04	.02	.01	.01	.05	.04	.01	.01	.02	0.00	.04	.08	.01	.07	.01	.05	.47
2.01 TO 3.00	.04	.01	.13	.14	.15	.07	.02	.04	.05	.07	.06	.07	.08	.04	.04	.01	1.02
3.01 TO 4.00	.01	.02	.18	.32	.17	.01	.01	.01	.01	.01	.02	.04	.11	.09	.02	0.00	1.04
4.01 TO 5.00	0.00	.01	.13	.39	.04	0.00	0.00	0.00	0.00	0.00	.02	.15	.21	.14	.01	0.00	1.11
5.01 TO 6.00	0.00	0.00	.14	.24	.04	0.00	0.00	0.00	0.00	.01	.04	.24	.89	.30	.01	0.00	1.89
6.01 TO 7.00	0.00	.01	.07	.27	.04	0.00	0.00	0.00	0.00	0.00	0.00	.28	1.02	.34	0.00	0.00	2.03
7.01 TO 8.00	0.00	.02	.04	.09	.01	0.00	0.00	0.00	0.00	0.00	0.00	.14	1.14	.15	0.00	0.00	1.60
8.01 TO 9.00	0.00	.01	.02	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.20	.96	.09	0.00	0.00	1.34
9.01 TO 10.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15	1.01	.04	0.00	0.00	1.21
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.48	2.41	.05	0.00	0.00	2.95
TOTALS	.08	.12	.76	1.51	.48	.14	.07	.11	.09	.12	.24	1.86	7.83	1.31	.12	.06	14.90
AVE WIND SPEED	2.3	4.7	4.4	4.9	3.6	2.2	2.0	1.8	2.2	2.7	3.6	7.8	8.8	6.0	2.7	1.7	7.2

01/[illegible]77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY B ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	4
1.01 TO 1.50	1	0	0	1	0	0	3	3	1	1	0	1	0	0	0	0	11
1.51 TO 2.00	1	2	0	5	1	6	2	1	1	0	1	1	1	2	1	1	26
2.01 TO 3.00	2	2	8	6	7	0	2	1	1	2	5	5	9	8	2	2	62
3.01 TO 4.00	0	0	3	12	2	2	0	0	0	0	1	3	10	10	1	0	44
4.01 TO 5.00	0	0	3	8	3	0	0	0	0	0	0	1	13	10	2	0	40
5.01 TO 6.00	0	0	1	5	2	0	0	0	0	0	1	5	18	5	0	0	37
6.01 TO 7.00	0	0	3	5	1	0	0	0	0	0	0	7	19	3	0	0	38
7.01 TO 8.00	0	0	1	2	1	0	0	0	0	0	0	4	11	3	0	0	22
8.01 TO 9.00	0	0	0	3	0	0	0	0	0	0	0	7	6	2	0	0	18
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	2	9	0	0	0	11
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	2	4	27	0	0	0	33
TOTALS	4	5	19	47	17	8	7	5	4	3	11	40	124	43	6	3	346

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	.01	0.00	.01	0.00	.01	0.00	0.00	0.00	.05
1.01 TO 1.50	.01	0.00	0.00	.01	0.00	0.00	.04	.04	.01	.01	0.00	.01	0.00	0.00	0.00	0.00	.13
1.51 TO 2.00	.01	.02	0.00	.06	.01	.07	.02	.01	.01	0.00	.01	.01	.01	.02	.01	.01	.31
2.01 TO 3.00	.02	.02	.09	.07	.08	0.00	.02	.01	.01	.02	.06	.06	.11	.09	.02	.02	.73
3.01 TO 4.00	0.00	0.00	.04	.14	.02	.02	0.00	0.00	0.00	0.00	.01	.04	.12	.12	.01	0.00	.52
4.01 TO 5.00	0.00	0.00	.04	.09	.04	0.00	0.00	0.00	0.00	0.00	0.00	.01	.15	.12	.02	0.00	.47
5.01 TO 6.00	0.00	0.00	.01	.06	.02	0.00	0.00	0.00	0.00	0.00	.01	.06	.21	.06	0.00	0.00	.44
6.01 TO 7.00	0.00	0.00	.04	.06	.01	0.00	0.00	0.00	0.00	0.00	0.00	.08	.22	.04	0.00	0.00	.45
7.01 TO 8.00	0.00	0.00	.01	.02	.01	0.00	0.00	0.00	0.00	0.00	0.00	.05	.13	.04	0.00	0.00	.26
8.01 TO 9.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.03	.07	.02	0.00	0.00	.21
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02	.11	0.00	0.00	0.00	.13
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02	.05	.32	0.00	0.00	0.00	.39
TOTALS	.05	.06	.22	.56	.20	.09	.08	.06	.05	.04	.13	.47	1.47	.51	.07	.04	4.04
AVE WIND SPEED	2.2	1.9	4.0	4.4	3.8	2.2	1.8	1.5	1.5	2.0	4.2	6.4	7.0	4.5	3.1	2.1	5.2

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY C ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
																	0
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.51 TO 1.00	0	0	1	0	0	0	1	1	0	0	0	0	2	0	0	0	5
1.01 TO 1.50	0	1	1	1	0	0	4	5	2	3	1	2	0	0	1	0	21
1.51 TO 2.00	1	2	1	4	0	2	3	1	1	2	4	4	5	0	1	2	33
2.01 TO 3.00	2	3	6	8	5	1	0	0	4	1	5	5	13	14	6	0	73
3.01 TO 4.00	0	1	3	16	5	0	1	0	0	1	0	8	15	17	1	0	68
4.01 TO 5.00	0	0	2	5	1	0	0	0	0	0	1	9	20	20	2	0	60
5.01 TO 6.00	0	0	3	5	0	0	0	0	0	0	2	3	16	4	0	0	35
6.01 TO 7.00	0	0	3	3	0	0	0	0	0	0	0	8	15	1	0	0	30
7.01 TO 8.00	0	1	0	1	0	0	0	0	0	0	0	5	13	5	0	0	25
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	1	3	13	0	0	0	17
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	9
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	1	6	22	1	0	30
TOTALS	3	8	20	43	11	3	9	7	7	7	15	54	144	62	11	2	406

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
																	0.00
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.51 TO 1.00	0.00	0.00	.01	0.00	0.00	0.00	.01	.01	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	.06
1.01 TO 1.50	0.00	.01	.01	.01	0.00	0.00	.05	.06	.02	.04	.01	.02	0.00	0.00	.01	0.00	.25
1.51 TO 2.00	.01	.02	.01	.05	0.00	.02	.04	.01	.01	.02	.05	.05	.06	0.00	.01	.02	.39
2.01 TO 3.00	.02	.04	.07	.09	.06	.01	0.00	0.00	.05	.01	.06	.06	.15	.17	.07	0.00	.86
3.01 TO 4.00	0.00	.01	.04	.19	.06	0.00	.01	0.00	0.00	.01	0.00	.09	.18	.20	.01	0.00	.80
4.01 TO 5.00	0.00	0.00	.02	.06	.01	0.00	0.00	0.00	0.00	0.00	.01	.11	.24	.24	.02	0.00	.71
5.01 TO 6.00	0.00	0.00	.04	.05	0.00	0.00	0.00	0.00	0.00	0.00	.02	.04	.21	.05	0.00	0.00	.41
6.01 TO 7.00	0.00	0.00	.04	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.09	.18	.01	0.00	0.00	.35
7.01 TO 8.00	0.00	.01	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.06	.15	.06	0.00	0.00	.30
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.04	.15	0.00	0.00	.20
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.09	0.00	0.00	0.00	.11
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.07	.26	.01	0.00	.35
TOTALS	.04	.09	.24	.51	.13	.04	.11	.08	.08	.08	.18	.64	1.70	.73	.13	.02	4.80
AVE WIND SPEED	2.0	2.7	3.9	3.8	3.2	2.1	1.7	1.3	2.0	1.9	3.8	5.8	6.4	4.3	2.9	1.7	4.6

01 /77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY D ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
0.51 TO 1.00	3	1	0	3	2	6	9	7	8	5	4	6	6	4	2	2	68
1.01 TO 1.50	7	4	12	7	9	10	12	9	6	17	16	13	22	17	5	3	169
1.51 TO 2.00	0	10	9	19	17	9	12	7	7	10	17	22	27	22	9	3	200
2.01 TO 3.00	6	4	21	45	32	11	3	2	2	5	19	32	60	44	15	4	305
3.01 TO 4.00	0	5	10	33	14	0	0	1	1	4	11	27	58	36	0	0	215
4.01 TO 5.00	0	3	7	16	15	0	0	0	0	0	4	27	52	28	1	1	154
5.01 TO 6.00	0	0	3	5	9	0	0	0	1	3	9	44	58	12	1	0	145
6.01 TO 7.00	0	2	5	7	3	0	0	0	0	0	2	65	66	10	0	0	160
7.01 TO 8.00	0	0	2	12	1	0	0	0	0	0	3	36	64	7	0	0	125
8.01 TO 9.00	0	0	2	3	0	0	0	1	0	0	1	31	56	1	0	0	95
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	2	31	48	2	0	0	83
MORE THAN 10	0	0	0	0	0	0	0	0	0	1	1	36	84	2	0	0	124
TOTALS	16	29	71	150	107	36	36	27	25	45	89	372	611	185	33	13	1845

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	.02
0.51 TO 1.00	.04	.01	0.00	.04	.02	.07	.11	.08	.09	.06	.05	.07	.07	.05	.02	.02	.80
1.01 TO 1.50	.08	.05	.14	.08	.11	.12	.14	.11	.07	.20	.19	.15	.26	.20	.06	.04	2.00
1.51 TO 2.00	0.00	.12	.11	.22	.20	.11	.14	.08	.06	.12	.20	.26	.32	.26	.11	.04	2.37
2.01 TO 3.00	.07	.05	.25	.53	.38	.13	.04	.02	.02	.06	.22	.38	.71	.52	.18	.05	3.61
3.01 TO 4.00	0.00	.06	.12	.39	.22	0.00	0.00	.01	.01	.05	.13	.32	.60	.43	0.00	0.00	2.54
4.01 TO 5.00	0.00	.04	.08	.19	.18	0.00	0.00	0.00	0.00	0.00	.05	.32	.62	.33	.01	.01	1.82
5.01 TO 6.00	0.00	0.00	.04	.06	.11	0.00	0.00	0.00	.01	.04	.11	.52	.69	.14	.01	0.00	1.72
6.01 TO 7.00	0.00	.02	.06	.08	.04	0.00	0.00	0.00	0.00	0.00	.02	.77	.78	.12	0.00	0.00	1.89
7.01 TO 8.00	0.00	0.00	.02	.14	.01	0.00	0.00	0.00	0.00	0.00	.04	.43	.76	.08	0.00	0.00	1.48
8.01 TO 9.00	0.00	0.00	.02	.04	0.00	0.00	0.00	.01	0.00	0.00	.01	.37	.66	.01	0.00	0.00	1.12
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02	.37	.57	.02	0.00	0.00	.98
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.01	.43	.99	.02	0.00	0.00	1.47
TOTALS	.19	.34	.84	1.77	1.27	.43	.43	.32	.30	.53	1.05	4.40	7.23	2.19	.39	.15	21.82
AVE WIND SPEED	1.7	2.7	3.3	3.5	3.1	1.6	1.4	1.8	1.6	2.1	3.2	6.1	6.3	3.5	2.1	1.9	4.7

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY E ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	1
0.26 TO 0.50	0	0	0	1	2	0	0	0	0	1	2	3	1	1	1	1	13
0.51 TO 1.00	3	6	11	16	7	12	7	9	5	14	12	9	12	7	12	8	150
1.01 TO 1.50	3	8	12	15	8	12	15	12	8	12	16	12	5	12	3	4	157
1.51 TO 2.00	4	7	16	11	15	5	9	7	2	15	24	18	22	15	9	5	184
2.01 TO 3.00	1	7	23	37	30	15	2	3	5	21	35	62	45	45	10	4	350
3.01 TO 4.00	2	2	24	18	13	1	1	0	1	10	55	91	84	43	5	1	351
4.01 TO 5.00	1	3	11	10	3	0	0	1	0	5	29	85	101	41	4	0	294
5.01 TO 6.00	0	0	5	4	0	1	0	0	1	0	30	95	105	27	2	0	270
6.01 TO 7.00	0	1	4	1	1	0	0	0	0	1	15	114	95	26	2	0	260
7.01 TO 8.00	0	2	2	4	1	0	0	0	0	0	6	82	79	13	0	0	191
8.01 TO 9.00	0	3	2	5	0	0	0	0	0	0	4	52	50	6	0	0	122
9.01 TO 10.00	0	4	3	2	0	0	0	0	1	0	1	35	31	4	0	0	81
MORE THAN 10	0	16	3	0	0	0	0	0	0	0	5	45	49	2	0	0	120
TOTALS	14	59	121	124	80	46	34	32	23	79	236	703	679	242	48	23	2544

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.01
0.26 TO 0.50	0.00	0.00	0.00	.01	.02	0.00	0.00	0.00	0.00	.01	.02	.04	.01	.01	.01	.01	.15
0.51 TO 1.00	.04	.07	.13	.19	.08	.14	.08	.11	.06	.17	.14	.11	.14	.08	.14	.09	1.77
1.01 TO 1.50	.04	.09	.14	.18	.09	.14	.18	.14	.09	.14	.19	.14	.06	.14	.04	.05	1.86
1.51 TO 2.00	.05	.08	.19	.13	.18	.06	.11	.08	.02	.18	.28	.21	.26	.18	.11	.06	2.18
2.01 TO 3.00	.01	.08	.33	.44	.35	.18	.02	.04	.05	.25	.41	.73	.53	.53	.12	.05	4.14
3.01 TO 4.00	.02	.02	.28	.21	.15	.01	.01	0.00	.01	.12	.65	1.08	.99	.51	.06	.01	4.15
4.01 TO 5.00	.01	.04	.13	.12	.04	0.00	0.00	.01	0.00	.06	.34	1.01	1.19	.48	.05	0.00	3.48
5.01 TO 6.00	0.00	.06	.05	0.00	.01	0.00	0.00	.01	0.00	.35	1.12	1.24	.32	.02	0.00	3.19
6.01 TO 7.00	0.00	.01	.05	.01	.01	0.00	0.00	0.00	0.00	.01	.18	1.35	1.12	.31	.02	0.00	3.08
7.01 TO 8.00	0.00	.02	.02	.05	.01	0.00	0.00	0.00	0.00	0.00	.09	.97	.93	.15	0.00	0.00	2.26
8.01 TO 9.00	0.00	.04	.02	.06	0.00	0.00	0.00	0.00	0.00	0.00	.05	.62	.59	.07	0.00	0.00	1.44
9.01 TO 10.00	0.00	.05	.04	.02	0.00	0.00	0.00	0.00	.01	0.00	.01	.41	.37	.05	0.00	0.00	.96
MORE THAN 10	0.00	.19	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.06	.53	.58	.02	0.00	0.00	1.42
TOTALS	.17	.70	1.43	1.47	.95	.54	.40	.38	.27	.93	2.79	8.32	8.03	2.86	.57	.27	30.09
AVE WIND SPEED	1.9	5.8	3.4	3.0	2.3	1.6	1.4	1.4	2.1	2.1	3.9	5.0	5.9	4.2	2.3	1.4	4.7

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY F ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	3
0.26 TO 0.50	2	2	0	4	0	2	2	2	3	4	3	4	2	5	2	3	40
0.51 TO 1.00	5	8	9	10	14	13	13	18	15	38	21	15	13	14	12	5	223
1.01 TO 1.50	6	9	6	10	8	11	11	7	9	10	14	11	3	8	2	4	129
1.51 TO 2.00	2	3	6	7	6	9	5	4	3	13	13	8	10	10	3	3	105
2.01 TO 3.00	2	17	20	8	13	8	4	1	4	19	37	23	13	16	2	2	189
3.01 TO 4.00	0	13	22	21	11	0	0	0	2	5	24	24	16	10	3	1	152
4.01 TO 5.00	0	1	19	8	4	0	0	0	0	1	17	17	14	11	2	0	94
5.01 TO 6.00	0	0	4	3	2	0	0	0	0	0	3	9	11	8	0	0	40
6.01 TO 7.00	0	0	3	0	0	0	0	0	0	0	0	3	7	4	0	1	18
7.01 TO 8.00	0	0	0	1	0	0	0	0	0	0	0	0	3	1	0	0	5
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
9.01 TO 10.00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	17	53	90	72	58	43	35	32	36	90	132	115	93	87	26	19	1001

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	.04
0.26 TO 0.50	.02	.02	0.00	.05	0.00	.02	.02	.02	.04	.05	.04	.05	.02	.06	.02	.04	.47
0.51 TO 1.00	.06	.09	.11	.12	.17	.15	.15	.21	.18	.45	.25	.18	.15	.17	.14	.06	2.64
1.01 TO 1.50	.07	.11	.07	.12	.07	.13	.13	.08	.11	.12	.17	.13	.04	.09	.02	.05	1.53
1.51 TO 2.00	.02	.04	.07	.08	.07	.11	.06	.05	.04	.15	.15	.04	.12	.12	.04	.04	1.24
2.01 TO 3.00	.02	.20	.24	.09	.15	.09	.05	.01	.05	.22	.44	.27	.15	.19	.02	.02	2.24
3.01 TO 4.00	0.00	.15	.26	.25	.13	0.00	0.00	0.00	.02	.06	.28	.28	.19	.12	.04	.01	1.80
4.01 TO 5.00	0.00	.01	.22	.09	.05	0.00	0.00	0.00	0.00	.01	.20	.20	.17	.13	.02	0.00	1.11
5.01 TO 6.00	0.00	0.00	.05	.04	.02	0.00	0.00	0.00	0.00	0.00	.04	.11	.13	.09	0.00	0.00	.47
6.01 TO 7.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.04	.08	.05	0.00	.01	.21
7.01 TO 8.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.04	.01	0.00	0.00	.06
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	.01	0.00	0.00	0.00	.02
9.01 TO 10.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.20	.63	1.06	.85	.69	.51	.41	.38	.43	1.06	1.56	1.36	1.10	1.03	.31	.22	11.84
AVE WIND SPEED	1.2	2.2	3.2	2.6	2.3	1.4	1.2	1.0	1.2	1.5	2.4	2.9	3.4	2.7	1.5	1.6	2.3

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND WIND SPEED

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STABILITY CATEGORY G ONLY
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

DISTRIBUTION BY SPEED AND DIRECTION (NUMBER)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0
0.26 TO 0.50	7	0	4	4	3	5	6	4	4	7	8	7	7	11	3	0	80
0.51 TO 1.00	10	5	10	16	14	23	21	20	38	54	87	61	49	23	15	8	454
1.01 TO 1.50	2	2	4	14	12	10	4	4	13	33	39	23	5	5	4	3	177
1.51 TO 2.00	1	3	4	11	6	9	5	2	2	12	26	7	9	5	6	1	109
2.01 TO 3.00	4	7	15	20	10	7	0	0	1	7	14	9	4	6	1	2	107
3.01 TO 4.00	2	3	22	10	4	0	0	0	0	0	8	5	4	2	0	0	60
4.01 TO 5.00	0	2	31	8	2	0	0	0	0	0	1	2	1	0	1	1	49
5.01 TO 6.00	0	0	9	2	0	0	0	0	0	0	0	1	0	0	2	0	14
6.01 TO 7.00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7.01 TO 8.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.01 TO 9.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.01 TO 10.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORE THAN 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	26	23	100	85	51	54	36	30	58	113	183	115	79	52	32	15	1052

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

SPEED(MPS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALMS																	0.00
0.26 TO 0.50	.08	0.00	.05	.05	.04	.06	.07	.05	.05	.08	.09	.08	.06	.13	.04	0.00	.95
0.51 TO 1.00	.12	.06	.12	.19	.17	.27	.25	.24	.45	.64	1.03	.72	.58	.27	.18	.09	5.37
1.01 TO 1.50	.02	.02	.05	.17	.14	.12	.05	.05	.15	.39	.46	.27	.06	.06	.05	.04	2.09
1.51 TO 2.00	.01	.04	.05	.13	.07	.11	.06	.02	.02	.14	.31	.08	.11	.06	.07	.01	1.29
2.01 TO 3.00	.05	.08	.18	.24	.12	.08	0.00	0.00	.01	.08	.17	.11	.05	.07	.01	.02	1.27
3.01 TO 4.00	.02	.04	.25	.12	.05	0.00	0.00	0.00	0.00	0.00	.09	.06	.05	.02	0.00	0.00	.71
4.01 TO 5.00	0.00	.02	.37	.09	.02	0.00	0.00	0.00	0.00	0.00	.01	.02	.01	0.00	.01	.01	.58
5.01 TO 6.00	0.00	0.00	.11	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01	0.00	0.00	.02	0.00	.17
6.01 TO 7.00	0.00	.01	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02
7.01 TO 8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.01 TO 9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.01 TO 10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MORE THAN 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	.31	.27	1.18	1.01	.60	.64	.43	.35	.69	1.34	2.16	1.36	.93	.62	.38	.18	12.44
AVE WIND SPEED	1.2	2.4	3.3	2.1	1.6	1.2	.8	.8	.9	1.1	1.3	1.3	1.1	1.1	1.4	1.3	1.5

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)

WIND DIRECTION SECTOR

DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	78	132	215	247	223	150	140	126	143	230	392	571	510	388	134	77	3756
2	5	15	60	63	47	27	14	11	10	45	87	160	157	95	17	3	816
3	0	3	17	31	10	3	2	0	1	9	23	62	75	33	0	0	269
4	0	1	11	16	5	1	0	1	0	1	8	33	69	16	0	0	162
5	1	0	4	9	0	0	1	0	0	1	4	26	38	1	0	0	85
6	0	0	4	5	2	0	0	0	0	0	1	7	29	0	0	0	48
7	0	0	1	3	0	0	0	0	0	0	0	8	22	2	0	0	36
8	0	0	1	2	0	0	0	0	0	0	0	4	15	3	0	0	25
9	0	1	0	0	0	0	0	0	0	0	0	2	9	0	0	0	12
10	0	0	0	3	0	0	0	0	0	0	0	1	7	0	0	0	11
11	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	7
12	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	7
13	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	6
14	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	84	153	314	379	287	181	157	138	154	286	515	879	953	538	151	80	5249
PERCENTILE LEVELS																	
50.0	.5	.6	.7	.8	.6	.6	.6	.5	.5	.6	.7	.8	.9	.7	.6	.5	.7
80.0	.9	.9	1.6	1.9	1.1	1.0	.9	.9	.9	1.0	1.2	1.8	3.3	1.4	.9	.8	1.5
90.0	1.0	1.4	2.4	3.0	1.8	1.5	1.1	1.0	1.0	1.6	1.8	3.0	5.3	2.0	1.1	.9	2.6
99.0	4.2	8.5	6.0	7.6	3.8	2.7	2.7	2.0	1.9	2.9	4.0	7.8	12.3	4.6	1.9	1.7	8.0
99.9	4.9	12.8	13.7	9.9	5.9	3.9	4.8	3.9	2.8	4.7	9.5	18.1	17.0	7.8	2.0	2.0	16.2
MAX NO. HOURS	5	13	14	10	6	4	5	4	3	5	8	19	18	8	2	2	19

8784 TOTAL HOURS INPUT 8614 HOURS USED ABOVE 8532 HOURS WITH STABILITY

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 1/ 1/76 TO 12/31/76 LEVEL = 130.0 FT

CONDITIONS: (NONE)

	WIND DIRECTION SECTOR																
DURATION (HOURS)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	60	92	188	185	186	131	111	85	110	209	296	490	503	381	104	69	3200
2	2	16	42	60	59	24	14	7	7	45	54	157	186	119	14	1	816
3	1	4	12	32	25	4	3	2	0	9	24	69	112	41	0	1	339
4	0	2	5	21	3	1	3	0	0	5	8	34	61	18	0	0	161
5	0	1	4	7	7	1	0	0	0	1	4	14	37	5	0	0	81
6	0	0	1	3	1	0	0	0	0	0	1	11	25	6	0	0	48
7	0	0	0	5	1	0	0	0	0	1	2	9	18	1	0	0	37
8	0	0	1	5	0	0	0	0	0	0	0	1	27	3	0	0	37
9	0	0	1	0	0	0	0	0	0	0	0	2	10	0	0	0	13
10	0	0	0	1	0	0	0	0	0	0	0	1	6	0	0	0	8
11	0	0	0	0	0	0	0	0	0	0	0	2	11	0	0	0	13
12	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0	0	7
13	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
14	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
16	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
17	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
26 - 30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	63	115	255	329	282	161	131	94	117	270	389	791	1024	574	118	71	4784
PERCENTILE LEVELS																	
50.0	.5	.6	.7	.9	.8	.6	.6	.6	.5	.6	.7	.8	1.0	.8	.6	.5	.7
80.0	.9	1.0	1.4	2.3	1.7	1.0	.9	.9	.9	1.2	1.3	1.9	3.3	1.7	.9	.8	1.8
90.0	.9	1.7	2.0	3.5	2.4	1.6	1.5	1.0	1.0	1.8	2.0	2.9	5.9	2.4	1.2	.9	2.9
99.0	2.4	3.9	7.5	7.7	4.9	3.4	3.6	2.5	1.8	3.9	4.8	6.9	15.8	5.7	1.9	2.3	9.5
99.9	2.9	4.9	28.7	11.7	6.7	4.8	4.0	3.0	2.0	6.7	6.8	16.2	25.0	7.8	2.0	2.9	20.4
MAX NO. HOURS	3	5	26	12	7	5	4	3	2	7	7	17	36	8	2	3	36

8784 TOTAL HOURS INPUT 8587 HOURS USED ABOVE 8520 HOURS WITH STABILITY

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

WIND DIRECTION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 1/ 1/76 TO 12/31/76 LEVEL = 230.0 FT

CONDITIONS: (NONE)

DURATION (HOURS)	WIND DIRECTION SECTOR																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
1	58	106	205	204	191	116	85	71	73	134	234	498	457	341	84	56	2913
2	6	14	52	83	61	23	12	8	9	10	24	157	183	89	17	6	754
3	1	4	6	31	20	7	4	2	0	4	3	77	107	25	0	1	292
4	0	2	10	25	7	1	2	0	0	0	3	31	57	10	0	0	148
5	0	1	8	11	6	1	0	0	0	1	0	26	45	5	0	0	104
6	0	0	3	3	0	0	0	0	0	0	0	12	45	1	0	0	64
7	0	0	0	3	0	0	0	0	0	0	0	7	22	3	0	0	35
8	0	0	3	2	0	0	0	0	0	0	0	6	27	2	0	0	40
9	0	0	0	2	0	0	0	0	0	0	0	2	16	0	0	0	20
10	0	0	1	1	0	0	0	0	0	0	0	2	16	0	0	0	20
11	0	0	0	0	0	0	0	0	0	0	0	1	9	0	0	0	10
12	0	0	1	1	0	0	0	0	0	0	0	1	9	0	0	0	12
13	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9
14	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3
15	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
16	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
17	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
20	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
26 - 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
36 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	65	127	289	366	295	148	103	81	92	149	264	823	1024	476	101	63	4446
PERCENTILE LEVELS																	
50.0	.6	.6	.7	.9	.7	.6	.6	.6	.6	.6	.6	.8	1.3	.7	.6	.6	.9
80.0	.9	1.0	1.5	2.2	1.6	1.1	1.0	.9	.9	.9	.9	2.0	4.3	1.4	1.0	.9	1.9
90.0	1.1	1.6	2.5	3.5	2.2	1.7	1.6	1.2	1.1	1.0	1.2	3.3	7.2	2.0	1.4	1.1	3.3
99.0	2.4	3.9	7.7	8.2	4.5	3.5	3.5	2.6	1.9	2.9	3.1	8.4	16.6	6.1	1.9	2.4	11.1
99.9	2.9	4.9	11.7	11.6	5.0	4.9	3.9	3.0	2.0	4.9	3.9	16.2	24.9	7.8	2.0	2.9	19.3
MAX NO. HOURS	3	5	12	12	5	5	4	3	2	5	4	17	31	8	2	3	31

8794 TOTAL HOURS INPUT 8552 HOURS USED ABOVE 8557 HOURS WITH STABILITY

STABILITY SUMMARIES

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY/INVERSION BY MONTH AND SEASON (PERCENT FREQUENCY)

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

	STABILITY CATEGORIES							
PERIOD	G	F	E	D	C	B	A	INVERSION
JANUARY	9.3	18.9	38.2	31.7	1.5	.5	.8	53.7
FEBRUARY	7.0	13.9	39.3	28.1	3.0	3.2	5.5	47.0
MARCH	11.1	11.3	31.6	21.1	5.7	4.6	14.7	42.6
APRIL	9.2	10.1	39.0	20.5	3.9	5.9	11.4	45.5
MAY	10.7	8.0	25.5	19.5	4.7	4.1	27.4	33.4
JUNE	5.6	4.1	27.1	22.0	7.5	5.4	28.3	23.2
JULY	4.8	6.7	25.2	22.2	5.8	5.8	29.5	23.5
AUGUST	5.7	5.8	26.7	23.2	6.6	6.9	25.1	26.2
SEPTEMBER	17.5	12.0	16.4	16.3	6.8	4.7	22.2	42.9
OCTOBER	30.6	14.0	21.4	23.5	3.2	2.8	4.4	60.9
NOVEMBER	14.2	19.3	29.6	24.2	4.1	2.0	2.8	57.3
DECEMBER	16.7	17.0	38.8	15.7	4.3	3.1	4.3	62.9
WINTER	10.6	16.6	38.7	25.4	2.9	2.2	3.5	53.9
SPRING	10.4	9.8	31.7	20.4	4.8	4.8	18.1	40.3
SUMMER	5.4	5.5	26.3	22.5	6.6	6.0	27.6	24.3
FALL	22.9	15.1	23.2	21.3	4.7	3.1	9.7	53.8
ANNUAL	12.3	11.7	29.9	22.4	4.8	4.1	14.8	42.8

8784 TOTAL HOURS INPUT 8532 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

DIURNAL STABILITY AND INVERSION FREQUENCY (NUMBER/PERCENT)

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

HOUR OF DAY	A	B	C	D	E	F	G	TOTAL	INVERSION
1	0/ 0.0	0/ 0.0	1/ 1.1	12/13.5	40/44.9	17/19.1	19/21.3	89	64/71.9
2	0/ 0.0	0/ 0.0	0/ 0.0	11/12.6	39/45.3	19/22.1	17/19.8	86	63/73.3
3	0/ 0.0	0/ 0.0	0/ 0.0	15/17.0	35/39.8	20/22.7	18/20.5	88	57/64.8
4	0/ 0.0	0/ 0.0	0/ 0.0	9/10.5	39/45.3	27/31.4	11/12.8	86	61/70.9
5	0/ 0.0	0/ 0.0	1/ 1.1	7/ 8.0	43/49.4	25/28.7	11/12.6	87	69/79.3
6	0/ 0.0	0/ 0.0	0/ 0.0	10/11.4	44/50.0	19/21.6	15/17.0	88	62/70.5
7	0/ 0.0	0/ 0.0	0/ 0.0	10/11.5	37/42.5	30/34.5	10/11.5	87	63/72.4
8	0/ 0.0	0/ 0.0	0/ 0.0	10/11.5	38/43.7	30/34.5	9/10.3	87	57/65.5
9	0/ 0.0	0/ 0.0	1/ 1.1	29/33.0	46/52.3	9/10.2	3/ 3.4	88	29/33.0
10	7/ 8.3	8/ 9.5	6/ 7.1	48/57.1	13/15.5	2/ 2.4	0/ 0.0	84	9/10.7
11	14/16.9	8/ 9.6	9/10.8	44/53.0	7/ 8.4	0/ 0.0	1/ 1.2	83	2/ 2.4
12	23/26.7	10/11.6	8/ 9.3	36/41.9	8/ 9.3	1/ 1.2	0/ 0.0	86	4/ 4.7
13	13/15.1	9/10.5	10/11.6	45/52.3	8/ 9.3	1/ 1.2	0/ 0.0	86	4/ 4.7
14	11/12.4	7/ 7.9	12/13.5	48/53.9	9/10.1	2/ 2.2	0/ 0.0	89	6/ 6.7
15	3/ 3.4	4/ 4.5	8/ 9.1	58/65.9	14/15.9	0/ 0.0	1/ 1.1	88	6/ 6.8
16	1/ 1.1	0/ 0.0	3/ 3.4	39/44.3	37/42.0	4/ 4.5	4/ 4.5	88	24/27.3
17	0/ 0.0	0/ 0.0	0/ 0.0	25/28.1	40/44.9	16/18.0	8/ 9.0	89	43/48.3
18	0/ 0.0	0/ 0.0	0/ 0.0	12/14.3	46/54.8	17/20.2	9/10.7	84	57/67.9
19	0/ 0.0	0/ 0.0	0/ 0.0	11/12.8	42/48.8	22/25.6	11/12.8	86	64/74.4
20	0/ 0.0	0/ 0.0	1/ 1.2	12/14.1	39/45.9	15/17.6	18/21.2	85	60/70.6
21	0/ 0.0	0/ 0.0	0/ 0.0	9/10.2	51/58.0	14/15.9	14/15.9	88	61/69.3
22	0/ 0.0	0/ 0.0	0/ 0.0	12/13.5	47/52.8	18/20.2	12/13.5	89	60/67.4
23	0/ 0.0	0/ 0.0	1/ 1.1	9/10.0	42/46.7	19/21.1	19/21.1	90	60/66.7
24	1/ 1.1	1/ 1.1	0/ 0.0	10/11.1	46/51.1	21/23.3	11/12.2	90	64/71.1
ALL	73/ 3.5	47/ 2.2	61/ 2.9	531/25.4	810/38.7	348/16.6	221/10.6	2091	1049/50.2

2184 TOTAL HOURS INPUT 2091 HOURS INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

DIURNAL STABILITY AND INVERSION FREQUENCY (NUMBER/PERCENT)

DATES 3/ 1/75 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

HOUR OF DAY	A	B	C	D	E	F	G	TOTAL	INVERSION
1	0/ 0.0	1/ 1.1	0/ 0.0	6/ 6.7	45/50.0	15/16.7	23/25.6	90	63/70.0
2	0/ 0.0	0/ 0.0	0/ 0.0	5/ 5.6	48/53.3	18/20.0	19/21.1	90	70/77.8
3	0/ 0.0	0/ 0.0	0/ 0.0	5/ 5.6	47/52.2	16/17.8	22/24.4	90	71/78.9
4	0/ 0.0	0/ 0.0	0/ 0.0	5/ 5.6	46/51.7	22/24.7	16/18.0	89	73/82.0
5	0/ 0.0	0/ 0.0	0/ 0.0	6/ 6.7	45/50.6	19/21.3	19/21.3	89	74/83.1
6	0/ 0.0	0/ 0.0	0/ 0.0	23/25.8	42/47.2	12/13.5	12/13.5	89	52/58.4
7	6/ 6.7	8/ 9.0	1/ 1.1	40/44.9	24/27.0	3/ 3.4	7/ 7.9	89	26/29.2
8	19/21.8	11/12.6	9/10.3	37/42.5	10/11.5	1/ 1.1	0/ 0.0	87	6/ 6.9
9	37/42.5	11/12.6	8/ 9.2	27/31.0	4/ 4.6	0/ 0.0	0/ 0.0	87	2/ 2.3
10	45/50.6	9/10.1	8/ 9.0	22/24.7	5/ 5.6	0/ 0.0	0/ 0.0	89	3/ 3.4
11	46/52.9	15/17.2	8/ 9.2	13/14.9	3/ 3.4	1/ 1.1	1/ 1.1	87	2/ 2.3
12	50/56.2	12/13.5	9/10.1	13/14.6	3/ 3.4	1/ 1.1	1/ 1.1	89	1/ 1.1
13	48/55.8	7/ 8.1	8/ 9.3	19/22.1	2/ 2.3	1/ 1.2	1/ 1.2	86	2/ 2.3
14	44/51.2	8/ 9.3	14/16.3	16/18.6	2/ 2.3	2/ 2.3	0/ 0.0	86	2/ 2.3
15	43/50.6	7/ 8.2	13/15.3	18/21.2	2/ 2.4	2/ 2.4	0/ 0.0	85	2/ 2.4
16	31/36.0	7/ 8.1	14/16.3	26/30.2	7/ 8.1	1/ 1.2	0/ 0.0	86	2/ 2.3
17	15/17.4	5/ 5.8	9/10.5	49/57.0	8/ 9.3	0/ 0.0	0/ 0.0	86	6/ 7.0
18	0/ 0.0	1/ 1.1	0/ 0.0	47/52.2	37/41.1	5/ 5.6	0/ 0.0	90	24/26.7
19	0/ 0.0	0/ 0.0	0/ 0.0	17/19.3	52/59.1	15/17.0	4/ 4.5	88	49/55.7
20	0/ 0.0	0/ 0.0	1/ 1.1	10/11.2	49/55.1	13/14.6	16/18.0	89	53/61.8
21	0/ 0.0	0/ 0.0	0/ 0.0	10/11.1	48/53.3	15/16.7	17/18.9	90	63/70.0
22	0/ 0.0	0/ 0.0	0/ 0.0	3/ 3.3	52/57.8	13/14.4	22/24.4	90	65/72.2
23	0/ 0.0	0/ 0.0	0/ 0.0	4/ 4.4	51/56.7	15/16.7	20/22.2	90	69/76.7
24	0/ 0.0	0/ 0.0	0/ 0.0	11/12.2	41/45.6	18/20.0	20/22.2	90	63/70.0
ALL	384/18.1	102/ 4.8	102/ 4.8	432/20.4	673/31.7	208/ 9.8	220/10.4	2121	845/39.8

2203 TOTAL HOURS INPUT 2121 HOURS INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

DIURNAL STABILITY AND INVERSION FREQUENCY (NUMBER/PERCENT)

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

HOUR OF DAY	A	B	C	D	E	F	G	TOTAL	INVERSION
1	0/ 0.0	0/ 0.0	0/ 0.0	15/16.5	53/58.2	13/14.3	10/11.0	91	55/60.4
2	0/ 0.0	0/ 0.0	0/ 0.0	16/17.6	51/56.0	12/13.2	12/13.2	91	47/51.6
3	0/ 0.0	0/ 0.0	0/ 0.0	17/18.7	48/52.7	14/15.4	12/13.2	91	49/53.8
4	0/ 0.0	0/ 0.0	0/ 0.0	15/16.5	51/56.0	10/11.0	15/16.5	91	54/59.3
5	0/ 0.0	0/ 0.0	0/ 0.0	20/22.0	46/50.5	11/12.1	14/15.4	91	50/54.9
6	0/ 0.0	0/ 0.0	4/ 4.4	57/62.6	20/22.0	9/ 9.9	1/ 1.1	91	18/19.8
7	22/24.2	17/18.7	17/18.7	30/33.0	5/ 5.5	0/ 0.0	0/ 0.0	91	2/ 2.2
8	42/46.2	13/14.3	17/18.7	19/20.9	0/ 0.0	0/ 0.0	0/ 0.0	91	0/ 0.0
9	58/64.4	10/11.1	10/11.1	12/13.3	0/ 0.0	0/ 0.0	0/ 0.0	90	0/ 0.0
10	60/67.4	11/12.4	12/13.5	5/ 5.6	1/ 1.1	0/ 0.0	0/ 0.0	89	0/ 0.0
11	62/71.3	10/11.5	9/10.3	6/ 6.9	0/ 0.0	0/ 0.0	0/ 0.0	87	0/ 0.0
12	64/77.1	5/ 6.0	5/ 6.0	9/10.8	0/ 0.0	0/ 0.0	0/ 0.0	83	0/ 0.0
13	61/69.3	11/12.5	8/ 9.1	7/ 8.0	1/ 1.1	0/ 0.0	0/ 0.0	88	0/ 0.0
14	69/78.4	7/ 8.0	6/ 6.8	6/ 6.8	0/ 0.0	0/ 0.0	0/ 0.0	88	0/ 0.0
15	68/76.4	7/ 7.9	13/11.2	3/ 3.4	1/ 1.1	0/ 0.0	0/ 0.0	89	1/ 1.1
16	54/60.7	14/15.7	9/10.1	11/12.4	1/ 1.1	0/ 0.0	0/ 0.0	89	0/ 0.0
17	32/35.6	19/21.1	18/20.0	20/22.2	1/ 1.1	0/ 0.0	0/ 0.0	90	0/ 0.0
18	2/ 2.2	5/ 5.6	13/20.0	62/68.9	2/ 2.2	1/ 1.1	0/ 0.0	90	2/ 2.2
19	1/ 1.1	0/ 0.0	0/ 0.0	54/59.3	31/34.1	3/ 3.3	2/ 2.2	91	16/17.6
20	0/ 0.0	0/ 0.0	0/ 0.0	25/27.5	50/54.9	11/12.1	5/ 5.5	91	42/46.2
21	0/ 0.0	0/ 0.0	0/ 0.0	20/22.0	52/57.1	9/ 9.9	10/11.0	91	47/51.6
22	0/ 0.0	0/ 0.0	0/ 0.0	17/18.7	57/62.6	4/ 4.4	13/14.3	91	48/52.7
23	0/ 0.0	1/ 1.1	0/ 0.0	19/20.9	51/56.0	10/11.0	10/11.0	91	43/47.3
24	0/ 0.0	0/ 0.0	0/ 0.0	20/22.2	46/51.1	12/13.3	12/13.3	90	50/55.6
ALL	595/27.6	130/ 6.0	143/ 6.6	485/22.5	568/26.3	119/ 5.5	116/ 5.4	2156	524/24.3

2208 TOTAL HOURS INPUT 2156 HOURS INCLUDED

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

DIURNAL STABILITY AND INVERSION FREQUENCY (NUMBER/PERCENT)

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

HOUR OF DAY	A	B	C	D	E	F	G	TOTAL	INVERSION
1	0/ 0.0	0/ 0.0	0/ 0.0	5/ 5.5	21/23.1	26/28.6	39/42.9	91	79/86.8
2	0/ 0.0	0/ 0.0	0/ 0.0	4/ 4.4	27/29.7	18/19.8	42/46.2	91	79/86.8
3	0/ 0.0	0/ 0.0	0/ 0.0	3/ 3.3	27/29.7	23/25.3	38/41.8	91	81/89.0
4	0/ 0.0	0/ 0.0	0/ 0.0	5/ 5.5	28/30.8	17/18.7	41/45.1	91	80/87.9
5	0/ 0.0	0/ 0.0	0/ 0.0	7/ 7.7	27/29.7	19/20.9	38/41.8	91	76/83.5
6	0/ 0.0	0/ 0.0	0/ 0.0	6/ 6.6	27/29.7	17/18.7	41/45.1	91	75/82.4
7	0/ 0.0	2/ 2.2	1/ 1.1	17/18.9	27/30.0	13/14.4	30/33.3	90	61/67.8
8	8/ 9.0	1/ 1.1	6/ 6.7	35/39.3	19/21.3	11/12.4	9/10.1	89	31/34.8
9	20/22.7	5/ 5.7	9/10.2	41/46.6	12/13.6	1/ 1.1	0/ 0.0	88	6/ 6.8
10	27/30.0	10/11.1	9/10.0	41/45.6	3/ 3.3	0/ 0.0	0/ 0.0	90	2/ 2.2
11	25/28.7	7/ 8.0	17/19.5	37/42.5	1/ 1.1	0/ 0.0	0/ 0.0	87	1/ 1.1
12	31/35.2	10/11.4	10/11.4	36/40.9	1/ 1.1	0/ 0.0	0/ 0.0	88	0/ 0.0
13	31/35.2	7/ 8.0	15/17.0	34/38.6	1/ 1.1	0/ 0.0	0/ 0.0	88	0/ 0.0
14	30/33.7	10/11.2	8/ 9.0	41/46.1	0/ 0.0	0/ 0.0	0/ 0.0	89	0/ 0.0
15	23/25.6	4/ 4.4	12/13.3	48/53.3	3/ 3.3	0/ 0.0	0/ 0.0	90	1/ 1.1
16	14/15.4	8/ 8.8	4/ 4.4	40/44.0	23/25.3	2/ 2.2	0/ 0.0	91	13/14.3
17	1/ 1.1	4/ 4.4	10/11.0	18/19.8	38/41.8	17/18.7	3/ 3.3	91	48/52.7
18	0/ 0.0	0/ 0.0	0/ 0.0	11/12.1	36/41.8	30/33.0	12/13.2	91	72/79.1
19	0/ 0.0	0/ 0.0	0/ 0.0	6/ 6.6	31/34.1	27/29.7	27/29.7	91	71/78.0
20	0/ 0.0	0/ 0.0	0/ 0.0	6/ 6.6	33/36.3	23/25.3	29/31.9	91	72/79.1
21	0/ 0.0	0/ 0.0	0/ 0.0	7/ 7.7	32/35.2	19/20.9	33/36.3	91	76/83.5
22	0/ 0.0	0/ 0.0	0/ 0.0	4/ 4.4	32/35.2	20/22.0	35/38.5	91	77/84.6
23	0/ 0.0	0/ 0.0	0/ 0.0	4/ 4.4	27/29.7	20/22.0	40/44.0	91	82/90.1
24	0/ 0.0	0/ 0.0	0/ 0.0	6/ 6.6	23/25.3	24/26.4	38/41.8	91	81/89.0
ALL	210/ 9.7	68/ 3.1	101/ 4.7	462/21.3	501/23.2	327/15.1	495/22.9	2164	1164/53.8

2184 TOTAL HOURS INPUT 2164 HOURS INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY AND INVERSION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

DURATION (HOURS)	A	B	C	D	E	F	G	TOTAL	F/G	INVERSION
1	17	31	41	74	105	124	45	437	59	40
2	6	8	7	37	46	42	24	170	23	24
3	7	0	2	19	32	21	10	91	12	13
4	3	0	0	13	12	12	6	46	9	11
5	1	0	0	8	16	1	3	29	7	10
6	1	0	0	10	5	4	3	23	3	5
7	0	0	0	1	10	0	1	12	2	3
8	0	0	0	2	2	0	2	6	6	3
9	0	0	0	0	4	0	2	6	3	6
10	0	0	0	0	3	0	0	3	0	4
11	0	0	0	0	1	0	0	1	4	4
12	0	0	0	0	2	0	0	2	0	2
13	0	0	0	0	2	0	0	2	2	2
14	0	0	0	0	2	0	0	2	3	3
15	0	0	0	0	2	0	0	2	1	4
16	0	0	0	0	1	0	0	1	1	10
17	0	0	0	0	0	0	0	0	2	8
18	0	0	0	0	0	0	0	0	3	5
19	0	0	0	0	2	0	0	2	1	3
20	0	0	0	0	0	0	0	0	0	1
21 - 25	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	1	0	0	1	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	1	0	0	0	1	0	0
51 -100	0	0	0	1	0	0	0	1	0	0
TOTALS	35	39	50	166	248	204	96	838	141	161
PERCENTILE LEVELS										
50.0	1.1	.6	.6	1.2	1.4	.8	1.1	1.0	1.5	3.3
80.0	2.7	1.0	1.0	3.2	4.2	1.9	2.8	2.7	5.9	13.6
90.0	3.5	1.5	1.6	4.6	6.7	2.8	4.5	4.4	10.7	16.1
99.0	5.7	2.0	2.8	46.7	18.3	5.5	8.5	13.8	17.9	18.8
99.9	6.0	2.3	3.0	91.7	33.8	5.9	9.0	58.1	18.9	19.8
MAX NO. HOURS	6	2	3	102	34	6	9	102	19	20

2184 TOTAL HOURS INPUT 2091 HOURS USED ABOVE

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY AND INVERSION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

DURATION (HOURS)	A	B	C	D	E	F	G	TOTAL	F/G	INVERSION
1	24	70	67	111	79	85	36	477	43	32
2	14	14	14	47	26	26	4	145	13	13
3	13	0	1	25	27	12	12	90	7	13
4	9	1	1	15	14	2	7	49	4	13
5	10	0	0	7	15	1	4	37	5	6
6	5	0	0	5	5	2	0	17	4	6
7	5	0	0	1	5	0	2	14	3	4
8	7	0	0	1	6	0	1	15	4	5
9	1	0	0	0	4	0	2	7	3	6
10	5	0	0	0	5	1	3	14	6	4
11	2	0	0	0	3	0	2	7	2	3
12	0	0	0	1	2	0	0	3	7	11
13	0	0	0	0	4	0	0	4	1	6
14	0	0	0	0	0	0	0	0	1	11
15	0	0	0	0	1	0	0	1	0	3
16	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	1
31 - 35	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0
TOTALS	100	85	83	213	197	129	73	880	103	137
PERCENTILE LEVELS										
50.0	2.5	.6	.6	1.0	1.8	.8	1.1	.9	1.7	3.8
80.0	6.0	1.0	1.0	2.5	4.6	1.7	3.9	2.9	7.9	11.4
90.0	7.7	1.5	1.6	3.6	7.9	2.4	7.7	4.8	10.4	13.1
99.0	10.5	3.2	3.2	6.9	12.8	5.9	10.6	10.9	13.0	14.9
99.9	11.0	3.9	3.9	11.8	14.8	9.9	11.0	14.1	13.9	29.3
MAX NO. HOURS	11	4	4	12	15	10	11	15	14	26

2204 TOTAL HOURS INPUT 2121 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY AND INVERSION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

DURATION (HOURS)	A	B	C	D	E	F	G	TOTAL	F/G	INVERSION
1	43	96	87	120	69	57	11	485	32	37
2	17	14	22	50	20	14	4	141	11	16
3	11	2	2	20	23	7	2	67	3	14
4	15	0	1	12	14	2	4	48	4	7
5	11	0	0	8	11	1	2	33	2	3
6	4	0	0	5	11	0	1	21	2	5
7	8	0	0	2	9	0	2	21	4	8
8	5	0	0	4	1	0	2	12	2	3
9	8	0	0	0	5	0	1	14	0	2
10	9	0	0	0	4	0	2	15	2	8
11	8	0	0	0	3	0	0	11	2	7
12	0	0	0	0	2	0	0	2	4	6
13	0	0	0	1	0	0	0	1	0	1
14	0	0	0	2	0	0	0	2	0	0
15	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0
TOTALS	139	112	114	224	172	81	31	873	88	117
PERCENTILE LEVELS										
50.0	2.9	.6	.6	.9	1.9	.7	2.3	.9	1.2	2.4
80.0	7.4	.9	1.1	2.5	5.1	1.6	6.4	3.1	6.1	8.3
90.0	9.3	1.3	1.6	4.0	6.8	2.3	8.0	5.6	9.6	10.3
99.0	10.8	2.4	2.9	12.8	11.1	4.2	9.8	10.7	11.8	12.0
99.9	11.0	2.9	3.9	13.9	11.9	4.9	10.0	13.6	12.0	12.9
MAX NO. HOURS	11	3	4	14	12	5	10	14	12	13

2208 TOTAL HOURS INPUT 2156 HOURS USED ABOVE

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY AND INVERSION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

DURATION (HOURS)	A	B	C	D	E	F	G	TOTAL	F/G	INVERSION
1	36	54	79	86	106	120	44	525	28	19
2	8	5	7	30	30	41	26	147	21	13
3	8	0	1	22	12	21	17	81	11	9
4	7	1	0	11	14	8	11	52	7	4
5	7	0	1	8	10	3	7	36	8	1
6	1	0	0	8	8	0	2	19	2	2
7	2	0	0	6	4	1	4	17	9	1
8	3	0	0	6	2	1	6	18	3	4
9	3	0	0	2	4	0	2	11	6	3
10	0	0	0	1	0	0	1	2	8	4
11	0	0	0	0	0	0	2	2	4	6
12	0	0	0	0	3	0	2	5	5	5
13	0	0	0	0	0	0	5	5	6	10
14	0	0	0	0	1	0	3	4	8	11
15	0	0	0	0	1	0	0	1	4	14
16	0	0	0	0	0	0	0	0	4	12
17	0	0	0	0	0	0	0	0	0	4
18	0	0	0	0	0	0	0	0	0	3
19	0	0	0	0	0	0	0	0	0	1
20	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	0
31 - 35	0	0	0	0	0	0	0	0	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	0	0	0	0	0	0	0
51 -100	0	0	0	0	0	0	0	0	0	0
TOTALS	75	60	88	180	195	195	132	925	134	126
PERCENTILE LEVELS										
50.0	1.2	.6	.6	1.1	.9	.8	1.8	.9	4.0	10.5
80.0	4.1	.9	.9	3.5	3.6	1.9	5.3	2.8	11.0	14.6
90.0	6.3	1.0	1.0	5.6	5.4	2.7	8.9	4.8	13.3	15.6
99.0	8.8	3.4	4.1	8.6	13.1	6.1	13.6	12.2	15.7	17.9
99.9	9.0	3.9	4.9	9.8	14.3	7.8	14.0	14.1	16.6	18.9
MAX NO. HOURS	9	4	5	10	15	8	14	15	16	19

2184 TOTAL HOURS INPUT 2164 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

STABILITY AND INVERSION PERSISTENCE (NUMBER OF OCCURRENCES)

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

STABILITY CATEGORIES

DURATION (HOURS)	A	B	C	D	E	F	G	TOTAL	F/G	INVERSION
1	125	251	276	391	359	386	135	1923	162	128
2	45	41	50	164	122	123	58	603	67	65
3	39	2	6	86	93	61	41	328	33	48
4	34	2	2	51	54	24	28	195	24	35
5	29	0	1	31	51	6	15	133	23	21
6	11	0	0	28	29	6	7	81	11	17
7	15	0	0	10	29	1	9	64	16	16
8	15	0	0	13	12	1	11	52	15	15
9	12	0	0	2	17	0	7	38	13	16
10	14	0	0	1	12	1	6	34	16	20
11	10	0	0	0	7	0	4	21	11	20
12	0	0	0	1	9	0	2	12	16	24
13	0	0	0	1	6	0	5	12	10	20
14	0	0	0	2	3	0	3	8	12	25
15	0	0	0	0	4	0	0	4	5	20
16	0	0	0	0	1	0	0	1	5	22
17	0	0	0	0	0	0	0	0	2	13
18	0	0	0	0	0	0	0	0	3	8
19	0	0	0	0	2	0	0	2	1	4
20	0	0	0	0	0	0	0	0	0	1
21 - 25	0	0	0	0	0	0	0	0	0	0
26 - 30	0	0	0	0	0	0	0	0	0	1
31 - 35	0	0	0	0	1	0	0	1	0	0
36 - 40	0	0	0	0	0	0	0	0	0	0
41 - 45	0	0	0	0	0	0	0	0	0	0
46 - 50	0	0	0	1	0	0	0	1	0	0
51 -100	0	0	0	1	0	0	0	1	0	0
TOTALS	349	296	335	783	811	609	331	3514	445	539
PERCENTILE LEVELS										
50.0	2.1	.6	.6	1.0	1.4	.8	1.5	.9	1.9	3.8
80.0	5.7	.9	1.0	2.8	4.4	1.8	4.2	2.9	8.4	12.3
90.0	8.1	1.4	1.5	4.4	6.8	2.6	7.4	4.9	11.6	14.8
99.0	10.7	2.5	2.9	8.6	14.0	5.5	12.9	11.6	16.8	18.2
99.9	11.0	3.9	4.7	60.9	30.9	9.4	13.9	18.7	18.6	27.3
MAX NO. HOURS	11	4	5	102	34	10	14	102	19	26

8784 TOTAL HOURS INPUT 8532 HOURS USED ABOVE

SEASONAL χ/Q SUMMARIES

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (MI)	S 0.000 E2	SSW 0.000 E2	SW 0.000 E2	WSW 0.000 E2	W 0.000 E2	WNW 0.000 E2	NW 0.000 E2	NNW 0.000 E2	N 0.000 E2	NNE 0.000 E2	NE 0.000 E2	ENE 0.000 E2	E 0.000 E2	ESE 0.000 E2	SE 0.000 E2	SSE 0.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-03 TO 2.0E-03	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.2
2.0E-03 TO 1.0E-03	.4	0.0	.1	.0	.2	.3	.3	.3	.5	.5	.6	.4	.4	.1	.2	.1	4.7
1.0E-03 TO 9.0E-04	.5	0.0	.1	.1	.2	.3	.3	.5	.6	.7	.7	.5	.6	.3	.3	.1	6.1
9.0E-04 TO 8.0E-04	.6	.1	.1	.2	.2	.3	.4	.6	.7	.9	.9	.6	.6	.4	.3	.1	7.5
8.0E-04 TO 7.0E-04	.6	.1	.1	.3	.3	.3	.5	.8	1.0	1.1	1.1	.7	.7	.5	.3	.1	9.0
7.0E-04 TO 6.0E-04	.6	.1	.2	.4	.4	.5	.5	.9	1.0	1.3	1.2	.8	.8	.7	.5	.1	10.3
6.0E-04 TO 5.0E-04	.6	.2	.4	.6	.7	.7	.5	1.0	1.0	1.5	1.5	.8	.9	.9	.7	.1	12.5
5.0E-04 TO 4.0E-04	.7	.2	.4	.8	.9	1.0	.6	1.1	1.1	2.0	1.6	1.0	1.1	1.0	.8	.2	14.8
4.0E-04 TO 3.0E-04	.7	.5	.7	1.0	1.1	1.5	1.0	1.3	1.3	2.1	1.9	1.3	1.3	1.3	.9	.5	18.5
3.0E-04 TO 2.0E-04	.8	.8	1.1	1.9	1.5	2.1	1.5	1.8	1.7	2.5	2.7	2.0	1.6	1.6	1.0	.7	25.4
2.0E-04 TO 1.0E-04	1.1	2.1	3.7	4.0	3.5	3.9	3.0	2.7	2.0	3.7	4.5	3.6	3.2	3.9	1.6	1.0	47.2
1.0E-04 TO 9.0E-05	1.2	2.2	4.1	4.7	3.9	3.8	3.1	2.7	2.2	3.9	4.7	3.9	3.6	4.2	1.8	1.0	51.1
9.0E-05 TO 8.0E-05	1.2	2.2	4.5	5.1	4.3	4.0	3.3	2.7	2.3	4.2	5.0	4.6	4.4	4.7	2.0	1.0	55.6
8.0E-05 TO 7.0E-05	1.2	2.2	5.0	5.6	4.6	4.0	3.4	2.8	2.3	4.5	5.5	5.1	5.0	5.3	2.2	1.0	59.8
7.0E-05 TO 6.0E-05	1.2	2.4	5.3	6.4	4.7	4.0	3.4	2.8	2.3	4.5	6.0	5.8	6.1	6.4	2.4	1.0	64.8
6.0E-05 TO 5.0E-05	1.2	2.5	5.6	6.7	4.9	4.1	3.5	2.8	2.3	4.8	6.5	7.3	7.2	7.3	2.5	1.0	70.3
5.0E-05 TO 4.0E-05	1.2	2.5	5.9	6.9	5.0	4.1	3.5	2.8	2.3	4.8	7.0	9.9	9.3	8.3	2.7	1.0	77.2
4.0E-05 TO 3.0E-05	1.2	2.7	6.3	7.1	5.1	4.1	3.5	2.8	2.4	4.9	7.5	12.4	11.9	9.7	2.7	1.0	85.3
3.0E-05 TO 2.0E-05	1.2	3.5	6.5	7.2	5.1	4.1	3.6	2.8	2.4	4.9	7.6	14.5	14.5	10.3	2.7	1.0	92.2
2.0E-05 TO 1.0E-05	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.4	16.0	10.6	2.7	1.0	95.7
1.0E-05 TO 9.0E-06	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.5	16.0	10.6	2.7	1.0	95.9
9.0E-06 TO 8.0E-06	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.9	15.5	16.2	10.6	2.7	1.0	96.2
8.0E-06 TO 7.0E-06	1.2	3.7	6.7	7.4	5.2	4.1	3.7	2.9	2.4	4.9	8.0	15.6	16.2	10.6	2.8	1.0	96.6
7.0E-06 TO 6.0E-06	1.2	3.7	6.7	7.4	5.2	4.2	3.7	2.9	2.4	4.9	8.0	15.6	16.2	10.6	2.8	1.0	96.7
6.0E-06 TO 5.0E-06	1.2	3.7	6.8	7.4	5.2	4.2	3.7	2.9	2.5	4.9	8.1	15.7	16.3	10.6	2.8	1.0	97.0
5.0E-06 TO 4.0E-06	1.2	3.8	6.8	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.1	15.8	16.7	10.7	2.8	1.0	97.9
4.0E-06 TO 3.0E-06	1.2	3.8	6.8	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.1	16.1	17.1	10.9	2.8	1.1	98.8
3.0E-06 TO 2.0E-06	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.9
2.0E-06 TO 1.0E-06	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.067 E-3	0.000 E-4	1.076 E-3	1.191 E-3	1.722 E-3	2.011 E-3	1.653 E-3	1.477 E-3	2.011 E-3	1.970 E-3	1.757 E-3	1.855 E-3	2.385 E-3	1.653 E-3	1.560 E-3	1.395 E-3	2.385 E-3

50.0 PERCENTILE 9.770E-09

90.0 PERCENTILE 9.262E-05

2184 TOTAL HOURS INPUT 2021 HOURS USED ABOVE 92.50 PERCENT INCLUDED

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (MI)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
6.0E-04 TO 9.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
5.0E-04 TO 6.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
4.0E-04 TO 5.0E-04	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.1
3.0E-04 TO 4.0E-04	0.0	0.0	.0	.0	0.0	.1	.0	.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	.4
2.0E-04 TO 3.0E-04	.1	.1	.1	.3	.3	.3	.1	.1	.1	.5	.3	.3	.1	.2	.2	.1	3.6
1.0E-04 TO 2.0E-04	.1	.1	.2	.3	.3	.3	.3	.3	.2	.5	.5	.4	.2	.3	.3	.2	4.8
9.0E-05 TO 1.0E-04	.2	.1	.3	.4	.4	.4	.3	.4	.3	.6	.5	.4	.4	.4	.4	.1	5.9
8.0E-05 TO 9.0E-05	.2	.2	.4	.6	.4	.4	.3	.5	.4	.8	.8	.5	.5	.5	.5	.1	7.4
7.0E-05 TO 8.0E-05	.3	.2	.5	1.1	.5	.4	.4	.7	.5	.9	1.0	.6	.7	.7	.5	.3	9.6
6.0E-05 TO 7.0E-05	.3	.3	.7	1.4	.9	.6	.4	.7	.6	1.1	1.2	.7	1.1	1.0	.5	.3	12.2
5.0E-05 TO 6.0E-05	.5	.5	.9	2.0	1.2	.8	.7	.9	.8	1.5	1.6	1.1	1.9	1.3	.7	.3	16.9
4.0E-05 TO 5.0E-05	.6	.6	1.2	2.8	1.5	1.4	1.1	1.0	1.1	1.8	1.9	1.8	2.9	2.2	.8	.4	23.0
3.0E-05 TO 4.0E-05	.7	.7	2.4	3.9	2.7	1.9	1.5	1.4	1.3	2.5	2.6	3.5	4.7	3.5	1.0	.5	35.5
2.0E-05 TO 3.0E-05	.8	2.1	4.8	5.4	4.1	3.0	2.6	2.0	1.8	3.4	4.7	8.5	10.5	7.2	1.4	.8	63.7
1.0E-05 TO 2.0E-05	.8	2.4	5.0	5.7	4.2	3.2	3.0	2.2	1.8	3.7	5.0	9.6	11.6	7.9	2.0	.8	59.0
9.0E-06 TO 1.0E-05	.9	2.6	5.3	6.0	4.4	3.4	3.0	2.3	1.9	4.0	5.4	10.6	12.6	8.4	2.1	.8	73.7
8.0E-06 TO 9.0E-06	1.0	2.9	5.5	6.6	4.6	3.5	3.1	2.4	2.0	4.1	6.0	11.8	13.4	8.7	2.1	.8	78.5
7.0E-06 TO 8.0E-06	1.0	3.1	5.9	7.0	4.7	3.6	3.3	2.5	2.1	4.2	6.5	12.6	14.2	9.2	2.2	.9	82.8
6.0E-06 TO 7.0E-06	1.1	3.2	6.2	7.2	4.8	3.8	3.4	2.6	2.3	4.6	6.9	13.8	14.9	9.5	2.4	1.0	87.8
5.0E-06 TO 6.0E-06	1.1	3.4	6.4	7.3	4.8	4.0	3.5	2.6	2.4	4.6	7.4	14.6	15.6	9.8	2.6	1.0	91.3
4.0E-06 TO 5.0E-06	1.2	3.5	6.5	7.3	4.9	4.1	3.6	2.7	2.5	4.7	7.6	15.3	16.6	10.1	2.7	1.1	94.2
3.0E-06 TO 4.0E-06	1.2	3.5	6.5	7.4	5.0	4.1	3.7	2.8	2.5	4.7	7.8	16.0	17.3	10.6	2.7	1.1	97.1
2.0E-06 TO 3.0E-06	1.2	3.5	6.6	7.5	5.1	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.4	10.8	2.7	1.1	98.7
1.0E-06 TO 2.0E-06	1.2	3.5	6.7	7.5	5.1	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.5	10.8	2.7	1.1	98.8
9.0E-07 TO 1.0E-06	1.2	3.5	6.8	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.5	10.8	2.7	1.1	99.0
8.0E-07 TO 9.0E-07	1.2	3.5	6.8	7.5	5.2	4.2	3.7	2.8	2.5	4.9	8.1	16.4	17.5	10.9	2.7	1.1	99.4
7.0E-07 TO 8.0E-07	1.2	3.5	6.9	7.5	5.2	4.2	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
6.0E-07 TO 7.0E-07	1.2	3.5	6.9	7.5	5.2	4.2	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
5.0E-07 TO 6.0E-07	1.2	3.5	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
4.0E-07 TO 5.0E-07	1.2	3.5	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.7
3.0E-07 TO 4.0E-07	1.2	3.5	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.7
2.0E-07 TO 1.0E-07	1.2	3.5	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.709 E -4	1.793 E -4	2.115 E -4	2.558 E -4	1.773 E -4	3.458 E -4	2.854 E -4	3.929 E -4	1.922 E -4	1.984 E -4	1.741 E -4	1.981 E -4	1.339 E -4	5.034 E -4	1.564 E -4	1.521 E -4	5.034 E -4

50.0 PERCENTILE 1.490E-05

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/25/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 WDIRS

DATES 12/1/75 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

WIND DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
WIND DISTANCE (M)	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	
MAGNITUDE OF X/Q																	
1.0E-04 TO 2.0E-04	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
2.0E-04 TO 1.0E-04	0.0	0.0	.0	.2	0.0	.0	0.0	0.0	0.0	.0	0.0	.0	.0	.1	0.0	.0	.6
1.0E-04 TO 9.0E-05	0.0	0.0	.0	.3	.0	.0	.0	0.0	0.0	0.0	0.0	.1	.1	.1	0.0	.0	.9
9.0E-05 TO 8.0E-05	.0	0.0	.1	.5	.0	.1	.1	.0	.0	.1	0.0	.1	.1	.2	0.0	.0	1.6
8.0E-05 TO 7.0E-05	.0	.1	.2	.5	.0	.2	.1	.1	.1	.2	0.0	.2	.2	.2	0.0	.0	2.4
7.0E-05 TO 6.0E-05	.1	.2	.4	.8	.3	.2	.2	.2	.1	.3	.3	.2	.3	.3	.0	.1	4.4
6.0E-05 TO 5.0E-05	.1	.3	.5	1.0	.5	.4	.3	.3	.2	.4	.4	.4	.5	.6	.2	.1	6.8
5.0E-05 TO 4.0E-05	.2	.4	.9	1.2	.9	.6	.5	.5	.3	.6	.7	.5	.7	.6	.5	.2	9.7
4.0E-05 TO 3.0E-05	.2	.7	1.4	1.8	1.3	.9	.8	.7	.5	.9	1.2	1.1	1.5	1.3	.6	.2	15.2
3.0E-05 TO 2.0E-05	.4	1.0	2.3	3.2	2.5	1.5	1.3	.9	.8	1.4	2.1	2.1	3.1	2.3	.9	.4	26.1
2.0E-05 TO 1.0E-05	.4	2.0	4.2	5.3	3.4	2.1	2.1	1.5	1.4	2.7	3.9	7.8	9.3	5.8	1.3	.6	53.8
1.0E-05 TO 9.0E-06	.6	2.2	4.4	5.5	3.5	2.3	2.2	1.7	1.7	2.8	4.4	8.7	10.0	6.6	1.6	.6	
9.0E-06 TO 8.0E-06	.8	2.4	4.7	5.7	3.7	2.5	2.4	2.0	1.8	3.0	4.9	9.7	11.1	7.1	1.7	.6	[illegible]
8.0E-06 TO 7.0E-06	.8	2.6	5.3	6.0	3.8	2.5	2.8	2.1	1.9	3.2	5.2	10.8	12.1	7.8	2.0	.8	69.6
7.0E-06 TO 6.0E-06	.8	2.7	5.7	6.5	3.9	2.6	3.0	2.2	2.0	3.5	5.7	11.9	13.2	8.5	2.1	.8	75.2
6.0E-06 TO 5.0E-06	.9	3.1	5.0	6.7	4.2	3.0	3.0	2.3	2.1	3.7	6.3	13.3	14.2	9.1	2.2	.8	80.3
5.0E-06 TO 4.0E-06	.9	3.3	6.1	7.0	4.4	3.3	3.3	2.5	2.2	4.1	6.9	14.0	15.6	9.8	2.4	.9	86.7
4.0E-06 TO 3.0E-06	1.0	3.5	6.6	7.2	4.8	3.8	3.4	2.7	2.3	4.4	7.3	15.1	16.4	10.3	2.5	1.0	92.1
3.0E-06 TO 2.0E-06	1.2	3.5	6.7	7.3	5.0	3.8	3.5	2.8	2.3	4.7	7.8	15.7	17.2	10.7	2.7	1.0	96.3
2.0E-06 TO 1.0E-06	1.2	3.6	6.8	7.5	5.2	4.1	3.6	2.9	2.4	4.8	8.0	16.3	17.5	10.9	2.8	1.1	98.9
1.0E-06 TO 9.0E-07	1.2	3.6	6.8	7.5	5.2	4.1	3.6	2.9	2.4	4.8	8.0	16.3	17.5	10.9	2.8	1.1	99.0
9.0E-07 TO 8.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.4	4.8	8.1	16.3	17.5	10.9	2.8	1.1	99.1
8.0E-07 TO 7.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.4	4.9	8.1	16.4	17.5	10.9	2.8	1.1	99.2
7.0E-07 TO 6.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.4	4.9	8.1	16.4	17.5	11.0	2.8	1.1	99.3
6.0E-07 TO 5.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.4	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.4
5.0E-07 TO 4.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.6
4.0E-07 TO 3.0E-07	1.2	3.8	6.9	7.5	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.6
3.0E-07 TO 2.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
2.0E-07 TO 1.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
1.0E-07 TO 9.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
9.0E-08 TO 8.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

ST DEVIATION	8.549 E -5	7.821 E -5	2.547 E -4	1.755 E -4	7.351 E -5	1.019 E -4	9.101 E -5	8.196 E -5	8.055 E -5	1.105 E -4	6.773 E -5	1.072 E -4	1.279 E -4	1.222 E -4	6.073 E -5	1.744 E -4	2.517 E -4

50.0 PERCENTILE 5.749E-05

95.0 PERCENTILE 1.077E-04

2184 TOTAL HOURS INPUT 2024 HOURS USED ABOVE 92.58 PERCENT INCLUDED

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (MI)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	E2	
MAGNITUDE OF X/Q																	
0.0E-05 TO 7.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
7.0E-05 TO 5.0E-05	0.0	0.0	.1	0.6	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	.4
5.0E-05 TO 5.0E-05	0.0	0.0	.2	.0	0.0	.0	0.0	.0	0.0	.0	.0	.0	0.0	.0	.0	0.0	.6
5.0E-05 TO 4.0E-05	0.0	.1	.2	.0	.0	.0	0.0	.0	0.0	.1	.0	.1	.1	.0	.0	0.0	1.0
4.0E-05 TO 3.0E-05	.1	.2	.2	.1	.2	.2	.1	.2	0.0	.3	.0	.3	.4	.3	.2	0.0	3.1
3.0E-05 TO 2.0E-05	.4	.7	1.1	1.6	1.2	.7	.6	.5	.2	.7	1.1	1.1	1.0	.7	.5	.0	12.5
2.0E-05 TO 1.0E-05	.8	1.7	3.0	4.1	3.0	2.1	1.3	1.1	1.0	2.1	3.1	4.8	4.7	3.0	1.2	.4	37.5
1.0E-05 TO 9.0E-06	.9	1.8	3.4	4.2	3.2	2.4	1.4	1.2	1.0	2.3	3.3	5.7	5.9	3.3	1.3	.5	41.8
9.0E-06 TO 8.0E-06	.9	2.0	3.8	4.6	3.4	2.6	1.7	1.4	1.1	2.6	3.7	6.3	7.5	4.3	1.4	.6	45.0
8.0E-06 TO 7.0E-06	1.0	2.4	4.3	4.9	3.5	2.8	2.0	1.6	1.2	3.1	4.2	7.8	9.6	4.9	1.5	.7	55.5
7.0E-06 TO 6.0E-06	1.0	2.6	4.8	5.3	3.8	3.1	2.4	1.8	1.4	3.3	4.7	9.7	11.8	6.3	1.7	.7	64.4
6.0E-06 TO 5.0E-06	1.0	3.1	5.3	5.7	4.1	3.3	2.7	1.9	1.6	3.7	5.7	11.3	13.6	7.1	2.0	.8	72.9
5.0E-06 TO 4.0E-06	1.1	3.3	5.9	6.4	4.9	3.5	2.9	2.3	1.8	4.2	6.4	12.6	15.0	8.1	2.2	.9	80.9
4.0E-06 TO 3.0E-06	1.1	3.4	6.4	6.9	4.7	3.8	3.2	2.5	2.0	4.5	7.0	14.1	15.3	9.2	2.4	1.0	88.1
3.0E-06 TO 2.0E-06	1.2	3.5	6.5	7.3	4.9	4.3	3.5	2.8	2.2	4.8	7.5	14.8	15.5	9.8	2.6	1.1	93.1
2.0E-06 TO 1.0E-06	1.2	3.7	6.8	7.4	5.1	4.2	3.7	2.9	2.4	4.9	8.0	15.8	17.2	10.5	2.8	1.1	97.5
1.0E-06 TO 9.0E-07	1.2	3.7	6.8	7.4	5.1	4.2	3.7	2.9	2.4	4.9	8.0	15.9	17.2	10.7	2.8	1.1	98.0
9.0E-07 TO 8.0E-07	1.2	3.7	6.8	7.4	5.2	4.2	3.7	2.9	2.4	4.9	8.1	16.1	17.3	10.8	2.8	1.1	98.5
8.0E-07 TO 7.0E-07	1.2	3.7	6.8	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.1	17.4	10.9	2.8	1.1	99.1
7.0E-07 TO 6.0E-07	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.2	17.5	10.9	2.8	1.1	99.5
6.0E-07 TO 5.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.3	17.5	11.0	2.8	1.1	99.7
5.0E-07 TO 4.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	99.9
4.0E-07 TO 3.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	99.9
3.0E-07 TO 2.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

MAT CONDITION	3.838 E-5	4.617 E-5	6.291 E-5	5.740 E-5	4.036 E-5	6.079 E-5	3.533 E-5	5.359 E-5	2.934 E-5	7.180 E-5	5.084 E-5	6.118 E-5	4.045 E-5	6.527 E-5	6.345 E-5	2.345 E-5	7.180 E-5

50.0 PERCENTILE 2.709E-05

50.0 PERCENTILE 7.717E-06

2139 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.50 PERCENT INCLUDED

01/23/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 12/1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

WD DIRECTION / WS DISTANCE (MI)	S 0.000 E2	SSW 0.000 E2	SW 0.000 E2	WSW 0.000 E2	W 0.000 E2	WNW 0.000 E2	NW 0.000 E2	NNW 0.000 E2	N 0.000 E2	NNE 0.000 E2	NE 0.000 E2	ENE 0.000 E2	E 0.000 E2	ESE 0.000 E2	SE 0.000 E2	SSE 0.000 E2	TOTAL
MAGNITUDE OF X/Q																	
1.0E-05 TO 1.0E-05	.4	2.0	2.4	2.8	1.7	1.3	1.0	1.1	.6	1.6	2.2	5.4	4.8	3.4	1.0	.3	32.0
1.0E-05 TO 7.0E-06	.4	2.4	3.1	3.4	2.0	1.7	1.5	1.4	.6	2.3	3.2	7.2	6.3	5.1	1.4	.4	43.3
1.0E-06 TO 8.0E-06	.6	2.8	3.5	4.2	2.4	2.5	2.0	1.8	1.3	3.1	4.2	8.5	8.6	6.6	1.7	.6	54.4
8.0E-06 TO 7.0E-06	.7	3.1	4.2	4.8	3.5	2.4	2.3	2.2	1.4	3.6	5.1	11.2	10.7	7.4	2.0	.6	65.8
7.0E-06 TO 6.0E-06	1.0	3.2	4.8	5.5	4.1	3.3	2.7	2.3	1.5	3.9	6.2	12.8	12.4	8.3	2.2	.6	74.9
6.0E-06 TO 5.0E-06	1.1	3.3	5.1	6.1	4.4	3.7	2.9	2.6	1.7	4.2	6.8	13.7	13.8	9.4	2.4	.8	81.9
5.0E-06 TO 4.0E-06	1.1	3.5	5.8	6.7	4.7	3.9	3.2	2.8	1.9	4.5	7.1	14.7	15.1	10.0	2.6	.8	88.4
4.0E-06 TO 3.0E-06	1.2	3.6	6.3	7.0	4.9	4.2	3.5	2.8	2.2	4.6	7.7	15.4	16.1	10.5	2.7	.9	93.6
3.0E-06 TO 2.0E-06	1.2	3.8	6.7	7.4	5.1	4.2	3.7	2.9	2.3	4.7	8.0	16.0	17.3	10.8	2.8	1.1	98.1
2.0E-06 TO 1.0E-06	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	99.9
1.0E-06 TO 9.0E-07	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	99.9
9.0E-07 TO 8.0E-07	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	99.9
8.0E-07 TO 7.0E-07	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	100.0

MAGNITUDE OF X/Q

CONDITION	1.255 E -5	1.004 E -5	8.030 E -6	6.424 E -6	1.702 E -5	1.363 E -5	1.090 E -5	1.516 E -5	1.440 E -5	1.815 E -5	1.035 E -5	1.462 E -5	1.619 E -5	1.494 E -5	1.027 E -5	1.339 E -5	1.864 E -5

50.0 PERCENTILE 1.795E-05

90.0 PERCENTILE 8.937E-06

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-03 TO 2.0E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
2.0E-03 TO 1.0E-03	.1	.1	.1	.2	.1	.0	.2	.1	.1	.2	.3	.1	.4	.2	.1	.0	2.5
1.0E-03 TO 9.0E-04	.1	.1	.1	.2	.1	.1	.2	.1	.2	.2	.5	.2	.5	.2	.1	.0	3.1
9.0E-04 TO 8.0E-04	.1	.1	.1	.2	.1	.1	.2	.1	.3	.2	.6	.5	.6	.2	.2	.0	3.9
8.0E-04 TO 7.0E-04	.1	.1	.2	.2	.1	.1	.2	.2	.3	.3	.9	.7	.6	.3	.2	.1	4.7
7.0E-04 TO 6.0E-04	.1	.1	.2	.3	.2	.3	.2	.2	.4	.6	1.3	.9	.7	.3	.2	.1	6.2
6.0E-04 TO 5.0E-04	.1	.3	.2	.5	.3	.4	.3	.2	.5	.7	1.4	1.0	.8	.3	.2	.1	7.3
5.0E-04 TO 4.0E-04	.2	.3	.3	.6	.3	.4	.4	.3	.6	.7	1.5	1.1	.9	.3	.3	.2	8.4
4.0E-04 TO 3.0E-04	.2	.4	.3	.6	.4	.6	.5	.4	.6	1.0	2.0	1.3	.9	.3	.4	.3	10.3
3.0E-04 TO 2.0E-04	.2	.4	1.0	1.0	.8	.9	.7	.4	.8	1.3	2.8	1.6	1.4	.7	.7	.3	14.9
2.0E-04 TO 1.0E-04	.5	.8	2.6	1.8	1.6	1.4	.9	.6	1.1	2.3	4.7	3.0	3.1	1.6	1.1	.5	27.3
1.0E-04 TO 9.0E-05	.5	.8	2.6	2.0	1.6	1.5	.9	.6	1.1	2.4	4.9	3.6	3.6	2.0	1.1	.5	29.6
9.0E-05 TO 8.0E-05	.5	.9	2.9	2.2	1.7	1.6	.9	.6	1.1	2.4	5.1	4.0	4.3	2.5	1.2	.5	32.3
8.0E-05 TO 7.0E-05	.5	.9	3.3	2.5	2.0	1.6	.9	.7	1.1	2.4	5.7	4.9	5.2	3.0	1.3	.5	36.4
7.0E-05 TO 6.0E-05	.6	1.0	3.8	3.0	2.1	1.6	.9	.7	1.1	2.4	6.1	6.0	7.6	3.8	1.3	.5	42.4
6.0E-05 TO 5.0E-05	.6	1.1	4.0	3.2	2.2	1.6	.9	.7	1.1	2.5	6.4	7.0	9.9	4.7	1.4	.5	47.7
5.0E-05 TO 4.0E-05	.6	1.2	4.3	3.5	2.3	1.6	.9	.7	1.2	2.5	6.7	9.2	12.2	5.5	1.5	.6	54.3
4.0E-05 TO 3.0E-05	.6	1.4	4.6	4.5	2.4	1.7	.9	.7	1.2	2.5	6.9	12.3	15.8	6.3	1.5	.6	63.9
3.0E-05 TO 2.0E-05	.6	1.4	5.2	5.6	2.6	1.7	.9	.7	1.2	2.5	6.9	14.5	20.5	6.9	1.6	.6	73.4
2.0E-05 TO 1.0E-05	.6	1.4	5.7	6.9	2.7	1.9	.9	.8	1.2	2.6	7.1	15.4	23.9	7.6	1.6	.7	80.9
1.0E-05 TO 9.0E-06	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.4	23.9	7.6	1.6	.7	81.1
9.0E-06 TO 8.0E-06	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.5	24.1	7.7	1.6	.7	81.5
8.0E-06 TO 7.0E-06	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.5	24.3	7.7	1.6	.7	81.7
7.0E-06 TO 6.0E-06	.6	1.4	5.7	7.0	2.8	1.9	.9	.8	1.2	2.6	7.1	15.6	24.4	7.7	1.6	.7	82.0
6.0E-06 TO 5.0E-06	.6	1.4	5.9	7.1	2.8	1.9	.9	.8	1.2	2.6	7.1	15.6	24.5	7.8	1.6	.7	82.6
5.0E-06 TO 4.0E-06	.6	1.4	6.1	7.5	2.8	1.9	.9	.8	1.3	2.6	7.2	15.7	25.5	8.1	1.6	.7	84.7
4.0E-06 TO 3.0E-06	.7	1.4	6.4	7.9	3.0	1.9	.9	.8	1.3	2.6	7.2	16.2	27.5	8.6	1.7	.8	89.0
3.0E-06 TO 2.0E-06	.7	1.4	6.6	8.4	3.3	2.0	1.0	.9	1.3	2.6	7.4	16.8	33.5	8.8	1.7	.8	97.0
2.0E-06 TO 1.0E-06	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.3	9.0	1.7	.8	99.8
1.0E-06 TO 9.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
9.0E-07 TO 8.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
8.0E-07 TO 7.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
7.0E-07 TO 6.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
6.0E-07 TO 5.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
5.0E-07 TO 4.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
4.0E-07 TO 3.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.664 E -3	1.307 E -3	1.477 E -3	1.653 E -3	1.477 E -3	1.111 E -3	1.403 E -3	2.568 E -3	1.415 E -3	1.560 E -3	1.336 E -3	1.653 E -3	2.011 E -3	1.477 E -3	1.737 E -3	1.192 E -3	2.568 E -3

5.0 PERCENTILE 6.605E-04

50.0 PERCENTILE 4.621E-05

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-04 TO 2.0E-04	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
2.0E-04 TO 1.0E-04	0.0	0.0	.1	.2	.0	.0	.0	.1	.1	.2	.3	.0	.4	.2	.0	.0	1.9
1.0E-04 TO 9.0E-05	0.0	0.0	.1	.4	.1	.1	.1	.1	.1	.3	.4	.1	.4	.2	.0	.0	2.5
9.0E-05 TO 8.0E-05	0.0	.0	.1	.4	.2	.1	.1	.1	.2	.3	.5	.2	.4	.3	.0	.1	3.1
8.0E-05 TO 7.0E-05	0.0	.0	.2	.4	.2	.2	.1	.2	.3	.4	.5	.3	.9	.4	.0	.1	4.2
7.0E-05 TO 6.0E-05	0.0	.0	.2	.7	.3	.2	.1	.2	.3	.4	.6	.4	1.1	.7	.2	.1	5.6
6.0E-05 TO 5.0E-05	0.0	.1	.3	.9	.5	.3	.1	.2	.4	.5	.8	.6	1.5	.9	.2	.1	7.5
5.0E-05 TO 4.0E-05	.0	.1	.6	1.4	.7	.5	.2	.3	.4	.7	1.1	.9	2.1	1.3	.2	.1	10.7
4.0E-05 TO 3.0E-05	.1	.4	1.1	2.0	1.0	.7	.2	.4	.5	.7	1.3	1.4	2.8	1.7	.3	.1	14.7
3.0E-05 TO 2.0E-05	.1	.4	2.0	3.0	1.3	1.0	.4	.4	.6	.9	2.0	2.7	4.9	2.4	.5	.3	22.9
2.0E-05 TO 1.0E-05	.3	.8	3.6	4.7	2.3	1.3	.7	.6	.9	1.6	4.5	7.0	14.8	4.7	.9	.4	49.4
1.0E-05 TO 9.0E-06	.3	.8	4.0	5.1	2.5	1.3	.7	.6	.9	1.8	4.7	7.9	16.4	5.1	1.0	.4	53.6
9.0E-06 TO 8.0E-06	.4	.9	4.0	5.6	2.5	1.4	.7	.7	.9	1.8	5.1	8.5	17.8	5.6	1.1	.5	57.5
8.0E-06 TO 7.0E-06	.4	.9	4.3	5.9	2.6	1.5	.6	.7	1.0	2.0	5.4	9.6	19.4	6.0	1.2	.5	62.2
7.0E-06 TO 6.0E-06	.4	1.0	4.5	6.2	2.6	1.7	.9	.8	1.1	2.1	5.7	10.7	20.9	6.3	1.3	.5	66.6
6.0E-06 TO 5.0E-06	.4	1.2	4.7	6.6	2.7	1.7	.9	.9	1.2	2.3	6.0	11.8	23.2	6.9	1.3	.6	72.1
5.0E-06 TO 4.0E-06	.5	1.2	5.0	6.9	2.9	1.8	.9	.9	1.2	2.6	6.2	13.3	25.6	7.4	1.4	.6	78.3
4.0E-06 TO 3.0E-06	.6	1.3	5.4	7.3	3.1	1.9	.9	.9	1.2	2.6	6.5	14.7	28.1	7.7	1.5	.7	84.5
3.0E-06 TO 2.0E-06	.6	1.4	5.7	7.6	3.1	2.0	.9	.9	1.3	2.6	6.9	15.9	30.2	8.1	1.6	.7	89.6
2.0E-06 TO 1.0E-06	.6	1.4	6.1	8.1	3.2	2.0	.9	.9	1.3	2.6	7.2	16.8	32.1	8.5	1.6	.8	94.0
1.0E-06 TO 9.0E-07	.6	1.4	6.1	8.1	3.2	2.0	.9	.9	1.3	2.6	7.2	16.8	32.4	8.5	1.6	.8	94.6
9.0E-07 TO 8.0E-07	.6	1.4	6.1	8.1	3.3	2.0	.9	.9	1.3	2.6	7.2	16.9	33.0	8.6	1.6	.8	95.4
8.0E-07 TO 7.0E-07	.6	1.5	6.2	8.1	3.3	2.0	.9	.9	1.3	2.6	7.3	16.9	33.2	8.6	1.6	.8	95.8
7.0E-07 TO 6.0E-07	.6	1.5	6.3	8.3	3.4	2.0	.9	.9	1.3	2.6	7.3	17.0	33.5	8.7	1.6	.8	96.6
6.0E-07 TO 5.0E-07	.6	1.5	6.4	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.1	33.7	8.7	1.6	.8	97.0
5.0E-07 TO 4.0E-07	.6	1.5	6.4	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.2	34.0	8.8	1.7	.8	97.7
4.0E-07 TO 3.0E-07	.7	1.5	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.3	34.3	8.8	1.7	.8	98.4
3.0E-07 TO 2.0E-07	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.6	8.9	1.7	.8	99.1
2.0E-07 TO 1.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.1	9.0	1.7	.8	99.8
1.0E-07 TO 7.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	4.743 E -5	8.813 E -5	1.474 E -4	1.616 E -4	2.080 E -4	1.051 E -4	1.518 E -4	1.176 E -4	1.941 E -4	1.703 E -4	1.373 E -4	1.212 E -4	2.164 E -4	1.373 E -4	1.279 E -4	1.103 E -4	2.164 E -4

5.0 PERCENTILE 6.40CE-05

50.0 PERCENTILE 9.8431-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
2.0E-04 TO	1.0E-04	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
1.0E-04 TO	9.0E-05	0.0	.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	.2
9.0E-05 TO	8.0E-05	0.0	.0	.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	.0	0.0	.4
8.0E-05 TO	7.0E-05	0.0	.0	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.2	0.0	.0	0.0	.6
7.0E-05 TO	6.0E-05	0.0	.1	.1	.3	0.0	.0	0.0	0.0	.0	0.0	.1	.2	.4	.1	.0	0.0	1.4
6.0E-05 TO	5.0E-05	0.0	.1	.3	.9	.1	.1	.1	.0	.0	.0	.1	.3	.8	.3	.0	0.0	3.3
5.0E-05 TO	4.0E-05	0.0	.2	.5	1.1	.2	.2	.1	.1	.1	.1	.3	.5	1.2	.5	.1	0.0	5.4
4.0E-05 TO	3.0E-05	0.0	.3	.8	1.9	.4	.3	.1	.1	.1	.3	.7	.9	2.3	.8	.2	0.0	9.3
3.0E-05 TO	2.0E-05	.1	.5	1.7	3.5	1.2	.5	.3	.2	.3	.3	1.1	1.7	3.8	1.6	.3	.1	17.3
2.0E-05 TO	1.0E-05	.2	.8	3.7	5.1	1.9	1.0	.6	.4	.5	1.0	3.0	4.7	13.5	3.3	.8	.5	41.1
1.0E-05 TO	9.0E-06	.2	.9	4.1	5.4	2.0	1.1	.6	.5	.6	1.1	3.1	5.3	15.4	3.8	.9	.6	45.5
9.0E-06 TO	8.0E-06	.2	1.0	4.4	5.8	2.3	1.1	.7	.5	.7	1.2	3.4	5.9	17.6	4.4	.9	.6	50.9
8.0E-06 TO	7.0E-06	.3	1.0	4.6	6.0	2.4	1.2	.7	.6	.8	1.5	3.8	7.2	19.6	5.4	.9	.7	56.7
7.0E-06 TO	6.0E-06	.4	1.1	4.9	6.3	2.6	1.3	.7	.6	.9	1.7	4.3	9.5	22.8	6.1	1.0	.7	64.8
6.0E-06 TO	5.0E-06	.4	1.1	5.3	6.6	2.6	1.6	.7	.6	1.0	1.9	4.9	10.8	25.0	6.6	1.1	.7	71.0
5.0E-06 TO	4.0E-06	.5	1.1	5.7	6.9	2.8	1.7	.8	.7	1.0	2.0	5.4	12.3	27.3	7.2	1.2	.8	77.5
4.0E-06 TO	3.0E-06	.5	1.2	6.0	7.3	3.0	1.7	.9	.8	1.1	2.1	5.9	14.0	29.8	7.9	1.4	.8	84.2
3.0E-06 TO	2.0E-06	.6	1.2	6.2	7.9	3.2	1.9	.9	.8	1.2	2.3	6.3	15.4	32.1	8.5	1.6	.8	90.9
2.0E-06 TO	1.0E-06	.5	1.3	6.5	8.2	3.4	1.9	1.0	.9	1.2	2.5	6.8	15.1	34.3	8.7	1.7	.8	95.8
1.0E-06 TO	9.0E-07	.6	1.3	6.5	8.2	3.4	1.9	1.0	.9	1.3	2.5	6.8	16.2	34.4	8.7	1.7	.8	96.1
9.0E-07 TO	8.0E-07	.6	1.3	6.5	8.2	3.4	1.9	1.0	.9	1.3	2.5	6.8	16.4	34.6	8.7	1.7	.8	96.5
8.0E-07 TO	7.0E-07	.6	1.3	6.5	8.2	3.4	2.0	1.0	.9	1.3	2.6	6.9	16.6	34.8	8.8	1.7	.8	97.3
7.0E-07 TO	6.0E-07	.6	1.3	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.0	16.6	34.8	8.8	1.7	.8	97.6
6.0E-07 TO	5.0E-07	.6	1.4	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.1	16.9	34.9	8.9	1.7	.8	98.1
5.0E-07 TO	4.0E-07	.7	1.4	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.1	16.9	34.9	8.9	1.7	.8	98.3
4.0E-07 TO	3.0E-07	.7	1.5	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.2	17.0	34.9	8.9	1.7	.8	98.7
3.0E-07 TO	2.0E-07	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.1	35.0	8.9	1.7	.8	99.1
2.0E-07 TO	1.0E-07	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.2	9.0	1.7	.8	99.6
1.0E-07 TO	7.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.2	9.0	1.7	.8	99.8
7.5E-08 TO	5.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		2.686 E -5	1.040 E -4	9.082 E -5	1.001 E -4	5.369 E -5	6.027 E -5	5.359 E -5	5.153 E -5	6.278 E -5	5.244 E -5	7.589 E -5	6.938 E -5	1.082 E -4	6.393 E -5	8.090 E -5	2.769 E -5	1.082 E -4

5.0 PERCENTILE 4.166E-05

50.0 PERCENTILE 8.156E-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
5.0E-05 TO	4.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	.0	0.0	0.0	.1
4.0E-05 TO	3.0E-05	0.0	.1	.1	.2	.2	.0	.0	0.0	.1	.0	.1	.3	.2	.0	.1	.1	1.8
3.0E-05 TO	2.0E-05	0.0	.1	.5	.7	.4	.2	.1	.1	.3	.4	.5	1.2	1.5	.6	.1	.1	6.8
2.0E-05 TO	1.0E-05	.0	.6	1.9	2.8	1.1	.9	.3	.4	.5	1.4	2.3	6.5	9.4	2.5	.5	.3	31.3
1.0E-05 TO	9.0E-06	.0	.6	2.1	2.9	1.1	.9	.4	.5	.5	1.5	2.7	7.5	11.3	2.8	.6	.4	35.9
9.0E-06 TO	8.0E-06	.1	.7	2.5	3.2	1.2	1.1	.4	.5	.6	1.6	3.3	8.4	13.7	3.4	.7	.4	41.8
8.0E-06 TO	7.0E-06	.1	.8	2.8	3.7	1.5	1.4	.5	.7	.7	1.7	3.6	10.1	15.8	4.1	.8	.4	48.7
7.0E-06 TO	6.0E-06	.3	1.1	3.5	4.5	1.8	1.5	.7	.7	.8	2.0	4.6	11.4	18.8	5.0	.8	.5	57.9
6.0E-06 TO	5.0E-06	.4	1.1	4.3	5.2	2.1	1.6	.8	.8	.9	2.1	5.3	12.7	22.8	5.8	1.0	.6	67.5
5.0E-06 TO	4.0E-06	.5	1.2	4.7	5.8	2.2	1.8	.9	.8	.9	2.3	5.8	13.9	26.2	6.5	1.3	.6	75.6
4.0E-06 TO	3.0E-06	.5	1.3	5.1	7.2	2.6	1.8	.9	.9	1.0	2.4	6.3	14.8	28.5	7.7	1.5	.6	83.1
3.0E-06 TO	2.0E-06	.5	1.3	5.8	7.7	2.9	2.0	1.0	.9	1.3	2.5	6.8	15.7	30.7	8.2	1.6	.7	89.5
2.0E-06 TO	1.0E-06	.7	1.4	6.3	7.9	3.2	2.0	1.0	.9	1.3	2.5	7.3	17.0	33.4	8.6	1.7	.7	95.7
1.0E-06 TO	9.0E-07	.7	1.4	6.3	8.1	3.2	2.0	1.0	.9	1.3	2.5	7.3	17.0	33.6	8.7	1.7	.7	96.3
9.0E-07 TO	8.0E-07	.7	1.4	6.3	8.2	3.4	2.0	1.0	.9	1.3	2.5	7.3	17.1	33.8	8.7	1.7	.7	96.9
8.0E-07 TO	7.0E-07	.7	1.4	6.3	8.2	3.4	2.0	1.0	.9	1.3	2.5	7.3	17.3	33.8	8.8	1.7	.7	97.2
7.0E-07 TO	6.0E-07	.7	1.4	6.4	8.2	3.4	2.0	1.0	.9	1.3	2.5	7.3	17.3	34.0	8.8	1.7	.7	97.4
6.0E-07 TO	5.0E-07	.7	1.4	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.3	34.2	8.9	1.7	.7	97.9
5.0E-07 TO	4.0E-07	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.3	34.3	8.9	1.7	.7	98.2
4.0E-07 TO	3.0E-07	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.3	34.5	8.9	1.7	.7	98.5
3.0E-07 TO	2.0E-07	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.4	34.8	8.9	1.7	.7	98.8
2.0E-07 TO	1.0E-07	.7	1.4	6.5	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.7	99.3
1.0E-07 TO	7.5E-08	.7	1.4	6.5	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.7	99.3
7.5E-08 TO	5.0E-08	.7	1.4	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.1	9.0	1.7	.8	99.6
5.0E-08 TO	2.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.2	9.0	1.7	.8	99.9
2.5E-08 TO	1.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.042 E -5	3.348 E -5	3.333 E -5	3.977 E -5	3.699 E -5	3.498 E -5	3.747 E -5	2.963 E -5	3.043 E -5	3.049 E -5	3.390 E -5	4.462 E -5	4.018 E -5	4.305 E -5	3.359 E -5	3.977 E -5	4.462 E -5

5.0 PERCENTILE 2.312E-05

50.0 PERCENTILE 6.844E-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
2.0E-05	TO 1.0E-05	.3	.6	1.9	2.3	.9	.6	.3	.2	.5	.9	1.7	5.1	9.6	3.0	.5	.3	28.5
1.0E-05	TO 9.0E-06	.3	.7	2.1	3.1	1.0	.6	.3	.2	.5	1.0	2.0	5.5	10.7	3.2	.6	.3	32.1
9.0E-06	TO 8.0E-06	.3	.8	3.1	3.8	1.3	.8	.6	.4	.8	1.6	2.9	7.0	13.1	3.7	.7	.4	41.0
8.0E-06	TO 7.0E-06	.3	.9	3.3	4.0	1.4	1.1	.6	.4	.9	1.8	4.0	9.4	17.8	4.8	.9	.6	52.2
7.0E-06	TO 6.0E-06	.5	.9	3.8	5.1	1.8	1.3	.7	.4	.9	1.9	4.8	11.1	21.8	5.5	1.1	.6	62.3
6.0E-06	TO 5.0E-06	.5	1.0	4.3	5.6	2.0	1.5	.9	.7	1.1	2.0	5.5	12.0	24.4	6.0	1.2	.6	69.5
5.0E-06	TO 4.0E-06	.7	1.2	5.1	6.3	2.5	1.7	.9	.8	1.2	2.4	6.1	13.6	27.3	7.0	1.4	.7	78.6
4.0E-06	TO 3.0E-06	.7	1.3	5.4	7.4	2.9	1.9	.9	.8	1.3	2.6	6.7	15.3	31.1	7.7	1.5	.7	88.3
3.0E-06	TO 2.0E-06	.7	1.3	6.1	8.0	3.4	2.0	.9	.9	1.3	2.6	7.0	16.5	33.4	8.5	1.6	.8	94.8
2.0E-06	TO 1.0E-06	.7	1.4	6.5	8.3	3.4	2.0	.9	.9	1.3	2.6	7.4	17.0	35.1	8.9	1.7	.8	98.9
1.0E-06	TO 9.0E-07	.7	1.4	6.5	8.3	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.0
9.0E-07	TO 8.0E-07	.7	1.4	6.5	8.4	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.0
8.0E-07	TO 7.0E-07	.7	1.4	6.6	8.4	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.1
7.0E-07	TO 6.0E-07	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.2
6.0E-07	TO 5.0E-07	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	35.1	9.0	1.7	.8	99.4
5.0E-07	TO 4.0E-07	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.1	9.0	1.7	.8	99.4
4.0E-07	TO 3.0E-07	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.1	9.0	1.7	.8	99.5
3.0E-07	TO 2.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.2	9.0	1.7	.8	99.8
2.0E-07	TO 1.0E-07	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.168 E -5	1.277 E -5	1.286 E -5	1.336 E -5	1.345 E -5	1.329 E -5	1.322 E -5	1.263 E -5	1.332 E -5	1.331 E -5	1.345 E -5	1.349 E -5	1.354 E -5	1.345 E -5	1.335 E -5	1.289 E -5	1.354 E -5

5.0 PERCENTILE 1.771E-05

50.0 PERCENTILE 7.185E-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	
MAGNITUDE OF X/Q																	
2.0E-03 TO 1.0E-03	.1	0.0	0.0	.0	.0	0.0	.0	0.0	.1	.3	.3	.0	.2	.1	0.0	0.0	1.3
1.0E-03 TO 9.0E-04	.1	0.0	0.0	.0	.0	0.0	.0	0.0	.1	.4	.4	.0	.3	.1	0.0	0.0	1.5
9.0E-04 TO 8.0E-04	.1	0.0	0.0	.1	.1	.0	.0	0.0	.1	.4	.5	.1	.3	.2	0.0	0.0	2.0
8.0E-04 TO 7.0E-04	.2	0.0	0.0	.1	.1	.0	.0	.0	.2	.6	.6	.3	.4	.3	0.0	0.0	2.8
7.0E-04 TO 6.0E-04	.2	.0	0.0	.1	.1	.1	.1	.0	.3	.7	.7	.3	.4	.3	0.0	0.0	3.3
6.0E-04 TO 5.0E-04	.2	.0	0.0	.1	.1	.1	.2	.0	.3	.7	.7	.3	.4	.3	0.0	0.0	3.5
5.0E-04 TO 4.0E-04	.2	.0	0.0	.1	.1	.1	.2	.0	.4	.7	.7	.3	.4	.3	.0	0.0	3.8
4.0E-04 TO 3.0E-04	.2	.0	0.0	.1	.1	.1	.3	.2	.5	.8	.8	.4	.4	.3	.1	.0	4.6
3.0E-04 TO 2.0E-04	.4	.1	.1	.3	.2	.1	.3	.2	.7	1.4	1.4	.6	.5	.4	.1	.1	6.8
2.0E-04 TO 1.0E-04	.6	.4	.5	.6	.5	.3	.5	.4	.9	2.0	3.2	3.0	1.4	1.2	.2	.3	15.8
1.0E-04 TO 9.0E-05	.6	.4	.5	.7	.6	.3	.5	.5	1.0	2.2	3.7	3.8	2.2	1.3	.3	.3	18.8
9.0E-05 TO 8.0E-05	.6	.4	.6	.7	.6	.3	.5	.5	1.0	2.4	4.2	4.5	3.2	1.5	.3	.3	21.4
8.0E-05 TO 7.0E-05	.6	.4	.6	.7	.7	.3	.5	.5	1.0	2.4	4.6	5.4	4.1	1.9	.3	.4	24.3
7.0E-05 TO 6.0E-05	.6	.5	.6	.8	.7	.3	.5	.5	1.0	2.7	4.8	7.1	5.7	2.4	.4	.5	29.0
6.0E-05 TO 5.0E-05	.6	.5	.6	.8	.7	.3	.5	.6	1.0	2.8	5.5	9.0	6.4	2.9	.5	.5	35.2
5.0E-05 TO 4.0E-05	.6	.6	.7	.8	.9	.3	.5	.6	1.0	2.9	6.2	12.2	11.4	3.8	.5	.6	43.4
4.0E-05 TO 3.0E-05	.6	.7	.7	.9	1.0	.3	.6	.6	1.2	3.6	6.5	16.2	16.5	4.5	.7	.6	54.4
3.0E-05 TO 2.0E-05	.7	.7	.7	1.0	1.0	.3	.6	.6	1.3	3.1	6.8	18.6	21.6	5.5	.9	.7	64.1
2.0E-05 TO 1.0E-05	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	6.9	19.8	25.0	6.6	1.2	.7	71.2
1.0E-05 TO 9.0E-06	.8	.7	.9	1.3	1.2	.4	.7	.6	1.4	3.2	6.9	19.8	25.2	6.7	1.3	.7	71.5
9.0E-06 TO 8.0E-06	.8	.7	.9	1.3	1.2	.4	.7	.6	1.4	3.2	7.0	19.9	25.5	6.8	1.3	.7	72.1
8.0E-06 TO 7.0E-06	.8	.7	.9	1.3	1.2	.4	.7	.6	1.4	3.2	7.0	19.9	25.8	6.8	1.3	.7	72.6
7.0E-06 TO 6.0E-06	.8	.8	1.0	1.4	1.2	.4	.7	.6	1.4	3.2	7.0	20.0	25.9	6.9	1.3	.7	73.2
6.0E-06 TO 5.0E-06	.8	.8	1.2	1.5	1.3	.4	.7	.7	1.4	3.2	7.1	20.2	26.0	7.2	1.3	.7	74.5
5.0E-06 TO 4.0E-06	.9	.8	1.4	2.4	1.6	.5	.7	.7	1.4	3.3	7.2	20.9	28.1	7.8	1.4	.7	79.6
4.0E-06 TO 3.0E-06	.9	.8	1.7	3.0	1.7	.5	.7	.7	1.5	3.3	7.4	21.9	34.6	9.4	1.5	.7	90.2
3.0E-06 TO 2.0E-06	1.0	.9	1.9	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	23.0	40.8	9.9	1.5	.7	99.1
2.0E-06 TO 1.0E-06	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	9.9	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.064 E -3	6.826 E -4	2.885 E -4	1.307 E -3	1.307 E -3	8.113 E -4	1.307 E -3	7.001 E -4	1.477 E -3	1.489 E -3	1.415 E -3	1.064 E -3	1.489 E -3	1.560 E -3	4.916 E -4	3.054 E -4	1.560 E -3

5.0 PERCENTILE 2.777E-04

50.0 PERCENTILE 3.369E-05

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-04 TO 2.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0
2.0E-04 TO 1.0E-04	0.0	0.0	.0	.1	0.0	.0	0.0	.0	0.0	.1	.1	0.0	.2	.1	0.0	0.0	.8
1.0E-04 TO 9.0E-05	0.0	0.0	.0	.1	.0	.0	0.0	.0	0.0	.1	.1	.0	.2	.2	.0	0.0	1.1
9.0E-05 TO 8.0E-05	0.0	0.0	.0	.2	.0	.0	.1	.0	0.0	.1	.1	.0	.3	.2	.0	0.0	1.4
8.0E-05 TO 7.0E-05	0.0	0.0	.1	.3	.0	.0	.1	.0	0.0	.1	.2	.1	.3	.2	.0	0.0	1.7
7.0E-05 TO 6.0E-05	.0	0.0	.2	.5	.1	.0	.2	.1	0.0	.1	.2	.1	.4	.3	.0	0.0	2.3
6.0E-05 TO 5.0E-05	.0	.0	.2	.5	.1	.1	.2	.1	0.0	.3	.2	.2	.5	.3	.1	0.0	2.8
5.0E-05 TO 4.0E-05	.0	.1	.2	.8	.1	.1	.2	.1	0.0	.4	.2	.3	.7	.7	.1	.0	4.2
4.0E-05 TO 3.0E-05	.1	.1	.3	1.1	.1	.1	.2	.1	.2	.6	.6	.7	.8	1.2	.1	.1	6.4
3.0E-05 TO 2.0E-05	.2	.1	.5	1.3	.1	.2	.4	.1	.4	.9	1.4	2.0	2.7	1.7	.2	.1	12.2
2.0E-05 TO 1.0E-05	.3	.3	.8	1.8	.4	.3	.5	.3	.7	2.0	2.9	7.4	11.0	3.9	.4	.3	33.2
1.0E-05 TO 9.0E-06	.3	.3	.9	2.0	.4	.3	.5	.3	.7	2.3	3.4	8.4	12.8	4.2	.5	.3	37.7
9.0E-06 TO 8.0E-06	.3	.3	1.0	2.0	.4	.3	.6	.3	.7	2.4	3.8	10.1	14.7	4.6	.6	.3	42.4
8.0E-06 TO 7.0E-06	.4	.4	1.2	2.1	.4	.3	.6	.3	.7	2.7	4.4	11.6	16.8	4.9	.7	.3	47.7
7.0E-06 TO 6.0E-06	.4	.4	1.2	2.1	.5	.3	.6	.4	.8	2.8	5.0	13.0	19.7	5.4	.8	.3	53.8
6.0E-06 TO 5.0E-06	.5	.4	1.4	2.1	.7	.3	.6	.5	.8	2.9	5.4	14.6	22.6	5.9	.9	.4	60.1
5.0E-06 TO 4.0E-06	.6	.4	1.6	2.4	.7	.4	.7	.5	.9	3.1	6.1	16.3	25.6	6.8	.9	.4	67.6
4.0E-06 TO 3.0E-06	.7	.5	1.7	2.5	.8	.4	.7	.5	1.0	3.1	6.3	18.1	28.5	7.2	1.1	.5	73.6
3.0E-06 TO 2.0E-06	.7	.6	1.7	2.6	.9	.4	.7	.6	1.2	3.3	6.8	19.7	32.2	7.9	1.2	.5	81.1
2.0E-06 TO 1.0E-06	.8	.8	1.9	2.8	1.1	.5	.7	.7	1.5	3.4	6.9	21.3	36.1	8.8	1.4	.6	89.1
1.0E-06 TO 9.0E-07	.8	.8	1.9	2.9	1.2	.5	.7	.7	1.5	3.4	7.0	21.4	36.7	8.8	1.4	.6	90.3
9.0E-07 TO 8.0E-07	.8	.8	1.9	2.9	1.3	.5	.7	.7	1.5	3.4	7.0	21.5	37.4	8.9	1.4	.6	91.2
8.0E-07 TO 7.0E-07	.8	.8	1.9	2.9	1.3	.5	.7	.7	1.5	3.4	7.0	21.7	37.7	9.0	1.4	.6	91.8
7.0E-07 TO 6.0E-07	.9	.8	1.9	3.0	1.5	.5	.7	.7	1.5	3.4	7.1	21.8	38.2	9.1	1.4	.6	93.0
6.0E-07 TO 5.0E-07	.9	.9	1.9	3.1	1.6	.5	.7	.7	1.5	3.4	7.2	22.1	38.6	9.3	1.4	.6	94.3
5.0E-07 TO 4.0E-07	.9	.9	1.9	3.2	1.6	.5	.7	.7	1.5	3.4	7.2	22.4	39.3	9.5	1.4	.6	95.8
4.0E-07 TO 3.0E-07	1.0	.9	2.0	3.3	1.6	.6	.7	.7	1.6	3.4	7.2	22.6	40.0	9.6	1.5	.6	97.3
3.0E-07 TO 2.0E-07	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.3	22.9	40.5	9.7	1.5	.7	98.6
2.0E-07 TO 1.0E-07	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.2	10.0	1.5	.7	99.8
1.0E-07 TO 7.5E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.430 E-5	5.303 E-5	1.250 E-4	1.751 E-4	9.439 E-5	1.164 E-4	8.261 E-5	1.305 E-4	3.707 E-5	1.207 E-4	2.272 E-4	9.596 E-5	1.266 E-4	1.550 E-4	9.230 E-5	4.858 E-5	2.272 E-4

5.0 PERCENTILE 3.605E-05

50.0 PERCENTILE 6.609E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
2.0E-04 TO 1.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
1.0E-04 TO 9.0E-05	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
9.0E-05 TO 8.0E-05	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
8.0E-05 TO 7.0E-05	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	.2
7.0E-05 TO 6.0E-05	0.0	0.0	.1	.2	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.2	0.0	0.0	0.0	.6
6.0E-05 TO 5.0E-05	0.0	0.0	.1	.2	.0	0.0	0.0	0.0	0.0	.0	0.0	.0	.2	.1	0.0	0.0	.8
5.0E-05 TO 4.0E-05	.0	0.0	.4	.5	.0	.0	.0	0.0	.0	.0	.0	.1	.4	.2	.0	.0	1.9
4.0E-05 TO 3.0E-05	.1	.1	.5	.6	.3	.0	.1	0.0	.0	.1	.1	.3	.6	.3	.1	.1	3.4
3.0E-05 TO 2.0E-05	.2	.1	.8	1.0	.4	.1	.1	.1	.1	.2	.2	.7	1.4	.7	.1	.1	6.4
2.0E-05 TO 1.0E-05	.4	.3	1.4	1.8	.8	.3	.2	.2	.4	.9	1.2	3.4	7.9	2.8	.6	.3	22.9
1.0E-05 TO 9.0E-06	.5	.3	1.4	1.9	.8	.3	.2	.2	.5	1.1	1.4	4.3	9.6	3.4	.6	.4	27.0
9.0E-06 TO 8.0E-06	.5	.4	1.5	2.0	.9	.3	.3	.2	.5	1.4	1.6	5.5	12.4	4.1	.7	.4	32.8
8.0E-06 TO 7.0E-06	.6	.4	1.5	2.1	1.1	.3	.3	.2	.5	1.4	1.8	6.9	15.4	4.9	.8	.5	38.8
7.0E-06 TO 6.0E-06	.6	.4	1.7	2.4	1.2	.4	.3	.3	.8	1.7	2.2	9.5	19.6	5.6	.9	.5	47.9
6.0E-06 TO 5.0E-06	.7	.5	1.9	2.6	1.4	.4	.4	.3	.9	2.0	2.9	11.7	23.5	6.4	1.0	.5	57.1
5.0E-06 TO 4.0E-06	.8	.5	1.9	2.8	1.6	.5	.4	.3	.9	2.2	3.6	14.2	28.0	7.2	1.2	.5	66.5
4.0E-06 TO 3.0E-06	.9	.6	2.0	2.9	1.6	.5	.5	.4	1.0	2.6	4.5	16.7	32.2	8.1	1.3	.5	76.1
3.0E-06 TO 2.0E-06	.9	.7	2.0	3.1	1.7	.5	.6	.6	1.2	3.0	5.3	19.1	36.3	8.9	1.4	.5	85.6
2.0E-06 TO 1.0E-06	.9	.9	2.0	3.2	1.7	.5	.6	.6	1.4	3.1	5.7	20.7	39.0	9.7	1.4	.6	92.8
1.0E-06 TO 9.0E-07	1.0	.9	2.0	3.2	1.7	.5	.6	.6	1.4	3.1	5.7	20.8	39.4	9.8	1.4	.6	92.7
9.0E-07 TO 8.0E-07	1.0	.9	2.0	3.3	1.7	.5	.6	.6	1.4	3.1	5.8	21.0	39.6	9.8	1.4	.6	93.2
8.0E-07 TO 7.0E-07	1.0	.9	2.0	3.3	1.7	.5	.6	.6	1.4	3.1	5.8	21.2	39.9	9.8	1.4	.6	93.9
7.0E-07 TO 6.0E-07	1.0	.9	2.0	3.3	1.7	.5	.6	.7	1.4	3.1	5.9	21.3	40.1	9.8	1.4	.6	94.4
6.0E-07 TO 5.0E-07	1.0	.9	2.0	3.3	1.7	.5	.6	.7	1.4	3.1	6.0	21.5	40.2	9.8	1.4	.6	94.7
5.0E-07 TO 4.0E-07	1.0	.9	2.0	3.4	1.7	.5	.6	.7	1.4	3.2	6.2	21.6	40.4	9.8	1.4	.6	95.5
4.0E-07 TO 3.0E-07	1.0	.9	2.0	3.4	1.8	.5	.6	.7	1.4	3.2	6.6	21.8	40.4	9.8	1.4	.6	96.1
3.0E-07 TO 2.0E-07	1.0	.9	2.0	3.4	1.8	.5	.7	.7	1.4	3.4	7.0	22.2	40.7	9.8	1.4	.7	97.5
2.0E-07 TO 1.0E-07	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.2	23.0	41.1	9.9	1.4	.7	99.3
1.0E-07 TO 7.5E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	9.9	1.5	.7	99.8
7.5E-08 TO 5.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	4.056 E -5	3.745 E -5	8.756 E -5	5.915 E -5	6.037 E -5	4.327 E -5	4.124 E -5	2.904 E -5	4.740 E -5	5.562 E -5	4.864 E -5	7.614 E -5	1.136 E -4	5.791 E -5	4.131 E -5	4.821 E -5	1.136 E -4

5.0 PERCENTILE 2.413E-05

50.0 PERCENTILE 5.758E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
4.0E-05 TO	3.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	.1
3.0E-05 TO	2.0E-05	.0	0.0	.1	.1	0.0	0.0	.0	.1	0.0	.2	.3	.3	.6	.2	0.0	0.0	2.0
2.0E-05 TO	1.0E-05	.3	.3	.6	.9	.5	.2	.2	.2	.3	.7	1.7	3.3	5.7	2.0	.1	.0	17.0
1.0E-05 TO	9.0E-06	.4	.3	.6	1.1	.6	.2	.2	.3	.4	1.0	2.1	4.7	8.0	2.6	.4	.0	23.0
9.0E-06 TO	8.0E-06	.5	.4	.8	1.4	.8	.3	.3	.3	.4	1.2	2.6	5.9	10.3	2.8	.6	.0	28.6
8.0E-06 TO	7.0E-06	.5	.4	.9	1.8	1.1	.4	.3	.4	.7	1.4	3.3	7.8	13.6	3.4	.6	.1	36.7
7.0E-06 TO	6.0E-06	.6	.5	1.0	2.2	1.2	.4	.4	.4	.7	1.8	3.7	10.5	18.3	4.7	.8	.4	47.7
6.0E-06 TO	5.0E-06	.7	.5	1.4	2.6	1.5	.4	.5	.5	.8	2.3	4.8	13.3	23.2	5.9	.9	.4	59.8
5.0E-06 TO	4.0E-06	.7	.5	1.5	2.8	1.7	.5	.5	.7	1.1	2.9	5.7	16.0	28.6	6.8	1.1	.5	71.4
4.0E-06 TO	3.0E-06	.7	.6	1.7	2.9	1.7	.5	.6	.7	1.4	3.1	6.3	17.7	31.4	7.5	1.3	.6	78.4
3.0E-06 TO	2.0E-06	.8	.7	1.8	3.1	1.7	.5	.6	.7	1.4	3.3	6.7	19.0	34.2	8.3	1.4	.6	84.6
2.0E-06 TO	1.0E-06	.8	.8	1.9	3.3	1.8	.5	.7	.7	1.4	3.4	7.3	21.1	37.4	8.8	1.4	.7	92.0
1.0E-06 TO	9.0E-07	.8	.8	1.9	3.3	1.8	.5	.7	.7	1.4	3.4	7.3	21.1	37.7	8.9	1.4	.7	92.5
9.0E-07 TO	8.0E-07	.8	.8	1.9	3.3	1.8	.5	.7	.7	1.4	3.4	7.3	21.6	38.3	8.9	1.4	.7	93.6
8.0E-07 TO	7.0E-07	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.4	3.4	7.3	21.7	38.4	9.0	1.4	.7	94.1
7.0E-07 TO	6.0E-07	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.4	3.4	7.4	21.9	38.8	9.0	1.4	.7	94.8
6.0E-07 TO	5.0E-07	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.1	39.1	9.1	1.4	.7	95.4
5.0E-07 TO	4.0E-07	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.3	39.3	9.1	1.4	.7	95.8
4.0E-07 TO	3.0E-07	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.3	39.6	9.2	1.4	.7	96.2
3.0E-07 TO	2.0E-07	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.4	39.9	9.4	1.4	.7	96.7
2.0E-07 TO	1.0E-07	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.6	40.5	9.5	1.4	.7	97.8
1.0E-07 TO	7.5E-08	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.7	40.5	9.6	1.4	.7	98.0
7.5E-08 TO	5.0E-08	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.8	40.8	9.7	1.4	.7	98.7
5.0E-08 TO	2.5E-08	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	23.0	41.4	9.9	1.5	.7	99.8
2.5E-08 TO	1.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		2.521 E -5	1.457 E -5	2.517 E -5	2.532 E -5	1.634 E -5	1.649 E -5	2.536 E -5	2.535 E -5	1.826 E -5	3.066 E -5	2.981 E -5	3.155 E -5	3.418 E -5	2.799 E -5	1.312 E -5	1.317 E -5	3.418 E -5

5.0 PERCENTILE 1.739E-05

50.0 PERCENTILE 5.799E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	
MAGNITUDE OF X/Q																	
1.0E-05 TO 9.0E-06	0.0	.1	.2	.0	0.0	0.0	.0	.2	.0	.1	.7	2.2	4.5	.9	.1	.0	9.2
9.0E-06 TO 8.0E-06	.1	.2	.6	.5	.3	.1	.1	.3	.3	.9	2.0	5.4	11.6	2.6	.3	.1	25.5
8.0E-06 TO 7.0E-06	.3	.4	.7	1.4	.8	.3	.4	.4	.8	1.8	3.4	10.6	17.8	3.7	.7	.2	43.8
7.0E-06 TO 6.0E-06	.5	.5	1.0	1.5	.8	.3	.5	.5	.9	2.2	4.5	14.4	24.1	5.6	.9	.3	58.4
6.0E-06 TO 5.0E-06	.7	.5	1.4	2.2	1.3	.4	.6	.5	1.0	2.5	5.3	16.1	27.9	7.2	1.0	.4	68.8
5.0E-06 TO 4.0E-06	.7	.6	1.5	2.3	1.4	.4	.6	.5	1.1	2.7	5.4	17.5	32.0	8.1	1.1	.4	76.2
4.0E-06 TO 3.0E-06	.8	.6	1.6	2.4	1.4	.4	.6	.6	1.1	2.7	5.7	18.0	33.3	8.2	1.1	.5	78.9
3.0E-06 TO 2.0E-06	.9	.6	1.6	2.5	1.4	.5	.6	.6	1.3	2.9	6.0	19.5	35.5	8.7	1.3	.5	84.2
2.0E-06 TO 1.0E-06	.9	.7	1.9	2.9	1.6	.6	.7	.7	1.5	3.3	6.8	21.1	38.4	9.4	1.4	.6	92.4
1.0E-06 TO 9.0E-07	.9	.7	1.9	2.9	1.6	.6	.7	.7	1.5	3.3	6.8	21.2	38.6	9.4	1.4	.6	92.8
9.0E-07 TO 8.0E-07	.9	.7	1.9	2.9	1.6	.6	.7	.7	1.5	3.3	6.9	21.5	38.7	9.4	1.4	.6	93.2
8.0E-07 TO 7.0E-07	.9	.8	1.9	3.0	1.7	.6	.7	.7	1.5	3.3	6.9	21.6	39.0	9.4	1.4	.6	93.9
7.0E-07 TO 6.0E-07	.9	.8	1.9	3.1	1.8	.6	.7	.7	1.5	3.4	7.0	21.9	39.8	9.6	1.4	.6	95.6
6.0E-07 TO 5.0E-07	1.0	.8	1.9	3.2	1.8	.6	.7	.7	1.6	3.4	7.1	22.3	40.3	9.7	1.4	.6	96.9
5.0E-07 TO 4.0E-07	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.2	22.3	40.8	9.7	1.4	.6	97.9
4.0E-07 TO 3.0E-07	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.3	22.5	41.0	9.8	1.5	.7	98.6
3.0E-07 TO 2.0E-07	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	22.7	41.2	9.9	1.5	.7	99.2
2.0E-07 TO 1.0E-07	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	8.521 E -6	9.354 E -6	9.467 E -6	5.358 E -6	8.889 E -6	8.331 E -6	9.493 E -6	9.451 E -6	9.098 E -6	9.180 E -6	9.406 E -6	5.468 E -6	9.510 E -6	9.465 E -6	9.134 E -6	9.061 E -6	9.510 E -6

5.0 PERCENTILE 9.442E-06

50.0 PERCENTILE 6.556E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	
MAGNITUDE OF X/Q																	
3.0E-03 TO 2.0E-03	.0	0.0	0.0	.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
2.0E-03 TO 1.0E-03	.2	.0	.3	.3	.3	.3	.7	.4	.6	.6	1.2	1.4	.9	.8	.2	.2	8.5
1.0E-03 TO 9.0E-04	.2	.1	.3	.5	.4	.5	.8	.4	.8	.8	1.9	1.7	.9	.9	.3	.4	10.9
9.0E-04 TO 8.0E-04	.3	.1	.4	.6	.5	.5	.8	.6	.9	1.2	2.1	1.9	1.0	1.0	.4	.4	12.6
8.0E-04 TO 7.0E-04	.3	.2	.4	.6	.6	.9	.9	.7	1.0	1.8	2.7	2.2	1.3	1.1	.5	.4	15.7
7.0E-04 TO 6.0E-04	.4	.2	.5	.9	.7	1.0	.9	.7	1.2	2.2	2.9	2.4	1.4	1.2	.6	.4	17.5
6.0E-04 TO 5.0E-04	.4	.2	.5	.9	.8	1.0	.9	.9	1.2	2.6	3.0	2.4	1.4	1.2	.7	.5	18.7
5.0E-04 TO 4.0E-04	.4	.4	.6	1.1	.9	1.2	1.1	1.0	1.2	3.0	3.1	2.6	1.6	1.3	.8	.5	20.8
4.0E-04 TO 3.0E-04	.6	.5	.8	1.3	1.0	1.3	1.2	1.2	1.3	3.4	3.4	2.7	1.7	1.4	.9	.6	23.4
3.0E-04 TO 2.0E-04	.6	1.0	1.5	2.0	1.5	1.7	1.5	1.3	1.6	4.1	4.3	3.2	1.8	1.6	1.1	.8	29.6
2.0E-04 TO 1.0E-04	1.0	1.9	4.7	4.4	3.3	2.4	1.8	1.5	2.0	4.9	6.5	4.8	3.4	2.9	1.5	1.0	47.9
1.0E-04 TO 9.0E-05	1.0	1.9	5.0	4.9	3.5	2.4	1.8	1.5	2.1	4.9	6.9	5.1	3.7	3.1	1.6	1.0	50.3
9.0E-05 TO 8.0E-05	1.0	1.9	5.2	5.2	3.6	2.5	1.8	1.6	2.1	4.9	7.3	5.9	4.1	3.5	1.6	1.0	53.1
8.0E-05 TO 7.0E-05	1.0	1.9	5.5	5.6	3.6	2.5	1.9	1.7	2.1	5.0	7.5	6.5	4.8	3.8	1.6	1.0	56.1
7.0E-05 TO 6.0E-05	1.0	2.1	5.6	5.8	4.0	2.5	1.9	1.7	2.1	5.0	8.0	7.4	5.9	4.4	1.6	1.0	60.2
6.0E-05 TO 5.0E-05	1.1	2.1	5.8	6.2	4.5	2.6	2.0	1.9	2.1	5.0	8.4	8.7	7.4	4.9	1.7	1.0	65.5
5.0E-05 TO 4.0E-05	1.2	2.3	6.1	6.8	5.1	2.6	2.1	1.9	2.1	5.0	8.7	10.7	9.1	5.8	1.7	1.0	72.4
4.0E-05 TO 3.0E-05	1.2	2.4	6.3	7.6	5.6	2.6	2.2	2.0	2.2	5.2	9.0	12.5	11.4	6.2	1.8	1.1	79.3
3.0E-05 TO 2.0E-05	1.2	2.4	6.6	8.4	6.0	2.7	2.2	2.1	2.2	5.3	9.2	14.3	13.3	6.7	1.8	1.2	85.6
2.0E-05 TO 1.0E-05	1.3	2.5	6.7	9.1	6.2	2.8	2.3	2.2	2.3	5.4	9.3	15.1	14.9	6.8	1.9	1.2	90.1
1.0E-05 TO 9.0E-06	1.3	2.5	6.7	9.1	6.2	2.8	2.3	2.2	2.3	5.4	9.3	15.2	15.0	6.8	1.9	1.2	90.3
9.0E-06 TO 8.0E-06	1.3	2.6	6.7	9.2	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.2	15.1	6.9	1.9	1.2	90.7
8.0E-06 TO 7.0E-06	1.3	2.6	6.8	9.3	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.2	15.2	6.9	1.9	1.2	90.8
7.0E-06 TO 6.0E-06	1.3	2.6	6.8	9.4	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.2	15.3	7.0	1.9	1.2	91.2
6.0E-06 TO 5.0E-06	1.3	2.6	6.8	9.8	6.4	2.8	2.3	2.3	2.3	5.4	9.3	15.2	15.5	7.0	1.9	1.2	92.2
5.0E-06 TO 4.0E-06	1.3	2.6	7.1	10.4	6.6	2.8	2.4	2.3	2.3	5.4	9.3	15.5	15.8	7.1	1.9	1.2	94.1
4.0E-06 TO 3.0E-06	1.4	2.6	7.4	11.0	6.7	2.8	2.4	2.3	2.3	5.4	9.3	16.8	16.9	7.1	1.9	1.2	96.8
3.0E-06 TO 2.0E-06	1.4	2.8	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.5	18.0	7.1	1.9	1.3	99.3
2.0E-06 TO 1.0E-06	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.011 E-3	1.395 E-3	1.757 E-3	2.011 E-3	1.757 E-3	2.011 E-3	1.768 E-3	2.011 E-3	1.560 E-3	1.757 E-3	1.768 E-3	1.757 E-3	1.876 E-3	1.876 E-3	1.560 E-3	1.477 E-3	2.011 E-3

5.0 PERCENTILE 1.337E-03

50.0 PERCENTILE 9.183E-05

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-04 TO 2.0E-04	0.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	.2	.0	.0	0.0	0.0	0.0	0.0	.4
2.0E-04 TO 1.0E-04	.1	0.0	.2	.5	.3	.2	.1	.3	.3	1.0	.5	1.0	.5	.5	.1	.0	5.6
1.0E-04 TO 9.0E-05	.1	.0	.4	.7	.3	.3	.1	.4	.5	1.1	.8	1.1	.7	.6	.1	.0	7.3
9.0E-05 TO 8.0E-05	.2	.0	.6	1.0	.6	.3	.2	.5	.6	1.2	1.0	1.4	.9	.7	.1	.1	9.5
8.0E-05 TO 7.0E-05	.2	.1	.7	1.1	.7	.4	.2	.7	.6	1.4	1.2	1.9	1.3	.7	.2	.2	11.5
7.0E-05 TO 6.0E-05	.2	.1	1.2	1.7	.9	.5	.2	.7	.6	1.6	1.4	2.3	1.6	1.0	.2	.2	14.3
6.0E-05 TO 5.0E-05	.3	.2	1.4	2.4	1.2	.7	.7	.8	.7	2.0	1.8	2.5	2.3	1.2	.3	.3	18.8
5.0E-05 TO 4.0E-05	.3	.3	1.7	3.4	1.5	1.1	1.1	1.0	.8	2.4	2.1	2.9	3.0	1.5	.5	.4	24.0
4.0E-05 TO 3.0E-05	.4	.6	2.3	4.3	2.1	1.2	1.3	1.1	.9	2.7	2.6	3.4	3.6	2.1	.5	.6	29.4
3.0E-05 TO 2.0E-05	.6	1.1	3.1	6.1	2.6	1.5	1.7	1.2	1.1	3.0	3.6	4.8	5.0	3.1	.7	.7	39.9
2.0E-05 TO 1.0E-05	.9	1.7	4.5	8.5	4.0	2.3	2.0	1.5	1.7	4.2	6.5	9.5	9.5	5.8	1.2	1.0	64.5
1.0E-05 TO 9.0E-06	1.0	1.9	4.7	8.8	4.2	2.1	2.1	1.6	1.8	4.4	6.7	10.3	10.0	6.0	1.3	1.0	67.9
9.0E-06 TO 8.0E-06	1.0	2.0	5.1	9.2	4.3	2.3	2.1	1.6	1.9	4.5	7.3	10.9	10.9	6.2	1.3	1.1	71.7
8.0E-06 TO 7.0E-06	1.0	2.0	5.5	9.5	4.7	2.4	2.2	1.7	1.9	4.7	7.4	11.5	11.5	6.4	1.5	1.2	75.1
7.0E-06 TO 6.0E-06	1.1	2.2	6.1	9.7	4.9	2.4	2.2	1.8	1.9	4.9	7.8	12.3	12.3	6.6	1.6	1.2	78.8
6.0E-06 TO 5.0E-06	1.2	2.4	6.7	10.0	5.2	2.5	2.4	1.9	1.9	5.0	8.0	13.0	13.1	6.7	1.6	1.2	82.8
5.0E-06 TO 4.0E-06	1.2	2.4	6.8	10.2	5.6	2.6	2.4	2.0	2.1	5.0	8.5	14.0	14.2	6.9	1.7	1.2	86.8
4.0E-06 TO 3.0E-06	1.3	2.5	7.0	10.5	5.9	2.7	2.4	2.1	2.2	5.1	8.7	15.0	15.6	6.9	1.8	1.2	90.9
3.0E-06 TO 2.0E-06	1.4	2.6	7.3	10.6	6.1	2.8	2.4	2.2	2.2	5.1	9.1	15.8	16.4	7.0	1.8	1.2	94.8
2.0E-06 TO 1.0E-06	1.4	2.6	7.4	10.9	6.3	2.8	2.4	2.2	2.3	5.3	9.3	16.3	17.3	7.1	1.9	1.3	96.7
1.0E-06 TO 9.0E-07	1.4	2.6	7.4	10.9	6.3	2.8	2.4	2.2	2.3	5.3	9.3	16.3	17.4	7.1	1.9	1.3	97.0
9.0E-07 TO 8.0E-07	1.4	2.6	7.4	10.9	6.4	2.8	2.4	2.2	2.3	5.3	9.4	16.3	17.6	7.1	1.9	1.3	97.3
8.0E-07 TO 7.0E-07	1.4	2.7	7.4	11.0	6.4	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.7	7.1	1.9	1.3	97.7
7.0E-07 TO 6.0E-07	1.4	2.7	7.4	11.0	6.4	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.7	7.1	1.9	1.3	97.7
6.0E-07 TO 5.0E-07	1.4	2.7	7.5	11.0	6.5	2.8	2.4	2.2	2.3	5.4	9.4	16.4	17.7	7.1	1.9	1.3	98.1
5.0E-07 TO 4.0E-07	1.4	2.7	7.5	11.2	6.6	2.8	2.4	2.3	2.3	5.4	9.4	16.5	17.8	7.1	1.9	1.3	98.5
4.0E-07 TO 3.0E-07	1.4	2.8	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.0	7.1	1.9	1.3	99.3
3.0E-07 TO 2.0E-07	1.4	2.8	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.1	7.2	1.9	1.3	99.6
2.0E-07 TO 1.0E-07	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.519 E -4	9.112 E -5	2.890 E -4	1.760 E -4	2.090 E -4	2.045 E -4	1.557 E -4	1.467 E -4	1.650 E -4	2.376 E -4	2.000 E -4	2.095 E -4	1.797 E -4	1.842 E -4	1.416 E -4	1.571 E -4	2.890 E -4

5.0 PERCENTILE 1.083E-04

50.0 PERCENTILE 1.506E-05

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	8.000 E2	
MAGNITUDE OF X/Q																	
2.0E-04 TO 1.0E-04	0.0	.1	.1	.1	.1	0.0	0.0	0.0	0.0	.0	0.0	.2	.1	.0	.0	0.0	1.0
1.0E-04 TO 9.0E-05	0.0	.2	.1	.2	.2	0.0	0.0	0.0	.0	.0	.0	.2	.1	.0	.0	0.0	1.4
9.0E-05 TO 8.0E-05	0.0	.3	.2	.3	.3	0.0	.0	.0	.0	.1	.2	.3	.3	.0	.0	0.0	2.4
8.0E-05 TO 7.0E-05	0.0	.4	.3	.6	.7	0.0	.0	.2	.0	.2	.3	.4	.4	.2	.1	0.0	3.7
7.0E-05 TO 6.0E-05	.0	.4	.5	.9	.8	.1	.1	.2	.0	.3	.4	.5	.7	.3	.1	.0	5.6
6.0E-05 TO 5.0E-05	.2	.4	.7	1.4	1.1	.3	.1	.3	.1	.5	.5	1.0	1.2	.5	.3	.1	8.6
5.0E-05 TO 4.0E-05	.3	.7	1.2	2.3	1.7	.6	.1	.5	.2	.8	.7	1.4	1.8	.8	.4	.2	13.7
4.0E-05 TO 3.0E-05	.4	.9	2.1	3.8	2.7	.7	.4	.5	.3	1.2	1.2	2.2	2.8	1.1	.6	.4	21.4
3.0E-05 TO 2.0E-05	.6	1.2	3.3	6.0	4.8	1.2	.9	.8	.6	1.7	2.2	3.2	4.7	2.1	.7	.6	33.7
2.0E-05 TO 1.0E-05	.8	2.0	5.3	7.8	5.3	1.8	1.4	1.4	1.1	2.8	4.8	6.8	8.8	3.8	1.2	.6	55.7
1.0E-05 TO 9.0E-06	.8	2.1	5.6	8.1	5.5	1.9	1.5	1.5	1.1	3.1	5.3	7.5	9.7	4.2	1.3	.6	59.8
9.0E-06 TO 8.0E-06	.9	2.1	5.8	8.6	5.8	2.0	1.6	1.7	1.3	3.5	5.7	8.2	10.7	4.7	1.5	.6	64.7
8.0E-06 TO 7.0E-06	1.0	2.2	6.0	9.0	5.9	2.1	1.8	1.7	1.3	3.8	6.3	9.3	11.8	4.9	1.5	.7	69.3
7.0E-06 TO 6.0E-06	1.1	2.3	6.4	9.5	6.1	2.2	1.8	1.8	1.4	4.0	6.5	10.1	13.0	5.5	1.7	.8	74.2
6.0E-06 TO 5.0E-06	1.2	2.5	6.6	9.9	6.2	2.3	1.9	2.0	1.6	4.2	6.9	11.2	14.1	5.8	1.7	.9	79.8
5.0E-06 TO 4.0E-06	1.2	2.5	6.9	10.4	6.3	2.5	2.0	2.1	1.8	4.5	7.5	12.6	15.5	6.1	1.7	1.1	84.5
4.0E-06 TO 3.0E-06	1.3	2.6	7.1	10.6	6.5	2.6	2.2	2.1	1.8	5.0	8.0	13.7	16.5	6.6	1.8	1.1	89.5
3.0E-06 TO 2.0E-06	1.3	2.6	7.3	11.0	6.7	2.8	2.3	2.1	2.0	5.0	8.5	14.9	17.5	6.9	1.8	1.1	93.9
2.0E-06 TO 1.0E-06	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.2	9.2	15.7	18.1	7.0	1.9	1.2	97.4
1.0E-06 TO 9.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.2	15.8	18.2	7.0	1.9	1.2	97.7
9.0E-07 TO 8.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.3	16.0	18.2	7.0	1.9	1.2	98.1
8.0E-07 TO 7.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.3	16.1	18.2	7.0	1.9	1.2	98.2
7.0E-07 TO 6.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.3	16.1	18.3	7.1	1.9	1.2	98.4
6.0E-07 TO 5.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.4	9.3	16.2	18.4	7.1	1.9	1.2	98.6
5.0E-07 TO 4.0E-07	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.4	9.3	16.2	18.4	7.1	1.9	1.2	98.8
4.0E-07 TO 3.0E-07	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.4	9.3	16.3	18.4	7.1	1.9	1.2	99.1
3.0E-07 TO 2.0E-07	1.4	2.7	7.5	11.3	6.8	2.8	2.4	2.3	2.2	5.4	9.4	16.5	18.4	7.1	1.9	1.2	99.5
2.0E-07 TO 1.0E-07	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	6.456 E -5	1.445 E -4	1.529 E -4	1.482 E -4	1.168 E -4	6.674 E -5	8.252 E -5	8.557 E -5	9.383 E -5	1.376 E -4	9.356 E -5	1.521 E -4	1.385 E -4	1.022 E -4	1.002 E -4	6.952 E -5	1.529 E -4

5.0 PERCENTILE 6.283E-05

50.0 PERCENTILE 1.197E-05

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
1.0E-04 TO 9.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0
9.0E-05 TO 8.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	0.0	.0	0.0	0.0	0.0	0.0	.2
8.0E-05 TO 7.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	0.0	.0	.0	0.0	0.0	0.0	.2
7.0E-05 TO 6.0E-05	0.0	.0	0.0	.0	0.0	0.0	.0	0.0	.0	.1	0.0	.0	.1	.0	0.0	.0	.5
6.0E-05 TO 5.0E-05	0.0	.0	0.0	.0	0.0	0.0	.1	.0	.0	.1	.0	.2	.3	.0	0.0	.0	1.1
5.0E-05 TO 4.0E-05	0.0	.0	0.0	.1	0.0	0.0	.1	.0	.0	.1	.4	.3	.5	.1	0.0	.0	1.9
4.0E-05 TO 3.0E-05	.0	.1	.4	.5	.2	.1	.2	.2	.2	.4	.9	.6	.6	.1	.0	.1	4.8
3.0E-05 TO 2.0E-05	.2	.5	2.1	1.9	1.2	.6	.4	.5	.6	1.6	2.4	2.7	2.6	.9	.3	.4	18.8
2.0E-05 TO 1.0E-05	.8	1.5	4.6	6.6	4.0	1.6	1.5	1.5	1.3	3.5	5.3	8.6	7.2	3.7	.9	.6	53.1
1.0E-05 TO 9.0E-06	.8	1.7	5.0	7.2	4.2	1.8	1.7	1.7	1.3	3.7	6.1	9.9	8.4	4.2	1.0	.9	59.5
9.0E-06 TO 8.0E-06	.8	1.8	5.3	7.5	4.4	1.8	1.8	1.8	1.4	3.8	6.3	10.5	9.7	4.5	1.1	.9	63.4
8.0E-06 TO 7.0E-06	.9	2.0	5.5	8.1	4.7	1.9	1.8	1.9	1.6	4.0	6.9	11.8	11.0	5.0	1.1	1.0	69.2
7.0E-06 TO 6.0E-06	.9	2.0	5.9	8.7	5.3	2.2	1.9	2.0	1.7	4.1	7.4	12.7	12.0	5.2	1.2	1.1	74.5
6.0E-06 TO 5.0E-06	1.0	2.1	6.3	9.0	5.6	2.2	2.1	2.1	1.7	4.4	7.7	13.3	13.0	5.5	1.4	1.1	78.3
5.0E-06 TO 4.0E-06	1.1	2.2	6.6	9.3	5.7	2.4	2.1	2.1	1.7	4.7	7.9	13.9	14.2	5.7	1.5	1.1	82.2
4.0E-06 TO 3.0E-06	1.1	2.5	6.9	9.8	6.1	2.5	2.2	2.1	1.9	4.9	8.5	14.7	15.0	6.2	1.6	1.2	87.2
3.0E-06 TO 2.0E-06	1.2	2.6	7.2	10.6	6.4	2.7	2.4	2.1	2.8	5.1	8.8	15.3	15.8	6.7	1.7	1.2	91.8
2.0E-06 TO 1.0E-06	1.3	2.7	7.5	11.0	6.6	2.8	2.4	2.3	2.2	5.3	9.3	16.1	17.5	6.9	1.9	1.2	97.0
1.0E-06 TO 9.0E-07	1.3	2.7	7.5	11.0	6.6	2.8	2.4	2.3	2.2	5.3	9.3	16.1	17.5	7.0	1.9	1.2	97.2
9.0E-07 TO 8.0E-07	1.3	2.7	7.5	11.1	6.7	2.8	2.4	2.3	2.3	5.3	9.3	16.2	17.6	7.0	1.9	1.2	97.6
8.0E-07 TO 7.0E-07	1.3	2.7	7.5	11.1	6.7	2.8	2.4	2.3	2.3	5.3	9.3	16.2	17.7	7.0	1.9	1.2	97.9
7.0E-07 TO 6.0E-07	1.3	2.7	7.5	11.1	6.8	2.8	2.4	2.3	2.3	5.3	9.4	16.3	17.8	7.1	1.9	1.3	98.2
6.0E-07 TO 5.0E-07	1.4	2.7	7.5	11.1	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.3	18.0	7.1	1.9	1.3	98.6
5.0E-07 TO 4.0E-07	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.4	18.0	7.2	1.9	1.3	99.0
4.0E-07 TO 3.0E-07	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.4	18.2	7.2	1.9	1.3	99.3
3.0E-07 TO 2.0E-07	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.5	18.3	7.2	1.9	1.3	99.7
2.0E-07 TO 1.0E-07	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
1.0E-07 TO 7.5E-08	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
7.5E-08 TO 5.0E-08	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.9
5.0E-08 TO 2.5E-08	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	3.809 E -5	6.223 E -5	3.746 E -5	6.844 E -5	3.699 E -5	3.915 E -5	6.927 E -5	5.056 E -5	8.182 E -5	8.799 E -5	5.253 E -5	9.380 E -5	7.424 E -5	6.089 E -5	3.869 E -5	6.263 E -5	9.380 E -5

5.0 PERCENTILE 2.984E-05

50.0 PERCENTILE 1.865E-05

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
3.0E-05 TO	2.0E-05	.1	.2	.8	1.2	.6	.6	.2	.1	.2	.6	.7	1.0	.8	.6	.2	.1	7.9
2.0E-05 TO	1.0E-05	.9	1.6	4.1	6.7	3.7	1.9	1.5	1.2	1.2	3.8	4.9	8.9	9.5	3.9	.9	.8	54.7
1.0E-05 TO	9.0E-06	.9	1.7	4.5	7.2	4.8	1.9	1.6	1.4	1.3	3.2	5.3	9.9	11.1	4.5	1.2	.9	60.7
9.0E-06 TO	8.0E-06	1.0	2.0	5.1	8.1	5.0	2.0	1.7	1.5	1.4	3.5	5.9	11.2	12.3	5.2	1.3	.9	68.8
8.0E-06 TO	7.0E-06	1.1	2.4	5.6	8.9	5.4	2.3	1.9	1.7	1.7	3.7	6.5	12.5	14.0	5.6	1.4	.9	75.6
7.0E-06 TO	6.0E-06	1.2	2.5	6.2	9.4	5.5	2.4	1.9	1.8	1.8	4.4	7.4	13.3	14.7	6.2	1.5	1.1	81.8
6.0E-06 TO	5.0E-06	1.2	2.5	6.6	9.7	6.0	2.4	2.1	1.9	2.0	4.7	8.0	14.1	15.8	6.4	1.6	1.2	86.3
5.0E-06 TO	4.0E-06	1.4	2.5	7.0	10.3	6.2	2.5	2.2	2.0	2.2	5.0	8.6	14.9	16.5	6.6	1.8	1.2	90.8
4.0E-06 TO	3.0E-06	1.4	2.5	7.1	10.6	6.5	2.5	2.2	2.1	2.3	5.0	9.1	15.8	17.5	7.0	1.8	1.2	94.7
3.0E-06 TO	2.0E-06	1.4	2.7	7.3	11.2	6.7	2.7	2.4	2.3	2.3	5.3	9.4	16.5	18.3	7.1	1.9	1.2	98.7
2.0E-06 TO	1.0E-06	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.358 E -5	2.756 E -5	2.676 E -5	2.638 E -5	2.682 E -5	2.644 E -5	2.788 E -5	2.582 E -5	2.718 E -5	2.695 E -5	2.758 E -5	2.772 E -5	2.724 E -5	2.771 E -5	2.541 E -5	2.666 E -5	2.788 E -5

5.0 PERCENTILE 2.318E-05

50.0 PERCENTILE 1.071E-05

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
8.0E-04 TO 7.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
7.0E-04 TO 6.0E-04	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.2
6.0E-04 TO 5.0E-04	.1	0.0	.0	0.0	.0	.0	0.0	0.0	.1	.1	.0	.0	.0	0.0	0.0	0.0	.6
5.0E-04 TO 4.0E-04	.3	0.0	.0	0.0	.1	.1	.1	.1	.2	.3	.2	.1	.1	.0	.1	.0	2.2
4.0E-04 TO 3.0E-04	.3	0.0	.1	.0	.2	.3	.3	.3	.5	.5	.6	.4	.4	.1	.2	.1	4.5
3.0E-04 TO 2.0E-04	.5	.1	.1	.2	.2	.5	.4	.6	.8	1.0	1.0	.6	.7	.4	.3	.1	8.0
2.0E-04 TO 1.0E-04	.0	.2	.5	.6	.8	.9	.6	1.0	1.1	2.0	1.6	1.0	1.0	1.0	.7	.2	13.9
1.0E-04 TO 9.0E-05	.7	.3	.6	.7	.9	1.1	.8	1.1	1.2	2.0	1.7	1.0	1.0	1.2	.8	.2	15.4
9.0E-05 TO 8.0E-05	.7	.4	.6	.9	1.0	1.2	.8	1.1	1.3	2.0	1.8	1.1	1.1	1.3	.8	.2	16.5
8.0E-05 TO 7.0E-05	.7	.4	.7	1.1	1.0	1.3	.8	1.2	1.3	2.0	1.8	1.1	1.1	1.3	.8	.3	17.3
7.0E-05 TO 6.0E-05	.7	.4	.8	1.2	1.1	1.5	.9	1.3	1.4	2.1	1.9	1.3	1.2	1.3	.9	.4	18.5
6.0E-05 TO 5.0E-05	.8	.8	1.1	1.4	1.2	1.8	1.0	1.4	1.5	2.1	2.1	1.5	1.4	1.5	.9	.5	20.9
5.0E-05 TO 4.0E-05	.9	1.1	1.7	2.1	1.6	2.1	1.3	1.6	1.5	2.3	2.6	2.0	1.7	1.6	1.0	.7	25.8
4.0E-05 TO 3.0E-05	.9	1.4	2.5	2.6	2.2	2.5	1.9	1.9	1.7	2.7	3.1	2.5	2.3	2.3	1.2	.7	32.2
3.0E-05 TO 2.0E-05	1.0	1.8	3.4	3.5	2.9	3.1	2.5	2.3	1.9	3.4	4.0	3.3	2.8	3.6	1.5	.9	41.9
2.0E-05 TO 1.0E-05	1.2	2.3	5.2	5.8	4.6	4.0	3.4	2.8	2.3	4.5	6.1	5.9	5.9	6.3	2.2	1.0	63.5
1.0E-05 TO 9.0E-06	1.2	2.4	5.3	6.2	4.7	4.0	3.4	2.8	2.3	4.6	6.4	7.1	6.6	7.0	2.3	1.0	67.3
9.0E-06 TO 8.0E-06	1.2	2.5	5.5	6.5	4.8	4.0	3.4	2.8	2.3	4.7	6.7	7.7	7.3	7.4	2.5	1.0	70.4
8.0E-06 TO 7.0E-06	1.2	2.5	5.7	6.7	4.9	4.1	3.4	2.8	2.3	4.8	7.0	9.6	8.7	8.0	2.6	1.0	75.3
7.0E-06 TO 6.0E-06	1.2	2.6	5.9	6.9	5.0	4.1	3.4	2.8	2.3	4.8	7.2	11.0	10.1	8.6	2.6	1.0	79.5
6.0E-06 TO 5.0E-06	1.2	2.9	6.1	6.9	5.0	4.1	3.4	2.8	2.3	4.8	7.5	12.5	11.3	9.4	2.7	1.0	83.9
5.0E-06 TO 4.0E-06	1.2	3.3	6.3	6.9	5.1	4.1	3.5	2.8	2.3	4.9	7.5	13.4	12.8	9.7	2.7	1.0	87.5
4.0E-06 TO 3.0E-06	1.2	3.6	6.4	7.2	5.1	4.1	3.5	2.8	2.3	4.9	7.7	14.4	13.9	10.0	2.7	1.0	90.9
3.0E-06 TO 2.0E-06	1.2	3.7	6.5	7.2	5.1	4.1	3.5	2.8	2.4	4.9	7.8	15.0	14.8	10.3	2.7	1.0	93.1
2.0E-06 TO 1.0E-06	1.2	3.7	6.6	7.3	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.3	15.7	10.5	2.7	1.0	95.0
1.0E-06 TO 9.0E-07	1.2	3.7	6.6	7.3	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.3	15.8	10.5	2.7	1.0	95.2
9.0E-07 TO 8.0E-07	1.2	3.7	6.6	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.3	15.9	10.5	2.7	1.0	95.4
8.0E-07 TO 7.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.4	16.0	10.6	2.7	1.0	95.7
7.0E-07 TO 6.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.5	16.0	10.6	2.7	1.0	95.9
6.0E-07 TO 5.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.9	15.6	16.2	10.6	2.7	1.0	96.3
5.0E-07 TO 4.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.9	15.6	16.2	10.6	2.7	1.0	96.4
4.0E-07 TO 3.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	8.0	15.6	16.2	10.6	2.7	1.0	96.4
3.0E-07 TO 2.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	8.0	15.6	16.2	10.6	2.7	1.0	96.5
2.0E-07 TO 1.0E-07	1.2	3.7	6.7	7.4	5.2	4.2	3.7	2.9	2.4	4.9	8.0	15.6	16.2	10.6	2.8	1.0	96.7
1.0E-07 TO 7.5E-08	1.2	3.7	6.8	7.4	5.2	4.2	3.7	2.9	2.5	4.9	8.1	15.7	16.4	10.6	2.8	1.0	97.3
7.5E-08 TO 5.0E-08	1.2	3.8	6.8	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.1	16.0	17.0	10.9	2.8	1.1	98.7
5.0E-08 TO 2.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.229 E -4	2.179 E -4	5.596 E -4	3.494 E -4	5.138 E -4	6.000 E -4	4.731 E -4	4.407 E -4	6.000 E -4	5.396 E -4	5.243 E -4	5.533 E -4	7.114 E -4	4.731 E -4	4.655 E -4	4.162 E -4	7.114 E -4

5.0 PERCENTILE 2.840E-04

50.0 PERCENTILE 1.543E-05

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
6.0E-05 TO 5.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.1
4.0E-05 TO 3.0E-05	0.0	0.0	0.0	.0	0.0	.1	.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.3
3.0E-05 TO 2.0E-05	.0	.0	.0	.1	0.0	.1	.0	.0	0.0	.0	.0	.0	0.0	.1	0.0	0.0	.7
2.0E-05 TO 1.0E-05	.2	.1	.3	.4	.4	.4	.3	.3	.3	.6	.5	.4	.3	.3	.3	.1	5.6
1.0E-05 TO 9.0E-0	.2	.2	.3	.5	.4	.4	.3	.4	.3	.7	.5	.4	.5	.3	.4	.1	6.3
9.0E-06 TO 8.0E-06	.2	.2	.3	.7	.4	.4	.3	.6	.4	.8	.7	.5	.5	.5	.5	.1	7.3
8.0E-06 TO 7.0E-06	.3	.2	.4	1.1	.6	.5	.3	.7	.5	1.0	1.0	.6	.7	.7	.5	.2	9.5
7.0E-06 TO 6.0E-06	.4	.4	.7	1.4	.8	.5	.5	.7	.7	1.2	1.1	.7	1.0	.9	.5	.3	12.1
6.0E-06 TO 5.0E-06	.4	.4	.9	1.7	1.0	.7	.6	.8	.8	1.4	1.3	1.0	1.5	1.1	.6	.3	14.7
5.0E-06 TO 4.0E-06	.5	.5	1.1	2.3	1.2	1.0	.8	.9	.9	1.6	1.7	1.4	2.1	1.6	.7	.3	18.7
4.0E-06 TO 3.0E-06	.6	.6	1.3	2.9	1.9	1.4	1.2	1.1	1.1	2.0	2.0	2.3	3.3	2.5	.8	.4	25.4
3.0E-06 TO 2.0E-06	.7	.8	3.1	4.2	2.9	2.0	1.7	1.6	1.4	2.7	2.8	3.9	5.0	3.6	1.2	.5	38.2
2.0E-06 TO 1.0E-06	.8	2.2	4.8	5.5	4.2	3.1	2.9	2.1	1.8	3.6	4.7	9.1	11.0	7.3	1.9	.6	65.8
1.0E-06 TO 9.0E-07	.9	2.4	5.0	5.7	4.2	3.4	3.0	2.2	1.8	3.8	5.1	9.9	11.9	8.0	2.0	.8	70.0
9.0E-07 TO 8.0E-07	.9	2.7	5.3	6.2	4.4	3.4	3.0	2.3	1.9	3.9	5.7	10.8	12.7	8.5	2.1	.8	74.6
8.0E-07 TO 7.0E-07	1.0	2.9	5.5	6.7	4.6	3.4	3.2	2.4	1.9	4.1	6.2	11.8	13.6	8.9	2.1	.8	79.1
7.0E-07 TO 6.0E-07	1.0	3.1	5.8	6.9	4.7	3.6	3.3	2.5	2.2	4.3	6.5	12.7	14.4	9.2	2.2	.9	83.3
6.0E-07 TO 5.0E-07	1.1	3.1	6.1	7.1	4.8	3.3	3.4	2.6	2.3	4.5	7.0	13.9	15.2	9.6	2.4	1.0	88.0
5.0E-07 TO 4.0E-07	1.1	3.4	6.3	7.3	4.8	3.9	3.5	2.6	2.5	4.6	7.4	14.5	15.6	9.8	2.6	1.0	91.0
4.0E-07 TO 3.0E-07	1.2	3.5	6.5	7.3	4.9	4.0	3.6	2.7	2.5	4.7	7.6	15.2	16.6	10.0	2.7	1.1	93.9
3.0E-07 TO 2.0E-07	1.2	3.5	6.5	7.4	5.0	4.1	3.6	2.8	2.5	4.7	7.8	15.9	17.1	10.5	2.7	1.1	96.4
2.0E-07 TO 1.0E-07	1.2	3.6	6.6	7.4	5.1	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.4	10.8	2.7	1.1	98.2
1.0E-07 TO 7.5E-08	1.2	3.6	6.6	7.4	5.1	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.4	10.8	2.7	1.1	98.3
7.5E-08 TO 5.0E-08	1.2	3.6	6.6	7.4	5.2	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.5	10.8	2.7	1.1	98.5
5.0E-08 TO 2.5E-08	1.2	3.6	6.7	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.2	16.3	17.5	10.9	2.7	1.1	99.0
2.5E-08 TO 1.0E-08	1.2	3.8	6.8	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.7	1.1	99.3
1.0E-08 TO 7.5E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
7.5E-09 TO 5.0E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
5.0E-09 TO 2.5E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.8
2.5E-09 TO 1.0E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	2.012 E -5	2.160 E -5	2.634 E -5	3.222 E -5	1.435 E -5	4.394 E -5	3.124 E -5	4.323 E -5	1.782 E -5	2.475 E -5	2.144 E -5	2.470 E -5	1.568 E -5	5.715 E -5	1.971 E -5	1.916 E -5	5.715 E -5

5.0 PERCENTILE 1.635E-05

50.0 PERCENTILE 1.497E-06

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (MI)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
3.0E-05 TO 2.0E-05	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.1
2.0E-05 TO 1.0E-05	.0	0.0	.1	.0	.0	.1	.1	0.0	.0	.1	0.0	.1	.1	.2	0.0	.0	1.5
1.0E-05 TO 9.0E-06	.0	.1	.2	.5	.0	.1	.1	.1	.0	.1	0.0	.2	.1	.2	0.0	.0	2.1
9.0E-06 TO 8.0E-06	.0	.1	.2	.6	.1	.2	.2	.1	.1	.2	.1	.2	.2	.2	.0	.0	3.0
8.0E-06 TO 7.0E-06	.1	.2	.4	.7	.3	.3	.2	.2	.2	.3	.3	.3	.4	.3	.1	.1	4.8
7.0E-06 TO 6.0E-06	.1	.3	.6	1.0	.7	.4	.3	.3	.3	.4	.5	.4	.5	.6	.2	.1	6.9
6.0E-06 TO 5.0E-06	.2	.4	.8	1.4	.8	.6	.4	.4	.3	.6	.6	.5	.6	.8	.4	.1	8.9
5.0E-06 TO 4.0E-06	.2	.5	1.2	1.9	1.1	.7	.5	.6	.4	.7	.8	.8	1.1	1.0	.6	.2	12.0
4.0E-06 TO 3.0E-06	.3	.8	1.8	1.9	1.5	1.0	.9	.8	.6	1.0	1.3	1.4	1.6	1.5	.7	.2	17.8
3.0E-06 TO 2.0E-06	.4	1.1	2.5	3.4	2.6	1.5	1.4	.9	.8	1.6	2.3	2.5	3.7	2.4	1.0	.4	28.4
2.0E-06 TO 1.0E-06	.6	2.1	4.2	5.3	3.4	2.3	2.2	1.7	1.6	2.8	4.2	6.3	9.9	6.1	1.4	.6	56.7
1.0E-06 TO 9.0E-07	.7	2.3	4.5	5.5	3.6	2.4	2.3	1.8	1.7	3.0	4.6	7.1	10.3	6.9	1.7	.6	61.0
9.0E-07 TO 8.0E-07	.8	2.4	4.9	5.7	3.8	2.5	2.6	2.1	1.8	3.0	4.9	10.1	11.5	7.5	1.7	.6	66.0
8.0E-07 TO 7.0E-07	.8	2.6	5.4	6.0	3.8	2.6	2.9	2.1	1.8	3.4	5.4	11.1	12.3	8.1	2.0	.8	71.2
7.0E-07 TO 6.0E-07	.9	2.7	5.7	6.5	4.0	2.7	3.0	2.2	2.1	3.6	5.7	12.4	13.5	8.7	2.1	.8	76.4
6.0E-07 TO 5.0E-07	.9	3.1	6.0	6.7	4.2	2.9	3.1	2.3	2.1	3.9	6.4	13.1	14.7	9.1	2.2	.8	81.5
5.0E-07 TO 4.0E-07	.9	3.4	6.2	7.0	4.4	3.3	3.4	2.6	2.2	4.2	6.9	14.1	15.9	9.9	2.4	.9	87.3
4.0E-07 TO 3.0E-07	1.0	3.5	6.6	7.3	4.7	3.6	3.4	2.6	2.3	4.5	7.3	15.1	16.6	10.3	2.5	1.0	92.4
3.0E-07 TO 2.0E-07	1.2	3.5	6.7	7.5	5.0	3.6	3.5	2.8	2.3	4.7	7.8	15.8	17.2	10.7	2.6	1.0	96.2
2.0E-07 TO 1.0E-07	1.2	3.6	6.8	7.5	5.1	4.0	3.6	2.9	2.4	4.8	8.0	15.3	17.5	10.9	2.8	1.1	96.4
1.0E-07 TO 7.5E-08	1.2	3.7	6.8	7.5	5.2	4.1	3.6	2.9	2.4	4.9	8.1	16.3	17.5	10.9	2.8	1.1	99.0
7.5E-08 TO 5.0E-08	1.2	3.7	6.8	7.5	5.2	4.2	3.6	2.9	2.4	4.9	8.1	16.3	17.5	10.9	2.8	1.1	99.2
5.0E-08 TO 2.5E-08	1.2	3.7	6.8	7.5	5.2	4.2	3.6	2.9	2.5	4.9	8.1	16.4	17.5	11.0	2.8	1.1	99.3
2.5E-08 TO 1.0E-08	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.5	4.9	8.1	16.4	17.5	11.0	2.8	1.1	99.4
1.0E-08 TO 7.5E-09	1.2	3.8	6.8	7.5	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.5
7.5E-09 TO 5.0E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.7
5.0E-09 TO 2.5E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
2.5E-09 TO 1.0E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.6	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
1.0E-09 TO 0.0E-10	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

MEAN CONCENTRATION	1.066 E -5	9.824 E -6	2.456 E -5	2.102 E -5	1.100 E -5	1.272 E -5	1.124 E -5	9.646 E -6	1.040 E -5	1.466 E -5	8.811 E -6	1.294 E -5	1.611 E -5	1.540 E -5	8.408 E -6	2.197 E -5	2.858 E -5

50.0 PERCENTILE 6.839E-06

95.0 PERCENTILE 1.179E-05

2184 TOTAL HOURS INPUT 2022 HOURS USED ABOVE 92.49 PERCENT INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
9.0E-06 TO 6.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
6.0E-06 TO 7.0E-06	0.0	0.0	.1	0.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	.4
7.0E-06 TO 6.0E-06	0.0	0.0	.2	.0	0.0	.0	0.0	.0	0.0	.0	.0	.0	0.0	.0	.0	0.0	.6
6.0E-06 TO 5.0E-06	0.0	.0	.2	.0	0.0	.0	0.0	.0	0.0	.1	.0	.1	0.0	.0	.0	0.0	.8
5.0E-06 TO 4.0E-06	.0	.1	.2	.1	.1	.1	.0	.1	0.0	.3	.0	.2	.2	.2	.1	0.0	2.2
4.0E-06 TO 3.0E-06	.2	.2	.3	.5	.7	.3	.2	.3	.0	.9	.2	.6	.6	.4	.3	0.0	5.5
3.0E-06 TO 2.0E-06	.5	1.0	1.5	2.2	1.0	1.3	.8	.5	.3	1.0	1.4	2.0	1.4	1.0	.5	.2	17.7
2.0E-06 TO 1.0E-06	.9	1.8	3.3	4.3	3.3	2.4	1.5	1.2	1.0	2.3	3.3	5.6	5.2	3.2	1.3	.5	41.0
1.0E-06 TO 9.0E-07	.9	1.9	3.5	4.6	3.4	2.5	1.6	1.3	1.1	2.6	3.4	6.2	7.1	4.0	1.4	.5	46.2
9.0E-07 TO 8.0E-07	.9	2.3	4.1	4.8	3.6	2.8	1.7	1.5	1.1	2.9	4.1	6.7	8.5	4.6	1.4	.7	51.9
8.0E-07 TO 7.0E-07	1.0	2.4	4.4	5.2	3.7	2.9	2.1	1.6	1.3	3.2	4.3	8.5	10.4	5.3	1.6	.7	58.6
7.0E-07 TO 6.0E-07	1.0	2.6	5.0	5.5	3.9	3.1	2.5	1.9	1.4	3.5	5.1	10.3	12.2	6.6	1.8	.7	67.4
6.0E-07 TO 5.0E-07	1.0	3.1	5.4	5.9	4.2	3.4	2.8	2.1	1.6	3.9	5.9	11.8	13.9	7.5	2.1	.8	75.6
5.0E-07 TO 4.0E-07	1.1	3.3	6.0	6.5	4.5	3.5	3.1	2.3	1.9	4.2	6.8	13.0	15.0	8.4	2.2	1.0	82.8
4.0E-07 TO 3.0E-07	1.1	3.4	6.4	7.0	4.7	3.8	3.3	2.6	2.0	4.6	7.2	14.2	16.0	9.2	2.4	1.0	89.0
3.0E-07 TO 2.0E-07	1.2	3.6	6.5	7.3	4.9	4.0	3.5	2.8	2.3	4.8	7.5	14.9	16.6	9.9	2.5	1.1	93.4
2.0E-07 TO 1.0E-07	1.2	3.7	6.8	7.4	5.1	4.2	3.7	2.9	2.4	4.9	8.0	15.9	17.2	10.6	2.8	1.1	97.8
1.0E-07 TO 7.5E-08	1.2	3.7	6.8	7.4	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.1	17.4	10.9	2.8	1.1	99.0
7.5E-08 TO 5.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.3	17.5	11.0	2.8	1.1	99.7
5.0E-08 TO 2.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	99.9
2.5E-08 TO 1.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	4.560 E -6	5.504 E -6	7.710 E -6	6.500 E -6	4.773 E -6	7.494 E -6	4.752 E -6	7.776 E -6	3.624 E -6	8.810 E -6	6.213 E -6	7.515 E -6	4.861 E -6	7.945 E -6	7.813 E -6	2.845 E -6	8.810 E -6

50.0 PERCENTILE 3.122E-06

95.0 PERCENTILE 8.325E-07

2494 TOTAL HOURS INPUT 2069 HOURS USED ABOVE 82.90 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/DELTA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (MI)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
3.0E-06 TO 2.0E-06	0.0	.6	0.0	.1	.0	0.0	0.0	0.0	0.0	.0	.1	0.0	0.0	0.0	.0	0.0	.4
2.0E-06 TO 1.0E-06	.3	2.4	3.1	3.5	2.1	1.4	1.6	1.4	.8	2.3	3.3	7.3	6.9	5.3	1.4	.5	44.7
1.0E-06 TO 7.0E-07	.3	2.6	3.5	4.1	2.4	2.4	2.0	1.9	1.1	3.1	4.2	8.4	8.7	6.4	1.6	.6	54.3
7.0E-07 TO 6.0E-07	.7	3.0	4.2	4.6	3.3	2.4	2.1	2.1	1.4	3.6	5.0	11.1	10.6	7.3	2.0	.8	64.9
6.0E-07 TO 5.0E-07	.9	3.2	4.6	5.4	3.7	3.2	2.6	2.3	1.5	3.8	5.9	12.5	11.8	7.9	2.1	.6	72.5
5.0E-07 TO 4.0E-07	1.0	3.3	5.1	5.9	4.3	3.7	2.9	2.4	1.7	4.1	6.5	13.4	13.3	9.1	2.4	.6	79.7
4.0E-07 TO 3.0E-07	1.1	3.4	5.7	6.4	4.6	3.8	2.9	2.7	1.9	4.4	6.9	14.3	14.5	9.6	2.5	.8	85.7
3.0E-07 TO 2.0E-07	1.2	3.5	6.1	6.8	4.8	3.9	3.2	2.8	2.1	4.6	7.4	15.0	15.5	10.2	2.6	.8	90.5
2.0E-07 TO 1.0E-07	1.2	3.6	6.4	7.1	5.1	4.2	3.6	2.8	2.2	4.8	7.7	15.6	16.3	10.5	2.7	1.0	95.0
1.0E-07 TO 9.0E-08	1.2	3.8	6.6	7.5	5.1	4.2	3.7	2.9	2.3	4.8	8.1	16.2	17.3	10.9	2.8	1.1	98.8
9.0E-08 TO 8.0E-08	1.2	3.8	6.6	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	99.9
8.0E-08 TO 7.5E-08	1.2	3.8	6.6	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	100.0

MAGNITUDE OF X/Q

FIRST CONDITION	1.459 E -6	2.220 E -6	1.956 E -6	2.182 E -6	2.097 E -6	1.611 E -6	1.594 E -6	1.787 E -6	1.703 E -6	2.165 E -6	2.188 E -6	1.723 E -6	1.730 E -6	1.758 E -6	2.179 E -6	1.541 E -6	2.220 E -6

5.0 PERCENTILE 1.862E-06

50.0 PERCENTILE 9.430E-07

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (MI)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
8.0E-04 TO 7.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
7.0E-04 TO 6.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
6.0E-04 TO 5.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	.1
5.0E-04 TO 4.0E-04	.0	0.0	.0	.1	.0	0.0	.0	.0	.0	.1	0.0	.1	.2	.1	.0	0.0	.9
4.0E-04 TO 3.0E-04	.1	.1	.1	.1	.1	.0	.1	.1	.1	.2	.3	.1	.4	.2	.0	.0	2.3
3.0E-04 TO 2.0E-04	.1	.1	.1	.2	.1	.2	.2	.1	.3	.4	1.0	.8	.6	.2	.2	.0	4.7
2.0E-04 TO 1.0E-04	.2	.3	.2	.5	.3	.4	.4	.3	.5	.9	1.6	1.1	.8	.3	.3	.2	8.2
1.0E-04 TO 9.0E-05	.2	.3	.2	.5	.4	.4	.4	.3	.5	.9	1.7	1.2	.9	.3	.3	.2	8.7
9.0E-05 TO 8.0E-05	.2	.3	.2	.7	.4	.5	.5	.4	.6	.9	1.8	1.3	.9	.3	.3	.2	9.4
8.0E-05 TO 7.0E-05	.2	.3	.3	.7	.5	.6	.5	.4	.6	.9	2.0	1.3	1.1	.3	.3	.3	10.4
7.0E-05 TO 6.0E-05	.2	.3	.8	1.0	.6	.8	.5	.4	.6	1.1	2.3	1.5	1.2	.4	.6	.3	12.4
6.0E-05 TO 5.0E-05	.2	.5	1.2	1.0	.8	.8	.5	.4	.7	1.3	2.6	1.7	1.2	.6	.6	.3	14.3
5.0E-05 TO 4.0E-05	.2	.5	1.8	1.3	.9	1.1	.7	.4	.7	1.4	3.0	1.7	1.3	.6	.7	.3	16.8
4.0E-05 TO 3.0E-05	.2	.7	2.3	1.6	1.2	1.1	.8	.4	.8	1.6	3.5	2.1	1.6	.9	.8	.4	19.8
3.0E-05 TO 2.0E-05	.3	.8	2.6	1.8	1.4	1.3	.8	.5	.9	2.0	4.3	3.0	2.6	1.5	1.0	.5	25.3
2.0E-05 TO 1.0E-05	.5	1.0	3.7	2.8	2.0	1.6	.9	.7	1.1	2.4	5.1	6.3	8.2	3.4	1.3	.5	42.5
1.0E-05 TO 9.0E-06	.5	1.0	3.9	3.1	2.0	1.6	.9	.7	1.1	2.4	6.2	7.0	9.0	3.4	1.4	.5	45.2
9.0E-06 TO 8.0E-06	.6	1.0	4.1	3.3	2.2	1.6	.9	.7	1.1	2.4	6.5	8.0	10.0	4.6	1.4	.5	48.8
8.0E-06 TO 7.0E-06	.6	1.1	4.1	3.4	2.2	1.6	.9	.7	1.1	2.4	6.5	9.3	11.7	5.2	1.4	.6	52.9
7.0E-06 TO 6.0E-06	.6	1.2	4.4	3.5	2.3	1.6	.9	.7	1.1	2.4	6.6	10.4	13.2	5.9	1.5	.6	56.7
6.0E-06 TO 5.0E-06	.6	1.2	4.6	4.1	2.3	1.6	.9	.7	1.1	2.4	6.7	12.3	15.3	6.1	1.5	.6	61.9
5.0E-06 TO 4.0E-06	.6	1.2	4.8	4.7	2.4	1.6	.9	.7	1.1	2.5	6.8	13.5	17.4	6.4	1.5	.6	66.7
4.0E-06 TO 3.0E-06	.6	1.3	5.0	5.0	2.4	1.7	.9	.7	1.2	2.5	6.9	14.5	20.0	6.5	1.5	.6	71.2
3.0E-06 TO 2.0E-06	.6	1.4	5.2	5.4	2.6	1.7	.9	.7	1.2	2.5	7.0	14.9	22.3	6.9	1.6	.6	75.3
2.0E-06 TO 1.0E-06	.6	1.4	5.4	6.3	2.6	1.8	.9	.7	1.2	2.6	7.0	15.1	23.2	7.4	1.6	.7	78.4
1.0E-06 TO 9.0E-07	.6	1.4	5.4	6.3	2.6	1.9	.9	.7	1.2	2.6	7.0	15.2	23.4	7.5	1.6	.7	78.9
9.0E-07 TO 8.0E-07	.6	1.4	5.5	6.6	2.6	1.9	.9	.8	1.2	2.6	7.1	15.2	23.6	7.5	1.6	.7	79.7
8.0E-07 TO 7.0E-07	.6	1.4	5.6	6.8	2.7	1.9	.9	.8	1.2	2.6	7.1	15.3	23.7	7.6	1.6	.7	80.4
7.0E-07 TO 6.0E-07	.6	1.4	5.7	6.9	2.7	1.9	.9	.8	1.2	2.6	7.1	15.4	23.9	7.6	1.6	.7	81.1
6.0E-07 TO 5.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.5	24.2	7.7	1.6	.7	81.6
5.0E-07 TO 4.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.5	24.4	7.7	1.6	.7	81.8
4.0E-07 TO 3.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.6	24.5	7.7	1.6	.7	82.0
3.0E-07 TO 2.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.6	24.5	7.7	1.6	.7	82.0
2.0E-07 TO 1.0E-07	.6	1.4	5.7	7.0	2.8	1.9	.9	.8	1.2	2.6	7.1	15.6	24.6	7.7	1.6	.7	82.1
1.0E-07 TO 7.5E-08	.6	1.4	6.0	7.1	2.8	1.9	.9	.8	1.2	2.6	7.1	15.6	24.7	7.9	1.6	.7	83.0
7.5E-08 TO 5.0E-08	.7	1.4	6.3	7.8	3.0	1.9	.9	.8	1.3	2.6	7.2	16.2	27.2	8.6	1.7	.8	88.4
5.0E-08 TO 2.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	34.9	8.8	1.7	.8	99.1
2.5E-08 TO 1.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
1.0E-08 TO 7.5E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
7.5E-09 TO 5.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

WORST CONDITION	4.965 E -4	3.597 E -4	4.467 E -4	4.931 E -4	4.467 E -4	3.314 E -4	4.165 E -4	7.662 E -4	4.221 E -4	4.655 E -4	3.984 E -4	4.931 E -4	6.000 E -4	4.467 E -4	5.243 E -4	3.555 E -4	7.662 E -4

5.0 PERCENTILE 1.893E-04

50.0 PERCENTILE 7.869E-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.86 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 33.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
3.0E-05 TO 2.0E-05	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	.0	.0	0.0	0.0	.1	0.0	0.0	0.0	.3
2.0E-05 TO 1.0E-05	0.0	.0	.1	.4	.2	.1	.1	.1	.2	.3	.5	.1	.4	.2	.0	.1	3.0
1.0E-05 TO 9.0E-06	0.0	.0	.1	.4	.2	.1	.1	.1	.3	.4	.5	.2	.7	.4	.0	.1	3.7
9.0E-06 TO 8.0E-06	0.0	.0	.2	.5	.2	.2	.1	.1	.3	.4	.5	.3	.9	.5	.0	.1	4.5
8.0E-06 TO 7.0E-06	0.0	.0	.2	.7	.3	.2	.1	.2	.3	.4	.6	.4	1.1	.8	.1	.1	5.7
7.0E-06 TO 6.0E-06	0.0	.1	.3	.9	.5	.3	.1	.2	.4	.5	.8	.6	1.4	.9	.2	.1	7.3
6.0E-06 TO 5.0E-06	.0	.1	.5	1.2	.7	.5	.2	.2	.4	.6	1.0	.8	1.9	1.2	.2	.1	9.7
5.0E-06 TO 4.0E-06	.1	.2	.8	1.6	.8	.7	.2	.3	.5	.7	1.2	1.0	2.3	1.4	.3	.1	12.3
4.0E-06 TO 3.0E-06	.1	.4	1.4	2.4	1.0	.8	.4	.4	.6	.7	1.5	1.6	3.2	1.7	.4	.2	16.7
3.0E-06 TO 2.0E-06	.1	.4	2.2	3.3	1.4	1.0	.4	.4	.7	.9	2.4	2.9	5.4	2.6	.5	.3	24.8
2.0E-06 TO 1.0E-06	.3	.8	3.6	4.6	2.3	1.3	.7	.6	.9	1.7	4.5	7.4	15.4	4.9	.9	.4	50.3
1.0E-06 TO 9.0E-07	.3	.8	3.9	5.0	2.5	1.4	.7	.6	.9	1.8	4.9	8.1	16.5	5.1	1.0	.4	54.1
9.0E-07 TO 8.0E-07	.4	.9	4.0	5.5	2.5	1.5	.8	.7	.9	1.9	5.2	8.7	18.0	5.6	1.2	.5	58.1
8.0E-07 TO 7.0E-07	.4	.9	4.3	5.8	2.6	1.5	.8	.7	1.0	2.1	5.6	9.6	19.2	5.8	1.2	.5	61.9
7.0E-07 TO 6.0E-07	.4	1.0	4.5	6.1	2.6	1.7	.9	.7	1.1	2.1	5.7	10.6	20.9	6.2	1.3	.5	66.3
6.0E-07 TO 5.0E-07	.4	1.2	4.6	6.6	2.6	1.7	.9	.9	1.2	2.3	5.9	11.7	23.0	6.8	1.3	.6	71.5
5.0E-07 TO 4.0E-07	.5	1.2	4.8	6.8	2.8	1.7	.9	.9	1.2	2.6	6.2	13.2	24.9	7.3	1.4	.6	76.9
4.0E-07 TO 3.0E-07	.5	1.2	5.2	7.2	2.9	1.8	.9	.9	1.2	2.6	6.7	14.3	27.3	7.6	1.4	.7	82.2
3.0E-07 TO 2.0E-07	.6	1.3	5.4	7.6	3.1	1.9	.9	.9	1.2	2.6	6.8	15.5	29.1	7.9	1.5	.8	87.3
2.0E-07 TO 1.0E-07	.6	1.4	5.8	7.7	3.1	1.9	.9	.9	1.3	2.6	7.1	16.7	31.6	8.3	1.6	.8	92.3
1.0E-07 TO 7.5E-08	.6	1.4	6.0	7.8	3.1	2.0	.9	.9	1.3	2.6	7.2	16.8	31.9	8.3	1.6	.8	93.2
7.5E-08 TO 5.0E-08	.6	1.4	6.0	7.9	3.2	2.0	.9	.9	1.3	2.6	7.2	16.8	32.0	8.4	1.6	.8	93.5
5.0E-08 TO 2.5E-08	.6	1.5	6.2	7.9	3.2	2.0	.9	.9	1.3	2.6	7.2	16.9	32.6	8.5	1.6	.8	94.8
2.5E-08 TO 1.0E-08	.6	1.5	6.2	8.1	3.3	2.0	.9	.9	1.3	2.6	7.3	17.0	33.4	8.6	1.6	.8	96.1
1.0E-08 TO 7.5E-09	.6	1.5	6.4	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.1	33.7	8.7	1.6	.8	97.1
7.5E-09 TO 5.0E-09	.7	1.5	6.4	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.3	34.2	8.8	1.7	.8	98.1
5.0E-09 TO 2.5E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.7	8.9	1.7	.8	99.1
2.5E-09 TO 1.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

WORST CONDITION	5.983 E -6	1.110 E -5	1.743 E -5	2.038 E -5	2.621 E -5	1.324 E -5	1.912 E -5	1.481 E -5	2.508 E -5	2.028 E -5	1.716 E -5	1.502 E -5	2.699 E -5	1.683 E -5	1.596 E -5	1.384 E -5	2.699 E -5

5.0 PERCENTILE 7.573E-06

50.0 PERCENTILE 1.008E-06

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-05 TO 1.0E-05	0.0	.0	.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	.0	0.0	.4
1.0E-05 TO 9.0E-06	0.0	.0	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.2	0.0	.0	0.0	.5
9.0E-06 TO 8.0E-06	0.0	.1	.1	.2	0.0	0.0	0.0	0.0	0.0	0.0	.1	.0	.3	0.0	.0	0.0	1.0
8.0E-06 TO 7.0E-06	0.0	.1	.1	.3	0.0	.0	0.0	0.0	.0	0.0	.1	.2	.4	.2	.0	0.0	1.6
7.0E-06 TO 6.0E-06	0.0	.1	.3	.8	.1	.1	.1	0.0	.0	.1	.1	.3	.8	.4	.0	0.0	3.3
6.0E-06 TO 5.0E-06	0.0	.1	.5	1.1	.1	.2	.1	.0	.1	.1	.2	.5	1.2	.5	.1	0.0	4.9
5.0E-06 TO 4.0E-06	0.0	.2	.7	1.6	.4	.3	.1	.1	.1	.2	.5	.7	1.6	.6	.1	0.0	7.1
4.0E-06 TO 3.0E-06	.0	.3	1.0	2.3	.6	.3	.2	.2	.3	.3	.8	1.1	2.7	.9	.3	.1	11.5
3.0E-06 TO 2.0E-06	.1	.5	1.9	4.1	1.3	.7	.4	.2	.3	.4	1.2	1.8	4.4	1.7	.4	.2	19.7
2.0E-06 TO 1.0E-06	.2	.8	3.9	5.3	1.9	1.1	.6	.4	.6	1.0	3.0	5.0	14.3	3.6	.8	.5	43.1
1.0E-06 TO 9.0E-07	.2	.9	4.2	5.6	2.0	1.1	.6	.5	.6	1.1	3.1	5.3	16.1	4.1	.9	.6	46.9
9.0E-07 TO 8.0E-07	.2	1.0	4.4	6.0	2.3	1.2	.7	.6	.7	1.3	3.5	6.0	17.9	4.6	.9	.6	51.8
8.0E-07 TO 7.0E-07	.3	1.0	4.7	6.3	2.5	1.3	.7	.5	.8	1.5	3.8	7.6	20.2	5.3	.9	.7	58.1
7.0E-07 TO 6.0E-07	.4	1.1	4.9	6.4	2.6	1.4	.7	.6	.9	1.7	4.4	9.4	23.2	6.1	1.1	.7	65.6
6.0E-07 TO 5.0E-07	.4	1.1	5.4	6.6	2.8	1.6	.7	.6	1.0	1.8	4.8	10.8	25.6	6.7	1.1	.7	71.8
5.0E-07 TO 4.0E-07	.4	1.1	5.7	7.0	2.8	1.7	.7	.7	1.0	2.0	5.4	12.5	27.7	7.3	1.2	.8	78.1
4.0E-07 TO 3.0E-07	.5	1.2	5.9	7.4	3.0	1.7	.9	.8	1.1	2.1	5.8	13.9	29.6	8.0	1.4	.8	83.9
3.0E-07 TO 2.0E-07	.6	1.2	6.2	7.8	3.1	1.8	.9	.8	1.2	2.2	6.3	15.2	31.9	8.5	1.6	.8	90.2
2.0E-07 TO 1.0E-07	.6	1.3	6.5	8.2	3.4	1.9	.9	.9	1.2	2.4	6.6	16.0	33.8	8.7	1.7	.8	94.9
1.0E-07 TO 7.5E-08	.6	1.3	6.5	8.2	3.4	1.9	.9	.9	1.2	2.5	6.8	16.2	34.4	8.7	1.7	.8	96.1
7.5E-08 TO 5.0E-08	.6	1.3	6.5	8.2	3.4	2.0	1.0	.9	1.2	2.5	7.0	16.7	34.8	8.8	1.7	.8	97.4
5.0E-08 TO 2.5E-08	.6	1.3	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.0	16.7	34.9	8.9	1.7	.8	97.8
2.5E-08 TO 1.0E-08	.6	1.4	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.1	16.8	34.9	8.9	1.7	.8	98.2
1.0E-08 TO 7.5E-09	.6	1.4	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.1	16.9	34.9	8.9	1.7	.8	98.3
7.5E-09 TO 5.0E-09	.7	1.4	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.1	17.0	34.9	8.9	1.7	.8	98.4
5.0E-09 TO 2.5E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	35.0	8.9	1.7	.8	99.2
2.5E-09 TO 1.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
1.0E-09 TO 5.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	3.202 E -6	1.311 E -5	1.112 E -5	1.255 E -5	6.599 E -6	7.272 E -6	6.598 E -6	5.918 E -6	7.522 E -6	6.540 E -6	9.362 E -6	8.602 E -6	1.350 E -5	7.980 E -6	1.019 E -5	3.048 E -6	1.350 E -5

5.0 PERCENTILE 4.956E-06

50.0 PERCENTILE 8.353E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.8% PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)		S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																		
6.0E-06	TO 5.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	0.0	.1
5.0E-06	TO 4.0E-06	0.0	.0	.0	.1	.1	.0	.0	0.0	0.0	0.0	0.0	.2	.1	.0	.0	.1	.9
4.0E-06	TO 3.0E-06	0.0	.1	.3	.3	.4	.2	.1	.1	.3	.3	.4	.8	1.2	.4	.1	.1	5.1
3.0E-06	TO 2.0E-06	0.0	.2	.6	1.1	.5	.2	.1	.1	.3	.5	.9	1.7	2.0	.7	.3	.1	9.3
2.0E-06	TO 1.0E-06	.1	.6	2.0	3.1	1.2	.9	.4	.5	.5	1.6	2.7	7.1	10.6	2.9	.6	.4	35.1
1.0E-06	TO 9.0E-07	.1	.7	2.5	3.2	1.2	1.0	.4	.5	.6	1.6	3.1	8.1	12.7	3.2	.7	.4	39.9
9.0E-07	TO 8.0E-07	.1	.8	2.6	3.6	1.3	1.3	.5	.6	.7	1.7	3.5	9.4	14.7	3.5	.7	.4	45.4
8.0E-07	TO 7.0E-07	.2	.9	2.9	4.2	1.5	1.3	.6	.7	.7	1.9	4.0	10.7	16.6	4.3	.8	.4	51.8
7.0E-07	TO 6.0E-07	.3	1.1	3.7	4.7	1.9	1.5	.7	.7	.8	2.1	4.8	11.5	20.3	5.1	.8	.5	60.6
6.0E-07	TO 5.0E-07	.4	1.1	4.3	5.5	2.2	1.6	.8	.8	.9	2.2	5.7	13.0	23.4	6.0	1.2	.6	69.6
5.0E-07	TO 4.0E-07	.5	1.2	4.9	6.1	2.2	1.8	.9	.8	.9	2.4	5.9	14.2	27.0	6.9	1.3	.6	77.5
4.0E-07	TO 3.0E-07	.5	1.3	5.1	7.2	2.6	1.8	.9	.9	.9	2.4	6.4	15.0	28.8	7.7	1.5	.6	83.7
3.0E-07	TO 2.0E-07	.5	1.4	5.8	7.7	2.9	2.0	1.0	.9	1.3	2.5	6.8	15.6	30.8	8.2	1.6	.7	89.8
2.0E-07	TO 1.0E-07	.7	1.4	6.2	7.8	3.1	2.0	1.0	.9	1.3	2.5	7.3	17.0	33.5	8.6	1.7	.7	95.6
1.0E-07	TO 7.5E-08	.7	1.4	6.3	8.2	3.2	2.0	1.0	.9	1.3	2.5	7.3	17.3	33.8	8.7	1.7	.7	96.8
7.5E-08	TO 5.0E-08	.7	1.4	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.5	7.3	17.3	34.2	8.9	1.7	.7	97.9
5.0E-08	TO 2.5E-08	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.3	34.5	8.9	1.7	.7	98.4
2.5E-08	TO 1.0E-08	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.4	34.8	8.9	1.7	.7	98.9
1.0E-08	TO 7.5E-09	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.9	8.9	1.7	.7	99.1
7.5E-09	TO 5.0E-09	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.9	8.9	1.7	.7	99.1
5.0E-09	TO 2.5E-09	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.9	8.9	1.7	.7	99.1
2.5E-09	TO 1.0E-09	.7	1.4	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.7	99.4
1.0E-09	TO 5.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.2	9.0	1.7	.8	99.8
5.0E-10	TO 1.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		1.227 E-6	4.000 E-6	4.128 E-6	4.673 E-6	4.590 E-6	4.020 E-6	4.383 E-6	3.488 E-6	3.710 E-6	3.652 E-6	3.973 E-6	5.447 E-6	4.877 E-6	5.251 E-6	4.094 E-6	4.902 E-6	5.447 E-6

5.0 PERCENTILE 3.011E-06

50.0 PERCENTILE 7.267E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-06 TO 1.0E-06	.3	.7	2.1	3.2	1.0	.6	.4	.3	.6	1.0	2.0	5.5	10.8	3.3	.6	.3	32.5
1.0E-06 TO 9.0E-07	.3	.8	2.8	3.7	1.1	.8	.4	.4	.8	1.5	2.6	5.4	12.5	3.6	.6	.3	38.6
9.0E-07 TO 8.0E-07	.3	.9	3.3	4.1	1.5	.9	.6	.4	.9	1.8	3.8	8.6	17.0	4.7	.8	.5	50.2
8.0E-07 TO 7.0E-07	.5	.9	3.7	4.8	1.7	1.2	.7	.4	.9	1.9	4.5	10.9	21.5	5.2	1.0	.6	60.6
7.0E-07 TO 6.0E-07	.5	1.0	4.1	5.4	2.0	1.5	.8	.6	1.1	2.0	5.1	11.8	23.5	6.0	1.1	.6	67.1
6.0E-07 TO 5.0E-07	.6	1.1	5.0	6.1	2.3	1.7	.9	.8	1.2	2.2	5.9	12.9	26.1	6.8	1.4	.7	75.5
5.0E-07 TO 4.0E-07	.7	1.3	5.1	6.8	2.9	1.8	.9	.8	1.2	2.4	6.5	14.4	29.1	7.3	1.5	.7	83.3
4.0E-07 TO 3.0E-07	.7	1.3	5.6	7.7	3.1	1.9	.9	.9	1.3	2.6	6.7	15.8	32.3	8.3	1.6	.7	91.2
3.0E-07 TO 2.0E-07	.7	1.3	6.2	8.0	3.4	2.0	.9	.9	1.3	2.6	7.2	16.6	34.7	8.5	1.6	.8	95.7
2.0E-07 TO 1.0E-07	.7	1.4	6.5	8.3	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	98.9
1.0E-07 TO 7.5E-08	.7	1.4	6.6	8.4	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.1
7.5E-08 TO 5.0E-08	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	35.1	9.0	1.7	.8	99.4
5.0E-08 TO 2.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.1	9.0	1.7	.8	99.7
2.5E-08 TO 1.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.277 E -6	1.479 E -6	1.464 E -6	1.599 E -6	1.562 E -6	1.541 E -6	1.534 E -6	1.461 E -6	1.544 E -6	1.555 E -6	1.562 E -6	1.583 E -6	1.600 E -6	1.563 E -6	1.551 E -6	1.468 E -6	1.600 E -6

5.0 PERCENTILE 1.796E-06

50.0 PERCENTILE 8.013E-07

2203 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
5.0E-04 TO 4.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	.0	.1	0.0	.0	.0	0.0	0.0	.3
4.0E-04 TO 3.0E-04	.1	0.0	0.0	.0	.0	0.0	.0	0.0	.1	.2	.2	.0	.2	.1	0.0	0.0	1.1
3.0E-04 TO 2.0E-04	.2	.0	0.0	.1	.1	.1	.0	.0	.2	.5	.6	.3	.4	.3	0.0	0.0	2.9
2.0E-04 TO 1.0E-04	.2	.0	0.0	.1	.1	.1	.2	.1	.4	.7	.7	.3	.4	.3	.0	0.0	3.9
1.0E-04 TO 9.0E-05	.2	.0	0.0	.1	.1	.1	.2	.1	.5	.8	.7	.4	.4	.3	.0	0.0	4.1
9.0E-05 TO 8.0E-05	.3	.0	0.0	.1	.1	.1	.2	.1	.6	.8	.9	.4	.4	.3	.1	.1	4.7
8.0E-05 TO 7.0E-05	.3	.0	.0	.2	.1	.1	.2	.1	.6	.9	.9	.5	.5	.3	.1	.1	5.1
7.0E-05 TO 6.0E-05	.4	.1	.0	.2	.1	.1	.2	.1	.6	1.0	1.3	.5	.5	.4	.1	.1	5.8
6.0E-05 TO 5.0E-05	.4	.2	.2	.2	.2	.1	.3	.2	.6	1.2	1.3	.6	.5	.4	.1	.1	6.7
5.0E-05 TO 4.0E-05	.5	.3	.4	.4	.3	.1	.3	.2	.7	1.4	1.5	.7	.6	.4	.1	.1	8.0
4.0E-05 TO 3.0E-05	.5	.3	.4	.4	.4	.1	.3	.2	.8	1.5	1.9	1.0	.8	.5	.2	.1	9.5
3.0E-05 TO 2.0E-05	.6	.4	.5	.6	.6	.2	.4	.3	.9	1.8	3.2	2.6	1.4	1.0	.2	.3	14.9
2.0E-05 TO 1.0E-05	.6	.4	.6	.8	.7	.3	.5	.5	1.0	2.7	4.9	7.8	6.6	2.6	.4	.4	30.6
1.0E-05 TO 9.0E-06	.6	.4	.6	.8	.7	.3	.5	.5	1.0	2.7	5.2	8.8	7.8	2.7	.4	.5	33.4
9.0E-06 TO 8.0E-06	.6	.5	.6	.8	.7	.3	.5	.5	1.0	2.8	5.7	9.8	8.8	2.8	.4	.5	36.2
8.0E-06 TO 7.0E-06	.6	.5	.6	.8	.7	.3	.5	.5	1.0	2.8	5.9	12.0	10.5	3.2	.5	.5	40.9
7.0E-06 TO 6.0E-06	.6	.5	.7	.8	.8	.3	.5	.5	1.0	2.8	6.2	13.4	12.8	3.6	.5	.5	45.4
6.0E-06 TO 5.0E-06	.6	.6	.7	.8	.9	.3	.5	.5	1.0	2.8	6.3	14.8	15.3	3.9	.5	.6	50.2
5.0E-06 TO 4.0E-06	.6	.6	.7	.8	.9	.3	.5	.6	1.1	2.9	6.6	16.4	17.4	4.1	.6	.6	54.8
4.0E-06 TO 3.0E-06	.6	.7	.7	.9	1.0	.3	.6	.6	1.3	3.0	6.7	17.8	20.1	4.6	.7	.7	60.0
3.0E-06 TO 2.0E-06	.7	.7	.7	1.0	1.0	.3	.6	.6	1.3	3.1	6.8	18.4	21.6	5.2	.8	.7	63.4
2.0E-06 TO 1.0E-06	.8	.7	.8	1.2	1.1	.3	.7	.6	1.3	3.1	6.9	19.3	23.9	6.1	1.1	.7	68.5
1.0E-06 TO 9.0E-07	.8	.7	.8	1.2	1.2	.3	.7	.6	1.3	3.2	6.9	19.4	24.2	6.2	1.1	.7	69.3
9.0E-07 TO 8.0E-07	.8	.7	.8	1.3	1.2	.3	.7	.6	1.3	3.2	6.9	19.5	24.5	6.3	1.2	.7	70.0
8.0E-07 TO 7.0E-07	.8	.7	.8	1.3	1.2	.3	.7	.6	1.4	3.2	6.9	19.7	25.0	6.5	1.2	.7	70.8
7.0E-07 TO 6.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	6.9	19.8	25.2	6.7	1.3	.7	71.4
6.0E-07 TO 5.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	7.0	19.8	25.6	6.8	1.3	.7	72.0
5.0E-07 TO 4.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	7.0	19.8	25.8	6.8	1.3	.7	72.2
4.0E-07 TO 3.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	7.0	19.8	25.8	6.8	1.3	.7	72.2
3.0E-07 TO 2.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	7.0	19.8	25.8	6.8	1.3	.7	72.2
2.0E-07 TO 1.0E-07	.8	.7	.9	1.3	1.2	.4	.7	.6	1.4	3.2	7.0	19.9	25.9	6.8	1.3	.7	72.9
1.0E-07 TO 7.5E-08	.8	.8	1.3	1.6	1.4	.4	.7	.7	1.4	3.2	7.2	20.3	26.7	7.4	1.3	.7	75.9
7.5E-08 TO 5.0E-08	.9	.8	1.7	2.9	1.6	.5	.7	.7	1.5	3.3	7.4	21.8	34.1	9.3	1.5	.7	89.3
5.0E-08 TO 2.5E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	9.9	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	3.173 E-4	2.837 E-4	7.729 E-5	3.899 E-4	3.899 E-4	2.422 E-4	3.899 E-4	2.889 E-4	4.407 E-4	4.443 E-4	4.221 E-4	3.173 E-4	4.443 E-4	4.655 E-4	1.234 E-4	8.484 E-5	4.655 E-4

5.0 PERCENTILE 7.195E-05

50.0 PERCENTILE 5.031E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																		
3.0E-05 TO	2.0E-05	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.1
2.0E-05 TO	1.0E-05	0.0	0.0	.0	.2	.0	.0	.0	.0	0.0	.1	.1	.0	.3	.2	.0	0.0	1.3
1.0E-05 TO	9.0E-06	0.0	0.0	.0	.3	.0	.0	.1	.0	0.0	.1	.2	.1	.3	.2	.0	0.0	1.7
9.0E-06 TO	8.0E-06	.0	0.0	.1	.4	.1	.0	.2	.1	0.0	.1	.2	.1	.3	.2	.0	0.0	2.0
8.0E-06 TO	7.0E-06	.0	0.0	.2	.5	.1	.1	.2	.1	0.0	.1	.2	.1	.4	.3	.0	0.0	2.4
7.0E-06 TO	6.0E-06	.0	.0	.2	.6	.1	.1	.2	.1	0.0	.2	.2	.2	.5	.4	.1	0.0	2.9
6.0E-06 TO	5.0E-06	.0	.0	.2	.7	.1	.1	.2	.1	0.0	.4	.2	.2	.6	.5	.1	.0	3.5
5.0E-06 TO	4.0E-06	.0	.1	.3	1.0	.1	.1	.2	.1	.1	.5	.4	.4	.7	.8	.1	.0	5.2
4.0E-06 TO	3.0E-06	.2	.1	.4	1.2	.1	.1	.3	.1	.2	.7	.7	.8	1.1	1.4	.1	.1	7.8
3.0E-06 TO	2.0E-06	.2	.1	.5	1.3	.1	.2	.4	.2	.4	.9	1.5	2.5	3.1	1.7	.2	.1	13.3
2.0E-06 TO	1.0E-06	.3	.3	.8	1.8	.4	.3	.5	.3	.7	2.1	3.0	7.8	11.1	3.9	.4	.3	34.1
1.0E-06 TO	9.0E-07	.3	.3	.9	1.9	.4	.3	.5	.3	.7	2.3	3.4	8.9	13.0	4.2	.5	.3	38.3
9.0E-07 TO	8.0E-07	.3	.4	1.0	2.0	.4	.3	.6	.3	.7	2.5	4.0	10.2	14.7	4.5	.6	.3	42.6
8.0E-07 TO	7.0E-07	.4	.4	1.1	2.0	.4	.3	.6	.3	.7	2.6	4.4	11.4	16.8	4.8	.7	.3	47.2
7.0E-07 TO	6.0E-07	.4	.4	1.1	2.1	.4	.3	.6	.4	.7	2.8	5.0	12.9	18.7	5.2	.8	.3	52.1
6.0E-07 TO	5.0E-07	.5	.4	1.4	2.1	.6	.3	.6	.5	.8	3.0	5.4	14.7	22.2	5.9	.9	.4	59.5
5.0E-07 TO	4.0E-07	.5	.4	1.6	2.2	.7	.4	.7	.5	.8	3.1	6.0	15.8	24.5	6.5	.9	.4	65.2
4.0E-07 TO	3.0E-07	.7	.4	1.7	2.3	.7	.4	.7	.5	1.0	3.1	6.2	17.7	27.2	7.1	1.0	.4	71.2
3.0E-07 TO	2.0E-07	.7	.5	1.7	2.4	.8	.4	.7	.5	1.2	3.2	6.8	19.0	30.4	7.5	1.1	.5	77.2
2.0E-07 TO	1.0E-07	.7	.7	1.8	2.6	1.0	.5	.7	.6	1.3	3.3	6.9	20.7	33.0	8.2	1.2	.6	83.7
1.0E-07 TO	7.5E-08	.8	.7	1.8	2.7	1.0	.5	.7	.7	1.4	3.3	6.9	20.9	34.0	8.4	1.3	.6	85.5
7.5E-08 TO	5.0E-08	.8	.7	1.8	2.7	1.0	.5	.7	.7	1.4	3.4	6.9	21.2	34.9	8.8	1.4	.6	87.4
5.0E-08 TO	2.5E-08	.8	.7	1.8	2.7	1.0	.5	.7	.7	1.5	3.4	7.1	21.7	36.0	8.9	1.4	.6	89.3
2.5E-08 TO	1.0E-08	.8	.8	1.9	2.9	1.3	.5	.7	.7	1.5	3.4	7.1	21.8	37.7	9.0	1.4	.6	92.1
1.0E-08 TO	7.5E-09	.9	.9	1.9	3.0	1.6	.5	.7	.7	1.5	3.4	7.2	22.1	38.5	9.2	1.4	.6	94.1
7.5E-09 TO	5.0E-09	.9	.9	1.9	3.2	1.6	.5	.7	.7	1.6	3.4	7.2	22.5	39.4	9.5	1.4	.6	96.2
5.0E-09 TO	2.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.3	23.0	40.6	9.8	1.5	.7	98.7
2.5E-09 TO	1.0E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	8.101 E -6	6.682 E -6	1.575 E -5	2.206 E -5	1.189 E -5	1.412 E -5	1.041 E -5	1.568 E -5	4.670 E -6	1.464 E -5	2.834 E -5	1.181 E -5	1.595 E -5	1.953 E -5	1.163 E -5	5.907 E -6	2.834 E -5

5.0 PERCENTILE 4.092E-06

50.0 PERCENTILE 6.414E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																		
1.0E-05 TO	1.0E-05	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
1.0E-05 TO	9.0E-06	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	.2
9.0E-06 TO	8.0E-06	0.0	0.0	.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	.2
1.0E-06 TO	7.0E-06	0.0	0.0	.1	.2	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.2	.0	0.0	0.0	.7
7.0E-06 TO	6.0E-06	0.0	0.0	.1	.2	.0	0.0	0.0	0.0	0.0	.0	0.0	.0	.2	.1	0.0	0.0	.8
6.0E-06 TO	5.0E-06	0.0	0.0	.4	.3	.0	.0	.0	0.0	.0	.0	0.0	.1	.4	.2	.0	.0	1.7
5.0E-06 TO	4.0E-06	.1	.1	.5	.6	.2	.0	.1	0.0	.0	.1	.1	.2	.4	.3	.0	.1	3.0
4.0E-06 TO	3.0E-06	.2	.1	.6	.7	.4	.1	.1	.0	.0	.1	.1	.4	.7	.5	.1	.1	4.4
3.0E-06 TO	2.0E-06	.2	.1	.8	1.3	.6	.1	.1	.1	.1	.4	.3	.8	1.8	.9	.1	.1	7.9
2.0E-06 TO	1.0E-06	.4	.3	1.4	1.9	.8	.3	.3	.1	.4	.9	1.1	3.5	8.2	2.9	.6	.3	23.5
1.0E-06 TO	9.0E-07	.5	.3	1.4	1.9	.8	.3	.3	.2	.5	1.1	1.4	4.3	10.3	3.4	.6	.4	27.8
9.0E-07 TO	8.0E-07	.5	.4	1.5	2.1	.9	.3	.3	.2	.5	1.4	1.6	5.4	12.7	4.1	.7	.5	33.1
8.0E-07 TO	7.0E-07	.6	.4	1.6	2.2	1.1	.3	.3	.2	.5	1.4	1.9	6.7	15.6	4.9	.8	.5	39.1
7.0E-07 TO	6.0E-07	.6	.4	1.8	2.4	1.2	.5	.3	.3	.8	1.7	2.2	9.3	19.5	5.5	.9	.5	47.7
6.0E-07 TO	5.0E-07	.7	.5	1.9	2.7	1.4	.5	.4	.3	.9	1.9	2.8	11.3	23.3	6.3	1.1	.5	56.4
5.0E-07 TO	4.0E-07	.7	.5	1.9	2.8	1.6	.5	.4	.3	.9	2.2	3.4	13.7	27.4	7.2	1.2	.5	65.3
4.0E-07 TO	3.0E-07	.9	.6	1.9	2.9	1.6	.5	.5	.3	.9	2.4	4.2	16.1	31.5	8.0	1.2	.5	73.9
3.0E-07 TO	2.0E-07	.9	.7	2.0	3.1	1.7	.5	.6	.6	1.1	2.8	5.0	18.4	35.9	8.8	1.4	.5	83.7
2.0E-07 TO	1.0E-07	.9	.8	2.0	3.2	1.7	.5	.6	.6	1.3	3.0	5.5	20.2	38.6	9.6	1.4	.5	90.4
1.0E-07 TO	7.5E-08	.9	.8	2.0	3.2	1.7	.5	.6	.6	1.4	3.1	5.6	20.6	39.4	9.7	1.4	.5	92.1
7.5E-08 TO	5.0E-08	1.0	.9	2.0	3.3	1.7	.5	.6	.6	1.4	3.1	5.7	20.9	39.7	9.7	1.4	.6	93.1
5.0E-08 TO	2.5E-08	1.0	.9	2.0	3.3	1.7	.5	.6	.6	1.4	3.1	5.9	21.3	40.3	9.8	1.4	.6	94.5
2.5E-08 TO	1.0E-08	1.0	.9	2.0	3.3	1.7	.5	.6	.6	1.4	3.2	6.2	21.8	40.3	9.8	1.4	.6	95.3
1.0E-08 TO	7.5E-09	1.0	.9	2.0	3.3	1.7	.5	.6	.7	1.4	3.2	6.2	21.8	40.3	9.8	1.4	.6	95.4
7.5E-09 TO	5.0E-09	1.0	.9	2.0	3.4	1.7	.5	.6	.7	1.4	3.2	6.4	21.8	40.4	9.8	1.4	.6	95.9
5.0E-09 TO	2.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.4	3.4	7.0	22.4	40.8	9.8	1.4	.7	98.0
2.5E-09 TO	1.0E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	9.9	1.5	.7	99.9
1.0E-09 TO	5.0E-10	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

MST CONDITION	4.836 E -6	4.719 E -6	1.103 E -5	1.210 E -5	7.283 E -6	5.098 E -6	5.144 E -6	3.177 E -6	5.949 E -6	6.515 E -6	4.986 E -6	9.453 E -6	1.417 E -5	7.283 E -6	5.204 E -6	5.962 E -6	1.417 E -5

5.0 PERCENTILE 2.791E-08

50.0 PERCENTILE 5.721E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																	
5.0E-06 TO 4.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
4.0E-06 TO 3.0E-06	.0	0.0	.0	.1	0.0	0.0	.0	.1	0.0	.1	.1	.2	.2	.2	0.0	0.0	1.3
3.0E-06 TO 2.0E-06	.0	0.0	.1	.1	0.0	.0	.0	.1	.1	.2	.3	.4	.8	.3	0.0	0.0	2.6
2.0E-06 TO 1.0E-06	.3	.3	.6	1.0	.6	.2	.2	.2	.3	.8	2.0	3.9	6.8	2.1	.3	.0	19.6
1.0E-06 TO 9.0E-07	.4	.4	.7	1.2	.7	.3	.3	.3	.4	1.1	2.7	5.3	9.1	2.7	.6	.0	26.2
9.0E-07 TO 8.0E-07	.5	.4	.9	1.6	.9	.3	.3	.4	.5	1.4	3.0	6.5	11.1	2.9	.7	.1	31.4
8.0E-07 TO 7.0E-07	.5	.4	.9	1.9	1.1	.4	.4	.4	.7	1.6	3.4	8.3	13.8	3.5	.7	.3	38.1
7.0E-07 TO 6.0E-07	.7	.5	1.1	2.3	1.4	.4	.4	.5	.7	1.9	4.0	10.7	18.4	4.8	.8	.4	48.8
6.0E-07 TO 5.0E-07	.7	.5	1.4	2.6	1.5	.5	.5	.5	.9	2.4	4.9	13.2	23.4	5.9	1.0	.4	60.2
5.0E-07 TO 4.0E-07	.7	.5	1.6	2.9	1.7	.5	.5	.7	1.2	3.0	5.7	16.1	28.8	6.9	1.1	.5	72.3
4.0E-07 TO 3.0E-07	.7	.5	1.7	2.9	1.7	.5	.6	.7	1.4	3.1	6.4	17.8	31.6	7.7	1.3	.6	79.1
3.0E-07 TO 2.0E-07	.8	.7	1.8	3.0	1.7	.5	.6	.7	1.4	3.2	6.6	19.0	34.3	8.1	1.4	.6	84.2
2.0E-07 TO 1.0E-07	.8	.8	1.8	3.2	1.6	.5	.7	.7	1.4	3.4	7.2	20.8	37.2	8.8	1.4	.7	91.1
1.0E-07 TO 7.5E-08	.8	.8	1.9	3.3	1.8	.5	.7	.7	1.4	3.4	7.3	21.5	38.1	9.0	1.4	.7	93.3
7.5E-08 TO 5.0E-08	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.1	39.1	9.0	1.4	.7	95.3
5.0E-08 TO 2.5E-08	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.3	39.5	9.2	1.4	.7	96.1
2.5E-08 TO 1.0E-08	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.4	39.9	9.4	1.4	.7	96.8
1.0E-08 TO 7.5E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.4	40.1	9.4	1.4	.7	97.2
7.5E-09 TO 5.0E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.5	40.2	9.5	1.4	.7	97.3
5.0E-09 TO 2.5E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.5	40.2	9.5	1.4	.7	97.4
2.5E-09 TO 1.0E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.7	40.5	9.6	1.4	.7	98.0
1.0E-09 TO 5.0E-10	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	23.0	41.2	9.8	1.5	.7	99.4
5.0E-10 TO 1.0E-10	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	3.023 E -6	1.690 E -6	3.023 E -6	3.029 E -6	1.862 E -6	2.013 E -6	3.030 E -6	3.030 E -6	2.260 E -6	3.752 E -6	3.741 E -6	3.837 E -6	4.221 E -6	3.415 E -6	1.416 E -6	1.547 E -6	4.221 E -6

5.0 PERCENTILE 1.811E-06

50.0 PERCENTILE 5.883E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-06 TO 1.0E-06	0.0	.2	.2	.1	.0	0.0	.0	.2	0.0	0.0	.5	1.2	2.4	.6	0.0	0.0	5.5
1.0E-06 TO 9.0E-07	.0	.2	.4	.4	.2	0.0	.1	.3	.1	.4	1.4	4.4	9.6	2.2	.3	.1	20.3
9.0E-07 TO 8.0E-07	.2	.2	.7	.7	.5	.2	.2	.3	.7	1.3	2.8	8.3	15.6	3.4	.4	.2	35.7
8.0E-07 TO 7.0E-07	.4	.5	.9	1.4	.8	.3	.5	.4	.9	1.9	3.9	12.8	22.2	4.5	.8	.3	52.5
7.0E-07 TO 6.0E-07	.5	.5	1.1	1.5	.8	.4	.5	.5	.9	2.3	4.8	14.9	25.7	6.1	.9	.3	61.5
6.0E-07 TO 5.0E-07	.7	.5	1.4	2.3	1.3	.4	.6	.5	1.1	2.6	5.4	16.9	29.5	7.6	1.0	.4	72.2
5.0E-07 TO 4.0E-07	.8	.6	1.5	2.3	1.4	.4	.6	.5	1.1	2.7	5.5	17.7	32.4	8.2	1.1	.4	77.3
4.0E-07 TO 3.0E-07	.8	.6	1.6	2.4	1.4	.5	.6	.6	1.1	2.7	5.7	18.0	33.7	8.3	1.2	.5	79.6
3.0E-07 TO 2.0E-07	.9	.6	1.6	2.5	1.5	.5	.7	.6	1.3	2.9	6.1	19.9	36.0	9.0	1.3	.5	85.7
2.0E-07 TO 1.0E-07	.9	.7	1.9	2.9	1.6	.6	.7	.7	1.5	3.3	6.8	21.2	38.6	9.4	1.4	.6	92.7
1.0E-07 TO 7.5E-08	.9	.8	1.9	2.9	1.7	.6	.7	.7	1.5	3.3	6.9	21.7	39.2	9.4	1.4	.6	94.1
7.5E-08 TO 5.0E-08	1.0	.8	2.0	3.2	1.8	.6	.7	.7	1.6	3.4	7.1	22.3	40.5	9.7	1.4	.6	97.3
5.0E-08 TO 2.5E-08	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	22.6	41.2	9.9	1.5	.7	99.0
2.5E-08 TO 1.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	22.8	41.3	9.9	1.5	.7	99.5
1.0E-08 TO 7.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	9.056 E -7	1.087 E -6	1.056 E -6	1.054 E -6	1.055 E -6	8.869 E -7	1.036 E -6	1.117 E -6	9.854 E -7	9.989 E -7	1.121 E -6	1.130 E -6	1.116 E -6	1.132 E -6	9.904 E -7	9.819 E -7	1.132 E -6

5.0 PERCENTILE 1.065E-06

50.0 PERCENTILE 7.143E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
7.0E-04 TO 6.0E-04	.0	0.0	0.0	.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
6.0E-04 TO 5.0E-04	.1	0.0	.0	.0	.0	.1	.0	.0	0.0	.0	.0	.0	.0	.1	0.0	0.0	.8
5.0E-04 TO 4.0E-04	.1	.0	.2	.3	.2	.2	.3	.1	.1	.3	.4	.5	.4	.6	.1	.0	4.0
4.0E-04 TO 3.0E-04	.2	.0	.3	.3	.3	.2	.7	.4	.6	.6	1.2	1.3	.9	.8	.2	.2	8.2
3.0E-04 TO 2.0E-04	.3	.2	.4	.7	.6	.9	.8	.6	1.0	1.6	2.5	2.2	1.2	1.1	.3	.4	15.0
2.0E-04 TO 1.0E-04	.4	.4	.5	1.0	.9	1.2	1.1	1.0	1.2	2.9	3.2	2.6	1.5	1.2	.7	.5	20.2
1.0E-04 TO 9.0E-05	.5	.5	.6	1.0	.9	1.2	1.2	1.0	1.2	3.0	3.2	2.6	1.6	1.3	.7	.6	20.9
9.0E-05 TO 8.0E-05	.6	.5	.7	1.3	.9	1.2	1.2	1.0	1.3	3.2	3.4	2.7	1.6	1.3	.8	.6	22.3
8.0E-05 TO 7.0E-05	.6	.6	1.0	1.5	.9	1.3	1.2	1.1	1.3	3.3	3.5	2.8	1.7	1.4	.9	.6	23.5
7.0E-05 TO 6.0E-05	.6	.8	1.2	1.5	1.1	1.4	1.2	1.1	1.3	3.4	3.8	2.9	1.8	1.4	1.0	.6	25.1
6.0E-05 TO 5.0E-05	.6	1.0	2.1	1.9	1.4	1.6	1.3	1.2	1.4	3.0	4.2	3.1	1.8	1.5	1.0	.6	28.6
5.0E-05 TO 4.0E-05	.7	1.2	2.5	2.6	1.8	1.8	1.4	1.3	1.5	4.1	4.7	3.3	1.9	1.7	1.1	.7	32.3
4.0E-05 TO 3.0E-05	.7	1.5	4.0	3.3	2.5	2.0	1.6	1.3	1.5	4.3	5.5	3.6	2.3	2.1	1.3	.8	38.4
3.0E-05 TO 2.0E-05	.9	1.8	4.6	4.4	3.2	2.2	1.7	1.5	1.9	4.7	6.4	4.6	2.8	2.5	1.4	.9	45.7
2.0E-05 TO 1.0E-05	1.0	1.9	5.6	5.6	3.8	2.5	1.8	1.6	2.1	5.0	7.8	7.6	5.6	4.3	1.7	1.0	59.0
1.0E-05 TO 9.0E-06	1.1	2.0	5.6	5.8	4.0	2.5	1.9	1.7	2.1	5.0	8.1	8.7	6.2	4.5	1.7	1.0	61.8
9.0E-06 TO 8.0E-06	1.1	2.0	5.6	6.0	4.1	2.5	1.9	1.8	2.1	5.0	8.2	9.3	7.1	4.7	1.7	1.0	64.0
8.0E-06 TO 7.0E-06	1.1	2.0	5.8	6.2	4.5	2.6	1.9	1.8	2.1	5.0	8.4	10.1	8.1	5.0	1.7	1.0	67.3
7.0E-06 TO 6.0E-06	1.2	2.1	5.8	6.6	4.9	2.6	1.9	1.8	2.1	5.0	8.7	10.9	9.3	5.4	1.7	1.0	71.0
6.0E-06 TO 5.0E-06	1.2	2.3	6.0	7.1	5.3	2.6	1.9	1.9	2.1	5.1	8.9	12.0	10.8	6.0	1.7	1.0	75.9
5.0E-06 TO 4.0E-06	1.2	2.3	6.2	7.7	5.5	2.6	2.2	1.9	2.1	5.2	8.9	13.2	11.8	6.2	1.7	1.1	79.8
4.0E-06 TO 3.0E-06	1.2	2.4	6.3	8.0	5.7	2.6	2.2	2.0	2.2	5.2	9.1	14.3	12.6	6.2	1.8	1.1	82.8
3.0E-06 TO 2.0E-06	1.2	2.4	6.5	8.3	5.9	2.6	2.2	2.0	2.2	5.3	9.3	14.6	13.6	6.5	1.8	1.1	85.5
2.0E-06 TO 1.0E-06	1.3	2.4	6.7	8.9	6.1	2.7	2.3	2.2	2.2	5.3	9.3	14.9	14.5	6.8	1.8	1.2	88.4
1.0E-06 TO 9.0E-07	1.3	2.5	6.7	8.9	6.1	2.7	2.3	2.2	2.3	5.3	9.3	14.9	14.6	6.8	1.8	1.2	88.7
9.0E-07 TO 8.0E-07	1.3	2.5	6.7	9.0	6.1	2.7	2.3	2.2	2.3	5.3	9.3	14.9	14.8	6.8	1.9	1.2	89.2
8.0E-07 TO 7.0E-07	1.3	2.5	6.7	9.0	6.1	2.7	2.3	2.2	2.3	5.3	9.3	15.0	14.9	6.8	1.9	1.2	89.6
7.0E-07 TO 6.0E-07	1.3	2.5	6.7	9.0	6.2	2.7	2.3	2.2	2.3	5.4	9.3	15.1	15.0	6.8	1.9	1.2	90.0
6.0E-07 TO 5.0E-07	1.3	2.5	6.7	9.1	6.2	2.7	2.3	2.2	2.3	5.4	9.3	15.1	15.1	6.8	1.9	1.2	90.2
5.0E-07 TO 4.0E-07	1.3	2.5	6.7	9.1	6.2	2.7	2.3	2.2	2.3	5.4	9.3	15.1	15.2	6.8	1.9	1.2	90.3
4.0E-07 TO 3.0E-07	1.3	2.5	6.7	9.1	6.2	2.7	2.3	2.2	2.3	5.4	9.3	15.1	15.2	6.8	1.9	1.2	90.3
3.0E-07 TO 2.0E-07	1.3	2.5	6.7	9.1	6.3	2.7	2.3	2.2	2.3	5.4	9.3	15.1	15.2	6.8	1.9	1.2	90.4
2.0E-07 TO 1.0E-07	1.3	2.6	6.8	9.3	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.2	15.3	7.0	1.9	1.2	91.1
1.0E-07 TO 7.5E-08	1.3	2.6	6.9	10.0	6.5	2.8	2.3	2.3	2.3	5.4	9.3	15.3	15.6	7.0	1.9	1.2	92.9
7.5E-08 TO 5.0E-08	1.4	2.6	7.4	10.9	6.6	2.8	2.4	2.3	2.3	5.4	9.3	15.8	16.7	7.1	1.9	1.2	96.3
5.0E-08 TO 2.5E-08	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
2.5E-08 TO 1.0E-08	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.000 E -4	4.162 E -4	5.243 E -4	6.000 E -4	5.243 E -4	6.000 E -4	5.276 E -4	6.000 E -4	4.655 E -4	5.243 E -4	5.276 E -4	5.243 E -4	5.596 E -4	5.596 E -4	4.655 E -4	4.407 E -4	6.000 E -4

5.0 PERCENTILE 3.742E-04

50.0 PERCENTILE 1.598E-05

2184 TOTAL HOURS INPUT 2141 HOURS USED ABOVE 98.0% PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
4.0E-05 TO 3.0E-05	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
3.0E-05 TO 2.0E-05	0.0	0.0	.1	.1	.0	.1	0.0	0.0	.0	.4	.2	.3	.1	.1	0.0	0.0	1.5
2.0E-05 TO 1.0E-05	.2	.0	.5	1.0	.6	.3	.2	.5	.6	1.2	.8	1.4	.8	.7	.1	.1	9.1
1.0E-05 TO 9.0E-06	.2	.1	.7	1.1	.6	.4	.2	.6	.6	1.4	1.2	1.8	1.2	.7	.2	.2	11.0
9.0E-06 TO 8.0E-06	.2	.1	.8	1.2	.7	.4	.2	.7	.6	1.4	1.2	2.0	1.4	.8	.2	.2	12.2
8.0E-06 TO 7.0E-06	.2	.1	1.2	1.7	.8	.5	.3	.7	.6	1.5	1.5	2.4	1.8	1.1	.3	.2	14.9
7.0E-06 TO 6.0E-06	.3	.2	1.5	2.3	1.2	.7	.6	.9	.6	1.9	1.8	2.6	2.4	1.2	.3	.3	18.8
6.0E-06 TO 5.0E-06	.3	.2	1.6	3.1	1.4	1.0	1.0	1.0	.7	2.2	2.0	2.9	2.8	1.5	.5	.4	22.6
5.0E-06 TO 4.0E-06	.4	.4	1.9	3.8	1.7	1.1	1.3	1.1	.8	2.6	2.4	3.1	3.2	1.8	.5	.5	26.4
4.0E-06 TO 3.0E-06	.5	.8	2.5	5.0	2.3	1.2	1.5	1.1	.9	2.8	2.7	3.7	3.9	2.3	.6	.6	32.5
3.0E-06 TO 2.0E-06	.7	1.2	3.4	6.5	2.7	1.6	1.7	1.2	1.3	3.2	4.0	5.5	5.6	3.6	.8	.8	43.9
2.0E-06 TO 1.0E-06	.9	1.8	4.3	8.7	4.1	2.0	2.1	1.5	1.7	4.3	6.6	9.7	9.5	6.0	1.2	1.0	65.5
1.0E-06 TO 9.0E-07	1.0	1.9	4.7	8.9	4.2	2.1	2.1	1.6	1.9	4.4	6.9	10.3	10.3	6.1	1.3	1.0	68.7
9.0E-07 TO 8.0E-07	1.0	2.0	5.1	9.1	4.4	2.3	2.2	1.6	1.9	4.6	7.3	10.9	10.8	6.3	1.3	1.1	71.9
8.0E-07 TO 7.0E-07	1.0	2.0	5.6	9.4	4.7	2.4	2.2	1.7	1.9	4.7	7.4	11.5	11.5	6.4	1.4	1.2	75.0
7.0E-07 TO 6.0E-07	1.1	2.1	6.0	9.5	4.8	2.4	2.3	1.8	1.9	4.9	7.7	12.4	12.3	6.6	1.5	1.2	78.4
6.0E-07 TO 5.0E-07	1.1	2.2	6.6	9.9	5.2	2.5	2.4	1.9	2.0	5.0	8.0	13.0	13.2	6.8	1.6	1.2	82.6
5.0E-07 TO 4.0E-07	1.2	2.3	6.7	9.9	5.2	2.6	2.4	2.0	2.1	5.0	8.4	13.9	13.9	6.8	1.7	1.2	85.5
4.0E-07 TO 3.0E-07	1.3	2.4	6.8	10.3	5.4	2.6	2.4	2.0	2.1	5.0	8.7	14.9	15.4	6.8	1.8	1.2	89.3
3.0E-07 TO 2.0E-07	1.3	2.5	7.1	10.4	5.9	2.7	2.4	2.2	2.2	5.1	9.1	15.5	16.2	7.0	1.8	1.2	92.6
2.0E-07 TO 1.0E-07	1.4	2.6	7.3	10.6	6.2	2.8	2.4	2.2	2.3	5.2	9.3	16.1	16.5	7.0	1.9	1.2	94.9
1.0E-07 TO 7.5E-08	1.4	2.6	7.3	10.8	6.2	2.8	2.4	2.2	2.3	5.2	9.3	16.3	16.9	7.1	1.9	1.2	95.8
7.5E-08 TO 5.0E-08	1.4	2.6	7.3	10.8	6.2	2.8	2.4	2.2	2.3	5.3	9.3	16.4	17.3	7.1	1.9	1.3	96.5
5.0E-08 TO 2.5E-08	1.4	2.6	7.3	10.8	6.2	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.4	7.1	1.9	1.3	96.8
2.5E-08 TO 1.0E-08	1.4	2.7	7.4	10.9	6.4	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.6	7.1	1.9	1.3	97.5
1.0E-08 TO 7.5E-09	1.4	2.7	7.5	11.0	6.5	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.7	7.1	1.9	1.3	97.9
7.5E-09 TO 5.0E-09	1.4	2.8	7.5	11.2	6.7	2.8	2.4	2.3	2.3	5.4	9.4	16.5	17.9	7.1	1.9	1.3	98.8
5.0E-09 TO 2.5E-09	1.4	2.8	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.1	7.2	1.9	1.3	99.7
2.5E-09 TO 1.0E-09	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.876 E -5	1.133 E -5	3.566 E -5	2.217 E -5	2.565 E -5	2.576 E -5	1.962 E -5	1.848 E -5	2.079 E -5	2.993 E -5	2.470 E -5	2.639 E -5	2.264 E -5	2.247 E -5	1.784 E -5	1.980 E -5	3.566 E -5

5.0 PERCENTILE 1.453E-05

50.0 PERCENTILE 1.645E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.2E3	SSW 3.2E3	SW 3.2E3	WSW 3.2E3	W 3.2E3	WNW 3.2E3	NW 3.2E3	NNW 3.2E3	N 3.2E3	NNE 3.2E3	NE 3.2E3	ENE 3.2E3	E 3.2E3	ESE 3.2E3	SE 3.2E3	SSE 3.2E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-05 TO 1.0E-05	0.0	.2	.2	.3	.3	0.0	.0	.0	.0	.1	.2	.3	.3	.0	.0	0.0	2.3
1.0E-05 TO 9.0E-06	0.0	.3	.3	.5	.5	0.0	.0	.1	.0	.2	.2	.4	.3	.1	.0	0.0	3.1
9.0E-06 TO 8.0E-06	.0	.4	.3	.7	.7	.1	.1	.2	.0	.2	.3	.5	.6	.2	.1	.0	4.5
8.0E-06 TO 7.0E-06	.1	.4	.6	1.0	.8	.2	.1	.2	.0	.4	.5	.7	.8	.4	.1	.0	6.3
7.0E-06 TO 6.0E-06	.1	.5	.6	1.4	1.1	.3	.1	.3	.1	.5	.5	.9	1.2	.5	.2	.1	8.5
6.0E-06 TO 5.0E-06	.3	.7	1.2	2.2	1.7	.6	.1	.4	.2	.6	.7	1.3	1.7	.7	.4	.2	13.1
5.0E-06 TO 4.0E-06	.3	.9	1.6	3.1	2.1	.6	.3	.5	.3	.9	.8	1.8	2.6	1.0	.5	.3	17.6
4.0E-06 TO 3.0E-06	.4	1.0	2.7	4.7	3.2	.8	.6	.6	.5	1.5	1.7	2.5	3.7	1.7	.6	.6	26.7
3.0E-06 TO 2.0E-06	.7	1.5	3.7	6.2	4.3	1.2	1.1	.9	.6	2.0	2.4	3.6	4.9	2.3	.8	.6	36.6
2.0E-06 TO 1.0E-06	.8	2.0	5.6	8.1	5.6	1.8	1.5	1.4	1.1	3.0	5.1	7.2	9.3	4.3	1.3	.6	58.9
1.0E-06 TO 9.0E-07	.8	2.1	5.7	8.3	5.7	1.9	1.6	1.6	1.2	3.3	5.6	7.8	10.2	4.5	1.4	.6	62.3
9.0E-07 TO 8.0E-07	.9	2.2	5.8	9.0	5.9	2.0	1.6	1.7	1.3	3.6	5.9	8.6	11.1	4.8	1.5	.6	66.6
8.0E-07 TO 7.0E-07	1.0	2.2	6.1	9.3	6.0	2.1	1.8	1.8	1.3	3.8	6.3	9.5	12.2	5.1	1.5	.8	70.8
7.0E-07 TO 6.0E-07	1.1	2.4	6.4	9.7	6.1	2.2	1.8	1.8	1.5	3.9	6.6	10.3	13.1	5.6	1.7	.8	75.1
6.0E-07 TO 5.0E-07	1.2	2.5	6.6	10.2	6.3	2.3	1.9	2.0	1.7	4.1	6.9	10.9	14.2	5.9	1.7	.9	79.3
5.0E-07 TO 4.0E-07	1.2	2.5	6.9	10.4	6.4	2.5	2.0	2.1	1.8	4.4	7.5	12.5	15.4	6.1	1.7	1.1	84.5
4.0E-07 TO 3.0E-07	1.3	2.6	7.1	10.7	6.5	2.5	2.1	2.1	1.8	5.0	7.9	13.6	16.3	6.6	1.8	1.1	88.9
3.0E-07 TO 2.0E-07	1.3	2.6	7.3	11.0	6.7	2.8	2.2	2.1	1.9	5.0	8.4	14.7	17.2	6.9	1.8	1.1	92.9
2.0E-07 TO 1.0E-07	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.2	2.1	5.2	9.0	15.5	18.1	7.0	1.9	1.2	96.8
1.0E-07 TO 7.5E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.2	9.1	15.5	18.2	7.0	1.9	1.2	97.1
7.5E-08 TO 5.0E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.2	15.8	18.3	7.0	1.9	1.2	97.8
5.0E-08 TO 2.5E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.4	9.3	16.2	18.4	7.1	1.9	1.2	98.7
2.5E-08 TO 1.0E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.4	9.3	16.3	18.4	7.1	1.9	1.2	98.8
1.0E-08 TO 7.5E-09	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.4	9.3	16.3	18.4	7.1	1.9	1.2	98.8
7.5E-09 TO 5.0E-09	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.4	9.3	16.3	18.4	7.1	1.9	1.2	99.0
5.0E-09 TO 2.5E-09	1.4	2.7	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.2	99.7
2.5E-09 TO 1.0E-09	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	8.027E-6	1.783E-5	1.926E-5	1.868E-5	1.460E-5	8.408E-6	1.031E-5	1.061E-5	1.133E-5	1.684E-5	1.128E-5	1.897E-5	1.707E-5	1.288E-5	1.242E-5	8.759E-6	1.926E-5

5.0 PERCENTILE 7.729E-06

50.0 PERCENTILE 1.319E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
1.0E-05 TO 1.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	0.0	.0	0.0	0.0	0.0	0.0	.2
1.0E-05 TO 9.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	0.0	.0	.0	0.0	0.0	0.0	.2
1.0E-06 TO 8.0E-06	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	.0	.1	0.0	.0	.0	0.0	0.0	0.0	.3
1.0E-06 TO 7.0E-06	0.0	.0	0.0	.0	0.0	0.0	.0	0.0	.0	.1	0.0	.1	.2	.0	0.0	.0	.6
1.0E-06 TO 6.0E-06	0.0	.0	0.0	.0	0.0	0.0	.1	.0	.0	.1	.0	.2	.3	.0	0.0	.0	1.1
1.0E-06 TO 5.0E-06	0.0	.0	0.0	.1	0.0	0.0	.1	.0	.0	.1	.4	.3	.5	.1	0.0	.0	1.9
1.0E-06 TO 4.0E-06	.0	.1	.2	.4	.1	.1	.2	.0	.2	.2	.8	.5	.6	.1	.0	.1	3.8
1.0E-06 TO 3.0E-06	.1	.2	1.1	.9	.5	.3	.3	.5	.2	.8	1.5	1.5	1.2	.4	.0	.1	9.7
1.0E-06 TO 2.0E-06	.4	.8	2.4	3.1	1.9	.9	.5	.7	.7	2.2	3.4	4.3	4.1	1.6	.5	.4	27.9
1.0E-06 TO 1.0E-06	.8	1.8	5.0	7.1	4.2	1.8	1.6	1.7	1.4	3.7	6.1	9.5	8.2	4.3	1.0	.9	59.1
1.0E-06 TO 9.0E-07	.8	1.9	5.2	7.5	4.4	1.9	1.7	1.8	1.5	3.8	6.4	10.8	9.3	4.5	1.1	.9	63.6
1.0E-07 TO 8.0E-07	.9	2.0	5.5	8.0	4.7	2.0	1.8	1.9	1.5	3.9	6.9	11.4	10.7	4.9	1.1	.9	68.2
1.0E-07 TO 7.0E-07	.9	2.0	5.8	8.6	5.0	2.1	1.9	2.0	1.6	4.1	7.2	11.9	11.6	5.1	1.2	1.0	72.0
1.0E-07 TO 6.0E-07	.9	2.0	6.1	8.9	5.3	2.2	2.0	2.1	1.7	4.4	7.5	13.1	12.6	5.4	1.2	1.1	76.7
1.0E-07 TO 5.0E-07	1.0	2.2	6.3	9.1	5.6	2.3	2.1	2.1	1.7	4.5	7.8	13.5	13.4	5.6	1.4	1.1	79.8
1.0E-07 TO 4.0E-07	1.1	2.2	6.7	9.3	5.7	2.5	2.2	2.1	1.7	4.9	8.2	14.1	14.1	6.0	1.5	1.1	83.5
1.0E-07 TO 3.0E-07	1.2	2.5	6.9	9.8	6.1	2.5	2.2	2.1	1.9	5.0	8.5	14.8	15.1	6.4	1.6	1.2	87.6
1.0E-07 TO 2.0E-07	1.2	2.6	7.2	10.6	6.3	2.7	2.4	2.2	2.0	5.1	8.9	15.4	16.0	6.7	1.7	1.2	92.1
1.0E-07 TO 1.0E-07	1.3	2.7	7.5	10.9	6.6	2.8	2.4	2.3	2.2	5.3	9.3	16.1	17.2	6.9	1.9	1.2	96.5
1.0E-07 TO 7.5E-08	1.3	2.7	7.5	11.0	6.7	2.8	2.4	2.3	2.3	5.3	9.3	16.2	17.6	7.0	1.9	1.2	97.6
7.5E-08 TO 5.0E-08	1.4	2.7	7.5	11.1	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.3	17.9	7.1	1.9	1.3	98.4
5.0E-08 TO 2.5E-08	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.4	18.1	7.2	1.9	1.3	99.1
2.5E-08 TO 1.0E-08	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.5	18.3	7.2	1.9	1.3	99.6
1.0E-08 TO 7.5E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
7.5E-09 TO 5.0E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
5.0E-09 TO 2.5E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
2.5E-09 TO 1.0E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
1.0E-09 TO 5.0E-10	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

5T CONDITION	4.700 E -6	7.649 E -6	4.661 E -6	8.622 E -6	4.611 E -6	4.932 E -6	8.536 E -6	6.186 E -6	1.031 E -5	1.109 E -5	6.619 E -6	1.182 E -5	9.354 E -6	7.484 E -6	4.791 E -6	7.891 E -6	1.182 E -5

50.0 PERCENTILE 3.771E-06

50.0 PERCENTILE 1.224E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																		
4.0E-06 TO	3.0E-06	0.0	.1	.3	.4	.1	.3	.1	.1	.0	.1	.4	.3	.3	.3	.1	.1	3.1
3.0E-06 TO	2.0E-06	.3	.3	1.2	1.8	.9	.7	.5	.1	.3	.8	1.3	2.2	1.8	.9	.4	.2	13.7
2.0E-06 TO	1.0E-06	.9	1.7	4.7	7.6	4.3	1.9	1.6	1.4	1.3	3.3	5.4	10.4	11.6	4.7	1.2	.9	63.0
1.0E-06 TO	9.0E-07	1.0	2.1	5.1	8.2	5.0	2.1	1.8	1.6	1.5	3.7	6.1	11.6	13.1	5.2	1.3	.9	70.3
9.0E-07 TO	8.0E-07	1.1	2.4	5.7	9.0	5.4	2.3	1.9	1.7	1.7	3.8	6.5	12.5	14.0	5.7	1.4	.9	75.9
8.0E-07 TO	7.0E-07	1.2	2.5	6.2	9.4	5.5	2.4	1.9	1.8	1.8	4.5	7.3	13.3	14.7	6.2	1.5	1.0	80.9
7.0E-07 TO	6.0E-07	1.2	2.5	6.6	9.7	6.0	2.4	2.1	1.9	2.0	4.7	7.7	14.0	15.6	6.3	1.6	1.2	85.7
6.0E-07 TO	5.0E-07	1.3	2.5	6.8	10.2	6.2	2.5	2.2	2.0	2.0	4.9	8.2	14.7	16.3	6.6	1.7	1.2	89.3
5.0E-07 TO	4.0E-07	1.4	2.5	7.0	10.5	6.3	2.5	2.2	2.1	2.3	5.0	8.9	15.2	17.2	6.8	1.8	1.2	92.8
4.0E-07 TO	3.0E-07	1.4	2.6	7.3	10.9	6.7	2.7	2.3	2.3	2.3	5.1	9.3	16.2	18.0	7.1	1.9	1.2	97.2
3.0E-07 TO	2.0E-07	1.4	2.7	7.4	11.2	6.8	2.8	2.4	2.3	2.3	5.3	9.4	16.6	18.4	7.1	1.9	1.3	99.3
2.0E-07 TO	1.0E-07	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		2.884 E -6	3.430 E -6	3.320 E -6	3.254 E -6	3.224 E -6	3.295 E -6	3.471 E -6	3.214 E -6	3.382 E -6	3.353 E -6	3.423 E -6	3.438 E -6	3.386 E -6	3.449 E -6	3.134 E -6	3.316 E -6	3.471 E -6

5.0 PERCENTILE 2.791E-06

50.0 PERCENTILE 1.200E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA <730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																		
9.0E-04	TO 9.0E-04	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
8.0E-04	TO 7.0E-04	0.0	0.0	.0	0.0	.0	.1	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.3
7.0E-04	TO 6.0E-04	.1	0.0	.0	0.0	.1	.1	.0	.1	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.8
6.0E-04	TO 5.0E-04	.1	0.0	.0	.0	.1	.2	.2	.2	.5	0.0	0.0	.0	0.0	0.0	.0	0.0	1.7
5.0E-04	TO 4.0E-04	.3	0.0	.1	.1	.2	.3	.3	.5	.6	.1	.1	.1	.0	.0	.1	.1	3.4
4.0E-04	TO 3.0E-04	.4	0.0	.1	.3	.3	.5	.3	.9	1.0	.3	.4	.3	.1	.1	.3	.1	5.6
3.0E-04	TO 2.0E-04	.6	.1	.4	.6	.7	.7	.5	1.0	1.0	.9	.9	.6	.4	.3	.4	.1	9.5
2.0E-04	TO 1.0E-04	.7	.3	.7	1.1	1.2	1.6	.8	1.3	1.4	1.7	1.5	.9	.8	.9	.8	.2	16.1
1.0E-04	TO 9.0E-05	.7	.3	.8	1.5	1.2	1.7	.9	1.4	1.5	1.9	1.5	1.0	.9	1.0	.8	.2	17.2
9.0E-05	TO 8.0E-05	.7	.4	.9	1.8	1.4	1.9	1.0	1.4	1.5	2.0	1.7	1.0	.9	1.0	.9	.3	19.0
8.0E-05	TO 7.0E-05	.7	.4	1.2	2.1	1.6	2.2	1.0	1.7	1.6	2.0	1.8	1.1	.9	1.2	.9	.4	20.9
7.0E-05	TO 6.0E-05	.7	.5	1.5	2.5	1.9	2.5	1.3	1.9	1.7	2.0	1.8	1.1	1.0	1.3	.9	.5	23.2
6.0E-05	TO 5.0E-05	.8	.9	2.3	3.0	2.3	2.7	1.6	2.0	1.8	2.1	2.0	1.3	1.1	1.3	.9	.6	26.6
5.0E-05	TO 4.0E-05	.9	1.2	2.8	3.4	2.8	3.0	2.1	2.3	1.9	2.1	2.4	1.6	1.2	1.5	1.0	.7	30.9
4.0E-05	TO 3.0E-05	1.0	1.4	3.5	4.3	3.6	3.5	2.6	2.6	2.0	2.5	2.9	2.3	1.4	1.8	1.3	.8	37.5
3.0E-05	TO 2.0E-05	1.1	2.0	4.7	5.8	4.6	4.0	3.2	2.8	2.3	2.9	3.6	2.9	2.2	2.8	1.7	.9	47.5
2.0E-05	TO 1.0E-05	1.2	2.5	5.9	6.9	5.0	4.1	3.4	2.8	2.3	4.3	5.7	5.1	3.4	5.2	2.4	1.0	61.2
1.0E-05	TO 9.0E-06	1.2	2.5	6.0	6.9	5.1	4.1	3.4	2.8	2.3	4.4	6.0	5.6	4.0	5.7	2.6	1.0	63.8
9.0E-06	TO 8.0E-06	1.2	2.5	6.1	7.0	5.1	4.1	3.4	2.8	2.3	4.5	6.2	6.7	4.5	6.3	2.6	1.0	66.4
8.0E-06	TO 7.0E-06	1.2	2.6	6.2	7.2	5.1	4.1	3.5	2.8	2.3	4.7	6.5	7.7	5.2	7.0	2.6	1.0	69.7
7.0E-06	TO 6.0E-06	1.2	2.7	6.3	7.2	5.1	4.1	3.5	2.8	2.3	4.7	7.0	9.7	5.9	7.7	2.7	1.0	74.0
6.0E-06	TO 5.0E-06	1.2	3.1	6.4	7.2	5.1	4.1	3.5	2.8	2.4	4.8	7.3	11.3	7.0	8.4	2.7	1.0	78.4
5.0E-06	TO 4.0E-06	1.2	3.5	6.4	7.2	5.1	4.1	3.5	2.8	2.4	4.8	7.5	12.9	8.9	9.3	2.7	1.0	83.4
4.0E-06	TO 3.0E-06	1.2	3.6	6.5	7.2	5.1	4.1	3.5	2.9	2.4	4.9	7.6	13.9	11.2	9.9	2.7	1.0	87.8
3.0E-06	TO 2.0E-06	1.2	3.7	6.6	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	14.8	13.5	10.2	2.7	1.0	92.0
2.0E-06	TO 1.0E-06	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.2	14.8	10.4	2.7	1.0	94.3
1.0E-06	TO 9.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.2	14.9	10.4	2.7	1.0	94.4
9.0E-07	TO 8.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.3	15.1	10.4	2.7	1.0	94.7
8.0E-07	TO 7.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.3	15.2	10.5	2.7	1.0	94.9
7.0E-07	TO 6.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.4	15.5	10.5	2.7	1.0	95.3
6.0E-07	TO 5.0E-07	1.2	3.7	6.7	7.4	5.2	4.1	3.6	2.9	2.4	4.9	7.8	15.5	15.7	10.6	2.7	1.0	95.6
5.0E-07	TO 4.0E-07	1.2	3.7	6.7	7.4	5.2	4.2	3.6	2.9	2.4	4.9	7.9	15.6	15.8	10.6	2.7	1.0	96.1
4.0E-07	TO 3.0E-07	1.2	3.7	6.7	7.4	5.2	4.2	3.7	2.9	2.5	4.9	7.9	15.6	16.0	10.6	2.7	1.0	96.4
3.0E-07	TO 2.0E-07	1.2	3.7	6.8	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.0	15.6	16.2	10.6	2.7	1.0	96.8
2.0E-07	TO 1.0E-07	1.2	3.7	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.0	15.6	16.2	10.6	2.8	1.0	97.0
1.0E-07	TO 7.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.0	15.6	16.2	10.6	2.8	1.1	97.2
7.5E-08	TO 5.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.1	15.7	16.2	10.6	2.8	1.1	97.5
5.0E-08	TO 2.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	16.4	10.9	2.8	1.1	98.7
2.5E-08	TO 1.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.848 E-4	2.426 E-4	7.345 E-4	5.114 E-4	7.699 E-4	8.730 E-4	5.443 E-4	6.525 E-4	9.868 E-4	4.953 E-4	4.742 E-4	5.005 E-4	4.975 E-4	4.236 E-4	5.225 E-4	4.512 E-4	8.883 E-4

5.0 PERCENTILE 3.245E-04

50.0 PERCENTILE 1.763E-05

2184 TOTAL HOURS INPUT 2024 HOURS USED ABOVE 92.63 PERCENT INCLUDED

01/29/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.961 E3	2.922 E3	2.887 E3	1.996 E3	1.963 E3	2.004 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
7.0E-05 TO 6.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
6.0E-05 TO 5.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	.1
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	.0	0.0	0.0	.1	0.0	0.0	.2
4.0E-05 TO 3.0E-05	.0	0.0	0.0	.0	.1	.0	.0	.0	.1	.1	.1	.0	0.0	.1	.0	.0	.9
3.0E-05 TO 2.0E-05	.1	.0	.1	.2	.3	.2	.1	.1	.2	.2	.2	.2	.1	.1	.2	.0	2.7
2.0E-05 TO 1.0E-05	.3	.3	.5	1.2	.8	.7	.4	.5	.5	.8	.7	.5	.7	.4	.3	.3	9.0
1.0E-05 TO 9.0E-06	.3	.3	.7	1.3	.8	.7	.5	.5	.5	.8	.9	.5	.8	.7	.4	.3	10.1
9.0E-06 TO 8.0E-06	.3	.4	.9	1.5	.9	.7	.6	.6	.5	1.0	.9	.6	1.0	.8	.5	.3	11.7
8.0E-06 TO 7.0E-06	.3	.4	1.0	1.6	1.1	.8	.7	.7	.7	1.2	1.1	.8	1.3	1.1	.6	.4	14.1
7.0E-06 TO 6.0E-06	.4	.4	1.2	1.8	1.4	1.1	.8	.9	.9	1.3	1.4	.9	1.6	1.2	.7	.4	16.6
6.0E-06 TO 5.0E-06	.4	.5	1.5	2.5	1.9	1.5	1.1	1.0	1.0	1.7	1.5	1.1	2.2	1.7	.7	.4	20.7
5.0E-06 TO 4.0E-06	.5	.6	2.2	3.1	2.4	1.7	1.3	1.3	1.2	2.1	1.7	1.4	2.6	2.1	.8	.4	25.3
4.0E-06 TO 3.0E-06	.5	.7	2.9	3.8	3.0	2.1	1.7	1.6	1.3	2.3	2.2	2.1	3.1	3.2	1.0	.5	31.6
3.0E-06 TO 2.0E-06	.7	1.1	3.6	4.6	3.4	2.3	2.3	1.7	1.6	2.9	3.0	3.3	4.8	4.3	1.2	.5	41.9
2.0E-06 TO 1.0E-06	1.0	2.5	5.1	6.3	4.2	3.4	2.9	2.4	1.9	3.8	4.7	7.6	8.5	5.4	1.9	.8	63.5
1.0E-06 TO 9.0E-07	1.3	2.7	5.2	6.5	4.2	3.4	3.0	2.4	2.0	3.9	5.1	8.4	9.2	6.9	2.0	.8	66.7
9.0E-07 TO 8.0E-07	1.3	2.9	5.3	6.6	4.3	3.5	3.2	2.4	2.1	4.0	5.3	9.4	10.4	7.5	2.1	.8	70.7
8.0E-07 TO 7.0E-07	1.0	3.0	5.6	6.7	4.3	3.5	3.4	2.4	2.2	4.2	5.6	10.1	11.6	8.0	2.1	.9	74.6
7.0E-07 TO 6.0E-07	1.0	3.1	5.7	6.8	4.4	3.6	3.5	2.6	2.2	4.3	5.9	10.6	12.4	8.4	2.2	.9	78.4
6.0E-07 TO 5.0E-07	1.1	3.4	5.9	7.1	4.5	3.8	3.5	2.6	2.2	4.4	6.1	11.8	13.8	9.0	2.3	.9	82.3
5.0E-07 TO 4.0E-07	1.1	3.4	6.1	7.2	4.7	3.8	3.5	2.6	2.4	4.6	6.8	13.2	15.2	9.5	2.5	.9	87.5
4.0E-07 TO 3.0E-07	1.1	3.5	6.4	7.2	4.9	4.0	3.6	2.7	2.5	4.7	7.3	14.4	16.0	9.8	2.7	1.0	91.7
3.0E-07 TO 2.0E-07	1.2	3.6	6.5	7.3	5.0	4.1	3.6	2.7	2.5	4.7	7.8	15.3	17.0	10.2	2.7	1.1	95.2
2.0E-07 TO 1.0E-07	1.2	3.6	6.5	7.4	5.1	4.1	3.6	2.8	2.5	4.8	8.0	16.0	17.3	10.7	2.7	1.1	97.6
1.0E-07 TO 7.5E-08	1.2	3.6	6.6	7.4	5.1	4.1	3.6	2.8	2.5	4.9	8.1	16.1	17.4	10.8	2.7	1.1	98.1
7.5E-08 TO 5.0E-08	1.2	3.7	6.7	7.4	5.1	4.1	3.7	2.8	2.5	4.9	8.1	16.2	17.5	10.8	2.7	1.1	98.5
5.0E-08 TO 2.5E-08	1.2	3.7	6.7	7.4	5.2	4.1	3.7	2.8	2.5	4.9	8.1	16.3	17.5	10.9	2.7	1.1	98.9
2.5E-08 TO 1.0E-08	1.2	3.8	6.8	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.2	16.3	17.5	10.9	2.8	1.1	99.4
1.0E-08 TO 7.5E-09	1.2	3.8	6.9	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.5
7.5E-09 TO 5.0E-09	1.2	3.8	6.9	7.5	5.2	4.1	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.5
5.0E-09 TO 2.5E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.8	2.5	4.9	8.2	16.4	17.5	10.9	2.8	1.1	99.6
2.5E-09 TO 1.0E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	3.910 E-5	2.642 E-5	2.383 E-5	3.713 E-5	3.941 E-5	3.655 E-5	3.073 E-5	5.074 E-5	3.518 E-5	4.720 E-5	4.257 E-5	3.371 E-5	2.616 E-5	6.699 E-5	3.887 E-5	3.781 E-5	6.694 E-5

5.0 PERCENTILE 1.552E-05

90.0 PERCENTILE 3.592E-05

2184 TOTAL HOURS INPUT 2029 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.861 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.094 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.557 E3	3.750 E3	2.316 E3	2.929 E3	
MAGNITUDE OF X/Q																		
4.0E-05	TO 3.0E-05	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
3.0E-05	TO 2.0E-05	0.0	0.0	.1	.1	0.0	.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.3
2.0E-05	TO 1.0E-05	.1	.1	.4	.7	.4	.3	.2	.3	.2	.4	.1	.2	.3	.2	.2	.1	4.5
1.0E-05	TO 9.0E-06	.1	.1	.5	.8	.5	.4	.2	.3	.2	.4	.2	.2	.4	.3	.2	.1	5.2
9.0E-06	TO 8.0E-06	.1	.1	.5	.9	.6	.4	.3	.4	.3	.5	.3	.3	.4	.3	.2	.1	6.2
8.0E-06	TO 7.0E-06	.1	.3	.6	1.1	.7	.5	.4	.5	.4	.6	.4	.3	.5	.6	.2	.1	7.7
7.0E-06	TO 6.0E-06	.2	.4	1.0	1.5	.9	.6	.5	.7	.4	.6	.6	.4	.7	.7	.3	.2	9.9
6.0E-06	TO 5.0E-06	.2	.7	1.3	1.8	1.2	.9	.6	.7	.4	.9	.7	.7	1.0	.9	.4	.2	12.8
5.0E-06	TO 4.0E-06	.2	.8	1.8	2.3	1.8	1.1	.8	.8	.6	.9	.9	.7	1.8	1.4	.6	.2	16.9
4.0E-06	TO 3.0E-06	.3	1.0	2.5	3.1	2.2	1.3	1.4	.9	.8	1.5	1.3	1.6	2.6	1.7	.7	.3	23.4
3.0E-06	TO 2.0E-06	.4	1.3	3.3	4.0	2.8	1.7	1.9	1.4	1.0	1.9	2.6	3.1	3.3	3.1	1.0	.3	33.6
2.0E-06	TO 1.0E-06	.5	2.6	4.3	5.7	3.5	2.4	2.5	1.8	1.7	2.4	4.1	6.7	8.2	5.5	1.6	.7	54.8
1.0E-06	TO 9.0E-07	.5	2.7	4.6	5.8	3.7	2.5	2.5	1.8	1.8	3.1	4.2	7.7	9.1	5.9	1.6	.7	58.3
9.0E-07	TO 8.0E-07	.6	2.8	4.9	6.1	3.8	2.7	2.6	2.0	1.9	3.3	4.5	8.6	9.6	6.5	1.9	.7	62.5
8.0E-07	TO 7.0E-07	.8	2.8	5.1	6.2	3.9	2.8	2.7	2.1	2.1	3.6	5.3	9.9	11.0	7.3	1.9	.7	68.4
7.0E-07	TO 6.0E-07	.8	2.9	5.4	6.5	4.2	2.9	3.1	2.3	2.1	3.8	5.5	11.0	12.2	7.8	2.1	.7	73.2
6.0E-07	TO 5.0E-07	.9	2.9	5.8	6.7	4.3	2.9	3.2	2.5	2.2	4.1	6.1	12.4	13.6	8.8	2.2	.7	79.3
5.0E-07	TO 4.0E-07	1.0	3.3	6.2	6.8	4.6	3.3	3.2	2.7	2.3	4.2	6.7	13.5	14.8	9.6	2.4	.9	85.2
4.0E-07	TO 3.0E-07	1.0	3.5	6.4	7.0	4.6	3.4	3.3	2.8	2.3	4.3	7.0	14.5	16.5	10.2	2.6	.9	90.3
3.0E-07	TO 2.0E-07	1.2	3.5	6.7	7.4	4.9	3.3	3.5	2.8	2.4	4.6	7.4	15.4	17.1	10.6	2.7	1.0	94.9
2.0E-07	TO 1.0E-07	1.2	3.7	6.8	7.5	5.1	4.1	3.8	2.9	2.4	4.8	7.9	16.0	17.5	10.9	2.7	1.1	98.2
1.0E-07	TO 7.5E-08	1.2	3.7	6.8	7.5	5.2	4.1	3.8	2.9	2.4	4.9	8.0	16.2	17.5	10.9	2.8	1.1	98.8
7.5E-08	TO 5.0E-08	1.2	3.7	6.8	7.5	5.2	4.2	3.8	2.9	2.4	4.9	8.0	16.3	17.5	10.9	2.8	1.1	99.1
5.0E-08	TO 2.5E-08	1.2	3.7	6.8	7.5	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.4
2.5E-08	TO 1.0E-08	1.2	3.7	6.8	7.5	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.6
1.0E-08	TO 7.5E-09	1.2	3.8	6.8	7.5	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.6
7.5E-09	TO 5.0E-09	1.2	3.8	6.9	7.5	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.7
5.0E-09	TO 2.5E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
2.5E-09	TO 1.0E-09	1.2	3.8	6.9	7.6	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.9
1.0E-09	TO 5.0E-10	1.2	3.8	6.9	7.6	5.2	4.2	3.8	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.955 E -5	1.745 E -5	3.347 E -5	2.063 E -5	1.596 E -5	2.430 E -5	1.761 E -5	1.411 E -5	2.030 E -5	1.471 E -5	1.381 E -5	1.933 E -5	1.856 E -5	1.322 E -5	1.659 E -5	1.827 E -5	3.347 E -5

5.0 PERCENTILE 9.253E-08

50.0 PERCENTILE 1.117E-06

2184 TOTAL HOURS INPUT 2029 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/28/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 12/1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.581 E3	2.429 E3	2.317 E3	1.976 E3	1.983 E3	2.044 E3	2.350 E3	1.596 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.416 E3	2.929 E3	
MAGNITUDE OF X/Q																	
9.0E-07 TO 8.0E-06	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
8.0E-06 TO 7.0E-06	0.0	0.0	.1	.1	.1	.0	0.0	.0	0.0	.1	0.0	.1	.0	.0	0.0	0.0	.7
7.0E-06 TO 6.0E-06	0.0	0.0	.3	.2	.2	.1	.0	.1	0.0	.1	0.0	.2	.0	.1	.0	0.0	1.7
6.0E-06 TO 5.0E-06	0.0	.1	.6	.7	.4	.2	.2	.2	.0	.1	.2	.2	.1	.2	.1	0.0	3.6
5.0E-06 TO 4.0E-06	.0	.4	.7	.9	.6	.4	.3	.2	.1	.3	.5	.4	.6	.3	.3	.1	6.5
4.0E-06 TO 3.0E-06	.2	.6	1.1	1.5	1.0	.7	.4	.5	.3	.8	.9	.9	1.1	.8	.4	.1	11.7
3.0E-06 TO 2.0E-06	.5	1.3	1.9	2.2	1.8	1.3	.8	.8	.5	1.4	1.7	2.1	2.4	1.3	.6	.2	20.9
2.0E-06 TO 1.0E-06	.7	2.1	3.6	4.2	3.0	2.1	1.7	1.2	1.1	2.4	3.3	5.8	5.5	3.2	1.1	.5	41.4
1.0E-06 TO 9.0E-07	.7	2.2	4.2	4.3	3.2	2.2	1.8	1.2	1.3	2.9	3.8	5.4	6.1	3.5	1.2	.5	45.4
9.0E-07 TO 8.0E-07	.9	2.4	4.5	4.7	3.4	2.3	1.9	1.2	1.4	2.9	3.9	7.3	7.0	4.1	1.5	.7	50.3
8.0E-07 TO 7.0E-07	.9	2.6	4.9	5.2	3.9	2.3	2.1	1.4	1.5	3.1	4.6	8.0	7.8	4.5	1.7	.8	55.3
7.0E-07 TO 6.0E-07	1.0	3.0	5.1	5.8	3.7	2.4	2.5	1.7	1.7	3.4	5.2	9.7	9.4	5.3	1.8	.9	63.0
6.0E-07 TO 5.0E-07	1.0	3.1	5.4	6.5	4.0	3.1	2.6	1.9	1.8	3.7	5.7	11.5	11.8	7.1	2.1	.9	72.5
5.0E-07 TO 4.0E-07	1.1	3.4	6.1	8.9	4.4	3.4	3.0	2.0	2.0	4.1	6.4	12.6	13.8	7.9	2.3	1.0	80.5
4.0E-07 TO 3.0E-07	1.2	3.5	6.5	7.3	4.8	3.7	3.3	2.6	2.2	4.6	7.3	13.9	15.5	9.1	2.6	1.1	89.3
3.0E-07 TO 2.0E-07	1.2	3.5	6.8	7.4	5.0	4.0	3.5	2.8	2.3	4.7	7.9	15.3	17.0	10.3	2.6	1.1	95.3
2.0E-07 TO 1.0E-07	1.2	3.7	6.9	7.5	5.1	4.1	3.7	2.9	2.5	4.9	8.0	16.2	17.3	10.9	2.8	1.1	98.8
1.0E-07 TO 7.5E-08	1.2	3.8	6.8	7.5	5.1	4.1	3.7	2.9	2.5	4.9	8.2	16.3	17.5	10.9	2.8	1.1	99.3
7.5E-08 TO 5.0E-08	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.5	11.0	2.8	1.1	99.7
5.0E-08 TO 2.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	99.9
2.5E-08 TO 1.0E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	11.0	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	4.564 E-6	5.636 E-6	7.751 E-6	6.633 E-6	7.098 E-6	7.181 E-6	6.596 E-6	7.571 E-6	5.114 E-6	8.071 E-6	5.827 E-6	7.364 E-6	7.947 E-6	7.358 E-6	6.482 E-6	4.780 E-6	8.533 E-6

50.0 PERCENTILE 4.482E-06

90.0 PERCENTILE 8.053E-07

2184 TOTAL HOURS INPUT 2029 HOURS USED ABOVE 92.90 PERCENT INCLUDED

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 024 HOURS

DATES 12/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.08E E3	2.92E E3	2.31E E3	1.99E E3	1.76E E3	2.04E E3	2.35E E3	1.99E E3	1.99E E3	3.63E E3	3.55E E3	3.95E E3	4.58E E3	3.75E E3	2.81E E3	2.92E E3	
MAGNITUDE OF X/Q																	
4.0E-06 TO 3.0E-06	0.0	0.0	.0	.0	0.0	.1	.0	0.0	0.0	0.0	0.0	0.0	.1	.0	0.0	0.0	.4
3.0E-06 TO 2.0E-06	.1	.2	.7	.9	.3	.4	.2	.2	.2	.4	.1	.4	1.0	.7	.2	.1	6.4
2.0E-06 TO 1.0E-06	.3	1.1	2.7	3.4	2.2	1.8	1.1	.9	.7	2.2	2.7	6.0	6.0	3.8	1.1	.3	37.1
1.0E-06 TO 9.0E-07	.8	1.7	3.5	4.2	2.7	2.4	1.7	1.3	.8	2.6	3.6	7.9	8.3	5.2	1.3	.4	48.5
9.0E-07 TO 8.0E-07	.9	2.1	4.3	5.0	3.3	2.9	2.2	1.6	1.1	3.6	5.0	9.7	11.0	6.6	1.6	.6	61.4
8.0E-07 TO 7.0E-07	1.0	3.4	5.1	5.6	3.8	3.3	2.3	2.2	1.5	3.9	5.6	10.9	13.0	7.7	2.1	.7	72.1
7.0E-07 TO 6.0E-07	1.1	3.4	5.6	6.1	4.5	3.5	3.0	2.5	1.9	4.3	6.8	13.3	14.3	8.7	2.3	.8	82.0
6.0E-07 TO 5.0E-07	1.2	3.5	6.2	6.7	4.8	3.9	3.3	2.6	2.1	4.5	7.4	14.3	16.0	10.0	2.6	.8	89.9
5.0E-07 TO 4.0E-07	1.2	3.6	6.5	7.0	4.9	4.2	3.5	2.8	2.2	4.7	7.8	15.7	16.9	10.7	2.7	.9	95.4
4.0E-07 TO 3.0E-07	1.2	3.7	6.7	7.3	5.2	4.2	3.7	2.9	2.3	4.7	8.0	16.0	17.2	10.8	2.7	1.0	97.6
3.0E-07 TO 2.0E-07	1.2	3.8	6.8	7.5	5.2	4.2	3.7	2.9	2.3	4.9	8.1	16.3	17.6	10.9	2.8	1.1	99.5
2.0E-07 TO 1.0E-07	1.2	3.8	6.8	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	99.9
1.0E-07 TO 7.5E-08	1.2	3.8	6.9	7.6	5.2	4.2	3.7	2.9	2.5	4.9	8.2	16.4	17.6	10.9	2.8	1.1	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.57E E-6	2.49E E-6	3.07E E-6	3.11E E-6	2.02E E-6	3.13E E-6	3.09E E-6	2.73E E-6	2.60E E-6	2.99E E-6	2.93E E-6	2.76E E-6	3.25E E-6	3.09E E-6	2.47E E-6	2.71E E-6	3.25E E-6

50.0 PERCENTILE 2.19YE-06

90.0 PERCENTILE 8.63IE-07

2184 TOTAL HOURS INPUT 2027 HOURS USED ABOVE 92.90 PERCENT INCLUDED

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 2.661 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.996 E3	W 1.963 E3	WNW 2.049 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.037 E3	NE 3.557 E3	ENE 3.557 E3	E 4.567 E3	ESE 3.750 E3	SE 2.816 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-03 TO 1.0E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
1.0E-03 TO 9.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
9.0E-04 TO 8.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
8.0E-04 TO 7.0E-04	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
7.0E-04 TO 6.0E-04	0.0	0.0	0.0	.1	.0	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
6.0E-04 TO 5.0E-04	.0	0.0	.0	.1	.0	0.0	.0	.1	.1	0.0	0.0	0.0	0.0	0.0	.0	0.0	.6
5.0E-04 TO 4.0E-04	.0	.0	.1	.2	.1	.1	.1	.1	.2	.1	0.0	.0	.0	0.0	.0	0.0	1.4
4.0E-04 TO 3.0E-04	.1	.1	.1	.2	.1	.1	.2	.2	.3	.1	.2	.1	.2	.1	.1	.0	2.6
3.0E-04 TO 2.0E-04	.1	.1	.2	.5	.3	.4	.2	.2	.5	.3	.8	.6	.4	.2	.2	.1	5.1
2.0E-04 TO 1.0E-04	.2	.3	.4	.9	.6	.8	.5	.4	.7	.8	1.6	1.0	.7	.3	.3	.2	9.5
1.0E-04 TO 9.0E-05	.2	.3	.4	1.0	.8	.8	.5	.4	.7	.8	1.6	1.1	.8	.3	.3	.2	10.1
9.0E-05 TO 8.0E-05	.2	.3	.6	1.1	.8	.9	.5	.4	.7	.9	1.7	1.2	.8	.3	.3	.3	11.0
8.0E-05 TO 7.0E-05	.2	.3	1.1	1.3	.9	1.0	.5	.4	.7	.9	1.9	1.3	.8	.3	.6	.3	12.6
7.0E-05 TO 6.0E-05	.2	.4	1.6	1.5	1.1	1.1	.7	.4	.8	.9	2.1	1.4	.8	.3	.6	.3	14.2
6.0E-05 TO 5.0E-05	.2	.5	2.0	1.7	1.2	1.1	.8	.5	.9	1.2	2.4	1.5	.9	.4	.6	.3	16.1
5.0E-05 TO 4.0E-05	.2	.6	2.5	1.8	1.4	1.3	.8	.5	.9	1.3	2.8	1.7	1.1	.6	.7	.3	18.5
4.0E-05 TO 3.0E-05	.3	.7	2.6	2.0	1.6	1.4	.8	.6	1.0	1.5	3.3	1.9	1.2	.7	1.0	.5	21.0
3.0E-05 TO 2.0E-05	.4	.8	3.4	2.7	2.0	1.8	.9	.7	1.1	1.7	3.8	2.6	1.5	1.2	1.1	.5	25.8
2.0E-05 TO 1.0E-05	.6	1.0	4.3	3.9	2.3	1.8	.9	.7	1.1	2.4	5.9	5.7	3.5	2.8	1.4	.5	38.5
1.0E-05 TO 9.0E-06	.6	1.1	4.4	4.2	2.4	1.8	.9	.7	1.2	2.4	6.1	6.1	4.3	3.0	1.4	.5	40.9
9.0E-06 TO 8.0E-06	.6	1.1	4.5	4.8	2.4	1.8	.9	.7	1.2	2.4	6.1	6.8	5.2	3.4	1.5	.6	43.6
8.0E-06 TO 7.0E-06	.6	1.2	4.6	4.9	2.5	1.7	.9	.7	1.2	2.4	6.5	7.8	6.6	4.0	1.5	.6	47.5
7.0E-06 TO 6.0E-06	.6	1.2	4.8	5.2	2.5	1.7	.9	.7	1.2	2.4	6.5	9.3	8.1	4.9	1.5	.6	52.0
6.0E-06 TO 5.0E-06	.6	1.2	5.0	5.3	2.6	1.7	.9	.7	1.2	2.4	6.7	10.5	9.8	5.7	1.5	.6	56.3
5.0E-06 TO 4.0E-06	.6	1.3	5.0	5.6	2.6	1.7	.9	.7	1.2	2.4	6.8	12.9	12.1	6.1	1.5	.6	62.0
4.0E-06 TO 3.0E-06	.6	1.4	5.2	5.9	2.6	1.7	.9	.7	1.2	2.5	6.9	13.8	15.3	6.9	1.5	.6	67.2
3.0E-06 TO 2.0E-06	.6	1.4	5.4	6.7	2.7	1.9	.9	.8	1.2	2.5	7.0	14.8	18.8	6.6	1.6	.6	73.5
2.0E-06 TO 1.0E-06	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.0	14.9	22.5	7.2	1.6	.7	78.7
1.0E-06 TO 9.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.0	15.1	22.5	7.3	1.6	.7	79.0
9.0E-07 TO 8.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.0	15.1	22.6	7.4	1.6	.7	79.2
8.0E-07 TO 7.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.0	15.2	22.8	7.5	1.6	.7	79.5
7.0E-07 TO 6.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.3	22.9	7.6	1.6	.7	79.9
6.0E-07 TO 5.0E-07	.6	1.4	5.7	7.0	2.7	1.9	.9	.8	1.2	2.6	7.1	15.4	23.2	7.6	1.6	.7	80.4
5.0E-07 TO 4.0E-07	.6	1.4	5.7	7.0	2.8	1.9	.9	.8	1.2	2.6	7.1	15.5	23.5	7.6	1.6	.7	80.9
4.0E-07 TO 3.0E-07	.6	1.4	5.7	7.1	2.8	1.9	.9	.8	1.2	2.6	7.1	15.5	23.9	7.7	1.6	.7	81.5
3.0E-07 TO 2.0E-07	.6	1.4	6.0	7.9	3.1	1.9	.9	.8	1.3	2.6	7.1	15.6	24.4	7.7	1.6	.7	83.5
2.0E-07 TO 1.0E-07	.6	1.4	6.5	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.1	15.6	24.2	7.7	1.6	.7	85.4
1.0E-07 TO 7.5E-08	.6	1.4	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.1	15.6	24.5	7.7	1.7	.8	85.6
7.5E-08 TO 5.0E-08	.7	1.4	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.1	15.6	24.5	7.8	1.7	.8	86.0
5.0E-08 TO 2.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	16.7	24.8	8.8	1.7	.8	88.6
2.5E-08 TO 1.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	34.3	9.0	1.7	.8	98.5
1.0E-08 TO 7.5E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.1	9.0	1.7	.8	99.7
7.5E-09 TO 5.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	99.9
5.0E-09 TO 2.5E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

ARAST CONDITION	5.462 E -4	4.226 E -4	5.824 E -4	7.301 E -4	6.064 E -4	4.821 E -4	2.488 E -4	1.134 E -3	6.249 E -4	4.120 E -4	3.804 E -4	4.490 E -4	4.146 E -4	3.786 E -4	2.884 E -4	3.824 E -4	1.134 E -3

5.0 PERCENTILE 2.033E-04

50.0 PERCENTILE 6.424E-06

[illegible] TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.00 PER[illegible] INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 2.681 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.996 E3	W 1.963 E3	WNW 2.044 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.637 E3	NE 3.557 E3	ENE 3.557 E3	E 4.587 E3	ESE 3.750 E3	SE 2.816 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
4.0E-05 TO 3.0E-05	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
3.0E-05 TO 2.0E-05	0.0	0.0	0.0	.2	.0	0.0	.0	.0	.1	0.0	.1	.1	.1	0.0	0.0	0.0	.9
2.0E-05 TO 1.0E-05	0.0	.0	.3	1.0	.2	.1	.1	.2	.2	.4	.5	.3	.7	.5	.1	.0	4.6
1.0E-05 TO 9.0E-06	0.0	.1	.3	1.1	.3	.1	.1	.2	.2	.5	.5	.3	.7	.6	.1	.1	5.3
9.0E-06 TO 8.0E-06	0.0	.1	.3	1.3	.4	.2	.1	.2	.3	.5	.6	.5	.9	.7	.1	.1	6.4
8.0E-06 TO 7.0E-06	0.0	.3	.8	1.7	.5	.2	.1	.3	.3	.5	.6	.7	1.1	.9	.1	.1	8.2
7.0E-06 TO 6.0E-06	0.0	.4	1.0	2.0	.7	.4	.2	.3	.4	.6	.7	.8	1.3	.9	.1	.1	9.8
6.0E-06 TO 5.0E-06	0.0	.4	1.2	2.3	.9	.6	.3	.3	.4	.7	.8	1.0	1.6	1.1	.2	.1	11.9
5.0E-06 TO 4.0E-06	.0	.5	1.6	2.8	1.1	.7	.3	.4	.5	.8	1.3	1.2	2.1	1.4	.2	.1	15.2
4.0E-06 TO 3.0E-06	.1	.5	2.5	3.4	1.7	.9	.4	.4	.6	.9	1.7	1.6	3.0	1.5	.5	.2	19.8
3.0E-06 TO 2.0E-06	.1	.6	3.3	4.4	2.0	1.1	.5	.4	.8	1.0	2.4	2.5	4.2	2.4	.7	.3	26.5
2.0E-06 TO 1.0E-06	.3	.9	4.1	5.4	2.3	1.4	.8	.6	.9	1.5	4.0	5.3	10.1	4.0	.9	.4	42.8
1.0E-06 TO 9.0E-07	.3	1.0	4.1	5.7	2.4	1.5	.9	.6	.9	1.7	4.3	6.0	11.7	4.2	1.0	.4	46.5
9.0E-07 TO 8.0E-07	.3	1.0	4.3	6.0	2.5	1.5	.9	.7	.9	1.8	4.6	6.8	13.3	4.5	1.0	.4	50.6
8.0E-07 TO 7.0E-07	.4	1.1	4.4	6.3	2.6	1.6	.9	.7	.9	2.0	4.8	7.7	15.3	4.9	1.0	.5	54.9
7.0E-07 TO 6.0E-07	.4	1.1	4.7	6.5	2.6	1.7	.9	.8	.9	2.0	5.1	8.5	17.1	5.4	1.2	.5	59.4
6.0E-07 TO 5.0E-07	.5	1.1	5.0	6.7	2.8	1.7	.9	.8	1.0	2.4	5.5	9.5	19.1	6.0	1.2	.5	64.7
5.0E-07 TO 4.0E-07	.5	1.2	5.1	7.0	2.9	1.8	.9	.8	1.2	2.4	5.8	10.7	21.6	6.6	1.3	.6	70.3
4.0E-07 TO 3.0E-07	.6	1.3	5.4	7.3	3.0	1.8	.9	.9	1.2	2.6	6.3	12.5	24.7	7.0	1.4	.6	77.4
3.0E-07 TO 2.0E-07	.6	1.4	5.6	7.5	3.0	1.9	.9	.9	1.3	2.6	6.6	13.9	27.6	7.7	1.5	.7	83.6
2.0E-07 TO 1.0E-07	.6	1.4	6.0	7.8	3.2	1.9	.9	.9	1.3	2.6	7.1	16.0	30.3	8.2	1.6	.8	90.5
1.0E-07 TO 7.5E-08	.6	1.4	6.1	7.9	3.2	1.9	.9	.9	1.3	2.6	7.1	16.2	31.0	8.3	1.6	.8	91.8
7.5E-08 TO 5.0E-08	.6	1.4	6.1	8.0	3.2	2.0	.9	.9	1.3	2.6	7.2	16.8	32.0	8.3	1.6	.8	93.8
5.0E-08 TO 2.5E-08	.6	1.5	6.3	8.1	3.3	2.0	.9	.9	1.3	2.6	7.2	16.8	32.3	8.4	1.7	.8	94.6
2.5E-08 TO 1.0E-08	.7	1.5	6.5	8.2	3.3	2.0	.9	.9	1.3	2.6	7.2	17.0	33.0	8.6	1.7	.8	96.2
1.0E-08 TO 7.5E-09	.7	1.5	6.6	8.2	3.3	2.0	.9	.9	1.3	2.6	7.2	17.0	33.1	8.6	1.7	.8	96.5
7.5E-09 TO 5.0E-09	.7	1.5	6.6	8.3	3.4	2.0	.9	.9	1.3	2.6	7.2	17.0	33.1	8.6	1.7	.8	96.6
5.0E-09 TO 2.5E-09	.7	1.5	6.6	8.3	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.2	34.5	8.9	1.7	.8	98.8
2.5E-09 TO 1.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.1	8.9	1.7	.8	99.7
1.0E-09 TO 5.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	4.843 E -6	1.292 E -5	1.759 E -5	3.388 E -5	2.251 E -5	1.711 E -5	2.474 E -5	2.401 E -5	4.949 E -5	1.945 E -5	2.554 E -5	2.301 E -5	2.317 E -5	1.862 E -5	1.420 E -5	1.169 E -5	4.949 E -5

5.0 PERCENTILE 9.426E-06

50.0 PERCENTILE 8.148E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 2.881 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.996 E3	W 1.963 E3	WNW 2.044 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.637 E3	NE 3.557 E3	ENE 3.557 E3	E 4.587 E3	ESE 3.750 E3	SE 2.816 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
3.0E-05 TO 2.0E-05	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
2.0E-05 TO 1.0E-05	0.0	.1	.1	.5	.1	.1	.1	.0	.0	.1	0.0	0.0	.3	.1	.0	0.0	1.7
1.0E-05 TO 9.0E-06	0.0	.1	.2	.6	.1	.1	.1	.1	.0	.1	0.0	.0	.3	.1	.0	0.0	2.0
9.0E-06 TO 8.0E-06	0.0	.1	.4	.8	.1	.1	.1	.1	.0	.1	0.0	.0	.5	.1	.1	0.0	2.6
8.0E-06 TO 7.0E-06	0.0	.1	.5	1.0	.1	.1	.1	.1	.0	.1	.1	.2	.8	.1	.1	0.0	3.7
7.0E-06 TO 6.0E-06	.0	.1	.6	1.3	.1	.1	.1	.1	.0	.1	.4	.3	1.0	.3	.2	0.0	4.9
6.0E-06 TO 5.0E-06	.0	.2	.9	2.1	.5	.2	.2	.2	.0	.1	.4	.4	1.4	.5	.2	.0	7.5
5.0E-06 TO 4.0E-06	.0	.3	1.2	2.9	.7	.4	.2	.2	.1	.2	.5	.7	1.9	.7	.2	.1	10.4
4.0E-06 TO 3.0E-06	.1	.5	2.0	3.9	.9	.5	.2	.2	.2	.3	1.0	.9	2.8	.9	.3	.1	14.9
3.0E-06 TO 2.0E-06	.1	.6	3.0	4.6	1.6	.8	.3	.4	.3	.5	1.5	1.6	4.4	1.4	.3	.3	21.6
2.0E-06 TO 1.0E-06	.2	.8	3.9	5.3	1.9	1.0	.5	.5	.5	1.0	2.3	3.7	8.9	2.9	.7	.4	34.5
1.0E-06 TO 9.0E-07	.2	.8	4.3	5.6	1.9	1.1	.6	.5	.6	1.1	2.5	4.2	11.4	3.3	.7	.4	39.0
9.0E-07 TO 8.0E-07	.2	.8	4.4	5.9	2.0	1.2	.6	.6	.7	1.3	2.7	4.6	13.6	3.6	.7	.5	43.4
8.0E-07 TO 7.0E-07	.3	.9	4.6	6.2	2.1	1.2	.6	.6	.7	1.3	3.1	5.4	16.1	4.2	.7	.5	48.7
7.0E-07 TO 6.0E-07	.4	.9	5.0	6.5	2.3	1.3	.7	.5	.8	1.5	3.5	6.5	18.5	4.8	.6	.6	54.7
6.0E-07 TO 5.0E-07	.4	.9	5.2	6.6	2.6	1.4	.7	.6	.9	1.5	4.1	7.7	21.1	5.4	1.0	.7	60.7
5.0E-07 TO 4.0E-07	.4	1.0	5.9	6.8	2.6	1.4	.8	.7	1.0	1.9	4.9	9.8	24.8	6.4	1.0	.7	70.0
4.0E-07 TO 3.0E-07	.5	1.1	6.1	7.2	2.8	1.5	.9	.7	1.1	2.1	5.6	12.3	27.9	7.4	1.1	.7	79.0
3.0E-07 TO 2.0E-07	.6	1.2	6.2	7.8	3.1	1.7	.9	.8	1.2	2.4	6.3	14.3	30.8	8.3	1.5	.8	87.8
2.0E-07 TO 1.0E-07	.6	1.3	6.5	8.1	3.4	1.9	1.0	.9	1.3	2.5	6.8	15.9	33.6	8.6	1.7	.8	94.7
1.0E-07 TO 7.5E-08	.6	1.3	6.5	8.2	3.4	1.9	1.0	.9	1.3	2.6	6.8	16.2	34.2	8.7	1.7	.8	95.8
7.5E-08 TO 5.0E-08	.6	1.4	6.5	8.2	3.4	2.0	1.0	.9	1.3	2.6	6.8	16.4	34.6	8.7	1.7	.8	96.8
5.0E-08 TO 2.5E-08	.6	1.4	6.6	8.2	3.4	2.0	1.0	.9	1.3	2.6	7.1	16.9	34.9	8.9	1.7	.8	97.3
2.5E-08 TO 1.0E-08	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.2	17.0	35.0	8.9	1.7	.8	98.9
1.0E-08 TO 7.5E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.2	17.0	35.1	8.9	1.7	.8	99.0
7.5E-09 TO 5.0E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.3	17.1	35.1	8.9	1.7	.8	99.2
5.0E-09 TO 2.5E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.1	8.9	1.7	.8	99.5
2.5E-09 TO 1.0E-09	.7	1.5	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.2	9.0	1.7	.8	99.7
1.0E-09 TO 5.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	6.417 E -6	1.694 E -5	1.270 E -5	2.478 E -5	1.312 E -5	1.489 E -5	1.311 E -5	1.200 E -5	1.544 E -5	1.295 E -5	7.952 E -6	9.723 E -6	1.185 E -5	1.277 E -5	1.103 E -5	5.784 E -6	2.478 E -5

5.0 PERCENTILE 5.963E-06

50.0 PERCENTILE 6.768E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.687 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																		
1.0E-05 TO	9.0E-06	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
9.0E-06 TO	8.0E-06	0.0	.0	0.0	.2	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0	.4
8.0E-06 TO	7.0E-06	0.0	.1	0.0	.2	.1	0.0	.0	.0	.1	.0	0.0	.1	.1	0.0	.0	.0	1.0
7.0E-06 TO	6.0E-06	0.0	.1	.0	.2	.1	.1	.0	.0	.1	.0	.1	.2	.3	.0	.1	.0	1.7
6.0E-06 TO	5.0E-06	0.0	.1	.1	.5	.1	.1	.0	.0	.1	.0	.2	.3	.3	.0	.1	.0	2.2
5.0E-06 TO	4.0E-06	0.0	.1	.1	.9	.1	.1	.0	.0	.1	.0	.3	.7	.6	.1	.1	.1	3.5
4.0E-06 TO	3.0E-06	0.0	.2	.4	1.1	.3	.2	.1	.1	.1	.3	.5	.9	.8	.1	.2	.1	5.5
3.0E-06 TO	2.0E-06	0.0	.3	.9	1.9	.5	.4	.1	.1	.2	.7	.7	1.8	1.8	.4	.2	.1	10.4
2.0E-06 TO	1.0E-06	.0	.6	1.9	3.3	1.2	.8	.4	.4	.5	1.6	2.4	4.5	5.5	1.8	.3	.2	25.4
1.0E-06 TO	9.0E-07	.0	.6	2.1	3.6	1.2	.8	.5	.5	.6	1.7	2.5	5.2	6.3	2.1	.3	.2	28.4
9.0E-07 TO	8.0E-07	.1	.6	2.2	3.9	1.3	.8	.6	.5	.8	1.7	3.0	6.2	8.0	2.8	.4	.3	33.2
8.0E-07 TO	7.0E-07	.1	.7	2.6	4.1	1.5	.9	.7	.5	.8	1.8	3.6	8.1	11.5	3.3	.5	.3	40.9
7.0E-07 TO	6.0E-07	.1	.9	2.8	4.2	1.6	1.1	.7	.6	.9	1.9	4.2	10.1	15.4	4.1	.6	.4	49.4
6.0E-07 TO	5.0E-07	.2	.9	3.1	4.3	1.7	1.4	.8	.7	.9	2.1	4.7	11.1	18.9	5.1	.8	.5	57.3
5.0E-07 TO	4.0E-07	.4	.9	3.6	5.1	1.9	1.7	.9	.8	.9	2.3	5.6	13.5	21.7	6.0	1.1	.6	66.9
4.0E-07 TO	3.0E-07	.5	1.1	4.6	6.2	2.4	1.9	.9	.8	1.0	2.4	6.4	14.8	27.5	7.3	1.3	.6	79.9
3.0E-07 TO	2.0E-07	.5	1.3	5.5	7.4	2.7	2.0	1.0	.9	1.2	2.5	7.0	15.1	31.5	8.1	1.6	.6	89.8
2.0E-07 TO	1.0E-07	.7	1.4	6.3	8.2	3.3	2.0	1.0	.9	1.3	2.5	7.3	17.2	33.8	8.6	1.7	.7	96.9
1.0E-07 TO	7.5E-08	.7	1.4	6.3	8.2	3.3	2.0	1.0	.9	1.3	2.5	7.3	17.3	34.1	8.9	1.7	.7	97.5
7.5E-08 TO	5.0E-08	.7	1.4	6.4	8.3	3.4	2.0	1.0	.9	1.3	2.5	7.3	17.3	34.4	8.9	1.7	.7	98.2
5.0E-08 TO	2.5E-08	.7	1.4	6.5	8.3	3.4	2.0	1.0	.9	1.3	2.5	7.4	17.4	34.7	8.9	1.7	.7	98.7
2.5E-08 TO	1.0E-08	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	34.9	9.0	1.7	.7	99.1
1.0E-08 TO	7.5E-09	.7	1.4	6.5	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.7	99.1
7.5E-09 TO	5.0E-09	.7	1.4	6.5	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.7	99.3
5.0E-09 TO	2.5E-09	.7	1.4	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.0	9.0	1.7	.8	99.4
2.5E-09 TO	1.0E-09	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.2	9.0	1.7	.8	99.9
1.0E-09 TO	5.0E-10	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		1.049 E -6	8.059 E -6	6.018 E -6	9.417 E -5	8.135 E -6	6.926 E -6	8.843 E -6	7.026 E -6	7.180 E -6	7.023 E -6	6.985 E -6	7.783 E -6	8.200 E -6	6.993 E -6	7.974 E -6	8.751 E -6	9.417 E -6

5.0 PERCENTILE 3.232E-06

50.0 PERCENTILE 5.916E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 524 HOURS

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT.

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION			S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)			2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																			
2.0E-06	TO	1.0E-06	.0	.4	.5	1.0	.4	.2	.1	.2	.5	.7	1.2	3.4	5.3	1.4	.4	0.0	16.0
1.0E-06	TO	9.0E-07	.1	.5	.6	1.4	.5	.3	.1	.3	.5	.9	1.3	4.0	6.2	1.7	.4	0.0	19.3
9.0E-07	TO	8.0E-07	.1	.6	1.2	1.8	.7	.5	.4	.4	.6	1.1	2.6	6.4	11.6	3.5	.6	.2	32.3
8.0E-07	TO	7.0E-07	.2	.8	2.0	2.5	1.1	.6	.4	.4	.8	1.4	3.4	7.8	16.0	4.5	.6	.3	42.9
7.0E-07	TO	6.0E-07	.6	1.1	3.5	4.6	1.9	1.0	.6	.5	.9	1.6	4.3	10.7	22.0	6.1	1.0	.4	60.8
6.0E-07	TO	5.0E-07	.6	1.2	4.8	6.4	2.3	1.4	.8	.7	1.2	2.1	5.5	12.8	28.4	7.1	1.2	.5	75.0
5.0E-07	TO	4.0E-07	.7	1.3	5.8	7.1	2.9	1.7	.9	.8	1.3	2.6	6.6	15.2	31.3	8.1	1.5	.8	88.5
4.0E-07	TO	3.0E-07	.7	1.4	6.0	7.5	3.3	1.9	.9	.9	1.3	2.6	7.0	16.0	33.3	8.5	1.6	.8	93.6
3.0E-07	TO	2.0E-07	.7	1.4	6.4	8.2	3.4	2.0	.9	.9	1.3	2.6	7.3	17.1	34.7	8.8	1.6	.8	98.0
2.0E-07	TO	1.0E-07	.7	1.4	6.5	8.4	3.4	2.0	.9	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.0
1.0E-07	TO	7.5E-08	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.1	35.1	8.9	1.7	.8	99.2
7.5E-08	TO	5.0E-08	.7	1.4	6.6	8.4	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.2	35.1	9.0	1.7	.8	99.4
5.0E-08	TO	2.5E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.3	35.2	9.0	1.7	.8	99.8
2.5E-08	TO	1.0E-08	.7	1.5	6.6	8.5	3.4	2.0	1.0	.9	1.3	2.6	7.4	17.4	35.3	9.0	1.7	.8	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.040 E -6	1.258 E -6	1.544 E -6	1.581 E -6	1.334 E -6	1.316 E -6	1.611 E -6	1.247 E -6	1.765 E -6	1.331 E -6	1.672 E -6	1.807 E -6	1.674 E -6	1.831 E -6	1.581 E -6	8.564 E -7	1.831 E -6

5.0 PERCENTILE 1.611E-06

50.0 PERCENTILE 6.584E-07

2208 TOTAL HOURS INPUT 2117 HOURS USED ABOVE 95.88 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: CENTERLINE B/SE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
7.0E-04 TO 6.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
6.0E-04 TO 5.0E-04	0.0	0.0	0.0	.0	.0	0.0	.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
5.0E-04 TO 4.0E-04	0.0	0.0	0.0	.0	.0	0.0	.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
4.0E-04 TO 3.0E-04	.1	0.0	0.0	.1	.1	.0	.0	.0	.2	.1	.2	0.0	.0	.1	0.0	0.0	1.1
3.0E-04 TO 2.0E-04	.2	.0	0.0	.1	.1	.1	.2	.0	.4	.5	.6	.2	.2	.2	0.0	0.0	2.8
2.0E-04 TO 1.0E-04	.3	.0	.0	.2	.1	.1	.2	.2	.6	.7	.7	.3	.4	.3	.0	0.0	4.3
1.0E-04 TO 9.0E-05	.3	.0	.0	.2	.2	.1	.2	.2	.6	.7	.7	.3	.4	.3	.1	.1	4.7
9.0E-05 TO 8.0E-05	.3	.0	.0	.3	.3	.1	.3	.2	.6	.8	.7	.4	.4	.3	.1	.1	5.0
8.0E-05 TO 7.0E-05	.4	.0	.1	.4	.3	.1	.3	.2	.7	.8	.9	.4	.4	.3	.1	.1	5.7
7.0E-05 TO 6.0E-05	.4	.1	.3	.4	.3	.1	.3	.2	.8	.9	1.1	.5	.4	.3	.1	.1	6.4
6.0E-05 TO 5.0E-05	.5	.2	.4	.4	.5	.2	.3	.2	.8	1.0	1.3	.6	.5	.4	.1	.1	7.4
5.0E-05 TO 4.0E-05	.5	.3	.4	.6	.5	.2	.3	.3	.9	1.2	1.4	.6	.5	.4	.1	.1	8.3
4.0E-05 TO 3.0E-05	.5	.3	.5	.7	.6	.3	.5	.4	.9	1.5	1.7	.8	.5	.4	.2	.2	9.9
3.0E-05 TO 2.0E-05	.6	.4	.6	.8	.7	.3	.5	.5	1.0	1.7	2.7	1.7	.7	.7	.2	.3	13.3
2.0E-05 TO 1.0E-05	.6	.4	.7	.8	.9	.3	.5	.6	1.0	2.4	4.8	6.5	2.2	2.0	.4	.5	24.6
1.0E-05 TO 9.0E-06	.6	.5	.7	.8	.9	.3	.5	.6	1.1	2.5	4.8	7.5	2.7	2.3	.5	.5	26.8
9.0E-06 TO 8.0E-06	.6	.5	.7	.8	1.0	.3	.5	.6	1.1	2.7	5.1	8.6	3.7	2.6	.5	.5	29.7
8.0E-06 TO 7.0E-06	.6	.5	.7	.9	1.0	.3	.5	.6	1.3	2.7	5.7	9.6	5.4	2.7	.5	.5	33.5
7.0E-06 TO 6.0E-06	.6	.6	.7	1.0	1.0	.3	.5	.6	1.3	2.8	5.9	12.0	6.6	2.9	.5	.6	37.7
6.0E-06 TO 5.0E-06	.6	.6	.7	1.0	1.0	.3	.6	.6	1.3	2.8	6.2	13.6	8.3	3.5	.6	.6	42.2
5.0E-06 TO 4.0E-06	.6	.7	.7	1.0	1.0	.3	.6	.6	1.3	2.8	6.4	15.4	11.0	3.9	.6	.6	47.6
4.0E-06 TO 3.0E-06	.7	.7	.7	1.1	1.1	.3	.6	.6	1.3	2.9	6.7	17.1	14.8	4.2	.7	.7	54.2
3.0E-06 TO 2.0E-06	.7	.7	.7	1.3	1.2	.3	.6	.6	1.3	3.1	6.7	18.4	19.0	4.8	.9	.7	60.7
2.0E-06 TO 1.0E-06	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.1	6.8	19.1	21.7	5.6	1.2	.7	66.0
1.0E-06 TO 9.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.1	6.8	19.3	21.9	5.8	1.2	.7	66.6
9.0E-07 TO 8.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.1	6.9	19.3	22.2	6.1	1.2	.7	67.2
8.0E-07 TO 7.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	6.9	19.4	22.7	6.1	1.3	.7	68.0
7.0E-07 TO 6.0E-07	.8	.7	.9	1.3	1.2	.3	.7	.6	1.4	3.2	6.9	19.7	23.5	6.3	1.3	.7	69.3
6.0E-07 TO 5.0E-07	.8	.7	.9	1.3	1.2	.4	.7	.6	1.4	3.2	6.9	19.8	23.7	6.6	1.3	.7	70.0
5.0E-07 TO 4.0E-07	.8	.7	.9	1.4	1.3	.4	.7	.6	1.4	3.2	7.0	19.8	24.5	6.7	1.3	.7	71.2
4.0E-07 TO 3.0E-07	.8	.7	.9	1.7	1.6	.4	.7	.7	1.4	3.2	7.0	19.8	25.1	6.8	1.3	.7	72.8
3.0E-07 TO 2.0E-07	.8	.7	1.3	2.3	1.7	.5	.7	.7	1.5	3.2	7.0	19.8	25.8	6.8	1.3	.7	75.4
2.0E-07 TO 1.0E-07	.8	.8	1.9	3.4	1.8	.6	.7	.7	1.6	3.2	7.0	19.9	25.8	6.8	1.3	.7	76.7
1.0E-07 TO 7.5E-08	.9	.8	1.9	3.4	1.8	.6	.7	.7	1.6	3.2	7.0	19.9	25.8	6.8	1.5	.7	77.1
7.5E-08 TO 5.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.3	7.2	20.7	25.8	7.2	1.5	.7	78.8
5.0E-08 TO 2.5E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.0	27.0	9.9	1.5	.7	85.4
2.5E-08 TO 1.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.2	9.9	1.5	.7	99.8
1.0E-08 TO 7.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	3.491 E-4	2.208 E-4	1.021 E-4	5.773 E-4	5.843 E-4	3.524 E-4	5.094 E-4	3.092 E-4	6.525 E-4	3.933 E-4	3.818 E-4	2.870 E-4	3.107 E-4	3.998 E-4	1.440 E-4	9.378 E-5	6.525 E-4

5.0 PERCENTILE 8.088E-05

50.0 PERCENTILE 3.601E-06

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																		
3.0E-05 TO	2.0E-05	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.1	.0	0.0	.0	0.0	0.0	0.0	.2
2.0E-05 TO	1.0E-05	0.0	0.0	.1	.2	.0	.1	.1	.1	0.0	.1	.2	.0	.3	.2	0.0	0.0	1.4
1.0E-05 TO	9.0E-06	0.0	0.0	.2	.3	.1	.1	.1	.1	0.0	.2	.2	.1	.4	.2	.0	0.0	2.0
9.0E-06 TO	8.0E-06	0.0	0.0	.2	.5	.1	.1	.1	.1	.0	.2	.2	.1	.4	.4	.0	0.0	2.6
8.0E-06 TO	7.0E-06	.0	0.0	.2	.6	.1	.1	.2	.1	.0	.2	.3	.2	.4	.4	.0	0.0	3.1
7.0E-06 TO	6.0E-06	.0	0.0	.3	.7	.1	.1	.2	.1	.0	.2	.4	.2	.5	.6	.0	0.0	3.7
6.0E-06 TO	5.0E-06	.1	.0	.3	.7	.1	.1	.2	.1	.1	.3	.5	.3	.7	.7	.1	.0	4.6
5.0E-06 TO	4.0E-06	.1	.1	.4	1.0	.1	.1	.3	.1	.1	.5	.6	.5	.9	.8	.1	.0	6.0
4.0E-06 TO	3.0E-06	.1	.2	.4	1.4	.1	.2	.3	.1	.3	.8	.9	.8	1.1	1.1	.2	.1	8.2
3.0E-06 TO	2.0E-06	.2	.3	.4	1.4	.1	.2	.4	.2	.5	1.3	1.4	1.6	1.9	1.7	.2	.2	12.0
2.0E-06 TO	1.0E-06	.2	.3	.9	1.9	.4	.2	.5	.3	.7	1.8	2.7	5.4	6.8	3.0	.3	.3	25.7
1.0E-06 TO	9.0E-07	.2	.3	1.0	1.9	.4	.2	.5	.3	.7	1.8	3.1	6.1	8.2	3.3	.4	.3	28.6
9.0E-07 TO	8.0E-07	.3	.3	1.1	2.0	.5	.2	.5	.3	.8	1.9	3.4	7.1	9.6	3.6	.5	.3	32.3
8.0E-07 TO	7.0E-07	.4	.3	1.2	2.1	.5	.3	.5	.3	.8	2.2	3.6	8.1	11.4	4.0	.5	.4	36.3
7.0E-07 TO	6.0E-07	.4	.4	1.2	2.1	.5	.3	.5	.3	.8	2.3	3.8	9.1	13.7	4.4	.5	.4	40.7
6.0E-07 TO	5.0E-07	.4	.4	1.3	2.2	.6	.3	.6	.4	.8	2.6	4.3	11.2	16.4	4.8	.7	.4	47.3
5.0E-07 TO	4.0E-07	.5	.4	1.4	2.2	.7	.3	.6	.4	.8	2.7	4.9	13.3	19.8	5.5	.8	.4	54.7
4.0E-07 TO	3.0E-07	.5	.4	1.5	2.3	.8	.3	.6	.5	1.0	2.9	5.5	15.1	23.4	6.3	.8	.4	62.4
3.0E-07 TO	2.0E-07	.7	.6	1.7	2.5	.9	.4	.7	.6	1.1	3.2	6.3	17.7	27.4	7.1	1.0	.4	72.3
2.0E-07 TO	1.0E-07	.8	.7	1.7	2.6	1.0	.4	.7	.6	1.4	3.3	6.8	19.7	31.6	7.8	1.2	.6	80.8
1.0E-07 TO	7.5E-08	.8	.7	1.8	2.7	1.1	.5	.7	.6	1.4	3.3	6.9	20.4	32.6	8.1	1.2	.6	83.4
7.5E-08 TO	5.0E-08	.8	.8	1.9	2.9	1.2	.5	.7	.6	1.4	3.4	6.9	21.0	33.6	8.6	1.3	.6	86.0
5.0E-08 TO	2.5E-08	.9	.9	1.9	3.0	1.3	.5	.7	.7	1.4	3.4	7.0	21.2	35.3	8.8	1.4	.6	89.1
2.5E-08 TO	1.0E-08	1.0	.9	2.0	3.2	1.5	.5	.7	.7	1.5	3.4	7.2	21.9	36.3	9.0	1.4	.7	91.8
1.0E-08 TO	7.5E-09	1.0	.9	2.0	3.3	1.6	.5	.7	.7	1.5	3.4	7.3	22.0	36.4	9.0	1.4	.7	92.4
7.5E-09 TO	5.0E-09	1.0	.9	2.0	3.3	1.7	.5	.7	.7	1.6	3.4	7.3	22.1	37.1	9.1	1.4	.7	93.3
5.0E-09 TO	2.5E-09	1.0	.9	2.0	3.3	1.7	.5	.7	.7	1.6	3.4	7.3	22.6	40.1	9.6	1.4	.7	97.5
2.5E-09 TO	1.0E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.2	9.9	1.5	.7	99.6
1.0E-09 TO	5.0E-10	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	7.362 E -6	5.557 E -6	1.821 E -5	1.895 E -5	2.347 E -5	1.171 E -5	1.987 E -5	1.300 E -5	8.227 E -6	2.910 E -5	2.432 E -5	1.012 E -5	2.130 E -5	1.624 E -5	9.672 E -6	5.060 E -6	2.910 E -5

5.0 PERCENTILE 4.664E-06

50.0 PERCENTILE 4.610E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.936 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
2.0E-05 TO 1.0E-05	0.0	0.0	.2	.1	.0	.0	0.0	0.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.5
1.0E-05 TO 9.0E-06	.0	0.0	.3	.1	.0	.0	0.0	0.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.7
9.0E-06 TO 8.0E-06	.1	0.0	.3	.1	.0	.0	0.0	0.0	.0	0.0	0.0	.0	.0	0.0	0.0	.0	.8
8.0E-06 TO 7.0E-06	.1	0.0	.3	.1	.1	.0	0.0	0.0	.0	0.0	0.0	.0	.0	0.0	0.0	.0	.9
7.0E-06 TO 6.0E-06	.1	0.0	.4	.3	.1	.0	0.0	0.0	.0	0.0	0.0	.0	.2	.0	0.0	.0	1.3
6.0E-06 TO 5.0E-06	.1	0.0	.4	.4	.1	.1	0.0	0.0	.1	.1	0.0	.1	.2	.1	.0	.1	2.0
5.0E-06 TO 4.0E-06	.1	.0	.4	.7	.2	.1	.0	0.0	.1	.2	.1	.1	.6	.3	.1	.1	3.4
4.0E-06 TO 3.0E-06	.2	.0	.6	.9	.3	.1	.0	0.0	.1	.4	.3	.4	1.0	.5	.1	.1	5.0
3.0E-06 TO 2.0E-06	.2	.1	.8	1.4	.5	.1	.1	.0	.2	.5	.5	.7	1.5	.9	.1	.1	7.8
2.0E-06 TO 1.0E-06	.4	.3	1.2	1.8	.9	.1	.2	.1	.2	.8	.9	1.8	4.8	2.1	.5	.2	16.5
1.0E-06 TO 9.0E-07	.4	.3	1.3	1.8	1.0	.2	.2	.1	.3	.8	1.0	2.2	5.5	2.3	.6	.3	18.3
9.0E-07 TO 8.0E-07	.4	.3	1.4	1.9	1.0	.3	.2	.1	.4	.8	1.2	3.1	7.3	2.6	.6	.3	22.0
8.0E-07 TO 7.0E-07	.5	.5	1.5	2.1	1.0	.3	.3	.1	.4	.9	1.4	4.0	9.5	3.1	.7	.4	26.5
7.0E-07 TO 6.0E-07	.5	.5	1.6	2.3	1.2	.4	.3	.1	.5	1.1	1.7	5.3	11.5	3.9	.8	.5	32.0
6.0E-07 TO 5.0E-07	.6	.5	1.7	2.5	1.3	.4	.3	.2	.6	1.4	2.0	6.8	15.6	4.4	.8	.5	39.7
5.0E-07 TO 4.0E-07	.7	.5	1.8	2.6	1.4	.4	.4	.2	.7	2.0	2.5	8.9	20.4	5.7	1.1	.5	49.8
4.0E-07 TO 3.0E-07	.8	.5	1.9	2.9	1.4	.5	.4	.4	.9	2.5	3.2	12.0	26.8	7.0	1.1	.5	62.8
3.0E-07 TO 2.0E-07	.9	.6	2.0	3.0	1.6	.5	.5	.5	.9	2.8	4.3	16.3	33.2	8.0	1.3	.5	76.7
0E-07 TO 1.0E-07	.9	.8	2.0	3.2	1.7	.5	.6	.6	1.3	3.1	5.4	19.8	38.0	9.3	1.4	.6	89.1
-07 TO 7.5E-08	1.0	.8	2.0	3.2	1.7	.5	.6	.6	1.4	3.1	5.5	20.4	39.1	9.7	1.4	.6	91.5
7.. 08 TO 5.0E-08	1.0	.8	2.0	3.2	1.7	.5	.6	.6	1.4	3.1	5.7	20.6	39.7	9.7	1.4	.6	92.6
5.0E-.. TO 2.5E-08	1.0	.9	2.0	3.3	1.7	.5	.6	.7	1.4	3.2	5.9	21.3	40.2	9.8	1.4	.6	94.5
2.5E-08 TO 1.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.4	3.4	6.5	21.8	40.5	9.8	1.4	.6	96.4
1.0E-08 TO 7.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.4	3.4	6.7	22.0	40.7	9.9	1.4	.6	97.1
7.5E-09 TO 5.0E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.4	3.4	6.8	22.2	40.7	9.9	1.4	.6	97.4
5.0E-09 TO 2.5E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	6.8	22.4	40.9	9.9	1.4	.6	98.0
2.5E-09 TO 1.0E-09	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.1	22.9	41.2	9.9	1.4	.7	99.1
1.0E-09 TO 5.0E-10	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	9.936 E -6	4.052 E -6	1.486 E -5	1.025 E -5	1.455 E -5	1.052 E -5	4.090 E -6	2.326 E -6	1.175 E -5	5.389 E -6	4.827 E -6	8.108 E -6	1.216 E -5	6.180 E -6	5.821 E -6	8.620 E -6	1.486 E -5

5.0 PERCENTILE 3.016E-06

50.0 PERCENTILE 3.982E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
7.0E-06 TO 6.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	.1
6.0E-06 TO 5.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	.1
5.0E-06 TO 4.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	.0	0.0	0.0	0.0	0.0	0.0	.1
4.0E-06 TO 3.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	.1	.0	.1	0.0	0.0	0.0	.5
3.0E-06 TO 2.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.4	.5	.9	.0	0.0	0.0	2.0
2.0E-06 TO 1.0E-06	.2	.0	.1	.5	.2	.1	.1	.1	.2	.4	1.5	2.3	4.1	1.0	.1	0.0	11.0
1.0E-06 TO 9.0E-07	.2	.1	.1	.5	.3	.1	.1	.1	.2	.6	1.9	2.9	5.1	1.1	.1	.0	13.5
9.0E-07 TO 8.0E-07	.2	.2	.4	.8	.4	.1	.2	.1	.3	.8	2.2	3.7	6.2	1.9	.2	.0	17.8
8.0E-07 TO 7.0E-07	.4	.3	.8	1.1	.7	.2	.2	.3	.4	1.0	2.8	5.1	8.1	2.4	.4	.0	24.3
7.0E-07 TO 6.0E-07	.4	.4	.8	1.2	.8	.2	.3	.3	.5	1.3	3.4	6.8	10.5	2.8	.5	.2	30.2
6.0E-07 TO 5.0E-07	.5	.4	1.1	1.7	1.1	.3	.4	.4	.6	1.6	3.7	9.1	14.6	3.8	.7	.3	40.3
5.0E-07 TO 4.0E-07	.6	.5	1.3	2.0	1.2	.4	.4	.5	.8	2.1	4.4	11.6	18.4	4.8	.7	.4	50.0
4.0E-07 TO 3.0E-07	.7	.6	1.5	2.8	1.4	.4	.5	.7	1.2	2.6	5.4	15.5	27.4	6.5	1.1	.5	68.8
3.0E-07 TO 2.0E-07	.8	.7	1.7	3.1	1.7	.5	.6	.7	1.3	3.0	6.6	18.5	34.0	7.9	1.4	.6	83.1
2.0E-07 TO 1.0E-07	.9	.8	1.8	3.2	1.8	.5	.7	.7	1.5	3.3	7.0	20.5	37.8	8.9	1.4	.7	91.3
1.0E-07 TO 7.5E-08	.9	.8	1.8	3.2	1.8	.6	.7	.7	1.5	3.4	7.2	21.1	38.3	9.0	1.4	.7	93.0
7.5E-08 TO 5.0E-08	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.0	39.0	9.1	1.4	.7	95.2
5.0E-08 TO 2.5E-08	.9	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.4	39.7	9.3	1.4	.7	96.5
2.5E-08 TO 1.0E-08	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.4	40.2	9.5	1.4	.7	97.3
1.0E-08 TO 7.5E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.5	40.3	9.5	1.4	.7	97.5
7.5E-09 TO 5.0E-09	1.0	.8	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.5	40.4	9.6	1.4	.7	97.8
5.0E-09 TO 2.5E-09	1.0	.9	1.9	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.7	40.8	9.7	1.4	.7	98.4
2.5E-09 TO 1.0E-09	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.5	3.4	7.4	22.8	41.1	9.9	1.5	.7	99.3
1.0E-09 TO 5.0E-10	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	23.0	41.3	10.0	1.5	.7	99.7
5.0E-10 TO 1.0E-10	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.6	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.782 E -6	1.397 E -6	1.972 E -6	1.786 E -6	1.229 E -6	1.725 E -6	1.785 E -6	1.785 E -6	1.938 E -6	6.808 E -6	4.374 E -6	3.182 E -6	3.621 E -6	2.833 E -6	1.048 E -6	9.074 E -7	6.808 E -6

5.0 PERCENTILE 1.589E-06

50.0 PERCENTILE 4.002E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																		
2.0E-06 TO	1.0E-06	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.1	.2	0.0	0.0	0.0	.5
1.0E-06 TO	9.0E-07	0.0	.0	.1	.1	.0	0.0	0.0	.1	0.0	.0	.1	.6	1.0	.1	0.0	0.0	2.3
9.0E-07 TO	8.0E-07	0.0	.0	.1	.2	.0	0.0	.1	.1	.0	.2	.4	1.3	2.5	.6	.0	0.0	5.6
8.0E-07 TO	7.0E-07	0.0	.1	.2	.4	.1	.0	.1	.1	.3	.6	1.0	2.6	4.5	1.3	.2	0.0	11.6
7.0E-07 TO	6.0E-07	.2	.3	.5	.6	.2	.1	.3	.2	.5	1.0	1.8	5.8	8.7	2.2	.4	.1	23.1
6.0E-07 TO	5.0E-07	.3	.4	.8	.9	.4	.2	.4	.4	.6	1.4	2.9	9.6	17.8	3.9	.6	.2	40.7
5.0E-07 TO	4.0E-07	.5	.5	1.1	1.7	.9	.4	.6	.5	1.1	2.2	4.3	15.2	28.0	6.5	1.0	.3	64.7
4.0E-07 TO	3.0E-07	.7	.6	1.6	2.4	1.5	.5	.7	.6	1.2	2.9	5.7	18.1	33.5	8.4	1.1	.5	79.8
3.0E-07 TO	2.0E-07	.9	.7	1.8	2.6	1.6	.6	.7	.6	1.3	3.0	6.4	19.7	36.9	9.0	1.3	.6	87.8
2.0E-07 TO	1.0E-07	1.0	.8	2.0	3.2	1.8	.6	.7	.7	1.4	3.2	6.8	21.8	40.0	9.6	1.4	.6	95.4
1.0E-07 TO	7.5E-08	1.0	.8	2.0	3.3	1.8	.6	.7	.7	1.6	3.3	7.2	22.0	40.4	9.8	1.4	.6	97.0
7.5E-08 TO	5.0E-08	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.2	22.4	40.9	9.9	1.4	.7	98.3
5.0E-08 TO	2.5E-08	1.0	.9	2.0	3.3	1.8	.6	.7	.7	1.6	3.4	7.4	22.8	41.3	9.9	1.5	.7	99.4
2.5E-08 TO	1.0E-08	1.0	.9	2.0	3.4	1.8	.6	.7	.7	1.5	3.4	7.4	23.1	41.4	10.0	1.5	.7	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.905 E -7	9.312 E -7	1.062 E -6	1.062 E -6	9.638 E -7	7.459 E -7	8.396 E -7	9.558 E -7	8.347 E -7	1.059 E -6	9.592 E -7	1.121 E -6	1.122 E -6	9.698 E -7	8.214 E -7	6.910 E -7	1.122 E -6

5.0 PERCENTILE 8.181E-07

50.0 PERCENTILE 4.586E-07

2208 TOTAL HOURS INPUT 2147 HOURS USED ABOVE 97.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.416 E3	2.929 E3	
MAGNITUDE OF X/Q																		
9.0E-04 TO	8.0E-04	0.0	0.0	0.0	.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
8.0E-04 TO	7.0E-04	0.0	0.0	0.0	.1	.0	.1	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.4
7.0E-04 TO	6.0E-04	.0	0.0	.1	.3	.2	.2	.2	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
6.0E-04 TO	5.0E-04	.1	0.0	.2	.3	.2	.2	.4	.2	.5	0.0	0.0	0.0	0.0	0.0	.0	0.0	2.2
5.0E-04 TO	4.0E-04	.2	.0	.3	.4	.4	.4	.7	.4	.8	.1	.2	.2	0.0	.3	.2	.1	4.8
4.0E-04 TO	3.0E-04	.2	.1	.4	.6	.6	.9	.8	.7	1.0	.5	1.0	1.1	.3	.7	.3	.2	9.5
3.0E-04 TO	2.0E-04	.3	.2	.5	.9	.8	1.1	.9	.9	1.2	1.3	2.4	1.9	.9	1.0	.6	.4	15.2
2.0E-04 TO	1.0E-04	.5	.5	1.0	1.6	1.2	1.4	1.2	1.2	1.3	2.6	3.1	2.5	1.4	1.2	.7	.6	21.8
1.0E-04 TO	9.0E-05	.6	.5	1.1	1.8	1.4	1.5	1.2	1.2	1.4	2.8	3.2	2.5	1.4	1.2	.8	.6	23.1
9.0E-05 TO	8.0E-05	.6	.6	1.4	2.1	1.6	1.6	1.2	1.3	1.4	3.0	3.2	2.6	1.4	1.2	.9	.6	24.7
8.0E-05 TO	7.0E-05	.6	.6	2.0	2.5	1.8	1.8	1.3	1.3	1.5	3.1	3.4	2.7	1.5	1.3	1.0	.6	27.1
7.0E-05 TO	6.0E-05	.6	.9	2.5	3.1	2.4	1.9	1.4	1.3	1.5	3.3	3.6	2.8	1.6	1.4	1.0	.6	29.8
6.0E-05 TO	5.0E-05	.7	1.1	3.2	3.5	2.7	2.0	1.5	1.3	1.7	3.4	3.9	3.0	1.6	1.4	1.1	.6	32.7
5.0E-05 TO	4.0E-05	.7	1.3	4.3	4.3	3.2	2.2	1.7	1.5	1.9	3.9	4.5	3.2	1.7	1.6	1.2	.7	38.0
4.0E-05 TO	3.0E-05	.8	1.7	4.7	4.8	3.5	2.4	1.7	1.5	2.1	4.1	5.1	3.4	1.8	1.9	1.3	.8	41.6
3.0E-05 TO	2.0E-05	1.0	1.9	5.3	5.6	3.9	2.5	1.8	1.6	2.1	4.6	6.1	4.2	2.1	2.2	1.5	1.0	47.3
2.0E-05 TO	1.0E-05	1.1	2.0	5.8	7.2	5.4	2.6	1.9	1.9	2.1	4.9	7.6	7.1	3.4	3.7	1.7	1.0	59.4
1.0E-05 TO	9.0E-06	1.1	2.0	5.9	7.4	5.5	2.6	1.9	1.9	2.1	5.0	7.7	7.5	3.8	3.9	1.7	1.0	61.1
9.0E-06 TO	8.0E-06	1.1	2.0	6.0	7.7	5.6	2.6	2.0	1.9	2.1	5.0	7.9	8.2	4.4	4.3	1.7	1.0	63.5
8.0E-06 TO	7.0E-06	1.2	2.1	6.2	7.8	5.6	2.6	2.2	2.0	2.1	5.0	8.2	9.2	4.9	4.5	1.7	1.0	66.2
7.0E-06 TO	6.0E-06	1.2	2.2	6.3	8.0	5.8	2.6	2.2	2.0	2.2	5.0	8.4	10.1	5.6	4.8	1.7	1.0	69.1
6.0E-06 TO	5.0E-06	1.2	2.3	6.3	8.2	5.9	2.6	2.2	2.0	2.2	5.0	8.7	11.3	6.7	5.3	1.7	1.0	72.7
5.0E-06 TO	4.0E-06	1.2	2.4	6.4	8.4	5.9	2.6	2.2	2.1	2.2	5.1	8.9	12.4	8.4	5.9	1.8	1.1	77.1
4.0E-06 TO	3.0E-06	1.2	2.4	6.5	8.8	6.0	2.7	2.2	2.1	2.2	5.2	9.1	13.6	10.5	6.2	1.8	1.1	81.6
3.0E-06 TO	2.0E-06	1.2	2.4	6.7	9.0	6.1	2.7	2.2	2.2	2.3	5.3	9.2	14.5	12.4	6.3	1.8	1.1	85.3
2.0E-06 TO	1.0E-06	1.3	2.5	6.7	9.1	6.2	2.7	2.3	2.2	2.3	5.3	9.3	14.9	13.7	6.7	1.9	1.2	88.1
1.0E-06 TO	9.0E-07	1.3	2.5	6.7	9.1	6.3	2.7	2.3	2.2	2.3	5.3	9.3	14.9	13.8	6.7	1.9	1.2	88.4
9.0E-07 TO	8.0E-07	1.3	2.5	6.7	9.1	6.3	2.7	2.3	2.2	2.3	5.3	9.3	14.9	14.0	6.7	1.9	1.2	88.7
8.0E-07 TO	7.0E-07	1.3	2.5	6.7	9.1	6.3	2.7	2.3	2.2	2.3	5.3	9.3	14.9	14.2	6.8	1.9	1.2	89.0
7.0E-07 TO	6.0E-07	1.3	2.5	6.7	9.1	6.3	2.8	2.3	2.2	2.3	5.3	9.3	14.9	14.3	6.8	1.9	1.2	89.4
6.0E-07 TO	5.0E-07	1.3	2.5	6.7	9.2	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.1	14.3	6.8	1.9	1.2	89.6
5.0E-07 TO	4.0E-07	1.3	2.5	6.7	9.4	6.3	2.8	2.3	2.2	2.3	5.4	9.3	15.1	14.7	6.8	1.9	1.2	90.2
4.0E-07 TO	3.0E-07	1.3	2.5	6.8	10.0	6.5	2.8	2.3	2.3	2.3	5.4	9.3	15.1	14.9	6.8	1.9	1.2	91.5
3.0E-07 TO	2.0E-07	1.3	2.5	6.9	11.0	6.7	2.8	2.3	2.3	2.3	5.4	9.3	15.1	15.1	6.8	1.9	1.2	93.1
2.0E-07 TO	1.0E-07	1.3	2.6	7.5	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.3	15.2	15.2	6.8	1.9	1.2	94.5
1.0E-07 TO	7.5E-08	1.4	2.6	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.3	15.2	15.2	6.9	1.9	1.2	94.7
7.5E-08 TO	5.0E-08	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.3	15.4	15.2	7.0	1.9	1.3	95.2
5.0E-08 TO	2.5E-08	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.5	15.6	7.1	1.9	1.3	96.9
2.5E-08 TO	1.0E-08	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.1	7.2	1.9	1.3	99.7
1.0E-08 TO	7.5E-09	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	6.601 E-4	4.512 E-4	6.928 E-4	8.883 E-4	7.656 E-4	8.730 E-4	6.893 E-4	8.883 E-4	6.897 E-4	4.641 E-4	4.772 E-4	4.742 E-4	3.913 E-4	4.887 E-4	5.225 E-4	4.777 E-4	8.883 E-4

5.0 PERCENTILE 3.944E-04

50.0 PERCENTILE 1.716E-05

2144 TOTAL HOURS INPUT 2141 HOURS USED ABOVE 99.9% PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.861 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.329 E3	
MAGNITUDE OF X/Q																	
6.0E-05 TO 5.0E-05	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.1
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	.2
4.0E-05 TO 3.0E-05	0.0	0.0	.0	.0	.1	.0	.0	.1	0.0	0.0	.1	.1	.0	0.0	0.0	0.0	.7
3.0E-05 TO 2.0E-05	0.0	.0	.2	.5	.3	.1	.1	.1	.1	.4	.2	.5	.2	.1	0.0	0.0	2.9
2.0E-05 TO 1.0E-05	.1	.1	1.0	1.7	.9	.6	.6	.5	.4	1.5	1.1	1.5	1.3	.8	.3	.2	12.7
1.0E-05 TO 9.0E-06	.2	.1	1.2	2.1	1.1	.7	.7	.6	.5	1.6	1.2	1.7	1.5	1.0	.3	.3	14.9
9.0E-06 TO 8.0E-06	.2	.1	1.2	2.5	1.2	.8	.8	.7	.6	1.8	1.4	2.1	1.7	1.1	.3	.3	17.0
8.0E-06 TO 7.0E-06	.3	.2	1.4	2.8	1.4	.9	.9	.9	.6	2.0	1.8	2.5	2.1	1.2	.3	.3	19.9
7.0E-06 TO 6.0E-06	.3	.2	1.9	3.5	1.8	1.0	1.0	.9	.8	2.2	2.0	2.9	2.3	1.6	.3	.4	23.2
6.0E-06 TO 5.0E-06	.4	.4	2.4	4.1	2.1	1.1	1.2	1.0	.9	2.5	2.3	3.2	2.6	1.8	.4	.5	26.7
5.0E-06 TO 4.0E-06	.6	.7	2.7	5.1	2.5	1.3	1.3	1.1	1.0	2.5	2.6	3.7	3.2	2.3	.5	.6	31.7
4.0E-06 TO 3.0E-06	.7	1.0	3.1	6.5	2.9	1.5	1.6	1.2	1.2	3.0	3.4	4.3	3.7	2.9	.8	.8	38.6
3.0E-06 TO 2.0E-06	.7	1.6	3.8	7.6	3.4	1.7	1.9	1.3	1.4	3.9	4.5	5.4	5.2	3.7	.9	.9	48.0
2.0E-06 TO 1.0E-06	1.0	1.9	5.3	9.2	4.3	2.1	2.2	1.6	1.9	4.7	6.2	8.5	8.6	5.3	1.2	1.1	65.2
1.0E-06 TO 9.0E-07	1.1	2.0	5.3	9.3	4.4	2.2	2.2	1.6	1.9	4.7	6.4	8.7	9.0	5.6	1.3	1.1	67.0
9.0E-07 TO 8.0E-07	1.1	2.1	5.4	9.4	4.5	2.3	2.3	1.7	1.9	4.7	6.9	9.4	9.7	5.8	1.5	1.1	70.0
8.0E-07 TO 7.0E-07	1.2	2.2	5.6	9.6	4.7	2.4	2.3	1.8	2.0	4.8	7.1	10.1	10.6	6.2	1.6	1.1	73.3
7.0E-07 TO 6.0E-07	1.2	2.2	5.9	9.8	5.0	2.5	2.3	1.9	2.1	4.9	7.5	10.7	11.1	6.5	1.6	1.2	76.3
6.0E-07 TO 5.0E-07	1.2	2.3	6.3	9.9	5.3	2.5	2.3	1.9	2.2	4.9	7.6	11.5	11.9	6.6	1.7	1.2	79.5
5.0E-07 TO 4.0E-07	1.3	2.4	6.5	10.0	5.6	2.6	2.3	2.0	2.2	4.9	8.0	12.3	13.0	6.8	1.7	1.2	82.8
4.0E-07 TO 3.0E-07	1.3	2.5	6.9	10.2	5.8	2.6	2.4	2.1	2.2	5.0	8.5	13.5	14.1	6.8	1.8	1.2	86.9
3.0E-07 TO 2.0E-07	1.4	2.5	7.1	10.5	5.9	2.7	2.4	2.2	2.2	5.1	8.9	14.6	15.5	6.9	1.8	1.2	91.0
2.0E-07 TO 1.0E-07	1.4	2.6	7.3	10.8	6.2	2.8	2.4	2.2	2.3	5.2	9.2	16.0	16.4	7.0	1.9	1.3	94.7
1.0E-07 TO 7.5E-08	1.4	2.6	7.3	10.9	6.2	2.8	2.4	2.2	2.3	5.2	9.3	16.1	16.5	7.0	1.9	1.3	95.2
7.5E-08 TO 5.0E-08	1.4	2.6	7.4	10.9	6.2	2.8	2.4	2.2	2.3	5.3	9.3	16.2	16.8	7.0	1.9	1.3	96.1
5.0E-08 TO 2.5E-08	1.4	2.7	7.5	11.0	6.3	2.8	2.4	2.2	2.3	5.3	9.4	16.4	17.3	7.1	1.9	1.3	97.3
2.5E-08 TO 1.0E-08	1.4	2.7	7.6	11.2	6.6	2.8	2.4	2.3	2.3	5.3	9.4	16.5	17.4	7.1	1.9	1.3	98.3
1.0E-08 TO 7.5E-09	1.4	2.8	7.6	11.2	6.6	2.8	2.4	2.3	2.3	5.3	9.4	16.5	17.5	7.1	1.9	1.3	98.4
7.5E-09 TO 5.0E-09	1.4	2.8	7.6	11.2	6.7	2.8	2.4	2.3	2.3	5.3	9.4	16.6	17.6	7.1	1.9	1.3	98.7
5.0E-09 TO 2.5E-09	1.4	2.8	7.6	11.3	6.7	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.0	7.2	1.9	1.3	99.4
2.5E-09 TO 1.0E-09	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.627 E -5	2.168 E -5	3.059 E -5	3.048 E -5	5.225 E -5	4.913 E -5	3.061 E -5	3.434 E -5	2.618 E -5	2.648 E -5	5.022 E -5	4.251 E -5	3.212 E -5	2.770 E -5	1.506 E -5	1.700 E -5	5.225 E -5

5.0 PERCENTILE 1.720E-05

50.0 PERCENTILE 1.844E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																		
3.0E-05 TO	2.0E-05	0.0	0.0	.0	.0	0.0	0.0	.0	.0	0.0	0.0	.0	.1	.0	.0	0.0	0.0	.4
2.0E-05 TO	1.0E-05	.2	.2	.6	.7	.5	.1	.1	.4	.0	.2	.2	.7	.6	.1	.1	0.0	4.7
1.0E-05 TO	9.0E-06	.2	.3	.6	.9	.7	.2	.1	.4	.1	.3	.3	.8	.7	.2	.1	.0	6.2
9.0E-06 TO	8.0E-06	.2	.4	.8	1.5	1.0	.3	.2	.4	.1	.4	.5	.9	1.0	.3	.1	.1	8.2
8.0E-06 TO	7.0E-06	.2	.5	.9	1.8	1.4	.3	.3	.4	.1	.5	.8	1.1	1.4	.6	.2	.2	10.8
7.0E-06 TO	6.0E-06	.2	.5	1.5	2.9	1.9	.5	.5	.5	.2	.7	1.0	1.2	1.8	.8	.2	.2	14.6
6.0E-06 TO	5.0E-06	.3	.6	1.9	3.6	2.4	.7	.5	.6	.3	1.0	1.2	1.4	2.1	1.1	.4	.3	18.3
5.0E-06 TO	4.0E-06	.5	1.1	2.4	4.3	3.0	.9	.7	.6	.3	1.4	1.5	2.0	2.5	1.3	.6	.4	23.5
4.0E-06 TO	3.0E-06	.5	1.3	3.1	5.5	3.8	1.2	.9	.8	.5	1.6	1.9	2.8	3.4	1.7	.7	.5	30.4
3.0E-06 TO	2.0E-06	.7	1.6	4.2	6.8	4.6	1.5	1.3	1.2	.7	2.3	2.8	3.7	5.1	2.3	1.0	.6	40.5
2.0E-06 TO	1.0E-06	1.0	2.0	5.4	8.7	5.6	1.9	1.7	1.7	1.2	3.4	4.4	6.5	8.2	3.9	1.5	.7	57.9
1.0E-06 TO	9.0E-07	1.0	2.1	5.6	8.9	5.8	1.9	1.8	1.7	1.3	3.6	4.7	7.1	9.0	4.4	1.5	.8	61.2
9.0E-07 TO	8.0E-07	1.0	2.1	5.9	9.1	5.9	2.0	1.9	1.8	1.5	3.8	5.5	8.1	9.8	4.6	1.5	.8	65.2
8.0E-07 TO	7.0E-07	1.0	2.2	6.1	9.5	6.0	2.1	1.9	1.9	1.5	4.1	6.1	8.9	10.6	5.0	1.6	.8	69.0
7.0E-07 TO	6.0E-07	1.1	2.3	6.4	9.7	6.1	2.2	1.9	2.0	1.7	4.3	6.7	9.7	11.6	5.3	1.6	.9	73.3
6.0E-07 TO	5.0E-07	1.1	2.4	6.6	10.1	6.2	2.5	1.9	2.1	1.8	4.6	6.8	10.5	13.1	5.7	1.6	.9	77.9
5.0E-07 TO	4.0E-07	1.2	2.4	6.8	10.5	6.4	2.5	2.0	2.1	1.8	4.7	7.4	11.3	14.5	6.2	1.6	.9	82.3
4.0E-07 TO	3.0E-07	1.3	2.5	7.2	10.9	6.5	2.7	2.2	2.1	1.9	5.0	8.0	12.3	15.5	6.7	1.8	1.1	87.5
3.0E-07 TO	2.0E-07	1.3	2.6	7.3	11.1	6.6	2.7	2.3	2.3	1.9	5.0	8.3	14.0	16.9	6.8	1.8	1.2	92.2
2.0E-07 TO	1.0E-07	1.3	2.6	7.5	11.2	6.7	2.8	2.3	2.3	2.1	5.2	8.9	15.4	17.9	7.0	1.8	1.2	96.3
1.0E-07 TO	7.5E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.1	5.3	9.0	15.7	18.1	7.0	1.9	1.2	97.3
7.5E-08 TO	5.0E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.3	9.2	16.0	18.4	7.1	1.9	1.2	98.1
5.0E-08 TO	2.5E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.2	5.3	9.2	16.1	18.4	7.1	1.9	1.2	98.5
2.5E-08 TO	1.0E-08	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.4	18.4	7.2	1.9	1.2	99.2
1.0E-08 TO	7.5E-09	1.4	2.6	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.5	18.4	7.2	1.9	1.2	99.3
7.5E-09 TO	5.0E-09	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.5	18.4	7.2	1.9	1.2	99.4
5.0E-09 TO	2.5E-09	1.4	2.8	7.6	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.3	16.6	18.4	7.2	1.9	1.2	99.7
2.5E-09 TO	1.0E-09	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	1.590 E -5	1.529 E -5	2.069 E -5	2.139 E -5	1.835 E -5	1.349 E -5	2.040 E -5	2.105 E -5	1.318 E -5	1.541 E -5	2.012 E -5	2.613 E -5	2.125 E -5	2.456 E -5	1.138 E -5	9.678 E -6	2.613 E -5

5.0 PERCENTILE 9.771E-08

50.0 PERCENTILE 1.372E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
2.0E-05 TO 1.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	.0	0.0	0.0	0.0	0.0	.1
1.0E-05 TO 9.0E-06	.0	.0	.0	.1	0.0	.0	0.0	0.0	0.0	.0	.1	.1	0.0	0.0	0.0	0.0	.6
9.0E-06 TO 8.0E-06	.0	.0	.1	.1	0.0	.0	.0	0.0	.1	.1	.1	.1	.0	0.0	0.0	0.0	.9
8.0E-06 TO 7.0E-06	.0	.0	.1	.2	0.0	.0	.1	0.0	.1	.1	.1	.1	.1	0.0	0.0	0.0	1.1
7.0E-06 TO 6.0E-06	.0	.1	.4	.3	.1	.1	.1	.0	.1	.1	.2	.3	.2	.0	0.0	.0	2.2
6.0E-06 TO 5.0E-06	.1	.2	.5	.7	.5	.1	.1	.1	.1	.2	.4	.6	.5	.1	0.0	.1	4.4
5.0E-06 TO 4.0E-06	.1	.3	.9	1.3	.8	.5	.2	.1	.2	.3	.9	1.1	1.0	.4	.0	.1	8.3
4.0E-06 TO 3.0E-06	.2	.5	1.3	1.9	1.4	.6	.4	.3	.4	.8	1.8	2.2	1.6	.6	.2	.2	14.4
3.0E-06 TO 2.0E-06	.3	1.1	2.8	3.7	2.2	1.1	.9	.7	.9	2.4	3.4	4.8	3.7	1.7	.6	.6	30.9
2.0E-06 TO 1.0E-06	.7	1.8	5.2	7.2	4.7	2.0	1.3	1.6	1.3	4.0	6.2	9.7	8.7	4.0	1.2	.7	60.4
1.0E-06 TO 9.0E-07	.7	1.9	5.6	7.8	4.9	2.0	1.4	1.6	1.4	4.2	6.6	10.2	9.6	4.3	1.2	.8	64.2
9.0E-07 TO 8.0E-07	.8	1.9	5.7	8.0	5.0	2.2	1.6	1.8	1.5	4.3	6.9	10.7	10.1	4.5	1.2	.9	67.1
8.0E-07 TO 7.0E-07	.9	2.0	5.9	8.2	5.0	2.3	1.6	1.9	1.6	4.3	7.2	11.9	10.8	4.9	1.3	.9	70.9
7.0E-07 TO 6.0E-07	.9	2.0	6.1	8.7	5.2	2.3	1.7	2.0	1.6	4.5	7.5	12.4	11.8	5.5	1.3	1.0	74.7
6.0E-07 TO 5.0E-07	1.0	2.1	6.3	9.0	5.3	2.3	1.9	2.1	1.7	4.5	8.1	13.6	13.2	5.9	1.5	1.1	79.6
5.0E-07 TO 4.0E-07	1.1	2.3	6.8	9.6	5.5	2.5	2.2	2.2	1.8	4.6	8.3	14.0	14.2	6.2	1.5	1.1	83.8
4.0E-07 TO 3.0E-07	1.1	2.3	7.0	10.0	6.1	2.6	2.2	2.3	1.8	5.0	8.7	15.0	14.7	6.4	1.5	1.2	87.8
3.0E-07 TO 2.0E-07	1.2	2.5	7.2	10.3	6.3	2.6	2.3	2.3	1.9	5.1	8.8	15.8	16.5	6.7	1.8	1.2	92.6
2.0E-07 TO 1.0E-07	1.3	2.7	7.5	10.9	6.7	2.8	2.4	2.3	2.2	5.4	9.3	16.3	17.7	7.0	1.9	1.3	97.7
1.0E-07 TO 7.5E-08	1.4	2.7	7.5	11.0	6.7	2.8	2.4	2.3	2.3	5.4	9.3	16.3	17.9	7.1	1.9	1.3	98.4
7.5E-08 TO 5.0E-08	1.4	2.7	7.5	11.1	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.4	18.0	7.2	1.9	1.3	99.0
5.0E-08 TO 2.5E-08	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.5	18.3	7.2	1.9	1.3	99.5
2.5E-08 TO 1.0E-08	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
1.0E-08 TO 7.5E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
7.5E-09 TO 5.0E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.3	7.2	1.9	1.3	99.8
5.0E-09 TO 2.5E-09	1.4	2.7	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0

MAGNITUDE OF X/Q

WORST CONDITION	9.341 E-6	9.137 E-6	9.185 E-6	9.198 E-6	6.523 E-6	9.060 E-6	8.523 E-6	6.831 E-6	8.915 E-6	9.520 E-6	1.057 E-5	1.015 E-5	8.033 E-6	6.416 E-6	4.110 E-6	6.776 E-6	1.057 E-5

5.0 PERCENTILE 4.641E-06

50.0 PERCENTILE 1.277E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
4.0E-06 TO 3.0E-06	.0	.1	.6	.2	.2	.1	0.0	.2	.0	.2	.1	.3	.3	.2	.1	.1	2.9
3.0E-06 TO 2.0E-06	.3	.4	1.9	2.3	1.4	.9	.6	.6	.4	1.2	1.4	3.1	3.7	1.4	.5	.3	20.4
2.0E-06 TO 1.0E-06	1.0	1.8	5.6	7.6	4.4	1.9	1.8	1.6	1.5	3.7	6.1	10.1	12.4	4.3	1.3	.9	66.2
1.0E-06 TO 9.0E-07	1.2	2.1	6.1	8.8	5.3	2.2	1.9	1.8	1.8	4.0	6.8	11.8	13.7	5.0	1.4	1.1	75.0
9.0E-07 TO 8.0E-07	1.2	2.2	6.2	9.1	5.5	2.3	1.9	1.9	1.9	4.4	7.4	12.7	14.3	5.5	1.4	1.1	78.9
8.0E-07 TO 7.0E-07	1.2	2.2	6.4	9.3	5.7	2.3	2.1	1.9	1.9	4.4	7.4	13.0	15.0	5.7	1.4	1.1	81.3
7.0E-07 TO 6.0E-07	1.3	2.2	6.8	9.9	6.1	2.4	2.2	1.9	2.1	4.5	7.6	14.0	15.9	5.8	1.6	1.2	85.6
6.0E-07 TO 5.0E-07	1.4	2.5	7.0	10.4	6.5	2.5	2.2	2.0	2.2	4.8	8.6	15.4	17.4	6.5	1.7	1.2	92.4
5.0E-07 TO 4.0E-07	1.4	2.6	7.1	10.8	6.7	2.5	2.3	2.3	2.3	5.1	9.3	16.2	18.0	6.9	1.9	1.2	96.5
4.0E-07 TO 3.0E-07	1.4	2.7	7.3	11.2	6.8	2.7	2.4	2.3	2.3	5.3	9.3	16.5	18.2	7.1	1.9	1.3	98.7
3.0E-07 TO 2.0E-07	1.4	2.7	7.5	11.2	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.1	1.9	1.3	99.6
2.0E-07 TO 1.0E-07	1.4	2.8	7.6	11.3	6.8	2.8	2.4	2.3	2.3	5.4	9.4	16.6	18.4	7.2	1.9	1.3	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	3.848 E -6	3.153 E -6	3.869 E -6	3.676 E -6	3.884 E -6	3.255 E -6	2.978 E -6	3.959 E -6	3.217 E -6	3.463 E -6	3.696 E -6	3.902 E -6	3.270 E -6	3.823 E -6	3.450 E -6	3.849 E -6	3.959 E -6

5.0 PERCENTILE 2.858E-06

50.0 PERCENTILE 1.277E-06

2184 TOTAL HOURS INPUT 2161 HOURS USED ABOVE 98.95 PERCENT INCLUDED

ANNUAL X/Q SUMMARIES

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-03 TO 2.0E-03	.0	0.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
2.0E-03 TO 1.0E-03	.2	.0	.1	.2	.2	.2	.3	.2	.4	.4	.6	.5	.5	.3	.1	.1	4.2
1.0E-03 TO 9.0E-04	.2	.1	.1	.2	.2	.2	.3	.3	.4	.5	.9	.6	.6	.4	.2	.1	5.4
9.0E-04 TO 8.0E-04	.3	.1	.2	.3	.2	.3	.4	.3	.5	.7	1.1	.8	.7	.5	.2	.1	6.5
8.0E-04 TO 7.0E-04	.3	.1	.2	.3	.3	.4	.4	.4	.6	.9	1.3	1.0	.8	.6	.3	.2	8.1
7.0E-04 TO 6.0E-04	.3	.1	.2	.4	.4	.5	.4	.5	.7	1.2	1.5	1.1	.8	.6	.3	.2	9.3
6.0E-04 TO 5.0E-04	.3	.2	.3	.5	.5	.5	.5	.5	.7	1.4	1.7	1.1	.9	.7	.4	.2	10.5
5.0E-04 TO 4.0E-04	.4	.2	.3	.7	.6	.7	.6	.6	.8	1.6	1.8	1.3	1.0	.8	.5	.2	11.9
4.0E-04 TO 3.0E-04	.4	.4	.5	.8	.7	.9	.7	.7	.9	1.8	2.0	1.4	1.1	.8	.6	.4	14.1
3.0E-04 TO 2.0E-04	.5	.6	.9	1.3	1.0	1.2	1.0	.9	1.2	2.3	2.8	1.9	1.3	1.1	.7	.5	19.1
2.0E-04 TO 1.0E-04	.8	1.3	2.9	2.7	2.2	1.7	1.5	1.3	1.5	3.2	4.7	3.6	2.8	2.4	1.1	.7	34.4
1.0E-04 TO 9.0E-05	.8	1.3	3.1	3.0	2.4	2.0	1.5	1.3	1.6	3.3	5.1	4.1	3.3	2.6	1.2	.7	37.3
9.0E-05 TO 8.0E-05	.8	1.3	3.3	3.3	2.5	2.1	1.6	1.3	1.6	3.5	5.4	4.8	4.0	3.0	1.3	.7	40.4
8.0E-05 TO 7.0E-05	.8	1.4	3.6	3.6	2.7	2.1	1.6	1.4	1.6	3.6	5.8	5.5	4.8	3.5	1.3	.7	44.0
7.0E-05 TO 6.0E-05	.8	1.5	3.8	4.0	2.8	2.1	1.7	1.4	1.6	3.7	6.2	6.6	6.3	4.2	1.4	.8	48.9
6.0E-05 TO 5.0E-05	.9	1.5	4.0	4.2	3.1	2.1	1.7	1.5	1.6	3.8	6.7	8.0	8.2	4.9	1.5	.8	54.5
5.0E-05 TO 4.0E-05	.9	1.6	4.2	4.5	3.3	2.1	1.7	1.5	1.6	3.8	7.1	10.5	10.5	5.8	1.6	.8	61.7
4.0E-05 TO 3.0E-05	.9	1.8	4.5	5.0	3.5	2.1	1.6	1.5	1.7	3.9	7.5	13.4	13.9	6.6	1.6	.8	70.6
3.0E-05 TO 2.0E-05	.9	2.0	4.7	5.5	3.7	2.2	1.6	1.5	1.8	3.9	7.7	15.5	17.5	7.3	1.7	.9	78.5
2.0E-05 TO 1.0E-05	1.0	2.1	5.0	6.2	3.8	2.3	1.9	1.6	1.8	4.0	7.8	16.4	20.0	7.9	1.8	.9	84.3
1.0E-05 TO 9.0E-06	1.0	2.1	5.0	6.2	3.8	2.3	1.9	1.6	1.8	4.0	7.8	16.5	20.1	7.9	1.8	.9	84.6
9.0E-06 TO 8.0E-06	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.5	20.3	7.9	1.8	.9	85.0
8.0E-06 TO 7.0E-06	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.4	8.0	1.9	.9	85.3
7.0E-06 TO 6.0E-06	1.0	2.1	5.0	6.3	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.5	8.0	1.9	.9	85.6
6.0E-06 TO 5.0E-06	1.0	2.1	5.1	6.5	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.7	20.6	8.1	1.9	.9	86.5
5.0E-06 TO 4.0E-06	1.0	2.1	5.3	6.9	4.0	2.3	1.9	1.6	1.9	4.0	8.0	17.0	21.6	8.4	1.9	.9	89.0
4.0E-06 TO 3.0E-06	1.1	2.2	5.6	7.4	4.1	2.3	1.9	1.7	1.9	4.1	8.0	17.6	24.1	9.0	1.9	.9	93.7
3.0E-06 TO 2.0E-06	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.3	9.2	2.0	.9	98.8
2.0E-06 TO 1.0E-06	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	99.9
1.0E-06 TO 9.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.087 E -3	1.335 E -3	1.076 E -3	2.011 E -3	1.757 E -3	2.011 E -3	1.768 E -3	2.568 E -3	2.011 E -3	1.876 E -3	1.768 E -3	1.855 E -3	2.385 E -3	1.876 E -3	1.757 E -3	1.477 E -3	2.568 E -3

5.0 PERCENTILE 9.331E-04

50.0 PERCENTILE 5.794E-05

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE WITH MEANDER CREDIT
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M) MAGNITUDE OF X/Q	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
2.0E-03 TO 1.0E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
1.0E-03 TO 9.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
9.0E-04 TO 8.0E-04	.0	0.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
8.0E-04 TO 7.0E-04	.1	0.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	0.0	.4
7.0E-04 TO 6.0E-04	.1	0.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.0	1.4
6.0E-04 TO 5.0E-04	.2	.0	.1	.1	.1	.1	.2	.1	.3	.3	.4	.3	.4	.3	.1	.1	3.0
5.0E-04 TO 4.0E-04	.2	.1	.1	.2	.2	.2	.3	.2	.4	.5	.8	.6	.5	.4	.2	.1	5.0
4.0E-04 TO 3.0E-04	.3	.1	.2	.4	.3	.4	.4	.5	.6	1.0	1.4	1.0	.8	.6	.3	.2	8.5
3.0E-04 TO 2.0E-04	.4	.4	.7	.9	.7	.9	.7	.6	.9	1.9	2.4	1.5	1.1	.8	.5	.3	14.6
2.0E-04 TO 1.0E-04	.7	1.2	2.8	2.5	2.1	1.8	1.4	1.2	1.4	3.1	4.6	3.5	2.7	2.3	1.1	.6	32.9
1.0E-04 TO 9.0E-05	.8	1.2	3.0	2.9	2.3	1.9	1.4	1.2	1.5	3.3	5.0	4.0	3.3	2.6	1.2	.7	36.1
9.0E-05 TO 8.0E-05	.8	1.3	3.3	3.2	2.5	2.0	1.5	1.3	1.5	3.4	5.3	4.7	4.0	3.0	1.2	.7	39.8
8.0E-05 TO 7.0E-05	.8	1.4	3.6	3.6	2.7	2.1	1.6	1.4	1.6	3.6	5.8	5.5	4.8	3.5	1.3	.7	43.9
7.0E-05 TO 6.0E-05	.8	1.5	3.8	4.0	2.8	2.1	1.7	1.4	1.6	3.7	6.2	6.6	6.3	4.2	1.4	.8	48.9
6.0E-05 TO 5.0E-05	.9	1.5	4.0	4.2	3.1	2.1	1.7	1.5	1.6	3.8	6.7	8.0	8.2	4.9	1.5	.8	54.5
5.0E-05 TO 4.0E-05	.9	1.6	4.2	4.5	3.3	2.1	1.7	1.5	1.6	3.8	7.1	10.5	10.5	5.8	1.6	.8	61.7
4.0E-05 TO 3.0E-05	.9	1.8	4.5	5.0	3.5	2.1	1.8	1.5	1.7	3.9	7.5	13.4	13.9	6.6	1.6	.8	70.6
3.0E-05 TO 2.0E-05	.9	2.0	4.7	5.5	3.7	2.2	1.8	1.5	1.8	3.9	7.7	15.5	17.5	7.3	1.7	.9	78.6
2.0E-05 TO 1.0E-05	1.0	2.1	5.0	6.2	3.8	2.3	1.9	1.6	1.8	4.0	7.8	16.4	20.0	7.9	1.8	.9	84.3
1.0E-05 TO 9.0E-06	1.0	2.1	5.0	6.2	3.8	2.3	1.9	1.6	1.8	4.0	7.8	16.5	20.1	7.9	1.8	.9	84.6
9.0E-06 TO 8.0E-06	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.5	20.3	7.9	1.8	.9	85.0
8.0E-06 TO 7.0E-06	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.4	8.0	1.9	.9	85.3
7.0E-06 TO 6.0E-06	1.0	2.1	5.0	6.3	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.5	8.0	1.9	.9	85.6
6.0E-06 TO 5.0E-06	1.0	2.1	5.1	6.5	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.7	20.6	8.1	1.9	.9	86.5
5.0E-06 TO 4.0E-06	1.0	2.1	5.3	6.9	4.0	2.3	1.9	1.6	1.9	4.0	8.0	17.0	21.6	8.4	1.9	.9	89.0
4.0E-06 TO 3.0E-06	1.1	2.2	5.6	7.4	4.1	2.3	1.9	1.7	1.9	4.1	8.0	17.6	24.1	9.0	1.9	.9	93.7
3.0E-06 TO 2.0E-06	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.6	9.2	2.0	.9	98.8
2.0E-06 TO 1.0E-06	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	99.9
1.0E-06 TO 9.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	8.807 E-4	5.889 E-4	7.917 E-4	8.489 E-4	7.417 E-4	8.489 E-4	7.464 E-4	1.084 E-3	8.489 E-4	7.917 E-4	7.464 E-4	7.829 E-4	1.007 E-3	7.917 E-4	7.417 E-4	6.235 E-4	1.084 E-3

5.0 PERCENTILE 4.002E-04

50.0 PERCENTILE 5.794E-05

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)			S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																			
6.0E-04	TO	5.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
5.0E-04	TO	4.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
4.0E-04	TO	3.0E-04	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
3.0E-04	TO	2.0E-04	0.0	0.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	0.0	0.0	.2
2.0E-04	TO	1.0E-04	.1	.0	.1	.3	.2	.2	.1	.1	.2	.5	.3	.3	.3	.2	.1	.0	3.0
1.0E-04	TO	9.0E-05	.1	.0	.2	.4	.2	.2	.1	.2	.2	.5	.5	.4	.4	.3	.1	.0	3.9
9.0E-05	TO	8.0E-05	.1	.0	.2	.5	.3	.2	.2	.3	.3	.6	.5	.5	.5	.4	.2	.1	4.9
8.0E-05	TO	7.0E-05	.1	.1	.4	.6	.4	.2	.2	.4	.3	.7	.7	.7	.8	.5	.2	.1	6.2
7.0E-05	TO	6.0E-05	.1	.1	.5	1.0	.5	.3	.2	.4	.4	.8	.8	.8	.9	.7	.2	.2	7.9
6.0E-05	TO	5.0E-05	.2	.2	.7	1.3	.7	.4	.4	.5	.4	1.0	1.0	1.0	1.4	.9	.3	.2	10.3
5.0E-05	TO	4.0E-05	.2	.3	.9	1.9	.9	.6	.6	.6	.5	1.2	1.2	1.3	1.9	1.2	.4	.2	13.9
4.0E-05	TO	3.0E-05	.3	.4	1.2	2.5	1.2	.8	.7	.6	.7	1.4	1.5	1.8	2.5	1.6	.4	.3	18.4
3.0E-05	TO	2.0E-05	.4	.6	2.1	3.6	1.7	1.1	1.0	.8	.9	1.8	2.4	3.3	4.3	2.7	.6	.4	27.6
2.0E-05	TO	1.0E-05	.6	1.2	3.4	5.1	2.7	1.6	1.5	1.1	1.3	2.8	4.6	6.1	11.4	5.4	1.1	.6	52.6
1.0E-05	TO	9.0E-06	.6	1.3	3.6	5.4	2.8	1.7	1.6	1.2	1.3	3.1	4.9	9.1	12.7	5.8	1.2	.6	56.9
9.0E-06	TO	8.0E-06	.7	1.4	3.8	5.7	2.9	1.8	1.6	1.2	1.3	3.2	5.4	10.1	14.0	6.2	1.3	.7	61.2
8.0E-06	TO	7.0E-06	.7	1.5	4.1	6.0	3.1	1.9	1.7	1.3	1.4	3.3	5.8	11.1	15.2	6.5	1.4	.7	65.7
7.0E-06	TO	6.0E-06	.7	1.7	4.4	6.2	3.1	2.0	1.7	1.3	1.5	3.5	6.2	12.1	16.8	6.8	1.5	.7	70.3
6.0E-06	TO	5.0E-06	.8	1.8	4.7	6.5	3.3	2.1	1.8	1.4	1.6	3.7	6.6	13.3	18.5	7.2	1.5	.8	75.6
5.0E-06	TO	4.0E-06	.9	1.8	4.9	6.7	3.5	2.2	1.8	1.5	1.7	3.8	7.0	14.6	20.3	7.7	1.6	.8	80.9
4.0E-06	TO	3.0E-06	.9	1.9	5.1	6.9	3.7	2.2	1.9	1.5	1.7	3.9	7.3	15.8	22.2	8.0	1.7	.9	85.7
3.0E-06	TO	2.0E-06	1.0	2.0	5.3	7.1	3.8	2.3	1.9	1.6	1.8	3.9	7.7	16.9	24.1	8.4	1.8	.9	90.4
2.0E-06	TO	1.0E-06	1.0	2.1	5.5	7.3	3.9	2.3	1.9	1.6	1.9	4.0	7.9	17.7	25.8	8.8	1.9	.9	94.6
1.0E-06	TO	9.0E-07	1.0	2.1	5.5	7.4	4.0	2.3	1.9	1.6	1.9	4.0	7.9	17.7	26.1	8.8	1.9	.9	95.1
9.0E-07	TO	8.0E-07	1.0	2.1	5.5	7.4	4.0	2.3	1.9	1.6	1.9	4.0	7.9	17.8	26.4	8.8	1.9	.9	95.7
8.0E-07	TO	7.0E-07	1.0	2.2	5.6	7.4	4.0	2.3	1.9	1.6	1.9	4.1	8.0	17.9	26.6	8.9	1.9	.9	96.1
7.0E-07	TO	6.0E-07	1.0	2.2	5.6	7.4	4.1	2.3	1.9	1.6	1.9	4.1	8.0	17.9	26.8	8.9	1.9	.9	96.7
6.0E-07	TO	5.0E-07	1.0	2.2	5.6	7.5	4.2	2.3	1.9	1.6	1.9	4.1	8.0	18.0	27.0	9.0	1.9	.9	97.2
5.0E-07	TO	4.0E-07	1.0	2.2	5.7	7.5	4.2	2.4	1.9	1.7	1.9	4.1	8.0	18.1	27.2	9.0	1.9	.9	97.7
4.0E-07	TO	3.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.3	27.5	9.1	2.0	.9	98.7
3.0E-07	TO	2.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	27.8	9.1	2.0	.9	99.2
2.0E-07	TO	1.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
1.0E-07	TO	7.5E-06	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0

MAGNITUDE OF X/Q

WORST CONDITION			1.709 E -4	1.793 E -4	2.690 E -4	2.558 E -4	2.090 E -4	3.483 E -4	2.851 E -4	3.929 E -4	2.000 E -4	2.376 E -4	2.272 E -4	2.095 E -4	2.164 E -4	5.034 E -4	1.564 E -4	1.571 E -4	5.034 E -4

5.0 PERCENTILE 7.952E-05

50.0 PERCENTILE 1.079E-05

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-04 TO 2.0E-04	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
2.0E-04 TO 1.0E-04	0.0	.0	.0	.1	.0	.0	0.0	0.0	0.0	.0	0.0	.0	.1	.0	.0	.0	.4
1.0E-04 TO 9.0E-05	0.0	.1	.1	.2	.1	.0	.0	0.0	.0	.0	.0	.1	.1	.0	.0	.0	.7
9.0E-05 TO 8.0E-05	.0	.1	.1	.2	.1	.0	.0	.0	.0	.0	.1	.0	.1	.1	.0	.0	1.1
8.0E-05 TO 7.0E-05	.0	.1	.2	.3	.2	.0	.0	.1	.0	.1	.1	.2	.2	.1	.0	.0	1.7
7.0E-05 TO 6.0E-05	.0	.2	.3	.5	.3	.1	.1	.1	.1	.2	.2	.2	.4	.2	.1	.0	3.0
6.0E-05 TO 5.0E-05	.1	.2	.4	.9	.4	.2	.1	.2	.1	.2	.3	.4	.7	.4	.1	.0	4.9
5.0E-05 TO 4.0E-05	.2	.3	.6	1.3	.7	.4	.2	.3	.2	.4	.4	.6	1.0	.6	.3	.1	7.7
4.0E-05 TO 3.0E-05	.2	.5	1.2	2.0	1.2	.5	.3	.3	.3	.6	.8	1.1	1.8	.9	.4	.2	12.3
3.0E-05 TO 2.0E-05	.3	.7	2.0	3.4	2.0	.8	.6	.5	.4	.9	1.4	1.9	3.3	1.7	.5	.3	20.8
2.0E-05 TO 1.0E-05	.5	1.2	3.5	5.0	2.9	1.3	1.1	.9	.8	1.9	3.2	5.6	9.9	3.9	.9	.5	43.2
1.0E-05 TO 9.0E-06	.5	1.3	3.9	5.2	3.0	1.4	1.1	1.0	.9	2.0	3.5	6.4	11.2	4.5	1.1	.6	47.6
9.0E-06 TO 8.0E-06	.6	1.5	4.1	5.5	3.2	1.5	1.2	1.1	1.1	2.2	3.9	7.3	13.0	5.1	1.2	.6	52.9
8.0E-06 TO 7.0E-06	.7	1.5	4.3	5.8	3.3	1.5	1.4	1.1	1.1	2.5	4.3	8.5	14.8	5.7	1.3	.7	58.4
7.0E-06 TO 6.0E-06	.7	1.6	4.5	6.2	3.4	1.6	1.4	1.2	1.3	2.7	4.6	10.2	17.2	6.4	1.4	.7	65.4
6.0E-06 TO 5.0E-06	.8	1.8	4.9	6.4	3.6	1.8	1.5	1.3	1.4	3.0	5.2	11.6	19.3	7.0	1.5	.7	71.8
5.0E-06 TO 4.0E-06	.8	1.8	5.1	6.8	3.8	1.9	1.6	1.4	1.5	3.2	5.6	13.3	21.6	7.6	1.6	.8	78.7
4.0E-06 TO 3.0E-06	.9	2.0	5.4	7.0	4.0	2.1	1.7	1.5	1.5	3.5	6.4	14.9	23.8	8.2	1.7	.9	85.4
3.0E-06 TO 2.0E-06	1.0	2.0	5.5	7.4	4.1	2.2	1.8	1.6	1.7	3.7	7.0	16.3	25.9	8.7	1.8	.9	91.6
2.0E-06 TO 1.0E-06	1.0	2.1	5.7	7.5	4.2	2.3	1.9	1.6	1.8	3.9	7.4	17.2	27.3	9.1	1.9	.9	96.0
1.0E-06 TO 9.0E-07	1.1	2.1	5.7	7.5	4.3	2.3	1.9	1.6	1.8	3.9	7.4	17.3	27.5	9.1	1.9	.9	96.4
9.0E-07 TO 8.0E-07	1.1	2.1	5.7	7.6	4.3	2.3	1.9	1.6	1.8	3.9	7.5	17.4	27.6	9.1	1.9	.9	96.7
8.0E-07 TO 7.0E-07	1.1	2.1	5.7	7.6	4.3	2.3	1.9	1.6	1.8	4.0	7.5	17.6	27.7	9.1	1.9	.9	97.1
7.0E-07 TO 6.0E-07	1.1	2.1	5.7	7.6	4.3	2.3	1.9	1.7	1.8	4.0	7.6	17.6	27.8	9.2	1.9	.9	97.4
6.0E-07 TO 5.0E-07	1.1	2.2	5.7	7.6	4.3	2.3	1.9	1.7	1.8	4.0	7.6	17.7	27.8	9.2	1.9	.9	97.7
5.0E-07 TO 4.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.8	4.0	7.7	17.8	27.9	9.2	1.9	.9	98.0
4.0E-07 TO 3.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.8	4.0	7.8	17.9	27.9	9.2	2.0	.9	98.4
3.0E-07 TO 2.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.8	4.1	8.0	18.1	28.0	9.2	2.0	.9	99.0
2.0E-07 TO 1.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.2	9.2	2.0	.9	99.7
1.0E-07 TO 7.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.2	2.0	.9	99.9
7.5E-08 TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	8.544 E -5	1.445 E -4	2.517 E -4	1.965 E -4	1.168 E -4	1.015 E -4	9.101 E -5	8.537 E -5	9.383 E -5	1.376 E -4	9.356 E -5	1.521 E -4	1.385 E -4	1.222 E -4	1.302 E -4	1.744 E -4	2.517 E -4

5.0 PERCENTILE 4.945E-05

50.0 PERCENTILE 8.538E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)		S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																		
1.0E-04	TO 9.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0
9.0E-05	TO 8.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	.0	0.0	0.0	0.0	0.0	.0
8.0E-05	TO 7.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	.0	.0	0.0	0.0	0.0	.1
7.0E-05	TO 6.0E-05	0.0	.0	.0	.0	0.0	.0	.0	.0	.0	.0	0.0	.0	.0	.0	.0	.0	.2
6.0E-05	TO 5.0E-05	.0	.0	.0	.0	0.0	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.4
5.0E-05	TO 4.0E-05	.0	.0	.1	.1	.0	.0	.1	.0	.0	.1	.1	.1	.2	.0	.0	.0	.8
4.0E-05	TO 3.0E-05	.0	.1	.2	.3	.2	.1	.1	.1	.1	.2	.3	.3	.3	.1	.1	.1	2.6
3.0E-05	TO 2.0E-05	.2	.4	1.0	1.0	.7	.4	.3	.3	.3	.8	1.0	1.3	1.3	.6	.2	.2	9.9
2.0E-05	TO 1.0E-05	.5	1.0	2.6	3.7	2.1	1.2	.9	.8	.8	1.9	3.0	5.7	6.6	2.8	.7	.3	34.7
1.0E-05	TO 9.0E-06	.5	1.1	2.8	4.0	2.3	1.4	.9	.9	.9	2.1	3.5	6.8	8.3	3.2	.9	.4	40.1
9.0E-05	TO 8.0E-06	.6	1.2	3.1	4.3	2.5	1.5	1.1	1.0	.9	2.3	3.9	7.7	10.2	3.7	1.0	.5	45.5
8.0E-06	TO 7.0E-06	.6	1.4	3.5	4.8	2.7	1.6	1.2	1.1	1.1	2.6	4.4	9.2	12.4	4.3	1.0	.5	52.5
7.0E-06	TO 6.0E-06	.7	1.5	3.9	5.3	3.1	1.8	1.3	1.2	1.2	2.8	5.0	11.0	15.2	5.3	1.2	.6	61.1
6.0E-06	TO 5.0E-06	.8	1.7	4.4	5.7	3.4	1.9	1.5	1.3	1.3	3.1	5.8	12.6	18.1	6.1	1.4	.7	69.6
5.0E-06	TO 4.0E-06	.8	1.8	4.7	6.2	3.5	2.0	1.6	1.5	1.4	3.5	6.4	14.1	21.1	6.8	1.5	.8	77.7
4.0E-06	TO 3.0E-06	.9	1.9	5.1	6.6	3.8	2.2	1.7	1.5	1.6	3.7	7.0	15.3	22.8	7.7	1.7	.8	84.3
3.0E-06	TO 2.0E-06	.9	2.0	5.4	7.1	4.0	2.3	1.9	1.6	1.7	3.9	7.5	16.2	24.4	8.3	1.8	.9	89.9
2.0E-06	TO 1.0E-06	1.0	2.2	5.6	7.4	4.1	2.4	1.9	1.7	1.8	4.0	8.0	17.5	26.5	8.7	1.9	.9	95.7
1.0E-06	TO 9.0E-07	1.0	2.2	5.6	7.5	4.2	2.4	1.9	1.7	1.8	4.0	8.0	17.5	26.6	8.8	1.9	.9	96.0
9.0E-07	TO 8.0E-07	1.0	2.2	5.6	7.5	4.2	2.4	1.9	1.7	1.8	4.0	8.0	17.7	26.9	8.9	1.9	.9	96.7
8.0E-07	TO 7.0E-07	1.0	2.2	5.6	7.5	4.3	2.4	1.9	1.7	1.9	4.0	8.0	17.8	26.9	8.9	1.9	.9	97.1
7.0E-07	TO 6.0E-07	1.0	2.2	5.6	7.5	4.3	2.4	1.9	1.7	1.9	4.0	8.1	17.9	27.1	9.0	1.9	.9	97.5
6.0E-07	TO 5.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.0	27.3	9.0	1.9	.9	97.9
5.0E-07	TO 4.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.1	27.4	9.0	1.9	.9	98.2
4.0E-07	TO 3.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.1	27.6	9.1	1.9	.9	98.5
3.0E-07	TO 2.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.2	27.7	9.1	1.9	.9	98.8
2.0E-07	TO 1.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	27.9	9.1	1.9	.9	99.2
1.0E-07	TO 7.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.0	9.2	1.9	.9	99.3
7.5E-08	TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.1	9.2	1.9	.9	99.5
5.0E-08	TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	99.9
2.5E-08	TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		5.017E-5	6.223E-5	6.291E-5	6.654E-5	4.336E-5	6.074E-5	6.927E-5	6.359E-5	8.162E-5	8.799E-5	5.266E-5	9.380E-5	7.424E-5	6.527E-5	6.395E-5	6.253E-5	9.380E-5

5.0 PERCENTILE 2.624E-05

50.0 PERCENTILE 7.340E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)	S 8.000 E2	SSW 8.000 E2	SW 8.000 E2	WSW 8.000 E2	W 8.000 E2	WNW 8.000 E2	NW 8.000 E2	NNW 8.000 E2	N 8.000 E2	NNE 8.000 E2	NE 8.000 E2	ENE 8.000 E2	E 8.000 E2	ESE 8.000 E2	SE 8.000 E2	SSE 8.000 E2	TOTAL
MAGNITUDE OF X/Q																	
3.0E-05 TO 2.0E-05	.0	.1	.2	.3	.1	.2	.1	.0	.0	.2	.2	.3	.2	.2	.0	.0	2.1
2.0E-05 TO 1.0E-05	.4	1.0	2.3	3.2	1.7	1.0	.8	.7	.7	1.6	2.3	4.5	6.0	2.8	.7	.4	29.9
1.0E-05 TO 9.0E-06	.4	1.2	2.6	3.5	1.9	1.1	.9	.8	.8	1.8	2.8	5.7	8.2	3.6	.9	.4	36.6
9.0E-06 TO 8.0E-06	.5	1.4	3.0	4.2	2.3	1.3	1.1	1.0	1.0	2.3	3.7	7.6	10.9	4.6	1.0	.5	46.4
8.0E-06 TO 7.0E-06	.6	1.6	3.5	4.8	2.7	1.6	1.3	1.2	1.2	2.9	4.6	10.6	15.1	5.6	1.3	.6	59.5
7.0E-06 TO 6.0E-06	.8	1.8	3.9	5.4	3.1	1.8	1.4	1.3	1.3	3.2	5.6	12.5	17.9	6.4	1.4	.7	68.6
6.0E-06 TO 5.0E-06	.9	1.9	4.4	6.0	3.5	2.0	1.6	1.5	1.5	3.4	6.4	13.9	20.2	7.3	1.6	.8	76.6
5.0E-06 TO 4.0E-06	1.0	2.0	4.8	6.6	3.8	2.2	1.7	1.6	1.6	3.7	6.8	15.0	22.2	7.9	1.7	.8	83.3
4.0E-06 TO 3.0E-06	1.0	2.0	5.1	7.0	4.0	2.2	1.8	1.6	1.7	3.8	7.3	15.9	23.9	8.3	1.8	.9	88.3
3.0E-06 TO 2.0E-06	1.1	2.1	5.3	7.3	4.2	2.3	1.9	1.7	1.8	3.9	7.6	17.0	25.8	8.7	1.8	.9	93.4
2.0E-06 TO 1.0E-06	1.1	2.2	5.7	7.5	4.3	2.4	1.9	1.7	1.9	4.1	7.9	17.7	27.1	9.0	1.9	.9	97.2
1.0E-06 TO 9.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	17.7	27.1	9.0	1.9	.9	97.3
9.0E-07 TO 8.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	17.8	27.2	9.0	1.9	.9	97.5
8.0E-07 TO 7.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	17.9	27.4	9.1	1.9	.9	97.9
7.0E-07 TO 6.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.0	27.6	9.1	1.9	.9	98.4
6.0E-07 TO 5.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.1	27.7	9.2	1.9	.9	98.8
5.0E-07 TO 4.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.1	27.9	9.2	1.9	.9	99.0
4.0E-07 TO 3.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	28.0	9.2	2.0	.9	99.3
3.0E-07 TO 2.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.0	9.2	2.0	.9	99.5
2.0E-07 TO 1.0E-07	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
1.0E-07 TO 7.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
7.5E-08 TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	2.350 E -5	2.756 E -5	2.676 E -5	2.638 E -5	2.662 E -5	2.644 E -5	2.786 E -5	2.562 E -5	2.718 E -5	2.695 E -5	2.756 E -5	2.772 E -5	2.724 E -5	2.771 E -5	2.541 E -5	2.666 E -5	2.788 E -5

5.0 PERCENTILE 1.862E-05

50.0 PERCENTILE 7.711E-06

8784 TOTAL HOURS INPUT 6454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
8.0E-04 TO 7.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
7.0E-04 TO 6.0E-04	.0	0.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.1
6.0E-04 TO 5.0E-04	.0	0.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	0.0	.4
5.0E-04 TO 4.0E-04	.1	.0	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.1	.0	1.9
4.0E-04 TO 3.0E-04	.2	.0	.1	.1	.2	.1	.3	.2	.4	.4	.6	.5	.5	.3	.1	.1	4.0
3.0E-04 TO 2.0E-04	.3	.1	.2	.3	.3	.4	.4	.4	.6	.9	1.3	1.0	.7	.5	.2	.2	7.7
2.0E-04 TO 1.0E-04	.4	.2	.3	.6	.5	.6	.6	.6	.8	1.6	1.8	1.3	.9	.7	.4	.2	11.6
1.0E-04 TO 9.0E-05	.4	.3	.3	.6	.6	.7	.6	.6	.9	1.7	1.8	1.3	1.0	.8	.5	.3	12.3
9.0E-05 TO 8.0E-05	.4	.3	.4	.7	.6	.8	.7	.7	.9	1.8	2.0	1.4	1.0	.8	.5	.3	13.2
8.0E-05 TO 7.0E-05	.4	.4	.5	.9	.6	.9	.7	.7	.9	1.8	2.1	1.4	1.1	.8	.5	.3	14.1
7.0E-05 TO 6.0E-05	.5	.4	.7	1.0	.7	1.0	.7	.7	1.0	1.9	2.3	1.5	1.2	.9	.6	.4	15.5
6.0E-05 TO 5.0E-05	.5	.6	1.1	1.1	.9	1.1	.8	.8	1.0	2.1	2.6	1.7	1.2	1.0	.7	.4	17.6
5.0E-05 TO 4.0E-05	.6	.6	1.6	1.6	1.1	1.3	.9	.9	1.1	2.3	3.0	1.9	1.4	1.1	.7	.4	20.7
4.0E-05 TO 3.0E-05	.6	1.0	2.3	2.0	1.6	1.4	1.1	.9	1.2	2.5	3.5	2.3	1.7	1.4	.9	.5	24.9
3.0E-05 TO 2.0E-05	.7	1.2	2.8	2.6	2.0	1.7	1.3	1.1	1.4	3.0	4.5	3.4	2.4	2.2	1.0	.7	31.9
2.0E-05 TO 1.0E-05	.3	1.4	3.7	3.7	2.8	2.1	1.6	1.4	1.6	3.6	6.2	6.9	6.6	4.1	1.4	.7	48.7
1.0E-05 TO 9.0E-06	.8	1.4	3.8	4.0	2.8	2.1	1.6	1.4	1.6	3.7	6.5	7.9	7.4	4.5	1.4	.8	51.7
9.0E-06 TO 8.0E-06	.9	1.5	3.9	4.1	2.9	2.1	1.6	1.4	1.6	3.7	6.8	8.7	8.3	4.8	1.5	.8	54.7
8.0E-06 TO 7.0E-06	.9	1.5	4.0	4.2	3.1	2.1	1.6	1.4	1.6	3.7	6.9	10.3	9.8	5.3	1.5	.8	58.9
7.0E-06 TO 6.0E-06	.9	1.6	4.2	4.4	3.2	2.1	1.6	1.4	1.6	3.7	7.2	11.5	11.4	5.8	1.5	.8	63.0
6.0E-06 TO 5.0E-06	.9	1.7	4.3	4.7	3.4	2.1	1.7	1.4	1.6	3.8	7.4	12.9	13.2	6.3	1.6	.8	67.8
5.0E-06 TO 4.0E-06	.9	1.8	4.4	5.0	3.5	2.1	1.7	1.5	1.7	3.9	7.5	14.1	14.9	6.6	1.6	.8	72.0
4.0E-06 TO 3.0E-06	.9	2.0	4.6	5.2	3.5	2.1	1.8	1.5	1.7	3.9	7.6	15.2	16.7	6.8	1.6	.8	76.0
3.0E-06 TO 2.0E-06	.9	2.0	4.7	5.5	3.6	2.1	1.8	1.5	1.8	3.9	7.7	15.7	18.1	7.2	1.7	.8	79.2
2.0E-06 TO 1.0E-06	1.0	2.0	4.8	5.9	3.7	2.2	1.8	1.6	1.8	4.0	7.8	16.2	19.4	7.6	1.8	.9	82.4
1.0E-06 TO 9.0E-07	1.0	2.1	4.8	5.9	3.7	2.2	1.8	1.6	1.8	4.0	7.8	16.2	19.5	7.7	1.8	.9	82.9
9.0E-07 TO 8.0E-07	1.0	2.1	4.9	6.0	3.8	2.2	1.8	1.6	1.8	4.0	7.8	16.3	19.7	7.8	1.8	.9	83.4
8.0E-07 TO 7.0E-07	1.0	2.1	4.9	6.1	3.8	2.2	1.8	1.6	1.8	4.0	7.8	16.4	19.9	7.9	1.8	.9	84.0
7.0E-07 TO 6.0E-07	1.0	2.1	5.0	6.1	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.5	20.0	7.9	1.8	.9	84.5
6.0E-07 TO 5.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.5	20.3	7.9	1.8	.9	84.9
5.0E-07 TO 4.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.9	16.5	20.4	7.9	1.8	.9	85.0
4.0E-07 TO 3.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.9	16.5	20.5	7.9	1.8	.9	85.1
3.0E-07 TO 2.0E-07	1.0	2.1	5.0	6.2	3.9	2.2	1.9	1.6	1.8	4.0	7.9	16.6	20.5	7.9	1.8	.9	85.1
2.0E-07 TO 1.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.5	8.0	1.9	.9	85.6
1.0E-07 TO 7.5E-08	1.0	2.1	5.2	6.6	4.0	2.3	1.9	1.6	1.8	4.0	7.9	16.7	20.9	8.2	1.9	.9	87.2
7.5E-08 TO 5.0E-08	1.1	2.2	5.5	7.3	4.1	2.3	1.9	1.7	1.9	4.1	8.0	17.5	23.8	8.9	1.9	.9	93.1
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.2	9.2	2.0	.9	99.7
2.5E-08 TO 1.0E-06	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	6.225 E-4	4.152 E-4	5.596 E-4	6.030 E-4	5.243 E-4	6.000 E-4	5.276 E-4	7.662 E-4	6.000 E-4	5.595 E-4	5.276 E-4	5.533 E-4	7.114 E-4	5.596 E-4	5.243 E-4	4.407 E-4	7.662 E-4

5.0 PERCENTILE 2.696E-04

50.0 PERCENTILE 9.566E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE WITH MEANDER CREDIT
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION		S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)		3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	3.200 E3	
MAGNITUDE OF X/Q																		
3.0E-04 TO	2.0E-04	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	.0
2.0E-04 TO	1.0E-04	.2	.1	.1	.2	.2	.1	.3	.2	.4	.4	.6	.5	.5	.3	.1	.1	4.3
1.0E-04 TO	9.0E-05	.2	.1	.2	.2	.2	.2	.3	.2	.4	.6	.9	.6	.5	.3	.2	.1	5.3
9.0E-05 TO	8.0E-05	.3	.1	.2	.3	.2	.3	.3	.3	.5	.7	1.1	.8	.6	.4	.2	.1	6.5
8.0E-05 TO	7.0E-05	.3	.2	.3	.4	.2	.5	.4	.3	.6	.9	1.4	.9	.8	.4	.3	.2	8.0
7.0E-05 TO	6.0E-05	.3	.2	.5	.6	.4	.6	.4	.4	.7	1.2	1.8	1.2	.8	.6	.3	.2	10.2
6.0E-05 TO	5.0E-05	.4	.4	.9	.8	.6	.7	.5	.5	.8	1.5	2.1	1.3	.9	.7	.4	.2	12.8
5.0E-05 TO	4.0E-05	.5	.5	1.3	1.2	.8	.9	.6	.6	.8	1.7	2.5	1.5	1.1	.8	.4	.2	15.6
4.0E-05 TO	3.0E-05	.5	.8	2.1	1.5	1.3	1.1	.8	.7	1.0	2.2	3.1	1.9	1.5	1.2	.7	.3	20.6
3.0E-05 TO	2.0E-05	.7	1.1	2.6	2.3	1.8	1.5	1.2	1.0	1.3	2.7	4.2	3.2	2.2	2.0	.9	.5	29.1
2.0E-05 TO	1.0E-05	.8	1.4	3.7	3.7	2.7	2.1	1.6	1.4	1.6	3.6	6.2	6.9	6.6	4.1	1.4	.7	48.4
1.0E-05 TO	9.0E-06	.8	1.4	3.8	4.0	2.8	2.1	1.6	1.4	1.6	3.7	6.5	7.9	7.4	4.5	1.4	.8	51.7
9.0E-06 TO	8.0E-06	.9	1.5	3.9	4.1	2.9	2.1	1.6	1.4	1.6	3.7	6.8	8.7	8.3	4.8	1.5	.8	54.7
8.0E-06 TO	7.0E-06	.9	1.5	4.0	4.2	3.1	2.1	1.6	1.4	1.6	3.7	6.9	10.3	9.8	5.3	1.5	.8	58.9
7.0E-06 TO	6.0E-06	.9	1.6	4.2	4.4	3.2	2.1	1.6	1.4	1.6	3.7	7.2	11.5	11.4	5.8	1.5	.8	63.0
6.0E-06 TO	5.0E-06	.9	1.7	4.3	4.7	3.4	2.1	1.7	1.4	1.6	3.8	7.4	12.9	13.2	6.3	1.6	.8	67.8
5.0E-06 TO	4.0E-06	.9	1.8	4.4	5.0	3.5	2.1	1.7	1.5	1.7	3.9	7.5	14.1	14.9	6.6	1.6	.8	72.0
4.0E-06 TO	3.0E-06	.9	2.0	4.6	5.2	3.5	2.1	1.8	1.5	1.7	3.9	7.6	15.2	16.7	6.8	1.6	.8	76.0
3.0E-06 TO	2.0E-06	.9	2.0	4.7	5.5	3.6	2.1	1.8	1.5	1.8	3.9	7.7	15.7	18.1	7.2	1.7	.8	79.2
2.0E-06 TO	1.0E-06	1.0	2.0	4.8	5.9	3.7	2.2	1.8	1.6	1.8	4.0	7.8	16.2	19.4	7.6	1.8	.9	82.4
1.0E-06 TO	9.0E-07	1.0	2.1	4.8	5.9	3.7	2.2	1.8	1.6	1.8	4.0	7.8	16.2	19.5	7.7	1.8	.9	82.9
9.0E-07 TO	8.0E-07	1.0	2.1	4.9	6.0	3.8	2.2	1.8	1.6	1.8	4.0	7.8	16.3	19.7	7.8	1.8	.9	83.4
8.0E-07 TO	7.0E-07	1.0	2.1	4.9	6.1	3.8	2.2	1.8	1.6	1.8	4.0	7.8	16.4	19.9	7.9	1.8	.9	84.0
7.0E-07 TO	6.0E-07	1.0	2.1	5.0	6.1	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.5	20.0	7.9	1.8	.9	84.5
6.0E-07 TO	5.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.5	20.3	7.9	1.8	.9	84.9
5.0E-07 TO	4.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.9	16.5	20.4	7.9	1.8	.9	85.0
4.0E-07 TO	3.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.9	16.5	20.5	7.9	1.8	.9	85.1
3.0E-07 TO	2.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.9	16.6	20.5	7.9	1.8	.9	85.1
2.0E-07 TO	1.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	16.6	20.5	8.0	1.9	.9	85.6
1.0E-07 TO	7.5E-08	1.0	2.1	5.2	6.6	4.0	2.3	1.9	1.6	1.8	4.0	7.9	16.7	20.9	8.2	1.9	.9	87.2
7.5E-08 TO	5.0E-08	1.1	2.2	5.5	7.3	4.1	2.3	1.9	1.7	1.9	4.1	8.0	17.5	23.8	8.9	1.9	.9	93.1
5.0E-09 TO	2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.2	9.2	2.0	.9	99.7
2.5E-09 TO	1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.026 E -4	1.406 E -4	1.821 E -4	1.953 E -4	1.706 E -4	1.953 E -4	1.717 E -4	2.494 E -4	1.953 E -4	1.821 E -4	1.717 E -4	1.801 E -4	2.315 E -4	1.821 E -4	1.706 E -4	1.434 E -4	2.494 E -4

5.0 PERCENTILE 9.325E-05

50.0 PERCENTILE 9.506E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
6.0E-05 TO 5.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	0.0	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
4.0E-05 TO 3.0E-05	0.0	0.0	.0	.0	0.0	.0	.0	.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.1
3.0E-05 TO 2.0E-05	.0	.0	.0	.1	.0	.1	.0	.0	.0	.1	.1	.1	.0	.0	0.0	0.0	.7
2.0E-05 TO 1.0E-05	.1	.0	.2	.5	.3	.2	.2	.2	.3	.6	.5	.5	.5	.4	.1	.1	4.7
1.0E-05 TO 9.0E-06	.1	.1	.3	.6	.3	.2	.2	.3	.3	.7	.6	.6	.7	.4	.2	.1	5.7
9.0E-06 TO 8.0E-06	.1	.1	.4	.7	.4	.2	.2	.4	.3	.7	.7	.7	.8	.5	.2	.1	6.5
8.0E-06 TO 7.0E-06	.2	.1	.5	1.0	.4	.3	.2	.4	.4	.8	.8	1.0	.7	.2	.2	.2	8.1
7.0E-06 TO 6.0E-06	.2	.2	.7	1.3	.6	.4	.4	.5	.4	1.0	1.0	1.0	1.3	.9	.3	.2	10.3
6.0E-06 TO 5.0E-06	.2	.2	.8	1.7	.8	.6	.5	.5	.5	1.1	1.2	1.2	1.7	1.1	.3	.2	12.6
5.0E-06 TO 4.0E-06	.3	.3	1.0	2.2	1.0	.7	.7	.6	.6	1.3	1.4	1.5	2.1	1.4	.4	.3	15.6
4.0E-06 TO 3.0E-06	.3	.5	1.4	2.8	1.3	.9	.9	.7	.7	1.6	1.7	2.1	2.9	2.0	.5	.3	20.5
3.0E-06 TO 2.0E-06	.4	.6	2.3	3.8	1.8	1.2	1.0	.8	1.0	1.9	2.6	3.7	4.8	2.9	.7	.4	30.0
2.0E-06 TO 1.0E-06	.6	1.3	3.4	5.1	2.7	1.7	1.5	1.1	1.3	2.9	4.7	8.5	11.7	5.5	1.1	.6	53.8
1.0E-06 TO 9.0E-07	.6	1.4	3.6	5.4	2.8	1.8	1.5	1.2	1.3	3.1	5.1	9.3	12.9	5.8	1.2	.6	57.6
9.0E-07 TO 8.0E-07	.7	1.5	3.8	5.7	2.9	1.9	1.6	1.2	1.4	3.2	5.5	10.2	14.0	6.2	1.3	.7	61.6
8.0E-07 TO 7.0E-07	.7	1.5	4.1	5.9	3.0	1.9	1.7	1.3	1.4	3.4	5.9	11.1	15.2	6.4	1.4	.7	65.6
7.0E-07 TO 6.0E-07	.7	1.6	4.3	6.2	3.1	2.0	1.7	1.3	1.5	3.5	6.2	12.2	16.6	6.8	1.4	.7	69.9
6.0E-07 TO 5.0E-07	.8	1.7	4.6	6.4	3.3	2.1	1.8	1.5	1.6	3.7	6.6	13.3	18.4	7.2	1.5	.8	75.3
5.0E-07 TO 4.0E-07	.8	1.8	4.8	6.6	3.4	2.1	1.9	1.5	1.6	3.8	7.0	14.4	19.8	7.6	1.6	.8	79.5
4.0E-07 TO 3.0E-07	.9	1.9	5.0	6.8	3.5	2.2	1.9	1.5	1.7	3.9	7.3	15.6	21.7	7.9	1.7	.9	84.1
3.0E-07 TO 2.0E-07	.9	2.0	5.2	6.9	3.7	2.3	1.9	1.6	1.8	3.9	7.6	16.5	23.3	8.2	1.8	.9	88.3
2.0E-07 TO 1.0E-07	1.0	2.0	5.3	7.1	3.8	2.3	1.9	1.6	1.8	4.0	7.8	17.5	24.7	8.5	1.8	.9	92.2
1.0E-07 TO 7.5E-08	1.0	2.1	5.4	7.2	3.8	2.3	1.9	1.6	1.8	4.0	7.9	17.8	25.1	8.6	1.8	.9	93.1
7.5E-08 TO 5.0E-08	1.0	2.1	5.4	7.2	3.9	2.3	1.9	1.6	1.9	4.0	7.9	17.7	25.5	8.7	1.9	.9	93.9
5.0E-08 TO 2.5E-08	1.0	2.1	5.5	7.2	3.9	2.3	1.9	1.6	1.9	4.1	8.0	17.9	26.0	8.8	1.9	.9	94.9
2.5E-08 TO 1.0E-08	1.0	2.2	5.6	7.4	4.0	2.3	1.9	1.6	1.9	4.1	8.0	17.9	26.6	[illegible]	1.9	.9	96.2
1.0E-08 TO 7.5E-09	1.0	2.2	5.6	7.5	4.2	2.3	1.9	1.6	1.9	4.1	8.0	18.0	26.9	9.0	1.9	.9	97.1
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.6	4.2	2.4	1.9	1.7	1.9	4.1	8.0	18.2	27.3	9.1	1.9	.9	98.2
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	[illegible]8	9.2	2.0	.9	99.3
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	2.012 E -5	2.160 E -5	3.566 E -5	3.222 E -5	2.621 E -5	4.394 E -5	3.129 E -5	4.323 E -5	2.508 E -5	2.493 E -5	2.834 E -5	2.639 E -5	2.699 E -5	5.715 E -5	1.971 E -5	1.980 E -5	5.715 E -5

5.0 PERCENTILE 9.698E-06

50.0 PERCENTILE 1.116E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 12/1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)	S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																	
3.0E-05 TO 2.0E-05	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0
2.0E-05 TO 1.0E-05	.0	.1	.1	.2	.1	.0	.0	.0	.0	.1	.0	.1	.1	.1	.0	.0	1.1
1.0E-05 TO 9.0E-06	.0	.1	.2	.3	.1	.0	.0	.1	.0	.1	.1	.2	.2	.1	.0	.0	1.5
9.0E-06 TO 8.0E-06	.0	.2	.2	.4	.2	.1	.1	.1	.0	.1	.1	.2	.3	.1	.0	.0	2.2
8.0E-06 TO 7.0E-06	.1	.2	.3	.6	.3	.1	.1	.1	.1	.2	.2	.3	.4	.2	.1	.0	3.3
7.0E-06 TO 6.0E-06	.1	.2	.4	.9	.5	.2	.1	.2	.1	.3	.3	.4	.7	.4	.1	.0	4.8
6.0E-06 TO 5.0E-06	.1	.3	.7	1.2	.6	.3	.2	.2	.2	.4	.4	.6	.9	.6	.3	.1	7.1
5.0E-06 TO 4.0E-06	.2	.4	1.0	1.7	.9	.4	.3	.3	.2	.5	.5	.8	1.4	.7	.3	.2	9.9
4.0E-06 TO 3.0E-06	.2	.5	1.5	2.4	1.5	.6	.4	.4	.4	.7	.9	1.3	2.2	1.1	.4	.2	15.1
3.0E-06 TO 2.0E-06	.4	.8	2.2	3.7	2.2	.9	.7	.5	.4	1.1	1.5	2.1	3.7	1.8	.6	.4	23.1
2.0E-06 TO 1.0E-06	.5	1.3	3.8	5.1	2.9	1.4	1.1	.9	.9	1.9	3.3	5.9	10.5	4.2	1.0	.5	45.4
1.0E-06 TO 9.0E-07	.6	1.4	4.0	5.3	3.0	1.4	1.2	1.0	1.0	2.1	3.6	6.6	11.7	4.7	1.1	.6	49.3
9.0E-07 TO 8.0E-07	.6	1.5	4.1	5.7	3.2	1.5	1.3	1.1	1.1	2.3	4.0	7.5	13.3	5.2	1.2	.6	54.2
8.0E-07 TO 7.0E-07	.7	1.5	4.4	6.0	3.3	1.5	1.4	1.2	1.1	2.5	4.3	8.7	15.1	5.9	1.3	.7	59.7
7.0E-07 TO 6.0E-07	.7	1.6	4.7	6.3	3.5	1.7	1.4	1.2	1.3	2.7	4.7	10.3	17.4	6.5	1.4	.7	66.1
6.0E-07 TO 5.0E-07	.8	1.8	5.0	6.5	3.6	1.8	1.5	1.3	1.4	2.9	5.2	11.5	19.5	7.0	1.5	.7	72.1
5.0E-07 TO 4.0E-07	.8	1.9	5.2	6.8	3.8	1.9	1.5	1.4	1.5	3.2	5.8	13.2	21.6	7.6	1.6	.8	78.7
4.0E-07 TO 3.0E-07	.9	2.0	5.3	7.1	3.9	2.0	1.7	1.4	1.5	3.5	6.3	14.7	23.6	8.2	1.7	.8	84.7
3.0E-07 TO 2.0E-07	1.0	2.0	5.5	7.3	4.1	2.2	1.8	1.6	1.6	3.7	6.8	16.0	25.6	8.7	1.8	.9	90.7
2.0E-07 TO 1.0E-07	1.0	2.1	5.6	7.5	4.2	2.3	1.8	1.6	1.7	3.8	7.3	17.0	27.1	9.0	1.9	.9	95.1
1.0E-07 TO 7.5E-08	1.0	2.1	5.7	7.5	4.3	2.3	1.9	1.6	1.8	3.9	7.4	17.2	27.5	9.1	1.9	.9	96.0
7.5E-08 TO 5.0E-08	1.1	2.1	5.7	7.6	4.3	2.3	1.9	1.6	1.8	3.9	7.5	17.4	27.7	9.1	1.9	.9	96.8
5.0E-08 TO 2.5E-08	1.1	2.1	5.7	7.6	4.3	2.3	1.9	1.6	1.8	4.0	7.6	17.7	27.9	9.2	1.9	.9	97.5
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.6	4.3	2.3	1.9	1.7	1.8	4.0	7.7	17.8	27.9	9.2	1.9	.9	97.9
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.6	4.3	2.3	1.9	1.7	1.8	4.0	7.7	17.9	27.9	9.2	1.9	.9	98.0
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.8	4.0	7.8	17.9	27.9	9.2	2.0	.9	98.2
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.1	28.1	9.2	2.0	.9	99.2
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.2	2.0	.9	99.9
1.0E-09 TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.006 E -5	1.783 E -5	2.658 E -5	2.102 E -5	1.460 E -5	1.272 E -5	1.124 E -5	1.061 E -5	1.133 E -5	1.684 E -5	1.120 E -5	1.897 E -5	1.707 E -5	1.540 E -5	1.242 E -5	2.197 E -5	2.858 E -5

5.0 PERCENTILE 5.929E-06

50.0 PERCENTILE 6.857E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 1/ 1/75 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)		S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																		
2.0E-05 TO	1.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	.0	0.0	0.0	0.0	0.0	.0
1.0E-05 TO	9.0E-06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	0.0	.0	.0	0.0	0.0	0.0	.1
9.0E-06 TO	8.0E-06	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	.0	.0	0.0	.0	.0	0.0	0.0	0.0	.1
8.0E-06 TO	7.0E-06	0.0	.0	.0	.0	0.0	.0	.0	.0	.0	.0	0.0	.0	.0	.0	.0	.0	.3
7.0E-06 TO	6.0E-06	.0	.0	.0	.0	0.0	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.4
6.0E-06 TO	5.0E-06	.0	.0	.1	.1	0.0	.0	.1	.0	.0	.1	.1	.1	.1	.0	.0	.0	.8
5.0E-06 TO	4.0E-06	.0	.1	.1	.2	.1	.1	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	1.8
4.0E-06 TO	3.0E-06	.1	.2	.5	.5	.4	.2	.2	.3	.2	.5	.5	.7	.7	.4	.1	.1	5.5
3.0E-06 TO	2.0E-06	.2	.5	1.2	1.6	1.1	.8	.4	.4	.4	1.0	1.4	2.0	1.9	.9	.3	.2	14.1
2.0E-06 TO	1.0E-06	.5	1.1	2.8	4.0	2.4	1.3	.9	.9	.9	2.1	3.5	6.4	7.6	3.1	.8	.4	38.7
1.0E-06 TO	9.0E-07	.5	1.2	3.1	4.2	2.5	1.5	1.0	1.0	.9	2.3	3.8	7.5	9.4	3.6	.9	.5	44.0
9.0E-07 TO	8.0E-07	.6	1.4	3.4	4.6	2.7	1.6	1.1	1.1	1.0	2.5	4.3	8.4	11.1	4.0	1.0	.5	49.1
8.0E-07 TO	7.0E-07	.6	1.4	3.6	5.1	2.9	1.7	1.2	1.2	1.1	2.7	4.7	9.7	12.9	4.5	1.1	.6	55.0
7.0E-07 TO	6.0E-07	.7	1.6	4.0	5.5	3.2	1.8	1.4	1.3	1.2	3.0	5.3	11.3	15.8	5.4	1.2	.7	63.3
6.0E-07 TO	5.0E-07	.8	1.7	4.4	5.8	3.4	2.0	1.5	1.3	1.3	3.3	6.0	12.8	18.5	6.2	1.4	.7	71.2
5.0E-07 TO	4.0E-07	.8	1.8	4.8	6.2	3.6	2.1	1.6	1.5	1.4	3.6	6.6	14.4	21.3	7.1	1.6	.8	79.2
4.0E-07 TO	3.0E-07	.9	1.9	5.1	6.7	3.7	2.2	1.7	1.6	1.6	3.7	7.1	15.4	22.9	7.6	1.7	.8	84.9
3.0E-07 TO	2.0E-07	.9	2.0	5.3	7.1	4.0	2.3	1.8	1.6	1.7	3.9	7.5	16.3	24.5	8.2	1.8	.9	90.0
2.0E-07 TO	1.0E-07	1.0	2.2	5.5	7.3	4.1	2.4	1.9	1.7	1.8	4.0	7.9	17.4	26.4	8.7	1.9	.9	95.3
1.0E-07 TO	7.5E-08	1.0	2.2	5.6	7.5	4.2	2.4	1.9	1.7	1.9	4.0	8.0	17.8	26.8	8.9	1.9	.9	96.7
7.5E-08 TO	5.0E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.0	27.3	9.0	1.9	.9	97.8
5.0E-08 TO	2.5E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.1	27.5	9.1	1.9	.9	98.4
2.5E-08 TO	1.0E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.2	27.8	9.1	1.9	.9	98.8
1.0E-08 TO	7.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.8	9.1	1.9	.9	99.0
7.5E-09 TO	5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.1	1.9	.9	99.0
5.0E-09 TO	2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.1	1.9	.9	99.1
2.5E-09 TO	1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.0	9.2	1.9	.9	99.3
1.0E-09 TO	5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.2	2.0	.9	99.8
5.0E-10 TO	1.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		6.054 E -6	7.649 E -6	7.710 E -6	8.622 E -6	4.773 E -6	7.434 E -6	8.536 E -6	7.776 E -6	1.031 E -5	1.109 E -5	6.619 E -6	1.182 E -5	9.354 E -6	7.345 E -6	7.813 E -6	7.891 E -6	1.182 E -5

5.0 PERCENTILE 3.119E-06

50.0 PERCENTILE 7.845E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 1/ 1/75 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)		S 3.200 E3	SSW 3.200 E3	SW 3.200 E3	WSW 3.200 E3	W 3.200 E3	WNW 3.200 E3	NW 3.200 E3	NNW 3.200 E3	N 3.200 E3	NNE 3.200 E3	NE 3.200 E3	ENE 3.200 E3	E 3.200 E3	ESE 3.200 E3	SE 3.200 E3	SSE 3.200 E3	TOTAL
MAGNITUDE OF X/Q																		
4.0E-06	TO 3.0E-06	0.0	.0	.1	.1	.0	.1	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.8
3.0E-06	TO 2.0E-06	.1	.1	.4	.6	.2	.2	.2	.0	.1	.2	.3	.5	.4	.3	.1	.1	3.7
2.0E-06	TO 1.0E-06	.4	1.2	2.6	3.6	1.9	1.1	1.0	.8	.7	1.3	2.7	5.4	7.4	3.6	.9	.4	35.7
1.0E-06	TO 9.0E-07	.5	1.4	3.0	4.1	2.3	1.3	1.1	1.0	.9	2.2	3.5	7.4	10.6	4.6	1.0	.5	45.5
9.0E-07	TO 8.0E-07	.6	1.6	3.5	4.6	2.6	1.6	1.2	1.1	1.1	2.8	4.4	9.6	13.5	5.5	1.2	.6	55.6
8.0E-07	TO 7.0E-07	.7	1.8	3.8	5.3	3.0	1.8	1.4	1.3	1.3	3.1	5.3	12.0	17.1	6.0	1.4	.7	65.9
7.0E-07	TO 6.0E-07	.8	1.8	4.1	5.7	3.4	2.0	1.5	1.4	1.4	3.3	5.9	13.4	19.1	6.9	1.5	.8	73.0
6.0E-07	TO 5.0E-07	.9	2.0	4.7	6.4	3.7	2.1	1.6	1.5	1.5	3.6	6.6	14.5	21.2	7.6	1.7	.8	80.6
5.0E-07	TO 4.0E-07	1.0	2.0	4.9	6.7	4.0	2.2	1.7	1.6	1.6	3.7	7.1	15.4	23.0	8.0	1.8	.8	85.4
4.0E-07	TO 3.0E-07	1.0	2.1	5.2	7.2	4.1	2.3	1.8	1.6	1.7	3.8	7.4	16.2	24.5	8.5	1.8	.9	90.1
3.0E-07	TO 2.0E-07	1.1	2.1	5.5	7.3	4.2	2.4	1.9	1.7	1.8	4.0	7.7	17.1	26.0	8.8	1.9	.9	94.3
2.0E-07	TO 1.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	17.7	27.1	9.0	1.9	.9	97.4
1.0E-07	TO 7.5E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.0	17.9	27.4	9.1	1.9	.9	98.0
7.5E-08	TO 5.0E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.1	27.7	9.2	1.9	.9	98.8
5.0E-08	TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	28.0	9.2	2.0	.9	99.5
2.5E-08	TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.2	9.2	2.0	.9	99.8
1.0E-08	TO 7.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
7.5E-09	TO 5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
5.0E-09	TO 2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
2.5E-09	TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
1.0E-09	TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
5.0E-10	TO 1.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																		
WORST CONDITION		2.084 E-6	3.430 E-6	3.320 E-6	3.254 E-6	3.224 E-6	3.245 E-6	3.471 E-6	3.214 E-6	3.362 E-6	3.353 E-6	3.423 E-6	3.438 E-6	3.306 E-6	3.449 E-6	3.134 E-6	3.316 E-6	3.471 E-6

5.0 PERCENTILE 1.946E-06

50.0 PERCENTILE 8.540E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.995 E3	3.637 E3	3.557 E3	3.557 E3	4.567 E3	3.750 E3	2.816 E3	2.929 E3	
ITUDE OF X/Q																	
03 TO 1.0E-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
03 TO 9.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
04 TO 8.0E-04	0.0	0.0	0.0	.0	0.0	.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
04 TO 7.0E-04	0.0	0.0	.0	.0	.0	.1	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
04 TO 6.0E-04	.0	0.0	.0	.1	.1	.1	.1	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2
04 TO 5.0E-04	.1	0.0	.1	.1	.1	.1	.2	.2	.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.6
04 TO 4.0E-04	.1	.0	.1	.2	.2	.2	.3	.3	.4	.1	.1	.1	.0	0.0	.0	0.0	1.2
04 TO 3.0E-04	.2	.1	.2	.3	.3	.4	.3	.5	.6	.3	.5	.4	.2	.3	.2	.1	4.7
04 TO 2.0E-04	.3	.1	.3	.5	.5	.6	.5	.5	.8	.7	1.1	.8	.5	.4	.3	.2	8.1
04 TO 1.0E-04	.4	.3	.5	1.0	.8	1.0	.7	.8	1.0	1.5	1.7	1.2	.8	.7	.5	.3	12.9
05 TO 9.0E-05	.4	.4	.6	1.1	.9	1.0	.7	.8	1.0	1.6	1.8	1.3	.9	.7	.5	.3	13.8
05 TO 8.0E-05	.4	.4	.8	1.3	1.0	1.1	.7	.8	1.1	1.7	1.8	1.3	.9	.7	.5	.3	13.8
05 TO 7.0E-05	.5	.4	1.1	1.6	1.1	1.3	.8	.9	1.1	1.7	1.8	1.3	.9	.7	.6	.3	14.9
05 TO 6.0E-05	.5	.5	1.5	1.9	1.4	1.4	.9	.9	1.2	1.8	2.0	1.4	.9	.8	.6	.3	16.5
05 TO 5.0E-05	.6	.7	2.0	2.1	1.7	1.5	1.0	1.0	1.3	1.9	2.1	1.5	.9	.8	.7	.4	18.4
05 TO 4.0E-05	.6	.9	2.5	2.5	2.0	1.6	1.2	1.1	1.4	2.1	2.4	1.6	1.0	.9	.7	.4	20.7
05 TO 3.0E-05	.6	1.0	2.8	2.9	2.3	1.9	1.4	1.3	1.5	2.4	2.8	1.8	1.1	1.0	.8	.5	23.9
05 TO 2.0E-05	.8	1.2	3.5	3.7	2.8	2.1	1.6	1.4	1.6	2.7	3.2	2.1	1.2	1.2	1.0	.6	27.4
05 TO 1.0E-05	.9	1.5	4.2	4.7	3.4	2.1	1.6	1.5	1.6	3.5	4.1	2.8	1.6	1.7	1.1	.7	33.3
05 TO 9.0E-06	.9	1.5	4.2	4.6	3.4	2.1	1.7	1.5	1.7	3.6	5.0	6.1	3.1	3.3	1.5	.8	45.7
06 TO 8.0E-06	.9	1.5	4.3	5.1	3.5	2.1	1.7	1.5	1.7	3.6	6.2	6.7	3.7	3.7	1.5	.8	48.0
06 TO 7.0E-06	.9	1.6	4.4	5.2	3.5	2.1	1.7	1.5	1.7	3.6	6.4	7.6	4.4	4.1	1.5	.8	50.7
06 TO 6.0E-06	.9	1.7	4.5	5.3	3.6	2.1	1.8	1.5	1.7	3.7	6.7	8.6	5.5	4.5	1.5	.8	54.1
06 TO 5.0E-06	.9	1.8	4.6	5.4	3.6	2.1	1.8	1.5	1.8	3.7	7.0	10.3	6.5	5.0	1.6	.8	58.0
06 TO 4.0E-06	.9	1.9	4.6	5.6	3.6	2.2	1.8	1.5	1.8	3.7	7.2	11.7	7.9	5.7	1.6	.8	62.2
06 TO 3.0E-06	.9	2.0	4.7	5.7	3.7	2.2	1.8	1.5	1.8	3.8	7.4	13.4	10.1	6.3	1.6	.8	67.4
06 TO 2.0E-06	.9	2.0	4.8	6.1	3.8	2.2	1.8	1.6	1.8	3.9	7.6	14.6	13.0	6.6	1.7	.8	72.5
06 TO 1.0E-06	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	3.9	7.7	15.6	15.9	6.9	1.7	.9	77.7
06 TO 9.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.1	18.2	7.4	1.8	.9	81.6
07 TO 8.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.1	18.3	7.5	1.8	.9	81.9
07 TO 7.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.2	18.5	7.6	1.8	.9	82.3
07 TO 6.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.2	18.7	7.7	1.8	.9	82.7
07 TO 5.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.3	19.1	7.8	1.8	.9	83.3
07 TO 4.0E-07	1.0	2.1	5.0	6.3	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.5	19.3	7.9	1.8	.9	83.8
07 TO 3.0E-07	1.0	2.1	5.0	6.6	4.0	2.3	1.9	1.6	1.8	4.0	7.8	16.5	19.6	7.9	1.8	.9	84.5
07 TO 2.0E-07	1.0	2.1	5.2	7.3	4.2	2.3	1.9	1.6	1.8	4.0	7.9	16.5	20.0	7.9	1.8	.9	85.4
07 TO 1.0E-07	1.0	2.1	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.5	20.4	7.9	1.8	.9	87.1
07 TO 7.5E-08	1.0	2.1	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.6	20.5	7.9	1.9	.9	88.3
08 TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.6	20.5	7.9	1.9	.9	88.6
08 TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.9	20.5	8.1	2.0	.9	89.3
08 TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	21.0	9.2	2.0	.9	92.3
08 TO 7.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	27.8	9.2	2.0	.9	99.5
09 TO 5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
													28.3	9.3	2.0	.9	100.0

MAGNITUDE OF X/Q

CONDITION	6.848 E-4	4.512 E-4	7.395 E-4	6.883 E-4	7.356 E-4	8.730 E-4	6.893 E-4	1.134 E-3	8.883 E-4	4.953 E-4	4.772 E-4	5.005 E-4	4.975 E-4	4.807 E-4	5.884 E-4	4.777 E-4	1.134 E-3
0 PERCENTILE	2.895E-04																
0 PERCENTILE	6.232E-06																

7884 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - HOURLY MODEL

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: CENTERLINE BASE PLUME, GROUND RELEASE WITH MEANDER CREDIT
REACTOR AREA 2730. SQ. METERS
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.981 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
5.0E-04 TO 4.0E-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
4.0E-04 TO 3.0E-04	0.0	0.0	0.0	.0	.0	.0	0.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1
3.0E-04 TO 2.0E-04	.0	0.0	.1	.1	.1	.1	.1	.1	.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.9
2.0E-04 TO 1.0E-04	.2	.1	.3	.6	.4	.6	.4	.4	.7	.2	.4	.3	.1	.2	.2	.1	5.4
1.0E-04 TO 9.0E-05	.3	.1	.4	.8	.6	.7	.4	.5	.8	.4	.5	.4	.2	.3	.3	.1	6.7
9.0E-05 TO 8.0E-05	.3	.1	.6	.9	.7	.8	.4	.6	.8	.5	.9	.6	.2	.3	.3	.2	8.1
8.0E-05 TO 7.0E-05	.3	.2	.9	1.2	.9	.9	.5	.6	.8	.7	1.2	.8	.4	.4	.3	.2	10.1
7.0E-05 TO 6.0E-05	.4	.3	1.2	1.5	1.2	1.1	.5	.6	1.0	.9	1.5	1.0	.5	.4	.4	.2	12.6
6.0E-05 TO 5.0E-05	.4	.4	1.7	1.7	1.5	1.2	.7	.7	1.1	1.3	1.9	1.2	.7	.6	.4	.2	15.9
5.0E-05 TO 4.0E-05	.5	.6	2.3	2.2	1.8	1.5	.9	.9	1.3	1.5	2.3	1.4	.8	.7	.6	.3	19.6
4.0E-05 TO 3.0E-05	.5	.9	2.7	2.7	2.2	1.7	1.2	1.1	1.4	1.9	2.7	1.7	.9	.9	.8	.4	23.8
3.0E-05 TO 2.0E-05	.7	1.1	3.4	3.7	2.8	2.1	1.5	1.4	1.6	2.4	3.8	2.6	1.4	1.5	1.1	.5	31.4
2.0E-05 TO 1.0E-05	.9	1.5	4.2	4.7	3.4	2.1	1.6	1.5	1.6	3.4	5.9	6.0	3.1	3.3	1.5	.8	45.3
1.0E-05 TO 9.0E-06	.9	1.5	4.2	4.8	3.4	2.1	1.7	1.5	1.7	3.5	6.1	6.6	3.7	3.6	1.5	.8	47.7
9.0E-06 TO 8.0E-06	.9	1.5	4.3	5.1	3.5	2.1	1.7	1.5	1.7	3.6	6.4	7.6	4.4	4.1	1.5	.8	50.6
8.0E-06 TO 7.0E-06	.9	1.6	4.4	5.2	3.5	2.1	1.7	1.5	1.7	3.7	6.7	8.6	5.5	4.5	1.5	.8	54.0
7.0E-06 TO 6.0E-06	.9	1.7	4.5	5.3	3.6	2.1	1.8	1.5	1.7	3.7	7.0	10.3	6.5	5.0	1.6	.8	58.0
6.0E-06 TO 5.0E-06	.9	1.8	4.6	5.4	3.6	2.1	1.8	1.5	1.8	3.7	7.2	11.7	7.9	5.7	1.6	.8	62.2
5.0E-06 TO 4.0E-06	.9	1.9	4.6	5.6	3.6	2.2	1.8	1.5	1.8	3.8	7.4	13.4	10.1	6.3	1.6	.8	67.4
4.0E-06 TO 3.0E-06	.9	2.0	4.7	5.7	3.7	2.2	1.8	1.5	1.8	3.9	7.6	14.6	13.0	6.6	1.7	.8	72.5
3.0E-06 TO 2.0E-06	.9	2.0	4.8	6.1	3.8	2.2	1.8	1.6	1.8	3.9	7.7	15.6	15.9	6.9	1.7	.9	77.7
2.0E-06 TO 1.0E-06	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.1	18.2	7.4	1.8	.9	81.6
1.0E-06 TO 9.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.1	18.3	7.5	1.8	.9	81.9
9.0E-07 TO 8.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.2	18.5	7.6	1.8	.9	82.3
8.0E-07 TO 7.0E-07	1.0	2.1	5.0	6.2	3.8	2.2	1.9	1.6	1.8	4.0	7.8	16.2	18.7	7.7	1.8	.9	82.7
7.0E-07 TO 6.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.3	19.1	7.9	1.8	.9	83.3
6.0E-07 TO 5.0E-07	1.0	2.1	5.0	6.2	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.5	19.3	7.9	1.8	.9	83.8
5.0E-07 TO 4.0E-07	1.0	2.1	5.0	6.3	3.9	2.3	1.9	1.6	1.8	4.0	7.8	16.5	19.6	7.9	1.8	.9	84.5
4.0E-07 TO 3.0E-07	1.0	2.1	5.0	6.6	4.0	2.3	1.9	1.6	1.8	4.0	7.9	16.5	20.0	7.9	1.8	.9	85.4
3.0E-07 TO 2.0E-07	1.0	2.1	5.2	7.3	4.2	2.3	1.9	1.7	1.9	4.0	7.9	16.5	20.4	7.9	1.8	.9	87.1
2.0E-07 TO 1.0E-07	1.0	2.1	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.6	20.5	7.9	1.9	.9	88.3
1.0E-07 TO 7.5E-08	1.0	2.1	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.6	20.5	7.9	1.9	.9	88.6
7.5E-08 TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.0	7.9	16.9	20.5	8.1	2.0	.9	89.3
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	21.0	9.2	2.0	.9	92.3
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	27.8	9.2	2.0	.9	99.5
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0

MAGNITUDE OF X/Q

WORST CONDITION	2.298 E -4	1.524 E -4	2.665 E -4	3.381 E -4	3.009 E -4	3.293 E -4	2.472 E -4	4.318 E -4	3.381 E -4	1.558 E -4	1.510 E -4	1.583 E -4	1.484 E -4	1.500 E -4	1.988 E -4	1.595 E -4	4.318 E -4

5.0 PERCENTILE 1.067E-04

50.0 PERCENTILE 8.188E-06

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 8 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	TOTAL
SECTOR DISTANCE (M)	2.881 E3	2.929 E3	2.317 E3	1.996 E3	1.963 E3	2.044 E3	2.350 E3	1.996 E3	1.996 E3	3.637 E3	3.557 E3	3.557 E3	4.587 E3	3.750 E3	2.816 E3	2.929 E3	
MAGNITUDE OF X/Q																	
7.0E-05 TO 6.0E-05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0
6.0E-05 TO 5.0E-05	0.0	0.0	0.0	0.0	.0	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	.0	0.0	0.0	.1
5.0E-05 TO 4.0E-05	0.0	0.0	0.0	0.0	.0	.0	0.0	.0	.0	.0	.0	0.0	0.0	.0	0.0	0.0	.1
4.0E-05 TO 3.0E-05	.0	0.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
3.0E-05 TO 2.0E-05	.0	.0	.1	.2	.2	.1	.1	.1	.1	.2	.2	.2	.1	.0	.0	.0	1.7
2.0E-05 TO 1.0E-05	.1	.1	.5	1.0	.5	.4	.3	.3	.3	.7	.6	.6	.8	.5	.2	.1	6.9
1.0E-05 TO 9.0E-06	.1	.1	.6	1.2	.6	.4	.4	.4	.3	.8	.7	.7	.9	.6	.2	.2	8.1
9.0E-06 TO 8.0E-06	.1	.1	.7	1.5	.7	.5	.4	.4	.4	.9	.8	.9	1.0	.7	.2	.2	9.4
8.0E-06 TO 7.0E-06	.2	.2	.9	1.7	.8	.5	.5	.5	.4	1.0	.9	1.0	1.2	.9	.3	.2	11.3
7.0E-06 TO 6.0E-06	.2	.2	1.1	2.0	1.0	.7	.6	.6	.6	1.1	1.1	1.2	1.4	1.1	.3	.2	13.3
6.0E-06 TO 5.0E-06	.2	.3	1.3	2.4	1.3	.8	.7	.6	.6	1.3	1.3	1.4	1.8	1.3	.3	.3	15.9
5.0E-06 TO 4.0E-06	.3	.4	1.7	3.0	1.5	.9	.8	.7	.7	1.5	1.5	1.7	2.2	1.6	.4	.3	19.5
4.0E-06 TO 3.0E-06	.4	.6	2.2	3.8	1.9	1.2	1.0	.8	.9	1.7	2.0	2.2	2.7	2.2	.6	.4	24.6
3.0E-06 TO 2.0E-06	.4	.9	2.8	4.5	2.2	1.4	1.3	.9	1.1	2.3	2.8	3.2	4.0	3.0	.7	.5	32.0
2.0E-06 TO 1.0E-06	.6	1.4	3.8	5.7	2.8	1.8	1.6	1.2	1.3	2.9	4.4	6.7	8.4	4.7	1.1	.7	49.1
1.0E-06 TO 9.0E-07	.7	1.5	3.9	5.8	2.9	1.8	1.6	1.2	1.4	3.0	4.7	7.3	9.5	5.0	1.1	.7	52.0
9.0E-07 TO 8.0E-07	.7	1.6	4.0	6.0	3.0	1.9	1.7	1.3	1.4	3.1	5.0	8.2	10.7	5.3	1.2	.7	55.7
8.0E-07 TO 7.0E-07	.7	1.6	4.2	6.2	3.0	1.9	1.7	1.3	1.5	3.3	5.3	9.0	12.1	5.8	1.3	.7	59.6
7.0E-07 TO 6.0E-07	.8	1.7	4.4	6.3	3.1	2.0	1.8	1.4	1.5	3.4	5.5	9.8	13.7	6.1	1.4	.7	63.5
6.0E-07 TO 5.0E-07	.8	1.8	4.6	6.5	3.3	2.0	1.8	1.4	1.5	3.6	5.9	11.0	15.3	6.6	1.5	.8	68.3
5.0E-07 TO 4.0E-07	.9	1.8	4.8	6.6	3.5	2.1	1.8	1.4	1.6	3.6	6.3	12.4	17.4	7.1	1.5	.8	73.7
4.0E-07 TO 3.0E-07	.9	1.9	5.0	6.8	3.6	2.2	1.9	1.5	1.7	3.8	6.9	13.9	19.6	7.4	1.6	.8	79.4
3.0E-07 TO 2.0E-07	1.0	2.0	5.2	6.9	3.7	2.2	1.9	1.6	1.8	3.9	7.4	15.4	21.9	8.0	1.7	.9	85.4
2.0E-07 TO 1.0E-07	1.0	2.1	5.4	7.1	3.8	2.3	1.9	1.6	1.8	4.0	7.8	16.9	24.0	8.4	1.8	.9	90.8
1.0E-07 TO 7.5E-08	1.0	2.1	5.4	7.2	3.9	2.3	1.9	1.6	1.8	4.0	7.9	17.2	24.4	8.5	1.8	.9	92.1
7.5E-08 TO 5.0E-08	1.0	2.1	5.5	7.3	3.9	2.3	1.9	1.6	1.9	4.0	7.9	17.6	25.1	8.6	1.8	.9	93.5
5.0E-08 TO 2.5E-08	1.0	2.2	5.6	7.4	4.0	2.3	1.9	1.6	1.9	4.0	7.9	17.7	25.7	8.8	1.9	.9	94.9
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.5	4.1	2.3	1.9	1.7	1.9	4.1	8.0	18.0	26.1	8.9	1.9	.9	96.4
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.6	4.2	2.3	1.9	1.7	1.9	4.1	8.0	18.0	26.2	8.9	1.9	.9	96.6
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.6	4.2	2.3	1.9	1.7	1.9	4.1	8.0	18.0	26.4	8.9	1.9	.9	97.0
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.6	9.1	1.9	.9	98.8
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.2	2.0	.9	99.8
1.0E-09 TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	3.910 E -5	2.168 E -5	3.059 E -5	3.713 E -5	5.225 E -5	4.913 E -5	3.673 E -5	5.074 E -5	5.022 E -5	4.720 E -5	4.257 E -5	3.871 E -5	3.212 E -5	6.694 E -5	3.889 E -5	3.781 E -5	6.694 E -5

5.0 PERCENTILE 1.286E-05

50.0 PERCENTILE 9.683E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 16 HOURS

DATES 1/ 1/75 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION / SECTOR DISTANCE (M)	S 2.0E1 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.996 E3	W 1.963 E3	WNW 2.044 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.637 E3	NE 3.557 E3	ENE 3.557 E3	E 4.587 E3	ESE 3.750 E3	SE 2.816 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
4.0E-05 TO 3.0E-05	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
3.0E-05 TO 2.0E-05	0.0	0.0	.0	.1	0.0	.0	.0	.0	.0	0.0	.0	.0	0.0	.0	0.0	0.0	.2
2.0E-05 TO 1.0E-05	.1	.1	.4	.5	.2	.1	.1	.2	.1	.2	.1	.2	.3	.1	.1	.0	2.8
1.0E-05 TO 9.0E-06	.1	.1	.4	.6	.3	.2	.1	.2	.1	.2	.1	.3	.4	.2	.1	.0	3.5
9.0E-06 TO 8.0E-06	.1	.2	.5	.6	.4	.2	.2	.2	.1	.2	.2	.3	.5	.2	.1	.1	4.4
8.0E-06 TO 7.0E-06	.1	.2	.6	1.0	.6	.3	.2	.3	.2	.3	.3	.4	.7	.3	.1	.1	5.8
7.0E-06 TO 6.0E-06	.1	.2	.9	1.5	.8	.3	.3	.3	.2	.4	.5	.5	.9	.5	.2	.1	7.7
6.0E-06 TO 5.0E-06	.2	.4	1.1	2.0	1.0	.5	.3	.4	.2	.5	.5	.6	1.2	.7	.2	.2	10.1
5.0E-06 TO 4.0E-06	.2	.6	1.5	2.6	1.4	.6	.4	.4	.3	.7	.8	.9	1.7	.9	.4	.2	13.5
4.0E-06 TO 3.0E-06	.3	.7	2.1	3.4	1.8	.8	.7	.5	.4	.9	1.1	1.4	2.4	1.2	.5	.3	18.4
3.0E-06 TO 2.0E-06	.4	.9	2.8	4.2	2.4	1.0	.9	.7	.6	1.3	1.8	2.2	3.7	1.9	.6	.3	25.9
2.0E-06 TO 1.0E-06	.5	1.4	3.7	5.4	3.0	1.4	1.2	1.0	.9	2.0	2.9	4.6	7.6	3.6	1.1	.5	40.8
1.0E-06 TO 9.0E-07	.5	1.4	3.9	5.5	3.1	1.4	1.3	1.0	1.0	2.1	3.1	5.3	8.7	4.0	1.1	.6	44.0
9.0E-07 TO 8.0E-07	.6	1.5	4.1	5.7	3.2	1.5	1.3	1.1	1.1	2.3	3.4	6.1	10.0	4.3	1.2	.6	48.0
8.0E-07 TO 7.0E-07	.6	1.6	4.3	6.0	3.3	1.6	1.3	1.2	1.2	2.5	3.9	7.0	11.7	4.9	1.2	.6	52.9
7.0E-07 TO 6.0E-07	.7	1.6	4.6	6.2	3.5	1.7	1.5	1.2	1.2	2.7	4.3	8.1	13.4	5.4	1.3	.7	58.1
6.0E-07 TO 5.0E-07	.7	1.7	4.8	6.5	3.6	1.8	1.5	1.3	1.4	2.9	4.7	9.3	15.8	6.1	1.4	.7	64.2
5.0E-07 TO 4.0E-07	.8	1.8	5.1	6.7	3.7	1.9	1.6	1.4	1.5	3.2	5.3	10.8	18.6	7.0	1.5	.7	71.6
4.0E-07 TO 3.0E-07	.9	1.9	5.4	7.0	3.8	2.0	1.7	1.5	1.5	3.5	5.9	12.7	21.7	7.8	1.6	.8	79.9
3.0E-07 TO 2.0E-07	1.0	2.0	5.5	7.3	4.0	2.2	1.8	1.6	1.6	3.7	6.6	15.0	24.6	8.4	1.8	.9	87.8
2.0E-07 TO 1.0E-07	1.0	2.1	5.7	7.5	4.2	2.3	1.9	1.6	1.8	3.9	7.2	16.8	26.8	9.0	1.9	.9	94.5
1.0E-07 TO 7.5E-08	1.1	2.1	5.7	7.5	4.2	2.3	1.9	1.6	1.8	4.0	7.3	17.1	27.3	9.1	1.9	.9	95.8
7.5E-08 TO 5.0E-08	1.1	2.1	5.7	7.5	4.3	2.3	1.9	1.6	1.8	4.0	7.4	17.3	27.7	9.1	1.9	.9	96.6
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.6	4.3	2.3	1.9	1.7	1.8	4.0	7.6	17.7	27.9	9.2	1.9	.9	97.6
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.8	17.9	28.0	9.2	1.9	.9	98.5
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	18.0	28.0	9.2	1.9	.9	98.7
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	7.9	18.1	28.0	9.2	1.9	.9	98.9
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	7.9	18.2	28.1	9.2	2.0	.9	99.3
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.3	28.2	9.2	2.0	.9	99.6
1.0E-09 TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	1.455 E -5	1.945 E -5	3.347 E -5	2.863 E -5	1.835 E -5	2.430 E -5	2.040 E -5	2.105 E -5	2.080 E -5	1.971 E -5	2.012 E -5	2.511 E -5	1.856 E -5	2.013 E -5	1.659 E -5	1.827 E -5	3.347 E -5

5.0 PERCENTILE 7.55EE-06

50.0 PERCENTILE 7.5e4E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 72 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)	S 2.681 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.936 E3	W 1.963 E3	WNW 2.044 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.637 E3	NE 3.557 E3	ENE 3.557 E3	E 4.587 E3	ESE 3.750 E3	SE 2.815 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
2.0E-05 TO 1.0E-05	0.0	0.0	0.0	.0	0.0	0.0	.0	0.0	0.0	0.0	.0	.0	0.0	0.0	0.0	0.0	.1
1.0E-05 TO 9.0E-06	.0	.0	.0	.1	0.0	.0	.0	0.0	0.0	.0	.0	.0	0.0	0.0	0.0	0.0	.2
9.0E-06 TO 8.0E-06	.0	.0	.0	.1	.0	.0	.0	0.0	.0	.0	.0	.0	.0	0.0	0.0	.0	.4
8.0E-06 TO 7.0E-06	.0	.0	.1	.2	.1	.0	.0	.0	.1	.1	.0	.1	.1	.0	.0	.0	.7
7.0E-06 TO 6.0E-06	.0	.1	.2	.2	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.0	.0	1.5
6.0E-06 TO 5.0E-06	.0	.1	.3	.5	.3	.1	.1	.1	.1	.2	.2	.2	.2	.1	.1	.0	2.6
5.0E-06 TO 4.0E-06	.0	.2	.5	.8	.4	.2	.2	.1	.2	.2	.4	.5	.5	.2	.1	.1	4.7
4.0E-06 TO 3.0E-06	.1	.3	.8	1.2	.7	.4	.3	.3	.2	.5	.8	.9	.9	.4	.2	.1	8.1
3.0E-06 TO 2.0E-06	.2	.7	1.4	2.0	1.2	.7	.5	.4	.5	1.2	1.5	2.2	2.1	.9	.4	.2	16.1
2.0E-06 TO 1.0E-06	.4	1.1	2.8	3.8	2.3	1.2	.9	.8	.9	2.1	3.3	5.4	5.7	2.4	.7	.4	34.4
1.0E-06 TO 9.0E-07	.4	1.2	3.1	4.1	2.4	1.3	1.0	.9	.9	2.3	3.7	6.0	6.6	2.7	.8	.4	37.6
9.0E-07 TO 8.0E-07	.5	1.3	3.3	4.4	2.5	1.4	1.1	.9	1.0	2.4	4.0	6.4	7.7	3.3	.9	.5	41.9
8.0E-07 TO 7.0E-07	.6	1.4	3.6	4.8	2.7	1.6	1.1	1.0	1.1	2.6	4.5	8.2	9.3	3.7	1.0	.5	47.7
7.0E-07 TO 6.0E-07	.6	1.5	3.8	5.1	2.9	1.7	1.3	1.1	1.2	2.8	5.0	9.6	11.6	4.3	1.1	.6	54.2
6.0E-07 TO 5.0E-07	.7	1.6	4.1	5.5	3.1	1.8	1.4	1.3	1.3	3.0	5.5	11.2	14.4	5.4	1.3	.7	62.2
5.0E-07 TO 4.0E-07	.8	1.7	4.5	6.0	3.3	2.0	1.6	1.4	1.4	3.3	6.1	12.8	16.9	6.2	1.4	.8	70.1
4.0E-07 TO 3.0E-07	.9	1.9	5.0	6.7	3.7	2.2	1.7	1.6	1.5	3.6	6.9	14.8	21.4	7.3	1.6	.8	81.6
3.0E-07 TO 2.0E-07	.9	2.0	5.3	7.1	3.9	2.3	1.8	1.7	1.7	3.8	7.6	16.4	24.8	8.2	1.9	.9	90.3
2.0E-07 TO 1.0E-07	1.0	2.2	5.6	7.5	4.2	2.3	1.9	1.7	1.9	4.0	7.9	17.5	26.7	8.9	1.9	.9	96.2
1.0E-07 TO 7.5E-08	1.0	2.2	5.6	7.5	4.2	2.4	1.9	1.7	1.9	4.0	8.0	17.7	27.1	9.0	1.9	.9	97.0
7.5E-08 TO 5.0E-08	1.0	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.0	27.4	9.0	1.9	.9	98.0
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.0	8.1	18.2	27.7	9.1	1.9	.9	98.7
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.1	1.9	.9	99.0
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.1	1.9	.9	99.1
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.2	1.9	.9	99.2
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.0	9.2	1.9	.9	99.4
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.2	9.2	2.0	.9	99.8
1.0E-09 TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
5.0E-10 TO 1.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	9.341 E -6	9.137 E -6	9.185 E -6	1.143 E -5	8.135 E -6	9.080 E -6	1.035 E -5	7.571 E -6	8.915 E -6	9.520 E -6	1.057 E -5	1.015 E -5	8.200 E -6	7.358 E -6	7.974 E -6	8.751 E -6	1.143 E -5

5.0 PERCENTILE 3.692E-06

50.0 PERCENTILE 6.633E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY DISTRIBUTION OF X/Q - WINDOW MODEL 624 HOURS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: SECTOR AVERAGED PLUME, GROUND RELEASE
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

CUMULATIVE PERCENT FREQUENCY

SECTOR DIRECTION SECTOR DISTANCE (M)	S 2.881 E3	SSW 2.929 E3	SW 2.317 E3	WSW 1.996 E3	W 1.963 E3	WNW 2.044 E3	NW 2.350 E3	NNW 1.996 E3	N 1.996 E3	NNE 3.537 E3	NE 3.557 E3	ENE 3.557 E3	E 4.367 E3	ESE 3.750 E3	SE 2.816 E3	SSE 2.929 E3	TOTAL
MAGNITUDE OF X/Q																	
4.0E-06 TO 3.0E-06	.0	.0	.2	.1	.1	.1	.0	.1	.1	.1	.3	.1	.2	.1	.0	.0	1.3
3.0E-06 TO 2.0E-06	.1	.2	.7	.7	.5	.4	.3	.3	.2	.5	.5	1.0	.7	.6	.2	.1	7.5
2.0E-06 TO 1.0E-06	.4	.7	2.4	3.0	1.8	1.2	1.0	.8	.8	1.8	2.7	5.3	6.0	2.8	.8	.4	32.2
1.0E-06 TO 9.0E-07	.5	1.1	2.6	3.5	2.2	1.3	1.1	.9	.9	2.1	3.3	6.2	7.2	3.5	1.0	.4	37.9
9.0E-07 TO 8.0E-07	.5	1.2	2.9	3.9	2.4	1.4	1.2	1.0	1.0	2.3	3.8	7.1	9.0	4.0	1.0	.5	43.0
8.0E-07 TO 7.0E-07	.6	1.5	3.3	4.3	2.6	1.5	1.3	1.1	1.1	2.5	4.2	8.0	10.9	4.7	1.1	.5	49.3
7.0E-07 TO 6.0E-07	.8	1.6	3.9	5.1	3.0	1.7	1.5	1.2	1.3	2.9	4.9	10.2	13.9	5.5	1.4	.6	59.5
6.0E-07 TO 5.0E-07	.9	1.8	4.6	5.9	3.5	2.0	1.6	1.4	1.5	3.2	6.1	12.8	18.7	7.0	1.5	.7	73.3
5.0E-07 TO 4.0E-07	1.0	2.0	5.0	6.7	3.8	2.2	1.8	1.6	1.7	3.7	7.0	15.2	22.9	8.0	1.8	.8	85.2
4.0E-07 TO 3.0E-07	1.0	2.1	5.4	7.3	4.2	2.3	1.9	1.7	1.8	3.9	7.5	16.5	24.9	8.6	1.8	.9	91.8
3.0E-07 TO 2.0E-07	1.1	2.2	5.6	7.4	4.3	2.4	1.9	1.7	1.8	4.0	7.8	17.3	26.4	8.9	1.9	.9	95.4
2.0E-07 TO 1.0E-07	1.1	2.2	5.7	7.6	4.3	2.4	1.9	1.7	1.8	4.0	7.9	17.9	27.5	9.1	1.9	.9	98.2
1.0E-07 TO 7.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.0	18.0	27.8	9.2	1.9	.9	98.8
7.5E-08 TO 5.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.2	27.9	9.2	1.9	.9	99.2
5.0E-08 TO 2.5E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.3	28.1	9.2	2.0	.9	99.7
2.5E-08 TO 1.0E-08	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
1.0E-08 TO 7.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
7.5E-09 TO 5.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
5.0E-09 TO 2.5E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
2.5E-09 TO 1.0E-09	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.2	9.3	2.0	.9	99.9
1.0E-09 TO 5.0E-10	1.1	2.2	5.7	7.7	4.3	2.4	1.9	1.7	1.9	4.1	8.1	18.4	28.3	9.3	2.0	.9	100.0
MAGNITUDE OF X/Q																	
WORST CONDITION	3.848 E -6	3.153 E -6	3.869 E -6	3.876 E -6	3.884 E -6	3.255 E -6	3.102 E -6	3.959 E -6	3.422 E -6	3.469 E -6	3.696 E -6	3.902 E -6	3.461 E -6	3.823 E -6	3.450 E -6	3.849 E -6	3.959 E -6

5.0 PERCENTILE 2.360E-06

50.0 PERCENTILE 6.928E-07

8784 TOTAL HOURS INPUT 8454 HOURS USED ABOVE 96.24 PERCENT INCLUDED

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS 1976 ONLY

AVERAGE X/Q DISPERSION FACTORS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

WIND DIRECTION SECTOR

DOWNWIND DIST. (MI)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
.1	3.8E-05	3.7E-05	7.7E-05	9.9E-05	7.2E-05	7.4E-05	6.5E-05	5.8E-05	7.6E-05	1.4E-04	2.0E-04	1.9E-04	1.7E-04	1.2E-04	5.0E-05	2.8E-05
.2	1.1E-05	1.1E-05	2.2E-05	2.8E-05	2.1E-05	2.1E-05	1.9E-05	1.7E-05	2.2E-05	4.2E-05	5.8E-05	5.4E-05	5.0E-05	3.3E-05	1.5E-05	7.9E-06
.3	5.4E-06	5.1E-06	1.1E-05	1.4E-05	9.9E-06	1.0E-05	9.1E-06	8.1E-06	1.1E-05	2.0E-05	2.8E-05	2.6E-05	2.4E-05	1.6E-05	7.0E-06	3.8E-06
.4	3.2E-06	3.0E-06	6.3E-06	8.1E-06	5.9E-06	6.2E-06	5.4E-06	4.9E-06	6.4E-06	1.2E-05	1.7E-05	1.6E-05	1.4E-05	9.5E-06	4.2E-06	2.3E-06
.5	2.2E-06	2.0E-06	4.2E-06	5.4E-06	4.0E-06	4.1E-06	3.6E-06	3.3E-06	4.3E-06	8.1E-06	1.1E-05	1.0E-05	9.3E-06	6.4E-06	2.8E-06	1.5E-06
.6	1.6E-06	1.5E-06	3.1E-06	3.9E-06	2.8E-06	3.0E-06	2.6E-06	2.3E-06	3.1E-06	5.9E-06	8.1E-06	7.5E-06	6.7E-06	4.6E-06	2.0E-06	1.1E-06
.7	1.2E-06	1.1E-06	2.4E-06	3.0E-06	2.2E-06	2.3E-06	2.0E-06	1.8E-06	2.4E-06	4.6E-06	6.4E-06	5.8E-06	5.2E-06	3.5E-06	1.6E-06	8.5E-07
.8	9.9E-07	9.2E-07	1.9E-06	2.5E-06	1.8E-06	1.9E-06	1.7E-06	1.5E-06	2.0E-06	3.8E-06	5.2E-06	4.8E-06	4.2E-06	2.9E-06	1.3E-06	7.0E-07
.9	8.3E-07	7.7E-07	1.6E-06	2.1E-06	1.5E-06	1.6E-06	1.4E-06	1.2E-06	1.7E-06	3.2E-06	4.4E-06	4.0E-06	3.5E-06	2.4E-06	1.1E-06	5.8E-07
1.0	7.1E-07	6.6E-07	1.4E-06	1.8E-06	1.3E-06	1.4E-06	1.2E-06	1.1E-06	1.4E-06	2.7E-06	3.8E-06	3.4E-06	3.0E-06	2.1E-06	9.1E-07	5.0E-07
1.5	3.9E-07	3.5E-07	7.5E-07	9.5E-07	7.0E-07	7.5E-07	6.5E-07	5.8E-07	7.8E-07	1.5E-06	2.1E-06	1.8E-06	1.6E-06	1.1E-06	5.0E-07	2.7E-07
2.0	2.6E-07	2.3E-07	4.9E-07	6.2E-07	4.5E-07	4.9E-07	4.2E-07	3.8E-07	5.1E-07	9.7E-07	1.3E-06	1.2E-06	1.0E-06	7.2E-07	3.2E-07	1.8E-07
2.5	1.8E-07	1.6E-07	3.5E-07	4.4E-07	3.2E-07	3.5E-07	3.0E-07	2.7E-07	3.7E-07	7.0E-07	9.7E-07	8.6E-07	7.4E-07	5.2E-07	2.3E-07	1.3E-07
3.0	1.4E-07	1.2E-07	2.7E-07	3.3E-07	2.5E-07	2.7E-07	2.3E-07	2.1E-07	2.8E-07	5.3E-07	7.4E-07	6.5E-07	5.6E-07	3.9E-07	1.8E-07	9.5E-08
3.5	1.1E-07	9.8E-08	2.1E-07	2.7E-07	2.0E-07	2.1E-07	1.8E-07	1.6E-07	2.2E-07	4.2E-07	5.9E-07	5.2E-07	4.5E-07	3.1E-07	1.4E-07	7.6E-08
4.0	9.2E-08	8.0E-08	1.7E-07	2.2E-07	1.6E-07	1.7E-07	1.5E-07	1.3E-07	1.8E-07	3.5E-07	4.9E-07	4.2E-07	3.6E-07	2.5E-07	1.2E-07	6.2E-08
4.5	7.8E-08	6.7E-08	1.4E-07	1.8E-07	1.3E-07	1.5E-07	1.3E-07	1.1E-07	1.5E-07	2.9E-07	4.1E-07	3.6E-07	3.0E-07	2.1E-07	9.7E-08	5.2E-08
5.0	6.6E-08	5.7E-08	1.2E-07	1.6E-07	1.1E-07	1.2E-07	1.1E-07	9.6E-08	1.3E-07	2.5E-07	3.5E-07	3.0E-07	2.6E-07	1.8E-07	8.3E-08	4.4E-08
7.5	3.7E-08	3.2E-08	6.9E-08	8.6E-08	6.4E-08	7.0E-08	6.0E-08	5.4E-08	7.4E-08	1.4E-07	2.0E-07	1.7E-07	1.4E-07	1.0E-07	4.6E-08	2.5E-08
10	2.6E-08	2.2E-08	4.8E-08	6.0E-08	4.4E-08	4.9E-08	4.2E-08	3.8E-08	5.2E-08	9.9E-08	1.4E-07	1.2E-07	9.9E-08	7.0E-08	3.2E-08	1.7E-08
15	1.6E-08	1.3E-08	2.9E-08	3.6E-08	2.7E-08	3.0E-08	2.6E-08	2.3E-08	3.2E-08	6.0E-08	8.4E-08	7.1E-08	5.9E-08	4.2E-08	1.9E-08	1.0E-08
20	1.1E-08	9.1E-09	2.0E-08	2.5E-08	1.9E-08	2.1E-08	1.8E-08	1.6E-08	2.3E-08	4.2E-08	5.9E-08	4.9E-08	4.1E-08	2.9E-08	1.4E-08	7.1E-09
25	8.6E-09	6.8E-09	1.5E-08	1.9E-08	1.4E-08	1.6E-08	1.4E-08	1.2E-08	1.7E-08	3.2E-08	4.5E-08	3.7E-08	3.1E-08	2.2E-08	1.0E-08	5.4E-09
30	6.9E-09	5.4E-09	1.2E-08	1.5E-08	1.1E-08	1.3E-08	1.1E-08	9.6E-09	1.4E-08	2.6E-08	3.6E-08	3.0E-08	2.4E-08	1.8E-08	8.2E-09	4.3E-09
35	5.8E-09	4.4E-09	1.0E-08	1.2E-08	9.2E-09	1.1E-08	9.0E-09	8.0E-09	1.2E-08	2.1E-08	3.0E-08	2.5E-08	2.0E-08	1.5E-08	6.8E-09	3.5E-09
40	4.9E-09	3.8E-09	8.5E-09	1.1E-08	7.8E-09	8.9E-09	7.6E-09	6.8E-09	9.8E-09	1.8E-08	2.6E-08	2.1E-08	1.7E-08	1.2E-08	5.8E-09	3.0E-09
45	4.3E-09	3.2E-09	7.4E-09	9.1E-09	6.7E-09	7.8E-09	6.6E-09	5.9E-09	8.5E-09	1.6E-08	2.2E-08	1.8E-08	1.5E-08	1.1E-08	5.0E-09	2.6E-09
50	3.7E-09	2.8E-09	6.5E-09	8.0E-09	5.9E-09	6.8E-09	5.8E-09	5.1E-09	7.5E-09	1.4E-08	2.0E-08	1.6E-08	1.3E-08	9.3E-09	4.4E-09	2.3E-09

8794 TOTAL HOURS INPUT 8454 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS — 1974-75 COMBINED

AVERAGE X/Q DISPERSION FACTORS

DATES 1/ 1/74 TO 12/31/75 — LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

WIND DIRECTION SECTOR

DOWNWIND DIST. (MI)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
.1	2.3E-05	2.8E-05	5.4E-05	6.2E-05	5.8E-05	5.7E-05	5.0E-05	3.8E-05	5.0E-05	9.5E-05	1.4E-04	1.6E-04	1.7E-04	9.5E-05	4.2E-05	2.6E-05
.2	6.6E-06	8.1E-06	1.6E-05	1.8E-05	1.7E-05	1.6E-05	1.4E-05	1.1E-05	1.4E-05	2.7E-05	4.0E-05	4.6E-05	4.9E-05	2.7E-05	1.2E-05	7.6E-06
.3	3.2E-06	3.9E-06	7.5E-06	8.5E-06	8.1E-06	7.9E-06	6.9E-06	5.3E-06	7.0E-06	1.3E-05	1.9E-05	2.2E-05	2.3E-05	1.3E-05	5.9E-06	3.7E-06
.4	1.9E-06	2.3E-06	4.5E-06	5.1E-06	4.8E-06	4.7E-06	4.1E-06	3.1E-06	4.2E-06	7.9E-06	1.2E-05	1.3E-05	1.4E-05	7.7E-06	3.5E-06	2.2E-06
.5	1.3E-06	1.5E-06	3.0E-06	3.4E-06	3.2E-06	3.2E-06	2.8E-06	2.1E-06	2.8E-06	5.3E-06	7.8E-06	8.8E-06	9.2E-06	5.2E-06	2.3E-06	1.5E-06
.6	9.1E-07	1.1E-06	2.1E-06	2.4E-06	2.3E-06	2.3E-06	2.0E-06	1.5E-06	2.0E-06	3.8E-06	5.6E-06	6.4E-06	6.6E-06	3.7E-06	1.7E-06	1.1E-06
.7	7.0E-07	8.6E-07	1.7E-06	1.9E-06	1.9E-06	1.8E-06	1.5E-06	1.2E-06	1.6E-06	3.0E-06	4.4E-06	4.9E-06	5.1E-06	2.9E-06	1.3E-06	8.1E-07
.8	5.7E-07	7.0E-07	1.4E-06	1.5E-06	1.5E-06	1.4E-06	1.3E-06	9.6E-07	1.3E-06	2.4E-06	3.6E-06	4.0E-06	4.1E-06	2.3E-06	1.1E-06	6.7E-07
.9	4.8E-07	5.9E-07	1.1E-06	1.3E-06	1.2E-06	1.2E-06	1.1E-06	8.0E-07	1.1E-06	2.0E-06	3.0E-06	3.4E-06	3.4E-06	1.9E-06	8.9E-07	5.6E-07
1.0	4.1E-07	5.0E-07	9.6E-07	1.1E-06	1.0E-06	1.0E-06	9.0E-07	6.9E-07	9.2E-07	1.7E-06	2.6E-06	2.9E-06	2.9E-06	1.7E-06	7.6E-07	4.7E-07
1.5	2.2E-07	2.7E-07	5.2E-07	5.8E-07	5.6E-07	5.5E-07	4.9E-07	3.7E-07	5.0E-07	9.6E-07	1.4E-06	1.6E-06	1.6E-06	8.9E-07	4.1E-07	2.6E-07
2.0	1.4E-07	1.7E-07	3.4E-07	3.8E-07	3.6E-07	3.6E-07	3.2E-07	2.4E-07	3.3E-07	6.2E-07	9.2E-07	1.0E-06	1.0E-06	5.7E-07	2.7E-07	1.7E-07
2.5	1.0E-07	1.2E-07	2.4E-07	2.7E-07	2.6E-07	2.6E-07	2.3E-07	1.7E-07	2.3E-07	4.5E-07	6.6E-07	7.2E-07	7.2E-07	4.1E-07	1.9E-07	1.2E-07
3.0	7.7E-08	9.4E-08	1.8E-07	2.0E-07	2.0E-07	1.9E-07	1.7E-07	1.3E-07	1.8E-07	3.4E-07	5.0E-07	5.5E-07	5.4E-07	3.1E-07	1.5E-07	9.1E-08
3.5	6.1E-08	7.4E-08	1.4E-07	1.6E-07	1.6E-07	1.5E-07	1.4E-07	1.0E-07	1.4E-07	2.7E-07	4.0E-07	4.3E-07	4.3E-07	2.4E-07	1.2E-07	7.2E-08
4.0	5.0E-08	6.0E-08	1.2E-07	1.3E-07	1.3E-07	1.3E-07	1.1E-07	8.6E-08	1.2E-07	2.2E-07	3.3E-07	3.6E-07	3.5E-07	2.0E-07	9.5E-08	5.9E-08
4.5	4.2E-08	5.1E-08	9.9E-08	1.1E-07	1.1E-07	1.1E-07	9.4E-08	7.2E-08	9.8E-08	1.9E-07	2.8E-07	3.0E-07	2.9E-07	1.7E-07	8.0E-08	4.9E-08
5.0	3.6E-08	4.3E-08	8.5E-08	9.3E-08	9.1E-08	9.0E-08	8.0E-08	6.2E-08	8.4E-08	1.6E-07	2.4E-07	2.5E-07	2.5E-07	1.4E-07	6.8E-08	4.2E-08
7.5	2.0E-08	2.4E-08	4.7E-08	5.2E-08	5.1E-08	5.0E-08	4.4E-08	3.4E-08	4.7E-08	9.0E-09	1.3E-07	1.4E-07	1.4E-07	7.9E-08	3.8E-09	2.3E-08
10	1.4E-08	1.6E-08	3.2E-08	3.5E-08	3.5E-08	3.4E-08	3.1E-08	2.4E-08	3.3E-08	6.3E-08	9.2E-08	9.8E-08	9.4E-08	5.4E-08	2.6E-08	1.6E-08
15	8.2E-09	9.7E-09	1.9E-08	2.1E-08	2.1E-08	2.0E-08	1.9E-08	1.4E-08	2.0E-08	3.8E-08	5.6E-08	5.9E-08	5.6E-08	3.2E-08	1.6E-08	9.7E-09
20	5.7E-09	6.7E-09	1.3E-08	1.4E-08	1.4E-08	1.4E-08	1.3E-08	1.0E-09	1.4E-08	2.7E-08	3.9E-08	4.1E-03	3.8E-09	2.2E-08	1.1E-08	6.7E-09
25	4.3E-09	5.1E-09	1.0E-08	1.1E-08	1.1E-08	1.1E-08	9.8E-09	7.6E-09	1.1E-08	2.0E-08	3.0E-08	3.1E-08	2.9E-08	1.7E-08	8.3E-09	5.1E-09
30	3.4E-09	4.0E-09	8.0E-09	8.6E-09	8.6E-09	8.5E-09	7.8E-09	6.0E-09	8.4E-09	1.6E-08	2.4E-08	2.4E-08	2.3E-08	1.3E-08	6.6E-09	4.0E-09
35	2.8E-09	3.3E-09	6.6E-09	7.0E-09	7.1E-09	7.0E-09	6.4E-09	5.0E-09	7.0E-09	1.4E-08	2.0E-08	2.0E-08	1.9E-08	1.1E-08	5.5E-09	3.3E-09
40	2.4E-09	2.8E-09	5.6E-09	5.9E-09	6.0E-09	5.9E-09	5.4E-09	4.2E-09	5.9E-09	1.1E-08	1.7E-08	1.7E-08	1.6E-08	9.1E-09	4.6E-09	2.8E-09
45	2.1E-09	2.4E-09	4.8E-09	5.1E-09	5.2E-09	5.1E-09	4.7E-09	3.7E-09	5.1E-09	9.9E-09	1.5E-08	1.5E-08	1.3E-08	7.8E-09	4.0E-09	2.4E-09
50	1.8E-09	2.1E-09	4.2E-09	4.4E-09	4.5E-09	4.4E-09	4.1E-09	3.2E-09	4.5E-09	8.7E-09	1.3E-08	1.3E-08	1.2E-08	6.8E-09	3.5E-09	2.1E-09

17520 TOTAL HOURS INPUT 16557 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

1974-76 COMBINED

AVERAGE X/Q DISPERSION FACTORS

DATES 1/ 1/74 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: (NONE)
STABILITY DETERMINED BY DELTA-T/SIGMA-WIND SPEED

WIND DIRECTION SECTOR

DOWNWIND DIST. (MI)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
.1	2.8E-05	3.1E-05	6.2E-05	7.5E-05	6.3E-05	6.3E-05	5.5E-05	4.5E-05	5.9E-05	1.1E-04	1.6E-04	1.7E-04	1.7E-04	1.0E-04	4.5E-05	2.7E-05
.2	8.1E-06	8.9E-06	1.8E-05	2.1E-05	1.9E-05	1.8E-05	1.6E-05	1.3E-05	1.7E-05	3.2E-05	4.6E-05	4.9E-05	4.9E-05	2.9E-05	1.3E-05	7.7E-06
.3	3.9E-06	4.3E-06	8.5E-06	1.0E-05	8.7E-06	8.8E-06	7.6E-06	6.2E-06	8.2E-06	1.6E-05	2.2E-05	2.4E-05	2.3E-05	1.4E-05	6.3E-06	3.7E-06
.4	2.3E-06	2.6E-06	5.1E-06	6.1E-06	5.2E-06	5.2E-06	4.6E-06	3.7E-06	4.9E-06	9.3E-06	1.3E-05	1.4E-05	1.4E-05	8.3E-06	3.7E-06	2.2E-06
.5	1.6E-06	1.7E-06	3.4E-06	4.1E-06	3.5E-06	3.5E-06	3.0E-06	2.5E-06	3.3E-06	6.3E-06	9.0E-06	9.4E-06	9.2E-06	5.6E-06	2.5E-06	1.5E-06
.6	1.1E-06	1.2E-06	2.5E-06	2.9E-06	2.5E-06	2.5E-06	2.2E-06	1.8E-06	2.4E-06	4.5E-06	6.5E-06	6.8E-06	6.6E-06	4.0E-06	1.8E-06	1.1E-06
.7	8.7E-07	9.5E-07	1.9E-06	2.3E-06	1.9E-06	1.9E-06	1.7E-06	1.4E-06	1.9E-06	3.5E-06	5.0E-06	5.2E-06	5.1E-06	3.1E-06	1.4E-06	8.3E-07
.8	7.1E-07	7.7E-07	1.5E-06	1.8E-06	1.6E-06	1.6E-06	1.4E-06	1.1E-06	1.5E-06	2.9E-06	4.1E-06	4.3E-06	4.2E-06	2.5E-06	1.1E-06	6.8E-07
.9	6.0E-07	6.5E-07	1.3E-06	1.5E-06	1.3E-06	1.3E-06	1.2E-06	9.5E-07	1.3E-06	2.4E-06	3.5E-06	3.6E-06	3.5E-06	2.1E-06	9.5E-07	5.7E-07
1.0	5.1E-07	5.5E-07	1.1E-06	1.3E-06	1.1E-06	1.1E-06	1.0E-06	8.1E-07	1.1E-06	2.1E-06	3.0E-06	3.0E-06	2.9E-06	1.8E-06	8.1E-07	4.8E-07
1.5	2.8E-07	3.0E-07	6.0E-07	7.1E-07	6.1E-07	6.2E-07	5.4E-07	4.4E-07	6.0E-07	1.1E-06	1.6E-06	1.7E-06	1.6E-06	9.7E-07	4.4E-07	2.6E-07
2.0	1.8E-07	1.9E-07	3.9E-07	4.6E-07	3.9E-07	4.0E-07	3.5E-07	2.9E-07	3.9E-07	7.4E-07	1.1E-06	1.1E-06	1.0E-06	6.2E-07	2.9E-07	1.7E-07
2.5	1.3E-07	1.4E-07	2.8E-07	3.3E-07	2.8E-07	2.9E-07	2.5E-07	2.1E-07	2.9E-07	5.3E-07	7.6E-07	7.7E-07	7.3E-07	4.5E-07	2.1E-07	1.2E-07
3.0	9.9E-08	1.0E-07	2.1E-07	2.5E-07	2.1E-07	2.2E-07	1.9E-07	1.6E-07	2.1E-07	4.1E-07	5.8E-07	5.8E-07	5.5E-07	3.4E-07	1.6E-07	9.2E-08
3.5	7.9E-08	8.2E-08	1.7E-07	2.0E-07	1.7E-07	1.7E-07	1.5E-07	1.2E-07	1.7E-07	3.2E-07	4.6E-07	4.6E-07	4.4E-07	2.7E-07	1.2E-07	7.3E-08
4.0	6.4E-08	6.7E-08	1.4E-07	1.6E-07	1.4E-07	1.4E-07	1.2E-07	1.0E-07	1.4E-07	2.7E-07	3.8E-07	3.8E-07	3.6E-07	2.2E-07	1.0E-07	6.0E-08
4.5	5.4E-08	5.6E-08	1.1E-07	1.3E-07	1.2E-07	1.2E-07	1.0E-07	8.6E-08	1.2E-07	2.2E-07	3.2E-07	3.2E-07	3.0E-07	1.8E-07	8.5E-08	5.0E-08
5.0	4.6E-08	4.8E-08	9.8E-08	1.1E-07	9.9E-08	1.0E-07	8.9E-08	7.3E-08	1.0E-07	1.9E-07	2.7E-07	2.7E-07	2.5E-07	1.6E-07	7.3E-08	4.3E-08
7.5	2.6E-08	2.7E-08	5.4E-08	6.3E-08	5.5E-08	5.7E-08	5.0E-08	4.1E-08	5.6E-08	1.1E-07	1.5E-07	1.5E-07	1.4E-07	8.6E-08	4.1E-08	2.4E-08
10	1.8E-08	1.8E-08	3.8E-08	4.4E-08	3.8E-08	3.9E-08	3.5E-08	2.8E-08	3.9E-08	7.5E-08	1.1E-07	1.0E-07	9.6E-08	6.0E-08	2.8E-08	1.7E-08
15	1.1E-08	1.1E-08	2.3E-08	2.6E-08	2.3E-08	2.4E-08	2.1E-08	1.7E-08	2.4E-08	4.6E-08	6.6E-08	6.3E-08	5.7E-08	3.5E-08	1.7E-08	9.9E-09
20	7.6E-09	7.5E-09	1.6E-08	1.8E-08	1.6E-08	1.6E-08	1.5E-08	1.2E-08	1.7E-08	3.2E-08	4.6E-08	4.4E-08	3.9E-08	2.4E-08	1.2E-08	6.9E-09
25	5.8E-09	5.6E-09	1.2E-08	1.4E-08	1.2E-08	1.2E-08	1.1E-08	9.1E-09	1.3E-08	2.4E-08	3.5E-08	3.3E-08	2.9E-08	1.8E-08	9.0E-09	5.2E-09
30	4.6E-09	4.5E-09	9.4E-09	1.1E-08	9.5E-09	9.9E-09	8.8E-09	7.3E-09	1.0E-08	2.0E-08	2.8E-08	2.6E-08	2.3E-08	1.5E-08	7.2E-09	4.1E-09
35	3.8E-09	3.7E-09	7.8E-09	8.9E-09	7.8E-09	8.2E-09	7.3E-09	6.0E-09	8.5E-09	1.6E-08	2.3E-08	2.2E-08	1.9E-08	1.2E-08	5.9E-09	3.4E-09
40	3.2E-09	3.1E-09	6.6E-09	7.5E-09	6.6E-09	6.9E-09	6.2E-09	5.1E-09	7.2E-09	1.4E-08	2.0E-08	1.8E-08	1.6E-08	1.0E-08	5.0E-09	2.9E-09
45	2.8E-09	2.7E-09	5.7E-09	6.5E-09	5.7E-09	6.0E-09	5.3E-09	4.4E-09	6.3E-09	1.2E-08	1.7E-08	1.6E-08	1.4E-08	8.7E-09	4.3E-09	2.5E-09
50	2.5E-09	2.3E-09	5.0E-09	5.7E-09	5.0E-09	5.2E-09	4.7E-09	3.9E-09	5.5E-09	1.1E-08	1.5E-08	1.4E-08	1.2E-08	7.7E-09	3.8E-09	2.2E-09

26304 TOTAL HOURS INPUT 25011 HOURS USED ABOVE

01/31/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

5 AND 50 PERCENT X/Q DISPERSION FACTORS

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: STANDARD CALCUALTION FOR EACH MODEL
AREA = 2,30. METERS

AVERAGE ACCIDENT FOR HOURLY AND WINDOW

DISTANCE (M)	HOURLY		8-HOURS		16-HOURS		3-DAYS		26-DAYS	
	5 PRCNT	50 PRCNT	5 PRCNT	50 PRCNT	5 PRCNT	50 PRCNT	5 PRCNT	50 PRCNT	5 PRCNT	50 PRCNT
100.	3.819E-02	1.150E-03	6.275E-03	4.839E-04	5.093E-03	3.933E-04	1.561E-03	3.310E-04	7.191E-04	3.464E-04
200.	9.500E-03	3.357E-04	9.584E-04	1.401E-04	6.016E-04	1.128E-04	3.576E-04	9.271E-05	2.360E-04	9.997E-05
500.	3.100E-03	9.337E-05	2.007E-04	2.571E-05	1.277E-04	2.024E-05	6.309E-05	1.712E-05	4.631E-05	1.787E-05
800.	9.327E-04	5.795E-05	8.035E-05	1.101E-05	4.983E-05	8.708E-06	2.645E-05	7.401E-06	2.230E-05	8.133E-06
1000.	6.757E-04	4.420E-05	5.429E-05	7.208E-06	3.558E-05	5.797E-06	2.054E-05	4.913E-06	1.352E-05	5.445E-06
2000.	4.076E-04	1.854E-05	2.069E-05	2.363E-06	1.340E-05	1.890E-06	6.442E-06	1.639E-06	4.649E-06	1.769E-06
3200.	2.768E-04	9.551E-06	9.863E-06	1.146E-06	6.119E-06	9.080E-07	3.485E-06	7.823E-07	2.324E-06	8.866E-07
5000.	1.683E-04	5.062E-06	5.104E-06	5.605E-07	3.317E-06	4.495E-07	1.924E-06	3.951E-07	9.821E-07	4.293E-07
10000.	7.754E-05	1.846E-06	1.969E-06	1.838E-07	1.250E-06	1.548E-07	5.970E-07	1.388E-07	4.507E-07	1.580E-07
20000.	3.493E-05	7.530E-07	7.874E-07	7.039E-08	4.771E-07	5.711E-08	2.412E-07	5.194E-08	2.127E-07	6.349E-08
50000.	1.371E-05	2.276E-07	2.671E-07	1.893E-08	1.760E-07	1.610E-08	8.147E-08	1.586E-08	4.895E-08	1.908E-08
64000.	1.133E-05	1.681E-07	2.046E-07	1.376E-08	1.328E-07	1.141E-08	6.169E-08	1.080E-08	4.457E-08	1.483E-08
100000.	6.907E-06	9.355E-08	1.249E-07	7.252E-09	7.159E-08	6.013E-09	3.866E-08	5.977E-09	2.357E-08	8.268E-09

01/26/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

RANKED X/Q DISPERSION CATEGORIES

DATES 1/ 1/76 TO 12/31/76 LEVEL = 30.0 FT

CONDITIONS: AREA=2730. SQ.M
DISTANCE= 800. METERS

(ORDERED BY INCREASING DILUTION)

STABILITY	SPEED	M/S	X/Q	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
G	0.00-	.25	.30E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	0.00-	.25	.17E-02	7.7	0.0	.4	.2	.2	2.0	.6	1.4	1.2	.2	.3	.1	.1	.4	.6	0.0	.4
G	.25-	.50	.19E-02	11.0	0.0	.8	.6	.6	2.5	3.7	2.8	2.5	2.0	1.2	.4	.3	1.4	2.4	0.0	1.0
E	0.00-	.25	.11E-02	15.4	1.6	1.9	1.7	3.3	5.4	12.3	11.3	10.8	8.4	5.8	2.2	1.5	3.3	6.0	8.8	3.6
F	.25-	.50	.69E-03	25.3	3.7	2.3	3.2	4.4	9.9	17.2	17.6	24.2	14.7	12.0	4.0	2.2	4.7	9.6	13.8	5.9
G	.50-	1.00	.76E-03	27.5	3.7	2.7	3.9	5.5	15.3	19.0	23.2	29.8	20.5	14.9	4.3	2.5	5.4	13.3	16.3	7.3
D	0.00-	.25	.65E-03	28.8	5.4	3.5	4.8	8.8	17.8	20.9	27.5	33.5	25.1	17.3	5.6	2.9	6.4	14.5	17.5	8.6
E	.25-	.50	.51E-03	30.8	8.0	4.7	6.5	10.4	21.3	24.5	31.7	37.3	32.9	20.1	6.2	3.1	7.0	19.3	20.0	10.1
G	1.00-	1.50	.21E-03	31.9	8.6	4.7	6.8	11.0	22.6	25.6	31.7	38.5	34.0	20.4	6.2	3.1	7.4	21.7	21.3	10.5
F	.50-	1.00	.42E-03	33.0	10.2	5.6	8.5	12.6	28.7	28.8	34.5	43.5	38.6	21.3	6.3	3.4	7.9	24.1	23.8	11.7
D	.25-	.50	.33E-03	39.5	13.4	7.0	9.4	14.5	33.7	36.5	43.7	48.4	43.2	23.9	7.7	3.7	8.8	29.5	32.5	13.5
F	1.00-	1.50	.23E-03	44.0	17.6	9.3	10.5	15.4	36.1	38.7	45.8	50.9	45.5	26.1	8.4	4.0	9.3	30.7	40.0	14.7
E	0.00-	.25	.23E-03	44.0	17.6	9.7	10.5	15.4	36.1	38.7	45.8	50.9	45.5	26.1	8.4	4.0	9.3	30.7	40.0	14.8
E	.25-	1.00	.27E-03	44.6	17.6	9.7	11.4	16.2	36.1	38.7	45.8	50.9	46.1	26.4	8.4	4.1	9.5	31.9	41.3	15.0
E	1.00-	1.50	.19E-03	52.7	29.4	21.4	19.4	25.5	55.0	56.4	57.0	63.4	58.5	37.0	10.7	5.0	13.2	39.2	52.5	20.9
D	.50-	1.00	.10E-03	56.0	36.4	26.0	21.7	29.4	50.9	62.6	61.3	67.7	61.1	39.5	11.6	5.5	14.5	41.6	53.8	22.9
C	.25-	.50	.14E-03	62.6	42.2	33.8	26.5	35.3	65.8	65.6	66.9	72.0	66.3	45.3	13.1	6.4	17.6	47.0	59.8	26.2
B	0.00-	.25	.13E-03	66.1	46.5	39.6	29.1	40.3	71.3	71.2	69.0	75.2	72.0	46.8	14.3	7.4	19.6	48.2	65.0	28.7
D	1.00-	1.50	.11E-03	71.4	52.4	46.8	32.7	47.1	74.8	76.1	73.9	78.4	77.2	53.9	17.1	9.0	23.1	53.6	68.8	32.2
C	.50-	1.00	.70E-04	75.8	62.0	62.3	46.4	62.7	87.1	84.7	82.4	84.5	87.0	72.0	29.8	16.9	37.3	68.7	78.3	43.9
B	.25-	.50	.63E-04	78.0	64.2	65.8	50.2	65.5	87.1	85.9	83.8	85.1	88.8	75.7	34.4	20.7	42.5	71.7	80.0	47.6
C	1.00-	1.50	.47E-04	82.4	69.3	70.7	56.2	72.3	88.1	88.3	88.0	85.7	92.2	84.0	47.3	31.1	55.9	77.1	82.5	56.4
B	.50-	1.00	.31E-04	83.5	78.6	76.5	64.6	80.5	89.1	92.6	88.7	90.1	94.5	92.4	70.2	47.3	70.5	82.5	85.0	69.2

MISCELLANEOUS SUMMARIES

Temperature, Relative Humidity, and Dew Point

Wet Bulb

Solar Radiation

Precipitation

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 1/ 1/76 TO 1/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	2.1	84.	-.8	1.1	2.4	2.7
2	2.0	84.	-.8	1.0	2.3	2.5
3	1.6	86.	-1.0	.7	2.0	2.1
4	1.2	87.	-1.2	.4	1.5	1.8
5	1.2	86.	-1.3	.3	1.5	1.8
6	.9	86.	-1.5	.1	1.3	1.6
7	.8	86.	-1.5	.1	1.2	1.5
8	.9	87.	-1.3	.2	1.2	1.5
9	1.4	86.	-1.0	.6	1.4	1.6
10	2.5	83.	-.5	1.4	2.0	2.2
11	3.4	79.	-.1	2.3	2.8	3.0
12	3.6	77.	-.5	2.2	3.0	3.2
13	4.4	73.	-.5	2.7	3.8	4.0
14	5.0	71.	-.5	2.9	4.4	4.6
15	4.9	72.	-.3	2.9	4.4	4.6
16	4.5	75.	-.2	2.7	4.2	4.5
17	3.6	79.	-.2	2.2	4.1	4.3
18	3.2	80.	-.3	1.9	3.7	4.0
19	2.8	82.	-.5	1.6	3.4	3.7
20	2.8	82.	-.5	1.6	3.4	3.6
21	2.7	83.	-.4	1.6	3.1	3.4
22	2.5	84.	-.4	1.4	2.8	3.1
23	2.3	85.	-.5	1.3	2.7	3.0
24	2.2	85.	-.5	1.2	2.6	2.8
MEAN	2.6	82.	-.7	1.4	2.7	2.9
MEAN MIN	-.2	67.	-2.4	-.6	.1	.4
MEAN MAX	5.7	93.	1.5	3.6	5.3	5.4
ABS MIN	-7.6	47.	-9.7	-7.6	-9.2	-9.4
ABS MAX	13.2	100.	7.9	10.5	12.5	12.6

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

DATES 2/ 1/76 TO 2/29/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 180. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	1.5	78.	-3.1	.2	1.8	2.0
2	1.2	74.	-3.3	-.0	1.6	1.7
3	1.0	75.	-3.3	-.2	1.3	1.5
4	.9	75.	-3.3	-.2	1.4	1.5
5	.9	76.	-3.2	-.2	1.3	1.3
6	.7	76.	-3.3	-.4	1.2	1.2
7	.7	76.	-3.3	-.3	1.1	1.2
8	1.0	75.	-3.2	-.1	1.2	1.3
9	2.4	71.	-2.8	.3	2.2	2.1
10	3.5	65.	-2.9	1.5	2.9	3.0
11	4.2	61.	-3.2	1.5	3.5	3.6
12	5.3	57.	-3.2	2.4	4.5	4.8
13	6.1	54.	-3.2	2.8	5.1	5.5
14	6.4	52.	-3.4	2.9	5.5	5.8
15	6.4	52.	-3.4	2.9	5.5	5.8
16	6.0	53.	-3.4	2.7	5.2	5.5
17	5.3	57.	-2.9	2.4	5.1	5.2
18	4.5	61.	-2.8	2.0	4.7	4.8
19	3.9	63.	-2.8	1.7	4.1	4.2
20	3.1	68.	-2.5	1.4	3.5	3.6
21	2.8	70.	-2.5	1.0	3.0	3.2
22	2.3	71.	-2.7	.8	2.8	2.9
23	2.0	72.	-2.9	.5	2.5	2.7
24	1.7	72.	-3.1	.3	2.2	2.3
MEAN	3.1	67.	-3.1	1.1	3.0	3.2
MEAN MIN	-.2	48.	-5.6	-1.2	.3	.3
MEAN MAX	6.8	82.	-.8	3.4	6.3	6.3
ABS MIN	-10.6	22.	-19.6	-11.0	-7.2	-8.6
ABS MAX	13.1	96.	4.7	8.5	12.8	12.4

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 3/ 1/76 TO 3/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	3.0	70.	-2.0	1.4	3.7	3.7
2	2.8	71.	-2.1	1.2	3.4	3.5
3	2.5	73.	-2.1	1.1	3.1	3.2
4	2.3	74.	-2.1	1.0	2.8	2.9
5	1.9	75.	-2.3	.6	2.5	2.6
6	1.7	75.	-2.3	.5	2.2	2.3
7	1.9	75.	-2.2	.7	2.3	2.3
8	3.3	71.	-1.7	1.6	3.1	2.9
9	4.7	65.	-1.5	2.5	4.2	3.8
10	6.2	56.	-2.3	3.1	5.7	5.3
11	7.5	50.	-2.5	3.7	6.6	6.3
12	8.0	48.	-2.6	4.0	7.3	7.0
13	8.7	46.	-2.8	4.3	8.0	7.8
14	9.2	43.	-3.0	4.5	8.5	8.3
15	9.3	43.	-3.1	4.5	8.7	8.5
16	9.2	44.	-3.0	4.5	8.7	8.6
17	8.7	45.	-2.9	4.3	8.4	8.2
18	7.5	49.	-2.7	3.7	7.6	7.4
19	6.4	54.	-2.6	3.1	6.6	6.6
20	5.6	59.	-2.1	2.8	6.1	6.1
21	4.9	62.	-2.0	2.5	5.4	5.6
22	4.2	65.	-1.9	2.1	4.9	5.0
23	3.9	67.	-1.8	2.0	4.5	4.6
24	3.4	68.	-2.1	1.6	4.0	4.2
MEAN	5.3	60.	-2.3	2.6	5.4	5.3
MEAN MIN	.6	40.	-4.9	-.6	1.2	1.2
MEAN MAX	10.2	81.	.5	5.3	9.5	9.4
ABS MIN	-7.6	24.	-14.1	-7.9	-6.4	-6.0
ABS MAX	17.8	96.	7.0	10.3	17.1	17.0

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 4/ 1/76 TO 4/30/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	6.4	68.	.9	4.2	7.0	7.2
2	6.0	69.	.8	4.0	6.6	6.9
3	5.7	70.	.6	3.7	6.4	6.6
4	5.3	71.	.6	3.5	6.0	6.1
5	5.0	72.	.5	3.2	5.7	5.9
6	4.9	72.	.5	3.2	5.5	5.6
7	6.4	68.	1.1	4.3	6.4	6.2
8	8.1	63.	1.7	5.4	7.8	7.5
9	9.7	55.	1.3	6.0	9.4	9.0
10	11.0	47.	.4	6.4	10.7	10.2
11	11.8	45.	.3	6.7	11.5	11.1
12	12.8	42.	.3	7.2	12.5	12.3
13	13.5	39.	-.1	7.3	13.3	13.2
14	13.9	38.	-.0	7.6	13.7	13.6
15	14.5	37.	-.3	7.9	14.0	13.8
16	14.5	37.	-.3	7.9	14.2	14.0
17	13.9	41.	.0	7.8	13.6	13.6
18	12.4	48.	-.9	7.4	12.5	12.6
19	11.1	53.	1.2	6.8	11.5	11.7
20	10.1	60.	2.1	6.7	10.7	10.9
21	9.4	61.	1.9	6.3	10.1	10.4
22	8.8	62.	1.4	5.8	9.4	9.8
23	8.0	64.	1.3	5.2	8.7	9.1
24	7.3	66.	1.1	4.8	8.0	8.5
MEAN	9.5	57.	.8	5.8	9.7	9.7
MEAN MIN	4.3	36.	-1.9	2.7	5.0	5.2
MEAN MAX	14.6	79.	4.1	8.3	14.1	13.9
ABS MIN	-1.4	17.	-6.2	-2.2	.2	-.0
ABS MAX	25.2	96.	11.5	12.8	25.1	24.3

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 5/ 1/76 TO 5/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG-C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG-C)	LEVEL 30. WET BULB (DEG-C)	LEVEL 130. TEMP. (DEG-C)	LEVEL 230. TEMP. (DEG-C)
1	10.7	60.	2.9	7.4	11.2	12.0
2	10.3	62.	3.0	7.2	10.6	11.5
3	9.7	63.	2.8	6.8	10.1	10.9
4	9.3	65.	2.7	6.5	9.5	10.4
5	8.9	66.	2.8	6.4	9.2	9.9
6	9.8	65.	3.3	7.0	9.5	9.9
7	11.7	58.	3.6	8.1	10.9	11.1
8	13.2	53.	3.5	8.8	12.2	12.4
9	14.7	49.	3.6	9.6	13.7	13.8
10	16.2	41.	2.6	9.9	15.2	15.2
11	17.3	38.	2.3	10.3	16.2	16.2
12	18.3	34.	1.8	10.5	17.2	17.1
13	19.0	33.	1.5	10.8	17.8	17.8
14	19.5	31.	1.1	10.8	18.5	18.5
15	19.7	31.	1.0	10.9	18.9	18.9
16	19.6	31.	1.2	10.9	18.8	18.8
17	19.1	34.	1.4	10.8	18.3	18.4
18	18.4	35.	1.5	10.5	17.8	17.9
19	17.1	39.	2.0	10.1	16.8	17.1
20	15.4	45.	2.4	9.5	15.5	15.8
21	14.1	49.	2.9	9.0	14.6	15.0
22	13.1	52.	2.6	8.4	13.4	14.0
23	11.9	55.	2.6	7.8	12.2	13.1
24	11.1	59.	3.0	7.6	11.5	12.3
MEAN	14.5	48.	2.4	9.0	14.1	14.5
MEAN MIN	8.1	27.	-.7	5.7	8.4	8.8
MEAN MAX	20.7	72.	5.6	11.7	19.8	19.8
ABS MIN	3.8	13.	-10.2	2.3	4.9	4.8
ABS MAX	28.7	87.	10.9	16.6	27.4	28.3

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 6/ 1/76 TO 6/30/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	13.3	56.	3.9	9.1	13.1	13.9
2	12.7	57.	3.9	8.8	12.7	13.3
3	12.1	59.	3.9	8.5	12.0	12.7
4	11.6	61.	4.1	8.3	11.6	12.2
5	11.4	63.	4.2	8.2	11.3	11.9
6	12.5	59.	4.4	8.9	11.8	12.2
7	14.2	53.	4.4	9.6	13.2	13.3
8	15.5	47.	4.0	10.1	14.5	14.6
9	16.8	42.	3.5	10.5	15.9	15.8
10	18.2	38.	3.0	10.9	17.1	17.1
11	19.4	34.	2.5	11.3	18.4	18.3
12	20.6	31.	2.0	11.7	19.6	19.8
13	21.4	29.	1.6	11.9	20.5	20.4
14	22.0	27.	1.0	11.9	20.9	20.9
15	22.2	27.	1.0	12.1	21.3	21.2
16	22.3	27.	.7	12.1	21.2	21.4
17	22.0	28.	1.0	12.0	21.1	21.2
18	21.3	31.	1.5	12.0	20.6	20.7
19	20.1	34.	2.0	11.6	19.5	19.6
20	18.4	39.	3.1	11.1	18.1	18.4
21	17.1	43.	3.3	10.6	16.9	17.3
22	16.0	46.	3.4	10.2	15.9	16.3
23	15.0	49.	3.7	9.8	14.9	15.5
24	14.2	52.	3.7	9.4	14.2	14.9
MEAN	17.1	43.	2.9	10.4	16.5	16.7
MEAN MIN	10.5	24.	-1.2	7.3	10.6	11.0
MEAN MAX	22.9	67.	6.3	12.5	21.7	21.7
ABS MIN	4.8	7.	-13.1	2.8	5.3	5.4
ABS MAX	35.2	82.	11.8	17.2	34.7	34.4

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS
HOURLY DATA SUMMARY TABLE

DATES 7/ 1/76 TO 7/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	18.2	52.	7.5	12.9	18.5	18.6
2	17.4	55.	7.8	12.6	17.8	18.0
3	16.5	59.	7.9	12.3	17.0	17.2
4	15.9	61.	8.0	12.1	16.4	16.7
5	15.6	62.	7.9	11.9	16.0	16.2
6	16.5	59.	8.1	12.4	16.4	16.3
7	18.1	54.	8.3	13.2	17.6	17.3
8	19.5	49.	8.0	13.7	18.9	18.5
9	20.9	43.	7.4	14.0	20.4	19.9
10	22.6	38.	7.0	14.4	21.9	21.5
11	24.1	33.	6.4	14.8	23.4	23.0
12	25.6	31.	6.2	15.3	24.8	24.4
13	26.6	27.	5.1	15.3	25.8	25.4
14	27.6	26.	4.9	15.7	26.9	26.4
15	28.2	25.	4.9	15.9	27.5	27.0
16	28.4	24.	4.8	15.9	27.8	27.4
17	28.4	24.	4.9	15.9	27.9	27.5
18	27.8	25.	5.0	15.7	27.3	27.0
19	26.4	28.	5.6	15.4	26.3	26.0
20	24.4	34.	6.6	14.9	24.5	24.4
21	22.7	37.	6.8	14.4	23.0	22.9
22	21.6	41.	7.0	14.0	21.8	21.7
23	20.6	44.	7.3	13.8	20.9	20.9
24	19.5	47.	7.5	13.4	19.9	20.0
MEAN	22.2	41.	6.7	14.1	22.0	21.8
MEAN MIN	15.4	22.	3.0	11.5	15.9	16.0
MEAN MAX	28.8	64.	9.9	16.3	28.0	27.6
ABS MIN	9.1	6.	-8.3	5.6	9.2	9.5
ABS MAX	36.8	92.	16.0	19.3	36.2	35.9

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 8/ 1/76 TO 8/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG-C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG-C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	17.2	63.	9.5	13.3	17.5	17.7
2	16.6	64.	9.4	13.0	17.0	17.1
3	16.1	66.	9.3	12.8	16.4	16.5
4	15.6	69.	9.5	12.6	16.0	16.1
5	15.1	72.	9.6	12.5	15.5	15.7
6	15.2	72.	9.9	12.8	15.4	15.5
7	16.4	69.	10.3	13.5	16.1	15.9
8	18.0	62.	10.2	14.1	17.5	17.2
9	19.6	55.	9.7	14.5	19.0	18.9
10	20.9	49.	9.3	14.8	20.3	19.9
11	22.5	43.	8.6	15.1	21.8	21.5
12	23.7	39.	7.8	15.2	23.1	22.7
13	24.6	35.	7.4	15.3	24.0	23.7
14	25.7	31.	6.6	15.3	25.0	24.7
15	26.1	31.	6.6	15.6	25.4	25.1
16	26.4	30.	6.6	15.7	25.8	25.4
17	25.9	33.	7.3	15.7	25.4	25.1
18	25.1	35.	7.7	15.6	24.8	24.5
19	23.1	42.	8.5	15.2	23.3	23.2
20	21.8	45.	8.7	14.8	22.2	22.1
21	20.5	50.	8.8	14.3	20.9	21.0
22	19.2	53.	8.8	13.8	19.8	20.0
23	18.5	57.	9.2	13.7	18.9	19.1
24	17.8	60.	9.4	13.5	18.2	18.4
MEAN	20.5	51.	8.7	14.3	20.4	20.3
MEAN MIN	14.7	29.	5.6	12.0	14.9	15.1
MEAN MAX	26.5	76.	11.5	16.3	25.9	25.6
ABS MIN	9.5	14.	.?	7.8	9.6	9.7
ABS MAX	35.5	92.	15.5	19.2	34.8	34.7

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 9/ 1/76 TO 9/30/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	15.6	59.	7.2	11.6	16.5	17.1
2	15.0	62.	7.3	11.3	15.9	16.6
3	14.4	64.	7.3	11.1	15.3	15.9
4	13.8	67.	7.4	10.8	14.8	15.4
5	13.4	69.	7.4	10.6	14.4	14.8
6	13.2	70.	7.5	10.6	13.9	14.5
7	14.2	67.	7.7	11.1	14.3	14.5
8	16.4	60.	8.3	12.4	15.9	15.7
9	18.5	52.	8.0	13.1	17.8	17.6
10	20.0	47.	7.7	13.7	19.3	19.0
11	21.9	41.	7.4	14.3	21.2	21.0
12	22.9	37.	6.8	14.5	22.2	21.9
13	24.2	33.	6.4	14.7	23.5	23.2
14	25.1	31.	5.9	15.0	24.4	24.1
15	25.2	31.	5.7	14.9	24.7	24.4
16	25.4	30.	5.7	15.1	24.8	24.6
17	24.6	33.	6.1	14.9	24.2	24.0
18	23.2	36.	6.3	14.4	23.5	23.4
19	21.5	40.	6.7	13.9	22.3	22.3
20	20.2	44.	6.8	13.4	20.8	21.1
21	18.9	43.	7.2	13.0	19.5	19.9
22	17.7	52.	7.4	12.6	18.6	19.0
23	16.9	55.	7.2	12.1	17.7	18.3
24	16.0	57.	7.0	11.7	17.0	17.6
MEAN	19.1	49.	7.0	12.9	19.3	19.4
MEAN MIN	12.4	28.	4.2	9.7	13.3	13.7
MEAN MAX	25.9	74.	9.5	15.5	25.2	25.0
ABS MIN	6.8	11.	-3.9	3.9	8.2	9.1
ABS MAX	32.6	100.	15.3	18.0	31.7	31.3

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 10/ 1/76 TO 10/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	8.4	62.	1.0	5.5	9.8	10.5
2	7.9	63.	.8	5.2	9.3	10.0
3	7.4	65.	.8	4.9	8.8	9.5
4	6.9	66.	.6	4.6	8.3	9.0
5	6.7	68.	.8	4.5	8.0	8.5
6	6.3	69.	.7	4.2	7.6	8.1
7	6.2	71.	.8	4.2	7.5	8.0
8	7.6	66.	1.4	5.0	7.8	7.9
9	10.4	60.	2.1	7.0	10.0	9.8
10	11.9	52.	1.7	7.6	11.5	11.1
11	13.8	47.	1.8	8.5	13.4	12.9
12	15.4	41.	1.5	9.2	14.9	14.3
13	16.3	38.	1.2	9.5	15.9	15.5
14	17.3	35.	.8	9.8	16.8	16.5
15	17.5	36.	.9	9.9	17.1	16.7
16	17.3	38.	1.2	10.0	17.0	16.7
17	15.9	42.	1.7	9.4	16.2	16.0
18	14.6	46.	1.9	8.9	15.3	15.2
19	13.7	49.	2.0	8.5	14.6	14.6
20	12.6	52.	2.0	8.0	13.6	13.7
21	11.3	54.	1.6	7.2	12.5	12.9
22	10.6	56.	1.3	6.8	11.9	12.3
23	9.8	58.	1.1	6.2	11.1	11.6
24	8.9	60.	.9	5.7	10.4	11.0
MEAN	11.4	54.	1.3	7.1	12.1	12.2
MEAN MIN	5.3	34.	-1.4	3.5	6.8	7.5
MEAN MAX	17.7	74.	3.9	10.2	17.3	17.0
ABS MIN	-1.2	13.	-8.9	-2.8	1.2	2.7
ABS MAX	26.4	96.	11.9	16.3	26.2	26.0

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 11/ 1/76 TO 11/30/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	4.2	80.	.9	3.1	5.2	5.5
2	4.0	80.	.7	2.9	4.8	5.3
3	3.6	81.	.5	2.7	4.5	4.9
4	3.5	82.	.4	2.5	4.2	4.7
5	3.4	82.	.4	2.5	4.1	4.6
6	3.2	82.	.2	2.3	4.0	4.4
7	3.1	83.	.3	2.2	3.7	4.2
8	3.3	82.	.3	2.4	3.8	4.2
9	4.4	79.	.9	3.3	4.3	4.4
10	5.7	75.	1.3	4.1	5.6	5.5
11	7.3	69.	1.3	5.1	6.8	6.6
12	8.2	64.	1.1	5.5	7.8	7.5
13	8.8	59.	-.4	5.8	8.3	8.1
14	8.9	59.	.7	5.8	8.4	8.1
15	9.1	58.	1.0	5.9	8.7	8.5
16	8.3	61.	.9	5.4	8.2	8.0
17	7.2	65.	.8	4.8	7.7	7.5
18	6.8	68.	.9	4.6	7.3	7.3
19	6.3	70.	.9	4.3	6.9	6.9
20	5.5	73.	.8	3.8	6.2	6.5
21	5.0	75.	.8	3.6	5.9	6.1
22	4.5	77.	.7	3.2	5.4	5.9
23	4.2	78.	.6	3.1	5.1	5.5
24	4.1	78.	.4	2.9	4.9	5.2
MEAN	5.5	73.	.7	3.8	5.9	6.1
MEAN MIN	1.5	54.	-2.6	.9	2.6	3.2
MEAN MAX	9.4	88.	2.8	6.2	9.0	8.8
ABS MIN	-8.3	1.	-50.6	-8.5	-7.0	-6.0
ABS MAX	17.7	98.	10.3	13.6	17.2	17.0

PORTLAND GENERAL ELECTRIC COMPANY; PEBBLE SPRINGS

HOURLY DATA SUMMARY TABLE

DATES 12/ 1/76 TO 12/31/76

CONDITIONS: 6 PARAMETERS SPECIFIED

HOUR	LEVEL 30. TEMP. (DEG C)	LEVEL 30. REL HUM (PERCENT)	LEVEL 30. DEW PT. (DEG C)	LEVEL 30. WET BULB (DEG C)	LEVEL 130. TEMP. (DEG C)	LEVEL 230. TEMP. (DEG C)
1	-.4	85.	-2.8	-.9	1.3	2.0
2	-.5	85.	-2.9	-1.0	1.2	1.9
3	-.7	86.	-2.9	-1.2	.8	1.5
4	-.7	86.	-3.0	-1.3	.7	1.3
5	-.8	85.	-3.2	-1.4	.7	1.3
6	-1.0	86.	-3.2	-1.5	.3	.8
7	-1.2	85.	-3.4	-1.7	.0	.6
8	-1.2	87.	-3.3	-1.7	.2	.8
9	-.6	85.	-3.0	-1.2	.4	1.0
10	.7	81.	-2.6	-.3	1.3	1.4
11	2.0	77.	-1.9	.8	3.3	3.2
12	3.1	72.	-1.8	1.4	4.3	4.1
13	3.9	69.	-1.7	1.9	5.3	5.2
14	4.2	68.	-1.7	2.1	5.7	5.5
15	3.9	69.	-1.7	1.9	5.8	5.7
16	3.1	72.	-1.7	1.5	5.1	5.2
17	2.3	76.	-1.8	1.0	4.5	4.6
18	1.8	78.	-1.8	.9	4.1	4.5
19	1.5	80.	-1.8	.5	3.8	4.2
20	1.0	81.	-2.0	.2	3.2	3.7
21	.9	82.	-2.1	-.1	2.9	3.4
22	.7	82.	-2.1	-.1	2.7	3.1
23	.3	84.	-2.3	-.4	2.3	2.9
24	.1	84.	-2.5	-.5	1.7	2.5
MEAN	.9	80.	-2.4	-.1	2.6	2.9
MEAN MIN	-2.2	65.	-4.5	-2.6	-.8	-.2
MEAN MAX	4.8	91.	-.5	2.5	5.6	5.6
ABS MIN	-8.7	36.	-10.4	-8.7	-7.6	-7.1
ABS MAX	14.3	100.	5.0	9.1	13.7	13.3

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY OF WET BULB TEMPERATURE

DATES 1/ 1/76 TO 12/31/76 WINTER LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY WIND DIRECTION

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
10.01 TO 15.00	0	0	0	0	0	0	1	0	2	1	0	1	0	1	0	0	6
15.01 TO 20.00	1	3	11	2	4	2	3	2	5	8	8	5	2	1	1	0	56
20.01 TO 25.00	0	20	13	13	9	8	12	8	6	20	7	5	6	3	2	1	133
25.01 TO 30.00	12	26	51	72	40	47	29	25	15	25	32	23	14	18	15	11	456
30.01 TO 35.00	10	23	42	48	40	27	31	21	11	19	51	83	85	46	11	10	558
35.01 TO 40.00	2	8	25	24	18	9	9	5	9	16	45	129	145	94	19	1	553
40.01 TO 45.00	0	2	5	9	1	5	2	0	5	10	20	68	75	43	4	1	250
45.01 TO 50.00	2	0	0	1	2	0	1	3	0	5	6	19	26	9	3	1	78
50.01 TO 55.00	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	3
TOTALS	27	82	148	169	114	98	88	64	53	104	169	333	354	215	57	25	2100

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
10.01 TO 15.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.10	.05	0.00	.05	0.00	.05	0.00	0.00	.29
15.01 TO 20.00	.05	.14	.52	.10	.19	.10	.14	.10	.24	.38	.38	.24	.10	.05	.05	0.00	2.76
20.01 TO 25.00	0.00	.95	.62	.62	.43	.38	.57	.38	.29	.95	.33	.24	.29	.14	.10	.05	6.33
25.01 TO 30.00	.57	1.24	2.43	3.43	1.90	2.24	1.38	1.19	.71	1.19	1.52	1.10	.67	.86	.76	.52	21.71
30.01 TO 35.00	.48	1.10	2.00	2.29	1.90	1.29	1.48	1.00	.52	.90	2.43	3.95	4.05	2.19	.52	.48	26.57
35.01 TO 40.00	.10	.38	1.19	1.14	.86	.43	.43	.24	.43	.76	2.14	6.14	6.90	4.48	.90	.05	26.57
40.01 TO 45.00	0.00	.10	.24	.43	.05	.24	.10	0.00	.24	.48	.95	3.24	3.57	2.05	.14	.05	11.90
45.01 TO 50.00	.10	0.00	0.00	.05	.10	0.00	.05	.14	0.00	.24	.29	.90	1.24	.43	.14	.05	3.71
50.01 TO 55.00	0.00	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	0.00	.05	0.00	.14
TOTALS	1.29	3.90	7.05	8.05	5.43	4.67	4.19	3.05	2.52	4.95	8.05	15.86	16.86	10.24	2.71	1.19	100.00

2184 TOTAL HOURS INPUT 2100 HOURS VALID DATA

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY OF WET BULB TEMPERATURE

DATES 3/ 1/76 TO 5/31/76 SPRING LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY WIND DIRECTION

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
15.01 TO 20.00	0	0	2	3	0	0	2	1	0	1	1	1	1	0	0	0	12
20.01 TO 25.00	0	1	6	7	6	3	1	2	1	0	1	3	3	1	1	0	36
25.01 TO 30.00	0	4	14	19	4	5	1	2	7	6	7	11	9	2	0	1	92
30.01 TO 35.00	0	2	4	13	4	6	0	3	2	4	11	50	47	10	8	1	165
35.01 TO 40.00	1	5	7	14	5	8	3	3	8	16	39	95	164	46	8	1	424
40.01 TO 45.00	3	8	34	23	23	12	11	4	6	18	46	101	241	59	9	4	602
45.01 TO 50.00	7	9	44	46	13	6	3	2	3	6	36	82	178	42	5	2	484
50.01 TO 55.00	2	1	16	45	11	3	0	0	0	4	12	21	71	10	3	5	206
55.01 TO 60.00	1	1	8	8	7	0	0	2	0	0	2	0	24	19	2	2	76
60.01 TO 65.00	0	0	3	2	0	0	0	0	0	0	0	1	4	0	0	0	10
TOTALS	14	31	140	180	74	43	21	19	27	55	155	365	742	189	36	16	2107

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
15.01 TO 20.00	0.00	0.00	.09	.14	0.00	0.00	.09	.05	0.00	.05	.05	.05	.05	0.00	0.00	0.00	.57
20.01 TO 25.00	0.00	.05	.28	.33	.23	.14	.05	.09	.05	0.00	.05	.14	.14	.05	.05	0.00	1.71
25.01 TO 30.00	0.00	.19	.66	.90	.19	.24	.05	.09	.33	.28	.33	.52	.43	.09	0.00	.05	4.37
30.01 TO 35.00	0.00	.09	.19	.62	.19	.28	0.00	.14	.09	.19	.52	2.37	2.23	.47	.38	.05	7.83
35.01 TO 40.00	.05	.24	.33	.66	.23	.38	.14	.14	.38	.76	1.85	4.51	7.78	2.18	.33	.05	20.12
40.01 TO 45.00	.14	.38	1.61	1.09	1.09	.57	.52	.19	.28	.85	2.18	4.79	11.44	2.80	.43	.19	28.57
45.01 TO 50.00	.33	.43	2.09	2.18	.62	.28	.14	.09	.14	.28	1.71	3.89	8.45	1.99	.24	.09	22.97
50.01 TO 55.00	.09	.05	.65	2.14	.52	.14	0.00	0.00	0.00	.19	.57	1.00	3.37	.47	.14	.24	9.78
55.01 TO 60.00	.05	.05	.38	.38	.33	0.00	0.00	.09	0.00	0.00	.09	0.00	1.14	.90	.09	.09	3.61
60.01 TO 65.00	0.00	0.00	.14	.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05	.19	0.00	0.00	0.00	.47
TOTALS	.66	1.47	6.64	8.54	3.51	2.04	1.00	.90	1.28	2.61	7.36	17.32	35.22	8.97	1.71	.76	100.00

2208 TOTAL HOURS INPUT 2107 HOURS VALID DATA

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY OF WET BULB TEMPERATURE

DATES 6/ 1/76 TO 8/31/76 SUMMER LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY WIND DIRECTION

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
35.01 TO 40.00	0	0	0	0	0	1	1	0	0	0	4	3	2	0	0	0	11
40.01 TO 45.00	2	0	0	0	0	0	2	3	2	10	15	21	49	13	0	0	117
45.01 TO 50.00	2	3	2	4	2	0	3	4	7	17	26	65	90	15	3	1	244
50.01 TO 55.00	3	5	5	13	3	6	3	6	9	15	48	140	224	58	10	1	549
55.01 TO 60.00	7	5	20	28	15	2	3	2	10	25	46	166	279	61	9	7	685
60.01 TO 65.00	8	6	13	22	17	4	4	1	6	5	13	54	203	57	10	5	428
65.01 TO 70.00	0	0	2	5	1	0	0	0	1	0	1	1	14	6	0	0	31
TOTALS	22	19	42	72	38	13	16	16	35	72	153	450	861	210	32	14	2065

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
35.01 TO 40.00	0.00	0.00	0.00	0.00	0.00	.05	.05	0.00	0.00	0.00	.19	.15	.10	0.00	0.00	0.00	.53
40.01 TO 45.00	.10	0.00	0.00	0.00	0.00	0.00	.10	.15	.10	.48	.73	1.02	2.37	.63	0.00	0.00	5.67
45.01 TO 50.00	.10	.15	.10	.19	.10	0.00	.15	.19	.34	.82	1.26	3.15	4.36	.73	.15	.05	11.82
50.01 TO 55.00	.15	.24	.24	.63	.15	.29	.15	.29	.44	.73	2.32	6.78	10.85	2.81	.48	.05	26.59
55.01 TO 60.00	.34	.24	.97	1.36	.73	.10	.15	.10	.48	1.21	2.23	8.04	13.51	2.95	.44	.34	33.17
60.01 TO 65.00	.39	.29	.63	1.07	.82	.19	.19	.05	.29	.24	.63	2.62	9.83	2.76	.48	.24	20.73
65.01 TO 70.00	0.00	0.00	.10	.24	.05	0.00	0.00	0.00	.05	0.00	.05	.05	.68	.29	0.00	0.00	1.50
TOTALS	1.07	.92	2.03	3.49	1.84	.63	.77	.77	1.69	3.49	7.41	21.79	41.69	10.17	1.55	.68	100.00

2208 TOTAL HOURS INPUT 2065 HOURS VALID DATA

02/01/77

PORTLAND GENERAL ELECTRIC COMPANY, PEBBLE SPRINGS

FREQUENCY OF WET BULB TEMPERATURE

DATES 9/ 1/76 TO 11/30/76 FALL LEVEL = 30.0 FT

CONDITIONS: (NONE)

DISTRIBUTION BY WIND DIRECTION

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
15.01 TO 20.00	1	0	0	1	1	0	1	0	1	5	4	4	4	1	1	0	24
20.01 TO 25.00	0	0	2	1	4	3	2	1	2	2	1	1	4	1	1	2	27
25.01 TO 30.00	4	3	13	9	5	6	4	4	1	6	12	10	5	3	0	2	87
30.01 TO 35.00	2	9	17	15	9	8	7	5	8	22	21	16	6	5	6	4	160
35.01 TO 40.00	3	6	19	20	17	10	12	9	9	17	29	25	23	24	7	2	234
40.01 TO 45.00	7	7	37	52	41	14	9	9	9	22	27	51	47	24	4	6	366
45.01 TO 50.00	5	12	32	63	31	12	6	12	5	14	42	63	96	26	7	1	427
50.01 TO 55.00	2	6	11	33	14	3	6	5	12	18	41	93	77	28	7	4	360
55.01 TO 60.00	5	10	19	24	12	4	6	3	0	9	22	70	102	28	6	6	326
60.01 TO 65.00	1	4	15	25	14	1	0	2	3	2	5	17	27	13	2	1	132
TOTALS	30	59	165	243	148	61	53	50	50	117	204	350	391	153	41	28	2143

FREQUENCY OF OCCURRENCE (IN PERCENT OF TOTAL OBS)

TEMP.(DEG F)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
15.01 TO 20.00	.05	0.00	0.00	.05	.05	0.00	.05	0.00	.05	.23	.19	.19	.19	.05	.05	0.00	1.12
20.01 TO 25.00	0.00	0.00	.09	.05	.19	.14	.09	.05	.09	.09	.05	.05	.19	.05	.05	.09	1.25
25.01 TO 30.00	.19	.14	.61	.42	.23	.28	.19	.19	.05	.28	.56	.47	.23	.14	0.00	.09	4.06
30.01 TO 35.00	.09	.42	.79	.70	.42	.37	.33	.23	.37	1.03	.93	.75	.28	.23	.28	.19	7.47
35.01 TO 40.00	.14	.37	.89	.93	.79	.47	.56	.42	.42	.79	1.35	1.17	1.07	1.12	.33	.09	10.92
40.01 TO 45.00	.33	.33	1.73	2.43	1.91	.65	.42	.42	.42	1.03	1.26	2.38	2.19	1.12	.19	.28	17.08
45.01 TO 50.00	.23	.56	1.49	2.94	1.45	.56	.28	.56	.23	.65	1.96	2.94	4.48	1.21	.33	.05	19.93
50.01 TO 55.00	.09	.28	.51	1.54	.65	.14	.28	.23	.56	.84	1.91	4.34	3.59	1.31	.33	.19	16.80
55.01 TO 60.00	.23	.47	.89	1.12	.56	.19	.28	.14	0.00	.42	1.03	3.27	4.76	1.31	.28	.28	15.21
60.01 TO 65.00	.05	.19	.70	1.17	.65	.05	0.00	.09	.14	.09	.23	.79	1.26	.61	.09	.05	6.16
TOTALS	1.40	2.75	7.70	11.34	6.91	2.85	2.47	2.33	2.33	5.46	9.52	16.33	18.25	7.14	1.91	1.31	100.00

2184 TOTAL HOURS INPUT 2143 HOURS VALID DATA

SOLAR RADIATION DATA - PEBBLE SPRINGS

JANUARY - DECEMBER 1976

(Langleys)

1976

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	135.9	39.0	349.4	327.6	479.5	342.6	531.2	122.2	477.5	283.9	119.2	134.5
2	76.2	35.4	300.6	476.2	603.6	688.8	678.5	431.0	556.7	327.2	130.2	144.5
3	50.3	26.0	291.6	477.1	532.6	619.5	427.2	675.3	543.6	242.6	225.5	122.9
4	34.9	194.3	342.6	482.6	401.7	672.6	514.2	576.5	548.8	385.1	62.6	141.1
5	88.5	247.8	350.6	271.5	616.3	610.2	640.2	600.4	383.4	305.3	65.1	45.7*
6	133.1	246.0	319.5	999.9	623.3	641.4	544.0	348.0	549.3	355.9	85.6	119.4
7	12.1	233.6	232.1	13.6	601.4	481.8	499.4	204.7	534.0	357.4	204.4	105.7
8	88.5	185.8	355.3	999.9	552.0	397.0	642.6	625.8	542.4	345.7	187.6	55.6
9	151.3	239.3	362.5	440.2	637.1	573.4	670.4	583.2	534.7	325.6	165.1	142.1
10	121.5	236.1	210.7	338.2	357.1	569.0	586.3	607.6	516.1	254.8	153.4	121.1
11	91.6	66.1	382.5	453.6	622.6	370.2	312.8	623.6	391.2	342.7	133.0	115.1
12	143.4	229.7	248.2	113.1	642.9	445.7	670.0	645.1	420.7	338.6	160.3	134.2
13	79.7	92.2	215.2	529.4	614.1	701.2	666.7	300.7	505.7	290.6	63.1	135.2
14	38.5	143.4	173.1	336.3	652.1	693.8	657.1	423.3	126.9	299.7	113.2	81.1
15	23.2	105.4	342.1	484.1	641.2	250.6	483.9	304.5	472.9	267.2	51.7	134.8
16	147.0	217.6	217.9	542.3	625.1	423.2	64.1	458.2	394.5	294.4	173.9	82.1
17	57.3	76.2	299.0	321.6	635.4	623.6	173.9	503.2	237.1	311.4	121.7	102.3
18	160.1	165.5	277.6	533.1	556.4	691.2	413.3	619.5	449.4	314.5	178.6	142.5
19	162.7	178.5	411.5	405.2	328.3	573.4	324.7	383.8	451.9	307.3	132.4	155.1
20	15.1	269.7	415.6	559.5	642.7	562.7	618.3	573.6	442.1	298.2	143.7	56.6*
21	13.6	214.2	239.8	383.8	648.9	630.3	648.9	609.0	314.9	261.6	94.3	38.2*
22	11.2	122.7	117.7	412.1	540.2	661.2	711.6	341.2	367.0	269.8	162.5	19.8*
23	112.3	166.7	231.4	361.9	491.4	671.4	493.8	582.7	424.6	225.0	155.6	130.5
24	181.1	140.9	406.4	443.0	591.5	701.0	633.7	558.7	407.3	75.9	135.4	69.2*
25	143.2	145.7	365.8	457.3	551.0	634.6	703.1	416.4	400.3	113.1	127.0	72.2*
26	76.1	112.0	331.5	243.7	654.1	709.8	715.2	603.0	460.6	266.8	180.4	72.6*
27	77.3	152.1	194.4	442.9	340.4	709.3	719.7	580.2	121.6	254.8	153.9	147.7
28	179.6	276.1	422.3	512.3	556.4	578.2	708.2	588.4	383.4	191.6	163.2	105.1
29	181.3	313.8	433.7	450.3	479.0	462.0	722.2	396.9	308.4	177.4	170.2	29.1*
30	43.4		404.0	553.3	302.5	376.7	672.8	565.5	381.1	202.6	66.1	58.7*
31	18.0		75.8		593.6		612.0	551.7		151.6		45.9*
TOTAL	2667.0	4876.9	9325.9	11359.5	16915.2	17194.0	17464.1	15470.2	12510.7	8428.0	4090.3	3080.8
TOTAL HOURS INPUT	744	696	744	720	744	720	744	744	720	744	720	744
HOURS USED ABOVE	733	691	742	643	742	717	691	742	711	741	716	743

*these values low by an estimated 50 to 70% because of ice accretion on dome.

PRECIPITATION SUMMARY

PEBBLE SPRINGS - JANUARY-DECEMBER 1976

(inches)

Month	Total	Daily Maximum	Hourly Maximum	Hours Possible	Hours Available
Jan	0.65	0.31	0.14	744	741
Feb	0.53	0.12	0.05	696	691
March	0.45	0.20	0.06	744	742
April	0.50	0.23	0.06	720	660
May	0.11	0.04	0.03	744	742
June	0.04	0.02	0.02	720	717
July	0.16	0.09	0.05	744	742
Aug	0.81	0.33	0.11	744	742
Sept	0.07	0.05	0.03	720	719
Oct	0.15	0.08	0.02	744	743
Nov	0.12	0.09	0.04	720	720
Dec	0.08	0.03	0.02	744	744
Year	3.67	0.33	0.14	8784	8703

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