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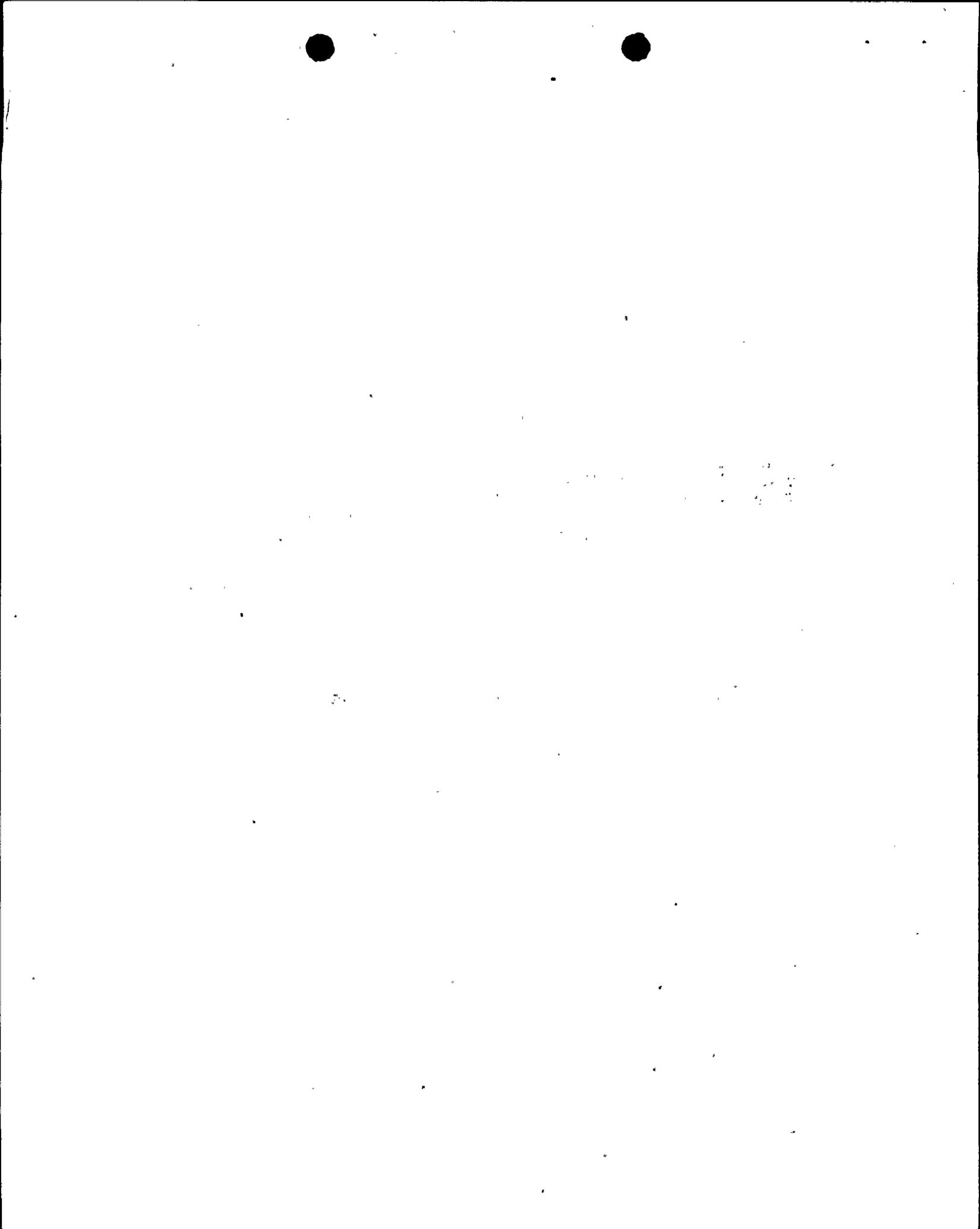
REPORT
REGULATORY GUIDE 1.145
UPDATED ACCIDENT ANALYSIS
ST. LUCIE, FLORIDA
For FLORIDA POWER & LIGHT COMPANY

23 September 1981
4598-131-09

Dames & Moore



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A PDR





23 September 1981

Florida Power & Light Company
Suite 113
2250 Palm Beach Lakes Blvd.
West Palm Beach, Florida 33409

Attention: Mr. Robert G. Fisher

Gentlemen:

Re: Regulatory Guide 1.145
Updated Accident Analysis
St. Lucie Site

The enclosed report is an updated accident analysis for the St. Lucie Unit 2. This update analysis includes two modifications that are different from the methodology presented in the Final Safety Analysis Report (FSAR) for this facility:

- ° Reduced meander consideration to compensate for the anticipated effect of the coastal exposure of this site;
- ° Regulatory Guide 1.145 methodology for the evaluation of the accident periods of interest.

This updated accident analysis was initiated in response to a Nuclear Regulatory Commission's request. Comparison of these results with the those presented in the St. Lucie Unit 2 Final Safety Analysis report reveals the updated Maximum Sector x/Q values larger than those reported in the FSAR. Although two modifications have been made to the methodology for computation, an increase was expected because of the reduced meander consideration.

Please let us know if you have any questions or need further explanation.

Sincerely,

DAMES & MOORE

Stanley J. Krivo Jr

Irwin Spickler
Partner

Stanley J. Krivo

Stanley J. Krivo, CCM
Senior Meteorologist

IS;SJK/pdg
Enclosure

1.0 INTRODUCTION

The following accident relative concentration analysis has been performed in response to the Nuclear Regulatory Commission's request to consider a limited lateral spread of the plume due to the coastal exposure of the St. Lucie site. Specifically, observed stability classes G, F, E, and D were made one stability class more unstable for the determination of the lateral spread of the plume under meander conditions.

In addition to the change in the meander term, the method of analysis presented herein uses the updated analysis techniques documented in Regulatory Guide 1.145. Both of these features of this updated accident analysis are different than that presented in the St. Lucie Final Safety Analysis Report.

2.0 SHORT-TERM (ACCIDENT) DIFFUSION ESTIMATES

The onsite meteorological data observed at the St. Lucie, Florida site for the period 1 September 1976 through 31 August 1978 were used to calculate the relative concentrations which could be anticipated in the event of an accidental release of radionuclides into the atmosphere. For the initial two hours after the release, these factors were calculated at both the actual exclusion area boundary (EAB) and low population zone (LPZ); for longer time periods, these factors were calculated at the outer boundary of the LPZ only.

The short-term calculation of diffusion estimates were performed using the 10-meter level observations of wind speed and wind direction with stability derived from the 10-58 m differential temperature system. The plant parameters used in this calculation are as follows:

Cross-sectional Area:	2726 m ²
Shape Factor:	0.5
Exclusion Area Boundary (EAB):	0.97 miles
Low Population Zone (LPZ):	1.00 miles

Diffusion calculations for accidental or short-term releases of radionuclides were performed in accordance with the criteria provided in Regulatory Guide 1.145 with the exception of the meander term. To account for the expected reduction in lateral meander due to the coastal location of St. Lucie, the lateral spread of the plume with meander was determined using one stability class more unstable than that observed. Specifically, the following stabilities were assumed only when determining the meander term for lateral plume spread:

<u>Observed Stability</u>	<u>Stability Used for Meander</u>
G	F
F	E
E	D
D	C

It was assumed that the releases emanate from a point source near the ground and the effluent plume spreads according to a Gaussian dispersion model.

2.1 THE MODEL FOR ACCIDENT DIFFUSION ESTIMATES FOR THE FIRST TWO HOURS

In estimating atmospheric dispersion for the first two hours following an accident, relative concentrations were calculated at the effluent plume centerline assuming complete ground reflection at all receptors. For ground-level releases, defined as release points less than two and one-half times the height of adjacent solid structures, the hourly relative concentrations were calculated as follows:

- ° For neutral (D) or stable (E, F, or G) atmospheric stability conditions with wind speeds less than six meters/second:

$$x/Q_1 = \frac{1}{\bar{u}_{10}(\pi\sigma_y\sigma_z A/2)} \quad (1)$$

$$x/Q_2 = \frac{1}{\bar{u}_{10}(3\pi\sigma_y\sigma_z)} \quad (2)$$

$$x/Q_3 = \frac{1}{\bar{u}_{10}\pi\Sigma_y\sigma_z} \quad (3)$$

where:

x/Q = relative concentration (seconds/meter³).

\bar{u}_{10} = hourly average wind speed at 10 meters above ground (meters/second).

σ_y = horizontal dispersion coefficient of the plume (meters); a function of atmospheric stability and distance.

σ_z = vertical dispersion coefficient of the plume (meters); a function of atmospheric stability and distance.

Σ_y = lateral plume spread with meander and building wake effects (meters); a function of atmospheric stability, wind speed, and distance. [For distances of 800 meters or less, $\Sigma_y = M\sigma_y$ where M is determined from Figure 2.0-1; for distances greater than 800 meters,

$$\Sigma_y = (M-1) \sigma_{y(800m)} + \sigma_y].$$

A = smallest vertical-plane cross-sectional area of the reactor building (2726 meters²).

The calculated relative concentrations, x/Q_1 and x/Q_2 , were compared and the higher value selected. This value was then compared to x/Q_3 (plume meander) and the lower of these two selected as the appropriate relative concentration for the hour of concern.

- ° For unstable (A, B, or C) atmospheric stability and/or for wind speeds of six meters/second or more, plume meander is not considered; the appropriate relative concentration is the higher of the x/Q values calculated by Equations 1 and 2.

The dispersion coefficients, σ_y and σ_z , depend upon values of vertical temperature gradients between the 10-meter and 58-meter levels (i.e., ΔT) at the site. Meteorological input data required for the model are onsite measurements of wind speed and wind direction at 10 meters and ΔT . An hourly observation is considered to be calm if the wind speed is less than the threshold of the wind instruments. For calm conditions a wind speed is assigned equal to the vane or anemometer starting speed, whichever is higher. A wind direction is assigned in proportion to the directional distribution of non-calm winds with speeds less than 1.5 meters per second. No substitution was made for missing or invalid data.

These hourly relative concentration values were calculated at the Actual Exclusion Area Boundary (EAB) and at the Low Population Zone (LPZ). The resultant values were distributed, both by wind direction and independent of wind direction, to obtain the Maximum Sector x/Q values, Sector x/Q values, and 5% Overall Site x/Q values.

The Maximum Sector x/Q is defined in Regulatory Guide 1.145 as the highest of the 0.5 percentile x/Q values calculated for each of the 16 meteorological sectors. The 16 Sector x/Q values were calculated by

constructing cumulative frequency distributions in each sector and determining the x/Q value in each sector that was exceeded 0.5 percent of the total time. Calculations were made at both the EAB and LPZ. For the LPZ, Sector x/Q values were also determined for various time periods using logarithmic interpolation between the 2-hour Sector x/Q and the annual average x/Q in the same sector. For each time period, the highest of the 16 Sector x/Q values is the Maximum Sector x/Q for that time period.

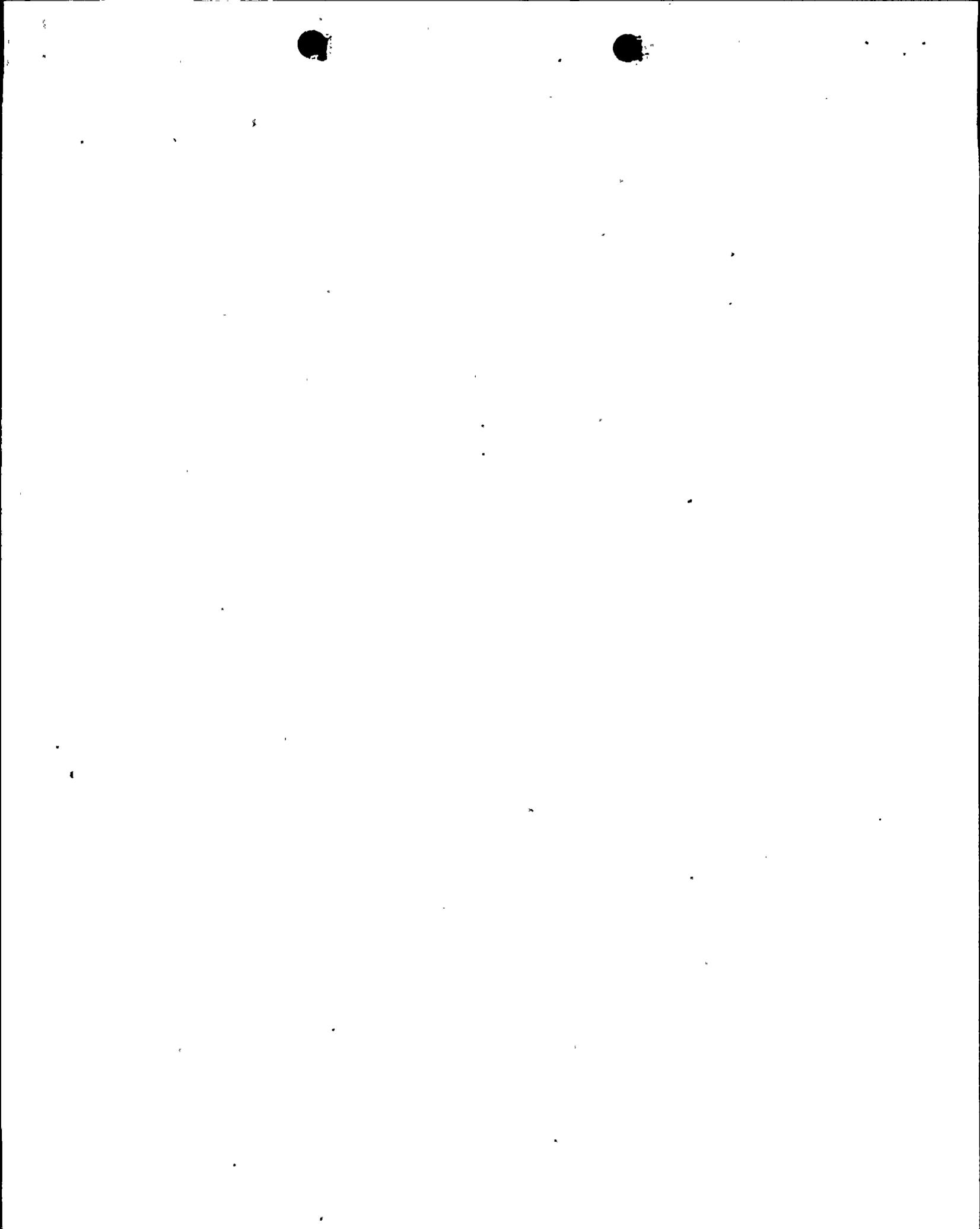
The 2-hour x/Q value that is exceeded 5 percent of the time is defined in Regulatory Guide 1.145 as the 5% Overall Site x/Q value. The 5% Overall Site x/Q value was determined from the overall frequency distribution of hourly x/Q values for all sectors combined. Calculations were made at both the EAB and LPZ. For the LPZ, 5% Overall Site x/Q values were determined for appropriate time periods using logarithmic interpolation between the 2-hour 5% Overall Site x/Q at the LPZ and the maximum of the 16 annual average x/Q values calculated at the LPZ.

2.2 METHOD USED FOR ACCIDENT DIFFUSION ESTIMATES FOR PERIODS LONGER THAN TWO HOURS

The method used to calculate the accident relative concentrations for time periods longer than two hours was a plotting technique described in Regulatory Guide 1.145. This technique is based on the calculated 0-2 hour x/Q values (Section 2.1) and the annual average estimates of x/Q as presented in the St. Lucie Unit 2 Final Safety Analysis Report (FSAR). These diffusion estimates are performed only at the Low Population Zone for time periods of 0-8 hours, 8-24 hours, 1-4 days, and 4-30 days as required by Regulatory Guide 1.70.

The procedure for determining these relative concentrations consists of a logarithmic plotting of the 0-2 hour x/Q values for a given sector and the annual average x/Q for the same sector, both calculated at the LPZ distance. These two points (x/Q at 2 hours, x/Q at 8760 hours) are plotted on a log-log graph (with x/Q as the ordinate and time in hours as the abscissa) and connected by a straight line. One straight line is generated for each wind direction sector. This log-log plot of relative concentrations is then read at 8, 16, 72, and 624 hours. Sixteen Sector x/Q values, one for each wind direction sector, were determined at 8, 16, 72, and 624 hours, corresponding to values for time periods of 0-8 hours, 8-24 hours, 1-4 days, and 4-30 days. From these four sets of 16 Sector x/Q values, one set for each time period, the highest of the 16 Sector x/Q values for each time period was identified. These values are the Maximum Sector x/Q values associated with the respective time periods.

It should be noted that the above procedure was used to determine Sector x/Q values and Maximum Sector x/Q values at the 0.5, 5, and 50 percentile levels. Although these percentile values should be determined including all observations (zero average values included), only the 0.5 percentile level will yield Sector x/Q values for each direction that are non-zero using this total data base. To provide values that are non-zero for all directions, the 5 and 50 percentile Sector x/Q values were determined using only those observation affecting the



given sector (zero values excluded). In each case, the 0-2 hour x/Q value used was that associated with the appropriate percentile level.

In addition to the above, the 5% Overall Site x/Q values for the various time periods were determined through logarithmic interpolation between the 2-hour x/Q value that is exceeded 5 percent of the time, considering all wind directions, and the maximum of the 16 annual average x/Q values.

2.3 ESTIMATES OF 0-2 HOUR ACCIDENT RELATIVE CONCENTRATIONS

The concurrent hourly values of differential temperature, wind direction and wind speed were used to develop the frequency distributions of hourly relative concentrations (used for periods up to two hours) using the methodology presented in Section 2.1. Table 2.0-1 presents selected relative concentrations at the 5- and 50-percentile levels for the resultant cumulative frequency distribution of these hourly values of relative concentration for both the Exclusion Area Boundary (EAB) and the Low Population Zone (LPZ).

Considering the total, direction independent, cumulative frequency distribution for the EAB distance, the relative concentration that will be exceeded 5 percent of the time is $9.38E-5 \text{ sec/m}^3$. The value of $2.54E-5 \text{ sec/m}^3$ will be exceeded 50 percent of the time for the EAB. The LPZ values of relative concentration that will be exceeded 5 and 50 percent of the time are $9.04E-5 \text{ sec/m}^3$ and $2.43E-5 \text{ sec/m}^3$, respectively.

The 0.5 percentile directional dependent relative concentrations for the 0-2 hour accident period are presented in Table 2.0-2. These values are defined in Regulatory Guide 1.145 as the 16 Sector x/Q values. Table 2.0-2 presents the Sector x/Q values for both the EAB and LPZ distances. The Maximum Sector x/Q values, the highest of the 0.5 percentile Sector x/Q values, are $1.64E-4$ for the EAB distance and $1.59E-4$ for the LPZ.

2.4 ESTIMATES OF ACCIDENT RELATIVE CONCENTRATIONS FOR PERIODS LONGER THAN TWO HOURS

Relative concentrations at the boundary of the low population zone (LPZ) were calculated for accident periods of 0-8 hours, 8-24 hours, 1-4 days, and 4-30 days for each wind direction sector. Section 2.2 presents the methodology used. The relative concentration values presented are associated with the 0.5, 5, and 50 percentile levels. It should be noted that the 0.5 percentile values were determined from distributions including observations not in the sector of interest (zero averages included) while the 5 and 50 percentile values only considered those observations that were in the sectors of interest (excluding zero averages). Relative concentrations including zero averages were determined using the total number of observations for the data period, while the relative concentrations excluding zero averages were determined using only the number of observations affecting a given sector.

Tables 2.0-3, 2.0-4, and 2.0-5 present the results of the accident analyses for the various time periods. The interpretation of these tables is illustrated as follows: if an accident occurs, there is a 0.5 percent chance that the relative concentration averaged over the next 8 hours will exceed $3.0E-5 \text{ sec/m}^3$ at the LPZ in the north sector. For Tables 2.0-4 and 2.0-5 the interpretation is illustrated as follows: if an accident occurs and the wind is affecting the NNE sector, there is a 5.0 percent chance the relative concentration for the 0-8 hour interval will exceed $4.07E-5 \text{ sec/m}^3$ at the LPZ in the NNE affected sector.

It should be noted that for zero averages included, only the 0.5 percentile level has non-zero relative concentrations for all sectors. Many of the sectors have zero values at the 5 percentile level, while all the relative concentrations are zero at the 50 percentile level (median x/Q at the LPZ for all directions is zero). This is the reason for considering only those observations that were in the sectors of interest (excluding zero averages) for these percentile levels. The

relative concentrations with zero values excluded will always be greater than or equal to the corresponding relative concentrations including zero values.

A summary of the maximum relative concentrations for Tables 2.0-3 through 2.0-5 is provided in Table 2.0-6. This table presents the maximum values for the various time periods and percentile levels.

2.5 5% OVERALL SITE x/Q VALUES

The relative concentrations for the 0-2 hour time period that are exceeded no more than 5 percent of the total time (independent of direction) for both the exclusion area boundary (EAB) and the low population zone (LPZ) were determined by the method presented in Regulatory Guide 1.145 and are presented in Table 2.0-1. These values are identified as the 5% Overall Site x/Q values. The 5% Overall Site x/Q values are summarized below (sec/m³):

	<u>EAB Distance</u>	<u>LPZ Distance</u>
5% Overall Site x/Q	9.38E-5	9.04E-5

For the LPZ, 5% Overall Site x/Q values were also determined for the longer accident time periods through logarithmic interpolation between the value presented above plotted at 2 hours and the maximum of the 16 annual average x/Q values plotted at 8760 hours. These values are presented in Table 2.0-7. The maximum annual average relative concentration for the all directions case occurred in both the NW and SE affected sectors.



2.6 SUMMARY OF SHORT-TERM (ACCIDENT) DIFFUSION ESTIMATES

Regulatory Guide 1.145 provides criteria for short-term diffusion calculations and defines various diffusion estimates that are needed for the evaluation of sites. These values consist of:

- ° Sector x/Q - The relative concentration in each wind direction sector that is exceeded 0.5 percent of the total time.
- ° Maximum Sector x/Q - The highest of the 16 Sector x/Q 's.
- ° 5% Overall Site x/Q - The relative concentration that is exceeded 5 percent of the total time for all directions combined.

The larger of the Maximum Sector x/Q and 5% Overall Site x/Q should be used for evaluations (Evaluation x/Q) at both the EAB and LPZ. (All direction dependent sector values should be presented for consideration.) Also, for the LPZ, relative concentrations should be determined for various time periods throughout the course of an accident. A summary of the relative concentrations of interest, as defined in Regulatory Guide 1.145, is presented in Table 2.0-8. Also identified in this table are the previous tables from which these values were obtained.

Regulatory Guide 1.145 indicates that the higher of the Maximum Sector x/Q and the 5% Overall Site x/Q should be used for EAB and outer LPZ boundary evaluations. The direction dependent values used to obtain the Maximum Sector x/Q value are presented in Table 2.0-3. The x/Q values to be used for both the EAB and LPZ evaluations, including values for the required time periods to 30 days (LPZ only), are presented in Table 2.0-8. During the September 1976-August 1978 data period, the Maximum Sector x/Q values were the governing values for all distances and time periods of interest. All of the Maximum Sector x/Q values occurred in either the ESE or SE affected sectors.

Table 2.0-9 presents the Maximum Sector x/Q values reported in the St. Lucie Unit 2 Final Safety Analysis Report (FSAR) for comparison to the values obtained in this analysis. The Maximum Sector x/Q values have been found to be larger than the 5% Overall Site x/Q values and, therefore, the Evaluation x/Q values for this site. Comparison of these two sets of Maximum Sector x/Q values shows that the values for the updated analysis are larger than those presented in the FSAR. The increase in Maximum Sector x/Q values range from a factor of about 4 to less than 10 percent dependency on the averaging period. Specifically at the EAB, the Maximum Sector x/Q increased from a value of $1.2E-4$ reported in the FSAR to $1.6E-4$ in this analysis. Although this analysis contains two modifications in methodology when compared to that used in the FSAR (Regulatory Guide 1.145 methodology plus a reduced meander consideration), the increase in relative concentration was expected because of the reduced meander term in the computational technique.

TABLE 2.0-1

SELECTED PERCENTILE VALUES OF HOURLY RELATIVE CONCENTRATIONS*
 Data Period: 1 September 1976 - 31 August 1978

	<u>5% Level</u>	<u>50% Level</u>
EAB Maximum Value	9.39E-5 1.13E-3	2.54E-5 (E affected sector)
LPZ Maximum Value	9.04E-5 1.10E-3	2.43E-5 (E affected sector)

*Seconds per cubic meter.

TABLE 2.0-2

SECTOR X/Q VALUES

Data Period: 1 September 1976 - 31 August 1978

<u>Affected Sector</u>	<u>EAB 0.5% x/Q 0-2 Hours</u>	<u>LPZ 0.5% x/Q 0-2 Hours</u>
NNE	6.86E-5	6.62E-5
NE	8.26E-5	8.00E-5
ENE	9.38E-5	9.04E-5
E	9.38E-5	9.04E-5
ESE	1.64E-4	1.59E-4
SE	1.47E-4	1.43E-4
SSE	8.26E-5	8.00E-5
S	6.26E-5	6.03E-5
SSW	6.26E-5	6.03E-5
SW	4.69E-5	4.52E-5
WSW	4.69E-5	4.52E-5
W	4.69E-5	4.52E-5
WNW	6.26E-5	6.03E-5
NW	6.35E-5	6.07E-5
NNW	6.86E-5	6.62E-5
N	6.26E-5	6.03E-5
Maximum Sector X/Q	1.64E-4	1.59E-4

TABLE 2.0-3

RELATIVE CONCENTRATIONS FOR VARIOUS AVERAGING PERIODS
(SECTOR X/Q VALUES) LOW POPULATION ZONE: 0.5 PERCENTILE VALUES
ZERO AVERAGES INCLUDED

Data Period: 1 September 1976 - 31 August 1978

Affected Sector	Relative Concentrations (sec/cubic meter)				
	Averaging Period (hours)				
	<u>2</u>	<u>8</u>	<u>16</u>	<u>72</u>	<u>624</u>
NNE	6.62E-5	3.40E-5	2.41E-5	1.15E-5	4.10E-6
NE	8.00E-5	4.00E-5	2.88E-5	1.38E-5	4.30E-6
ENE	9.04E-5	4.10E-5	2.87E-5	1.24E-5	3.80E-6
E	9.04E-5	4.10E-5	2.87E-5	1.26E-5	3.84E-6
ESE	1.59E-4	7.10E-5	4.70E-5	1.97E-5	5.60E-6
SE	1.43E-4	6.70E-5	4.50E-5	2.02E-5	6.10E-6
SSE	8.00E-5	3.90E-5	2.77E-5	1.29E-5	4.30E-6
S	6.03E-5	2.80E-5	1.93E-5	8.60E-6	2.61E-6
SSW	6.03E-5	2.72E-5	1.84E-5	7.95E-6	2.36E-6
SW	4.52E-5	2.18E-5	1.52E-5	7.00E-6	2.27E-6
WSW	4.52E-5	2.27E-5	1.60E-5	7.50E-6	2.50E-6
W	4.52E-5	2.29E-5	1.62E-5	7.80E-6	2.68E-6
WNW	6.03E-5	3.19E-5	2.32E-5	1.17E-5	4.39E-6
NW	6.07E-5	3.27E-5	2.38E-5	1.21E-5	4.57E-6
NNW	6.62E-5	3.44E-5	2.48E-5	1.23E-5	4.50E-6
N	6.03E-5	3.00E-5	2.12E-5	1.00E-5	3.40E-6

TABLE 2.0-4

RELATIVE CONCENTRATIONS FOR VARIOUS AVERAGING PERIODS
 LOW POPULATION ZONE: 5.0 PERCENTILE VALUES
 ZERO AVERAGES EXCLUDED

Data Period: 1 September 1976 - 31 August 1978

Affected Sector	Relative Concentrations (sec/cubic meter)				
	Averaging Period (hours)				
	<u>2</u>	<u>8</u>	<u>16</u>	<u>72</u>	<u>624</u>
NNE	8.30E-5	4.07E-5	2.84E-5	1.31E-5	4.32E-6
NE	9.61E-5	4.79E-5	3.33E-5	1.58E-5	5.10E-6
ENE	1.70E-4	7.17E-5	4.62E-5	1.81E-5	4.72E-6
E	1.91E-4	8.07E-5	5.20E-5	2.02E-5	5.26E-6
ESE	2.09E-4	9.00E-5	5.87E-5	2.34E-5	6.21E-6
SE	1.66E-4	7.40E-5	4.98E-5	2.09E-5	6.00E-6
SSE	9.66E-5	4.59E-5	3.17E-5	1.43E-5	4.53E-6
S	7.96E-5	3.58E-5	2.39E-5	1.01E-5	2.88E-6
SSW	7.98E-5	3.49E-5	2.32E-5	9.66E-6	2.70E-6
SW	6.92E-5	3.13E-5	2.10E-5	8.90E-6	2.60E-6
WSW	6.36E-5	2.95E-5	2.04E-5	9.00E-6	2.80E-6
W	6.97E-5	3.31E-5	2.27E-5	1.00E-5	3.11E-6
WNW	6.76E-5	3.49E-5	2.52E-5	1.24E-5	4.54E-6
NW	7.62E-5	3.90E-5	2.80E-5	1.38E-5	4.90E-6
NNW	7.36E-5	3.76E-5	2.70E-5	1.32E-5	4.66E-6
N	7.73E-5	3.65E-5	2.53E-5	1.13E-5	3.50E-6

TABLE 2.0-5

RELATIVE CONCENTRATIONS FOR VARIOUS AVERAGING PERIODS
 LOW POPULATION ZONE: 50 PERCENTILE VALUES
 ZERO AVERAGES EXCLUDED

Data Period: 1 September 1976 - 31 August 1978

Affected Sector	Relative Concentrations (sec/cubic meter)				
	Averaging Period (hours)				
	<u>2</u>	<u>8</u>	<u>16</u>	<u>72</u>	<u>624</u>
NNE	2.35E-5	1.42E-5	1.10E-5	6.35E-6	2.88E-6
NE	2.92E-5	1.73E-5	1.34E-5	7.68E-6	3.46E-6
ENE	3.63E-5	1.95E-5	1.43E-5	7.39E-6	2.82E-6
E	3.69E-5	2.02E-5	1.48E-5	7.83E-6	3.00E-6
ESE	3.81E-5	2.16E-5	1.61E-5	8.68E-6	3.55E-6
SE	3.14E-5	1.85E-5	1.46E-5	8.25E-6	3.78E-6
SSE	2.68E-5	1.58E-5	1.22E-5	6.85E-6	3.00E-6
S	1.61E-5	9.40E-6	7.18E-6	4.00E-6	1.72E-6
SSW	1.98E-5	1.09E-5	8.17E-6	4.35E-6	1.73E-6
SW	1.64E-5	9.40E-6	7.07E-6	3.88E-6	1.63E-6
WSW	1.81E-5	1.07E-5	8.05E-6	4.47E-6	1.89E-6
W	2.03E-5	1.19E-5	9.03E-6	4.95E-6	2.12E-6
WNW	2.25E-5	1.42E-5	1.12E-5	6.67E-6	3.19E-6
NW	2.74E-5	1.68E-5	1.31E-5	7.67E-6	3.57E-6
NNW	2.58E-5	1.58E-5	1.23E-5	7.23E-6	3.38E-6
N	2.65E-5	1.51E-5	1.15E-5	6.23E-6	2.60E-6

TABLE 2.0-6

MAXIMUM RELATIVE CONCENTRATION VALUES*
FOR VARIOUS AVERAGING TIMES; LOW POPULATION ZONE
Data Period: 1 September 1976 - 31 August 1978

	<u>0.5% Level**</u>	<u>5% Level</u>	<u>50% Level</u>
2 Hours	15.9 (ESE)	20.90 (ESE)	3.81 (ESE)
8 Hours	7.10 (ESE)	9.00 (ESE)	2.16 (ESE)
16 Hours	4.70 (ESE)	5.87 (ESE)	1.61 (ESE)
72 Hours	2.02 (SE)	2.34 (ESE)	0.87 (ESE)
624 Hours	.0.61 (SE)	0.62 (ESE)	0.38 (SE)

*Directions are sector affected; concentrations should be multiplied by 10^{-5} to obtain values in seconds per cubic meter.

**Maximum Sector χ/Q values.

TABLE 2.0-7

5% OVERALL SITE x/Q VALUES FOR LOW POPULATION ZONE
Data Period: 1 September 1976 - 31 August 1978

	<u>5% Overall Site x/Q</u>	
	<u>LPZ</u>	<u>EAB</u>
2 Hours	9.04E-5	9.38E-5
8 Hours	4.58E-5	-
16 Hours	3.21E-5	-
72 Hours	1.53E-5	-
624 Hours	5.20E-6	-
Maximum Annual Average	1.4E-6	(NW & SE affected sectors)

TABLE 2.0-8

REGULATORY GUIDE 1.145 RELATIVE CONCENTRATIONS OF INTEREST (sec/m^3)
 Data Period: 1 September 1976 - 31 August 1978

	Distances*					
	<u>EAB 0-2 Hours</u>	<u>LPZ 0-2 Hours</u>	<u>LPZ 0-8 Hours</u>	<u>LPZ 8-24 Hours</u>	<u>LPZ 1-4 Days</u>	<u>LPZ 4-30 Days</u>
Sector χ/Q	Table 2.0-2	Table 2.0-2	Table 2.0-3	Table 2.0-3	Table 2.0-3	Table 2.0-3
Maximum Sector χ/Q (Affected Sector)	1.64E-4 (ESE) (Table 2.0-2)	1.59E-4 (ESE) (Table 2.0-2)	7.10E-5 (ESE) (Table 2.0-6)	4.70E-5 (ESE) (Table 2.0-6)	2.02E-5 (SE) (Table 2.0-6)	6.10E-6 (SE) (Table 2.0-6)
5% Overall Site χ/Q	9.38E-5 (Table 2.0-1)	9.04E-5 (Table 2.0-1)	4.58E-5 (Table 2.0-7)	3.21E-5 (Table 2.0-7)	1.53E-5 (Table 2.0-7)	5.20E-6 (Table 2.0-7)
Evaluation χ/Q	1.64E-4	1.59E-4	7.10E-5	4.70E-5	2.02E-5	6.10E-6

*EAB = Exclusion Area Boundary
 LPZ = Low Population Zone

TABLE 2.0-9

MAXIMUM SECTOR χ/Q VALUES FROM THE ST. LUCIE UNIT 2
 FINAL SAFETY ANALYSIS REPORT
 Data Period: 1 September 1976 - 31 August 1978

	Distances*					
	<u>EAB</u> <u>0-2 Hours</u>	<u>LPZ</u> <u>0-2 Hours</u>	<u>LPZ</u> <u>0-8 Hours</u>	<u>LPZ</u> <u>8-24 Hours</u>	<u>LPZ</u> <u>1-4 Days</u>	<u>LPZ</u> <u>4-30 Days</u>
Maximum Sector χ/Q (Affected Sector)	1.2E-4 (SE) (Table 2.3-101)**	1.1E-4 (SE) (Table 2.3-101)	6.6E-5 (ESE) (Table 2.3-101)	1.2E-5 (ESE, SE) (Table 2.3-101)	5.8E-6 (SE) (Table 2.3-101)	3.0E-6 (SE) (Table 2.3-101)

*EAB = Exclusion Area Boundary
 LPZ - Low Population Zone

**Table number from FSAR

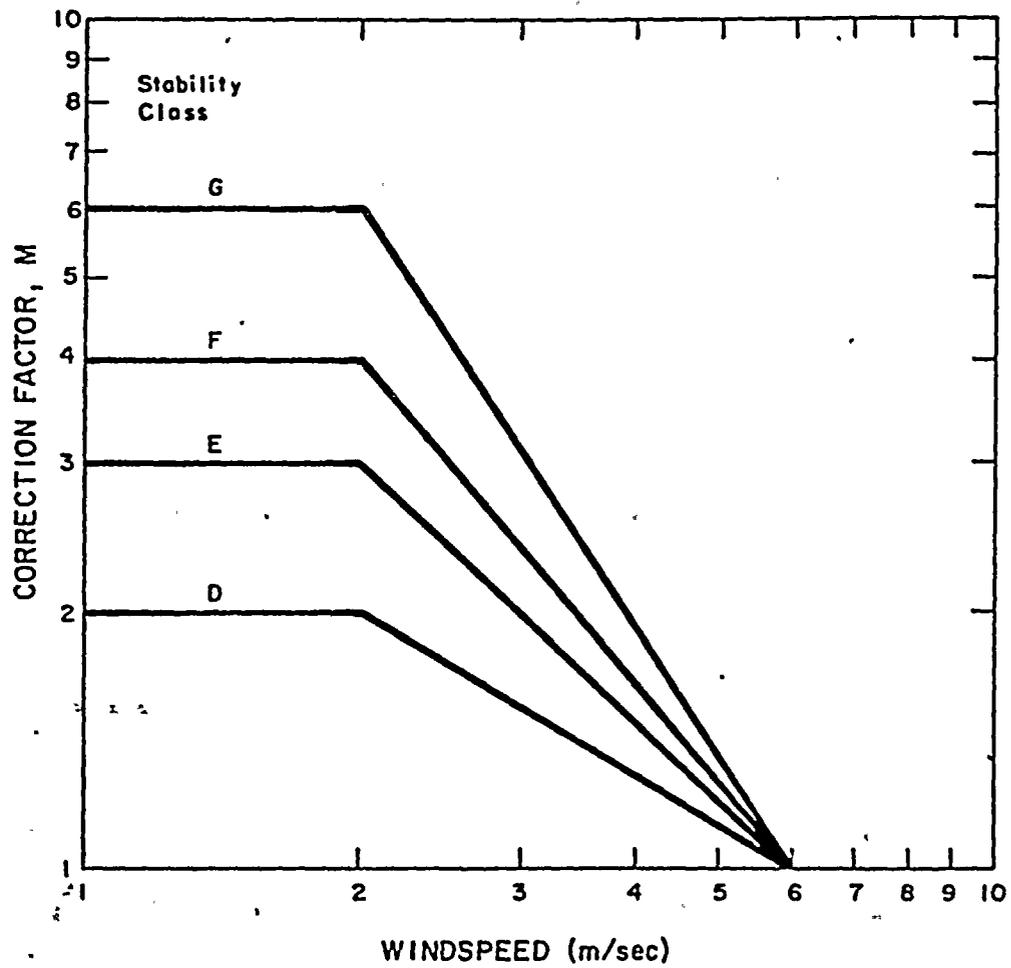


Figure 2.0-1. Correction Factors for Pasquill-Gifford σ_y Values by Atmospheric Stability Class (Regulatory Guide 1.145)

