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FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261  
AUTH. NAME AUTHOR AFFILIATION  
STARKEY, R.B. Carolina Power & Light Co. **EFF-83A**  
RECIP. NAME RECIPIENT AFFILIATION

O'REILLY, J.P. Region 2, Office of Director

SUBJECT: ~~Subject~~ to "Effluent & Waste Disposal Semiannual Rept, Jan-June  
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EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

1st & 2nd Quarters, 1983

SUPPLEMENTAL INFORMATION

FACILITY: H. B. Robinson

LICENSE: DPR-23

1. REGULATORY LIMITS

- A. Fission and Activation Gases: 15,000 uCi/sec. based on Xe-133
- B. Iodines:  $7.15E-03$  uCi/sec. based on I-131.
- C. Particulates, half lives greater than 8 days:  $7.15E-03$  uCi/sec.
- D. Liquid Effluents: Tritium not to exceed annual daily average of 10.5 curies. All others not to exceed 10 CFR 20, Appendix B, Table 2, Column 2, except unidentified not to exceed annual daily limit average of 26 mCi/day.

2. MAXIMUM PERMISSABLE CONCENTRATIONS

- A. Gaseous Effluent: The average annual release rates of gaseous wastes is limited to  $\sum_{MPCi} \frac{Q_i}{MPC_i} \leq 5.0E04 \text{ m}^3/\text{sec}.$

$Q_i$  is the annual release rate (Ci/sec) of any radioisotope,  $i$ , and  $(MPC)_i$ ; in units of uCi/cc as defined in Column 1, Table II of Appendix B, 10 CFR 20, except that for isotopes of Iodine and particulates with half-lives greater than 8 days, the values of  $(MPC)_i$  are reduced by a factor of 1/700.

- B. LIQUID EFFLUENTS:  $1.00E-07$  uCi/cc unidentified  
 $3.00E-03$  uCi/cc Tritium

3. AVERAGE ENERGY OF FISSION & ACTIVATION GASES RELEASED

1st Quarter .175 MEV

2nd Quarter .152 MEV

4. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

- A. Fission and Activation Gases: measured and determined by continuous monitors, periodic grab samples, radionuclide gamma analysis, and scintillation counting.
- B. Iodines: measured and determined by continuous sample monitors and radionuclide gamma analysis.
- C. Particulates: measured and determined by continuous sample monitors, radionuclides gamma analysis, gross alpha and beta counting.
- D. Liquid Effluents: measured and determined by composite sample analysis, individual sample analysis, radionuclides gamma analysis, gross alpha and beta counting, and liquid scintillation counting.

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5. BATCH RELEASES

A. Liquid

1. Number of Batch Releases: 98
2. Total Time Period for Batch Releases: 3.24 E04 Min.
3. Maximum Time Period for a Batch Release: 2220 Min.
4. Average Time Period for Batch Releases: 331 Min.
5. Minimum Time Period for a Batch Release: 60 Min.
6. Average Stream Flow during Periods of  
Release of Effluent into a Flowing Stream: 4.33E05 GPM

B. Gaseous

1. Number of Batch Releases: 79
2. Total Time Period for Batch Releases: 4.67E04 Min.
3. Maximum Time Period for a Batch Release: 4320 Min.
4. Average Time Period for a Batch Release: 591 Min.
5. Minimum Time Period for a Batch Release: 52 Min.

6. ABNORMAL RELEASES

A. Liquid - 0

B. Gaseous - 0

TABLE 1A

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

## GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

		UNITS	1st QUARTER	2nd QUARTER	% ERROR
A.	<u>FISSION AND ACTIVATION GASES</u>				
1.	Total Release	Ci	<u>3.52E01</u>	<u>8.80E01</u>	1.00E01
2.	Average Release Rate	uCi/sec	<u>4.59E00</u>	<u>1.12E01</u>	
3.	% of Tech. Spec. Limit	%	<u>3.25E-02</u>	<u>7.64E-02</u>	
4.	Maximum Release Rate/Hour	uCi/sec	<u>2.02E02</u>	<u>1.75E03</u>	
B.	<u>IODINES</u>				
1.	Total Iodine-131	Ci	<u>1.42E-04</u>	<u>1.98E-03</u>	1.00E01
2.	Average Release Rate	uCi/sec	<u>1.79E-05</u>	<u>2.51E-04</u>	
3.	% of Tech. Spec. Limit	%	<u>2.50E-01</u>	<u>3.52E00</u>	
4.	Total Iodine	Ci	<u>1.45E-04</u>	<u>2.15E-03</u>	
C.	<u>PARTICULATES</u>				
1.	Particulates T <sub>1/2</sub> > 8 days	Ci	<u>3.70E-06</u>	<u>4.60E-06</u>	1.00E01
2.	Average Release Rate	uCi/sec	<u>4.64E-07</u>	<u>5.86E-07</u>	
3.	% of Tech. Spec. Limit	%	<u>2.16E-03</u>	<u>2.10E-03</u>	
4.	Gross Alpha Radioactivity	Ci	<u>0</u>	<u>0</u>	
5.	Total Gross Radioactivity	Ci	<u>3.70E-06</u>	<u>4.60E-06</u>	
D.	<u>TRITIUM</u>				
1.	Total Release	Ci	<u>9.96E-01</u>	<u>1.19E00</u>	1.00E01
2.	Average Release Rate	uCi/sec	<u>1.26E-01</u>	<u>1.51E-01</u>	
3.	% of Tech. Spec. Limit	%	<u>1.26E-03</u>	<u>1.51E-03</u>	

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

GASEOUS EFFLUENTS - ELEVATED RELEASES

No elevated releases made at H. B. Robinson.

TABLE 1C

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

GASEOUS EFFLUENTS<sup>1</sup> - GROUND LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
	UNITS	1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
1. <u>FISSION GASES</u>					
Ar-41	Ci	<u>1.29E-02</u>	<u>3.82E-03</u>	<u>1.87E-03</u>	<u>2.45E-03</u>
Kr-85m	Ci	<u>2.58E-02</u>	<u>3.68E-02</u>	<u>5.38E-03</u>	<u>8.64E-03</u>
Kr-87	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Kr-88	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Xe-133	Ci	<u>3.35E01</u>	<u>8.57E01</u>	<u>4.87E00</u>	<u>1.38E02</u>
Xe-133m	Ci	<u>1.96E-02</u>	<u>5.03E-01</u>	<u>3.57E-03</u>	<u>2.06E-01</u>
Xe-135	Ci	<u>1.15E00</u>	<u>1.35E00</u>	<u>2.41E-01</u>	<u>3.31E-01</u>
Xe-135m	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Kr-85	Ci	<u>3.80E-01</u>	<u>1.29E-01</u>	<u>4.64E-02</u>	<u>4.87E-02</u>
Xe-131m	Ci	<u>9.95E-02</u>	<u>2.23E-01</u>	<u>1.21E-02</u>	<u>1.14E-01</u>
<hr/>					
Total for Period	Ci	<u>3.52E01</u>	<u>8.80E01</u>	<u>5.18E00</u>	<u>1.39E02<sup>2</sup></u>
2. <u>IODINES</u>					
I-131	Ci	<u>1.42E-04</u>	<u>1.98E-03</u>	<u>5.80E-07</u>	<u>2.37E-04</u>
I-133	Ci	<u>3.47E-06</u>	<u>1.76E-04</u>	<u>3.33E-07</u>	<u>2.19E-05</u>
I-135	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>1.45E-07</u>
<hr/>					
Total for Period	Ci	<u>1.45E-04</u>	<u>2.15E-03</u>	<u>9.13E-07</u>	<u>2.59E-04</u>
3. <u>PARTICULATES</u>					
F-18		<u>0</u>	<u>0</u>	<u>8.08E-11</u>	<u>0</u>
Na-24	Ci	<u>0</u>	<u>0</u>	<u>2.42E-10</u>	<u>0</u>
K-40	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Co-58	Ci	<u>0</u>	<u>1.23E-06</u>	<u>2.37E-09</u>	<u>5.89E-07</u>
Co-60	Ci	<u>3.70E-06</u>	<u>3.37E-06</u>	<u>1.87E-08</u>	<u>2.53E-07</u>
Y-88	Ci	<u>0</u>	<u>0</u>	<u>1.62E-10</u>	<u>0</u>
Rb-88	Ci	<u>0</u>	<u>0</u>	<u>7.43E-09</u>	<u>0</u>
Mo-99	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>7.68E-09</u>
Tc-99m	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
I-131	Ci	<u>0</u>	<u>0</u>	<u>3.00E-09</u>	<u>4.08E-07</u>
Cs-134	Ci	<u>0</u>	<u>0</u>	<u>4.16E-08</u>	<u>3.38E-07</u>
Cs-136	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Cs-137	Ci	<u>0</u>	<u>0</u>	<u>6.45E-08</u>	<u>6.39E-07</u>
Cs-138	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Ba-139	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Ce-139	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Mn-54	Ci	<u>0</u>	<u>0</u>	<u>1.26E-09</u>	<u>6.16E-09</u>
Cr-51	Ci	<u>0</u>	<u>0</u>	<u>0</u>	<u>9.40E-09</u>
<hr/>					
Total for Period	Ci	<u>3.70E-06</u>	<u>4.60E-06</u>	<u>1.39E-07</u>	<u>2.25E-06</u>

1 Continuous Accountability includes Batch Accountability.

2 Batch Accountability is artificially high due to a two day purge being based on a grab sample.

TABLE 2A

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNITS	<u>1st QUARTER</u>	<u>2nd QUARTER</u>	% ERROR
<u>A. FISSION AND ACTIVATION PRODUCTS</u>				
1. Total Releases	Ci	<u>1.44E-01</u>	<u>2.51E-01</u>	1.00E01
2. Average Diluted Concentration	uCi/ml	<u>6.36E-10</u>	<u>1.11E-09</u>	
3. % of Applicable Limit	%	<u>6.36E-01</u>	<u>1.11E00</u>	
<u>B. TRITIUM</u>				
1. Total Release	Ci	<u>9.63E01</u>	<u>6.71E01</u>	1.00E01
2. Average Diluted Concentration	uCi/ml	<u>4.48E-07</u>	<u>3.23E-07</u>	
3. % of Applicable Limit	%	<u>1.49E-02</u>	<u>1.08E-02</u>	
<u>C. DISSOLVED AND ENTRAINED GASES</u>				
1. Total Release	Ci	<u>7.56E-02</u>	<u>7.36E-02</u>	1.00E01
2. Average Diluted Concentration	uCi/ml	<u>3.50E-10</u>	<u>3.41E-10</u>	
3. % of Applicable Limit	%	<u>1.17E-02</u>	<u>1.14E-02</u>	
<u>D. GROSS ALPHA RADIOACTIVITY</u>				
1. Total Release	Ci	<u>0</u>	<u>0</u>	
<u>E. VOLUME OF WASTE RELEASED</u>				
	Liters	<u>3.99E07</u>	<u>1.90E07</u>	1.00E01
<u>F. VOLUME OF DILUTION WATER</u>				
	Liters	<u>2.14E11</u>	<u>2.14E11</u>	1.00E01
<u>G. MAXIMUM CONCENTRATION OF GROSS RADIOACTIVITY RELEASED</u>				
	uCi/ml	<u>7.96E-09</u>	<u>2.06E-08</u>	1.00E01

TABLE 2B

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

## LIQUID EFFLUENTS

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE		BATCH MODE	
		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
F-18	Ci	0	1.98E-04	0	7.34E-04
Na-24	Ci	1.06E-01	1.60E-01	0	4.80E-05
Cr-51	Ci	0	0	0	0
Mn-54	Ci	0	0	9.18E-06	3.48E-04
Fe-59	Ci	0	0	0	0
Co-58	Ci	2.33E-04	4.77E-04	3.46E-04	3.96E-03
Co-60	Ci	1.07E-03	4.78E-04	2.54E-03	2.22E-03
Zn-65	Ci	0	0	0	0
Sr-89	Ci	0	0	0	0
Sr-90	Ci	0	0	1.13E-05	0
Zr-95	Ci	0	0	0	0
Nb-95	Ci	0	0	0	2.04E-05
Nb-97	Ci	0	0	0	9.84E-05
Zr-97	Ci	0	0	0	0
Tc-99m	Ci	0	0	0	0
Mo-99	Ci	0	0	0	0
Ag-110m	Ci	0	0	0	0
Cd-109	Ci	0	0	0	0
Sb-124	Ci	0	0	0	0
Sb-125	Ci	0	0	0	0
I-131	Ci	9.70E-03	2.11E-02	1.92E-04	2.95E-03
I-133	Ci	1.77E-02	3.78E-02	0	6.26E-04
Cs-134	Ci	2.60E-03	7.60E-03	1.12E-04	5.01E-04
Cs-137	Ci	3.81E-03	9.91E-03	2.87E-06	8.70E-04
Ce-144	Ci	0	0	0	0
Y-88	Ci	0	3.35E-04	0	0
Cs-136	Ci	0	6.42E-05	0	2.74E-05
I-132	Ci	0	0	0	2.10E-04
<hr/>					
Total	Ci	1.41E-01	2.38E-01	3.21E-03	1.26E-02
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Ar-41	Ci	1.22E-04	0	0	0
Kr-85m	Ci	3.87E-04	4.68E-05	0	8.73E-05
Kr-87	Ci	1.33E-04	0	0	0
Kr-88	Ci	0	0	0	0
Xe-133	Ci	4.71E-02	3.70E-02	1.81E-04	1.73E-02
Xe-133m	Ci	0	0	0	2.79E-04
Xe-135	Ci	1.22E-02	5.17E-03	0	4.03E-04
Xe-135m	Ci	1.55E-02	1.33E-02	0	0
Kr-85	Ci	1.02E-04	0	0	0
<hr/>					
Total	Ci	7.55E-02	5.55E-02	1.81E-04	1.81E-02



TABLE 3

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT - 1983

## SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

1.	Type of Waste	Units	Totals	% Error
(a)	Spent resins, filter sludges evaporator bottoms, etc.	M <sup>3</sup> Ci	1.86E02 1.08E00	1.00E01
(b)	Dry compressible waste, contaminated equipment, etc.	M <sup>3</sup> Ci	1.67E02 5.32E00	1.00E01
(c)	Irradiated components, controls rods, etc.	M <sup>3</sup> Ci	0 0	
(d)	Other	M <sup>3</sup> Ci	0 0	

2. Estimate of Major Nuclide Composition (By Type of Waste)

	%	Ci
(a) Cs-137	25	2.70E-01
Co-58	5	5.40E-02
Mn-54	5	5.40E-02
Co-60	62	6.70E-01
Others*	3	3.24E-01
(b) Co-58	5.6	2.98E-01
Mn-54	1.5	7.98E-02
Co-60	84.7	4.51E00
Cs-137	4.6	2.45E-01
Others*	7.3	3.88E-01

3. Solid Waste Disposition

Number of Shipments: 31  
Mode of Transportation: Sole Use Vehicle  
Destination: Richland, Washington and Barnwell, S. C.

B. IRRADIATED FUEL SHIPMENT (FOR STORAGE)

Number of Shipments: 0  
Mode of Transportation: N/A  
Destination: N/A  
  
Number of Bundles: 0

\*Others include (Co-57, Sb-124, Nb-95, Fe-59, Cs-134, Zr-97, Cs-137, SR-92, I-131, Cr-51, Nb-97, Zr-95)

DOSE FROM SHORELINE SEDIMENT  
MREM/YEAR

	CHILD	TEEN	ADULT
WHOLE BODY	3.72E-08	1.78E-07	3.19E-08
SKIN	4.35E-08	2.08E-07	3.73E-08

DOSE FROM EATING FISH  
MREM/YEAR

	CHILD	TEEN	ADULT
BONE	1.59E-05	1.28E-05	1.22E-05
LIVER	1.90E-05	2.17E-05	2.12E-05
WHOLE BODY	3.47E-06	8.88E-06	1.56E-05
THYROID	3.54E-06	3.35E-06	3.56E-06
KIDNEY	6.13E-06	7.24E-06	7.11E-06
LUNG	2.25E-06	2.83E-06	2.42E-06
GI-LLI	2.25E-07	4.56E-07	5.98E-07

DOSE FROM EATING GREEN LEAFY VEG. FROM CRITICAL GARDEN  
MREM/YEAR

	CHILD	TEEN	ADULT
BONE	4.13E-04	2.27E-04	2.46E-04
LIVER	9.14E-04	7.38E-04	9.86E-04
WHOLE BODY	7.33E-04	5.91E-04	8.36E-04
THYROID	1.38E-01	9.30E-02	1.16E-01
KIDNEY	1.18E-03	9.67E-04	1.24E-03
LUNG	4.98E-04	4.20E-04	6.34E-04
GI-LLI	5.37E-04	4.87E-04	7.33E-04

DOSE FROM EATING PRODUCE FROM CRITICAL GARDEN  
MREM/YEAR

	CHILD	TEEN	ADULT
BONE	3.88E-05	1.60E-05	9.38E-06
LIVER	7.62E-03	4.82E-03	3.93E-03
WHOLE BODY	7.61E-03	4.81E-03	3.93E-03
THYROID	2.05E-02	1.13E-02	8.32E-03
KIDNEY	7.64E-03	4.83E-03	3.94E-03
LUNG	7.57E-03	4.79E-03	3.92E-03
GI-LLI	7.60E-03	4.83E-03	3.95E-03

I-131 DOSE FROM DRINKING MILK FROM CRITICAL COM  
MREM/YEAR

	INFANT	CHILD	TEEN	ADULT
BONE	1.53E-04	7.33E-05	3.02E-05	1.66E-05
LIVER	1.80E-04	7.37E-05	4.23E-05	2.38E-05
WHOLE BODY	7.92E-05	4.19E-05	2.27E-05	1.36E-05
THYROID	5.92E-02	2.44E-02	1.23E-02	7.80E-03
KIDNEY	2.10E-04	1.21E-04	7.28E-05	4.08E-05
LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GI-LLI	6.43E-06	6.56E-06	8.36E-06	6.28E-06

TOTAL DOSE FROM DRINKING MILK FROM CRITICAL COM  
MREM/YEAR

	INFANT	CHILD	TEEN	ADULT
BONE	1.53E-04	7.33E-05	3.02E-05	1.67E-05
LIVER	2.64E-04	1.29E-04	7.74E-05	5.07E-05
WHOLE BODY	1.63E-04	9.73E-05	5.78E-05	4.05E-05
THYROID	5.93E-02	2.44E-02	1.24E-02	7.83E-03
KIDNEY	2.95E-04	1.76E-04	1.09E-04	6.77E-05
LUNG	8.39E-05	5.53E-05	3.50E-05	2.89E-05
GI-LLI	9.05E-06	6.20E-06	4.36E-06	3.33E-06

I-131 INHALATION DOSE FOR CRITICAL SECTOR AT SITE BOUNDARY  
MREM/YEAR

	INFANT	CHILD	TEEN	ADULT
BONE	1.17E-04	1.49E-04	1.10E-04	7.79E-05
LIVER	1.37E-04	1.49E-04	1.52E-04	1.11E-04
WHOLE BODY	6.06E-05	8.43E-05	8.16E-05	6.33E-05
THYROID	4.59E-02	5.02E-02	4.53E-02	3.68E-02
KIDNEY	1.60E-04	2.44E-04	2.60E-04	1.89E-04
LUNG	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GI-LLI	3.27E-06	8.78E-06	2.01E-06	1.94E-06

TOTAL INHALATION DOSE FOR CRITICAL SECTOR AT SITE BOUNDARY  
MREM/YEAR

	INFANT	CHILD	TEEN	ADULT
BONE	1.21E-04	1.53E-04	1.13E-04	8.02E-05
LIVER	2.21E-03	3.75E-03	4.22E-03	4.15E-03
WHOLE BODY	2.13E-03	3.68E-03	4.15E-03	4.10E-03
THYROID	4.89E-02	5.48E-02	5.01E-02	4.14E-02
KIDNEY	2.23E-03	3.84E-03	4.33E-03	4.23E-03
LUNG	2.11E-03	3.66E-03	4.15E-03	4.10E-03
GI-LLI	2.07E-03	3.60E-03	4.09E-03	4.06E-03

SKIN DOSES FROM AIR SUBMERSION IN RADIONOBLE GASES  
MREM/YEAR

DOSE FOR CRITICAL SECTOR AT SITE BOUNDARY= 1.16E-01 MREM/6 MOS.

	0.5	1.5	2.5	3.5	4.5
	RADIAL DISTANCE, MILES				
S	6.91E-03	2.26E-03	1.06E-03	6.56E-04	4.60E-04
SSW	4.12E-03	1.41E-03	6.28E-04	3.72E-04	2.51E-04
SW	2.45E-03	8.32E-04	3.67E-04	2.15E-04	1.44E-04
WSW	1.16E-03	3.87E-04	1.69E-04	9.88E-05	6.61E-05
W	1.49E-03	5.13E-04	2.31E-04	1.37E-04	9.27E-05
WNW	1.44E-03	4.85E-04	2.14E-04	1.26E-04	8.55E-05
NW	2.16E-03	7.29E-04	3.27E-04	1.96E-04	1.33E-04
NNW	6.01E-03	2.02E-03	9.37E-04	5.76E-04	4.00E-04
N	7.54E-03	2.56E-03	1.20E-03	7.36E-04	5.10E-04
NNE	6.21E-03	2.08E-03	9.70E-04	6.01E-04	4.17E-04
NE	3.90E-03	1.32E-03	6.13E-04	3.74E-04	2.59E-04
E	4.20E-03	1.44E-03	6.64E-04	4.02E-04	2.76E-04
ESE	3.52E-03	1.21E-03	5.60E-04	3.39E-04	2.34E-04
SE	5.28E-03	1.78E-03	8.37E-04	5.18E-04	6.64E-04
SSE	1.80E-02	5.78E-03	2.74E-03	1.74E-03	1.24E-03

	7.5	15.0	25.0	35.0	45.0
	RADIAL DISTANCE, MILES				
S	2.25E-04	8.14E-05	3.64E-05	2.11E-05	1.38E-05
SSW	1.17E-04	3.90E-05	1.65E-05	9.30E-06	5.99E-06
SW	6.66E-05	2.19E-05	9.25E-06	5.28E-06	3.34E-06
WSW	3.04E-05	1.00E-05	4.20E-06	2.36E-06	1.52E-06
W	4.32E-05	1.45E-05	6.16E-06	3.47E-06	2.24E-06
WNW	3.95E-05	1.32E-05	5.58E-06	3.14E-06	2.04E-06
NW	6.26E-05	2.13E-05	9.20E-06	5.28E-06	3.39E-06
NNW	1.94E-04	6.86E-05	3.04E-05	1.75E-05	1.14E-05
N	2.48E-04	8.82E-05	3.92E-05	2.25E-05	1.47E-05
NNE	2.04E-04	7.31E-05	3.27E-05	1.88E-05	1.23E-05
NE	1.25E-04	4.42E-05	1.95E-05	1.12E-05	7.29E-06
E	1.32E-04	4.60E-05	2.01E-05	1.15E-05	7.49E-06
ESE	1.12E-04	3.90E-05	1.65E-05	9.68E-06	6.28E-06
SE	1.77E-04	6.36E-05	2.84E-05	1.64E-05	2.09E-05
SSE	3.29E-04	1.21E-04	5.48E-05	3.19E-05	2.09E-05
	6.23E-04	2.31E-04	1.05E-04	6.16E-05	4.05E-05

WHOLE BODY DOSES FROM AIR SUBMERSION IN RADIONUCLIDE GASES  
MREM/YEAR

DOSE FOR CRITICAL SECTOR AT SITE BOUNDARY= 4.07E-02 MREM/6 MOS.

	RADIAL DISTANCE, MILES				
	0.5	1.5	2.5	3.5	4.5
S	2.43E-03	7.98E-04	3.72E-04	2.31E-04	1.62E-04
SSW	1.45E-03	4.97E-04	2.21E-04	1.31E-04	8.85E-05
SW	8.61E-04	2.93E-04	1.29E-04	7.57E-05	5.08E-05
WSW	4.07E-04	1.36E-04	5.96E-05	3.48E-05	2.33E-05
W	5.23E-04	1.81E-04	8.13E-05	4.82E-05	3.27E-05
WNW	5.07E-04	1.71E-04	7.55E-05	4.43E-05	3.01E-05
NW	7.60E-04	2.57E-04	1.15E-04	6.89E-05	4.69E-05
NNW	2.12E-03	7.12E-04	3.30E-04	2.03E-04	1.41E-04
N	2.66E-03	9.03E-04	4.21E-04	2.59E-04	1.80E-04
NNE	2.19E-03	7.31E-04	3.42E-04	2.12E-04	1.47E-04
NE	1.37E-03	4.66E-04	2.16E-04	1.32E-04	9.12E-05
ENE	1.48E-03	5.07E-04	2.34E-04	1.42E-04	9.74E-05
E	1.24E-03	4.28E-04	1.97E-04	1.20E-04	8.24E-05
ESE	1.86E-03	6.29E-04	2.95E-04	1.82E-04	2.34E-04
SE	3.41E-03	1.11E-03	5.26E-04	3.31E-04	2.34E-04
SSE	6.35E-03	2.04E-03	9.65E-04	6.14E-04	4.36E-04

	RADIAL DISTANCE, MILES				
	7.5	15.0	25.0	35.0	45.0
S	7.94E-05	2.87E-05	1.28E-05	7.43E-06	4.86E-06
SSW	4.13E-05	1.37E-05	5.82E-06	3.28E-06	2.11E-06
SW	2.35E-05	7.73E-06	3.26E-06	1.86E-06	1.18E-06
WSW	1.07E-05	3.52E-06	1.48E-06	8.32E-07	5.36E-07
W	1.52E-05	5.10E-06	2.17E-06	1.22E-06	7.88E-07
WNW	1.39E-05	4.64E-06	1.97E-06	1.11E-06	7.17E-07
NW	2.20E-05	7.51E-06	3.24E-06	1.86E-06	1.20E-06
NNW	6.83E-05	2.42E-05	1.07E-05	6.16E-06	4.02E-06
N	8.74E-05	3.11E-05	1.38E-05	7.93E-06	5.18E-06
NNE	7.20E-05	2.58E-05	1.15E-05	6.63E-06	4.34E-06
NE	4.41E-05	1.56E-05	6.85E-06	3.94E-06	2.57E-06
ENE	4.67E-05	1.52E-05	7.08E-06	4.05E-06	2.64E-06
E	3.94E-05	1.37E-05	5.97E-06	3.41E-06	2.21E-06
ESE	6.24E-05	2.24E-05	1.00E-05	5.77E-06	7.36E-06
SE	1.16E-04	4.27E-05	1.93E-05	1.12E-05	7.36E-06
SSE	2.20E-04	8.14E-05	3.71E-05	2.17E-05	1.43E-05

POPULATION INTEGRATED WHOLE BODY DOSES  
PERSON-REM/YEAR

	RADIAL DISTANCE, MILES			
	0.5	1.5	2.5	3.5
S	3.90E-05	1.28E-05	2.79E-05	2.36E-05
SSW	1.16E-04	4.97E-06	1.42E-05	8.38E-06
SW	8.35E-05	5.95E-05	1.25E-05	6.96E-06
WSW	6.35E-05	1.74E-05	2.56E-06	5.60E-06
W	3.92E-05	5.96E-06	6.99E-06	4.92E-06
WNW	1.32E-05	1.09E-05	1.96E-06	4.43E-07
NW	3.80E-06	1.51E-05	9.78E-06	3.31E-06
NNW	0.00E+00	3.56E-06	8.58E-06	2.03E-06
N	0.00E+00	9.03E-06	1.81E-05	2.52E-05
NNE	0.00E+00	7.09E-05	6.56E-05	3.74E-05
NE	0.00E+00	5.49E-05	1.84E-05	1.21E-05
ENE	3.84E-05	2.54E-06	6.38E-05	1.67E-05
E	6.20E-06	0.00E+00	3.16E-06	5.88E-05
ESE	6.13E-05	6.41E-05	9.73E-06	1.46E-05
SE	1.70E-05	1.31E-04	9.83E-05	2.14E-04
SSE	6.35E-05	5.29E-05	2.79E-04	3.58E-04

7.5 15.0 RADIAL DISTANCE, MILES 35.0 45.0

S	1.43E-04	7.46E-05	6.57E-05	8.97E-05	4.54E-05
SSW	2.70E-05	7.91E-05	6.88E-05	2.89E-04	2.39E-05
SW	4.12E-05	1.56E-05	1.87E-05	3.31E-05	3.25E-05
WSW	1.88E-05	9.10E-05	2.92E-05	5.64E-06	2.18E-05
W	5.10E-06	1.32E-05	1.03E-05	5.76E-06	2.78E-06
WNW	3.60E-06	6.77E-06	1.15E-05	7.49E-06	1.77E-05
NW	1.72E-05	9.15E-06	1.64E-05	1.33E-05	1.49E-05
NNW	1.77E-05	2.18E-05	5.57E-05	3.13E-05	1.07E-04
N	4.53E-05	5.06E-05	7.92E-05	6.95E-05	2.96E-05
NNE	3.73E-05	3.70E-05	1.12E-04	6.59E-05	6.93E-05
NE	5.59E-05	4.36E-05	6.03E-05	4.31E-05	3.48E-05
ENE	5.91E-05	4.37E-05	1.03E-04	4.69E-05	4.54E-05
E	1.20E-04	3.59E-05	2.37E-05	2.73E-05	5.91E-05
ESE	8.28E-05	3.21E-04	3.51E-04	4.22E-05	7.69E-05
SE	2.76E-04	2.14E-04	6.30E-04	8.89E-05	7.69E-05
SSE	3.77E-04	5.09E-04	4.14E-04	2.20E-04	2.90E-04

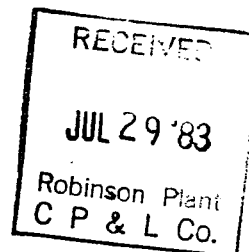
TOTAL POPULATION INTEGRATED WHOLE BODY DOSE= 1.05E-02 PERSON-REM

POPULATION INTEGRATED INHALATION DOSE  
PERSON-REM/YEAR OR THYROID-REM/YEAR

	INFANT	CHILD	TEEN	ADULT
WHOLE BODY	1.04E-05	1.81E-04	1.63E-04	6.76E-04
THYROID	2.39E-04	2.70E-03	1.98E-03	6.83E-03



Carolina Power & Light Company



Company Correspondence

Raleigh, North Carolina  
July 28, 1983

M E M O R A N D U M

TO: Mr. R. B. Starkey, Jr.  
FROM: T. D. Drum  
SUBJECT: Meteorological Data - Semiannual Report

The attached information, described as follows, is provided for the July, 1983 Effluent and Waste Disposal Report:

1. Enclosures 1 and 2 - Summary report of meteorological data for each calendar quarter. The information may be reproduced and transmitted to the Nuclear Regulatory Commission as per Regulatory Guide 1.21, Section C.1 if this transmittal is required.
2. Enclosures 3 - Estimates of relative concentration (X/Q) and deposition (D/Q) for the six-month period January 1, 1983 through June 30, 1983. The values presented are to be used for the dose evaluation from continuous gaseous releases.
3. Enclosure 4 - Summary report of meteorological data used as input to the computer code for the X/Q and D/Q calculations.

Tim Drum

TDD/kjr (7530TDD)

cc: Mr. A. Eaddy (w/attachment) ✓  
Mr. B. H. Webster (w/o attachment)  
Mr. S. R. Zimmerman (w/o attachment)

ENCLOSURE 1

JOINT FREQUENCY OF WIND DIRECTION AND SPEED  
FIRST QUARTER 1983  
H. B. ROBINSON STEAM ELECTRIC PLANT

The attached tables present the number and frequency of wind direction occurrences by wind speed class as recorded at the on-site meteorological system during the period January 1 through March 31, 1983.

The frequencies are presented as a percent of total occurrences for each stability class as well as a summary for all classes of each sensor elevation. The first eight tables are for the upper sensor elevation (60 meter); the last eight tables are for the lower (10 meter) sensor elevation.

Pertinent information available from the tables is as follows:

1. Stability

Percent occurrence Pasquill Stability categories based on lower level (10m) wind distribution:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>
0.4	1.8	4.5	44.8	26.5	8.7	13.3

2. Wind Speed

	<u>10 Meter</u>	<u>60 Meter</u>
Average Speed (mph)	6.5	11.3
Percent Calm	2.9	0.0
Percent Less than 3.5 mph	26.5	3.5

3. Wind Direction

	<u>10 Meter</u>	<u>60 Meter</u>
Prevailing Direction	NNE	NNE
Percent Occurrence	14.1	12.9

4. Data Recovery

	<u>10 Meter</u>	<u>60 Meter</u>
Percent Good Hours	99.5	99.3



ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR SUMMARY OVER ALL STAB

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	3/ 0.14	33/ 1.54	80/ 3.73	86/ 4.01	19/ 0.89	15/ 0.70	236.0/11.00	13.34099
NNE	/	4/ 0.19	43/ 2.00	107/ 4.99	82/ 3.82	28/ 1.31	13/ 0.61	277.0/12.91	12.87839
NE	/	1/ 0.05	39/ 1.82	67/ 3.12	47/ 2.19	38/ 1.77	5/ 0.23	197.0/ 9.18	12.90137
ENE	/	4/ 0.19	45/ 2.10	36/ 1.68	3/ 0.14	1/ 0.05	1/ 0.05	90.0/ 4.20	7.84058
E	/	8/ 0.37	36/ 1.68	24/ 1.12	4/ 0.19	1/ 0.05	/	73.0/ 3.40	7.28515
ESE	/	10/ 0.47	33/ 1.54	14/ 0.65	16/ 0.75	1/ 0.05	/	74.0/ 3.45	8.04253
SE	/	3/ 0.14	40/ 1.86	16/ 0.75	24/ 1.12	6/ 0.28	/	89.0/ 4.15	9.98532
SSE	/	5/ 0.23	26/ 1.21	26/ 1.21	12/ 0.56	8/ 0.37	/	77.0/ 3.59	9.65432
S	/	6/ 0.28	18/ 0.84	27/ 1.26	38/ 1.77	6/ 0.28	1/ 0.05	96.0/ 4.48	11.45902
SSW	/	2/ 0.09	30/ 1.40	67/ 3.12	26/ 1.21	4/ 0.19	/	129.0/ 6.01	10.05347
SW	/	3/ 0.14	28/ 1.31	44/ 2.05	23/ 1.07	2/ 0.09	/	100.0/ 4.66	10.06931
WSW	/	4/ 0.19	17/ 0.79	62/ 2.89	45/ 2.10	21/ 0.98	/	149.0/ 6.95	12.39881
W	/	3/ 0.14	28/ 1.31	56/ 2.61	20/ 0.93	/	/	107.0/ 4.99	9.44974
WNW	/	8/ 0.37	30/ 1.40	36/ 1.68	42/ 1.96	6/ 0.28	/	122.0/ 5.69	10.52680
NW	/	7/ 0.33	30/ 1.40	45/ 2.10	48/ 2.24	14/ 0.65	/	144.0/ 6.71	11.41982
NNW	/	5/ 0.23	35/ 1.63	53/ 2.47	69/ 3.22	18/ 0.84	5/ 0.23	185.0/ 8.62	12.50462
TOTAL	/	76/ 3.54	511/23.82	760/35.43	585/27.27	173/ 8.07	40/ 1.86	2145/ 100	11.29444

NUMBER OF BAD RECORDS: 15

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=A

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	/	/	/	/	/	
NE	/	/	/	/	/	/	/	/	
ENE	/	/	/	/	/	/	/	/	
E	/	/	/	/	/	/	/	/	
ESE	/	/	/	/	/	/	/	/	
SE	/	/	/	/	/	/	/	/	
SSE	/	/	/	/	/	/	/	/	
S	/	/	/	/	/	/	/	/	
SSW	/	/	/	/	/	/	/	/	
SW	/	/	/	/	/	1/ 0.05	/	1.0/ 0.05	18.74269
WSW	/	/	/	/	/	/	/	/	
W	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	13.22327
WNW	/	/	/	1/ 0.05	1/ 0.05	1/ 0.05	/	3.0/ 0.14	15.99688
NW	/	/	/	/	/	3/ 0.14	/	3.0/ 0.14	20.26567
NNW	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	16.99181
TOTAL	/	/	/	1/ 0.05	3/ 0.14	5/ 0.23	/	9.0/ 0.42	17.52727

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=B

UPWNSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNSPD
N	/	/	/	3/ 0.14	8/ 0.37	1/ 0.05	/	12.0/ 0.56	14.20988
NNE	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	15.20760
NE	/	/	/	/	/	/	/	/	
ENE	/	/	/	1/ 0.05	1/ 0.05	/	/	2.0/ 0.09	13.46506
E	/	/	/	/	/	/	/	/	
ESE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	10.02167
SE	/	/	/	/	/	/	/	/	
SSE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	11.12222
S	/	/	/	/	3/ 0.14	/	/	3.0/ 0.14	14.15152
SSW	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	14.37385
SW	/	/	/	/	3/ 0.14	/	/	3.0/ 0.14	15.89682
WSW	/	/	/	/	3/ 0.14	2/ 0.09	/	5.0/ 0.23	17.05518
W	/	/	/	1/ 0.05	2/ 0.09	/	/	3.0/ 0.14	12.72302
WNW	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	12.03935
NW	/	/	/	/	2/ 0.09	2/ 0.09	/	4.0/ 0.19	18.63430
NNW	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	13.54010
TOTAL	/	/	/	8/ 0.37	25/ 1.17	5/ 0.23	/	38.0/ 1.77	14.78633

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=C

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	/	/	5/ 0.23	2/ 0.09	1/ 0.05	/	8.0/ 0.37	13.47965
NNE	/	/	1/ 0.05	2/ 0.09	3/ 0.14	/	/	6.0/ 0.28	12.72580
NE	/	/	/	2/ 0.09	2/ 0.09	/	/	4.0/ 0.19	12.00183
ENE	/	/	3/ 0.14	4/ 0.19	1/ 0.05	/	/	8.0/ 0.37	8.76480
E	/	1/ 0.05	1/ 0.05	2/ 0.09	/	/	/	4.0/ 0.19	6.91179
ESE	/	/	2/ 0.09	3/ 0.14	/	/	/	5.0/ 0.23	8.42421
SE	/	/	1/ 0.05	3/ 0.14	/	/	/	4.0/ 0.19	9.46723
SSE	/	/	1/ 0.05	2/ 0.09	1/ 0.05	/	/	4.0/ 0.19	10.29681
S	/	/	/	4/ 0.19	3/ 0.14	/	/	7.0/ 0.33	12.31330
SSW	/	/	/	/	2/ 0.09	/	/	2.0/ 0.09	14.24879
SW	/	/	/	3/ 0.14	1/ 0.05	/	/	4.0/ 0.19	12.28114
WSW	/	/	/	/	3/ 0.14	2/ 0.09	/	5.0/ 0.23	16.52826
W	/	/	/	8/ 0.37	3/ 0.14	/	/	11.0/ 0.51	12.06512
WNW	/	/	/	2/ 0.09	3/ 0.14	1/ 0.05	/	6.0/ 0.28	13.87915
NW	/	/	/	5/ 0.23	4/ 0.19	6/ 0.28	/	15.0/ 0.70	15.92017
NNW	/	/	/	2/ 0.09	1/ 0.05	/	/	3.0/ 0.14	11.49463
TOTAL	/	1/ 0.05	9/ 0.42	47/ 2.19	29/ 1.35	10/ 0.47	/	96.0/ 4.48	12.36329

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:47 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=D

UPWNSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNSPD
N	/	1/ 0.05	14/ 0.65	32/ 1.49	56/ 2.61	15/ 0.70	14/ 0.65	132.0/ 6.15	15.15795
NNE	/	/	17/ 0.79	65/ 3.03	70/ 3.26	26/ 1.21	13/ 0.61	191.0/ 8.90	14.52741
NE	/	/	17/ 0.79	44/ 2.05	40/ 1.86	34/ 1.59	5/ 0.23	140.0/ 6.53	14.48878
ENE	/	2/ 0.09	18/ 0.84	16/ 0.75	1/ 0.05	/	/	37.0/ 1.72	7.42984
E	/	1/ 0.05	16/ 0.75	11/ 0.51	2/ 0.09	/	/	30.0/ 1.40	7.31643
ESE	/	7/ 0.33	16/ 0.75	4/ 0.19	6/ 0.28	/	/	33.0/ 1.54	6.85191
SE	/	2/ 0.09	11/ 0.51	3/ 0.14	8/ 0.37	1/ 0.05	/	25.0/ 1.17	9.41003
SSE	/	1/ 0.05	7/ 0.33	3/ 0.14	4/ 0.19	/	/	15.0/ 0.70	8.51759
S	/	/	6/ 0.28	10/ 0.47	11/ 0.51	/	/	27.0/ 1.26	11.27847
SSW	/	/	9/ 0.42	11/ 0.51	4/ 0.19	3/ 0.14	/	27.0/ 1.26	10.31503
SW	/	1/ 0.05	12/ 0.56	11/ 0.51	7/ 0.33	/	/	31.0/ 1.45	9.62076
WSW	/	2/ 0.09	9/ 0.42	11/ 0.51	15/ 0.70	14/ 0.65	/	51.0/ 2.38	13.34457
W	/	1/ 0.05	11/ 0.51	21/ 0.98	9/ 0.42	/	/	42.0/ 1.96	9.57860
WNW	/	3/ 0.14	16/ 0.75	10/ 0.47	10/ 0.47	4/ 0.19	/	43.0/ 2.00	9.79003
NW	/	3/ 0.14	12/ 0.56	18/ 0.84	22/ 1.03	3/ 0.14	/	58.0/ 2.70	10.99802
NNW	/	/	10/ 0.47	30/ 1.40	24/ 1.12	9/ 0.42	4/ 0.19	77.0/ 3.59	13.37313
TOTAL	/	24/ 1.12	201/ 9.37	300/ 13.99	289/ 13.47	109/ 5.08	36/ 1.68	959.0/ 44.71	12.45075

NUMBER OF BAD RECORDS: 11

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

11  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=E

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	2/ 0.09	4/ 0.19	27/ 1.26	17/ 0.79	2/ 0.09	1/ 0.05	53.0/ 2.47	11.82446
NNE	/	1/ 0.05	9/ 0.42	29/ 1.35	8/ 0.37	2/ 0.09	/	49.0/ 2.28	10.26295
NE	/	/	7/ 0.33	10/ 0.47	5/ 0.23	4/ 0.19	/	26.0/ 1.21	11.07989
ENE	/	/	6/ 0.28	7/ 0.33	/	1/ 0.05	1/ 0.05	15.0/ 0.70	10.37074
E	/	3/ 0.14	2/ 0.09	7/ 0.33	2/ 0.09	1/ 0.05	/	15.0/ 0.70	9.73709
ESE	/	1/ 0.05	2/ 0.09	4/ 0.19	10/ 0.47	1/ 0.05	/	18.0/ 0.84	12.66188
SE	/	1/ 0.05	7/ 0.33	4/ 0.19	16/ 0.75	5/ 0.23	/	33.0/ 1.54	13.50371
SSE	/	1/ 0.05	6/ 0.28	10/ 0.47	7/ 0.33	8/ 0.37	/	32.0/ 1.49	12.65580
S	/	3/ 0.14	4/ 0.19	12/ 0.56	21/ 0.98	6/ 0.28	1/ 0.05	47.0/ 2.19	13.01572
SSW	/	/	3/ 0.14	13/ 0.61	16/ 0.75	1/ 0.05	/	33.0/ 1.54	12.24854
SW	/	/	5/ 0.23	12/ 0.56	8/ 0.37	1/ 0.05	/	26.0/ 1.21	11.18315
WSW	/	1/ 0.05	4/ 0.19	35/ 1.63	22/ 1.03	3/ 0.14	/	65.0/ 3.03	12.09656
W	/	/	5/ 0.23	19/ 0.89	4/ 0.19	/	/	28.0/ 1.31	10.02525
WNW	/	/	3/ 0.14	11/ 0.51	23/ 1.07	/	/	37.0/ 1.72	12.92628
NW	/	/	7/ 0.33	8/ 0.37	12/ 0.56	/	/	27.0/ 1.26	11.05058
NNW	/	/	4/ 0.19	13/ 0.61	39/ 1.82	9/ 0.42	1/ 0.05	66.0/ 3.08	14.70204
TOTAL	/	13/ 0.61	78/ 3.64	221/ 10.30	210/ 9.79	44/ 2.05	4/ 0.19	570.0/ 26.57	12.13764

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=F

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	/	8/ 0.37	9/ 0.42	3/ 0.14	/	/	20.0/ 0.93	8.54760
NNE	/	1/ 0.05	12/ 0.56	7/ 0.33	/	/	/	20.0/ 0.93	6.92513
NE	/	/	7/ 0.33	5/ 0.23	/	/	/	12.0/ 0.56	7.22444
ENE	/	/	2/ 0.09	4/ 0.19	/	/	/	6.0/ 0.28	8.43199
E	/	/	3/ 0.14	1/ 0.05	/	/	/	4.0/ 0.19	6.37819
ESE	/	1/ 0.05	2/ 0.09	/	/	/	/	3.0/ 0.14	3.96309
SE	/	/	4/ 0.19	4/ 0.19	/	/	/	8.0/ 0.37	7.93730
SSE	/	/	1/ 0.05	7/ 0.33	/	/	/	8.0/ 0.37	8.44380
S	/	1/ 0.05	1/ 0.05	1/ 0.05	/	/	/	3.0/ 0.14	5.08587
SSW	/	/	4/ 0.19	8/ 0.37	2/ 0.09	/	/	14.0/ 0.65	9.46783
SW	/	1/ 0.05	1/ 0.05	8/ 0.37	4/ 0.19	/	/	14.0/ 0.65	10.56480
WSW	/	1/ 0.05	3/ 0.14	9/ 0.42	2/ 0.09	/	/	15.0/ 0.70	9.21683
W	/	/	3/ 0.14	5/ 0.23	/	/	/	8.0/ 0.37	7.72678
WNW	/	/	2/ 0.09	3/ 0.14	4/ 0.19	/	/	9.0/ 0.42	10.17916
NW	/	1/ 0.05	5/ 0.23	11/ 0.51	8/ 0.37	/	/	25.0/ 1.17	10.66933
NNW	/	1/ 0.05	9/ 0.42	6/ 0.28	3/ 0.14	/	/	19.0/ 0.89	8.30415
TOTAL	/	7/ 0.33	67/ 3.12	88/ 4.10	26/ 1.21	/	/	188.0/ 8.76	8.65477

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNODEG AND UPWNOBPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=G

UPWINDSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	/	7/ 0.33	4/ 0.19	/	/	/	11.0/ 0.51	6.51083
NNE	/	2/ 0.09	4/ 0.19	4/ 0.19	/	/	/	10.0/ 0.47	5.96298
NE	/	1/ 0.05	8/ 0.37	6/ 0.28	/	/	/	15.0/ 0.70	6.02412
ENE	/	2/ 0.09	16/ 0.75	4/ 0.19	/	/	/	22.0/ 1.03	5.79759
E	/	3/ 0.14	14/ 0.65	3/ 0.14	/	/	/	20.0/ 0.93	5.65533
ESE	/	1/ 0.05	11/ 0.51	2/ 0.09	/	/	/	14.0/ 0.65	5.50632
SE	/	/	17/ 0.79	2/ 0.09	/	/	/	19.0/ 0.89	5.60280
SSE	/	3/ 0.14	11/ 0.51	3/ 0.14	/	/	/	17.0/ 0.79	5.33960
S	/	2/ 0.09	7/ 0.33	/	/	/	/	9.0/ 0.42	4.43370
SSW	/	2/ 0.09	14/ 0.65	35/ 1.63	1/ 0.05	/	/	52.0/ 2.42	8.43787
SW	/	1/ 0.05	10/ 0.47	10/ 0.47	/	/	/	21.0/ 0.98	7.35526
WSW	/	/	1/ 0.05	7/ 0.33	/	/	/	8.0/ 0.37	9.30048
W	/	2/ 0.09	9/ 0.42	2/ 0.09	1/ 0.05	/	/	14.0/ 0.65	5.87079
WNW	/	5/ 0.23	9/ 0.42	8/ 0.37	1/ 0.05	/	/	23.0/ 1.07	6.52645
NW	/	3/ 0.14	6/ 0.28	3/ 0.14	/	/	/	12.0/ 0.56	5.61114
NNW	/	4/ 0.19	12/ 0.56	2/ 0.09	/	/	/	18.0/ 0.84	5.02751
TOTAL	/	31/ 1.45	156/ 7.27	95/ 4.43	3/ 0.14	/	/	285.0/13.29	6.43594

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR SUMMARY OVER ALL STAB

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	5.6/ 0.26	46/ 2.14	76/ 3.53	96/ 4.47	19/ 0.88	2/ 0.09	/	244.6/11.38	7.10369
NNE	2.2/ 0.10	18/ 0.84	93/ 4.33	125/ 5.81	59/ 2.74	6/ 0.28	/	303.2/14.10	9.14480
NE	1.7/ 0.08	14/ 0.65	55/ 2.56	53/ 2.47	17/ 0.79	2/ 0.09	/	142.7/ 6.64	7.99327
ENE	0.9/ 0.04	7/ 0.33	33/ 1.53	5/ 0.23	1/ 0.05	/	/	46.9/ 2.18	5.69082
E	1.3/ 0.06	11/ 0.51	27/ 1.26	6/ 0.28	1/ 0.05	/	/	46.3/ 2.15	4.94017
ESE	1.2/ 0.06	10/ 0.47	27/ 1.26	15/ 0.70	1/ 0.05	/	/	54.2/ 2.52	5.81808
SE	0.7/ 0.03	6/ 0.28	20/ 0.93	28/ 1.30	7/ 0.33	/	/	61.7/ 2.87	8.18128
SSE	4.1/ 0.19	34/ 1.58	27/ 1.26	22/ 1.02	9/ 0.42	/	/	96.1/ 4.47	5.92193
S	4.6/ 0.21	38/ 1.77	25/ 1.16	47/ 2.19	6/ 0.28	1/ 0.05	/	121.6/ 5.66	6.71433
SSW	3.7/ 0.17	30/ 1.40	36/ 1.67	22/ 1.02	7/ 0.33	/	/	98.7/ 4.59	5.85244
SW	2.1/ 0.10	17/ 0.79	40/ 1.86	21/ 0.98	4/ 0.19	/	/	84.1/ 3.91	6.06920
WSW	3.7/ 0.17	30/ 1.40	52/ 2.42	42/ 1.95	10/ 0.47	/	/	137.7/ 6.40	6.55082
W	3.4/ 0.16	28/ 1.30	39/ 1.81	24/ 1.12	/	/	/	94.4/ 4.39	5.08588
WNW	4.5/ 0.21	37/ 1.72	58/ 2.70	20/ 0.93	/	/	/	119.5/ 5.56	4.71918
NW	9.5/ 0.44	78/ 3.63	58/ 2.70	38/ 1.77	7/ 0.33	/	/	190.5/ 8.86	4.93226
NNW	12.7/ 0.59	104/ 4.84	109/ 5.07	61/ 2.84	21/ 0.98	/	/	307.7/14.31	5.52644
TOTAL	62.0/ 2.88	508/23.63	775/36.05	625/29.07	169/ 7.86	11/ 0.51	/	2150/ 100	6.52393

NUMBER OF BAD RECORDS: 10

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:45 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

3

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=A

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	/	/	/	/	/	
NE	/	/	/	/	/	/	/	/	
ENE	/	/	/	/	/	/	/	/	
E	/	/	/	/	/	/	/	/	
ESE	/	/	/	/	/	/	/	/	
SE	/	/	/	/	/	/	/	/	
SSE	/	/	/	/	/	/	/	/	
S	/	/	/	/	/	/	/	/	
SSW	/	/	/	/	/	/	/	/	
SW	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	14.37385
WSW	/	/	/	/	/	/	/	/	
W	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	8.85442
WNW	/	/	/	3/ 0.14	/	/	/	3.0/ 0.14	10.71647
NW	/	/	/	/	3/ 0.14	/	/	3.0/ 0.14	13.07876
NNW	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	11.40570
TOTAL	/	/	/	5/ 0.23	4/ 0.19	/	/	9.0/ 0.42	11.77996

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=B

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	/	14/ 0.65	/	/	/	14.0/ 0.65	9.94068
NNE	/	/	/	/	/	/	/	/	
NE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	8.93780
ENE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	10.35517
E	/	/	/	/	/	/	/	/	
ESE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	7.90395
SE	/	/	/	/	/	/	/	/	
SSE	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	8.97115
S	/	/	/	3/ 0.14	/	/	/	3.0/ 0.14	11.01662
SSW	/	/	/	2/ 0.09	1/ 0.05	/	/	3.0/ 0.14	11.94486
SW	/	/	/	2/ 0.09	2/ 0.09	/	/	4.0/ 0.19	12.90228
WSW	/	/	/	2/ 0.09	/	/	/	2.0/ 0.09	9.88827
W	/	/	/	3/ 0.14	/	/	/	3.0/ 0.14	8.98227
WNW	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	8.70435
NW	/	/	/	2/ 0.09	2/ 0.09	/	/	4.0/ 0.19	11.88927
NNW	/	/	/	/	/	/	/	/	
TOTAL	/	/	/	33/ 1.53	5/ 0.23	/	/	38.0/ 1.77	10.49516

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=C

LOWNDSPD

LOWNDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	/	6/ 0.28	1/ 0.05	/	/	7.0/ 0.33	9.76917
NNE	/	/	1/ 0.05	6/ 0.28	/	/	/	7.0/ 0.33	9.23795
NE	/	/	3/ 0.14	4/ 0.19	/	/	/	7.0/ 0.33	8.32321
ENE	/	/	6/ 0.28	/	/	/	/	6.0/ 0.28	6.42821
E	/	/	2/ 0.09	/	/	/	/	2.0/ 0.09	6.28647
ESE	/	1/ 0.05	4/ 0.19	1/ 0.05	/	/	/	6.0/ 0.28	5.97243
SE	/	/	2/ 0.09	2/ 0.09	/	/	/	4.0/ 0.19	7.49541
SSE	/	/	2/ 0.09	5/ 0.23	/	/	/	7.0/ 0.33	8.71150
S	/	/	/	4/ 0.19	/	/	/	4.0/ 0.19	10.08004
SSW	/	/	/	4/ 0.19	/	/	/	4.0/ 0.19	9.99249
SW	/	/	/	3/ 0.14	/	/	/	3.0/ 0.14	10.29403
WSW	/	/	/	5/ 0.23	2/ 0.09	/	/	7.0/ 0.33	10.52907
W	/	/	/	7/ 0.33	/	/	/	7.0/ 0.33	8.99259
WNW	/	/	1/ 0.05	5/ 0.23	/	/	/	6.0/ 0.28	8.94892
NW	/	/	1/ 0.05	11/ 0.51	2/ 0.09	/	/	14.0/ 0.65	10.55885
NNW	/	/	/	4/ 0.19	1/ 0.05	/	/	5.0/ 0.23	9.21794
TOTAL	/	1/ 0.05	22/ 1.02	67/ 3.12	6/ 0.28	/	/	96.0/ 4.47	9.00710

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IM001#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=D

LOWNDSPD

LOWNDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.0/ 0.00	1/ 0.05	41/ 1.91	68/ 3.16	17/ 0.79	2/ 0.09	/	129.0/ 6.00	9.05065
NNE	0.1/ 0.00	2/ 0.09	58/ 2.70	111/ 5.16	56/ 2.60	6/ 0.28	/	233.1/10.84	10.13783
NE	0.2/ 0.01	6/ 0.28	40/ 1.86	43/ 2.00	17/ 0.79	2/ 0.09	/	108.2/ 5.03	8.71130
ENE	0.1/ 0.00	4/ 0.19	23/ 1.07	4/ 0.19	/	/	/	31.1/ 1.45	5.45918
E	0.2/ 0.01	6/ 0.28	16/ 0.74	5/ 0.23	/	/	/	27.2/ 1.27	4.84770
ESE	0.1/ 0.00	4/ 0.19	17/ 0.79	7/ 0.33	/	/	/	28.1/ 1.31	5.34000
SE	0.0/ 0.00	1/ 0.05	15/ 0.70	10/ 0.47	1/ 0.05	/	/	27.0/ 1.26	7.54575
SSE	0.0/ 0.00	1/ 0.05	10/ 0.47	5/ 0.23	/	/	/	16.0/ 0.74	6.53035
S	0.2/ 0.01	6/ 0.28	11/ 0.51	17/ 0.79	1/ 0.05	/	/	35.2/ 1.64	7.61507
SSW	/	/	12/ 0.56	11/ 0.51	5/ 0.23	/	/	28.0/ 1.30	8.62455
SW	0.1/ 0.00	2/ 0.09	14/ 0.65	7/ 0.33	1/ 0.05	/	/	24.1/ 1.12	6.80353
WSW	0.2/ 0.01	7/ 0.33	17/ 0.79	22/ 1.02	8/ 0.37	/	/	54.2/ 2.52	8.12767
W	0.2/ 0.01	5/ 0.23	21/ 0.98	13/ 0.60	/	/	/	39.2/ 1.82	6.38421
WNW	0.1/ 0.00	4/ 0.19	22/ 1.02	10/ 0.47	/	/	/	36.1/ 1.68	5.98533
NW	0.3/ 0.01	9/ 0.42	18/ 0.84	22/ 1.02	/	/	/	49.3/ 2.29	6.62780
NNW	0.1/ 0.00	2/ 0.09	42/ 1.95	40/ 1.86	14/ 0.65	/	/	98.1/ 4.56	8.37467
TOTAL	2.0/ 0.09	60/ 2.79	377/17.53	395/18.37	120/ 5.58	10/ 0.47	/	964.0/44.84	8.25913

NUMBER OF BAD RECORDS: 6

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=E

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.2/ 0.01	3/ 0.14	29/ 1.35	8/ 0.37	1/ 0.05	/	/	41.2/ 1.92	6.02890
NNE	0.6/ 0.03	8/ 0.37	32/ 1.49	8/ 0.37	3/ 0.14	/	/	51.6/ 2.40	6.14550
NE	0.5/ 0.02	6/ 0.28	12/ 0.56	5/ 0.23	/	/	/	23.5/ 1.09	5.35639
ENE	0.2/ 0.01	2/ 0.09	4/ 0.19	/	1/ 0.05	/	/	7.2/ 0.33	6.33996
E	0.1/ 0.00	1/ 0.05	8/ 0.37	1/ 0.05	1/ 0.05	/	/	11.1/ 0.52	6.47170
ESE	0.2/ 0.01	3/ 0.14	6/ 0.28	6/ 0.28	1/ 0.05	/	/	16.2/ 0.75	7.18980
SE	0.1/ 0.00	1/ 0.05	3/ 0.14	16/ 0.74	6/ 0.28	/	/	26.1/ 1.21	10.10977
SSE	0.8/ 0.04	10/ 0.47	14/ 0.65	11/ 0.51	9/ 0.42	/	/	44.8/ 2.08	7.50262
S	0.5/ 0.02	7/ 0.33	13/ 0.60	23/ 1.07	5/ 0.23	1/ 0.05	/	49.5/ 2.30	8.29850
SSW	0.6/ 0.03	8/ 0.37	17/ 0.79	5/ 0.23	1/ 0.05	/	/	31.6/ 1.47	5.50748
SW	0.5/ 0.02	6/ 0.28	19/ 0.88	9/ 0.42	/	/	/	34.5/ 1.60	5.92264
WSW	0.8/ 0.04	10/ 0.47	32/ 1.49	13/ 0.60	/	/	/	55.8/ 2.60	5.74868
W	0.7/ 0.03	9/ 0.42	15/ 0.70	/	/	/	/	24.7/ 1.15	3.75726
WNW	0.8/ 0.04	11/ 0.51	26/ 1.21	1/ 0.05	/	/	/	38.8/ 1.80	4.42273
NW	1.1/ 0.05	14/ 0.65	26/ 1.21	3/ 0.14	/	/	/	44.1/ 2.05	4.34806
NNW	0.4/ 0.02	5/ 0.23	42/ 1.95	16/ 0.74	6/ 0.28	/	/	69.4/ 3.23	7.07582
TOTAL	8.0/ 0.37	104/ 4.84	298/ 13.86	125/ 5.81	34/ 1.58	1/ 0.05	/	570.0/ 26.51	6.28500

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=F

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.6/ 0.03	14/ 0.65	3/ 0.14	/	/	/	/	17.6/ 0.82	2.50692
NNE	0.3/ 0.01	6/ 0.28	2/ 0.09	/	/	/	/	8.3/ 0.39	2.67703
NE	0.0/ 0.00	1/ 0.05	/	/	/	/	/	1.0/ 0.05	1.31732
ENE	/	/	/	/	/	/	/	/	
E	0.2/ 0.01	4/ 0.19	1/ 0.05	/	/	/	/	5.2/ 0.24	2.12284
ESE	0.0/ 0.00	1/ 0.05	/	/	/	/	/	1.0/ 0.05	1.68417
SE	0.0/ 0.00	1/ 0.05	/	/	/	/	/	1.0/ 0.05	1.61747
SSE	0.4/ 0.02	10/ 0.47	/	/	/	/	/	10.4/ 0.48	2.34251
S	0.3/ 0.01	7/ 0.33	1/ 0.05	/	/	/	/	8.3/ 0.39	2.34554
SSW	0.4/ 0.02	9/ 0.42	6/ 0.28	/	/	/	/	15.4/ 0.72	3.61002
SW	0.1/ 0.00	3/ 0.14	7/ 0.33	/	/	/	/	10.1/ 0.47	3.63960
WSW	0.4/ 0.02	10/ 0.47	3/ 0.14	/	/	/	/	13.4/ 0.62	2.53484
W	0.4/ 0.02	10/ 0.47	3/ 0.14	/	/	/	/	13.4/ 0.62	2.30960
WNW	0.4/ 0.02	9/ 0.42	9/ 0.42	/	/	/	/	18.4/ 0.86	3.20630
NW	0.8/ 0.04	18/ 0.84	13/ 0.60	/	/	/	/	31.8/ 1.48	3.24113
NNW	0.7/ 0.03	16/ 0.74	16/ 0.74	/	/	/	/	32.7/ 1.52	3.37553
TOTAL	5.0/ 0.23	119/ 5.53	64/ 2.98	/	/	/	/	188.0/ 8.74	2.95501

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=1ST QTR STAB=G

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	5.9/ 0.27	28/ 1.30	3/ 0.14	/	/	/	/	36.9/ 1.72	1.75172
NNE	0.4/ 0.02	2/ 0.09	/	/	/	/	/	2.4/ 0.11	1.21585
NE	0.2/ 0.01	1/ 0.05	/	/	/	/	/	1.2/ 0.06	1.25754
ENE	0.2/ 0.01	1/ 0.05	/	/	/	/	/	1.2/ 0.06	1.34092
E	/	/	/	/	/	/	/	/	/
ESE	0.2/ 0.01	1/ 0.05	/	/	/	/	/	1.2/ 0.06	1.73000
SE	0.6/ 0.03	3/ 0.14	/	/	/	/	/	3.6/ 0.17	1.36408
SSE	2.7/ 0.13	13/ 0.60	1/ 0.05	/	/	/	/	16.7/ 0.78	1.88062
S	3.8/ 0.18	18/ 0.84	/	/	/	/	/	21.8/ 1.01	1.79176
SSW	2.7/ 0.13	13/ 0.60	1/ 0.05	/	/	/	/	16.7/ 0.78	1.69989
SW	1.3/ 0.06	6/ 0.28	/	/	/	/	/	7.3/ 0.34	0.90738
WSW	0.6/ 0.03	3/ 0.14	/	/	/	/	/	3.6/ 0.17	2.63323
W	0.8/ 0.04	4/ 0.19	/	/	/	/	/	4.8/ 0.22	1.01436
WNW	2.7/ 0.13	13/ 0.60	/	/	/	/	/	15.7/ 0.73	1.27316
NW	7.8/ 0.36	37/ 1.72	/	/	/	/	/	44.8/ 2.08	1.65760
NNW	17.0/ 0.79	81/ 3.77	9/ 0.42	/	/	/	/	107.0/ 4.98	2.00904
TOTAL	47.0/ 2.19	224/ 10.42	14/ 0.65	/	/	/	/	285.0/ 13.26	1.77791

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:45 FRIDAY, JULY 22, 1983

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ENCLOSURE 2

JOINT FREQUENCY OF WIND DIRECTION AND SPEED  
SECOND QUARTER 1983  
H. B. ROBINSON STEAM ELECTRIC PLANT

The attached tables present the number and frequency of wind direction occurrences by wind speed class as recorded at the on-site meteorological system during the period April 1 through June 30, 1983.

The frequencies are presented as a percent of total occurrences for each stability class as well as a summary for all classes of each sensor elevation. The first eight tables are for the upper sensor elevation (60 meter); the last eight tables are for the lower (10 meter) sensor elevation.

Pertinent information available from the tables is as follows:

1. Stability                      Percent occurrence Pasquill Stability categories based on lower level (10m) wind distribution:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>
4.9	4.9	5.9	33.6	31.6	11.1	8.0

- |                           |                 |                 |
|---------------------------|-----------------|-----------------|
| 2. <u>Wind Speed</u>      | <u>10 Meter</u> | <u>60 Meter</u> |
| Average Speed (mph)       | 6.1             | 9.8             |
| Percent Calm              | 0.7             | 0.0             |
| Percent Less than 3.5 mph | 25.3            | 4.1             |

- |                          |                 |                 |
|--------------------------|-----------------|-----------------|
| 3. <u>Wind Direction</u> | <u>10 Meter</u> | <u>60 Meter</u> |
| Prevailing Direction     | S               | S               |
| Percent Occurrence       | 13.7            | 10.2            |

- |                         |                 |                 |
|-------------------------|-----------------|-----------------|
| 4. <u>Data Recovery</u> | <u>10 Meter</u> | <u>60 Meter</u> |
| Percent Good Hours      | 94.3            | 99.8            |

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

17  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR SUMMARY OVER ALL STAB

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	6/ 0.28	41/ 1.88	41/ 1.88	20/ 0.92	5/ 0.23	/	113.0/ 5.19	9.57587
NNE	/	6/ 0.28	52/ 2.39	39/ 1.79	38/ 1.74	5/ 0.23	/	140.0/ 6.42	9.69306
NE	/	6/ 0.28	41/ 1.88	49/ 2.25	23/ 1.06	2/ 0.09	/	121.0/ 5.55	9.18544
ENE	/	11/ 0.50	44/ 2.02	48/ 2.20	14/ 0.64	2/ 0.09	/	119.0/ 5.46	8.21895
E	/	8/ 0.37	41/ 1.88	40/ 1.84	5/ 0.23	/	/	94.0/ 4.31	7.33310
ESE	/	5/ 0.23	38/ 1.74	45/ 2.07	13/ 0.60	2/ 0.09	/	103.0/ 4.73	8.54170
SE	/	17/ 0.78	52/ 2.39	50/ 2.29	37/ 1.70	4/ 0.18	/	160.0/ 7.34	9.19803
SSE	/	4/ 0.18	62/ 2.85	113/ 5.19	28/ 1.28	1/ 0.05	5/ 0.23	213.0/ 9.78	9.46169
S	/	8/ 0.37	41/ 1.88	93/ 4.27	77/ 3.53	3/ 0.14	1/ 0.05	223.0/ 10.23	10.63775
SSW	/	1/ 0.05	46/ 2.11	116/ 5.32	43/ 1.97	5/ 0.23	4/ 0.18	215.0/ 9.87	10.51890
SW	/	3/ 0.14	37/ 1.70	115/ 5.28	37/ 1.70	7/ 0.32	/	199.0/ 9.13	10.55854
WSW	/	5/ 0.23	26/ 1.19	74/ 3.40	40/ 1.84	6/ 0.28	/	151.0/ 6.93	10.88977
W	/	3/ 0.14	31/ 1.42	45/ 2.07	25/ 1.15	/	/	104.0/ 4.77	9.33447
WNW	/	3/ 0.14	24/ 1.10	27/ 1.24	31/ 1.42	5/ 0.23	/	90.0/ 4.13	10.91527
NW	/	2/ 0.09	16/ 0.73	22/ 1.01	21/ 0.96	5/ 0.23	/	66.0/ 3.03	10.93526
NNW	/	1/ 0.05	12/ 0.55	25/ 1.15	27/ 1.24	3/ 0.14	/	68.0/ 3.12	11.66269
TOTAL	/	89/ 4.08	604/ 27.72	942/ 43.23	479/ 21.98	55/ 2.52	10/ 0.46	2179/ 100	9.83569

NUMBER OF BAD RECORDS: 5

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

19  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=A

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	/	3/ 0.14	/	/	3.0/ 0.14	14.39608
NE	/	/	1/ 0.05	7/ 0.32	8/ 0.37	/	/	16.0/ 0.73	12.33741
ENE	/	/	2/ 0.09	10/ 0.46	5/ 0.23	/	/	17.0/ 0.78	10.97411
E	/	/	3/ 0.14	5/ 0.23	1/ 0.05	/	/	9.0/ 0.41	8.27080
ESE	/	/	4/ 0.18	4/ 0.18	1/ 0.05	/	/	9.0/ 0.41	8.73214
SE	/	3/ 0.14	2/ 0.09	7/ 0.32	/	/	/	12.0/ 0.55	7.85809
SSE	/	/	2/ 0.09	4/ 0.18	1/ 0.05	/	/	7.0/ 0.32	8.38991
S	/	/	/	5/ 0.23	9/ 0.41	/	/	14.0/ 0.64	12.98744
SSW	/	/	2/ 0.09	6/ 0.28	2/ 0.09	/	/	10.0/ 0.46	10.20843
SW	/	/	/	3/ 0.14	6/ 0.28	1/ 0.05	/	10.0/ 0.46	14.71902
WSW	/	/	/	4/ 0.18	11/ 0.50	/	/	15.0/ 0.69	13.83580
W	/	/	/	2/ 0.09	1/ 0.05	/	/	3.0/ 0.14	11.63359
WNW	/	/	/	1/ 0.05	/	/	/	1.0/ 0.05	11.43905
NW	/	/	/	/	1/ 0.05	/	/	1.0/ 0.05	14.80740
NNW	/	/	/	/	/	/	/	/	
TOTAL	/	3/ 0.14	16/ 0.73	58/ 2.66	49/ 2.25	1/ 0.05	/	127.0/ 5.83	11.28333

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

21  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=B

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	/	/	2/ 0.09	2/ 0.09	/	/	4.0/ 0.18	12.31032
NNE	/	/	2/ 0.09	3/ 0.14	4/ 0.18	1/ 0.05	/	10.0/ 0.46	11.93763
NE	/	/	3/ 0.14	7/ 0.32	6/ 0.28	1/ 0.05	/	17.0/ 0.78	11.44690
ENE	/	/	7/ 0.32	4/ 0.18	2/ 0.09	/	/	13.0/ 0.60	8.15023
E	/	1/ 0.05	1/ 0.05	/	/	/	/	2.0/ 0.09	4.04369
ESE	/	/	3/ 0.14	2/ 0.09	2/ 0.09	/	/	7.0/ 0.32	8.88777
SE	/	1/ 0.05	2/ 0.09	1/ 0.05	2/ 0.09	/	/	6.0/ 0.28	7.94842
SSE	/	/	2/ 0.09	3/ 0.14	/	/	/	5.0/ 0.23	8.04402
S	/	/	/	/	6/ 0.28	/	/	6.0/ 0.28	14.22377
SSW	/	/	1/ 0.05	1/ 0.05	3/ 0.14	/	2/ 0.09	7.0/ 0.32	16.01752
SW	/	/	3/ 0.14	3/ 0.14	/	1/ 0.05	/	7.0/ 0.32	9.45234
WSW	/	/	1/ 0.05	3/ 0.14	5/ 0.23	1/ 0.05	/	10.0/ 0.46	13.58012
W	/	/	1/ 0.05	1/ 0.05	3/ 0.14	/	/	5.0/ 0.23	12.00266
WNW	/	/	/	/	3/ 0.14	/	/	3.0/ 0.14	17.63102
NW	/	/	/	1/ 0.05	2/ 0.09	3/ 0.14	/	6.0/ 0.28	16.60551
NNW	/	/	1/ 0.05	/	4/ 0.18	/	/	5.0/ 0.23	13.70685
TOTAL	/	2/ 0.09	27/ 1.24	31/ 1.42	44/ 2.02	7/ 0.32	2/ 0.09	113.0/ 5.19	11.57422

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

23  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=C

UPWNSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNSPD
N	/	/	7/ 0.32	1/ 0.05	/	/	/	8.0/ 0.37	6.65124
NNE	/	1/ 0.05	2/ 0.09	1/ 0.05	3/ 0.14	/	/	7.0/ 0.32	10.13363
NE	/	/	3/ 0.14	5/ 0.23	1/ 0.05	/	/	9.0/ 0.41	9.79378
ENE	/	/	3/ 0.14	5/ 0.23	1/ 0.05	/	/	9.0/ 0.41	9.34541
E	/	/	1/ 0.05	2/ 0.09	1/ 0.05	/	/	4.0/ 0.18	9.99666
ESE	/	1/ 0.05	2/ 0.09	1/ 0.05	1/ 0.05	/	/	5.0/ 0.23	6.31427
SE	/	/	3/ 0.14	2/ 0.09	2/ 0.09	/	/	7.0/ 0.32	9.09026
SSE	/	/	/	4/ 0.18	1/ 0.05	/	/	5.0/ 0.23	10.02167
S	/	/	/	3/ 0.14	5/ 0.23	/	/	8.0/ 0.37	13.82357
SSW	/	/	1/ 0.05	3/ 0.14	7/ 0.32	1/ 0.05	1/ 0.05	13.0/ 0.60	14.80013
SW	/	/	4/ 0.18	7/ 0.32	3/ 0.14	3/ 0.14	/	17.0/ 0.78	12.03935
WSW	/	1/ 0.05	1/ 0.05	2/ 0.09	2/ 0.09	2/ 0.09	/	8.0/ 0.37	12.22069
W	/	1/ 0.05	/	1/ 0.05	6/ 0.28	/	/	8.0/ 0.37	12.25821
WNW	/	/	/	/	5/ 0.23	/	/	5.0/ 0.23	14.58729
NW	/	1/ 0.05	1/ 0.05	1/ 0.05	4/ 0.18	1/ 0.05	/	8.0/ 0.37	12.46664
NNW	/	/	1/ 0.05	1/ 0.05	3/ 0.14	/	/	5.0/ 0.23	12.96981
TOTAL	/	5/ 0.23	29/ 1.33	39/ 1.79	45/ 2.07	7/ 0.32	1/ 0.05	126.0/ 5.78	11.29131

NUMBER OF BAD RECORDS: 0



ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDOI#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=D

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	/	14/ 0.64	7/ 0.32	10/ 0.46	3/ 0.14	/	34.0/ 1.56	10.81324
NNE	/	1/ 0.05	15/ 0.69	18/ 0.83	20/ 0.92	4/ 0.18	/	58.0/ 2.66	11.34705
NE	/	3/ 0.14	13/ 0.60	15/ 0.69	7/ 0.32	1/ 0.05	/	39.0/ 1.79	9.16184
ENE	/	3/ 0.14	12/ 0.55	15/ 0.69	2/ 0.09	2/ 0.09	/	34.0/ 1.56	8.37869
E	/	1/ 0.05	18/ 0.83	11/ 0.50	2/ 0.09	/	/	32.0/ 1.47	7.33127
ESE	/	1/ 0.05	10/ 0.46	18/ 0.83	6/ 0.28	2/ 0.09	/	37.0/ 1.70	9.89053
SE	/	8/ 0.37	15/ 0.69	17/ 0.78	20/ 0.92	3/ 0.14	/	63.0/ 2.89	9.97350
SSE	/	2/ 0.09	26/ 1.19	29/ 1.33	9/ 0.41	/	2/ 0.09	68.0/ 3.12	9.22152
S	/	2/ 0.09	16/ 0.73	21/ 0.96	19/ 0.87	/	/	58.0/ 2.66	9.90351
SSW	/	/	16/ 0.73	32/ 1.47	16/ 0.73	4/ 0.18	1/ 0.05	69.0/ 3.17	10.97569
SW	/	2/ 0.09	12/ 0.55	40/ 1.84	18/ 0.83	2/ 0.09	/	74.0/ 3.40	10.80923
WSW	/	2/ 0.09	9/ 0.41	25/ 1.15	15/ 0.69	3/ 0.14	/	54.0/ 2.48	11.19850
W	/	1/ 0.05	13/ 0.60	17/ 0.78	6/ 0.28	/	/	37.0/ 1.70	9.08292
WNW	/	/	4/ 0.18	16/ 0.73	3/ 0.14	/	/	23.0/ 1.06	9.95642
NW	/	/	2/ 0.09	10/ 0.46	3/ 0.14	1/ 0.05	/	16.0/ 0.73	11.20143
NNW	/	/	4/ 0.18	9/ 0.41	10/ 0.46	1/ 0.05	/	24.0/ 1.10	11.83994
TOTAL	/	26/ 1.19	199/ 9.13	300/ 13.77	166/ 7.62	26/ 1.19	3/ 0.14	720.0/ 33.04	10.12317

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

27  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=E

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	4/ 0.18	7/ 0.32	11/ 0.50	7/ 0.32	2/ 0.09	/	31.0/ 1.42	10.37131
NNE	/	/	17/ 0.78	11/ 0.50	8/ 0.37	/	/	36.0/ 1.65	8.68073
NE	/	1/ 0.05	9/ 0.41	13/ 0.60	/	/	/	23.0/ 1.06	7.81332
ENE	/	4/ 0.18	10/ 0.46	8/ 0.37	3/ 0.14	/	/	25.0/ 1.15	7.25229
E	/	4/ 0.18	5/ 0.23	13/ 0.60	1/ 0.05	/	/	23.0/ 1.06	7.16880
ESE	/	2/ 0.09	12/ 0.55	12/ 0.55	3/ 0.14	/	/	29.0/ 1.33	7.97467
SE	/	2/ 0.09	18/ 0.83	15/ 0.69	13/ 0.60	1/ 0.05	/	49.0/ 2.25	9.95293
SSE	/	1/ 0.05	10/ 0.46	54/ 2.48	16/ 0.73	1/ 0.05	3/ 0.14	85.0/ 3.90	10.88407
S	/	3/ 0.14	13/ 0.60	54/ 2.48	37/ 1.70	3/ 0.14	1/ 0.05	111.0/ 5.09	11.07640
SSW	/	1/ 0.05	17/ 0.78	55/ 2.52	11/ 0.50	/	/	84.0/ 3.85	9.68659
SW	/	1/ 0.05	11/ 0.50	45/ 2.07	7/ 0.32	/	/	64.0/ 2.94	9.85284
WSW	/	2/ 0.09	4/ 0.18	29/ 1.33	6/ 0.28	/	/	41.0/ 1.88	10.15914
W	/	/	7/ 0.32	13/ 0.60	7/ 0.32	/	/	27.0/ 1.24	9.53563
WNW	/	2/ 0.09	6/ 0.28	4/ 0.18	12/ 0.55	1/ 0.05	/	25.0/ 1.15	11.30965
NW	/	/	1/ 0.05	2/ 0.09	7/ 0.32	/	/	10.0/ 0.46	12.46623
NNW	/	1/ 0.05	2/ 0.09	7/ 0.32	6/ 0.28	2/ 0.09	/	18.0/ 0.83	12.39971
TOTAL	/	28/ 1.28	149/ 6.84	346/ 15.88	144/ 6.61	10/ 0.46	4/ 0.18	681.0/ 31.25	9.95938

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:47 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

29  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=F

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	1/ 0.05	8/ 0.37	10/ 0.46	1/ 0.05	/	/	20.0/ 0.92	8.22661
NNE	/	3/ 0.14	13/ 0.60	3/ 0.14	/	/	/	19.0/ 0.87	5.82221
NE	/	1/ 0.05	5/ 0.23	2/ 0.09	/	/	/	8.0/ 0.37	5.65699
ENE	/	4/ 0.18	4/ 0.18	2/ 0.09	/	/	/	10.0/ 0.46	4.81074
E	/	1/ 0.05	7/ 0.32	4/ 0.18	/	/	/	12.0/ 0.55	6.76588
ESE	/	1/ 0.05	2/ 0.09	5/ 0.23	/	/	/	8.0/ 0.37	6.63665
SE	/	3/ 0.14	7/ 0.32	6/ 0.28	/	/	/	16.0/ 0.73	6.43759
SSE	/	1/ 0.05	11/ 0.50	13/ 0.60	/	/	/	25.0/ 1.15	7.18292
S	/	3/ 0.14	10/ 0.46	8/ 0.37	1/ 0.05	/	/	22.0/ 1.01	7.25817
SSW	/	/	8/ 0.37	14/ 0.64	3/ 0.14	/	/	25.0/ 1.15	8.79773
SW	/	/	6/ 0.28	9/ 0.41	3/ 0.14	/	/	18.0/ 0.83	9.29724
WSW	/	/	3/ 0.14	3/ 0.14	1/ 0.05	/	/	7.0/ 0.32	8.32082
W	/	/	5/ 0.23	7/ 0.32	2/ 0.09	/	/	14.0/ 0.64	8.99259
WNW	/	/	4/ 0.18	1/ 0.05	8/ 0.37	4/ 0.18	/	17.0/ 0.78	13.66074
NW	/	1/ 0.05	2/ 0.09	5/ 0.23	4/ 0.18	/	/	12.0/ 0.55	9.95219
NNW	/	/	1/ 0.05	/	3/ 0.14	/	/	4.0/ 0.18	11.56828
TOTAL	/	19/ 0.87	96/ 4.41	92/ 4.22	26/ 1.19	4/ 0.18	/	237.0/10.88	8.07773

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNDSPO  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

31  
 16:47 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=G

UPWINDSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	1/ 0.05	5/ 0.23	10/ 0.46	/	/	/	16.0/ 0.73	7.87060
NNE	/	1/ 0.05	3/ 0.14	3/ 0.14	/	/	/	7.0/ 0.32	6.03873
NE	/	1/ 0.05	7/ 0.32	/	1/ 0.05	/	/	9.0/ 0.41	5.44717
ENE	/	/	6/ 0.28	4/ 0.18	1/ 0.05	/	/	11.0/ 0.50	7.92214
E	/	1/ 0.05	6/ 0.28	5/ 0.23	/	/	/	12.0/ 0.55	7.17720
ESE	/	/	5/ 0.23	3/ 0.14	/	/	/	8.0/ 0.37	7.13898
SE	/	/	5/ 0.23	2/ 0.09	/	/	/	7.0/ 0.32	6.72002
SSE	/	/	11/ 0.50	6/ 0.28	1/ 0.05	/	/	18.0/ 0.83	7.47225
S	/	/	2/ 0.09	2/ 0.09	/	/	/	4.0/ 0.18	7.72469
SSW	/	/	1/ 0.05	5/ 0.23	1/ 0.05	/	/	7.0/ 0.32	9.14505
SW	/	/	1/ 0.05	8/ 0.37	/	/	/	9.0/ 0.41	9.47881
WSW	/	/	8/ 0.37	8/ 0.37	/	/	/	16.0/ 0.73	7.73511
W	/	1/ 0.05	5/ 0.23	4/ 0.18	/	/	/	10.0/ 0.46	5.83792
WNW	/	1/ 0.05	10/ 0.46	5/ 0.23	/	/	/	16.0/ 0.73	6.32087
NW	/	/	10/ 0.46	3/ 0.14	/	/	/	13.0/ 0.60	6.48016
NNW	/	/	3/ 0.14	8/ 0.37	1/ 0.05	/	/	12.0/ 0.55	8.83775
TOTAL	/	6/ 0.28	88/ 4.04	76/ 3.49	5/ 0.23	/	/	175.0/ 8.03	7.33109

NUMBER OF BAD RECORDS: 0



ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:47 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:45 FRIDAY, JULY 22, 1983

17

SITE=ROBN

YEAR=83

PERIOD=2ND QTR

SUMMARY OVER ALL STAB

LOWNDSPD

LOWNDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.7/ 0.03	25/ 1.21	49/ 2.38	23/ 1.12	2/ 0.10	/	/	99.7/ 4.84	5.79075
NNE	0.6/ 0.03	21/ 1.02	59/ 2.87	39/ 1.89	11/ 0.53	/	/	130.6/ 6.34	6.86522
NE	0.5/ 0.02	17/ 0.83	52/ 2.53	33/ 1.60	3/ 0.15	/	/	105.5/ 5.12	6.29024
ENE	0.2/ 0.01	6/ 0.29	46/ 2.23	25/ 1.21	1/ 0.05	/	/	78.2/ 3.80	6.32690
E	0.3/ 0.01	11/ 0.53	48/ 2.33	7/ 0.34	/	/	/	66.3/ 3.22	5.01614
ESE	0.3/ 0.01	9/ 0.44	45/ 2.19	20/ 0.97	3/ 0.15	/	/	77.3/ 3.75	6.30752
SE	0.7/ 0.03	23/ 1.12	56/ 2.72	40/ 1.94	12/ 0.58	/	/	131.7/ 6.40	7.05363
SSE	1.2/ 0.06	39/ 1.89	122/ 5.93	50/ 2.43	2/ 0.10	4/ 0.19	/	218.2/10.60	6.18243
S	1.8/ 0.09	59/ 2.87	112/ 5.44	98/ 4.76	11/ 0.53	1/ 0.05	/	282.8/13.73	6.54319
SSW	1.4/ 0.07	46/ 2.23	81/ 3.93	56/ 2.72	14/ 0.68	5/ 0.24	/	203.4/ 9.88	6.76606
SW	1.0/ 0.05	35/ 1.70	47/ 2.28	46/ 2.23	5/ 0.24	1/ 0.05	/	135.0/ 6.56	6.44908
WSW	1.0/ 0.05	33/ 1.60	38/ 1.85	35/ 1.70	5/ 0.24	/	/	112.0/ 5.44	5.91500
W	0.9/ 0.04	31/ 1.51	32/ 1.55	25/ 1.21	/	/	/	88.9/ 4.32	5.46518
WNW	1.0/ 0.05	34/ 1.65	33/ 1.60	16/ 0.78	1/ 0.05	/	/	85.0/ 4.13	4.96561
NW	1.2/ 0.06	42/ 2.04	19/ 0.92	19/ 0.92	4/ 0.19	/	/	85.2/ 4.14	4.85805
NNW	2.2/ 0.11	74/ 3.59	57/ 2.77	26/ 1.26	/	/	/	159.2/ 7.73	4.46825
TOTAL	15.0/ 0.73	505/24.53	896/43.52	558/27.10	74/ 3.59	11/ 0.53	/	2059/ 100	6.08225

NUMBER OF BAD RECORDS: 125

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:45 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

19  
 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=A

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	3/ 0.15	/	/	/	3.0/ 0.15	10.54416
NE	/	/	2/ 0.10	9/ 0.44	1/ 0.05	/	/	12.0/ 0.58	9.60063
ENE	/	/	6/ 0.29	9/ 0.44	/	/	/	15.0/ 0.73	7.93063
E	/	1/ 0.05	6/ 0.29	3/ 0.15	/	/	/	10.0/ 0.49	6.28814
ESE	/	/	5/ 0.24	4/ 0.19	/	/	/	9.0/ 0.44	7.35182
SE	/	2/ 0.10	6/ 0.29	3/ 0.15	/	/	/	11.0/ 0.53	6.38804
SSE	/	1/ 0.05	4/ 0.19	5/ 0.24	/	/	/	10.0/ 0.49	7.53043
S	/	/	/	9/ 0.44	3/ 0.15	/	/	12.0/ 0.58	10.88738
SSW	/	/	4/ 0.19	5/ 0.24	1/ 0.05	/	/	10.0/ 0.49	9.20293
SW	/	/	/	8/ 0.39	1/ 0.05	/	/	9.0/ 0.44	10.58677
WSW	/	/	/	/	/	/	/	/	
W	/	/	/	/	/	/	/	/	
WNW	/	/	/	/	/	/	/	/	
NW	/	/	/	/	/	/	/	/	
NNW	/	/	/	/	/	/	/	/	
TOTAL	/	4/ 0.19	33/ 1.60	58/ 2.82	6/ 0.29	/	/	101.0/ 4.91	8.49880

NUMBER OF BAD RECORDS: 26

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

21  
 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=B

LOWNDSPD

LOWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	2/ 0.10	3/ 0.15	/	/	/	5.0/ 0.24	8.39753
NNE	/	/	3/ 0.15	3/ 0.15	3/ 0.15	/	/	9.0/ 0.44	9.36209
NE	/	/	6/ 0.29	7/ 0.34	2/ 0.10	/	/	15.0/ 0.73	8.83330
ENE	/	1/ 0.05	7/ 0.34	3/ 0.15	/	/	/	11.0/ 0.53	6.54418
E	/	/	3/ 0.15	/	/	/	/	3.0/ 0.15	4.75793
ESE	/	/	4/ 0.19	3/ 0.15	/	/	/	7.0/ 0.34	6.90821
SE	/	1/ 0.05	2/ 0.10	4/ 0.19	/	/	/	7.0/ 0.34	6.73908
SSE	/	/	3/ 0.15	1/ 0.05	/	/	/	4.0/ 0.19	6.03218
S	/	/	1/ 0.05	8/ 0.39	/	/	/	9.0/ 0.44	11.20745
SSW	/	/	/	4/ 0.19	1/ 0.05	2/ 0.10	/	7.0/ 0.34	12.45860
SW	/	/	3/ 0.15	2/ 0.10	1/ 0.05	/	/	6.0/ 0.29	7.82891
WSW	/	/	2/ 0.10	/	/	/	/	2.0/ 0.10	4.41887
W	/	/	/	3/ 0.15	/	/	/	3.0/ 0.15	11.20004
WNW	/	/	/	2/ 0.10	/	/	/	2.0/ 0.10	12.10605
NW	/	/	/	3/ 0.15	3/ 0.15	/	/	6.0/ 0.29	12.24501
NNW	/	/	1/ 0.05	3/ 0.15	/	/	/	4.0/ 0.19	9.99249
TOTAL	/	2/ 0.10	37/ 1.80	49/ 2.38	10/ 0.49	2/ 0.10	/	100.0/ 4.86	8.79806

NUMBER OF BAD RECORDS: 13

ENVIRONMENTAL MONITORING SYSTEM -CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:45 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

23  
 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=C

LOWNDSPD

LOWNDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	1/ 0.05	8/ 0.39	/	/	/	/	9.0/ 0.44	5.33970
NNE	/	/	3/ 0.15	4/ 0.19	/	/	/	7.0/ 0.34	8.04926
NE	/	/	7/ 0.34	4/ 0.19	/	/	/	11.0/ 0.53	6.66545
ENE	/	/	2/ 0.10	5/ 0.24	/	/	/	7.0/ 0.34	7.88966
E	/	/	1/ 0.05	2/ 0.10	/	/	/	3.0/ 0.15	8.14296
ESE	/	/	3/ 0.15	1/ 0.05	/	/	/	4.0/ 0.19	6.33928
SE	/	1/ 0.05	4/ 0.19	3/ 0.15	/	/	/	8.0/ 0.39	6.73670
SSE	/	/	2/ 0.10	3/ 0.15	/	/	/	5.0/ 0.24	7.98732
S	/	/	/	8/ 0.39	2/ 0.10	/	/	10.0/ 0.49	11.12389
SSW	/	/	2/ 0.10	9/ 0.44	5/ 0.24	1/ 0.05	/	17.0/ 0.83	11.47338
SW	/	/	5/ 0.24	4/ 0.19	2/ 0.10	/	/	11.0/ 0.53	9.22734
WSW	/	2/ 0.10	2/ 0.10	1/ 0.05	2/ 0.10	/	/	7.0/ 0.34	7.99447
W	/	/	/	6/ 0.29	/	/	/	6.0/ 0.29	10.44133
WNW	/	/	/	4/ 0.19	/	/	/	4.0/ 0.19	9.83825
NW	/	1/ 0.05	1/ 0.05	5/ 0.24	1/ 0.05	/	/	8.0/ 0.39	9.14415
NNW	/	/	/	5/ 0.24	/	/	/	5.0/ 0.24	10.58862
TOTAL	/	5/ 0.24	40/ 1.94	64/ 3.11	12/ 0.58	1/ 0.05	/	122.0/ 5.93	8.75747

NUMBER OF BAD RECORDS: 4



ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

25  
 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=D

LOWNDSPD

LOWNDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	2/ 0.10	21/ 1.02	14/ 0.68	1/ 0.05	/	/	38.0/ 1.85	7.19746
NNE	/	3/ 0.15	31/ 1.51	23/ 1.12	8/ 0.39	/	/	65.0/ 3.16	7.99143
NE	/	4/ 0.19	21/ 1.02	13/ 0.63	/	/	/	38.0/ 1.85	6.07072
ENE	/	/	21/ 1.02	7/ 0.34	1/ 0.05	/	/	29.0/ 1.41	6.40377
E	/	/	26/ 1.26	2/ 0.10	/	/	/	28.0/ 1.36	5.43664
ESE	/	5/ 0.24	22/ 1.07	9/ 0.44	3/ 0.15	/	/	39.0/ 1.89	6.58491
SE	/	8/ 0.39	24/ 1.17	21/ 1.02	8/ 0.39	/	/	61.0/ 2.96	7.82877
SSE	/	5/ 0.24	48/ 2.33	19/ 0.92	/	2/ 0.10	/	74.0/ 3.59	6.96744
S	/	7/ 0.34	29/ 1.41	28/ 1.36	2/ 0.10	/	/	66.0/ 3.21	7.25590
SSW	/	2/ 0.10	31/ 1.51	30/ 1.46	7/ 0.34	2/ 0.10	/	72.0/ 3.50	8.48093
SW	/	2/ 0.10	16/ 0.78	22/ 1.07	1/ 0.05	1/ 0.05	/	42.0/ 2.04	8.33273
WSW	/	4/ 0.19	12/ 0.58	28/ 1.36	3/ 0.15	/	/	47.0/ 2.28	8.00010
W	/	5/ 0.24	12/ 0.58	14/ 0.68	/	/	/	31.0/ 1.51	6.78565
WNW	/	2/ 0.10	15/ 0.73	6/ 0.29	/	/	/	23.0/ 1.12	6.65260
NW	/	/	5/ 0.24	11/ 0.53	/	/	/	16.0/ 0.78	8.33854
NNW	/	1/ 0.05	10/ 0.49	12/ 0.58	/	/	/	23.0/ 1.12	7.50157
TOTAL	/	50/ 2.43	344/ 16.71	259/ 12.58	34/ 1.65	5/ 0.24	/	692.0/ 33.61	7.36465

NUMBER OF BAD RECORDS: 28

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

27  
 16:45 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=E

LOWNDSPD

LOWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	8/ 0.39	17/ 0.83	6/ 0.29	1/ 0.05	/	/	32.0/ 1.55	5.52203
NNE	/	12/ 0.58	21/ 1.02	6/ 0.29	/	/	/	39.0/ 1.89	4.75237
NE	/	10/ 0.49	13/ 0.63	/	/	/	/	23.0/ 1.12	4.02302
ENE	/	4/ 0.19	10/ 0.49	1/ 0.05	/	/	/	15.0/ 0.73	3.97977
E	/	7/ 0.34	11/ 0.53	/	/	/	/	18.0/ 0.87	3.94456
ESE	/	1/ 0.05	11/ 0.53	3/ 0.15	/	/	/	15.0/ 0.73	5.76844
SE	/	6/ 0.29	17/ 0.83	9/ 0.44	4/ 0.19	/	/	36.0/ 1.75	7.11420
SSE	/	15/ 0.73	60/ 2.91	22/ 1.07	2/ 0.10	2/ 0.10	/	101.0/ 4.91	6.24949
S	/	15/ 0.73	70/ 3.40	45/ 2.19	4/ 0.19	1/ 0.05	/	135.0/ 6.56	6.64147
SSW	/	18/ 0.87	35/ 1.70	8/ 0.39	/	/	/	61.0/ 2.96	4.86637
SW	/	16/ 0.78	18/ 0.87	10/ 0.49	/	/	/	44.0/ 2.14	4.98545
WSW	/	8/ 0.39	19/ 0.92	6/ 0.29	/	/	/	33.0/ 1.60	5.21523
W	/	13/ 0.63	15/ 0.73	2/ 0.10	/	/	/	30.0/ 1.46	4.26991
WNW	/	10/ 0.49	10/ 0.49	4/ 0.19	1/ 0.05	/	/	25.0/ 1.21	5.34534
NW	/	4/ 0.19	8/ 0.39	/	/	/	/	12.0/ 0.58	4.00200
NNW	/	5/ 0.24	21/ 1.02	6/ 0.29	/	/	/	32.0/ 1.55	5.68253
TOTAL	/	152/ 7.38	356/ 17.29	128/ 6.22	12/ 0.58	3/ 0.15	/	651.0/ 31.62	5.58466

NUMBER OF BAD RECORDS: 30

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=F

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.1/ 0.00	7/ 0.34	1/ 0.05	/	/	/	/	8.1/ 0.39	2.70402
NNE	0.1/ 0.00	3/ 0.15	1/ 0.05	/	/	/	/	4.1/ 0.20	3.08893
NE	0.0/ 0.00	2/ 0.10	1/ 0.05	/	/	/	/	3.0/ 0.15	2.43455
ENE	0.0/ 0.00	1/ 0.05	/	/	/	/	/	1.0/ 0.05	2.88477
E	0.0/ 0.00	2/ 0.10	1/ 0.05	/	/	/	/	3.0/ 0.15	2.21222
ESE	0.0/ 0.00	2/ 0.10	/	/	/	/	/	2.0/ 0.10	1.54244
SE	0.1/ 0.00	4/ 0.19	3/ 0.15	/	/	/	/	7.1/ 0.34	2.98153
SSE	0.2/ 0.01	9/ 0.44	4/ 0.19	/	/	/	/	13.2/ 0.64	3.09371
S	0.6/ 0.03	29/ 1.41	11/ 0.53	/	/	/	/	40.6/ 1.97	2.75137
SSW	0.2/ 0.01	13/ 0.63	9/ 0.44	/	/	/	/	22.2/ 1.08	2.89333
SW	0.2/ 0.01	11/ 0.53	5/ 0.24	/	/	/	/	16.2/ 0.79	2.60109
WSW	0.2/ 0.01	13/ 0.63	3/ 0.15	/	/	/	/	16.2/ 0.79	2.28097
W	0.2/ 0.01	10/ 0.49	5/ 0.24	/	/	/	/	15.2/ 0.74	2.94555
WNW	0.2/ 0.01	12/ 0.58	8/ 0.39	/	/	/	/	20.2/ 0.98	2.69276
NW	0.3/ 0.01	15/ 0.73	4/ 0.19	/	/	/	/	19.3/ 0.94	2.43083
NNW	0.5/ 0.02	24/ 1.17	13/ 0.63	/	/	/	/	37.5/ 1.82	3.18670
TOTAL	3.0/ 0.15	157/ 7.63	69/ 3.35	/	/	/	/	229.0/11.12	2.78206

NUMBER OF BAD RECORDS: 8

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IM001#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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SITE=ROBN YEAR=83 PERIOD=2ND QTR STAB=G

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.6/ 0.03	7/ 0.34	/	/	/	/	/	7.6/ 0.37	1.89896
NNE	0.3/ 0.01	3/ 0.15	/	/	/	/	/	3.3/ 0.16	1.87845
NE	0.1/ 0.00	1/ 0.05	2/ 0.10	/	/	/	/	3.1/ 0.15	3.67656
ENE	/	/	/	/	/	/	/	/	
E	0.1/ 0.00	1/ 0.05	/	/	/	/	/	1.1/ 0.05	0.74657
ESE	0.1/ 0.00	1/ 0.05	/	/	/	/	/	1.1/ 0.05	0.77689
SE	0.1/ 0.00	1/ 0.05	/	/	/	/	/	1.1/ 0.05	1.68643
SSE	0.8/ 0.04	9/ 0.44	1/ 0.05	/	/	/	/	10.8/ 0.52	1.89907
S	0.7/ 0.03	8/ 0.39	1/ 0.05	/	/	/	/	9.7/ 0.47	1.86259
SSW	1.2/ 0.06	13/ 0.63	/	/	/	/	/	14.2/ 0.69	1.98572
SW	0.5/ 0.02	6/ 0.29	/	/	/	/	/	6.5/ 0.32	2.13246
WSW	0.5/ 0.02	6/ 0.29	/	/	/	/	/	6.5/ 0.32	1.76305
W	0.3/ 0.01	3/ 0.15	/	/	/	/	/	3.3/ 0.16	1.70664
WNW	0.9/ 0.04	10/ 0.49	/	/	/	/	/	10.9/ 0.53	1.51030
NW	2.0/ 0.10	22/ 1.07	1/ 0.05	/	/	/	/	25.0/ 1.21	1.55408
NNW	3.9/ 0.19	44/ 2.14	12/ 0.58	/	/	/	/	59.9/ 2.91	2.42704
TOTAL	12.0/ 0.58	135/ 6.56	17/ 0.83	/	/	/	/	164.0/ 7.97	2.03646

NUMBER OF BAD RECORDS: 11



ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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### ENCLOSURE 3

DIFFUSION ANALYSIS  
GROUND LEVEL RELEASE  
JANUARY 1 - JUNE 30, 1983  
H. B. ROBINSON STEAM ELECTRIC PLANT

#### Description of Attachment

The attached tables provide estimate of relative ground-level concentration (X/Q) and deposition (D/Q) for the period January 1 through June 30, 1983 for a ground-level release.

A description of the tables is as follows:

- Table 1 - Undecayed, undepleted X/Q for standard distances.
- Table 2 - 2.26-day decay undepleted X/Q for standard distances.
- Table 3 - 8.0-day decay, depleted X/Q for standard distances.
- Table 4 - Deposition estimates for standard distances.
- Table 5 - X/Q and D/Q estimates for site boundary locations and points of interest

#### Method of Calculation

The ground-level release calculations represent sector averaged concentrations at the given distances from the center of the reactor buildings. The computer code used (XOQDOQ) was received from the U. S. Nuclear Regulatory Commission (NRC), Hydrology Meteorology Branch.<sup>(1)</sup>

Input variables included:

1. Wake correction factor from RG 1.111.
2. Building height for wake correction = 59.0 meters.
3. Joint wind frequency from the ten-meter level on-site meteorological tower.
4. Sigma Z limited to 1000 meters.
5. Calm winds included with joint frequency and distributed according to the occurrence in the lowest non-calm speed class.

The adjustment factors to account for the straight-line flow model limitations (RG 1.111, Section C.1.c) were not applied. The code was modified to incorporate the revised curves for estimating plume depletion and ground deposition (XOQDOQ - ERRATA, November 8, 1976).

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<sup>(1)</sup>Program for the Meteorological Evaluation of Routine Effluent Release at Nuclear Power Stations, J. F. Sagendorf and J. T. Goll, August 29, 1976.

### Relative Concentration Estimates

The site boundary distances used for the calculations are as prepared for the June 4, 1976, Appendix I submittal to the NRC. Special point distances were obtained from the December 1978 site survey.

The maximum undepleted, undecayed X/Q value at the site boundary is  $4.9\text{E-}05$  in the SSE sector. Site boundary maximums for previous six-month periods are as follows:

JUL - DEC 1981	$4.8\text{E-}05$	SSE SECTOR
JAN - JUN 1982	$2.2\text{E-}05$	SSE SECTOR
JUL - DEC 1982	$4.4\text{E-}05$	SSE SECTOR



1	11	70.	73.	69.	69.	73.	78.	73.	71.	70.	76.	72.	84.	74.	76.	69.	69.
2	10	1207.	1207.	805.	966.	966.	1207.	1207.	1207.	1207.	2012.	1625.	1448.	1207.	966.	483.	483.
3	11	72.	76.	70.	71.	74.	81.	82.	75.	79.	82.	73.	87.	86.	78.	69.	69.
4	10	2012.	2012.	1207.	1207.	1207.	1448.	2012.	2012.	2012.	2253.	2012.	2012.	1448.	1207.	1207.	1207.
5	11	74.	81.	72.	73.	75.	84.	91.	79.	74.	83.	74.	104.	89.	80.	69.	69.
6	10	2816.	2816.	2012.	2012.	2012.	2012.	2816.	2816.	2816.	2655.	2816.	2816.	2012.	2012.	2012.	2012.
7	11	76.	87.	77.	77.	80.	88.	92.	83.	77.	86.	76.	114.	98.	88.	69.	69.
8	10	3621.	3347.	2816.	2816.	2816.	2816.	3621.	3042.	3122.	2816.	3621.	3541.	2816.	2816.	2816.	2816.
9	11	79.	90.	81.	82.	85.	89.	102.	84.	78.	87.	78.	115.	109.	91.	69.	69.
10	10	4426.	3621.	3621.	3621.	3621.	3621.	4426.	3621.	3621.	3621.	4426.	3621.	3621.	3621.	3621.	3621.
11	11	81.	92.	86.	87.	88.	90.	111.	87.	79.	92.	81.	122.	120.	91.	69.	69.
12	10	5230.	4426.	4426.	4426.	4426.	4426.	5230.	4426.	4426.	4426.	5230.	4426.	4426.	4426.	4426.	4426.
13	11	83.	95.	91.	91.	88.	90.	121.	91.	82.	99.	83.	122.	120.	91.	69.	69.
14	10	6035.	5230.	5230.	5230.	5230.	5230.	6035.	5230.	5230.	5230.	6035.	5230.	5230.	5230.	5230.	5230.
15	11	85.	95.	95.	91.	88.	91.	127.	96.	84.	109.	85.	122.	120.	91.	69.	69.
16	10	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.
17	11	87.	95.	95.	91.	88.	122.	133.	96.	91.	118.	101.	122.	120.	91.	69.	69.
18	12	16	2	14	16	16											
19	13	SITE BOUNDARY															
20	14	1	0.28	2	0.29	3	0.36	4	0.36	5	0.50	6	0.55	7	1.23	8	1.89
21	9	1.94	10	1.26	11	1.01	12	0.86	13	0.61	14	0.50	15	0.29	16	0.26	
22	13	MILK COW															
23	14	11	1.30	13	4.20												
24	13	MEAT ANIMAL															
25	14	1	2.32	2	2.08	3	2.27	4	2.69	5	3.97	6	4.07	7	1.60	8	2.84
26	9	2.93	10	1.65	11	1.16	12	2.41	13	3.12	14	1.99					
27	13	RESIDENT															
28	14	1	0.30	2	0.30	3	0.40	4	0.40	5	0.60	6	0.70	7	1.30	8	2.90
29	9	2.90	10	1.30	11	1.20	12	0.90	13	0.80	14	0.60	15	0.30	16	0.30	
30	13	GARDEN															
31	14	1	0.40	2	0.50	3	0.50	4	0.60	5	0.60	6	0.90	7	1.30	8	3.00
32	9	2.90	10	1.40	11	1.30	12	2.20	13	2.80	14	0.60	15	0.30	16	0.30	
33	15	EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83															
34	16	0.0	0.0	0.0	59.000	1370.0	11.0	0.0									
35	17	A	0	0	0												
36	15	EXIT TWO MIXED-MODE RELEASE JAN-JUN 83															
37	16	20.100	1.400	60.700	59.000	1370.0	11.0	0.0									
38	17	B	0	0	0												
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## 1 XOQDOQ - ROBINSON GROUND AND MIXED MODE RELEASES JAN-JUN 83

2  
3 THE JOINT FREQUENCY DISTRIBUTION, I=WIND SPEED CLASS, J= STABILITY CLASS

4 DIRECTION =	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
5 I= 1,J= 1	0.0	0.0	0.0	0.0	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 I= 2,J= 1	0.0	0.0	0.0	0.0	0.02	0.0	0.05	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7 I= 3,J= 1	0.0	0.0	0.05	0.14	0.14	0.12	0.14	0.10	0.0	0.10	0.0	0.0	0.0	0.0	0.0	0.0
8 I= 4,J= 1	0.0	0.07	0.21	0.21	0.07	0.10	0.07	0.12	0.21	0.12	0.19	0.0	0.02	0.07	0.0	0.02
9 I= 5,J= 1	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.07	0.02	0.05	0.0	0.0	0.0	0.07	0.0
10 I= 6,J= 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11 I= 7,J= 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12 I= 1,J= 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13 I= 2,J= 2	0.0	0.0	0.0	0.02	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14 I= 3,J= 2	0.05	0.07	0.14	0.17	0.07	0.10	0.05	0.07	0.02	0.0	0.07	0.05	0.0	0.0	0.0	0.02
15 I= 4,J= 2	0.40	0.07	0.19	0.10	0.0	0.10	0.10	0.05	0.26	0.14	0.10	0.05	0.14	0.07	0.12	0.07
16 I= 5,J= 2	0.0	0.07	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.07	0.0	0.0	0.0	0.12	0.0
17 I= 6,J= 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.0	0.0	0.0	0.0	0.0	0.0
18 I= 7,J= 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19 I= 1,J= 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20 I= 2,J= 3	0.02	0.0	0.0	0.0	0.0	0.02	0.02	0.0	0.0	0.0	0.0	0.05	0.0	0.0	0.02	0.0
21 I= 3,J= 3	0.19	0.10	0.24	0.19	0.07	0.17	0.14	0.10	0.0	0.05	0.12	0.05	0.0	0.02	0.05	0.0
22 I= 4,J= 3	0.14	0.24	0.19	0.12	0.05	0.05	0.12	0.19	0.29	0.31	0.17	0.14	0.31	0.21	0.38	0.21
23 I= 5,J= 3	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.12	0.05	0.10	0.0	0.0	0.07	0.02
24 I= 6,J= 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0
25 I= 7,J= 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26 I= 1,J= 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00
27 I= 2,J= 4	0.07	0.12	0.24	0.10	0.14	0.21	0.21	0.14	0.31	0.05	0.10	0.26	0.24	0.14	0.21	0.07
28 I= 3,J= 4	1.47	2.11	1.45	1.05	1.00	0.93	0.93	1.38	0.95	1.02	0.71	0.69	0.78	0.88	0.55	1.24
29 I= 4,J= 4	1.95	3.18	1.33	0.26	0.17	0.38	0.74	0.57	1.07	0.97	0.69	1.19	0.64	0.38	0.78	1.24
30 I= 5,J= 4	0.43	1.52	0.40	0.02	0.0	0.07	0.21	0.0	0.07	0.29	0.05	0.26	0.0	0.0	0.0	0.33
31 I= 6,J= 4	0.05	0.14	0.05	0.0	0.0	0.0	0.0	0.05	0.0	0.05	0.02	0.0	0.0	0.0	0.0	0.0
32 I= 7,J= 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33 I= 1,J= 5	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.01
34 I= 2,J= 5	0.26	0.48	0.38	0.14	0.19	0.10	0.17	0.59	0.52	0.62	0.52	0.43	0.52	0.50	0.43	0.24
35 I= 3,J= 5	1.09	1.26	0.59	0.33	0.45	0.40	0.48	1.76	1.97	1.24	0.88	1.21	0.71	0.86	0.81	1.50
36 I= 4,J= 5	0.33	0.33	0.12	0.02	0.02	0.21	0.59	0.78	1.62	0.31	0.45	0.45	0.05	0.12	0.07	0.52
37 I= 5,J= 5	0.05	0.07	0.0	0.02	0.02	0.02	0.24	0.26	0.21	0.02	0.0	0.0	0.0	0.02	0.0	0.14
38 I= 6,J= 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39 I= 7,J= 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40 I= 1,J= 6	0.01	0.01	0.00	0.0	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.03
41 I= 2,J= 6	0.50	0.21	0.07	0.02	0.14	0.07	0.12	0.45	0.86	0.52	0.33	0.55	0.48	0.50	0.78	0.95
42 I= 3,J= 6	0.10	0.07	0.02	0.0	0.05	0.0	0.07	0.10	0.29	0.36	0.29	0.14	0.19	0.40	0.40	0.69
43 I= 4,J= 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44 I= 5,J= 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45 I= 6,J= 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46 I= 7,J= 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47 I= 1,J= 7	0.14	0.02	0.01	0.00	0.00	0.01	0.02	0.09	0.10	0.10	0.05	0.04	0.03	0.09	0.23	0.49
48 I= 2,J= 7	0.83	0.12	0.05	0.02	0.02	0.05	0.10	0.52	0.62	0.62	0.29	0.21	0.17	0.55	1.40	2.97
49 I= 3,J= 7	0.07	0.0	0.05	0.0	0.0	0.0	0.0	0.05	0.02	0.02	0.0	0.0	0.0	0.0	0.02	0.50
50 I= 4,J= 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51 I= 5,J= 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52 I= 6,J= 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53 I= 7,J= 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

54  
55 TOTAL 8.19 10.28 5.87 2.96 2.66 3.11 4.59 7.46 9.60 7.19 5.21 5.89 4.32 4.85 6.57 11.26

56 TOTAL HOURS CONSIDERED ARE 4209

57  
58 WIND MEASURED AT 11.0 METERS.

59 THE MAXIMUM WIND SPEED (METERS/SEC) IN EACH CLASS IS: 0.335 1.565 3.353 5.588 8.270 11.176 11.623

60 THE CONVERSION FACTOR APPLIED TO THE WIND SPEED CLASSES IS 0.447

1	DISTANCES AND TERRAIN HEIGHTS IN METERS AS FUNCTIONS OF DIRECTION FROM THE SITE:																
2	DIRECTION =	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE
3	DISTANCE	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.	402.
4	ELEVATION	69.	71.	68.	68.	71.	73.	73.	70.	69.	71.	69.	73.	74.	72.	69.	69.
5	DISTANCE	451.	805.	579.	579.	805.	885.	418.	418.	418.	207.	207.	207.	418.	805.	418.	418.
6	ELEVATION	70.	73.	69.	69.	73.	78.	73.	71.	70.	76.	72.	84.	74.	76.	69.	69.
7	DISTANCE	1207.	1207.	805.	966.	966.	1207.	1207.	1207.	1207.	2012.	1625.	1448.	1207.	966.	483.	483.
8	ELEVATION	72.	76.	70.	71.	74.	81.	82.	75.	79.	82.	73.	87.	86.	78.	69.	69.
9	DISTANCE	2012.	2012.	1207.	1207.	1207.	1448.	2012.	2012.	2012.	2253.	2012.	2012.	1448.	1207.	1207.	1207.
10	ELEVATION	74.	81.	72.	73.	75.	84.	91.	79.	74.	83.	74.	104.	89.	80.	69.	69.
11	DISTANCE	2816.	2816.	2012.	2012.	2012.	2012.	2816.	2816.	2816.	2655.	2816.	2816.	2012.	2012.	2012.	2012.
12	ELEVATION	76.	87.	77.	77.	80.	88.	92.	83.	77.	86.	76.	114.	98.	88.	69.	69.
13	DISTANCE	3621.	3347.	2816.	2816.	2816.	2816.	3621.	3042.	3122.	2816.	3621.	3541.	2816.	2816.	2816.	2816.
14	ELEVATION	79.	90.	81.	82.	85.	89.	102.	84.	78.	87.	78.	115.	109.	91.	69.	69.
15	DISTANCE	4426.	3621.	3621.	3621.	3621.	3621.	4426.	3621.	3621.	3621.	4426.	3621.	3621.	3621.	3621.	3621.
16	ELEVATION	81.	92.	86.	87.	88.	90.	111.	87.	79.	92.	81.	122.	120.	91.	69.	69.
17	DISTANCE	5230.	4426.	4426.	4426.	4426.	4426.	5230.	4426.	4426.	4426.	5230.	4426.	4426.	4426.	4426.	4426.
18	ELEVATION	83.	95.	91.	91.	88.	90.	121.	91.	82.	99.	83.	122.	120.	91.	69.	69.
19	DISTANCE	6035.	5230.	5230.	5230.	5230.	5230.	6035.	5230.	5230.	5230.	6035.	5230.	5230.	5230.	5230.	5230.
20	ELEVATION	85.	95.	95.	91.	88.	91.	127.	96.	84.	109.	85.	122.	120.	91.	69.	69.
21	DISTANCE	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.	7644.
22	ELEVATION	87.	95.	95.	91.	88.	122.	133.	96.	91.	118.	101.	122.	120.	91.	69.	69.
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1 EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83  
2 NO DECAY, UNDEPLETED

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)											
DISTANCE IN MILES											
SECTOR	0.250	0.500	0.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.910E-05	5.784E-06	2.905E-06	1.860E-06	1.019E-06	6.929E-07	5.200E-07	4.114E-07	3.377E-07	2.847E-07	2.449E-07
SSW	9.853E-06	3.268E-06	1.772E-06	1.160E-06	6.398E-07	4.225E-07	3.071E-07	2.368E-07	1.901E-07	1.573E-07	1.331E-07
SW	5.799E-06	1.936E-06	1.055E-06	6.879E-07	3.766E-07	2.470E-07	1.786E-07	1.371E-07	1.097E-07	9.043E-08	7.633E-08
WSW	2.783E-06	9.223E-07	4.987E-07	3.229E-07	1.753E-07	1.144E-07	8.241E-08	6.309E-08	5.036E-08	4.146E-08	3.495E-08
W	3.635E-06	1.182E-06	6.361E-07	4.188E-07	2.334E-07	1.547E-07	1.127E-07	8.701E-08	6.996E-08	5.794E-08	4.909E-08
WNW	3.491E-06	1.153E-06	6.180E-07	4.015E-07	2.195E-07	1.443E-07	1.046E-07	8.052E-08	6.456E-08	5.335E-08	4.511E-08
NW	5.395E-06	1.735E-06	9.223E-07	6.000E-07	3.301E-07	2.190E-07	1.601E-07	1.240E-07	1.000E-07	8.307E-08	7.055E-08
NNW	1.602E-05	4.902E-06	2.542E-06	1.650E-06	9.139E-07	6.184E-07	4.606E-07	3.622E-07	2.958E-07	2.482E-07	2.128E-07
N	2.036E-05	6.203E-06	3.193E-06	2.081E-06	1.161E-06	7.875E-07	5.872E-07	4.622E-07	3.776E-07	3.171E-07	2.719E-07
NNE	1.696E-05	5.131E-06	2.616E-06	1.694E-06	9.384E-07	6.379E-07	4.773E-07	3.767E-07	3.085E-07	2.596E-07	2.230E-07
NE	1.035E-05	3.176E-06	1.651E-06	1.077E-06	5.997E-07	4.051E-07	3.009E-07	2.361E-07	1.924E-07	1.612E-07	1.380E-07
ENE	1.088E-05	3.396E-06	1.779E-06	1.169E-06	6.545E-07	4.404E-07	3.254E-07	2.542E-07	2.065E-07	1.725E-07	1.472E-07
E	9.159E-06	2.856E-06	1.496E-06	9.848E-07	5.528E-07	3.722E-07	2.750E-07	2.149E-07	1.745E-07	1.458E-07	1.244E-07
ESE	1.464E-05	4.417E-06	2.239E-06	1.451E-06	8.055E-07	5.487E-07	4.113E-07	3.251E-07	2.665E-07	2.245E-07	1.930E-07
SE	2.775E-05	8.197E-06	4.038E-06	2.578E-06	1.415E-06	9.724E-07	7.366E-07	5.871E-07	4.848E-07	4.107E-07	3.549E-07
SSE	5.248E-05	1.537E-05	7.492E-06	4.742E-06	2.584E-06	1.783E-06	1.359E-06	1.088E-06	9.014E-07	7.661E-07	6.637E-07
ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)											
DISTANCE IN MILES											
BEARING	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.142E-07	1.282E-07	8.932E-08	5.388E-08	3.776E-08	2.871E-08	2.297E-08	1.903E-08	1.618E-08	1.403E-08	1.235E-08
SSW	1.147E-07	6.495E-08	4.352E-08	2.488E-08	1.679E-08	1.241E-08	9.700E-09	7.885E-09	6.593E-09	5.634E-09	4.896E-09
SW	6.563E-08	3.686E-08	2.456E-08	1.394E-08	9.375E-09	6.906E-09	5.386E-09	4.369E-09	3.647E-09	3.112E-09	2.701E-09
WSW	3.002E-08	1.682E-08	1.120E-08	6.352E-09	4.275E-09	3.152E-09	2.461E-09	1.998E-09	1.669E-09	1.425E-09	1.238E-09
W	4.234E-08	2.404E-08	1.614E-08	9.254E-09	6.260E-09	4.631E-09	3.625E-09	2.949E-09	2.468E-09	2.110E-09	1.834E-09
WNW	3.885E-08	2.196E-08	1.470E-08	8.407E-09	5.687E-09	4.208E-09	3.295E-09	2.682E-09	2.246E-09	1.921E-09	1.672E-09
NW	6.099E-08	3.497E-08	2.365E-08	1.371E-08	9.360E-09	6.975E-09	5.492E-09	4.491E-09	3.775E-09	3.241E-09	2.828E-09
NNW	1.854E-07	1.095E-07	7.561E-08	4.504E-08	3.128E-08	2.362E-08	1.879E-08	1.550E-08	1.313E-08	1.134E-08	9.955E-09
N	2.371E-07	1.402E-07	9.684E-08	5.771E-08	4.010E-08	3.027E-08	2.409E-08	1.987E-08	1.683E-08	1.454E-08	1.276E-08
NNE	1.948E-07	1.159E-07	8.039E-08	4.820E-08	3.364E-08	2.548E-08	2.033E-08	1.681E-08	1.426E-08	1.234E-08	1.085E-08
NE	1.201E-07	7.065E-08	4.862E-08	2.884E-08	1.998E-08	1.505E-08	1.195E-08	9.846E-09	8.328E-09	7.187E-09	6.301E-09
ENE	1.278E-07	7.445E-08	5.088E-08	2.990E-08	2.057E-08	1.542E-08	1.220E-08	1.001E-08	8.445E-09	7.269E-09	6.359E-09
E	1.080E-07	6.290E-08	4.298E-08	2.524E-08	1.736E-08	1.301E-08	1.029E-08	8.440E-09	7.115E-09	6.123E-09	5.355E-09
ESE	1.686E-07	1.005E-07	6.984E-08	4.195E-08	2.930E-08	2.221E-08	1.773E-08	1.467E-08	1.245E-08	1.078E-08	9.475E-09
SE	3.115E-07	1.889E-07	1.327E-07	8.089E-08	5.708E-08	4.361E-08	3.502E-08	2.911E-08	2.482E-08	2.156E-08	1.902E-08
SSE	5.839E-07	3.569E-07	2.521E-07	1.548E-07	1.097E-07	8.411E-08	6.774E-08	5.643E-08	4.819E-08	4.194E-08	3.705E-08
CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT											
SEGMENT BOUNDARIES IN MILES											
DIRECTION FROM SITE	5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	
S	3.081E-06	1.061E-06	5.227E-07	3.386E-07	2.453E-07	1.300E-07	5.459E-08	2.882E-08	1.907E-08	1.404E-08	
SSW	1.833E-06	6.588E-07	3.098E-07	1.910E-07	1.335E-07	6.649E-08	2.543E-08	1.249E-08	7.912E-09	5.645E-09	
SW	1.088E-06	3.882E-07	1.802E-07	1.102E-07	7.655E-08	3.779E-08	1.427E-08	6.956E-09	4.385E-09	3.118E-09	
WSW	5.147E-07	1.810E-07	8.322E-08	5.061E-08	3.505E-08	1.726E-08	6.506E-09	3.175E-09	2.005E-09	1.428E-09	
W	6.607E-07	2.396E-07	1.136E-07	7.025E-08	4.921E-08	2.460E-08	9.454E-09	4.663E-09	2.959E-09	2.114E-09	
WNW	6.407E-07	2.266E-07	1.056E-07	6.485E-08	4.523E-08	2.249E-08	8.597E-09	4.237E-09	2.691E-09	1.925E-09	
NW	9.597E-07	3.407E-07	1.614E-07	1.004E-07	7.072E-08	3.572E-08	1.399E-08	7.018E-09	4.504E-09	3.246E-09	
NNW	2.670E-06	9.461E-07	4.633E-07	2.966E-07	2.132E-07	1.113E-07	4.572E-08	2.373E-08	1.554E-08	1.136E-08	
N	3.368E-06	1.199E-06	5.906E-07	3.787E-07	2.724E-07	1.425E-07	5.858E-08	3.042E-08	1.992E-08	1.456E-08	
NNE	2.765E-06	9.726E-07	4.799E-07	3.094E-07	2.234E-07	1.176E-07	4.888E-08	2.560E-08	1.685E-08	1.236E-08	
NE	1.735E-06	6.193E-07	3.027E-07	1.930E-07	1.383E-07	7.186E-08	2.930E-08	1.513E-08	9.870E-09	7.197E-09	
ENE	1.867E-06	6.736E-07	3.276E-07	2.072E-07	1.475E-07	7.584E-08	3.042E-08	1.551E-08	1.004E-08	7.280E-09	



1	E	1.571E-06	5.685E-07	2.769E-07	1.751E-07	1.247E-07	6.408E-08	2.568E-08	1.308E-08	8.463E-09	6.132E-09
2	ESE	2.373E-06	8.347E-07	4.135E-07	2.672E-07	1.933E-07	1.020E-07	4.253E-08	2.231E-08	1.470E-08	1.079E-08
3	SE	4.313E-06	1.477E-06	7.397E-07	4.858E-07	3.553E-07	1.911E-07	8.181E-08	4.377E-08	2.917E-08	2.159E-08
4	SSE	8.022E-06	2.708E-06	1.364E-06	9.031E-07	6.645E-07	3.608E-07	1.564E-07	8.439E-08	5.652E-08	4.198E-08
5											
6	VENT AND BUILDING PARAMETERS:										
7	RELEASE HEIGHT	(METERS)	0.0	REP. WIND HEIGHT		(METERS)	11.0				
8	DIAMETER	(METERS)	0.0	BUILDING HEIGHT		(METERS)	59.0				
9	EXIT VELOCITY	(METERS)	0.0	BLDG. MIN. CRS. SEC. AREA		(SQ. METERS)	1370.0				
10				HEAT EMISSION RATE		(CAL/SEC)	0.0				
11											
12	AT THE RELEASE HEIGHT:				AT THE MEASURED WIND HEIGHT ( 11.0 METERS):						
13	VENT RELEASE MODE	WIND SPEED (METERS/SEC)		VENT RELEASE MODE		WIND SPEED (METERS/SEC)		WIND SPEED (METERS/SEC)			
14						STABLE CONDITIONS		UNSTABLE/NEUTRAL CONDITIONS			
15	ELEVATED	LESS THAN 0.0		ELEVATED		LESS THAN 0.0		LESS THAN 0.0			
16	MIXED	BETWEEN 0.0 AND 0.0		MIXED		BETWEEN 0.0 AND 0.0		BETWEEN 0.0 AND 0.0			
17	GROUND LEVEL	ABOVE 0.0		GROUND LEVEL		ABOVE 0.0		ABOVE 0.0			
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1 EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83  
2 2.260 DAY DECAY, UNDEPLETED

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)		DISTANCE IN MILES									
SECTOR	0.250	0.500	0.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.903E-05	5.745E-06	2.877E-06	1.837E-06	9.998E-07	6.755E-07	5.035E-07	3.956E-07	3.225E-07	2.700E-07	2.307E-07
SSW	9.835E-06	3.257E-06	1.764E-06	1.153E-06	6.337E-07	4.171E-07	3.021E-07	2.321E-07	1.857E-07	1.531E-07	1.291E-07
SW	5.789E-06	1.930E-06	1.050E-06	6.836E-07	3.730E-07	2.439E-07	1.757E-07	1.344E-07	1.071E-07	8.805E-08	7.406E-08
WSW	2.779E-06	9.193E-07	4.963E-07	3.209E-07	1.737E-07	1.130E-07	8.109E-08	6.185E-08	4.920E-08	4.036E-08	3.390E-08
W	3.628E-06	1.177E-06	6.326E-07	4.158E-07	2.308E-07	1.524E-07	1.106E-07	8.505E-08	6.811E-08	5.619E-08	4.741E-08
WNW	3.484E-06	1.149E-06	6.148E-07	3.987E-07	2.173E-07	1.423E-07	1.028E-07	7.879E-08	6.293E-08	5.180E-08	4.363E-08
NW	5.384E-06	1.728E-06	9.169E-07	5.954E-07	3.263E-07	2.157E-07	1.570E-07	1.211E-07	9.723E-08	8.039E-08	6.798E-08
NNW	1.597E-05	4.873E-06	2.520E-06	1.632E-06	8.992E-07	6.050E-07	4.480E-07	3.502E-07	2.843E-07	2.372E-07	2.021E-07
N	2.030E-05	6.168E-06	3.167E-06	2.059E-06	1.143E-06	7.708E-07	5.715E-07	4.472E-07	3.633E-07	3.033E-07	2.586E-07
NNE	1.691E-05	5.099E-06	2.593E-06	1.674E-06	9.221E-07	6.230E-07	4.632E-07	3.633E-07	2.957E-07	2.472E-07	2.111E-07
NE	1.032E-05	3.158E-06	1.638E-06	1.066E-06	5.904E-07	3.967E-07	2.930E-07	2.286E-07	1.853E-07	1.544E-07	1.314E-07
ENE	1.086E-05	3.380E-06	1.766E-06	1.158E-06	6.454E-07	4.321E-07	3.177E-07	2.470E-07	1.996E-07	1.659E-07	1.409E-07
E	9.134E-06	2.842E-06	1.485E-06	9.752E-07	5.448E-07	3.649E-07	2.683E-07	2.085E-07	1.684E-07	1.400E-07	1.189E-07
ESE	1.459E-05	4.388E-06	2.218E-06	1.433E-06	7.908E-07	5.354E-07	3.987E-07	3.130E-07	2.550E-07	2.134E-07	1.822E-07
SE	2.764E-05	8.133E-06	3.992E-06	2.539E-06	1.384E-06	9.439E-07	7.095E-07	5.612E-07	4.598E-07	3.866E-07	3.315E-07
SSE	5.226E-05	1.525E-05	7.404E-06	4.669E-06	2.525E-06	1.729E-06	1.307E-06	1.038E-06	8.532E-07	7.194E-07	6.184E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)		DISTANCE IN MILES									
BEARING	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.004E-07	1.159E-07	7.807E-08	4.412E-08	2.906E-08	2.083E-08	1.576E-08	1.239E-08	1.002E-08	8.280E-09	6.967E-09
SSW	1.108E-07	6.158E-08	4.050E-08	2.232E-08	1.455E-08	1.039E-08	7.857E-09	6.188E-09	5.020E-09	4.165E-09	3.519E-09
SW	6.345E-08	3.501E-08	2.293E-08	1.258E-08	8.184E-09	5.840E-09	4.418E-09	3.481E-09	2.825E-09	2.345E-09	1.983E-09
WSW	2.901E-08	1.597E-08	1.044E-08	5.714E-09	3.717E-09	2.652E-09	2.006E-09	1.580E-09	1.282E-09	1.065E-09	9.001E-10
W	4.073E-08	2.267E-08	1.493E-08	8.233E-09	5.367E-09	3.831E-09	2.897E-09	2.281E-09	1.849E-09	1.533E-09	1.294E-09
WNW	3.742E-08	2.074E-08	1.361E-08	7.488E-09	4.880E-09	3.484E-09	2.636E-09	2.076E-09	1.684E-09	1.397E-09	1.180E-09
NW	5.851E-08	3.282E-08	2.172E-08	1.206E-08	7.901E-09	5.660E-09	4.292E-09	3.386E-09	2.750E-09	2.284E-09	1.931E-09
NNW	1.751E-07	1.004E-07	6.733E-08	3.790E-08	2.494E-08	1.789E-08	1.356E-08	1.068E-08	8.653E-09	7.169E-09	6.045E-09
N	2.242E-07	1.288E-07	8.650E-08	4.880E-08	3.218E-08	2.312E-08	1.754E-08	1.383E-08	1.122E-08	9.308E-09	7.856E-09
NNE	1.831E-07	1.056E-07	7.101E-08	4.009E-08	2.642E-08	1.896E-08	1.437E-08	1.131E-08	9.160E-09	7.584E-09	6.390E-09
NE	1.137E-07	6.503E-08	4.352E-08	2.446E-08	1.610E-08	1.155E-08	8.757E-09	6.900E-09	5.595E-09	4.638E-09	3.913E-09
ENE	1.217E-07	6.909E-08	4.605E-08	2.577E-08	1.692E-08	1.213E-08	9.195E-09	7.245E-09	5.876E-09	4.871E-09	4.110E-09
E	1.027E-07	5.823E-08	3.878E-08	2.166E-08	1.420E-08	1.016E-08	7.693E-09	6.053E-09	4.902E-09	4.059E-09	3.420E-09
ESE	1.582E-07	9.132E-08	6.145E-08	3.470E-08	2.285E-08	1.639E-08	1.241E-08	9.759E-09	7.897E-09	6.532E-09	5.499E-09
SE	2.887E-07	1.686E-07	1.141E-07	6.479E-08	4.273E-08	3.062E-08	2.314E-08	1.816E-08	1.466E-08	1.210E-08	1.016E-08
SSE	5.397E-07	3.174E-07	2.158E-07	1.232E-07	8.151E-08	5.853E-08	4.432E-08	3.484E-08	2.817E-08	2.327E-08	1.957E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT											
		SEGMENT BOUNDARIES IN MILES									
DIRECTION	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	
FROM SITE											
S	3.052E-06	1.042E-06	5.062E-07	3.234E-07	2.311E-07	1.179E-07	4.497E-08	2.100E-08	1.245E-08	8.308E-09	
SSW	1.824E-06	6.528E-07	3.048E-07	1.865E-07	1.294E-07	6.316E-08	2.291E-08	1.048E-08	6.220E-09	4.179E-09	
SW	1.083E-06	3.846E-07	1.773E-07	1.076E-07	7.428E-08	3.596E-08	1.292E-08	5.896E-09	3.499E-09	2.353E-09	
WSW	5.123E-07	1.794E-07	8.190E-08	4.945E-08	3.400E-08	1.641E-08	5.876E-09	2.678E-09	1.588E-09	1.068E-09	
W	6.572E-07	2.371E-07	1.115E-07	6.841E-08	4.754E-08	2.324E-08	8.447E-09	3.867E-09	2.292E-09	1.538E-09	
WNW	6.375E-07	2.243E-07	1.037E-07	6.322E-08	4.375E-08	2.128E-08	7.690E-09	3.517E-09	2.087E-09	1.402E-09	
NW	9.543E-07	3.369E-07	1.583E-07	9.763E-08	6.815E-08	3.359E-08	1.236E-08	5.710E-09	3.402E-09	2.291E-09	
NNW	2.648E-06	9.313E-07	4.508E-07	2.852E-07	2.025E-07	1.023E-07	3.868E-08	1.804E-08	1.073E-08	7.193E-09	
N	3.341E-06	1.181E-06	5.749E-07	3.644E-07	2.591E-07	1.312E-07	4.979E-08	2.330E-08	1.390E-08	9.338E-09	
NNE	2.741E-06	9.561E-07	4.659E-07	2.965E-07	2.114E-07	1.074E-07	4.089E-08	1.911E-08	1.136E-08	7.609E-09	
NE	1.722E-06	6.100E-07	2.949E-07	1.859E-07	1.317E-07	6.629E-08	2.498E-08	1.164E-08	6.933E-09	4.653E-09	
ENE	1.854E-06	6.645E-07	3.199E-07	2.003E-07	1.412E-07	7.054E-08	2.634E-08	1.223E-08	7.280E-09	4.887E-09	

1	E	1.560E-06	5.605E-07	2.701E-07	1.690E-07	1.191E-07	5.946E-08	2.215E-08	1.025E-08	6.083E-09	4.072E-09
2	ESE	2.351E-06	8.199E-07	4.009E-07	2.557E-07	1.825E-07	9.290E-08	3.538E-08	1.652E-08	9.807E-09	6.554E-09
3	SE	4.266E-06	1.445E-06	7.127E-07	4.609E-07	3.320E-07	1.711E-07	6.594E-08	3.086E-08	1.825E-08	1.214E-08
4	SSE	7.932E-06	2.647E-06	1.312E-06	8.550E-07	6.192E-07	3.217E-07	1.253E-07	5.898E-08	3.501E-08	2.335E-08
5											
6	VENT AND BUILDING PARAMETERS:										
7	RELEASE HEIGHT	(METERS)	0.0	REP. WIND HEIGHT		(METERS)	11.0				
8	DIAMETER	(METERS)	0.0	BUILDING HEIGHT		(METERS)	59.0				
9	EXIT VELOCITY	(METERS)	0.0	BLDG. MIN. CRS. SEC. AREA		(SQ. METERS)	1370.0				
10				HEAT EMISSION RATE		(CAL/SEC)	0.0				
11											
12	AT THE RELEASE HEIGHT:			AT THE MEASURED WIND HEIGHT ( 11.0 METERS):							
13	VENT RELEASE MODE	WIND SPEED (METERS/SEC)		VENT RELEASE MODE	WIND SPEED (METERS/SEC)		WIND SPEED (METERS/SEC)				
14							STABLE CONDITIONS				
15	ELEVATED	LESS THAN	0.0	ELEVATED	LESS THAN	0.0	UNSTABLE/NEUTRAL CONDITIONS				
16	MIXED	BETWEEN	0.0 AND 0.0	MIXED	BETWEEN	0.0 AND 0.0	LESS THAN 0.0				
17	GROUND LEVEL	ABOVE	0.0	GROUND LEVEL	ABOVE	0.0	BETWEEN 0.0 AND 0.0				
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1 EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83  
2 8.000 DAY DECAY, DEPLETED

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)				DISTANCE IN MILES							
SECTOR	0.250	0.500	0.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.806E-05	5.272E-06	2.582E-06	1.623E-06	8.606E-07	5.696E-07	4.173E-07	3.232E-07	2.600E-07	2.152E-07	1.820E-07
SSW	9.320E-06	2.981E-06	1.577E-06	1.014E-06	5.419E-07	3.486E-07	2.476E-07	1.870E-07	1.474E-07	1.198E-07	9.977E-08
SW	5.485E-06	1.766E-06	9.389E-07	6.011E-07	3.190E-07	2.038E-07	1.440E-07	1.083E-07	8.499E-08	6.889E-08	5.721E-08
WSW	2.633E-06	8.415E-07	4.438E-07	2.821E-07	1.485E-07	9.440E-08	6.645E-08	4.983E-08	3.904E-08	3.158E-08	2.619E-08
W	3.438E-06	1.078E-06	5.659E-07	3.659E-07	1.976E-07	1.276E-07	9.078E-08	6.866E-08	5.417E-08	4.409E-08	3.674E-08
WNW	3.302E-06	1.052E-06	5.499E-07	3.508E-07	1.859E-07	1.191E-07	8.433E-08	6.356E-08	5.001E-08	4.061E-08	3.378E-08
NW	5.103E-06	1.583E-06	8.205E-07	5.241E-07	2.794E-07	1.806E-07	1.290E-07	9.785E-08	7.742E-08	6.317E-08	5.277E-08
NNW	1.515E-05	4.469E-06	2.260E-06	1.440E-06	7.726E-07	5.089E-07	3.701E-07	2.849E-07	2.282E-07	1.881E-07	1.585E-07
N	1.926E-05	5.656E-06	2.839E-06	1.816E-06	9.814E-07	6.481E-07	4.720E-07	3.637E-07	2.914E-07	2.403E-07	2.026E-07
NNE	1.604E-05	4.677E-06	2.325E-06	1.477E-06	7.930E-07	5.246E-07	3.833E-07	2.961E-07	2.378E-07	1.965E-07	1.660E-07
NE	9.786E-06	2.896E-06	1.468E-06	9.401E-07	5.070E-07	3.334E-07	2.419E-07	1.858E-07	1.485E-07	1.222E-07	1.029E-07
ENE	1.029E-05	3.097E-06	1.582E-06	1.020E-06	5.536E-07	3.627E-07	2.618E-07	2.003E-07	1.595E-07	1.309E-07	1.099E-07
E	8.661E-06	2.604E-06	1.331E-06	8.597E-07	4.675E-07	3.065E-07	2.212E-07	1.692E-07	1.348E-07	1.106E-07	9.284E-08
ESE	1.384E-05	4.026E-06	1.990E-06	1.265E-06	6.805E-07	4.512E-07	3.302E-07	2.554E-07	2.053E-07	1.698E-07	1.435E-07
SE	2.623E-05	7.469E-06	3.586E-06	2.247E-06	1.194E-06	7.984E-07	5.904E-07	4.604E-07	3.726E-07	3.098E-07	2.631E-07
SSE	4.961E-05	1.401E-05	6.654E-06	4.133E-06	2.180E-06	1.464E-06	1.088E-06	8.525E-07	6.924E-07	5.775E-07	4.917E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)				DISTANCE IN MILES							
BEARING	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.566E-07	8.776E-08	5.767E-08	3.154E-08	2.034E-08	1.435E-08	1.073E-08	8.340E-09	6.678E-09	5.468E-09	4.557E-09
SSW	8.468E-08	4.508E-08	2.862E-08	1.497E-08	9.380E-09	6.489E-09	4.779E-09	3.675E-09	2.918E-09	2.373E-09	1.968E-09
SW	4.845E-08	2.560E-08	1.617E-08	8.404E-09	5.251E-09	3.626E-09	2.667E-09	2.049E-09	1.626E-09	1.322E-09	1.096E-09
WSW	2.216E-08	1.168E-08	7.367E-09	3.825E-09	2.391E-09	1.652E-09	1.215E-09	9.340E-10	7.412E-10	6.028E-10	4.999E-10
W	3.121E-08	1.666E-08	1.060E-08	5.555E-09	3.487E-09	2.415E-09	1.780E-09	1.370E-09	1.088E-09	8.856E-10	7.346E-10
WNW	2.865E-08	1.522E-08	9.655E-09	5.048E-09	3.168E-09	2.194E-09	1.618E-09	1.245E-09	9.893E-10	8.053E-10	6.681E-10
NW	4.492E-08	2.420E-08	1.549E-08	8.201E-09	5.186E-09	3.611E-09	2.673E-09	2.065E-09	1.645E-09	1.342E-09	1.115E-09
NNW	1.360E-07	7.528E-08	4.908E-08	2.658E-08	1.703E-08	1.197E-08	8.918E-09	6.921E-09	5.533E-09	4.525E-09	3.769E-09
N	1.739E-07	9.642E-08	6.292E-08	3.411E-08	2.187E-08	1.538E-08	1.147E-08	8.903E-09	7.122E-09	5.828E-09	4.856E-09
NNE	1.426E-07	7.950E-08	5.206E-08	2.835E-08	1.823E-08	1.284E-08	9.586E-09	7.449E-09	5.961E-09	4.879E-09	4.066E-09
NE	8.814E-08	4.861E-08	3.161E-08	1.706E-08	1.091E-08	7.659E-09	5.702E-09	4.422E-09	3.534E-09	2.889E-09	2.406E-09
ENE	9.394E-08	5.135E-08	3.319E-08	1.777E-08	1.131E-08	7.912E-09	5.876E-09	4.548E-09	3.629E-09	2.964E-09	2.466E-09
E	7.935E-08	4.336E-08	2.801E-08	1.499E-08	9.531E-09	6.662E-09	4.944E-09	3.824E-09	3.050E-09	2.490E-09	2.070E-09
ESE	1.234E-07	6.892E-08	4.518E-08	2.463E-08	1.585E-08	1.117E-08	8.337E-09	6.478E-09	5.184E-09	4.243E-09	3.536E-09
SE	2.272E-07	1.288E-07	8.526E-08	4.705E-08	3.050E-08	2.159E-08	1.618E-08	1.260E-08	1.010E-08	8.278E-09	6.903E-09
SSE	4.254E-07	2.432E-07	1.618E-07	8.986E-08	5.848E-08	4.153E-08	3.118E-08	2.433E-08	1.953E-08	1.603E-08	1.338E-08

45 CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

CH1/Q (SEC/METER CODED) FOR EACH SEGMENT										
		SEGMENT BOUNDARIES IN MILES								
DIRECTION	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
FROM SITE										
S	2.753E-06	9.006E-07	4.203E-07	2.610E-07	1.825E-07	8.969E-08	3.237E-08	1.450E-08	8.388E-09	5.489E-09
SSW	1.639E-06	5.608E-07	2.503E-07	1.482E-07	1.001E-07	4.656E-08	1.552E-08	6.576E-09	3.702E-09	2.384E-09
SW	9.726E-07	3.305E-07	1.456E-07	8.550E-08	5.743E-08	2.649E-08	8.728E-09	3.676E-09	2.064E-09	1.328E-09
WSW	4.603E-07	1.541E-07	6.725E-08	3.928E-08	2.630E-08	1.209E-08	3.975E-09	1.674E-09	9.409E-10	6.057E-10
W	5.908E-07	2.039E-07	9.175E-08	5.447E-08	3.687E-08	1.720E-08	5.757E-09	2.447E-09	1.380E-09	8.897E-10
WNW	5.730E-07	1.928E-07	8.528E-08	5.030E-08	3.390E-08	1.573E-08	5.236E-09	2.223E-09	1.254E-09	8.090E-10
NW	8.581E-07	2.899E-07	1.303E-07	7.783E-08	5.294E-08	2.493E-08	8.481E-09	3.656E-09	2.079E-09	1.348E-09
NNW	2.386E-06	8.036E-07	3.731E-07	2.291E-07	1.589E-07	7.712E-08	2.734E-08	1.210E-08	6.963E-09	4.544E-09
N	3.010E-06	1.019E-06	4.756E-07	2.926E-07	2.032E-07	9.874E-08	3.507E-08	1.555E-08	8.957E-09	5.851E-09
NNE	2.471E-06	8.258E-07	3.861E-07	2.388E-07	1.664E-07	8.133E-08	2.912E-08	1.298E-08	7.493E-09	4.899E-09
NE	1.551E-06	5.261E-07	2.439E-07	1.492E-07	1.032E-07	4.984E-08	1.756E-08	7.743E-09	4.449E-09	2.901E-09
ENE	1.669E-06	5.725E-07	2.641E-07	1.603E-07	1.102E-07	5.274E-08	1.833E-08	8.004E-09	4.577E-09	2.977E-09

1	E	1.404E-06	4.831E-07	2.231E-07	1.354E-07	9.311E-08	4.453E-08	1.546E-08	6.740E-09	3.849E-09	2.500E-09
2	ESE	2.120E-06	7.086E-07	3.326E-07	2.061E-07	1.439E-07	7.047E-08	2.529E-08	1.128E-08	6.516E-09	4.260E-09
3	SE	3.854E-06	1.252E-06	5.938E-07	3.738E-07	2.636E-07	1.313E-07	4.818E-08	2.180E-08	1.267E-08	8.309E-09
4	SSE	7.168E-06	2.296E-06	1.094E-06	6.944E-07	4.926E-07	2.475E-07	9.190E-08	4.191E-08	2.446E-08	1.608E-08
5											
6	VENT AND BUILDING PARAMETERS:										
7	RELEASE HEIGHT	(METERS)	0.0	REP. WIND HEIGHT		(METERS)	11.0				
8	DIAMETER	(METERS)	0.0	BUILDING HEIGHT		(METERS)	59.0				
9	EXIT VELOCITY	(METERS)	0.0	BLDG. MIN. CRS. SEC. AREA		(SQ. METERS)	1370.0				
10				HEAT EMISSION RATE		(CAL/SEC)	0.0				
11											
12	AT THE RELEASE HEIGHT:					AT THE MEASURED WIND HEIGHT ( 11.0 METERS):					
13	VENT RELEASE MODE	WIND SPEED (METERS/SEC)			VENT RELEASE MODE	WIND SPEED (METERS/SEC)			WIND SPEED (METERS/SEC)		
14						STABLE CONDITIONS			UNSTABLE/NEUTRAL CONDITIONS		
15	ELEVATED	LESS THAN	0.0		ELEVATED	LESS THAN	0.0		LESS THAN	0.0	
16	MIXED	BETWEEN	0.0	AND 0.0	MIXED	BETWEEN	0.0	AND 0.0	BETWEEN	0.0	AND 0.0
17	GROUND LEVEL	ABOVE	0.0		GROUND LEVEL	ABOVE	0.0		ABOVE	0.0	
18											
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1 EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83

2 \*\*\*\*\* RELATIVE DEPOSITION PER UNIT AREA (M\*\*-2) AT FIXED POINTS BY DOWNWIND SECTORS \*\*\*\*\*

3 DIRECTION	DISTANCES IN MILES										
4 FROM SITE	0.25	0.50	0.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
5 S	4.743E-08	1.604E-08	8.235E-09	5.057E-09	2.521E-09	1.529E-09	1.034E-09	7.491E-10	5.696E-10	4.488E-10	3.633E-10
6 SSW	5.954E-08	2.013E-08	1.034E-08	6.348E-09	3.165E-09	1.919E-09	1.298E-09	9.403E-10	7.150E-10	5.633E-10	4.560E-10
7 SW	3.399E-08	1.149E-08	5.902E-09	3.624E-09	1.807E-09	1.096E-09	7.409E-10	5.369E-10	4.082E-10	3.216E-10	2.604E-10
8 WSW	1.713E-08	5.792E-09	2.974E-09	1.826E-09	9.103E-10	5.521E-10	3.733E-10	2.705E-10	2.057E-10	1.620E-10	1.312E-10
9 W	1.538E-08	5.201E-09	2.670E-09	1.640E-09	8.174E-10	4.958E-10	3.352E-10	2.429E-10	1.847E-10	1.455E-10	1.178E-10
10 WNW	1.798E-08	6.080E-09	3.122E-09	1.917E-09	9.556E-10	5.796E-10	3.919E-10	2.840E-10	2.159E-10	1.701E-10	1.377E-10
11 NW	2.658E-08	8.987E-09	4.615E-09	2.834E-09	1.413E-09	8.568E-10	5.793E-10	4.198E-10	3.192E-10	2.515E-10	2.036E-10
12 NNW	4.321E-08	1.461E-08	7.502E-09	4.607E-09	2.297E-09	1.393E-09	9.417E-10	6.824E-10	5.189E-10	4.088E-10	3.310E-10
13 N	5.560E-08	1.880E-08	9.654E-09	5.928E-09	2.955E-09	1.792E-09	1.212E-09	8.782E-10	6.678E-10	5.261E-10	4.259E-10
14 NNE	4.164E-08	1.408E-08	7.230E-09	4.439E-09	2.213E-09	1.342E-09	9.076E-10	6.577E-10	5.001E-10	3.940E-10	3.189E-10
15 NE	3.015E-08	1.020E-08	5.236E-09	3.215E-09	1.603E-09	9.721E-10	6.572E-10	4.762E-10	3.621E-10	2.853E-10	2.310E-10
16 ENE	3.412E-08	1.154E-08	5.923E-09	3.637E-09	1.813E-09	1.100E-09	7.436E-10	5.388E-10	4.097E-10	3.228E-10	2.613E-10
17 E	2.500E-08	8.452E-09	4.340E-09	2.665E-09	1.329E-09	8.058E-10	5.448E-10	3.948E-10	3.002E-10	2.365E-10	1.915E-10
18 ESE	2.809E-08	9.499E-09	4.877E-09	2.995E-09	1.493E-09	9.055E-10	6.122E-10	4.437E-10	3.373E-10	2.658E-10	2.152E-10
19 SE	3.804E-08	1.286E-08	6.604E-09	4.055E-09	2.022E-09	1.226E-09	8.290E-10	6.007E-10	4.568E-10	3.599E-10	2.913E-10
20 SSE	6.522E-08	2.205E-08	1.132E-08	6.953E-09	3.466E-09	2.102E-09	1.421E-09	1.030E-09	7.832E-10	6.171E-10	4.995E-10

22 DIRECTION	DISTANCES IN MILES										
23 FROM SITE	5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
24 S	3.005E-10	1.473E-10	9.240E-11	4.671E-11	2.827E-11	1.895E-11	1.358E-11	1.020E-11	7.929E-12	6.334E-12	5.170E-12
25 SSW	3.772E-10	1.849E-10	1.160E-10	5.863E-11	3.548E-11	2.379E-11	1.705E-11	1.280E-11	9.953E-12	7.951E-12	6.489E-12
26 SW	2.154E-10	1.055E-10	6.622E-11	3.347E-11	2.026E-11	1.358E-11	9.733E-12	7.308E-12	5.682E-12	4.539E-12	3.705E-12
27 WSW	1.085E-10	5.318E-11	3.337E-11	1.686E-11	1.021E-11	6.844E-12	4.904E-12	3.682E-12	2.863E-12	2.287E-12	1.867E-12
28 W	9.744E-11	4.775E-11	2.996E-11	1.514E-11	9.166E-12	6.146E-12	4.404E-12	3.307E-12	2.571E-12	2.054E-12	1.676E-12
29 WNW	1.139E-10	5.582E-11	3.503E-11	1.770E-11	1.072E-11	7.185E-12	5.148E-12	3.866E-12	3.006E-12	2.401E-12	1.960E-12
30 NW	1.684E-10	8.252E-11	5.178E-11	2.617E-11	1.584E-11	1.062E-11	7.610E-12	5.714E-12	4.443E-12	3.549E-12	2.897E-12
31 NNW	2.738E-10	1.342E-10	8.418E-11	4.255E-11	2.575E-11	1.727E-11	1.237E-11	9.290E-12	7.223E-12	5.770E-12	4.710E-12
32 N	3.523E-10	1.726E-10	1.083E-10	5.475E-11	3.314E-11	2.222E-11	1.592E-11	1.195E-11	9.295E-12	7.425E-12	6.061E-12
33 NNE	2.638E-10	1.293E-10	8.112E-11	4.100E-11	2.482E-11	1.664E-11	1.192E-11	8.953E-12	6.961E-12	5.561E-12	4.539E-12
34 NE	1.911E-10	9.362E-11	5.874E-11	2.969E-11	1.797E-11	1.205E-11	8.634E-12	6.483E-12	5.041E-12	4.027E-12	3.287E-12
35 ENE	2.162E-10	1.059E-10	6.646E-11	3.359E-11	2.033E-11	1.363E-11	9.768E-12	7.335E-12	5.703E-12	4.556E-12	3.718E-12
36 E	1.584E-10	7.761E-11	4.869E-11	2.461E-11	1.490E-11	9.988E-12	7.157E-12	5.374E-12	4.178E-12	3.338E-12	2.724E-12
37 ESE	1.780E-10	8.722E-11	5.472E-11	2.766E-11	1.674E-11	1.122E-11	8.043E-12	6.040E-12	4.696E-12	3.751E-12	3.062E-12
38 SE	2.410E-10	1.181E-10	7.410E-11	3.745E-11	2.267E-11	1.520E-11	1.089E-11	8.178E-12	6.359E-12	5.079E-12	4.146E-12
39 SSE	4.132E-10	2.025E-10	1.271E-10	6.422E-11	3.887E-11	2.606E-11	1.867E-11	1.402E-11	1.090E-11	8.709E-12	7.109E-12

41 \*\*\*\*\* RELATIVE DEPOSITION PER UNIT AREA (M\*\*-2) BY DOWNWIND SECTORS \*\*\*\*\*

42	SEGMENT BOUNDARIES IN MILES										
43	DIRECTION	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
44	FROM SITE										
45	S	8.557E-09	2.644E-09	1.052E-09	5.749E-10	3.654E-10	1.569E-10	4.867E-11	1.929E-11	1.030E-11	6.375E-12
46	SSW	1.074E-08	3.318E-09	1.320E-09	7.216E-10	4.586E-10	1.970E-10	6.109E-11	2.421E-11	1.293E-11	8.003E-12
47	SW	6.132E-09	1.895E-09	7.539E-10	4.120E-10	2.618E-10	1.125E-10	3.488E-11	1.382E-11	7.382E-12	4.569E-12
48	WSW	3.090E-09	9.546E-10	3.799E-10	2.076E-10	1.319E-10	5.667E-11	1.757E-11	6.965E-12	3.719E-12	2.302E-12
49	W	2.775E-09	8.572E-10	3.411E-10	1.864E-10	1.185E-10	5.089E-11	1.578E-11	6.254E-12	3.340E-12	2.067E-12
50	WNW	3.244E-09	1.002E-09	3.988E-10	2.179E-10	1.385E-10	5.949E-11	1.845E-11	7.312E-12	3.904E-12	2.417E-12
51	NW	4.795E-09	1.481E-09	5.895E-10	3.221E-10	2.047E-10	8.794E-11	2.727E-11	1.081E-11	5.772E-12	3.572E-12
52	NNW	7.795E-09	2.408E-09	9.583E-10	5.237E-10	3.328E-10	1.430E-10	4.433E-11	1.757E-11	9.383E-12	5.808E-12
53	N	1.003E-08	3.099E-09	1.233E-09	6.739E-10	4.283E-10	1.840E-10	5.705E-11	2.261E-11	1.207E-11	7.474E-12
54	NNE	7.512E-09	2.321E-09	9.235E-10	5.047E-10	3.208E-10	1.378E-10	4.272E-11	1.693E-11	9.043E-12	5.597E-12
55	NE	5.440E-09	1.681E-09	6.688E-10	3.655E-10	2.323E-10	9.977E-11	3.094E-11	1.226E-11	6.548E-12	4.053E-12
56	ENE	6.155E-09	1.901E-09	7.567E-10	4.135E-10	2.628E-10	1.129E-10	3.500E-11	1.387E-11	7.409E-12	4.586E-12
57	E	4.509E-09	1.393E-09	5.544E-10	3.029E-10	1.925E-10	8.270E-11	2.565E-11	1.016E-11	5.428E-12	3.360E-12
58	ESE	5.068E-09	1.566E-09	6.230E-10	3.405E-10	2.164E-10	9.295E-11	2.882E-11	1.142E-11	6.100E-12	3.776E-12
59	SE	6.862E-09	2.120E-09	8.436E-10	4.610E-10	2.930E-10	1.259E-10	3.903E-11	1.547E-11	8.260E-12	5.113E-12
60	SSE	1.177E-08	3.635E-09	1.446E-09	7.904E-10	5.024E-10	2.158E-10	6.692E-11	2.652E-11	1.416E-11	8.766E-12

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2 VENT AND BUILDING PARAMETERS:

3 RELEASE HEIGHT (METERS) 0.0

4 DIAMETER (METERS) 0.0

5 EXIT VELOCITY (METERS) 0.0

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8 AT THE RELEASE HEIGHT:

9 VENT RELEASE MODE WIND SPEED (METERS/SEC)

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11 ELEVATED LESS THAN 0.0

12 MIXED BETWEEN 0.0 AND 0.0

13 GROUND LEVEL ABOVE 0.0

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REP. WIND HEIGHT (METERS) 11.0

BUILDING HEIGHT (METERS) 59.0

BLDG. MIN. CRS. SEC. AREA (SQ. METERS) 1370.0

HEAT EMISSION RATE (CAL/SEC) 0.0

AT THE MEASURED WIND HEIGHT ( 11.0 METERS):

VENT RELEASE MODE WIND SPEED (METERS/SEC)

STABLE CONDITIONS

UNSTABLE/NEUTRAL CONDITIONS

ELEVATED LESS THAN 0.0

MIXED BETWEEN 0.0 AND 0.0

GROUND LEVEL ABOVE 0.0

LESS THAN 0.0

BETWEEN 0.0 AND 0.0

ABOVE 0.0

1 EXIT ONE GROUND LEVEL RELEASE JAN-JUN 83  
2 SPECIFIC POINTS OF INTEREST

RELEASE	TYPE OF	DIRECTION	DISTANCE		X/Q	X/Q	X/Q	D/Q
ID	LOCATION		(MILES)	(METERS)	(SEC/CUB.METER)	(SEC/CUB.METER)	(SEC/CUB.METER)	(PER SQ.METER)
					NO DECAY 2.260 DAY DECAY			
					UNDEPLETED	UNDEPLETED	DEPLETED	
8	A	SITE BOUNDARY	S	0.28	451.	1.6E-05	1.6E-05	1.5E-05
9	A	SITE BOUNDARY	SSW	0.29	467.	7.6E-06	7.6E-06	7.2E-06
10	A	SITE BOUNDARY	SW	0.36	579.	3.2E-06	3.2E-06	3.0E-06
11	A	SITE BOUNDARY	WSW	0.36	579.	1.5E-06	1.5E-06	1.4E-06
12	A	SITE BOUNDARY	W	0.50	805.	1.2E-06	1.2E-06	1.1E-06
13	A	SITE BOUNDARY	WNW	0.55	885.	1.0E-06	9.9E-07	9.0E-07
14	A	SITE BOUNDARY	NW	1.23	1979.	4.4E-07	4.4E-07	3.8E-07
15	A	SITE BOUNDARY	NNW	1.89	3042.	6.7E-07	6.5E-07	5.5E-07
16	A	SITE BOUNDARY	N	1.94	3122.	8.2E-07	8.0E-07	6.8E-07
17	A	SITE BOUNDARY	NNE	1.26	2028.	1.2E-06	1.2E-06	1.0E-06
18	A	SITE BOUNDARY	NE	1.01	1625.	1.1E-06	1.1E-06	9.3E-07
19	A	SITE BOUNDARY	ENE	0.86	1384.	1.5E-06	1.4E-06	1.3E-06
20	A	SITE BOUNDARY	E	0.61	982.	2.1E-06	2.1E-06	1.9E-06
21	A	SITE BOUNDARY	ESE	0.50	805.	4.4E-06	4.4E-06	4.0E-06
22	A	SITE BOUNDARY	SE	0.29	467.	2.1E-05	2.1E-05	2.0E-05
23	A	SITE BOUNDARY	SSE	0.26	418.	4.9E-05	4.9E-05	4.6E-05
24	A	MILK COW	NE	1.30	2092.	7.4E-07	7.3E-07	6.3E-07
25	A	MILK COW	E	4.20	6759.	1.4E-07	1.3E-07	1.0E-07
26	A	MEAT ANIMAL	S	2.32	3734.	5.7E-07	5.6E-07	4.6E-07
27	A	MEAT ANIMAL	SSW	2.08	3347.	4.0E-07	3.9E-07	3.3E-07
28	A	MEAT ANIMAL	SW	2.27	3653.	2.1E-07	2.0E-07	1.7E-07
29	A	MEAT ANIMAL	WSW	2.69	4329.	7.4E-08	7.3E-08	5.9E-08
30	A	MEAT ANIMAL	W	3.97	6389.	5.9E-08	5.7E-08	4.5E-08
31	A	MEAT ANIMAL	WNW	4.07	6550.	5.2E-08	5.1E-08	4.0E-08
32	A	MEAT ANIMAL	NW	1.60	2575.	3.0E-07	3.0E-07	2.5E-07
33	A	MEAT ANIMAL	NNW	2.84	4571.	3.9E-07	3.8E-07	3.1E-07
34	A	MEAT ANIMAL	N	2.93	4715.	4.8E-07	4.6E-07	3.8E-07
35	A	MEAT ANIMAL	NNE	1.65	2655.	8.2E-07	8.0E-07	6.9E-07
36	A	MEAT ANIMAL	NE	1.16	1867.	8.7E-07	8.6E-07	7.5E-07
37	A	MEAT ANIMAL	ENE	2.41	3879.	3.4E-07	3.3E-07	2.8E-07
38	A	MEAT ANIMAL	E	3.12	5021.	2.0E-07	2.0E-07	1.6E-07
39	A	MEAT ANIMAL	ESE	1.99	3203.	5.5E-07	5.4E-07	4.5E-07
40	A	RESIDENT	S	0.30	483.	1.4E-05	1.4E-05	1.3E-05
41	A	RESIDENT	SSW	0.30	483.	7.3E-06	7.2E-06	6.8E-06
42	A	RESIDENT	SW	0.40	644.	2.7E-06	2.7E-06	2.5E-06
43	A	RESIDENT	WSW	0.40	644.	1.3E-06	1.3E-06	1.2E-06
44	A	RESIDENT	W	0.60	966.	9.0E-07	8.9E-07	8.1E-07
45	A	RESIDENT	WNW	0.70	1127.	6.9E-07	6.8E-07	6.1E-07
46	A	RESIDENT	NW	1.30	2092.	4.1E-07	4.0E-07	3.5E-07
47	A	RESIDENT	NNW	2.90	4667.	3.8E-07	3.7E-07	3.0E-07
48	A	RESIDENT	N	2.90	4667.	4.8E-07	4.7E-07	3.8E-07
49	A	RESIDENT	NNE	1.30	2092.	1.2E-06	1.1E-06	9.9E-07
50	A	RESIDENT	NE	1.20	1931.	8.3E-07	8.2E-07	7.1E-07
51	A	RESIDENT	ENE	0.90	1448.	1.4E-06	1.3E-06	1.2E-06
52	A	RESIDENT	E	0.80	1287.	1.4E-06	1.3E-06	1.2E-06
53	A	RESIDENT	ESE	0.60	966.	3.3E-06	3.2E-06	2.9E-06
54	A	RESIDENT	SE	0.30	483.	2.0E-05	2.0E-05	1.9E-05
55	A	RESIDENT	SSE	0.30	483.	3.8E-05	3.8E-05	3.6E-05
56	A	GARDEN	S	0.40	644.	8.4E-06	8.4E-06	7.8E-06
57	A	GARDEN	SSW	0.50	805.	3.3E-06	3.3E-06	3.0E-06
58	A	GARDEN	SW	0.50	805.	1.9E-06	1.9E-06	1.8E-06
59	A	GARDEN	WSW	0.60	966.	7.0E-07	7.0E-07	6.3E-07
60	A	GARDEN	W	0.60	966.	9.0E-07	8.9E-07	8.1E-07



1	A	GARDEN	WNW	0.90	1448.	4.7E-07	4.7E-07	4.1E-07	2.3E-09
2	A	GARDEN	NW	1.30	2092.	4.1E-07	4.0E-07	3.5E-07	1.8E-09
3	A	GARDEN	NNW	3.00	4828.	3.6E-07	3.5E-07	2.8E-07	6.8E-10
4	A	GARDEN	N	2.90	4667.	4.8E-07	4.7E-07	3.8E-07	9.3E-10
5	A	GARDEN	NNE	1.40	2253.	1.0E-06	1.0E-06	8.8E-07	2.5E-09
6	A	GARDEN	NE	1.30	2092.	7.4E-07	7.3E-07	6.3E-07	2.1E-09
7	A	GARDEN	ENE	2.20	3541.	3.9E-07	3.8E-07	3.2E-07	9.3E-10
8	A	GARDEN	E	2.80	4506.	2.4E-07	2.3E-07	1.9E-07	4.5E-10
9	A	GARDEN	ESE	0.60	966.	3.3E-06	3.2E-06	2.9E-06	7.1E-09
10	A	GARDEN	SE	0.30	483.	2.0E-05	2.0E-05	1.9E-05	2.9E-08
11	A	GARDEN	SSE	0.30	483.	3.8E-05	3.8E-05	3.6E-05	4.9E-08

VENT AND BUILDING PARAMETERS:

14	RELEASE HEIGHT (METERS)	0.0	REP. WIND HEIGHT (METERS)	11.0
15	DIAMETER (METERS)	0.0	BUILDING HEIGHT (METERS)	59.0
16	EXIT VELOCITY (METERS)	0.0	BLDG. MIN. CRS. SEC. AREA (SQ. METERS)	1370.0
17			HEAT EMISSION RATE (CAL/SEC)	0.0

AT THE RELEASE HEIGHT:

VENT RELEASE MODE WIND SPEED (METERS/SEC)

AT THE MEASURED WIND HEIGHT ( 11.0 METERS):

VENT RELEASE MODE WIND SPEED (METERS/SEC)

WIND SPEED (METERS/SEC)

22	ELEVATED	LESS THAN	0.0	
23	MIXED	BETWEEN	0.0	AND 0.0
24	GROUND LEVEL	ABOVE	0.0	

22	ELEVATED	LESS THAN	0.0	
23	MIXED	BETWEEN	0.0	AND 0.0
24	GROUND LEVEL	ABOVE	0.0	

22	STABLE CONDITIONS	UNSTABLE/NEUTRAL CONDITIONS
23	LESS THAN 0.0	LESS THAN 0.0
24	BETWEEN 0.0	BETWEEN 0.0 AND 0.0
25	ABOVE 0.0	ABOVE 0.0

METEOROLOGICAL DATA FOR  
DIFFUSION ANALYSIS  
JANUARY 1 - JUNE 30, 1983  
H. B. ROBINSON STEAM ELECTRIC PLANT

The frequencies are presented as a percent of total occurrences for each stability class as well as a summary for all classes of each sensor elevation. The first eight tables are for the upper sensor elevation (60 meter); the last eight tables are for the lower (10 meter) sensor elevation.

1. Stability Percent occurrence Pasquill Stability categories based on lower level (10m) wind distribution.

(7530TDDkj r)

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN SUMMARY OVER ALL STAB

UPWINDSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	9/ 0.21	74/ 1.71	121/ 2.80	106/ 2.45	24/ 0.56	15/ 0.35	349.0/ 8.07	12.12191
NNE	/	10/ 0.23	95/ 2.20	146/ 3.38	120/ 2.78	33/ 0.76	13/ 0.30	417.0/ 9.64	11.80898
NE	/	7/ 0.16	80/ 1.85	116/ 2.68	70/ 1.62	40/ 0.93	5/ 0.12	318.0/ 7.35	11.48745
ENE	/	15/ 0.35	89/ 2.06	84/ 1.94	17/ 0.39	3/ 0.07	1/ 0.02	209.0/ 4.83	8.05602
E	/	16/ 0.37	77/ 1.78	64/ 1.48	9/ 0.21	1/ 0.02	/	167.0/ 3.86	7.31214
ESE	/	15/ 0.35	71/ 1.64	59/ 1.36	29/ 0.67	3/ 0.07	/	177.0/ 4.09	8.33301
SE	/	20/ 0.46	92/ 2.13	66/ 1.53	61/ 1.41	10/ 0.23	/	249.0/ 5.76	9.47943
SSE	/	9/ 0.21	88/ 2.04	139/ 3.21	40/ 0.93	9/ 0.21	5/ 0.12	290.0/ 6.71	9.51284
S	/	14/ 0.32	59/ 1.36	120/ 2.78	115/ 2.66	9/ 0.21	2/ 0.05	319.0/ 7.38	10.88490
SSW	/	3/ 0.07	76/ 1.76	183/ 4.23	69/ 1.60	9/ 0.21	4/ 0.09	344.0/ 7.96	10.34436
SW	/	6/ 0.14	65/ 1.50	159/ 3.68	60/ 1.39	9/ 0.21	/	299.0/ 6.91	10.39492
WSW	/	9/ 0.21	43/ 0.99	136/ 3.15	85/ 1.97	27/ 0.62	/	300.0/ 6.94	11.63926
W	/	6/ 0.14	59/ 1.36	101/ 2.34	45/ 1.04	/	/	211.0/ 4.88	9.39292
WNW	/	11/ 0.25	54/ 1.25	63/ 1.46	73/ 1.69	11/ 0.25	/	212.0/ 4.90	10.69171
NW	/	9/ 0.21	46/ 1.06	67/ 1.55	69/ 1.60	19/ 0.44	/	210.0/ 4.86	11.26753
NNW	/	6/ 0.14	47/ 1.09	78/ 1.80	96/ 2.22	21/ 0.49	5/ 0.12	253.0/ 5.85	12.27833
TOTAL	/	165/ 3.82	1115/25.79	1702/39.36	1064/24.61	228/ 5.27	50/ 1.16	4324/ 100	10.55933

NUMBER OF BAD RECORDS: 20

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMD01#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=A

UPWNSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	/	3/ 0.07	/	/	3.0/ 0.07	14.39608
NE	/	/	1/ 0.02	7/ 0.16	8/ 0.19	/	/	16.0/ 0.37	12.33741
ENE	/	/	2/ 0.05	10/ 0.23	5/ 0.12	/	/	17.0/ 0.39	10.97411
E	/	/	3/ 0.07	5/ 0.12	1/ 0.02	/	/	9.0/ 0.21	8.27080
ESE	/	/	4/ 0.09	4/ 0.09	1/ 0.02	/	/	9.0/ 0.21	8.73214
SE	/	3/ 0.07	2/ 0.05	7/ 0.16	/	/	/	12.0/ 0.28	7.85809
SSE	/	/	2/ 0.05	4/ 0.09	1/ 0.02	/	/	7.0/ 0.16	8.38991
S	/	/	/	5/ 0.12	9/ 0.21	/	/	14.0/ 0.32	12.98744
SSW	/	/	2/ 0.05	6/ 0.14	2/ 0.05	/	/	10.0/ 0.23	10.20843
SW	/	/	/	3/ 0.07	6/ 0.14	2/ 0.05	/	11.0/ 0.25	15.08480
WSW	/	/	/	4/ 0.09	11/ 0.25	/	/	15.0/ 0.35	13.83580
W	/	/	/	2/ 0.05	2/ 0.05	/	/	4.0/ 0.09	12.03101
WNW	/	/	/	2/ 0.05	1/ 0.02	1/ 0.02	/	4.0/ 0.09	14.85742
NW	/	/	/	/	1/ 0.02	3/ 0.07	/	4.0/ 0.09	18.90110
NNW	/	/	/	/	1/ 0.02	/	/	1.0/ 0.02	16.99181
TOTAL	/	3/ 0.07	16/ 0.37	59/ 1.36	52/ 1.20	6/ 0.14	/	136.0/ 3.15	11.69653

NUMBER OF BAD RECORDS: 0

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=8

UPWNSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNSPD
N	/	/	/	5/ 0.12	10/ 0.23	1/ 0.02	/	16.0/ 0.37	13.73499
NNE	/	/	2/ 0.05	3/ 0.07	5/ 0.12	1/ 0.02	/	11.0/ 0.25	12.23490
NE	/	/	3/ 0.07	7/ 0.16	6/ 0.14	1/ 0.02	/	17.0/ 0.39	11.44690
ENE	/	/	7/ 0.16	5/ 0.12	3/ 0.07	/	/	15.0/ 0.35	8.85887
E	/	1/ 0.02	1/ 0.02	/	/	/	/	2.0/ 0.05	4.04369
ESE	/	/	3/ 0.07	3/ 0.07	2/ 0.05	/	/	8.0/ 0.19	9.02951
SE	/	1/ 0.02	2/ 0.05	1/ 0.02	2/ 0.05	/	/	6.0/ 0.14	7.94842
SSE	/	/	2/ 0.05	4/ 0.09	/	/	/	6.0/ 0.14	8.55705
S	/	/	/	/	9/ 0.21	/	/	9.0/ 0.21	14.19969
SSW	/	/	1/ 0.02	1/ 0.02	4/ 0.09	/	2/ 0.05	8.0/ 0.19	15.81206
SW	/	/	3/ 0.07	3/ 0.07	3/ 0.07	1/ 0.02	/	10.0/ 0.23	11.38569
WSW	/	/	1/ 0.02	3/ 0.07	8/ 0.19	3/ 0.07	/	15.0/ 0.35	14.73847
W	/	/	1/ 0.02	2/ 0.05	5/ 0.12	/	/	8.0/ 0.19	12.27280
WNW	/	/	/	1/ 0.02	3/ 0.07	/	/	4.0/ 0.09	16.23310
NW	/	/	/	1/ 0.02	4/ 0.09	5/ 0.12	/	10.0/ 0.23	17.41703
NNW	/	/	1/ 0.02	/	5/ 0.12	/	/	6.0/ 0.14	13.67905
TOTAL	/	2/ 0.05	27/ 0.62	39/ 0.90	69/ 1.60	12/ 0.28	2/ 0.05	151.0/ 3.49	12.38256

NUMBER OF BAD RECORDS: 0

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=C

UPWINDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	/	7/ 0.16	6/ 0.14	2/ 0.05	1/ 0.02	/	16.0/ 0.37	10.06545
NNE	/	1/ 0.02	3/ 0.07	3/ 0.07	6/ 0.14	/	/	13.0/ 0.30	11.33002
NE	/	/	3/ 0.07	7/ 0.16	3/ 0.07	/	/	13.0/ 0.30	10.47318
ENE	/	/	6/ 0.14	9/ 0.21	2/ 0.05	/	/	17.0/ 0.39	9.07218
E	/	1/ 0.02	2/ 0.05	4/ 0.09	1/ 0.02	/	/	8.0/ 0.19	8.45422
ESE	/	1/ 0.02	4/ 0.09	4/ 0.09	1/ 0.02	/	/	10.0/ 0.23	7.36924
SE	/	/	4/ 0.09	5/ 0.12	2/ 0.05	/	/	11.0/ 0.25	9.22734
SSE	/	/	1/ 0.02	6/ 0.14	2/ 0.05	/	/	9.0/ 0.21	10.14396
S	/	/	/	7/ 0.16	8/ 0.19	/	/	15.0/ 0.35	13.11878
SSW	/	/	1/ 0.02	3/ 0.07	9/ 0.21	1/ 0.02	1/ 0.02	15.0/ 0.35	14.72662
SW	/	/	4/ 0.09	10/ 0.23	4/ 0.09	3/ 0.07	/	21.0/ 0.49	12.08540
WSW	/	1/ 0.02	1/ 0.02	2/ 0.05	5/ 0.12	4/ 0.09	/	13.0/ 0.30	13.87744
W	/	1/ 0.02	/	9/ 0.21	9/ 0.21	/	/	19.0/ 0.44	12.14642
WNW	/	/	/	2/ 0.05	8/ 0.19	1/ 0.02	/	11.0/ 0.25	14.20103
NW	/	1/ 0.02	1/ 0.02	6/ 0.14	8/ 0.19	7/ 0.16	/	23.0/ 0.53	14.71894
NNW	/	/	1/ 0.02	3/ 0.07	4/ 0.09	/	/	8.0/ 0.19	12.41662
TOTAL	/	6/ 0.14	38/ 0.88	86/ 1.99	74/ 1.71	17/ 0.39	1/ 0.02	222.0/ 5.13	11.75487

NUMBER OF BAD RECORDS: 0

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNDSPO  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

8

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

9  
 16:51 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=D

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	1/ 0.02	28/ 0.65	39/ 0.90	66/ 1.53	18/ 0.42	14/ 0.32	166.0/ 3.84	14.26807
NNE	/	1/ 0.02	32/ 0.74	83/ 1.92	90/ 2.08	30/ 0.69	13/ 0.30	249.0/ 5.76	13.78660
NE	/	3/ 0.07	30/ 0.69	59/ 1.36	47/ 1.09	35/ 0.81	5/ 0.12	179.0/ 4.14	13.32816
ENE	/	5/ 0.12	30/ 0.69	31/ 0.72	3/ 0.07	2/ 0.05	/	71.0/ 1.64	7.88422
E	/	2/ 0.05	34/ 0.79	22/ 0.51	4/ 0.09	/	/	62.0/ 1.43	7.32409
ESE	/	8/ 0.19	26/ 0.60	22/ 0.51	12/ 0.28	2/ 0.05	/	70.0/ 1.62	8.45803
SE	/	10/ 0.23	26/ 0.60	20/ 0.46	28/ 0.65	4/ 0.09	/	88.0/ 2.04	9.81342
SSE	/	3/ 0.07	33/ 0.76	32/ 0.74	13/ 0.30	/	2/ 0.05	83.0/ 1.92	9.09430
S	/	2/ 0.05	22/ 0.51	31/ 0.72	30/ 0.69	/	/	85.0/ 1.97	10.34026
SSW	/	/	25/ 0.58	43/ 0.89	20/ 0.46	7/ 0.16	1/ 0.02	96.0/ 2.22	10.78988
SW	/	3/ 0.07	24/ 0.56	51/ 1.18	25/ 0.58	2/ 0.05	/	105.0/ 2.43	10.45835
WSW	/	4/ 0.09	18/ 0.42	36/ 0.83	30/ 0.69	17/ 0.39	/	105.0/ 2.43	12.24088
W	/	2/ 0.05	24/ 0.56	38/ 0.88	15/ 0.35	/	/	79.0/ 1.83	9.34644
WNW	/	3/ 0.07	20/ 0.46	26/ 0.60	13/ 0.30	4/ 0.09	/	66.0/ 1.53	9.84802
NW	/	3/ 0.07	14/ 0.32	28/ 0.65	25/ 0.58	4/ 0.09	/	74.0/ 1.71	11.04200
NNW	/	/	14/ 0.32	39/ 0.90	34/ 0.79	10/ 0.23	4/ 0.09	101.0/ 2.34	13.00881
TOTAL	/	50/ 1.16	400/ 9.25	600/ 13.88	455/ 10.52	135/ 3.12	39/ 0.90	1679/ 38.83	11.45262

NUMBER OF BAD RECORDS: 11

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMD01#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:51 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

11  
 16:51 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=E

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	6/ 0.14	11/ 0.25	38/ 0.88	24/ 0.56	4/ 0.09	1/ 0.02	84.0/ 1.94	11.28818
NNE	/	1/ 0.02	26/ 0.60	40/ 0.93	16/ 0.37	2/ 0.05	/	85.0/ 1.97	9.59283
NE	/	1/ 0.02	16/ 0.37	23/ 0.53	5/ 0.12	4/ 0.09	/	49.0/ 1.13	9.54661
ENE	/	4/ 0.09	16/ 0.37	15/ 0.35	3/ 0.07	1/ 0.02	1/ 0.02	40.0/ 0.93	8.42171
E	/	7/ 0.16	7/ 0.16	20/ 0.46	3/ 0.07	1/ 0.02	/	38.0/ 0.88	8.18260
ESE	/	3/ 0.07	14/ 0.32	16/ 0.37	13/ 0.30	1/ 0.02	/	47.0/ 1.09	9.76977
SE	/	3/ 0.07	25/ 0.58	19/ 0.44	29/ 0.67	6/ 0.14	/	82.0/ 1.90	11.38190
SSE	/	2/ 0.05	16/ 0.37	64/ 1.48	23/ 0.53	9/ 0.21	3/ 0.07	117.0/ 2.71	11.36864
S	/	6/ 0.14	17/ 0.39	66/ 1.53	58/ 1.34	9/ 0.21	2/ 0.05	158.0/ 3.65	11.65329
SSW	/	1/ 0.02	20/ 0.46	68/ 1.57	27/ 0.62	1/ 0.02	/	117.0/ 2.71	10.40919
SW	/	1/ 0.02	16/ 0.37	57/ 1.32	15/ 0.35	1/ 0.02	/	90.0/ 2.08	10.23715
WSW	/	3/ 0.07	8/ 0.19	64/ 1.48	28/ 0.65	3/ 0.07	/	106.0/ 2.45	11.34718
W	/	/	12/ 0.28	32/ 0.74	11/ 0.25	/	/	55.0/ 1.27	9.78489
WNW	/	2/ 0.05	9/ 0.21	15/ 0.35	35/ 0.81	1/ 0.02	/	62.0/ 1.43	12.27441
NW	/	/	8/ 0.19	10/ 0.23	19/ 0.44	/	/	37.0/ 0.86	11.43319
NNW	/	1/ 0.02	6/ 0.14	20/ 0.46	45/ 1.04	11/ 0.25	1/ 0.02	84.0/ 1.94	14.20868
TOTAL	/	41/ 0.95	227/ 5.25	567/ 13.11	354/ 8.19	54/ 1.25	8/ 0.19	1251/ 28.93	10.95187

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

13  
 16:51 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=F

UPWNDSPD

UPWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWNDSPD
N	/	1/ 0.02	16/ 0.37	19/ 0.44	4/ 0.09	/	/	40.0/ 0.93	8.38711
NNE	/	4/ 0.09	25/ 0.58	10/ 0.23	/	/	/	39.0/ 0.90	6.38781
NE	/	1/ 0.02	12/ 0.28	7/ 0.16	/	/	/	20.0/ 0.46	6.59746
ENE	/	4/ 0.09	6/ 0.14	6/ 0.14	/	/	/	16.0/ 0.37	6.16871
E	/	1/ 0.02	10/ 0.23	5/ 0.12	/	/	/	16.0/ 0.37	6.66896
ESE	/	2/ 0.05	4/ 0.09	5/ 0.12	/	/	/	11.0/ 0.25	5.90750
SE	/	3/ 0.07	11/ 0.25	10/ 0.23	/	/	/	24.0/ 0.56	6.93749
SSE	/	1/ 0.02	12/ 0.28	20/ 0.46	/	/	/	33.0/ 0.76	7.48859
S	/	4/ 0.09	11/ 0.25	9/ 0.21	1/ 0.02	/	/	25.0/ 0.58	6.99750
SSW	/	/	12/ 0.28	22/ 0.51	5/ 0.12	/	/	39.0/ 0.90	9.03828
SW	/	1/ 0.02	7/ 0.16	17/ 0.39	7/ 0.16	/	/	32.0/ 0.74	9.85180
WSW	/	1/ 0.02	6/ 0.14	12/ 0.28	3/ 0.07	/	/	22.0/ 0.51	8.93174
W	/	/	8/ 0.19	12/ 0.28	2/ 0.05	/	/	22.0/ 0.51	8.53229
WNW	/	/	6/ 0.14	4/ 0.09	12/ 0.28	4/ 0.09	/	26.0/ 0.60	12.45558
NW	/	2/ 0.05	7/ 0.16	16/ 0.37	12/ 0.28	/	/	37.0/ 0.86	10.43675
NNW	/	1/ 0.02	10/ 0.23	6/ 0.14	6/ 0.14	/	/	23.0/ 0.53	8.87182
TOTAL	/	26/ 0.60	163/ 3.77	180/ 4.16	52/ 1.20	4/ 0.09	/	425.0/ 9.83	8.33299

NUMBER OF BAD RECORDS: 0

JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWWDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR UPWNDDEG AND UPWINDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:51 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=G

UPWINDSPD

UPWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE UPWINDSPD
N	/	1/ 0.02	12/ 0.28	14/ 0.32	/	/	/	27.0/ 0.62	7.31662
NNE	/	3/ 0.07	7/ 0.16	7/ 0.16	/	/	/	17.0/ 0.39	5.99417
NE	/	2/ 0.05	15/ 0.35	6/ 0.14	1/ 0.02	/	/	24.0/ 0.56	5.80776
ENE	/	2/ 0.05	22/ 0.51	8/ 0.19	1/ 0.02	/	/	33.0/ 0.76	6.50578
E	/	4/ 0.09	20/ 0.46	8/ 0.19	/	/	/	32.0/ 0.74	6.22603
ESE	/	1/ 0.02	16/ 0.37	5/ 0.12	/	/	/	22.0/ 0.51	6.10002
SE	/	/	22/ 0.51	4/ 0.09	/	/	/	26.0/ 0.60	5.90359
SSE	/	3/ 0.07	22/ 0.51	9/ 0.21	1/ 0.02	/	/	35.0/ 0.81	6.43639
S	/	2/ 0.05	9/ 0.21	2/ 0.05	/	/	/	13.0/ 0.30	5.44631
SSW	/	2/ 0.05	15/ 0.35	40/ 0.93	2/ 0.05	/	/	59.0/ 1.36	8.52177
SW	/	1/ 0.02	11/ 0.25	18/ 0.42	/	/	/	30.0/ 0.69	7.99233
WSW	/	/	9/ 0.21	15/ 0.35	/	/	/	24.0/ 0.56	8.25690
W	/	3/ 0.07	14/ 0.32	6/ 0.14	1/ 0.02	/	/	24.0/ 0.56	5.85709
WNW	/	6/ 0.14	19/ 0.44	13/ 0.30	1/ 0.02	/	/	39.0/ 0.90	6.44211
NW	/	3/ 0.07	16/ 0.37	6/ 0.14	/	/	/	25.0/ 0.58	6.06303
NNW	/	4/ 0.09	15/ 0.35	10/ 0.23	1/ 0.02	/	/	30.0/ 0.69	6.55161
TOTAL	/	37/ 0.86	244/ 5.64	171/ 3.95	8/ 0.19	/	/	460.0/10.64	6.77649

NUMBER OF BAD RECORDS: 0

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR UPWNDEG AND UPWNDS  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:51 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN SUMMARY OVER ALL STAB

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	5.4/ 0.13	71/ 1.69	125/ 2.97	119/ 2.83	21/ 0.50	2/ 0.05	/	343.4/ 8.16	6.73697
NNE	3.0/ 0.07	39/ 0.93	152/ 3.61	164/ 3.90	70/ 1.66	6/ 0.14	/	434.0/10.31	8.45599
NE	2.4/ 0.06	31/ 0.74	107/ 2.54	86/ 2.04	20/ 0.48	2/ 0.05	/	248.4/ 5.90	7.26579
ENE	1.0/ 0.02	13/ 0.31	79/ 1.88	30/ 0.71	2/ 0.05	/	/	125.0/ 2.97	6.09210
E	1.7/ 0.04	22/ 0.52	75/ 1.78	13/ 0.31	1/ 0.02	/	/	112.7/ 2.68	4.98281
ESE	1.4/ 0.03	19/ 0.45	72/ 1.71	35/ 0.83	4/ 0.10	/	/	131.4/ 3.12	6.10929
SE	2.2/ 0.05	29/ 0.69	76/ 1.81	68/ 1.62	19/ 0.45	/	/	194.2/ 4.61	7.38902
SSE	5.5/ 0.13	73/ 1.73	149/ 3.54	72/ 1.71	11/ 0.26	4/ 0.10	/	314.5/ 7.47	6.10498
S	7.4/ 0.18	97/ 2.30	137/ 3.25	145/ 3.44	17/ 0.40	2/ 0.05	/	405.4/ 9.63	6.58301
SSW	5.8/ 0.14	76/ 1.81	117/ 2.78	78/ 1.85	21/ 0.50	5/ 0.12	/	302.8/ 7.19	6.46153
SW	4.0/ 0.10	52/ 1.24	87/ 2.07	67/ 1.59	9/ 0.21	1/ 0.02	/	220.0/ 5.23	6.28873
WSW	4.8/ 0.11	63/ 1.50	90/ 2.14	77/ 1.83	15/ 0.36	/	/	249.8/ 5.93	6.26372
W	4.5/ 0.11	59/ 1.40	71/ 1.69	49/ 1.16	/	/	/	183.5/ 4.36	5.26533
WNW	5.4/ 0.13	71/ 1.69	91/ 2.16	36/ 0.86	1/ 0.02	/	/	204.4/ 4.86	4.83149
NW	9.1/ 0.22	120/ 2.85	77/ 1.83	57/ 1.35	11/ 0.26	/	/	274.1/ 6.51	4.92923
NNW	13.5/ 0.32	178/ 4.23	166/ 3.94	87/ 2.07	21/ 0.50	/	/	465.5/11.06	5.17842
TOTAL	77.0/ 1.83	1013/24.07	1671/39.70	1183/28.11	243/ 5.77	22/ 0.52	/	4209/ 100	6.30979

NUMBER OF BAD RECORDS: 135

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

3

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=A

LOWNDSPD

LOWNDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	/	/	/	/	/	/	
NNE	/	/	/	3/ 0.07	/	/	/	3.0/ 0.07	10.54416
NE	/	/	2/ 0.05	9/ 0.21	1/ 0.02	/	/	12.0/ 0.29	9.60063
ENE	/	/	6/ 0.14	9/ 0.21	/	/	/	15.0/ 0.36	7.93063
E	/	1/ 0.02	6/ 0.14	3/ 0.07	/	/	/	10.0/ 0.24	6.28814
ESE	/	/	5/ 0.12	4/ 0.10	/	/	/	9.0/ 0.21	7.35182
SE	/	2/ 0.05	6/ 0.14	3/ 0.07	/	/	/	11.0/ 0.26	6.38804
SSE	/	1/ 0.02	4/ 0.10	5/ 0.12	/	/	/	10.0/ 0.24	7.53043
S	/	/	/	9/ 0.21	3/ 0.07	/	/	12.0/ 0.29	10.88738
SSW	/	/	4/ 0.10	5/ 0.12	1/ 0.02	/	/	10.0/ 0.24	9.20293
SW	/	/	/	8/ 0.19	2/ 0.05	/	/	10.0/ 0.24	10.96548
WSW	/	/	/	/	/	/	/	/	
W	/	/	/	1/ 0.02	/	/	/	1.0/ 0.02	8.85442
WNW	/	/	/	3/ 0.07	/	/	/	3.0/ 0.07	10.71647
NW	/	/	/	/	3/ 0.07	/	/	3.0/ 0.07	13.07876
NNW	/	/	/	1/ 0.02	/	/	/	1.0/ 0.02	11.40570
TOTAL	/	4/ 0.10	33/ 0.78	63/ 1.50	10/ 0.24	/	/	110.0/ 2.61	8.76726

NUMBER OF BAD RECORDS: 26

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMD01#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

5

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=B

LOWNDSPD

LOWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	/	2/ 0.05	17/ 0.40	/	/	/	19.0/ 0.45	9.53459
NNE	/	/	3/ 0.07	3/ 0.07	3/ 0.07	/	/	9.0/ 0.21	9.36209
NE	/	/	6/ 0.14	8/ 0.19	2/ 0.05	/	/	16.0/ 0.38	8.83983
ENE	/	1/ 0.02	7/ 0.17	4/ 0.10	/	/	/	12.0/ 0.29	6.86176
E	/	/	3/ 0.07	/	/	/	/	3.0/ 0.07	4.75793
ESE	/	/	4/ 0.10	4/ 0.10	/	/	/	8.0/ 0.19	7.03268
SE	/	1/ 0.02	2/ 0.05	4/ 0.10	/	/	/	7.0/ 0.17	6.73908
SSE	/	/	3/ 0.07	2/ 0.05	/	/	/	5.0/ 0.12	6.61997
S	/	/	1/ 0.02	11/ 0.26	/	/	/	12.0/ 0.29	11.15974
SSW	/	/	/	6/ 0.14	2/ 0.05	2/ 0.05	/	10.0/ 0.24	12.30448
SW	/	/	3/ 0.07	4/ 0.10	3/ 0.07	/	/	10.0/ 0.24	9.85826
WSW	/	/	2/ 0.05	2/ 0.05	/	/	/	4.0/ 0.10	7.15357
W	/	/	/	6/ 0.14	/	/	/	6.0/ 0.14	10.09115
WNW	/	/	/	3/ 0.07	/	/	/	3.0/ 0.07	10.97215
NW	/	/	/	5/ 0.12	5/ 0.12	/	/	10.0/ 0.24	12.10271
NNW	/	/	1/ 0.02	3/ 0.07	/	/	/	4.0/ 0.10	9.89249
TOTAL	/	2/ 0.05	37/ 0.88	82/ 1.95	15/ 0.36	2/ 0.05	/	138.0/ 3.28	9.26538

NUMBER OF BAD RECORDS: 13

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=C

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	/	1/ 0.02	8/ 0.19	6/ 0.14	1/ 0.02	/	/	16.0/ 0.38	7.27759
NNE	/	/	4/ 0.10	10/ 0.24	/	/	/	14.0/ 0.33	8.64360
NE	/	/	10/ 0.24	8/ 0.19	/	/	/	18.0/ 0.43	7.31013
ENE	/	/	8/ 0.19	5/ 0.12	/	/	/	13.0/ 0.31	7.21514
E	/	/	3/ 0.07	2/ 0.05	/	/	/	5.0/ 0.12	7.40036
ESE	/	1/ 0.02	7/ 0.17	2/ 0.05	/	/	/	10.0/ 0.24	6.11917
SE	/	1/ 0.02	6/ 0.14	5/ 0.12	/	/	/	12.0/ 0.29	6.98960
SSE	/	/	4/ 0.10	8/ 0.19	/	/	/	12.0/ 0.29	8.40976
S	/	/	/	12/ 0.29	2/ 0.05	/	/	14.0/ 0.33	10.82565
SSW	/	/	2/ 0.05	13/ 0.31	5/ 0.12	1/ 0.02	/	21.0/ 0.50	11.19131
SW	/	/	5/ 0.12	7/ 0.17	2/ 0.05	/	/	14.0/ 0.33	9.45591
WSW	/	2/ 0.05	2/ 0.05	6/ 0.14	4/ 0.10	/	/	14.0/ 0.33	9.26177
W	/	/	/	13/ 0.31	/	/	/	13.0/ 0.31	9.66124
WNW	/	/	1/ 0.02	9/ 0.21	/	/	/	10.0/ 0.24	9.30465
NW	/	1/ 0.02	2/ 0.05	16/ 0.38	3/ 0.07	/	/	22.0/ 0.52	10.04441
NNW	/	/	/	9/ 0.21	1/ 0.02	/	/	10.0/ 0.24	9.90328
TOTAL	/	6/ 0.14	62/ 1.47	131/ 3.11	18/ 0.43	1/ 0.02	/	218.0/ 5.18	8.86740

NUMBER OF BAD RECORDS: 4

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=D

LOWNDSPD

LOWNDDEG	CALM	75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.1/ 0.00	3/ 0.07	62/ 1.47	82/ 1.95	18/ 0.43	2/ 0.05	/	167.1/ 3.97	8.62492
NNE	0.1/ 0.00	5/ 0.12	89/ 2.11	134/ 3.18	64/ 1.52	6/ 0.14	/	298.1/ 7.08	9.66982
NE	0.2/ 0.00	10/ 0.24	61/ 1.45	56/ 1.33	17/ 0.40	2/ 0.05	/	146.2/ 3.47	8.02496
ENE	0.1/ 0.00	4/ 0.10	44/ 1.05	11/ 0.26	1/ 0.02	/	/	60.1/ 1.43	5.91560
E	0.1/ 0.00	6/ 0.14	42/ 1.00	7/ 0.17	/	/	/	55.1/ 1.31	5.15374
ESE	0.2/ 0.00	9/ 0.21	39/ 0.93	16/ 0.38	3/ 0.07	/	/	67.2/ 1.60	6.05734
SE	0.2/ 0.00	9/ 0.21	39/ 0.93	31/ 0.74	9/ 0.21	/	/	88.2/ 2.10	7.72778
SSE	0.1/ 0.00	6/ 0.14	58/ 1.38	24/ 0.57	/	2/ 0.05	/	90.1/ 2.14	6.88376
S	0.2/ 0.00	13/ 0.31	40/ 0.95	45/ 1.07	3/ 0.07	/	/	101.2/ 2.40	7.38083
SSW	0.0/ 0.00	2/ 0.05	43/ 1.02	41/ 0.97	12/ 0.29	2/ 0.05	/	100.0/ 2.38	8.52115
SW	0.1/ 0.00	4/ 0.10	30/ 0.71	29/ 0.69	2/ 0.05	1/ 0.02	/	66.1/ 1.57	7.77576
WSW	0.2/ 0.00	11/ 0.26	29/ 0.69	50/ 1.19	11/ 0.26	/	/	101.2/ 2.40	8.06842
W	0.2/ 0.00	10/ 0.24	33/ 0.78	27/ 0.64	/	/	/	70.2/ 1.67	6.56148
WNW	0.1/ 0.00	6/ 0.14	37/ 0.88	16/ 0.38	/	/	/	59.1/ 1.40	6.24501
NW	0.2/ 0.00	9/ 0.21	23/ 0.55	33/ 0.78	/	/	/	65.2/ 1.55	7.05605
NNW	0.1/ 0.00	3/ 0.07	52/ 1.24	52/ 1.24	14/ 0.33	/	/	121.1/ 2.88	8.20884
TOTAL	2.0/ 0.05	110/ 2.61	721/ 17.13	654/ 15.54	154/ 3.66	15/ 0.36	/	1656/ 39.34	7.88576

NUMBER OF BAD RECORDS: 34

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

11  
 16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=E

LOWNDSPD

LOWNDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.3/ 0.01	11/ 0.26	46/ 1.09	14/ 0.33	2/ 0.05	/	/	73.3/ 1.74	5.80144
NNE	0.6/ 0.01	20/ 0.48	53/ 1.26	14/ 0.33	3/ 0.07	/	/	90.6/ 2.15	5.54581
NE	0.5/ 0.01	16/ 0.38	25/ 0.59	5/ 0.12	/	/	/	46.5/ 1.10	4.69687
ENE	0.2/ 0.00	6/ 0.14	14/ 0.33	1/ 0.02	1/ 0.02	/	/	22.2/ 0.53	4.74861
E	0.3/ 0.01	8/ 0.19	19/ 0.45	1/ 0.02	1/ 0.02	/	/	29.3/ 0.70	4.88525
ESE	0.1/ 0.00	4/ 0.10	17/ 0.40	9/ 0.21	1/ 0.02	/	/	31.1/ 0.74	6.52255
SE	0.2/ 0.00	7/ 0.17	20/ 0.48	25/ 0.59	10/ 0.24	/	/	62.2/ 1.48	8.36216
SSE	0.8/ 0.02	25/ 0.59	74/ 1.76	33/ 0.78	11/ 0.26	2/ 0.05	/	145.8/ 3.46	6.63660
S	0.7/ 0.02	22/ 0.52	83/ 1.97	68/ 1.62	9/ 0.21	2/ 0.05	/	184.7/ 4.39	7.08039
SSW	0.8/ 0.02	26/ 0.62	52/ 1.24	13/ 0.31	1/ 0.02	/	/	92.8/ 2.20	5.07742
SW	0.7/ 0.02	22/ 0.52	37/ 0.88	19/ 0.45	/	/	/	78.7/ 1.87	5.38647
WSW	0.6/ 0.01	18/ 0.43	51/ 1.21	19/ 0.45	/	/	/	88.6/ 2.11	5.56043
W	0.7/ 0.02	22/ 0.52	30/ 0.71	2/ 0.05	/	/	/	54.7/ 1.30	4.04322
WNW	0.7/ 0.02	21/ 0.50	36/ 0.86	5/ 0.12	1/ 0.02	/	/	63.7/ 1.51	4.79412
NW	0.6/ 0.01	18/ 0.43	34/ 0.81	3/ 0.07	/	/	/	55.6/ 1.32	4.30235
NNW	0.3/ 0.01	10/ 0.24	63/ 1.50	22/ 0.52	6/ 0.14	/	/	101.3/ 2.41	6.64119
TOTAL	8.0/ 0.19	256/ 6.08	654/ 15.54	253/ 6.01	46/ 1.09	4/ 0.10	/	1221/ 29.01	5.91259

NUMBER OF BAD RECORDS: 30

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

13  
 16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=F

LOWNDSPD

LOWNDDEG	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	0.6/ 0.01	21/ 0.50	4/ 0.10	/	/	/	/	25.6/ 0.61	2.57615
NNE	0.3/ 0.01	9/ 0.21	3/ 0.07	/	/	/	/	12.3/ 0.29	2.83000
NE	0.1/ 0.00	3/ 0.07	1/ 0.02	/	/	/	/	4.1/ 0.10	2.12097
ENE	0.0/ 0.00	1/ 0.02	/	/	/	/	/	1.0/ 0.02	2.88477
E	0.2/ 0.00	6/ 0.14	2/ 0.05	/	/	/	/	8.2/ 0.19	2.15554
ESE	0.1/ 0.00	3/ 0.07	/	/	/	/	/	3.1/ 0.07	1.55050
SE	0.1/ 0.00	5/ 0.12	3/ 0.07	/	/	/	/	8.1/ 0.19	2.81313
SSE	0.6/ 0.01	19/ 0.45	4/ 0.10	/	/	/	/	23.6/ 0.56	2.76903
S	1.0/ 0.02	36/ 0.86	12/ 0.29	/	/	/	/	49.0/ 1.16	2.67854
SSW	0.6/ 0.01	22/ 0.52	15/ 0.36	/	/	/	/	37.6/ 0.89	3.18687
SW	0.4/ 0.01	14/ 0.33	12/ 0.29	/	/	/	/	26.4/ 0.63	2.99139
WSW	0.7/ 0.02	23/ 0.55	6/ 0.14	/	/	/	/	29.7/ 0.71	2.39035
W	0.6/ 0.01	20/ 0.48	8/ 0.19	/	/	/	/	28.6/ 0.68	2.64759
WNW	0.6/ 0.01	21/ 0.50	17/ 0.40	/	/	/	/	38.6/ 0.92	2.93756
NW	1.0/ 0.02	33/ 0.78	17/ 0.40	/	/	/	/	51.0/ 1.21	2.93937
NNW	1.2/ 0.03	40/ 0.95	29/ 0.69	/	/	/	/	70.2/ 1.67	3.27466
TOTAL	8.0/ 0.19	276/ 6.56	133/ 3.16	/	/	/	/	417.0/ 9.91	2.86066

NUMBER OF BAD RECORDS: 8

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNODEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
 PROGRAM IMDO1#25 (MDFREQ) - FEB 1983  
 JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
 RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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 16:48 FRIDAY, JULY 22, 1983

SITE=ROBN YEAR=83 PERIOD=JAN-JUN STAB=G

LOWNDSPD

LOWNDDEG

	CALM	.75-3.5	3.5-7.5	7.5-12.5	12.5-18.5	18.5-25	>= 25	TOTAL	AVERAGE LOWNDSPD
N	5.8/ 0.14	35/ 0.83	3/ 0.07	/	/	/	/	43.8/ 1.04	1.79841
NNE	0.8/ 0.02	5/ 0.12	/	/	/	/	/	5.8/ 0.14	1.57835
NE	0.3/ 0.01	2/ 0.05	2/ 0.05	/	/	/	/	4.3/ 0.10	3.01892
ENE	0.2/ 0.00	1/ 0.02	/	/	/	/	/	1.2/ 0.03	1.34092
E	0.2/ 0.00	1/ 0.02	/	/	/	/	/	1.2/ 0.03	0.71560
ESE	0.3/ 0.01	2/ 0.05	/	/	/	/	/	2.3/ 0.05	1.27416
SE	0.7/ 0.02	4/ 0.10	/	/	/	/	/	4.7/ 0.11	1.43952
SSE	3.6/ 0.09	22/ 0.52	2/ 0.05	/	/	/	/	27.6/ 0.66	1.88374
S	4.3/ 0.10	26/ 0.62	1/ 0.02	/	/	/	/	31.3/ 0.74	1.86590
SSW	4.3/ 0.10	26/ 0.62	1/ 0.02	/	/	/	/	31.3/ 0.74	1.83180
SW	2.0/ 0.05	12/ 0.29	/	/	/	/	/	14.0/ 0.33	1.46856
WSW	1.5/ 0.04	9/ 0.21	/	/	/	/	/	10.5/ 0.25	2.00852
W	1.2/ 0.03	7/ 0.17	/	/	/	/	/	8.2/ 0.19	1.28517
WNW	3.8/ 0.09	23/ 0.55	/	/	/	/	/	26.8/ 0.64	1.36291
NW	9.7/ 0.23	59/ 1.40	1/ 0.02	/	/	/	/	69.7/ 1.66	1.66374
NNW	20.5/ 0.49	125/ 2.97	21/ 0.50	/	/	/	/	166.5/ 3.96	2.16245
TOTAL	59.0/ 1.40	359/ 8.53	31/ 0.74	/	/	/	/	449.0/10.67	1.88312

NUMBER OF BAD RECORDS: 11

ENVIRONMENTAL MONITORING SYSTEM - CAROLINA POWER & LIGHT COMPANY  
PROGRAM IMD01#25 (MDFREQ) - FEB 1983  
JOINT OCCURRENCE FREQUENCIES FOR LOWNDDEG AND LOWNDSPD  
RANGES INCLUDE LOWER END POINT, EXCLUDE UPPER END POINT

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16:48 FRIDAY, JULY 22, 1983

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USNRC REGION II  
ATLANTA, GEORGIA

CP&L

Carolina Power & Light Company

33 SEP 1 9 1983  
H. B. ROBINSON STEAM ELECTRIC PLANT  
POST OFFICE BOX 790  
HARTSVILLE, SOUTH CAROLINA 29550

AUG 29 1983

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Robinson File No: 12510E

Serial: RSEP/83-1054

Mr. James P. O'Reilly  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

50-261/D

→ SUBJECT: Effluent and Waste Disposal Semi-Annual Report

Dear Mr. O'Reilly:

The Effluent and Waste Disposal Semi-Annual Report for January through June, 1983, is enclosed as required by 10CFR50.36a (a) (2).

Please contact me if you need additional information.

Very truly yours,

*R. B. Starkey, Jr.*

R. B. Starkey, Jr.  
General Manager  
H. B. Robinson S. E. Plant

BAC/th

Enclosure

cc: R. C. DeYoung (25)  
R. A. Hartfield (2)  
B. H. Webster (4)

IE25 11  
OFFICIAL