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TO:
Mr. George Lear

FROM:
Florida Power & Light Company
Miami, Florida
Robert E. Uhrig

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PLANT NAME: Turkey Point Units 3 & 4

APPENDIX I DISTRIBUTION AFTER ISSUANCE OF A LICENSE

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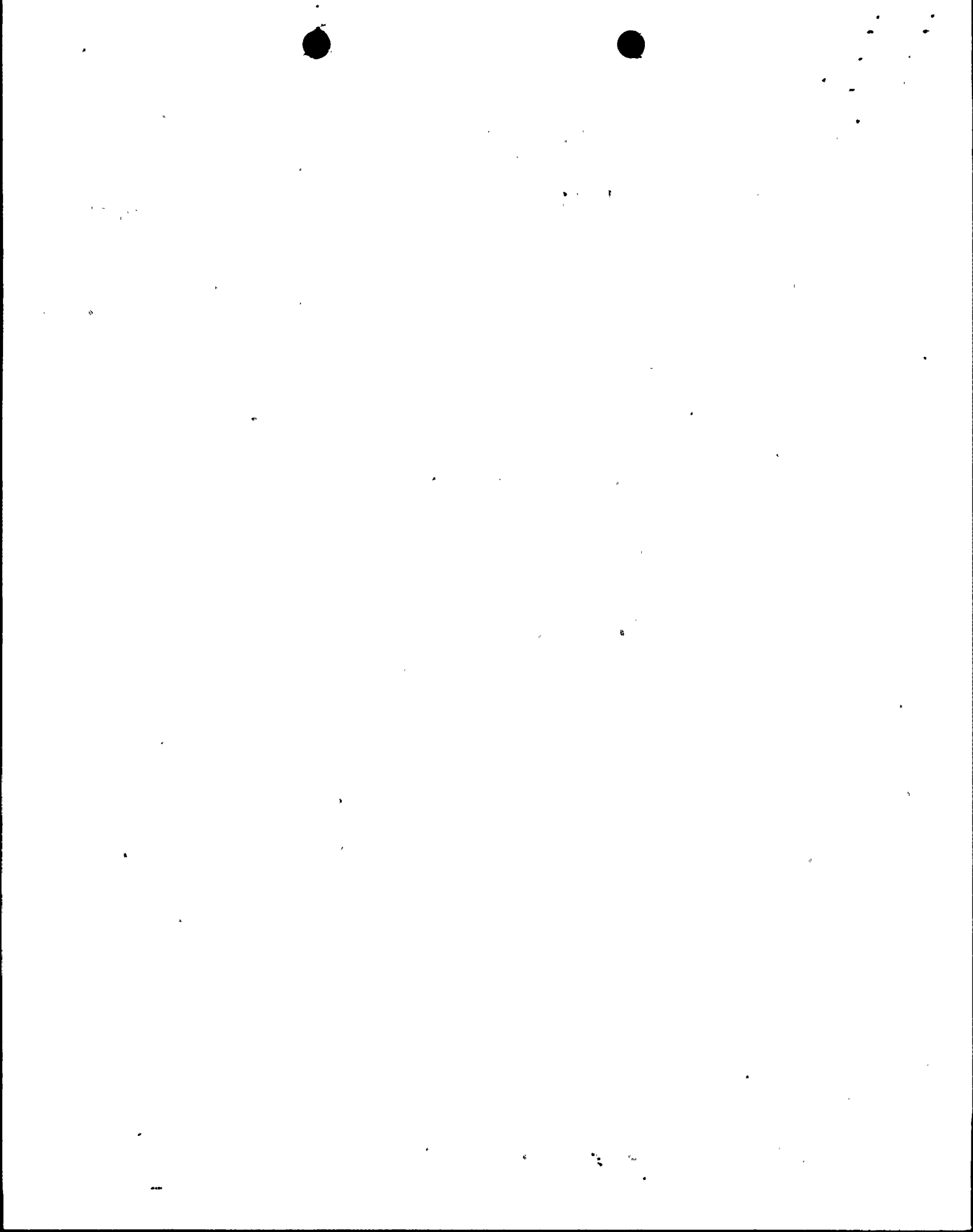
ENCLOSURE

Consists of requested additional information regarding Appendix I to 10 CFR 50.....

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FLORIDA POWER & LIGHT COMPANY

May 27, 1977
L-77-162

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Office of Nuclear Reactor Regulation
Attention: Mr. George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

REGULATORY DOCKET FILE COPY

Dear Mr. Lear:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Appendix I Information

Your letter of April 13, 1977 requested additional information regarding Appendix I to 10 CFR 50. The information you requested is attached.

Very truly yours,

Robert E. Uhrig
Vice President

REU/MAS/cpc

Attachment

cc: Mr. Norman C. Moseley, Region II
Robert Lowenstein, Esquire



771530120

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ATTACHMENT

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Appendix I Information

Question 1

Clarify the inconsistencies in information concerning the representative of onsite meteorological measurements, particularly low level wind speed and direction, and vertical temperature gradient.

Answer 1

The South Dade meteorological system is more modern and has better recoverability than the Turkey Point meteorological system. However, as stated in our letter of January 27, 1977 (L-77-33), the meteorological equipment at Turkey Point is adequate to meet Appendix I requirements. Even though the November 15, 1976 study pointed out that the Turkey Point measurements are less precise than the South Dade measurements and the South Dade terrain is less obstructed, we have nevertheless concluded that the Turkey Point data are representative of the Turkey Point site.



Question 2

Discuss which available onsite meteorological measurements would provide the "best estimate" of atmosphere transport and diffusion characteristics for an interim Appendix I evaluation.

Answer 2

As discussed in the attached Appendix A, the South Dade meteorological measurements appear at this time to give the "best estimate" of atmosphere transport and diffusion characteristics.

APPENDIX A

A COMPARISON OF METEOROLOGICAL DATA COLLECTED AT TURKEY POINT AND SOUTH DADE NUCLEAR POWER PLANT SITES, AUGUST 24, 1976

The original data provided in the report on decommissioning was further analyzed for periods when wind conditions were onshore at Turkey Point and South Dade (clockwise from NE to SSE). Cross tabulations for the low level wind direction and wind speed as well as the atmospheric stability are given in Tables 1-3, respectively. Additionally, a correlation analysis was performed on the vertical temperature gradient (normalized to 100 m) as provided in the original report.

During on-shore flow conditions, a consistent one sector shift in wind direction identified in the original report in Section 4.1.4.3 remained evident. A post calibration of the Turkey Point wind direction equipment identified a 24° departure from accuracy in the same direction as the one sector shift. Therefore, at least a portion of the one sector shift is probably attributable to instrument inaccuracy. The wind speed cross tabulations indicate overall similarity between the two sites.

The stability, which is of greatest concern, shows relatively good correspondence. Considering the oceanic influence, the rate of traverse of sea breeze conditions, and the displacement from the coast of both sites (Turkey Point 1/2 mile; South Dade > 2 miles), the cross tabulation is not at all unreasonable. In fact, the disparity between levels at which the vertical temperature gradient (ΔT) were computed (Turkey Point 5.00 - 35.45 meters and South Dade 11.67 - 58.13 meters) and the narrow range of several stability classes may well have been the governing factors in the stability differences between the two sites indicated by Table 3.

The correlation coefficient of 100 meter ΔT 's between the sites is .799. We anticipate that a comparison of ΔT 's collected from a single tower at the levels 5.00 m - 35.45 m and 11.67 m - 58.13 m, normalized to 100 m, would not yield a significantly higher correlation coefficient.

The NRC's concern that the stability criteria may exhibit a time lag between the two sites due to coastal effects is not apparent from the evaluations presented. A summary of onshore flow stability conditions was then generated by hour of the day. Tables 4 and 5 present the frequency of stability class versus time of day for Turkey Point and South Dade, respectively. There is a slight tendency for more stable conditions at Turkey Point during the day; however, the shadowing of the lower temperature sensor by the building complex reduces insolation considerably and, thus, thermal turbulence.



TABLE 1

CROSS TABULATION OF LOWER LEVEL WIND DIRECTION
(HOURS OF SIMULTANEOUS OCCURRENCE)

South Dade	Turkey Point					
	NE	ENE	E	ESE	SE	SSE
NE	28	11	1	2	1	0
ENE	158	98	13	2	1	0
E	50	369	195	9	1	1
ESE	2	68	424	125	2	4
SE	2	11	90	350	51	4
SSE	2	6	27	174	145	27

TABLE 2

CROSS TABULATION OF LOWER LEVEL WIND SPEEDS*
(HOURS OF SIMULTANEOUS OCCURRENCE)

South Dade	Turkey Point						
	0	1	2	3	4	5	6
0	0	0	0	0	0	0	0
1	0	5	34	1	0	0	0
2	0	28	457	261	0	0	0
3	0	3	288	751	127	0	0
4	0	0	1	196	262	16	0
5	0	0	0	0	9	14	0
6	0	0	0	0	0	0	0

*Wind Speed Categories

- 0 - Calm
- 1 - 0.0 - 1.5 mps
- 2 - 1.5 - 3.0 mps
- 3 - 3.0 - 5.0 mps
- 4 - 5.0 - 7.5 mps
- 5 - 7.5 - 10.0 mps
- 6 - > 10.0 mps

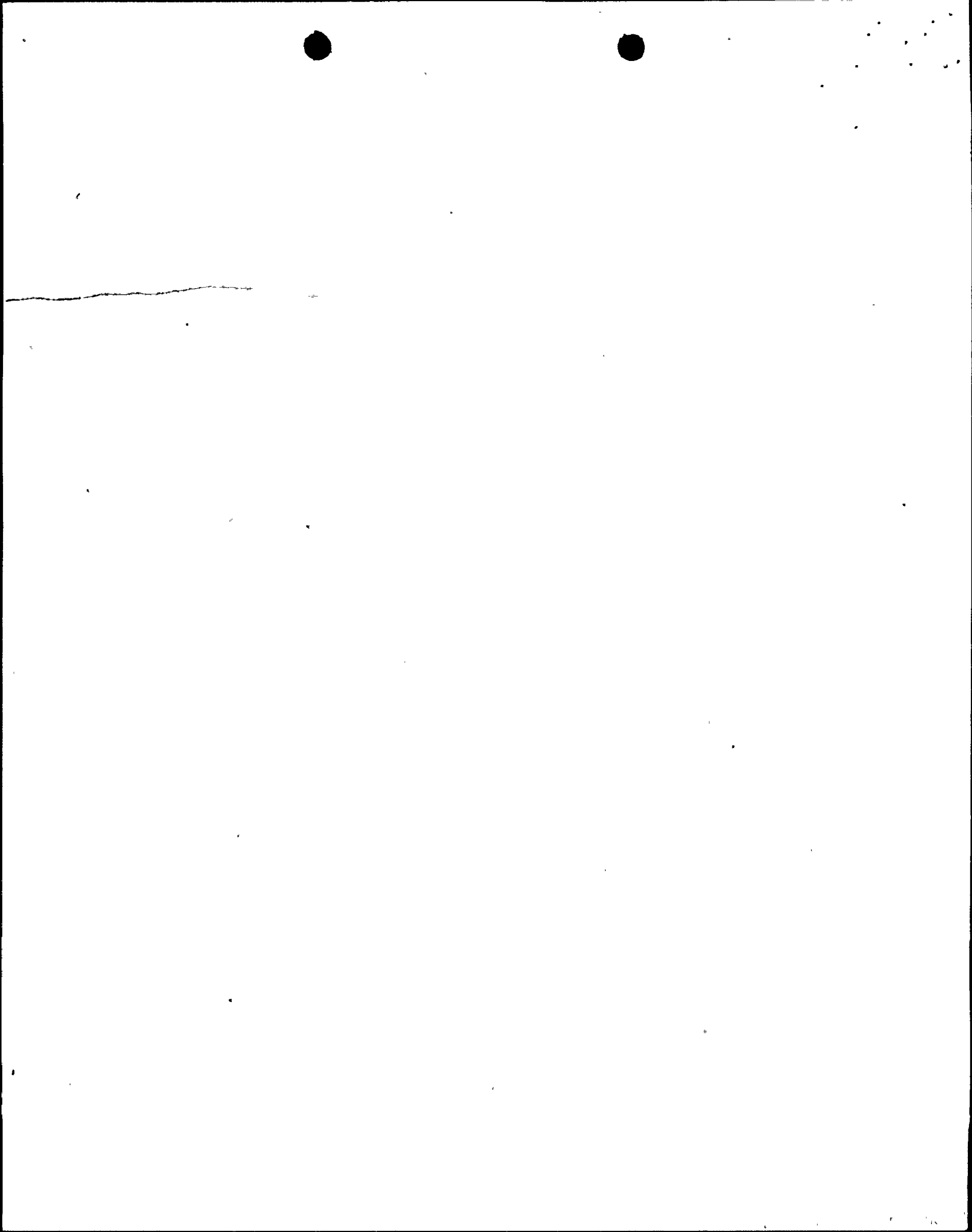


TABLE 3

CROSS TABULATION OF STABILITY CLASSES

South Dade	Turkey Point						
	A	B	C	D	E	F	G
A	567	43	30	126	30	1	0
B	15	4	4	15	6	0	0
C	25	8	10	44	29	0	0
D	26	11	6	96	166	7	0
E	12	2	3	37	834	41	0
F	0	0	0	2	49	14	0
G	0	0	0	0	0	0	0

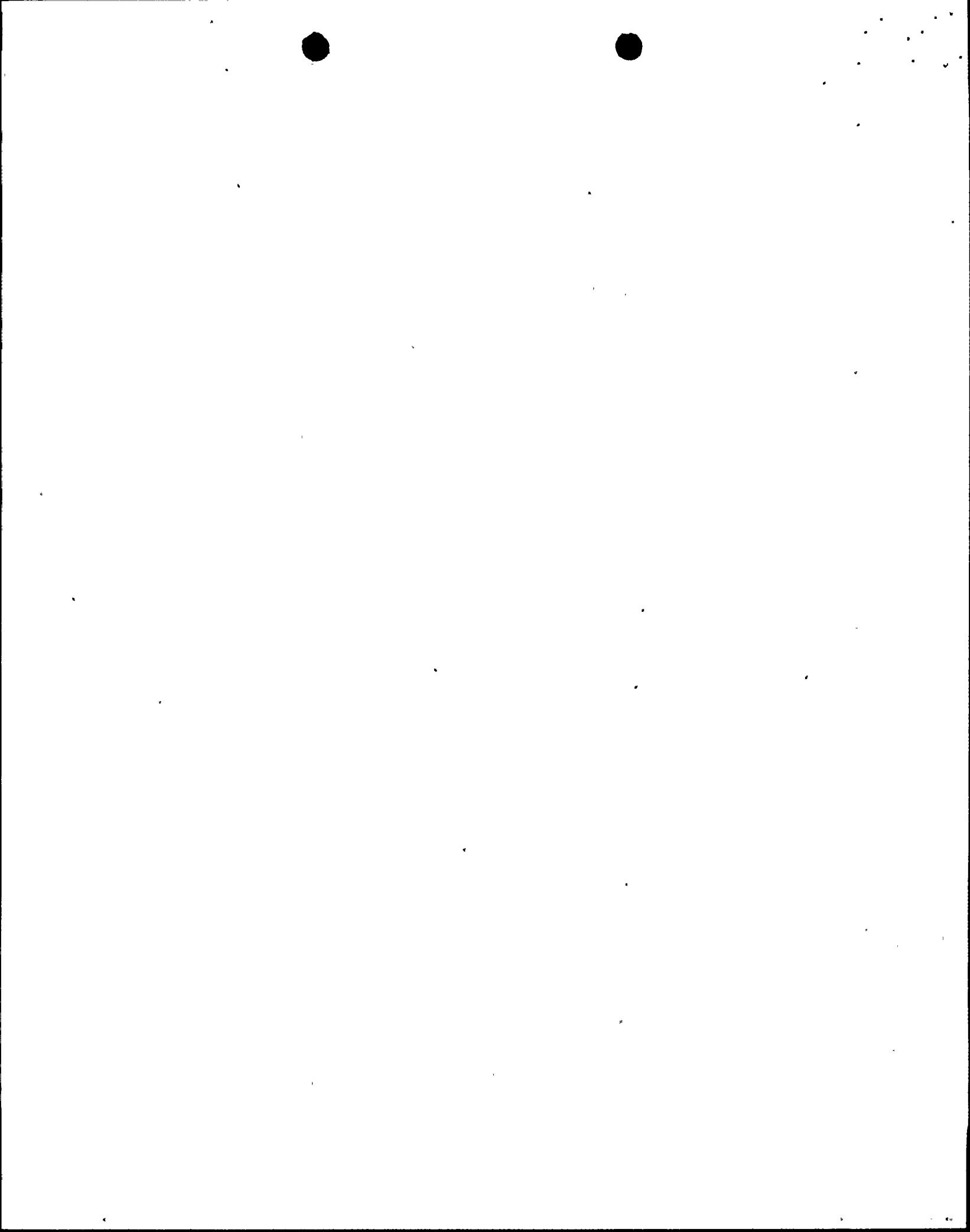


TABLE 4

DIURNAL FREQUENCY OF ATMOSPHERIC STABILITY AT TURKEY POINT
(HOURS)

Hour	Stability Class						
	A	B	C	D	E	F	G
1	0	0	0	1	77	5	0
2	0	0	0	3	75	6	0
3	0	0	0	0	78	4	0
4	0	0	0	0	67	3	0
5	0	0	0	1	56	6	0
6	0	0	0	0	61	2	0
7	0	0	0	0	57	7	0
8	2	2	2	20	44	7	0
9	19	5	6	32	26	0	0
10	44	4	6	26	10	0	0
11	79	7	2	10	6	0	0
12	90	6	3	10	6	0	0
13	102	1	1	12	3	0	0
14	97	2	4	17	3	0	0
15	80	10	2	16	5	0	0
16	68	6	9	28	4	0	0
17	43	10	14	38	11	1	0
18	18	11	2	53	28	1	0
19	3	3	1	31	68	0	0
20	0	1	1	7	92	3	0
21	0	0	0	7	86	3	0
22	0	0	0	4	87	5	0
23	0	0	0	3	81	5	0
24	0	0	0	1	83	5	0

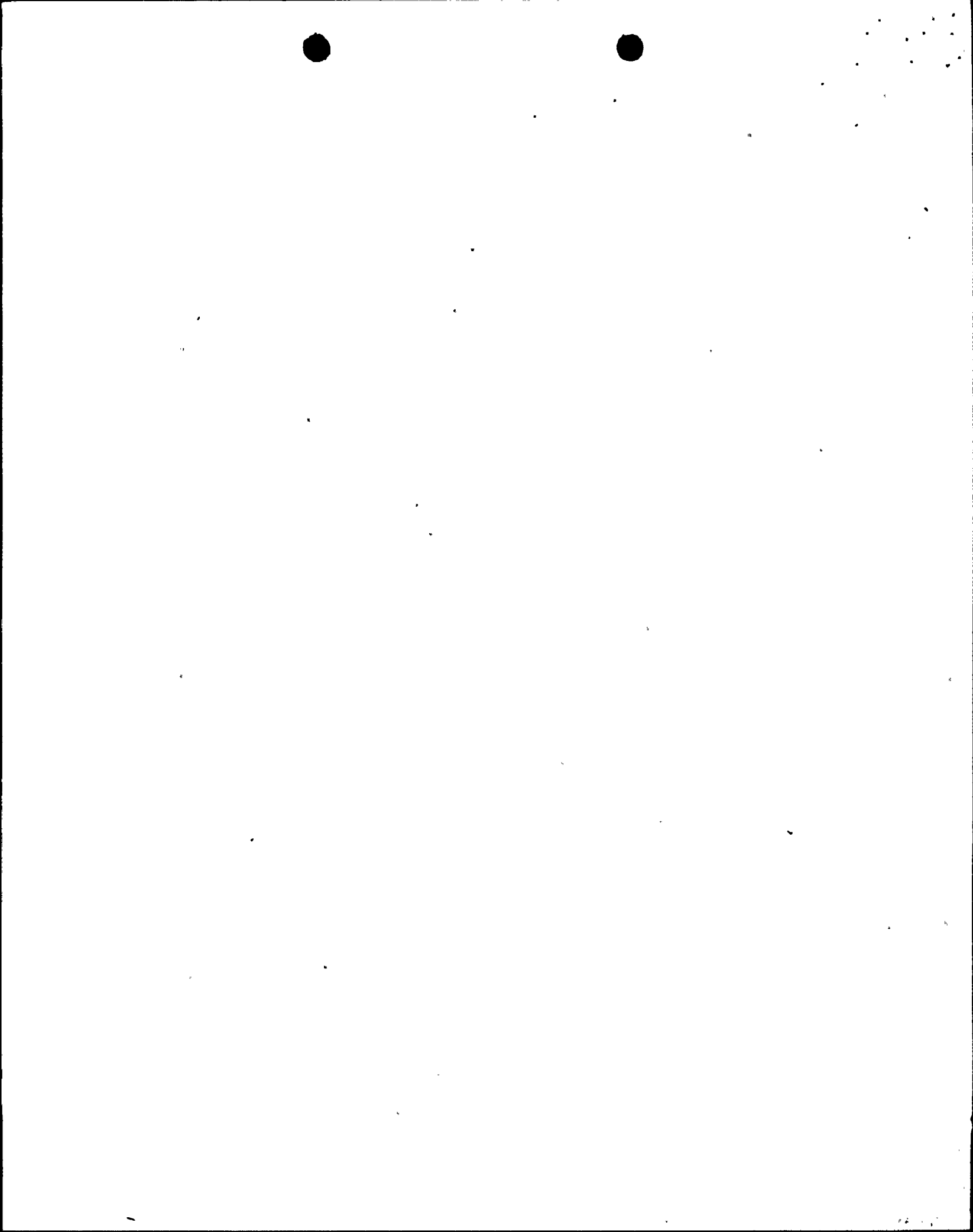
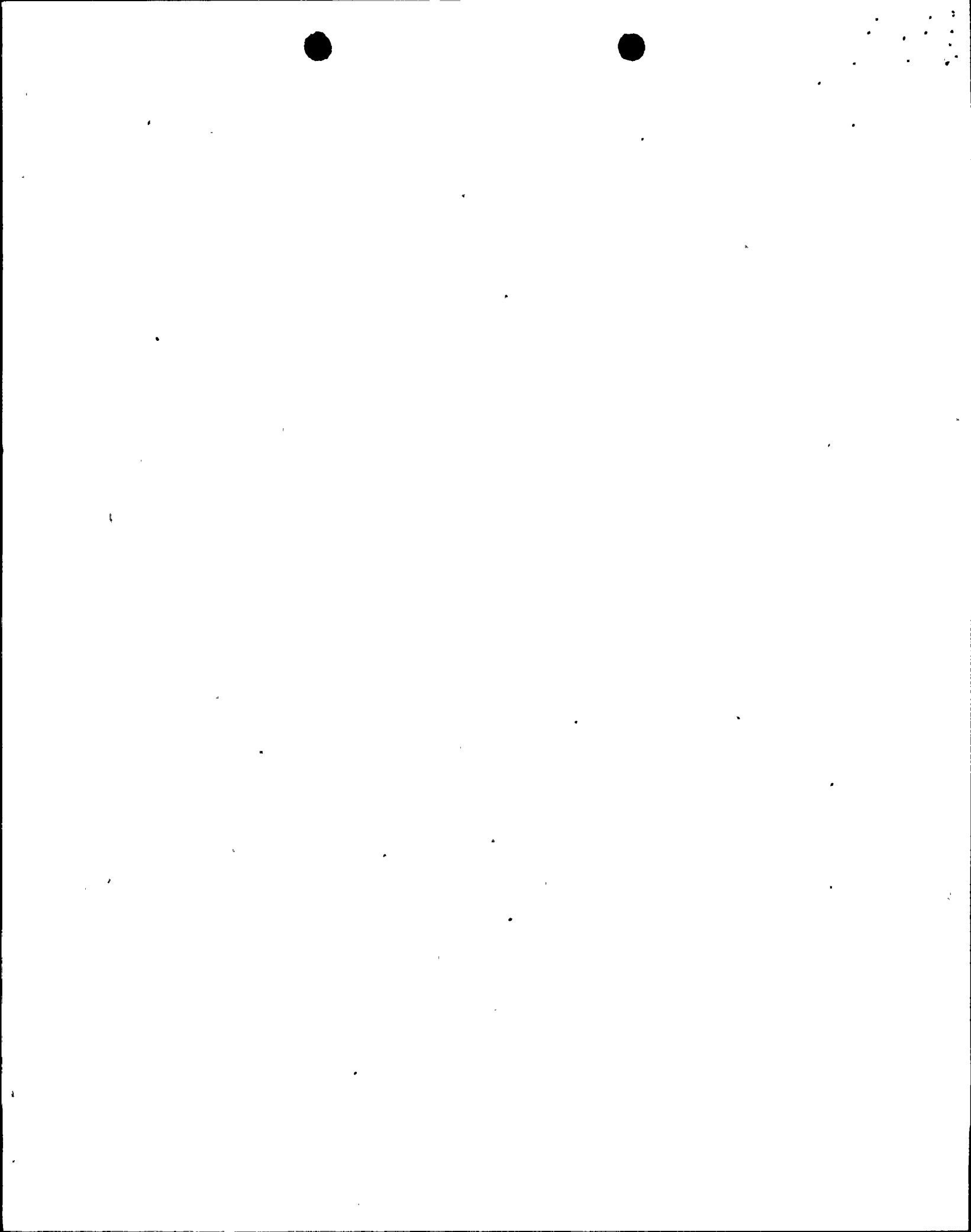


TABLE 5

DIURNAL FREQUENCY OF ATMOSPHERIC STABILITY AT SOUTH DADE
(HOURS)

Hour	Stability Class						
	A	B	C	D	E	F	G
1	0	0	0	3	73	7	0
2	0	0	0	0	79	5	0
3	0	0	0	0	73	9	0
4	0	0	0	0	66	4	0
5	0	0	0	1	55	7	0
6	0	0	0	1	55	7	0
7	0	0	0	7	49	8	0
8	0	2	21	36	17	1	0
9	43	11	13	11	10	0	0
10	70	4	6	5	5	0	0
11	93	0	4	6	1	0	0
12	104	0	7	2	2	0	0
13	109	2	0	5	3	0	0
14	105	4	4	5	5	0	0
15	100	3	6	2	2	0	0
16	99	6	5	3	2	0	0
17	71	10	18	15	3	0	0
18	3	2	32	74	2	0	0
19	0	0	0	88	18	0	0
20	0	0	0	24	80	0	0
21	0	0	0	12	83	1	0
22	0	0	0	6	87	3	0
23	0	0	0	3	79	7	0
24	0	0	0	3	80	6	0



Question 3

Provide 7 tables of joint frequency distributions of wind speed and wind direction at the 64 m level by atmospheric stability defined by the vertical temperature gradient between 5m and 64m for at least one year with data recovery of 90% or greater.

Answer 3

See the attached Tables.



TURKEY-POINT-SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL-HOURLY-PERCENT-FREQUENCY-OF-VERTICAL-AND-HORIZONTAL
STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL-STABILITY-AS-DEFINED-BY-DELTA-T = A

PASQUILL A

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR	
		2<4	4<8	8<13	13<19	19<25	25<31	>31	TOTAL (%)	MEAN SPEED
NNE	1	0,012	0,116	0,174	0,104	0,000	0,000	0,000	0,406	10.026
NE	2	0,023	0,116	0,151	0,104	0,000	0,000	0,000	0,394	9.747
ENE	3	0,000	0,104	0,452	0,104	0,000	0,000	0,000	0,661	10.377
E	4	0,000	0,510	1,299	0,336	0,012	0,000	0,000	2,157	10.119
ESE	5	0,000	0,220	0,986	0,313	0,000	0,000	0,000	1,519	10.730
SE	6	0,000	0,151	0,893	0,243	0,000	0,000	0,000	1,287	10.554
SSE	7	0,000	0,058	0,603	0,232	0,000	0,000	0,000	0,893	11.265
S	8	0,000	0,035	0,093	0,232	0,012	0,000	0,000	0,371	13.378
SSW	9	0,012	0,012	0,104	0,301	0,012	0,000	0,000	0,441	13.713
SW	10	0,000	0,000	0,093	0,301	0,070	0,000	0,000	0,464	15.657
WSW	11	0,000	0,012	0,116	0,081	0,000	0,000	0,000	0,209	12.400
W	12	0,000	0,012	0,081	0,046	0,000	0,000	0,000	0,139	11.667
WNW	13	0,000	0,023	0,023	0,197	0,035	0,000	0,000	0,278	15.350
NW	14	0,000	0,000	0,035	0,012	0,000	0,000	0,000	0,046	11.200
NNW	15	0,000	0,023	0,023	0,035	0,000	0,000	0,000	0,081	11.329
N	16	0,023	0,162	0,209	0,116	0,000	0,000	0,000	0,510	9.866
SUB TOTAL		0,070	1,554	5,333	2,759	0,139	0,000	0,000	9,855	11,136
VARIABLE CALM	0								0,186	7,425
									0,012	0,000
PASQUILL CLASS TOTAL(%):									10,052	11,055
NUMBER OF VALID CATEGORY OBSERVATIONS = 867										
NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625										

TURKEY POINT SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DEFINED BY DELTA-T = B

PASQUILL B

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR TOTAL (%)	MEAN SPEED
		2<4	4<8	8<13	13<19	19<25	25<31	>31		
NNE	1	0.000	0.000	0.012	0.012	0.000	0.000	0.000	0.023	13.550
NE	2	0.000	0.012	0.012	0.116	0.012	0.000	0.000	0.151	14.954
ENE	3	0.000	0.070	0.023	0.035	0.000	0.000	0.000	0.128	9.527
E	4	0.000	0.058	0.220	0.035	0.012	0.000	0.000	0.325	10.343
ESE	5	0.000	0.046	0.290	0.046	0.000	0.000	0.000	0.383	10.715
SE	6	0.000	0.023	0.162	0.081	0.000	0.000	0.000	0.267	10.839
SSE	7	0.000	0.012	0.081	0.058	0.000	0.000	0.000	0.151	12.215
S	8	0.000	0.000	0.058	0.070	0.000	0.000	0.000	0.128	13.327
SSW	9	0.000	0.023	0.023	0.093	0.000	0.000	0.000	0.139	12.933
SW	10	0.000	0.046	0.012	0.058	0.000	0.000	0.000	0.116	11.210
WSW	11	0.000	0.012	0.023	0.000	0.012	0.000	0.000	0.046	12.825
W	12	0.012	0.000	0.000	0.012	0.000	0.000	0.000	0.023	8.850
WNW	13	0.000	0.012	0.035	0.035	0.000	0.000	0.000	0.061	13.186
NW	14	0.000	0.000	0.023	0.012	0.012	0.000	0.000	0.046	14.025
NNW	15	0.000	0.000	0.023	0.046	0.000	0.000	0.000	0.070	13.067
N	16	0.012	0.012	0.093	0.046	0.012	0.000	0.000	0.174	11.773
SUB TOTAL		0.023	0.325	1.090	0.754	0.058	0.000	0.000	2.249	11.670
VARIABLE CALM		0							0.151	9.400
									0.000	0.000

PASQUILL CLASS TOTAL (%): 2,400 11.527

NUMBER OF VALID CATEGORY OBSERVATIONS = 207

NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625



PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DETERMINED BY $\Delta T = C$

PASQUILL C

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR TOTAL (%)	MEAN SPEED
		2<4	4<8	8<13	13<19	19<25	25<31	>31		
NNE	1	0.012	0.012	0.046	0.023	0.000	0.000	0.000	0.093	10.025
NE	2	0.000	0.023	0.035	0.081	0.000	0.012	0.000	0.151	14.308
ENE	3	0.000	0.046	0.104	0.070	0.000	0.000	0.000	0.220	11.200
E	4	0.000	0.070	0.186	0.104	0.000	0.000	0.000	0.359	10.910
ESE	5	0.000	0.070	0.301	0.012	0.000	0.000	0.000	0.383	9.751
SE	6	0.012	0.023	0.186	0.081	0.000	0.000	0.000	0.301	10.796
SSE	7	0.000	0.023	0.104	0.046	0.000	0.000	0.000	0.174	11.207
S	8	0.000	0.023	0.093	0.070	0.035	0.000	0.000	0.220	14.058
SSW	9	0.000	0.023	0.012	0.093	0.000	0.000	0.000	0.128	13.127
SW	10	0.000	0.000	0.081	0.093	0.012	0.000	0.000	0.186	13.725
WSW	11	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.012	15.900
W	12	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.012	13.100
WNW	13	0.000	0.012	0.012	0.046	0.000	0.000	0.000	0.070	12.933
NW	14	0.000	0.000	0.023	0.035	0.000	0.000	0.000	0.058	12.880
NNW	15	0.000	0.023	0.000	0.023	0.000	0.000	0.000	0.046	10.750
N	16	0.000	0.012	0.093	0.012	0.000	0.000	0.000	0.116	10.270
SUB TOTAL		0.023	0.359	1.275	0.812	0.046	0.012	0.000	2.528	11.651
VARIABLE CALM	0								0.104	11.000
									0.000	0.000

PASQUILL CLASS TOTAL (%): 2.632 11.606

NUMBER OF VALID CATEGORY OBSERVATIONS = 227

NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625



TURKEY POINT SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DEFINED BY DELTA-T = D

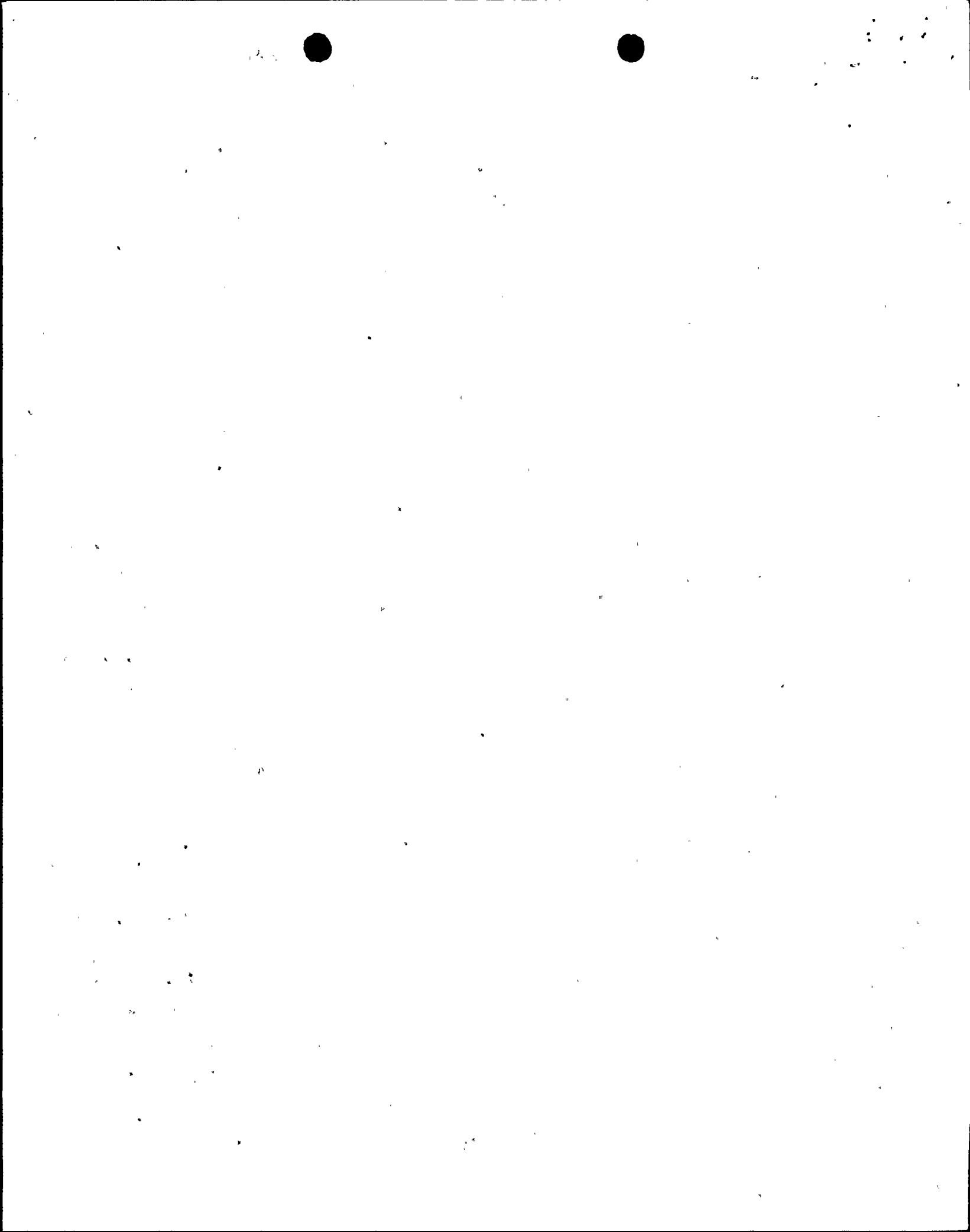
PASQUILL D

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR TOTAL MEAN	
		2<4	4<8	8<13	13<19	19<25	25<31	>31	(%)	SPEED
NNE	1	0.012	0.232	0.243	0.255	0.035	0.000	0.000	0.777	11.155
NE	2	0.070	0.255	0.510	1.067	0.093	0.058	0.000	2.052	13.485
ENE	3	0.023	0.267	1.159	0.522	0.162	0.035	0.000	2.168	12.202
E	4	0.128	0.533	1.391	1.009	0.046	0.000	0.000	3.107	11.246
ESE	5	0.058	0.986	2.006	0.591	0.000	0.000	0.000	3.641	9.768
SE	6	0.046	1.032	3.212	1.020	0.012	0.000	0.000	5.322	10.476
SSE	7	0.023	0.580	1.797	0.487	0.000	0.000	0.000	2.887	10.180
S	8	0.035	0.383	0.893	0.290	0.012	0.000	0.000	1.612	10.131
SSW	9	0.046	0.383	0.394	0.255	0.012	0.000	0.000	1.090	9.874
SW	10	0.046	0.174	0.394	0.278	0.023	0.000	0.000	0.916	10.840
WSW	11	0.035	0.267	0.174	0.093	0.000	0.000	0.000	0.568	8.553
W	12	0.012	0.220	0.232	0.035	0.000	0.000	0.000	0.499	8.291
WNW	13	0.046	0.151	0.301	0.093	0.000	0.000	0.000	0.591	9.169
NW	14	0.023	0.139	0.336	0.220	0.000	0.000	0.000	0.719	10.981
NNW	15	0.081	0.325	0.441	0.371	0.046	0.000	0.000	1.264	10.762
N	16	0.023	0.429	0.614	0.174	0.000	0.000	0.000	1.241	9.476
SUB TOTAL		0.707	6.354	14.099	6.759	0.441	0.093	0.000	28.452	10.654
VARIABLE CALM 0									1,217	9.162
									0,000	0.000

PASQUILL CLASS TOTAL (%): 29.669 10.593

NUMBER OF VALID CATEGORY OBSERVATIONS = 2559

NUMBER OF TOTAL VALID OBSRVATIONS (ALL CATEGORIES) = 8625



TURKEY POINT SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DEFINED BY DELTA-T = E

PASQUILL E

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR TOTAL (%)	MEAN SPEED
		2<4	4<8	8<13	13<19	19<25	25<31	>31		
NNE	1	0.093	0.290	0.186	0.012	0.000	0.000	0.000	0.580	7.150
NE	2	0.046	0.348	0.441	0.649	0.000	0.023	0.000	1.507	11.715
ENE	3	0.081	0.881	1.797	0.754	0.139	0.012	0.000	3.664	10.656
E	4	0.290	2.562	5.183	2.551	0.012	0.000	0.000	10.597	10.318
ESE	5	0.139	2.261	3.536	0.707	0.000	0.000	0.000	6.643	9.190
SE	6	0.197	1.635	2.481	0.278	0.012	0.000	0.000	4.603	8.842
SSE	7	0.035	0.661	0.742	0.255	0.000	0.000	0.000	1.693	9.123
S	8	0.290	0.765	0.464	0.104	0.012	0.000	0.000	1.635	7.282
SSW	9	0.359	0.951	0.174	0.000	0.000	0.000	0.000	1.484	5.616
SW	10	0.325	0.858	0.116	0.012	0.000	0.000	0.000	1.310	5.397
WSW	11	0.186	0.510	0.093	0.000	0.000	0.000	0.000	0.788	5.690
W	12	0.255	0.336	0.128	0.000	0.000	0.000	0.000	0.719	5.439
WNW	13	0.325	0.997	0.209	0.023	0.000	0.000	0.000	1.554	5.900
NW	14	0.301	0.823	0.267	0.023	0.000	0.000	0.000	1.414	6.222
NNW	15	0.348	1.577	0.730	0.058	0.000	0.000	0.000	2.713	6.977
N	16	0.162	0.835	0.603	0.162	0.000	0.000	0.000	1.762	7.824
SUB TOTAL		3.43216,29017.148 5,588 0,174 0,035 0,000							42,667	8.760
VARIABLE CALM									2,203	4.099
									0,104	0,000
PASQUILL CLASS TOTAL(%)								44.974	8.512	

NUMBER OF VALID CATEGORY OBSERVATIONS = 3879

NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625



TURKEY POINT SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DEFINED BY DELTA-T = F

PASQUILL F

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION							SECTOR TOTAL (%)	MEAN SPEED
		2<4	4<8	8<13	13<19	19<25	25<31	>31		
NNE	1	0.139	0.174	0.012	0.000	0.000	0.000	0.000	0.325	4.375
NE	2	0.035	0.174	0.000	0.012	0.000	0.000	0.000	0.220	5.695
ENE	3	0.000	0.186	0.000	0.023	0.000	0.000	0.000	0.209	7.089
E	4	0.000	0.417	0.197	0.000	0.000	0.000	0.000	0.614	7.581
ESE	5	0.058	0.371	0.255	0.012	0.000	0.000	0.000	0.696	7.418
SE	6	0.046	0.301	0.128	0.000	0.000	0.000	0.000	0.475	7.115
SSE	7	0.070	0.012	0.046	0.000	0.000	0.000	0.000	0.128	5.627
S	8	0.058	0.139	0.000	0.000	0.000	0.000	0.000	0.197	4.629
SSW	9	0.070	0.116	0.000	0.000	0.000	0.000	0.000	0.186	4.425
SW	10	0.070	0.614	0.012	0.000	0.000	0.000	0.000	0.696	5.320
WSW	11	0.174	0.406	0.000	0.000	0.000	0.000	0.000	0.580	4.854
W	12	0.128	0.209	0.000	0.000	0.000	0.000	0.000	0.336	4.690
WNW	13	0.070	0.383	0.012	0.000	0.000	0.000	0.000	0.464	5.187
NW	14	0.325	0.626	0.023	0.000	0.000	0.000	0.000	0.974	4.750
NNW	15	0.359	1.090	0.058	0.000	0.000	0.000	0.000	1.507	5.293
N	16	0.186	0.278	0.046	0.000	0.000	0.000	0.000	0.510	4.684
SUB TOTAL		1.786	5.496	0.788	0.046	0.000	0.000	0.000	8.116	5.594

VARIABLE CALM 0 0.916 2.606 0.046 0.000

PASQUILL CLASS TOTAL(%); 9.078 5.264

NUMBER OF VALID CATEGORY OBSERVATIONS = 783

NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625



TURKEY POINT SITE

PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

ANNUAL HOURLY PERCENT FREQUENCY OF VERTICAL AND HORIZONTAL STABILITY CATEGORIES BY WIND DIRECTION AND WIND SPEED

VERTICAL STABILITY AS DEFINED BY DELTA-T = G

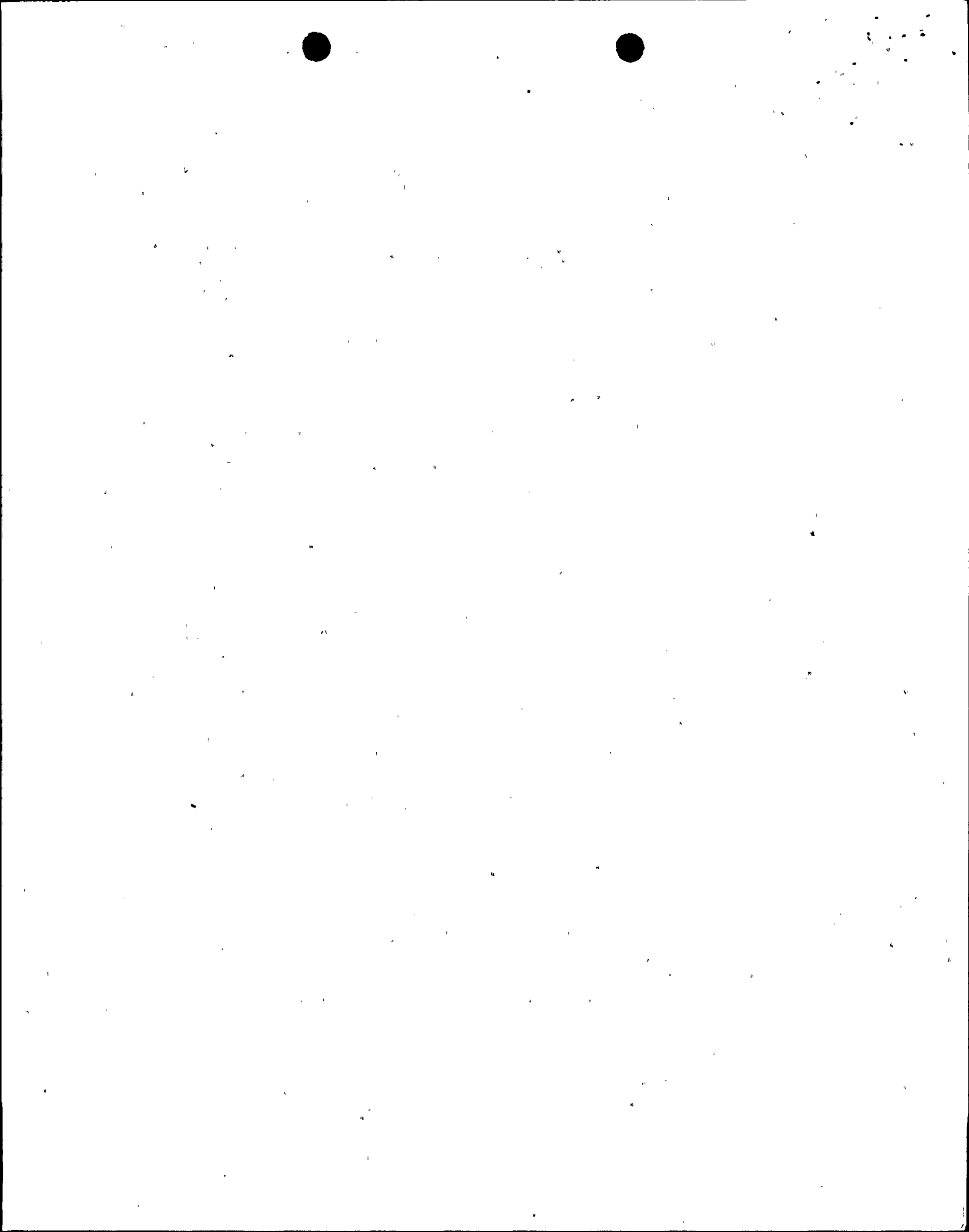
PASQUILL G

WIND SECTOR	SECTOR NUMBER	SPEED(MPH) ADJUSTED TO 10-METER ELEVATION								SECTOR TOTAL (%)	MEAN SPEED
		2<4	4<8	8<13	13<19	19<25	25<31	>31			
NNE	1	0.023	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.081	4.729
NE	2	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.012	4.400
ENE	3	0.000	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.012	12.200
E	4	0.012	0.081	0.012	0.000	0.000	0.000	0.000	0.000	0.104	5.556
ESE	5	0.012	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.070	4.383
SE	6	0.012	0.012	0.035	0.000	0.000	0.000	0.000	0.000	0.058	8.920
SSE	7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	8	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.023	5.250
SSW	9	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	2.600
SW	10	0.000	0.081	0.000	0.000	0.000	0.000	0.000	0.000	0.081	5.600
WSW	11	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.023	5.700
W	12	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023	3.500
WNW	13	0.023	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.046	4.375
NW	14	0.012	0.162	0.000	0.000	0.000	0.000	0.000	0.000	0.174	5.420
NNW	15	0.070	0.209	0.000	0.000	0.000	0.000	0.000	0.000	0.278	5.100
N	16	0.070	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.104	3.500
SUB TOTAL		0.267	0.777	0.058	0.000	0.000	0.000	0.000	0.000	1.101	5.200
VARIABLE CALM 0										0.081	1.671
										0.012	0.000

PASQUILL CLASS TOTAL(%): 1.194 4.910

NUMBER OF VALID CATEGORY OBSERVATIONS = 103

NUMBER OF TOTAL VALID OBSERVATIONS (ALL CATEGORIES) = 8625



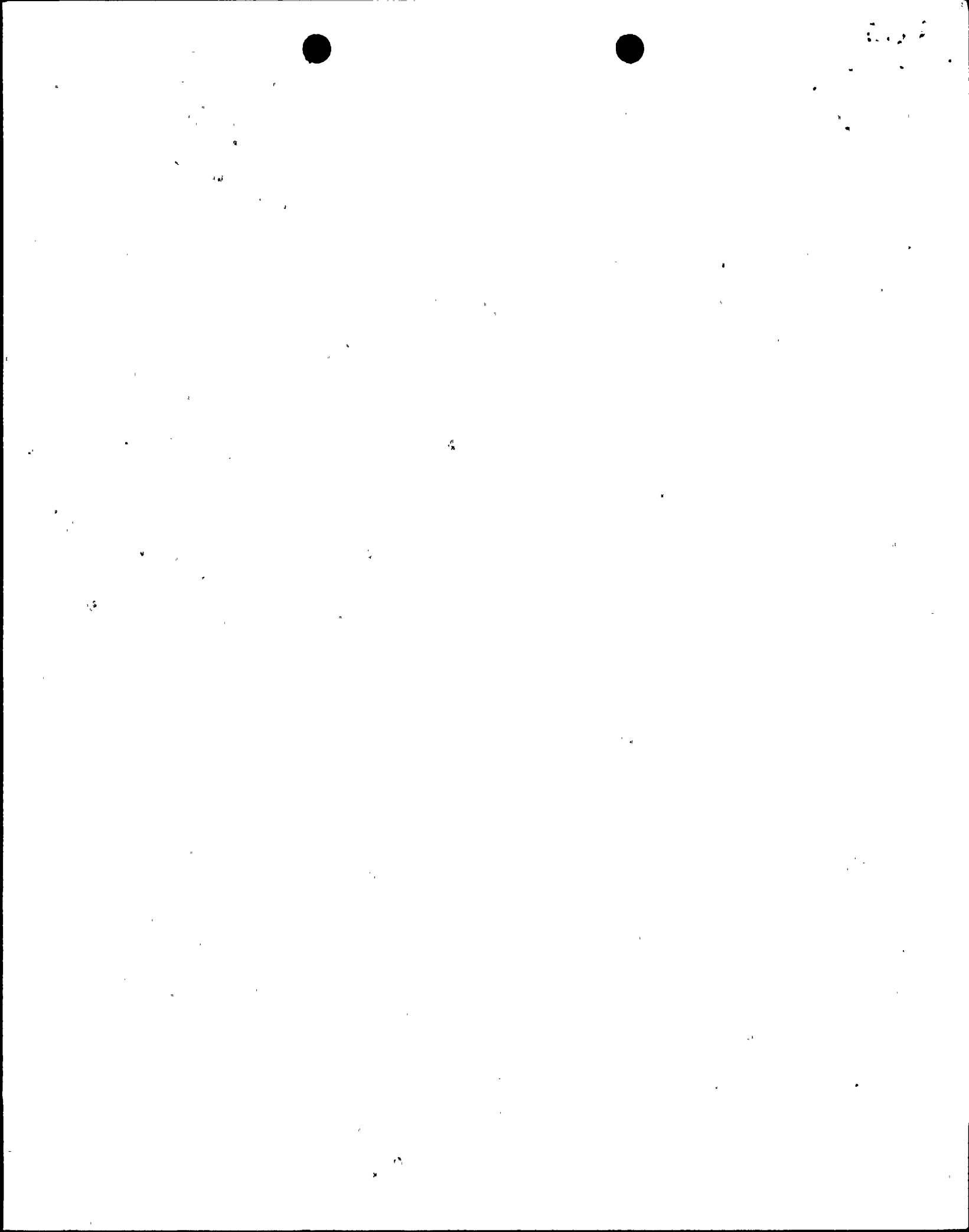
PERIOD OF RECORD: 1/ 1/71 TO 12/31/71

TOTAL OF PERCENT FREQUENCIES FROM EACH
VERTICAL STABILITY CATEGORY

VERTICAL PASQUILL CLASS	FREQUENCY PERCENT	TOTAL MEAN SPEED
A	10,052	11,055
B	2,400	11,527
C	2,632	11,606
D	29,669	10,593
E	44,974	8,512
F	9,078	5,264
G	1,194	4,910

TOTAL 100,000

GRAND MEAN SPEED FOR ALL CLASSES = 9.201



Question 4

Explain the difference between the level of wind measurements indicated in Item c(1) of the 1/27/77 submittal and those indicated in Table 2 of Attachment C to the same submittal.

Answer 4

The information given in Item c(1) of the 1/27/77 submittal was taken from an earlier study. It does not reflect the more precise efforts made to obtain the information given in Attachment C to the 1/27/77 submittal. Thus, the sensor placement information in Table 2 of Attachment C is more appropriate for a comparison of Turkey Point and South Dade meteorological data.

Question 5

Explain how "All meteorological tower wind speeds are reduced to a 10 meter level by the Pasquill definition of the vertical lapse rate (see Table 1 of Attachment B)."

Answer 5

All meteorological tower wind speeds were reduced to a 10-meter level by the Pasquill definition of the vertical temperature lapse rate and the following wind speed power law:

$$u_{10 \text{ meters}} = u_h \left(\frac{10 \text{ meters}}{h \text{ meters}} \right)^n$$

where u = wind speed (mph)

h = 9.1 meter height (30 feet) or the 71.6 meter height (235 feet) if the 9.1 meter wind speed was missing or invalid

n = .25 for Pasquill A, B, C, D or .50 for Pasquill E, F and G

The above technique is desired by the U. S. Nuclear Regulatory Commission (USNRC) for standardization purposes so that different sites can be compared on equal terms.